Attachment 3

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Central Hudson Gas & Electric Corporation	)	Docket No. RP19-___-000

PREPARED DIRECT TESTIMONY OF JOSHUA C. NOWAK ON BEHALF OF CENTRAL HUDSON GAS & ELECTRIC CORPORATION

November 18, 2019

TABLE OF CONTENTS

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Central Hudson Gas & Electric Corporation) Docket No. RP19-_____-000

PREPARED DIRECT TESTIMONY
OF
Joshua C. Nowak

I. INTRODUCTION

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

A. My name is Joshua C. Nowak. I am employed by Concentric Energy Advisors, Inc. ("Concentric") as an Assistant Vice President. My business address is 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts 01752.

A. Qualifications

Q. Please describe your background and professional experience in the energy and utility industries.

A. I hold a Bachelor's degree in Economics from Boston College, with more than 10 years of experience consulting to the energy industry. As a consultant, I provide economic, financial, and strategic advisory services to clients in regulated utility industries and I have provided testimony regarding financial matters, before multiple regulatory agencies. I have advised numerous energy and utility clients on a wide range of financial and economic issues with primary concentrations in valuation and utility rate matters. Many of these assignments have included the determination of the cost of capital for valuation and

ratemaking purposes. Prior to joining Concentric in 2018, I was employed by National Grid USA where I was responsible for regulatory efforts related to the cost of capital across the company's multiple U.S. operating companies and service territories. A summary of my professional and educational background is presented in Appendix A to Hurley-FC Application Attachment 3.

Q. Please describe Concentric's activities in energy and utility engagements.

A. Concentric provides financial and economic advisory services to many energy and utility clients across North America. Our regulatory, economic, and market analysis services include utility ratemaking and regulatory advisory services; energy market assessments; market entry and exit analysis; corporate and business unit strategy development; demand forecasting; resource planning; and energy contract negotiations. Our financial advisory activities include buy and sell-side merger, acquisition and divestiture assignments; due diligence and valuation assignments; project and corporate finance services; and transaction support services. In addition, we provide litigation support services on a wide range of financial and economic issues on behalf of clients throughout North America.

Q. On whose behalf are you submitting this Testimony?

A. I am submitting this Direct Testimony on behalf of Central Hudson Gas & Electric Corporation ("Central Hudson" or the "Company"), which is indirectly, a wholly-owned subsidiary of Fortis, Inc. ("Fortis").

B. Summary of Testimony

Q. What is the purpose of your Prepared Direct Testimony?

A. The purpose of my Prepared Direct Testimony is to present evidence and provide a recommendation regarding a range of reasonable returns on equity to help set the Return on Equity ("ROE")[1] for Central Hudson, to be used for ratemaking purposes for its remaining portion of the Common System Deliverability Upgrade Facilities Charge, Rate Schedule under Attachment S of the New York Independent System Operator, Inc. ("NYISO") Open Access Transmission Tariff ("OATT").

Q. Have you provided any Attachments, Appendices and Schedules with your testimony?

A. Yes. I have included the following:

Attachment No.	**Attachment Description**
Application Attachment 3	Prepared Direct Testimony of Joshua C. Nowak
Appendix No.	**Appendix Description**
Appendix A	Joshua Nowak Professional and Educational Background
Schedule No.	**Schedule Description**
Schedule 1	Summary of ROE Model Results
Schedule 2	Comparison of Proxy Group Operations and Size
Schedule 3	Discounted Cash Flow ("DCF") Results
Schedule 4	Capital Asset Pricing Model
Schedule 5	Expected Earnings Analysis

[1] Throughout my testimony, I interchangeably use the terms "ROE" and "Cost of Equity."

Schedule 6 Risk Premium Analysis

Q. Were these Appendices and Schedules prepared by you or under your direction?

A. Yes, they were.

Q. Please summarize your analysis and conclusions.

A. As discussed in greater detail in Section III of my testimony, to estimate the range of reasonable equity returns for Central Hudson in a manner consistent with the Federal Energy Regulatory Commission's ("FERC" or "Commission") recent decision in Docket No. EL11-66-001, I developed my cost of equity recommendation based on four ROE estimation models: the Commission's Two-Stage DCF methodology, the Capital Asset Pricing Model ("CAPM"), a Risk Premium methodology, and an Expected Earnings methodology. The results of these analyses are summarized in Figure 1 below.

Figure 1: Summary of Results

	Median
DCF Result	8.1%
CAPM Result	9.7%
Expected Earnings Result	10.8%
Risk Premium Result	9.9%
Average	9.6%

Q. What overall rate of return should be assumed in determining Central Hudson's current cost of capital?

A. As shown in Application Attachment 3, Schedule 1, and based on the analysis presented in the remainder of my direct testimony, and the discussions of Central Hudson's risk relative to the proxy companies, the Company is requesting a base equity return of 9.6 percent. Considering the risk profile of Central Hudson relative to the proxy companies, I believe the requested return is reasonable, if not conservative. In addition to the base ROE, Central Hudson seeks a 50 basis point Regional Transmission Operator ("RTO") membership incentive because these facilities will be under the operational authority of the NYISO, and a 50 basis point ROE incentive adder for its use of solid state power electronic flow control technology in lieu of traditional series compensation originally proposed by the NYISO. The solid state power electronic flow control technology is being used rather than the ordinary solution of a capacitor bank, and offers flexibility to meet future needs through more efficient balancing of variable energy resources and may contribute to future cost avoidance. This is consistent with the Commission's Transmission Policy Statement that identifies "projects that apply new technologies to facilitate more efficient and reliable usage and operation of existing or new facilities" as an example of a category of transmission projects eligible for an ROE adder for the risks and challenges associated with a specific project.[2]

[2] Transmission Policy Statement "Promoting Transmission Investment Through Pricing Reform", issued November 15, 2012, P 21-22.

As shown in Application Attachment 3, Schedule 1, the upper end of the range of reasonableness is 12.4 percent, as determined in manner consistent with the October 2018 Commission Order in response to the remand from the D.C. Circuit indicating plans to establish ROEs.[3] Therefore, Central Hudson's requested ROE of 10.6 percent, inclusive of incentives, is within the range of reasonableness.

II. PRINCIPLES FOR DETERMINING THE ROE

A. Criteria for a Fair Rate of Return

Q. Please describe the guiding principles to be considered in establishing the fair rate of return for a regulated company.

A. The United States Supreme Court's (the "Supreme Court") precedent-setting *Hope* and *Bluefield* cases established the standards for determining the fairness or reasonableness of a regulated company's allowed ROE. In *Bluefield Water Works & Improvement Company* v. *Public Service Commission of West Virginia*, 262 U.S. 679, 693 (1923), the Supreme Court found that for a regulated enterprise:

> The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market and business conditions generally.

[3] Federal Energy Regulatory Commission, Docket No. EL 11-66-001, et al., Order Directing Briefs, issued October 16, 2018, at para. 49.

The Supreme Court has further elaborated on this requirement in its decision in Federal Power Commission v. *Hope Natural Gas Company*, 320 U.S. 591, 603 (1944). There the Supreme Court described the relevant criteria as follows:

> From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.

Q. Why is it important for a regulated company to be allowed the opportunity to earn a return that is adequate to attract equity capital at reasonable terms?

A. A regulated company's costs of capital must reflect the costs of capital of other enterprises having comparable risks and acting independently in the financial markets. As noted elsewhere in my Prepared Direct Testimony, a return that is adequate to attract capital at reasonable terms enables Central Hudson to provide safe, reliable utility service while maintaining its financial integrity. That return should be commensurate with the returns expected elsewhere in the market for investments of equivalent risk. If it is not, debt and equity investors will seek alternative investment opportunities for which the expected return reflects the perceived risks, thereby impeding Central Hudson's ability to attract capital at reasonable cost.

The consequence of the Commission's order in this case, therefore, should be rates that provide Central Hudson with the opportunity to earn an ROE that is:

(1) adequate to attract capital at reasonable terms, thereby enabling it to continue to provide safe and reliable utility service;

(2) sufficient to ensure its financial integrity; and

(3) commensurate with returns on investments in enterprises having corresponding risks.

Q. What are your conclusions regarding regulatory guidelines and capital market expectations?

A. The ratemaking process is premised on the principle that, in order for investors and companies to commit the capital needed to provide safe and reliable utility services, the regulated company must have the opportunity to recover the return of, and the market-required return on, invested capital. Regulators recognize that because utility operations are capital intensive, regulatory decisions should enable the regulated company to continue to attract capital at reasonable terms; doing so balances the long-term interests of the regulated company and its ratepayers. The financial community carefully monitors the current and expected financial condition of regulated companies, as well as the regulatory framework in which they operate. In that respect, the regulatory framework is one of the most important factors considered in both debt and equity investors' assessments of risk. Therefore, it is important for the ROE authorized in this proceeding to take into consideration current and projected capital market conditions, as well as investors' expectations and requirements for both risks and returns.

B. Capital Market Conditions

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

A. The ROE estimation models rely on market data that are either specific to the proxy group, in the case of the DCF model, or to the expectations of market risk, in the case of the

CAPM. The results of the ROE estimation models can be affected by prevailing market conditions at the time the analysis is performed. While the ROE that is established in a rate proceeding is intended to be forward-looking, the analyst uses current and projected market data, specifically stock prices, dividends, growth rates and interest rates in the ROE estimation models to estimate the required return for the subject company.

As discussed in the remainder of this section, analysts and many regulatory commissions have concluded that current market conditions have affected the results of the ROE estimation models. As a result, it is important to consider the effect of these conditions on the ROE estimation models when determining the appropriate range and recommended ROE for a future period. If investors do not expect current market conditions to be sustained in the future, it is possible that the ROE estimation models will not provide an accurate estimate of investors' required return during that rate period. Therefore, it is important to consider projected market data to estimate the return for that forward-looking period.

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

A. The cost of equity for regulated electric transmission companies is being affected by several factors in the current and prospective capital markets, including the current low interest rate environment and the corresponding effect on valuations and dividend yields of utility stocks relative to historical levels. In this section, I discuss how the current capital market conditions affect the models used to estimate the cost of equity for regulated utilities.

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

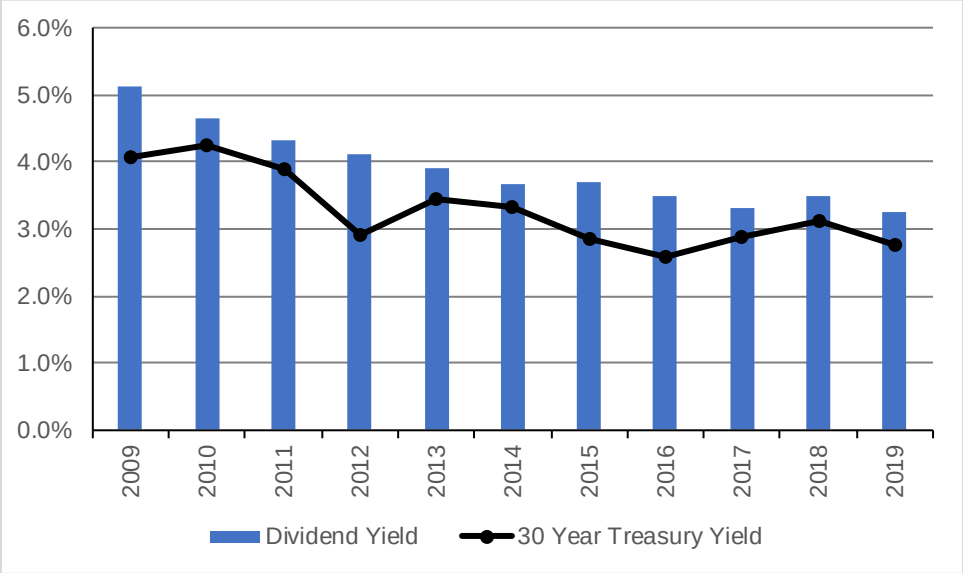
A. Extraordinary and persistent federal intervention in capital markets lowered government bond yields after the Great Recession of 2008-09, as the Federal Open Market Committee ("FOMC") used monetary policy (both reductions in short-term interest rates and purchases of Treasury bonds and mortgage-backed securities) to stimulate the U.S. economy. However, such policies have had the effect of creating an exogenous increased demand for government securities, consequently lowering yields on Treasury bonds. As a result of low returns on short-term government bonds, yield-seeking investors were forced into longer-term instruments, bidding up prices and reducing yields on those investments. As investors moved along the risk spectrum in search of yields that met their return requirements, there was increased demand for dividend-paying equities, such as utility stocks.

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

A. The Federal Reserve's monetary policy has caused investors to seek alternatives to the historically low interest rates available on Treasury bonds. As a result of this search for higher yield, the share prices for many common stocks, especially dividend-paying stocks such as utilities, have been driven higher while the dividend yields (which are computed by dividing the dividend payment by the stock price) have decreased to levels well below the historical average. As shown in Figure 2 over the period from 2009 through 2019, as the Federal Reserve intervened to stabilize financial markets and support the economic recovery after the Great Recession of 2008-09, Treasury bond yields and utility dividend

yields declined. Specifically, Treasury bond yields declined by approximately 118 basis points, and utility dividend yields decreased by about 182 basis points over this period.

Figure 2: Dividend Yields for Utility Stocks[4]



At its September 2019 meeting, the Federal Reserve acknowledged the implications of global developments on the U.S. economic outlook and lowered the federal funds rate by 25 basis points, resulting in a range of 1.75 percent to 2.00 percent.[5] Thus, the Federal Reserve has reduced the federal funds rate twice in 2019. These actions must be viewed in context, though. Prior to these two recent reductions in the federal funds rate, the Federal Reserve raised the short-term borrowing rate in 25-basis-point increments nine times since late 2015, based on its view of the then-current market fundamentals, including the employment markets, inflation, and overall economic growth.

[4] Source: Bloomberg Professional. Figure 2 includes 2019 data through March 29, 2019.

[5] FOMC, Federal Reserve press release, September 18, 2019.

Therefore, it is important to view the recent Federal Reserve policy decisions in the context of the reactions to recent global developments, the trade dispute between the U.S. and China, and longer-term fundamentals. The ongoing trade dispute has affected the global economy and caused a rise in volatility in the financial markets. As a result, the Federal Reserve is continuing to examine and evaluate the effect the trade dispute is having on economic growth and has stated that it will pursue a monetary policy agenda that sustains the economic expansion and satisfies the Federal's Reserve's goals of price stability and full employment. As Chairman Powell noted in his press conference following the September 2019 meeting:

> Well, what we do going forward is very much going to depend, Rich, on the flow of data and information. We've seen, you know, if you look at the things we're monitoring, particularly global growth and trade develops, global growth has continued to weaken. I think it's weakened since our last meeting. Trade developments have been up and down and then up, I guess, or back up perhaps, over the course of this intervening period. In any case, they've been quite volatile. So, we do see those risks as actually more heightened now. We're going to be watching that carefully. We're also going to be watching the U.S. data quite carefully, and we'll have to make an assessment as we go.[6]

Q. How have the trade dispute with China and the recent uncertainty in the market affected the yields on long-term government bonds?

A. The current high level of uncertainty surrounding the trade dispute between the U.S. and China, and in U.S. trade policy more generally, has resulted in a flight-to-quality as investors have purchased safer assets such as U.S. Treasuries due to increased fears of a possible recession. This has been increasingly evident over the past few months as investors responded to news of increases in tariffs by both China and the U.S. investors

[6] *Id*., at 6

have responded to the recent escalation in the trade war by divesting higher-risk assets and purchasing lower-risk assets such as U.S. Treasury bonds.

Q. How could the current trade dispute and market volatility lead to anomalous results in ROE models at this particular point in time?

A. While the current uncertainties have influenced the recent decline in interest rates, the trade dispute between the U.S. and China is not expected to continue over the long-term. In fact, given the increase in price-sensitive investors purchasing U.S. Treasuries bonds, if a trade deal were to be reached, it is likely the yields on long-term government bonds would increase substantially. If an ROE is established in the current environment, using a DCF result for proxy companies, then as interest rates increase, that cost of equity is likely to be an understated estimate of investors' required returns because it will have reflected the increase in stock prices that resulted from substantially lower interest rates. This again emphasizes the importance of considering multiple analytical models in developing an ROE estimate and, based on those other results and other appropriate factors, can support the selection of a return well above the mean ROE estimate resulting from DCF analyses.

Q. Have equity analysts commented on the valuations of utility stocks?

A. Yes. Several equity analysts have recognized that utility stock valuations are very high. In the electric utilities industry report, Value Line noted the high valuations:

> Why are most issues in this industry faring so well? The expectation of continued low interest rates has prompted many investors to ''reach for yield'' by purchasing utility stocks for their generous dividends. However, this has driven the valuation of utility stocks to unusually high levels. For many years, utility equities' price-earnings ratios were at a premium to the market only if earnings were depressed. Now, most utility stocks have a relative price-earnings ratio above 1.0—significantly above that figure, in some cases. The average dividend yield of stocks in the Electric Utility Industry is just 3.25%,

> which is low, by historical standards. Moreover, the recent quotations of most utility stocks are well within their 2022-2024 Target Price Range.[7]

This is further supported by a recent Edward Jones report on the utility sector:

> Utility valuations have climbed back to record levels as 10-year Treasury bond rates have fallen back below 2%. On a price-to-earnings basis, remain significantly above their historical average, and have been trading near all-time highs. We have seen utility valuations moving in line with interest rate movements, although there have been exceptions to this. Overall, however, we believe the low-interest rate environment has been the biggest factor in pushing utilities higher since many investors buy them for their dividend yield.
>
> Utilities recently hit new all-time highs, and are still trading significantly above their average price-to earnings ratio over the past decade. The premium valuation continues to reflect not only the low interest rate environment, but also the stable and predominantly regulated earnings growth we foresee.[8]

As noted by analysts, over the last few years, utility stocks have experienced high valuations and low dividend yields driven by investors moving into dividend paying stocks from bonds due to the low interest rates in the bond market; however, those dynamics are changing. Analysts recognize that as interest rates increase, bonds become a substitute for utility stocks. As utility stock prices decline, the dividend yields increase. This change in market conditions implies that the ROE calculated using historical market data in the DCF model may understate the forward-looking cost of equity.

Q. What is the effect of high valuations on utility stocks on the DCF model?

A. High valuations have the effect of depressing the dividend yields, which results in overall lower estimates of the cost of equity resulting from the DCF model.

[7] Value Line Electric (East) Utility Industry, August 16, 2019.
[8] Andy Pusateri and Andy Smith. Edward Jones, Utilities Sector Outlook (August 19, 2019), at 2-3.

Q. How has the Standard & Poor's ("S&P") Utilities Index responded to the low interest rate environment of recent years?

A. Figure 3 demonstrates market conditions from 2007-2019 as measured by the S&P Utilities index and the yield on 30-year Treasury bonds. As shown in that Figure, the S&P Utilities index increased steadily from the beginning of 2009 through early November 2017, as yields on 30-year Treasury bonds declined in response to accommodative federal monetary policy.

Figure 3: S&P Utilities Index and Treasury Bond Yields - 2007 – 2019[9]

Q. Have regulators recently responded to the historically low dividend yields for utility companies and the corresponding effect on the DCF model?

A. Yes. The Commission's proposed methodology includes an equal weighting of the DCF, CAPM, Expected Earnings and Risk Premium models to better reflect investor behavior and capital market conditions.[10] In addition, the Illinois Commerce Commission ("ICC"), the Pennsylvania Public Utility Commission ("PPUC") and the Missouri Public Service

[9] Bloomberg Professional. Data through March 29, 2019.

[10] FERC Docket No. EL11-66-001, et. al., Order Directing Briefs, issued October 16, 2018, at para. 32.

Commission ("Missouri PSC") have all considered the effect of low dividend yields on the DCF results in recent decisions.

In a 2012 decision for PPL Electric Utilities, the PPUC noted that it had traditionally relied primarily on the DCF method to estimate the cost of equity for regulated utilities, but the PPUC recognized that market conditions were causing the DCF model to produce results that were much lower than other models, such as the CAPM and Bond Yield Plus Risk Premium. The PPUC's Order explained:

> Sole reliance on one methodology without checking the validity of the results of that methodology with other cost of equity analyses does not always lend itself to responsible ratemaking. We conclude that methodologies other than the DCF can be used as a check upon the reasonableness of the DCF derived equity return calculation.[11]

The PPUC ultimately concluded:

> As such, where evidence based on the CAPM and RP methods suggest that the DCF-only results may understate the utility's current cost of equity capital, we will give consideration to those other methods, to some degree, in determining the appropriate range of reasonableness for our equity return determination.[12]

In a 2016 ICC case, the ICC Staff relied on a DCF analysis that resulted in average returns for their proxy groups of 7.24 percent to 7.51 percent. The company demonstrated that these results were uncharacteristically low, by comparing the results of ICC Staff's models to recently authorized ROEs for regulated utilities and the return on the S&P 500.[13] The ICC agreed with the Company that the ICC Staff's proposed ROE of 8.04

[11] Pennsylvania Public Utility Commission, PPL Electric Utilities, R-2012-2290597, meeting held December 5, 2012, at 80.

[12] *Id.*, at 81.

[13] State of Illinois Commerce Commission, Docket No. 16-0093, Illinois-American Water Company Initial Brief, August 31, 2016, at 10.

percent was anomalous and recognized that a non-competitive return will deter investment in Illinois.[14] In setting the return in that proceeding, the ICC found that it was necessary to consider other factors beyond the outputs of the financial models, particularly whether the return is sufficient to attract capital, maintain financial integrity, and commensurate with returns for companies of comparable risk, while balancing the interests of customers and shareholders.[15]

Finally, in February 2018, the Missouri PSC issued a decision in Spire's 2017 gas rate case. In explaining the rationale for its decision, the Commission cited the importance of considering multiple methodologies to estimate the cost of equity and the need for the authorized ROE to be consistent with returns in other jurisdictions and to reflect the growing economy and investor expectations for higher interest rates.

C. Proxy Group Selection

Q. Why have you used a group of proxy companies to estimate the Cost of Equity for Central Hudson?

A. In this proceeding, I am estimating the Cost of Equity for Central Hudson's Hurley Avenue project. Since the ROE is a market-based concept, and given the fact that Central Hudson's operations do not make up the entirety of a publicly traded entity, it is necessary to establish a group of companies that is both publicly traded and comparable to Central

[14] Illinois Staff's analysis and recommendation in that proceeding were based on its application of the multi-stage DCF model and the CAPM to a proxy group of water utilities.

[15] State of Illinois Commerce Commission Decision, Docket No. 16-0093, Illinois-American Water Company, 2016 WL 7325212 (2016), at 55.

Hudson in certain fundamental business and financial respects to serve as its "proxy" for purposes of the ROE estimation process.

Even if Central Hudson's regulated electric transmission operations were held by a stand-alone publicly traded entity, it is possible that transitory events could bias its market value in one way or another over a given period of time. A significant benefit of using a proxy group is its ability to mitigate the effects of anomalous events that may be associated with any one company.

Q. What guidance did you rely on in developing your proxy group?

A. In October 2018, the Commission issued an Order in response to the remand from the D.C. Circuit indicating plans to establish ROEs, the Commission summarized proxy group selection guidelines as follows:

> In selecting these proxy groups, the Commission intends to continue to use the same screens for developing a proxy group as the Commission has used in recent cases, including Opinion Nos. 531 and 551. These screens are: (1) the use of a national group of companies considered electric utilities by Value Line; (2) the inclusion of companies with credit ratings no more than one notch above or below the utility or utilities whose ROE is at issue; (3) the inclusion of companies that pay dividends and have neither made nor announced a dividend cut during the six month study period; (4) the inclusion of companies with no merger activity during the six-month study period that is significant enough to distort the study inputs; and (5) companies whose ROE results pass threshold tests of economic logic, including both a low-end outlier test and a high-end outlier test…[16]

The Commission was clear to point out that it was making no generic findings as to the specific entities that may be included in proxy groups; rather, it left that determination to individual rate proceedings.

[16] Federal Energy Regulatory Commission, Docket No. EL 11-66-001, et al., Order Directing Briefs, issued October 16, 2018, at para. 49.

Q. How did you establish a proxy group that is risk appropriate for Central Hudson?

A. Consistent with the Commission guidance I identified a group of companies that are most comparable to Central Hudson using the following screening criteria:

1. All of the companies have publicly-traded common stock or partnership units;

2. All of the companies are currently paying cash dividends or distributions;

3. All of the companies are within one credit notch of Central Hudson's A- (S&P)/A3 (Moody's) credit rating; and

2. None of the companies is engaged in significant transformative transactions involving mergers, acquisitions, divestitures, or other significant event during the analysis period.

Q. What companies emerged from the application of these screening criteria?

A. Figure 4 summarizes the companies that met the screening criteria:

Figure 4: Proxy Group

Company	Ticker
ALLETE, Inc.	ALE
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power Company, Inc.	AEP
Avangrid, Inc.	AGR
Black Hills Corporation	BKH
CenterPoint Energy, Inc.	CNP
CMS Energy Corporation	CMS
Consolidated Edison, Inc.	ED
Dominion Resources, Inc.	D
DTE Energy Company	DTE
Duke Energy Corporation	DUK
Entergy Corporation	ETR
Evergy Inc.	EVRG
Eversource Energy	ES
Exelon Corporation	EXC
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
Public Service Enterprise Group Inc.	PEG
Sempra Energy	SRE
Southern Company	SO
Wisconsin Energy Corporation	WEC

The proxy group is comprised of a group of electric utility companies that most closely approximate the risk profile of Central Hudson.

Q. How do the overall risks of the proxy companies compare with the risks faced by Central Hudson?

A. The proxy companies I have selected are the most reasonable companies to reflect Central Hudson Hurley Avenue project's business operations and associated risks. However, as shown on Application Attachment 3, Schedule 2, all 27 of the proxy companies are significantly more diversified than Central Hudson both in terms of geographic markets and lines of business. Each of the proxy group companies has a more diversified portfolio of assets, which serves to reduce overall risk. In addition, the smallest proxy company has a market capitalization of more than $3 billion. In contrast, Central Hudson's Hurley Avenue Facility is a single, smaller transmission asset with a total investment of less than 1.00 percent of the size of the smallest proxy company. As such, Central Hudson is subject to undiversifiable risks which, while significant to the Company, are not nearly as significant and more diversified for any of the proxy group members. Therefore, Central Hudson's overall risks are somewhat higher than the average proxy group company, and the median results are a conservative measure of the Company's Cost of Equity.

III. COST OF EQUITY ESTIMATION APPROACHES

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

A. The overall rate of return for a regulated utility is based on its weighted average cost of capital, in which the cost rates of the individual sources of capital are weighted by their respective book values. While the costs of debt and preferred stock can be directly observed, the cost of equity is market-based and, therefore, must be estimated based on observable market data.

Q. How is the required ROE determined?

A. The required ROE is estimated by using one or more analytical techniques that rely on market-based data to quantify investor expectations regarding required equity returns, adjusted for certain incremental costs and risks. Informed judgment is then applied to determine where the Company's cost of equity falls within the range of results. The key consideration in determining the cost of equity is to ensure that the methodologies employed reasonably reflect investors' views of the financial markets in general, as well as the subject company (in the context of the proxy group), in particular.

Q. What methods did you use to determine the Company's ROE?

A. Consistent with the Commission's recent Order in Docket No. EL-11-66-001, I considered the results of the DCF model, the CAPM approach, the Risk Premium model, and the Expected Earnings methodology. The DCF and CAPM approaches are widely used in regulatory proceedings to determine authorized ROEs, and both methods apply observable market data to estimate the cost of equity. As such, I typically place more weight on these methodologies. As discussed in more detail below, a reasonable ROE estimate appropriately considers alternative methodologies and the reasonableness of their individual and collective results.

Q. Has the Commission indicated a preference for the four methodologies that you have relied on for just and reasonable ROE determination?

A. Yes, until recently the Commission has consistently relied primarily on the Two-Stage DCF model for just and reasonable ROE determination.[17] However, in October 2018, the

[17] The Two-Stage DCF methodology has been outlined in Opinion No. 528, 145 FERC ¶ 61,040 (2013) at para. 637-

Commission issued an Order in response to the remand from the D.C. Circuit indicating plans to establish ROEs based on an equal weighting of the results of four financial models: the DCF, CAPM, Expected Earnings and Risk Premium. The Commission explains its reasons for moving away from sole reliance on the DCF model as follows:

> Our decision to rely on multiple methodologies in these four complaint proceedings is based on our conclusion that the DCF methodology may no longer singularly reflect how investors make their decisions. We believe that, since we adopted the DCF methodology as our sole method for determining utility ROEs in the 1980s, investors have increasingly used a diverse set of data sources and models to inform their investment decisions. Investors appear to base their decisions on numerous data points and models, including the DCF, CAPM, Risk Premium, and Expected Earnings methodologies. As demonstrated in Figure 2 below, which shows the ROE results from the four models over the four test periods at issue in this proceeding, these models do not correlate such that the DCF methodology captures the other methodologies. In fact, in some instances, their cost of equity estimates may move in opposite directions over time. Although we recognize the greater administrative burden on parties and the Commission to evaluate multiple models, we believe that the DCF methodology alone no longer captures how investors view utility returns because investors do not rely on the DCF alone and the other methods used by investors do not necessarily produce the same results as the DCF. Consequently, it is appropriate for our analysis to consider a combination of the DCF, CAPM, Risk Premium, and Expected Earnings approaches.[18]

As such, I have applied The Commission's stated preference and applied equal weighting of the results of the DCF, CAPM, Expected Earnings and Risk Premium in developing my recommendation.

698.

[18] Federal Energy Regulatory Commission, Docket No. EL 11-66-001, et al., Order Directing Briefs, issued October 16, 2018, at para. 40.

A. DCF Methodology

Q. Please describe the DCF method of estimating the cost of common equity capital.

A. The DCF method reflects the assumption that the market price of a share of stock represents the discounted present value of the stream of all future dividend/distributions that investors expect the firm to pay. The DCF method suggests that investors in common stocks expect to realize returns from two sources: a current dividend/distribution yield, plus expected growth – *i.e.*, appreciation – in the value of their shares as a result of future dividend/distribution increases. Estimating the cost of capital with the DCF method therefore is a matter of calculating the current dividend/distribution yield and estimating the future growth rate in dividend/distributions that investors reasonably expect from a company.

The dividend/distribution yield portion of the DCF method for a company generally consists of the dividend/distribution per share of that company divided by the price per share, and utilizes current and readily available information regarding stock prices and dividend/distributions. The market price of a firm's stock reflects investors' assessments of risks and potential earnings as well as their assessments of alternative opportunities in the competitive financial markets. By using the market price to calculate the dividend/distribution yield, the DCF method implicitly recognizes investors' market assessments and alternatives. However, the other component of the DCF formula, investors' expectations regarding the future long-run growth rate of dividend/distributions, is not readily apparent from stock market data and must be estimated using informed judgment.

Q. What DCF formula do you use in this proceeding?

A. In its recent decisions on rate of return, the Commission has utilized the following general form of the DCF model:

$$K = \frac{D\,(1 + .5g)}{P} + g \quad [1]$$

where: K = the cost of capital, or total return that investors expect to receive;

P = the current market price of the stock;

D = the current annual dividend/distribution rate; and

g = the expected growth rate which the Commission calculates as a weighted average of the short-term analyst growth rates and a projection of long-term GDP growth.[19]

Q. What specific form of the DCF model did you rely on?

A. I applied the Two-Stage DCF model that has historically been relied on by the Commission.[20] Each of the assumptions discussed below was developed consistent with the methodology that has been relied on by the Commission.

Q. What assumptions are required for that application of the DCF model?

A. The Commission's Two-Stage DCF model requires the following inputs:

[19] The FERC growth rate applies a two-thirds weight to analysts' growth expectations and one third weight to GDP growth estimates.

[20] The Two-Stage DCF methodology has been outlined in Opinion No. 528, 145 FERC ¶ 61,040 (2013) at para. 637-698.

1. The average of the high and low stock prices for each month during a six-month period;[21]
2. The annualized dividend/distribution per share at the end of the selected six months;
3. Consensus earnings growth estimates for the first stage growth rate in the Two-Stage DCF model; and
4. An estimate of GDP growth to be used in the second stage of the model as the long-term growth rate.

Q. How did you calculate the dividend/distribution yields for the companies in your comparison group?

A. The dividend/distribution yields were calculated for each company by dividing the annualized dividend/distribution by the average of the stock prices for each company. For the price component of the calculation, I obtained the high and low price for each month during the six-month period from April 2019 through September 2019. The dividend yield was then calculated for each month using the dividend/distribution yield that had been announced by the company at that time. The six dividend yields over this time period were then averaged to derive the dividend yield that was used in the DCF analysis. This is consistent with the approach that was relied upon by the Commission in both Opinion No. 510 and *Kern River*.[22] These calculations are shown on Application Attachment 3, Schedule 3. The dividend/distribution yields are multiplied by the quarterly

[21] I relied on the six-month period ending May 31, 2019.

[22] Trial Staff Initial Brief, Exhibit S-3, June 17, 2008, p. 212. Opinion No. 510, *Portland Natural Gas Transmission System*, 134 FERC ¶ 61,129 (February 17, 2011), at 89. Opinion No. 486-B, *Kern River Gas Transmission Company*, 126 FERC ¶ 61,034 (January 15, 2009), at 111.

dividend/distribution adjustment factor (1 + .5g) to arrive at the dividend/distribution yield component of the DCF model.

Q. Did you calculate the DCF results that would be obtained using the Commission's Two-Stage DCF methodology?

A. Yes. Using the methodology outlined by the Commission in in Opinion Nos. 528, 510, 524, and *Kern River*, I calculated a DCF cost of equity for the proxy group using the Commission's traditional two-stage model. First-stage growth rates for the proxy group companies were based on the analyst growth rates compiled by Thomson Reuters First Call and published by Yahoo! Finance.[23] Consistent with the underlying assumptions in the DCF model, all companies included in the analysis must have a positive long-term growth rate forecast by Thomson First Call. The second-stage growth rates for corporations in the proxy group were calculated using the average of Blue Chip Financial Forecasts ("Blue Chip"), U.S. Energy Information Administration ("EIA") and the Social Security Administration forecasts of nominal GDP growth. The growth rates relied upon for the analyses are provided in Application Attachment 3, Schedule 3.

Q. Please summarize the results of your DCF analyses.

A. As shown in Figure 5 (below), the Two-Stage DCF analysis produces a range of results from 6.08 percent to 11.12 percent with a median result of 8.06 percent. The DCF results achieved from this analysis for each of the proxy group companies are provided in Application Attachment 3, Schedule 3.

[23] Thompson reports IBES earnings growth estimates. These estimates are reported publicly through Yahoo!Finance.

Figure 5: DCF Results

	DCF Results
High	11.12%
Median	8.06%
Low	6.08%

B. CAPM Analysis

Q. Please briefly describe the Capital Asset Pricing Model.

A. The CAPM is a risk premium approach that estimates the cost of equity for a given security as a function of a risk-free return plus a risk premium to compensate investors for the non-diversifiable or "systematic" risk of that security. This second component is the product of the market risk premium and the Beta coefficient, which measures the relative riskiness of the security being evaluated.

The CAPM is defined by four components, each of which must theoretically be a forward-looking estimate:

$$K_e = r_f + \beta\left(r_m - r_f\right) \quad [2]$$

Where:

K_e = the required market ROE;

β = Beta coefficient of an individual security;

r_f = the risk-free rate of return; and

r_m = the required return on the market.

In this specification, the term $(r_m - r_f)$ represents the market risk premium. According to the theory underlying the CAPM, since unsystematic risk can be diversified

away, investors should only be concerned with systematic or non-diversifiable risk. Non-diversifiable risk is measured by Beta, which is defined as:

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

The variance of the market return (i.e., Variance (r_m)) is a measure of the uncertainty of the general market, and the covariance between the return on a specific security and the general market (i.e., Covariance (r_e, r_m)) reflects the extent to which the return on that security will respond to a given change in the general market return. Thus, Beta represents the risk of the security relative to the general market.

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

A. I relied on three sources for my estimate of the risk-free rate: (1) the 6-month average yield on 30-year U.S. Treasury bonds of 2.53 percent;[24] (2) the average projected 30-year U.S. Treasury bond yield for Q4 2019 through Q4 2020 of 2.40 percent;[25] and (2) the average projected 30-year U.S. Treasury bond yield for 2021 through 2025 of 3.60 percent.[26]

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

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

> The traditional thinking regarding the time horizon of the chosen Treasury security is that it should match the time horizon of whatever is being valued… Note that the horizon is a function of the investment, not the investor. If an

[24] Bloomberg Professional.
[25] Blue Chip Financial Forecasts, Vol. 38, No. 9, September 1, 2019, at 2.
[26] Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14.

> investor plans to hold stock in a company for only five years, the yield on a five-year Treasury note would not be appropriate since the company will continue to exist beyond those five years.[27]

Because utility companies represent long-duration investments, it is appropriate to use yields on long-term Treasury bonds as the risk-free rate component of the CAPM. In my view, the 30-year Treasury bond is the appropriate security for that purpose. Because the cost of capital is intended to be forward-looking, it is appropriate to consider projected measures of interest rates and the market risk premium. As discussed previously, the estimation of the cost of equity in this case should be forward looking since it is the return that investors would receive over the future rate period. Therefore, the inputs and assumptions used in the CAPM analysis should reflect the expectations of the market at that time. As shown in Application Attachment 3, Schedule 4, leading economists surveyed by Blue Chip are expecting an increase in long-term interest rates over the next five years. This is an important consideration for equity investors as they assess their return requirements, especially in the context of the CAPM analysis, which is able to take into consideration the effect of the market's expectations for interest rate increases on the cost of equity.

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

A. As shown on Application Attachment 3, Schedule 4, I used the Beta coefficients for the proxy group companies as calculated by Value Line and Bloomberg. The Beta coefficients reported by Bloomberg are calculated using ten years of weekly returns relative to the S&P

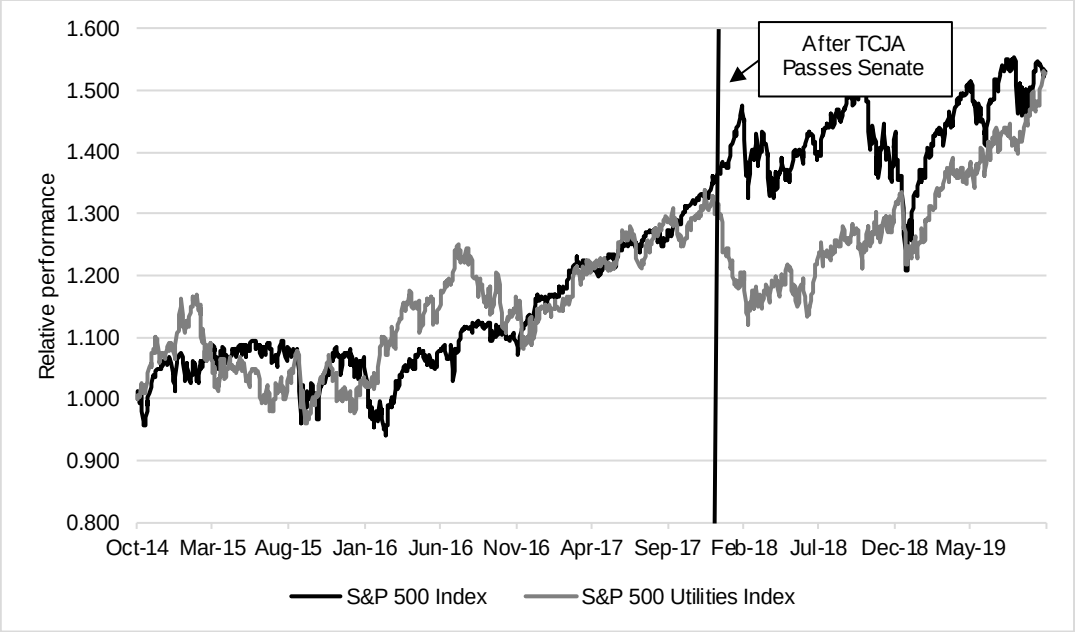
[27] Morningstar Inc., Ibbotson SBBI 2013 Valuation Yearbook, at 44.

500 Index. Value Line's calculation is based on five years of weekly returns relative to the New York Stock Exchange Composite Index.

Q. Why did you select a ten-year period to calculate the Beta coefficients from Blomberg?

A. The Tax Cuts and Jobs Act of 2017 ("TCJA") has had a significant effect on utility companies. While other industries are able to retain the benefits of a reduced corporate income tax rate, this benefit has largely been passed through to customers by utility companies. This fundamental difference affected investors' view of the utility industry relative to other industries. As shown in Figure 8, after the Senate passed the TCJA on December 2, 2017, utilities significantly deviated from the broader market.

Figure 8: Performance of the Utility Industry Relative to the S&P 500[28]



[28] Source: Bloomberg Professional. Data through September 30, 2019.

The effect of utility industry performance deviating significantly from the broader market, understates the Beta for utility companies as compared with historical averages. To reflect the long-term relationship, which has been that utility stocks are less volatile than the broader market (*i.e.*, the relative volatility for utility companies has been lower than the S&P 500 over the ten-year measure), I selected a ten-year period to calculate the Beta coefficients from Bloomberg.

Q. How did you estimate the market risk premium in the CAPM?

A. I estimated the market risk premium based on the expected return on S&P 500 Index less the yield on the 30-year Treasury bond. I calculate the expected return on the S&P 500 Index companies for which dividend yields and long-term earnings projections are available using the Constant Growth DCF model discussed earlier in my Direct Testimony. Based on an estimated market capitalization-weighted dividend yield of 1.97 percent and a weighted long-term growth rate of 11.74 percent, the estimated required market return for the S&P 500 Index is 13.83 percent. As shown in Application Attachment 3, Schedule 4, the implied market risk premium over the projected yields on the 30-year U.S. Treasury bond, range from 10.23 percent to 11.43 percent.

Q. Has the Commission endorsed the use of a forward-looking market risk premium?

A. Yes, in the Order issued in October 2018, in response to the remand from the U.S. Court of Appeals for the District of Columbia, the Commission specifically stated:

> The expected return can be estimated either using a backward-looking approach, a forward-looking approach, or a survey of academics and investment professionals. A CAPM analysis is backward-looking if the expected return is determined based on historical, realized returns. A CAPM analysis is forward-looking if the expected return is based on a DCF analysis of a large segment of the market. Thus, in a forward-looking CAPM analysis,

> the market risk premium is calculated by subtracting the risk-free rate from the result produced by the DCF analysis.[29]

Additionally, in Opinion No. 531-B, the Commission specifically endorsed a method that is similar to the method I have used to calculate the forward-looking market risk premium (i.e., applying a Constant Growth DCF analysis to the S&P 500 and using the 30-year Treasury bond yields).[30] In response to arguments against this methodology, the Commission stated:

> We are also unpersuaded that the growth rate projection in the NETOs' CAPM study was skewed by the NETOs' reliance on analysts' projections of non-utility companies' medium-term earnings growth, or that the study failed to consider that those analysts' estimates reflect unsustainable short-term stock repurchase programs and are not long-term projections. As explained above, the NETOs based their growth rate input on data from IBES, which the Commission has found to be a reliable source of such data. Thus, the time periods used for the growth rate projections in the NETOs' CAPM study are the time periods over which IBES forecasts earnings growth. Petitioners' arguments against the time period on which the NETOs' CAPM analysis is based are, in effect, arguments that IBES data are insufficient in a CAPM study. [31]
>
> ***
>
> While an individual company cannot be expected to sustain high short term growth rates in perpetuity, the same cannot be said for a stock index like the S&P 500 that is regularly updated to contain only companies with high market capitalization, and the record in this proceeding does not indicate that the growth rate of the S&P 500 stock index is unsustainable.[32]

Q. What are the results of your CAPM analyses?

A. As shown in Figure 6 (*see* also Application Attachment 3, Schedule 4), my CAPM analysis produces a range of median returns from 9.58 percent to 9.98 percent.

---

[29] Federal Energy Regulatory Commission, Docket No. EL 11-66-001, et al., Order Directing Briefs, issued October 16, 2018, at 41.
[30] 150 FERC ¶ 61,165, Docket Nos. EL11-66-002, Opinion No. 531-B (March 3, 2015), at para. 109-111.
[31] *Id.*, at para. 112.
[32] *Id.*, at para. 113.

Figure 6: CAPM Results

	Median
Current Risk-Free Rate 6-Month Average (2.53%)	9.58%
Projected Risk-Free Rate 2019Q4 – 2020Q4 (2.40%)	9.53%
Projected Risk-Free Rate 2021 – 2025 (3.60%)	9.98%
Mean Result	**9.69%**

C. Expected Earnings Analysis

Q. Please describe the Expected Earnings approach.

A. The Expected Earnings approach is based on the principle that rates of return available from alternative investments of comparable risk can provide a meaningful comparison to establish what alternative returns are available to investors. This approach is highly consistent with the standards established in the *Hope* and *Bluefield* cases for determining the fairness or reasonableness of a regulated company's allowed ROE. The approach that I have used is based on Value Line's projected ROE for the proxy group companies. Consistent with Commission precedent, I adjusted Value Line's end-of-year book values to account for growth in common equity that occurs over the course of a given year. Specifically, the Commission endorsed this Expected Earnings approach in the Order issued in October 2018, in response to the remand from the D.C. Circuit by stating:

> The returns on book equity that investors expect to receive from a group of companies with risks comparable to those of a particular utility are relevant to determining that utility's cost of equity, because those returns on book equity help investors determine the opportunity cost of investing in that particular utility instead of other companies of comparable risk. Because investors rely on Expected Earnings analyses to help estimate the opportunity cost of

> investing in a particular utility, we find this type of analysis useful in determining a utility's ROE.[33]

Q. What are the results of your Expected Earnings analyses?

A. As shown in Application Attachment 3, Schedule 5, my Expected Earnings analysis produces a range of returns from 6.05 percent to 14.60 percent and a median estimate of 10.77 percent.

D. Bond Yield Plus Risk Premium Analysis

Q. Please describe the Bond Yield Plus Risk Premium approach.

A. In general terms, this approach is based on the fundamental principle that equity investors bear the residual risk associated with equity ownership and therefore require a premium over the return they would have earned as a bondholder. That is, since returns to equity holders have greater risk than returns to bondholders, equity investors must be compensated to bear that risk. Risk premium approaches, therefore, estimate the cost of equity as the sum of the equity risk premium and the yield on a particular class of bonds. In my analysis, I used actual authorized returns for electric utilities.

Q. Has the Commission endorsed the approach you have used to calculate the risk premium?

A. Yes, in the Order issued in October 2018, in response to the remand from the U.S. Court of Appeals for the District of Columbia, the Commission specifically stated:[34]

> Multiple approaches have been advanced to determine the equity risk premium for a utility. For example, a risk premium can be developed …

[33] Federal Energy Regulatory Commission, Docket No. EL 11-66-001, et al., Order Directing Briefs, issued October 16, 2018, at 42.

[34] Federal Energy Regulatory Commission, Docket No. EL 11-66-001, et al., Order Directing Briefs, issued October 16, 2018, at 41-42.

> indirectly by conducting a risk premium analysis for the market as a whole and then adjusting that result to reflect the risk of the company at issue. Another approach for the utility context is to "examin[e] the risk premiums implied in the returns on equity allowed by regulatory commissions for utilities over some past period relative to the contemporaneous level of the long-term U.S. Treasury bond yield."

Q. Please describe how you calculated the expected return using the risk premiums implied in the authorized returns on equity by regulatory commissions for utilities.

A. It is important to recognize both academic literature and market evidence indicating that the equity risk premium (as used in this approach) is inversely related to the level of interest rates. That is, as interest rates increase (decrease), the equity risk premium decreases (increases). Consequently, it is important to develop an analysis that: (1) reflects the inverse relationship between interest rates and the equity risk premium; and (2) relies on recent and expected market conditions. Such an analysis can be developed based on a regression of the risk premium as a function of U.S. Treasury bond yields. If we let authorized ROEs for electric utilities serve as the measure of required equity returns and define the yield on the long-term U.S. Treasury bond as the relevant measure of interest rates, the risk premium simply would be the difference between those two points.[35]

Q. Is the Risk Premium analysis based on authorized ROE relevant to investors?

A. Yes. Investors are aware of ROE awards in other jurisdictions, and they consider those awards as a benchmark for a reasonable level of equity returns for utilities of comparable

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

risk operating in other jurisdictions. Since my Bond Yield Plus Risk Premium analysis is based on authorized ROEs for electric utilities relative to corresponding Treasury yields, it provides relevant information to assess the return expectations of investors.

Q. What did your Risk Premium analysis based on authorized ROE reveal?

A. I performed two Risk Premium analyses, considering both state-jurisdictional and FERC-authorized ROEs. As shown on Figure 7 below, in the analysis of state-jurisdictional ROEs, there has been a strong negative relationship between risk premia and interest rates. To estimate that relationship, I conducted a regression analysis using the following equation:

$$RP = a + b(T) \quad [4]$$

Where:

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

a = intercept term

b = slope term

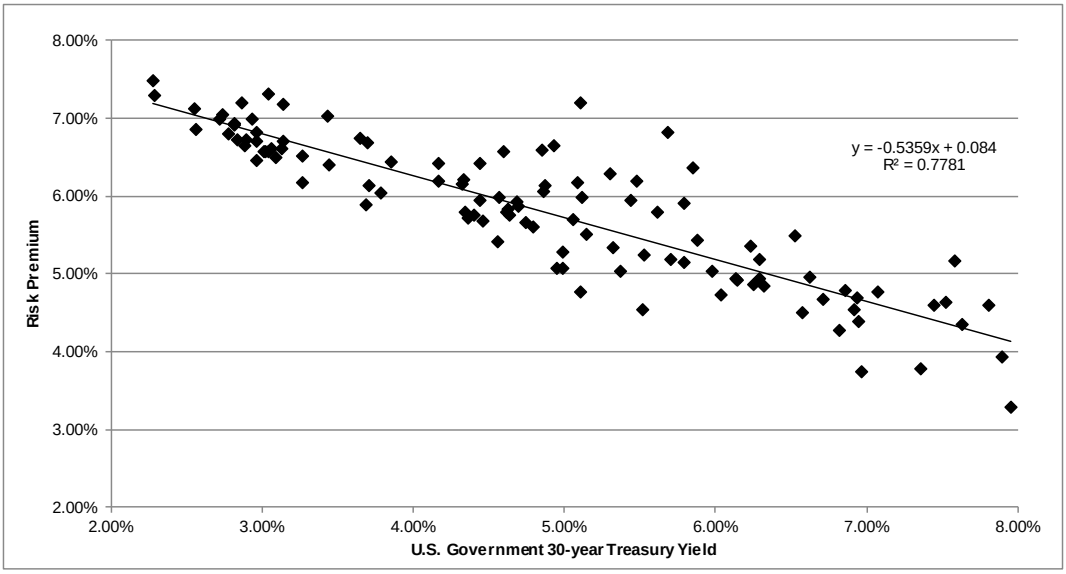
T = 30-year U.S. Treasury bond yield

Data regarding state-jurisdictional allowed ROEs were derived from 791 electric utility rate cases from 1992 through September 2019 as reported by Regulatory Research Associates ("RRA").[36] Data for FERC authorized ROEs were derived from 95 Commission decisions from 2006 through 2018 compiled from Thomson Reuters Westlaw.

[36] This analysis eliminated limited issue rider cases, transmission-only cases, and cases that were silent with respect to the authorized ROE. After applying those screening criteria, the analysis was based on data for 611 cases.

For both analyses, the equations' coefficients were statistically significant at the 99.00 percent level.

Figure 7: State-Jurisdictional Risk Premium Results



As shown on Application Attachment 3, Schedule 6, the current yield on the 30-year U.S. Treasury bond yield (i.e., 2.53 percent), the risk premium would be 7.04 percent to 7.42 percent, resulting in an estimated ROE of 9.57 percent to 9.95 percent. Based on the near-term (2019-2020) projections of the 30-year U.S. Treasury bond yield (i.e., 2.40 percent), the risk premium would be 7.11 percent to 7.49 percent, resulting in an estimated ROE of 9.51 percent to 9.89 percent. Based on longer-term (2021-2025) projections of the 30-year U.S. Treasury bond yield (i.e., 3.60 percent), the risk premium would be 6.47 percent to 6.84 percent, resulting in an estimated ROE of 10.07 percent to 10.44 percent. The overall average estimated ROE is 9.91 percent.

IV. SUMMARY AND CONCLUSIONS

Q. Would you please summarize the results of your cost of capital study?

A. As shown in Figure 8, for an average risk utility, averaging the median results of the DCF, CAPM, and Expected Earnings models, along with the risk premium results suggests an ROE of 9.6 percent is reasonable. While I believe that the risk profile of Central Hudson relative to the proxy group would support an ROE commensurate with an above average risk utility, the Company's proposed base ROE of 9.6 percent is reasonable, if not conservative. In addition to the base ROE, Central Hudson seeks a 50 basis point RTO membership incentive because these facilities will be under the operational authority of the NYISO, and a 50 basis point ROE incentive adder for its use of solid state power electronic flow control technology in lieu of traditional series compensation originally proposed by the NYISO. This new advanced transmission technology will meet the needs of the Common System Deliverability Upgrade in a more flexible manner, providing options in the future for enhanced system efficiency and improved transfer capability. Central Hudson's requested ROE, inclusive of incentives, is 10.6 percent, which is within the range of reasonableness.

Figure 8: Summary of Results

	Median
DCF Result	8.1%
CAPM Result	9.7%
Expected Earnings Result	10.8%
Risk Premium Result	9.9%
Average	9.6%

Q. Does this conclude your Prepared Direct Testimony in this proceeding?

A. Yes.

Summary of ROE Model Results

Model	Lower Bound	Lower Median	Median	Upper Median	Upper Bound
Discounted Cash Flow [1]	6.1%	7.2%	8.1%	8.9%	11.1%
Capital Asset Pricing Model [2]	7.9%	9.2%	9.7%	10.3%	11.4%
Expected Earnings [3]	6.0%	9.3%	10.8%	12.2%	14.6%
Risk Premium [4]			9.9%		
Average – ROE Estimate			9.6%		12.4%

Notes:

[1] See Schedule 3
[2] See Schedule 4
[3] See Schedule 5
[4] See Schedule 6

Proxy Group Comparison

		[1]	[2]	[3]	[4]
Company	**Ticker**	**Electric Activities**	**Natural Gas Activities**	**States of Operation**	**Market Capitalization ($ Millions)**
ALLETE, Inc.	ALE	Distribution, Generation, Transmission	Distribution	IA, MN, ND, OR, PA, WI	4,346
Alliant Energy Corporation	LNT	Distribution, Generation, Transmission	Distribution	IA, MN, OK, WI	11,750
Ameren Corporation	AEE	Distribution, Generation, Transmission	Distribution	IA, IL, MO	18,656
American Electric Power Company, Inc.	AEP	Distribution, Generation, Transmission		AR, CA, CO, FL, HI, IN, KS, KY, LA, MI, MN, NM, NV, NY, OH, OK, PA, TN, TX, UT, VA, WV	43,684
Avangrid, Inc.	AGR	Distribution, Generation, Transmission	Distribution	AZ, CA, CO, CT, IA, IL, KS, MA, ME, MN, MO, NC, ND, NH, NM, NY, OH, OR, PA, SD, TX, VT, WA	15,616
Black Hills Corporation	BKH	Distribution, Generation, Transmission	Distribution	AR, CO, IA, KS, MT, NE, SD, WY	4,636
CenterPoint Energy, Inc.	CNP	Generation, Transmission	Distribution	AL, AR, GA, IL, IN, LA, MN, MO, MS, OH, OK, TN, TX, WI	14,696
CMS Energy Corporation	CMS	Distribution, Generation, Transmission	Distribution	MI, NC, OH, WI	16,581
Consolidated Edison, Inc.	ED	Distribution, Generation, Transmission	Distribution	AZ, CA, MA, MD, MN, MT, NE, NJ, NV, NY, PA, RI, SD, TX	28,969
Dominion Energy, Inc.	D	Distribution, Generation, Transmission	Distribution	CA, CO, CT, FL, GA, ID, IN, MD, MN, NC, NY, OH, OR, PA, SC, TN, UT, VA, WV, WY	61,595
DTE Energy Company	DTE	Distribution, Generation, Transmission	Distribution	AL, CA, IL, MI, MN, NC, NY, OH, TX, UT	23,458
Duke Energy Corporation	DUK	Distribution, Generation, Transmission	Distribution	AZ, CA, CO, FL, IN, KS, KY, MA, NC, NJ, NM, NY, OH, OK, PA, SC, TN, TX, VT, WI, WY	65,314
Entergy Corporation	ETR	Distribution, Generation, Transmission	Distribution	AR, LA, MI, MS, NY, TN, TX	19,955
Evergy Inc.	EVRG	Distribution, Generation, Transmission		CA, KS, MO, MS, OK	14,797
Eversource Energy	ES	Distribution, Generation, Transmission	Distribution	CT, MA, ME, NH	24,544
Exelon Corporation	EXC	Distribution, Generation, Transmission	Distribution	AL, AZ, CA, CO, CT, DC, DE, GA, ID, IL, KS, MA, MD, ME, MI, MN, MO, NJ, NM, NY, OH, OK, OR, PA, TX, UT	46,836
NextEra Energy, Inc.	NEE	Distribution, Generation, Transmission		AL, AZ, CA, CO, FL, GA, IA, IL, IN, KS, MA, ME, MI, MN, MO, MS, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, SD, TX, VA, VT, WA, WI	99,269
OGE Energy Corporation	OGE	Distribution, Generation, Transmission	Distribution	AL, AR, IL, LA, MO, MS, OK, TX	8,573
Pinnacle West Capital Corporation	PNW	Distribution, Generation, Transmission		AZ, NM	10,641
PNM Resources, Inc.	PNM	Distribution, Generation, Transmission		AZ, NM	3,910
Portland General Electric Company	POR	Distribution, Generation, Transmission		MT, OR, WA	4,852
PPL Corporation	PPL	Distribution, Generation, Transmission	Distribution	IL, IN, KY, OH, PA, TN, VA	22,081
Public Service Enterprise Group Inc.	PEG	Distribution, Generation, Transmission	Distribution	AZ, CA, CO, CT, DE, FL, HI, MD, NC, NJ, NY, OH, OR, PA, TX, UT, VT	30,152
Sempra Energy	SRE	Distribution, Generation, Transmission	Distribution	AL, CA, HI, NV	37,212
Southern Company	SO	Distribution, Generation, Transmission	Distribution	AL, CA, FL, GA, IL, LA, MD, ME, MN, MS, NC, NJ, NM, NV, OK, SC, TN, TX, VA	58,403
Wisconsin Energy Corporation	WEC	Distribution, Generation, Transmission	Distribution	AZ, CA, IA, IL, MA, MI, MN, NE, NJ, WI	26,869
Xcel Energy Inc.	XEL	Distribution, Generation, Transmission	Distribution	CO, MI, MN, ND, NM, SD, TX, WI, WY	30,842
Central Hudson Hurley Avenue Project		Transmission		NY	

Notes:

[1] Source: S&P Market Intelligence
[2] Source: S&P Market Intelligence
[3] Source: S&P Market Intelligence
[4] Bloomberg Professional

Central Hudson Proxy Group

DCF Approach

			[1]	[2]	[3]	[4]	[5]	[6]
Company	**Ticker**	**Credit Rating**	**Dividend Yield**	**Expected Dividend Yield Times (1 + 0.50g)**	**Analysts Projected EPS Growth Rate (g)**	**GDP Growth Rate**	**Weighted Average Growth Rate**	**Investor Required Return**
ALLETE, Inc.	ALE	BBB+	2.80%	2.88%	6.00%	4.23%	5.41%	8.29%
Alliant Energy Corporation	LNT	A-	2.89%	2.96%	5.05%	4.23%	4.78%	7.73%
Ameren Corporation	AEE	BBB+	2.54%	2.60%	4.70%	4.23%	4.54%	7.14%
American Electric Power Company, Inc.	AEP	A-	3.04%	3.12%	6.10%	4.23%	5.48%	8.60%
Avangrid, Inc.	AGR	BBB+	3.49%	3.59%	6.40%	4.23%	5.68%	9.27%
Black Hills Corporation	BKH	BBB+	2.65%	2.70%	2.96%	4.23%	3.38%	6.08%
CenterPoint Energy, Inc.	CNP	BBB+	3.93%	4.02%	5.11%	4.23%	4.82%	8.84%
CMS Energy Corporation	CMS	BBB+	2.63%	2.72%	7.14%	4.23%	6.17%	8.89%
Consolidated Edison, Inc.	ED	A-	3.39%	3.45%	3.45%	4.23%	3.71%	7.16%
Dominion Resources, Inc.	D	BBB+	4.80%	4.91%	4.59%	4.23%	4.47%	9.38%
DTE Energy Company	DTE	BBB+	2.96%	3.03%	4.45%	4.23%	4.38%	7.40%
Duke Energy Corporation	DUK	A-	4.18%	4.27%	4.06%	4.23%	4.12%	8.39%
Entergy Corporation	ETR	BBB+	3.54%		Negative	4.23%		
Evergy Inc.	EVRG	A-	3.13%	3.23%	6.80%	4.23%	5.94%	9.17%
Eversource Energy	ES	A-	2.82%	2.89%	5.63%	4.23%	5.16%	8.06%
Exelon Corporation	EXC	BBB+	3.01%		Negative	4.23%		
NextEra Energy, Inc.	NEE	A-	2.43%	2.51%	7.99%	4.23%	6.74%	9.25%
OGE Energy Corporation	OGE	BBB+	3.45%	3.51%	3.40%	4.23%	3.68%	7.19%
Pinnacle West Capital Corporation	PNW	A-	3.12%	3.19%	5.05%	4.23%	4.78%	7.97%
PNM Resources, Inc.	PNM	BBB+	2.38%	2.45%	6.18%	4.23%	5.53%	7.98%
Portland General Electric Company	POR	BBB+	2.85%	2.91%	4.80%	4.23%	4.61%	7.52%
PPL Corporation	PPL	A-	5.42%	5.47%	0.59%	4.23%	1.80%	7.27%
Public Service Enterprise Group Inc.	PEG	BBB+	3.16%	3.22%	3.65%	4.23%	3.84%	7.07%
Sempra Energy	SRE	BBB+	2.86%	2.98%	10.10%	4.23%	8.14%	11.12%
Southern Company	SO	A-	4.47%	4.52%	1.37%	4.23%	2.32%	6.85%
Wisconsin Energy Corporation	WEC	A-	2.79%	2.87%	6.12%	4.23%	5.49%	8.36%
Xcel Energy Inc.	XEL	A-	2.72%	2.79%	5.80%	4.23%	5.28%	8.07%
Average								**8.12%**
Lower threshold [7]								**5.14%**
Upper threshold [8]								**12.09%**
Zone of Reasonableness Low								**6.08%**
Median of Lower Half								**7.23%**
Median								**8.06%**
Median of Upper Half								**8.86%**
Zone of Reasonableness High								**11.12%**

Notes:

[1] See Schedule 3 pg. 2
[2] Equals [1]*(1+[5]*0.5)
[3] Source: Yahoo! Finance
[4] See Schedule 3 pg. 8
[5] Equals [3]*2/3 + [4]*1/3
[6] Equals [2] + [5]
[7] 6-Mo.Average of Baa Utility Index +1%
[8] Equals Median of [6] * 1.5

Central Hudson Proxy Group

Dividend Yield Calculations

ALLETE, Inc. **ALE**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	83.59	88.60	86.09	2.35	2.73%
Aug-19	83.28	88.38	85.83	2.35	2.74%
Jul-19	82.38	88.58	85.48	2.35	2.75%
Jun-19	80.70	86.52	83.61	2.35	2.81%
May-19	78.98	83.35	81.17	2.35	2.90%
Apr-19	78.86	83.43	81.14	2.35	2.90%
Average					**2.80%**

Alliant Energy Corporation **LNT**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	50.36	54.59	52.48	1.42	2.71%
Aug-19	48.77	53.00	50.88	1.42	2.79%
Jul-19	48.48	50.95	49.72	1.42	2.86%
Jun-19	46.84	50.17	48.50	1.42	2.93%
May-19	46.01	49.08	47.55	1.42	2.99%
Apr-19	45.72	47.41	46.56	1.42	3.05%
Average					**2.89%**

Ameren Corporation **AEE**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	73.31	80.85	77.08	1.90	2.47%
Aug-19	73.67	77.52	75.60	1.90	2.51%
Jul-19	74.23	77.28	75.76	1.90	2.51%
Jun-19	72.95	77.77	75.36	1.90	2.52%
May-19	71.24	76.14	73.69	1.90	2.58%
Apr-19	70.27	73.77	72.02	1.90	2.64%
Average					**2.54%**

American Electric Power Company, Inc. **AEP**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	90.08	94.89	92.49	2.68	2.90%
Aug-19	87.04	91.50	89.27	2.68	3.00%
Jul-19	87.08	91.82	89.45	2.68	3.00%
Jun-19	85.26	91.99	88.63	2.68	3.02%
May-19	82.56	89.01	85.79	2.68	3.12%
Apr-19	82.15	85.77	83.96	2.68	3.19%
Average					**3.04%**

Avangrid, Inc. **AGR**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	49.05	52.48	50.77	1.76	3.47%
Aug-19	48.32	51.39	49.85	1.76	3.53%
Jul-19	47.50	51.49	49.50	1.76	3.56%
Jun-19	50.12	52.32	51.22	1.76	3.44%
May-19	48.85	51.29	50.07	1.76	3.52%
Apr-19	49.56	52.86	51.21	1.76	3.44%
Average					**3.49%**

Central Hudson Proxy Group

Dividend Yield Calculations

Black Hills Corporation **BKH**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	74.06	78.87	76.47	2.02	2.64%
Aug-19	70.15	80.61	75.38	2.02	2.68%
Jul-19	77.14	81.26	79.20	2.02	2.55%
Jun-19	75.63	82.01	78.82	2.02	2.56%
May-19	71.31	78.52	74.92	2.02	2.70%
Apr-19	70.45	74.14	72.30	2.02	2.79%
Average					**2.65%**

CenterPoint Energy, Inc. **CNP**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	27.62	30.71	29.17	1.15	3.94%
Aug-19	27.16	29.48	28.32	1.15	4.06%
Jul-19	28.26	29.72	28.99	1.15	3.97%
Jun-19	28.15	30.24	29.20	1.15	3.94%
May-19	28.20	31.17	29.68	1.15	3.87%
Apr-19	29.96	31.04	30.50	1.15	3.77%
Average					**3.93%**

CMS Energy Corporation **CMS**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	60.10	65.31	62.71	1.53	2.44%
Aug-19	57.43	63.31	60.37	1.53	2.53%
Jul-19	57.06	59.54	58.30	1.53	2.62%
Jun-19	55.37	59.34	57.36	1.53	2.67%
May-19	54.07	57.71	55.89	1.53	2.74%
Apr-19	53.55	55.60	54.58	1.53	2.80%
Average					**2.63%**

Consolidated Edison, Inc. **ED**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	88.58	94.97	91.78	2.96	3.23%
Aug-19	84.45	89.11	86.78	2.96	3.41%
Jul-19	84.42	89.77	87.10	2.96	3.40%
Jun-19	85.55	90.51	88.03	2.96	3.36%
May-19	83.61	88.92	86.27	2.96	3.43%
Apr-19	83.32	86.23	84.78	2.96	3.49%
Average					**3.39%**

Dominion Resources, Inc. **D**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	76.05	81.43	78.74	3.67	4.66%
Aug-19	73.76	78.09	75.92	3.67	4.83%
Jul-19	73.46	78.72	76.09	3.67	4.82%
Jun-19	73.54	79.47	76.51	3.67	4.80%
May-19	72.61	78.31	75.46	3.67	4.86%
Apr-19	74.41	77.91	76.16	3.67	4.82%
Average					**4.80%**

Central Hudson Proxy Group

Dividend Yield Calculations

DTE Energy Company **DTE**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	127.16	134.37	130.76	3.78	2.89%
Aug-19	124.93	131.73	128.33	3.78	2.95%
Jul-19	126.18	132.09	129.14	3.78	2.93%
Jun-19	123.91	131.87	127.89	3.78	2.96%
May-19	122.55	129.99	126.27	3.78	2.99%
Apr-19	122.05	125.76	123.91	3.78	3.05%
Average					**2.96%**

Duke Energy Corporation **DUK**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	92.33	96.80	94.57	3.78	4.00%
Aug-19	86.31	93.35	89.83	3.78	4.21%
Jul-19	86.17	90.60	88.39	3.78	4.28%
Jun-19	84.28	90.68	87.48	3.71	4.24%
May-19	84.46	91.06	87.76	3.71	4.23%
Apr-19	87.93	91.33	89.63	3.71	4.14%
Average					**4.18%**

Entergy Corporation **ETR**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	111.10	118.34	114.72	3.64	3.17%
Aug-19	103.92	113.46	108.69	3.64	3.35%
Jul-19	101.13	107.35	104.24	3.64	3.49%
Jun-19	95.42	104.48	99.95	3.64	3.64%
May-19	93.91	99.84	96.88	3.64	3.76%
Apr-19	92.73	96.94	94.84	3.64	3.84%
Average					**3.54%**

Evergy Inc. **EVRG**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	63.35	67.81	65.58	1.90	2.90%
Aug-19	59.60	66.00	62.80	1.90	3.03%
Jul-19	59.54	62.12	60.83	1.90	3.12%
Jun-19	57.91	61.54	59.73	1.90	3.18%
May-19	56.65	59.85	58.25	1.90	3.26%
Apr-19	56.33	58.20	57.27	1.90	3.32%
Average					**3.13%**

Eversource Energy **ES**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	79.87	85.93	82.90	2.14	2.58%
Aug-19	75.48	81.15	78.32	2.14	2.73%
Jul-19	74.77	78.53	76.65	2.14	2.79%
Jun-19	72.86	77.87	75.36	2.14	2.84%
May-19	70.06	75.43	72.75	2.14	2.94%
Apr-19	69.09	71.78	70.44	2.14	3.04%
Average					**2.82%**

Central Hudson Proxy Group

Dividend Yield Calculations

Exelon Corporation **EXC**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	46.64	49.32	47.98	1.45	3.02%
Aug-19	43.69	47.47	45.58	1.45	3.18%
Jul-19	44.90	49.80	47.35	1.45	3.06%
Jun-19	47.38	51.18	49.28	1.45	2.94%
May-19	47.68	50.82	49.25	1.45	2.94%
Apr-19	48.79	51.03	49.91	1.45	2.91%
Average					**3.01%**

NextEra Energy, Inc. **NEE**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	216.37	233.45	224.91	5.00	2.22%
Aug-19	206.48	225.57	216.03	5.00	2.31%
Jul-19	201.06	212.50	206.78	5.00	2.42%
Jun-19	196.37	208.91	202.64	5.00	2.47%
May-19	187.30	204.73	196.01	5.00	2.55%
Apr-19	187.43	194.65	191.04	5.00	2.62%
Average					**2.43%**

OGE Energy Corporation **OGE**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	42.41	45.77	44.09	1.55	3.52%
Aug-19	41.39	43.53	42.46	1.46	3.44%
Jul-19	42.11	43.92	43.01	1.46	3.39%
Jun-19	41.53	44.41	42.97	1.46	3.40%
May-19	40.42	43.36	41.89	1.46	3.49%
Apr-19	40.90	43.25	42.08	1.46	3.47%
Average					**3.45%**

Pinnacle West Capital Corporation **PNW**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	91.18	98.58	94.88	2.95	3.11%
Aug-19	90.48	95.79	93.13	2.95	3.17%
Jul-19	90.53	96.45	93.49	2.95	3.16%
Jun-19	93.35	99.81	96.58	2.95	3.05%
May-19	91.95	97.92	94.93	2.95	3.11%
Apr-19	93.14	96.33	94.74	2.95	3.11%
Average					**3.12%**

PNM Resources, Inc. **PNM**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	48.71	52.95	50.83	1.16	2.28%
Aug-19	47.59	51.47	49.53	1.16	2.34%
Jul-19	48.89	51.44	50.17	1.16	2.31%
Jun-19	47.09	52.10	49.59	1.16	2.34%
May-19	45.57	48.35	46.96	1.16	2.47%
Apr-19	44.28	47.42	45.85	1.16	2.53%
Average					**2.38%**

Central Hudson Proxy Group

Dividend Yield Calculations

Portland General Electric Company **POR**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	54.78	58.43	56.61	1.54	2.72%
Aug-19	53.47	57.27	55.37	1.54	2.78%
Jul-19	53.38	55.95	54.67	1.54	2.82%
Jun-19	52.72	55.98	54.35	1.54	2.83%
May-19	51.66	53.93	52.80	1.54	2.92%
Apr-19	49.79	52.55	51.17	1.54	3.01%
Average					**2.85%**

PPL Corporation **PPL**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	29.20	31.90	30.55	1.65	5.40%
Aug-19	28.55	29.99	29.27	1.65	5.64%
Jul-19	29.43	31.25	30.34	1.65	5.44%
Jun-19	29.72	31.80	30.76	1.65	5.36%
May-19	29.61	31.45	30.53	1.65	5.40%
Apr-19	30.47	32.21	31.34	1.65	5.26%
Average					**5.42%**

Public Service Enterprise Group Inc. **PEG**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	60.00	62.60	61.30	1.88	3.07%
Aug-19	55.27	60.87	58.07	1.88	3.24%
Jul-19	56.81	61.35	59.08	1.88	3.18%
Jun-19	58.22	61.50	59.86	1.88	3.14%
May-19	57.50	61.63	59.57	1.88	3.16%
Apr-19	57.70	60.36	59.03	1.88	3.18%
Average					**3.16%**

Sempra Energy **SRE**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	139.03	148.14	143.59	3.87	2.70%
Aug-19	131.32	142.91	137.12	3.87	2.82%
Jul-19	134.56	141.29	137.93	3.87	2.81%
Jun-19	130.52	141.86	136.19	3.87	2.84%
May-19	124.67	136.37	130.52	3.87	2.97%
Apr-19	124.91	130.00	127.45	3.87	3.04%
Average					**2.86%**

Southern Company **SO**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	58.24	62.36	60.30	2.48	4.11%
Aug-19	55.38	58.84	57.11	2.48	4.34%
Jul-19	54.44	57.08	55.76	2.48	4.45%
Jun-19	53.15	56.54	54.84	2.48	4.52%
May-19	52.16	54.77	53.46	2.48	4.64%
Apr-19	50.89	53.29	52.09	2.48	4.76%
Average					**4.47%**

Central Hudson Proxy Group

Dividend Yield Calculations

Wisconsin Energy Corporation **WEC**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	89.02	98.19	93.61	2.36	2.52%
Aug-19	85.16	96.46	90.81	2.36	2.60%
Jul-19	82.18	87.93	85.06	2.36	2.77%
Jun-19	79.46	85.70	82.58	2.36	2.86%
May-19	76.61	83.01	79.81	2.36	2.96%
Apr-19	75.88	79.03	77.45	2.36	3.05%
Average					**2.79%**

Xcel Energy Inc. **XEL**

Month	Low Price	High Price	Average Price	Indicated Annualized Dividend	Dividend Yield
Sep-19	62.19	66.05	64.12	1.62	2.53%
Aug-19	58.74	64.91	61.83	1.62	2.62%
Jul-19	58.80	62.03	60.42	1.62	2.68%
Jun-19	56.37	61.97	59.17	1.62	2.74%
May-19	55.26	59.62	57.44	1.62	2.82%
Apr-19	54.46	56.71	55.59	1.62	2.91%
Average					**2.72%**

Long-Term
U.S. Gross Domestic Product (GDP)
Growth Forecasts

	[A]	[B]	[C]
Source	**Beginning Year**	**Ending Year**	**Annual GDP Growth**
BCFF [1]	2021	2030	4.14%
EIA [2]	2023	2050	4.20%
SSA [3]	2023	2075	4.35%
Average			**4.23%**

Notes:

[1] Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14.
Nominal GDP=(Real GDP)*(GDP Chained Price Index)

[2] Energy Information Administration Annual Energy Outlook 2019 with projections to 2050 February 2019), Table A20. Macroeconomic Indicators. Nominal GDP=(Real GDP)*(GDP Chain Type Price Index). http://www.eia.gov/forecasts/aeo/tables_ref.cfm.

[3] Social Security Administration: The 2019 OASDI Trustees Report, Table VI.G4.—OASDI and HI Annual and Summarized Income, Cost, and Balance as a Percentage of GDP, Calendar Years 2018-95 https://www.ssa.gov/oact/tr/2019/VI_G2_OASDHI_GDP.html

Central Hudson Proxy Group

Capital Asset Pricing Model

$$K = R_f + \beta (R_m - R_f)$$

					[1]	[2]	[3]
Risk Free Rate					2.53%	2.40%	3.60%
Market Return [4]					13.83%	13.83%	13.83%
Risk Premium [5]					11.30%	11.43%	10.23%
Company	Ticker	Value Line Beta	Bloomberg Beta	Average Beta	Current Yield	Near-term projected 30-year U.S. Treasury bond yield (Q4 2019 - Q4 2020)	Projected 30-year U.S. Treasury bond yield (2021 - 2025)
ALLETE, Inc.	ALE	0.65	0.70	0.68	10.17%	10.13%	10.52%
Alliant Energy Corporation	LNT	0.60	0.69	0.65	9.84%	9.80%	10.22%
Ameren Corporation	AEE	0.55	0.65	0.60	9.32%	9.27%	9.75%
American Electric Power Company, Inc.	AEP	0.55	0.63	0.59	9.20%	9.15%	9.64%
Avangrid, Inc.	AGR	0.40	0.50	0.45	7.64%	7.57%	8.22%
Black Hills Corporation	BKH	0.75	0.75	0.75	11.03%	11.00%	11.30%
CenterPoint Energy, Inc.	CNP	0.80	0.73	0.76	11.17%	11.14%	11.42%
CMS Energy Corporation	CMS	0.55	0.65	0.60	9.31%	9.26%	9.74%
Consolidated Edison, Inc.	ED	0.45	0.53	0.49	8.08%	8.01%	8.62%
Dominion Resources, Inc.	D	0.55	0.60	0.58	9.05%	8.99%	9.50%
DTE Energy Company	DTE	0.55	0.66	0.61	9.40%	9.34%	9.81%
Duke Energy Corporation	DUK	0.50	0.53	0.52	8.37%	8.31%	8.89%
Entergy Corporation	ETR	0.60	0.65	0.62	9.58%	9.53%	9.98%
Evergy Inc.	EVRG	NMF	0.63	0.63	9.68%	9.63%	10.07%
Eversource Energy	ES	0.60	0.66	0.63	9.64%	9.59%	10.04%
Exelon Corporation	EXC	0.70	0.64	0.67	10.11%	10.07%	10.47%
NextEra Energy, Inc.	NEE	0.55	0.64	0.60	9.27%	9.22%	9.70%
OGE Energy Corporation	OGE	0.80	0.74	0.77	11.25%	11.21%	11.49%
Pinnacle West Capital Corporation	PNW	0.55	0.66	0.61	9.38%	9.33%	9.80%
PNM Resources, Inc.	PNM	0.60	0.75	0.68	10.16%	10.12%	10.51%
Portland General Electric Company	POR	0.60	0.68	0.64	9.74%	9.69%	10.13%
PPL Corporation	PPL	0.65	0.63	0.64	9.76%	9.72%	10.15%
Public Service Enterprise Group Inc.	PEG	0.65	0.69	0.67	10.11%	10.07%	10.46%
Sempra Energy	SRE	0.75	0.70	0.73	10.73%	10.70%	11.03%
Southern Company	SO	0.50	0.53	0.52	8.36%	8.29%	8.87%
Wisconsin Energy Corporation	WEC	0.50	0.58	0.54	8.63%	8.57%	9.13%
Xcel Energy Inc.	XEL	0.50	0.58	0.54	8.63%	8.57%	9.12%
Lower threshold [6]					5.14%	5.14%	5.14%
Upper threshold [7]					14.37%	14.29%	14.97%
Zone of Reasonableness Low					7.64%	7.57%	8.22%
Median of Lower Half					9.05%	8.99%	9.50%
Median					9.58%	9.53%	9.98%
Median of Upper Half					10.11%	10.07%	10.47%
Zone of Reasonableness High					11.25%	11.21%	11.49%

Notes:

[1] Source: Bloomberg Professional
[2] Source: Blue Chip Financial Forecasts, Vol. 38, No. 9, September 1, 2019, at 2
[3] Source: Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14
[4] Source: Bloomberg Professional
[5] Equals [4] - Risk Free Rate
[6] 6-Mo.Average of Baa Utility Index +1%

[7] Equals Median of [6] * 1.5

Central Hudson Proxy Group

Expected Earnings Analysis

Company	Ticker	[1] Value Line 2022-2024	[2] Adjustment Factor	[3] Adjusted Return on Common Equity
ALLETE, Inc.	ALE	9.50%	1.02	9.65%
Alliant Energy Corporation	LNT	10.00%	1.02	10.23%
Ameren Corporation	AEE	10.50%	1.03	10.85%
American Electric Power Company, Inc.	AEP	10.50%	1.03	10.77%
Avangrid, Inc.	AGR	6.00%	1.01	6.05%
Black Hills Corporation	BKH	9.50%	1.03	9.75%
CenterPoint Energy, Inc.	CNP	10.00%	1.06	10.65%
CMS Energy Corporation	CMS	14.00%	1.04	14.60%
Consolidated Edison, Inc.	ED	8.50%	1.02	8.67%
Dominion Resources, Inc.	D	13.00%	1.05	13.70%
DTE Energy Company	DTE	10.50%	1.04	10.88%
Duke Energy Corporation	DUK	8.50%	1.02	8.64%
Entergy Corporation	ETR	11.00%	1.03	11.36%
Evergy Inc.	EVRG	8.50%	0.99	8.39%
Eversource Energy	ES	9.00%	1.03	9.31%
Exelon Corporation	EXC	9.00%	1.03	9.24%
NextEra Energy, Inc.	NEE	13.50%	1.03	13.89%
OGE Energy Corporation	OGE	11.50%	1.02	11.69%
Pinnacle West Capital Corporation	PNW	10.50%	1.02	10.72%
PNM Resources, Inc.	PNM	10.00%	1.03	10.29%
Portland General Electric Company	POR	9.00%	1.02	9.15%
PPL Corporation	PPL	13.00%	1.04	13.47%
Public Service Enterprise Group Inc.	PEG	11.00%	1.02	11.26%
Sempra Energy	SRE	12.00%	1.05	12.60%
Southern Company	SO	12.50%	1.03	12.86%
Wisconsin Energy Corporation	WEC	12.00%	1.02	12.21%
Xcel Energy Inc.	XEL	11.00%	1.02	11.26%
Lower threshold [4]				5.14%
Upper threshold [5]				16.16%
Zone of Reasonableness Low				6.05%
Median of Lower Half				9.31%
Median				10.77%
Median of Upper Half				12.21%
Zone of Reasonableness High				14.60%

Notes:

[1] Source: Value Line

[2] Equals 2*(1+5-Yr. Change in Equity)/(2+5 Yr. Change in Equity)

[3] Equals [1] + [2]

[4] 6-Mo.Average of Baa Utility Index +1%

[5] Median of Column [3] * 1.5

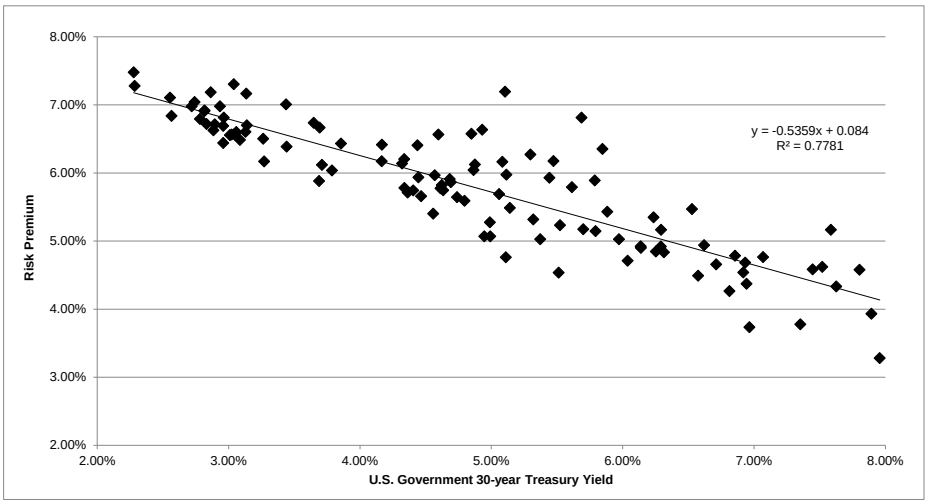
Risk Premium - State Jurisdictional Electric Utilities

	[1]	[2]	[3]	[4]
Quarter	Average Authorized Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium	Number of Cases
1992.1	12.38%	7.80%	4.58%	10
1992.2	11.83%	7.89%	3.93%	12
1992.3	12.03%	7.45%	4.59%	8
1992.4	12.14%	7.52%	4.62%	15
1993.1	11.84%	7.07%	4.77%	7
1993.2	11.64%	6.86%	4.79%	9
1993.3	11.15%	6.31%	4.84%	6
1993.4	11.04%	6.14%	4.90%	6
1994.1	11.07%	6.57%	4.49%	10
1994.2	11.13%	7.35%	3.78%	5
1994.3	12.75%	7.58%	5.17%	1
1994.4	11.24%	7.96%	3.28%	12
1995.1	11.96%	7.63%	4.34%	8
1995.2	11.32%	6.94%	4.37%	8
1995.3	11.37%	6.71%	4.66%	5
1995.4	11.58%	6.23%	5.35%	7
1996.1	11.46%	6.29%	5.17%	2
1996.2	11.46%	6.92%	4.54%	9
1996.3	10.70%	6.96%	3.74%	2
1996.4	11.56%	6.62%	4.94%	5
1997.1	11.08%	6.81%	4.27%	4
1997.2	11.62%	6.93%	4.68%	3
1997.3	12.00%	6.53%	5.47%	1
1997.4	11.06%	6.14%	4.92%	2
1998.1	11.31%	5.88%	5.43%	4
1998.2	12.20%	5.85%	6.35%	1
1998.3	11.65%	5.47%	6.18%	2
1998.4	12.30%	5.10%	7.20%	3
1999.1	10.40%	5.37%	5.03%	2
1999.2	10.94%	5.79%	5.15%	1
1999.3	10.75%	6.04%	4.71%	2
1999.4	11.10%	6.25%	4.85%	1
2000.1	11.21%	6.29%	4.92%	4
2000.2	11.00%	5.97%	5.03%	1
2000.3	11.68%	5.79%	5.89%	2
2000.4	12.50%	5.69%	6.81%	2
2001.1	11.38%	5.44%	5.93%	2
2001.2	10.88%	5.70%	5.18%	2
2001.3	10.76%	5.52%	5.23%	7
2001.4	11.57%	5.30%	6.27%	4
2002.1	10.05%	5.51%	4.54%	2
2002.2	11.41%	5.61%	5.79%	6
2002.3	11.25%	5.08%	6.17%	3
2002.4	11.57%	4.93%	6.64%	3
2003.1	11.43%	4.85%	6.58%	6
2003.2	11.16%	4.60%	6.56%	4
2003.3	9.88%	5.11%	4.76%	4
2003.4	11.09%	5.11%	5.98%	6
2004.1	11.00%	4.88%	6.12%	3
2004.2	10.64%	5.32%	5.32%	7
2004.3	10.75%	5.06%	5.69%	3
2004.4	10.91%	4.86%	6.04%	8
2005.1	10.56%	4.69%	5.87%	5
2005.2	10.13%	4.47%	5.66%	6
2005.3	10.85%	4.44%	6.41%	4
2005.4	10.59%	4.68%	5.91%	9
2006.1	10.38%	4.63%	5.75%	3
2006.2	10.63%	5.14%	5.49%	5
2006.3	10.06%	4.99%	5.07%	7
2006.4	10.39%	4.74%	5.65%	10
2007.1	10.39%	4.80%	5.59%	9
2007.2	10.27%	4.99%	5.28%	11
2007.3	10.02%	4.95%	5.07%	4
2007.4	10.39%	4.61%	5.78%	13
2008.1	10.15%	4.41%	5.75%	8
2008.2	10.54%	4.57%	5.97%	8
2008.3	10.38%	4.44%	5.94%	11
2008.4	10.39%	3.65%	6.74%	8
2009.1	10.45%	3.44%	7.01%	9
2009.2	10.58%	4.17%	6.42%	9
2009.3	10.46%	4.32%	6.14%	3
2009.4	10.54%	4.34%	6.21%	17
2010.1	10.45%	4.62%	5.82%	15
2010.2	10.08%	4.36%	5.71%	14
2010.3	10.29%	3.86%	6.43%	12
2010.4	10.34%	4.17%	6.17%	17

Risk Premium - State Jurisdictional Electric Utilities

	[1]	[2]	[3]	[4]
Quarter	Average Authorized Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium	Number of Cases
2011.1	9.96%	4.56%	5.40%	11
2011.2	10.12%	4.34%	5.78%	10
2011.3	10.36%	3.69%	6.67%	8
2011.4	10.34%	3.04%	7.31%	11
2012.1	10.30%	3.14%	7.17%	7
2012.2	9.92%	2.93%	6.98%	13
2012.3	9.78%	2.74%	7.04%	8
2012.4	10.05%	2.86%	7.19%	24
2013.1	9.74%	3.13%	6.61%	10
2013.2	9.84%	3.14%	6.70%	7
2013.3	9.83%	3.71%	6.12%	6
2013.4	9.82%	3.79%	6.04%	19
2014.1	9.57%	3.69%	5.88%	5
2014.2	9.83%	3.44%	6.39%	5
2014.3	9.77%	3.26%	6.50%	10
2014.4	9.78%	2.96%	6.81%	13
2015.1	9.66%	2.55%	7.11%	5
2015.2	9.51%	2.88%	6.63%	6
2015.3	9.40%	2.96%	6.44%	2
2015.4	9.65%	2.96%	6.69%	11
2016.1	9.70%	2.72%	6.98%	3
2016.2	9.41%	2.57%	6.84%	5
2016.3	9.76%	2.28%	7.48%	8
2016.4	9.55%	2.83%	6.72%	16
2017.1	9.61%	3.04%	6.57%	10
2017.2	9.61%	2.90%	6.71%	10
2017.3	9.73%	2.82%	6.91%	4
2017.4	9.74%	2.82%	6.92%	19
2018.1	9.59%	3.02%	6.57%	7
2018.2	9.57%	3.09%	6.49%	12
2018.3	9.66%	3.06%	6.60%	9
2018.4	9.44%	3.27%	6.17%	10
2019.1	9.57%	3.01%	6.56%	6
2019.2	9.58%	2.78%	6.79%	8
2019.3	9.57%	2.29%	7.28%	4
AVERAGE	10.64%	4.82%	5.81%	791
MEDIAN	10.54%	4.80%	5.91%	

Risk Premium - State Jurisdictional Electric Utilities



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.88210
R Square	0.77809
Adjusted R Square	0.77606
Standard Error	0.00437
Observations	111

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.0073	0.0073	382.1947	0.0000
Residual	109	0.0021	0.0000		
Total	110	0.0094			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.0840	0.00139	60.61737	0.00000	0.08125	0.08674	0.08125	0.08674
U.S. Govt. 30-year Treasury	-0.5359	0.02741	-19.54980	0.00000	-0.59027	-0.48160	-0.59027	-0.48160

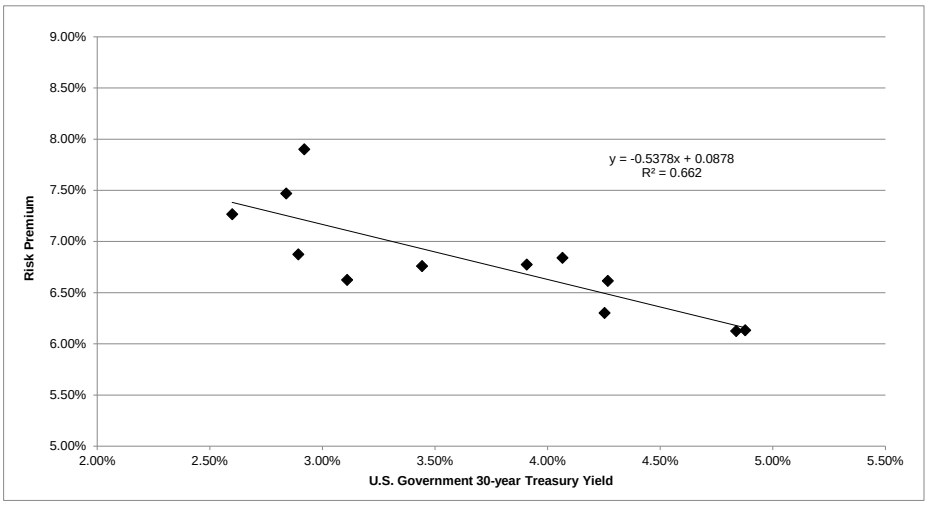
	[8]	[9]	[10]
	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current Yield (6-Month Average) [5]	2.53%	7.04%	9.57%
Blue Chip Consensus Forecast (Q4 2019 - Q4 2020) [6]	2.40%	7.11%	9.51%
Blue Chip Consensus Forecast (2021-2025) [7]	3.60%	6.47%	10.07%
AVERAGE			**9.72%**

Notes:
[1] Source: Regulatory Research Associates, accessed June 5, 2019
[2] Source: Bloomberg Professional, quarterly bond yields are the average of each trading day in the quarter
[3] Equals Column [1] − Column [2]
[4] Source: Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 2
[5] Source: Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14
[6] See notes [4] & [5]
[7] Equals 0.083992 + (-0.535935 x Column [6])
[8] Equals Column [6] + Column [7]

Risk Premium - FERC Electric Transmission

	[1]	[2]	[3]
	Average Authorized Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium
2006	11.01%	4.88%	6.13%
2007	10.96%	4.84%	6.13%
2008	10.88%	4.27%	6.62%
2009	10.91%	4.07%	6.84%
2010	10.56%	4.25%	6.30%
2011	10.68%	3.91%	6.78%
2012	10.82%	2.92%	7.90%
2013	10.20%	3.44%	6.76%
2015	10.31%	2.84%	7.47%
2016	9.87%	2.60%	7.27%
2017	9.77%	2.89%	6.87%
2018	9.74%	3.11%	6.63%
AVERAGE	10.48%	3.67%	6.81%
MEDIAN	10.62%	3.67%	6.77%

Risk Premium - FERC Electric Transmission



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.81366
R Square	0.66204
Adjusted R Square	0.62824
Standard Error	0.00324
Observations	12

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.0002	0.0002	19.5891	0.0013
Residual	10	0.0001	0.0000		
Total	11	0.0003			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.0878	0.00455	19.28551	0.00000	0.07766	0.09795	0.07766	0.09795
U.S. Govt. 30-year Treasury	-0.5378	0.12150	-4.42596	0.00128	-0.80850	-0.26705	-0.80850	-0.26705

	[7]	[8]	[9]
	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current Yield (6-Month Average) [4]	2.53%	7.42%	9.95%
Blue Chip Consensus Forecast (Q4 2019 - Q3 2020) [5]	2.40%	7.49%	9.89%
Blue Chip Consensus Forecast (2021-2025) [6]	3.60%	6.84%	10.44%
AVERAGE			**10.09%**

Notes:

[1] Source: Westlaw
[2] Source: Bloomberg Professional, quarterly bond yields are the average of each trading day in the year
[3] Equals Column [1] − Column [2]
[4] Source: Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 2
[5] Source: Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14
[6] See notes [4] & [5]
[7] Equals 0.087802 + (-0.537775 x Column [6])
[8] Equals Column [6] + Column [7]

JOSHUA C. NOWAK
Assistant Vice President

Mr. Nowak is a financial and economic consultant with more than ten years of experience in the energy industry. He has provided expert testimony on regulatory issues in several proceedings before regulatory commissions in Alaska, New Hampshire, New York, and Texas. Mr. Nowak specializes in providing rate case services on cost of capital matters related to return on equity and financial market issues. He is also experienced in providing strategic direction on financing activities including bond offerings, credit rating analysis, and investor relations. Previously, Joshua was the Director of Regulatory Strategy & Integrated Analytics at National Grid. He holds a Bachelor's Degree in Economics and History from Boston College.

REPRESENTATIVE EXPERIENCE

Expert Testimony and Litigation Support

Mr. Nowak's work includes regulatory project management, research, and analysis for expert witness testimony. His work has included:

- Expert testimony on cost of capital, capital structure, and debt financing issues
- Expert testimony, sponsoring lead-lag studies, in support of utility cash working capital requirements
- Extensive support for expert testimony in cost of capital and return on equity proceedings through research, financial analysis, and testimony development
- Project management of expert testimony assignments, including all phases of the regulatory schedule
- Performing analysis to support expert testimony regarding affiliate expenses and allocations

Management and Operations Consulting

Mr. Nowak has taken a lead analytical role in developing benchmarking analyses and process reviews. Specifically, he has:

- Developed benchmarking analyses, in support of expert testimony, comparing electric and gas utilities' cost and operational efficiency, taking into account a situational assessment of exogenous factors
- Performed a process review of a gas utility's expansion projects, including an evaluation of policies, procedures, and financial models
- Supported analysis for a report of the reasonableness of a shared service company's administrative and general costs

Policy Analysis

Mr. Nowak has contributed to projects related to policy review including:

- A review of natural gas capacity options and a cost-benefit analysis for state regulators seeking to reduce energy costs for ratepayers

Financial Analysis

Other financial analysis Mr. Nowak has conducted include:

- Extensive analysis on issues related to utilities' cost of capital
- Developing dispatch models to estimate historical revenues for a merchant power plants
- Estimating damages for breach of contract in fuel delivery commitment
- Researching strategic investment opportunities for merchant generators
- A report on the profitability of various generation technologies in a deregulated energy market
- Reviewing internal financial models used by utility clients
- Supporting utility asset appraisals, including research and analysis for income approach, cost approach, and sales comparison approach

Other Experience

In his previous work, Mr. Nowak contributed to the evaluation of regulatory policy for government clients. His experience included performing policy analysis, including economic impact assessments, for federal regulations.

PROFESSIONAL HISTORY

Concentric Energy Advisors, Inc. (2018 – Present)
Assistant Vice President

National Grid USA (2017 – 2018)
Director, Regulatory Strategy & Integrated Analytics

ScottMadden, Inc. (formerly Sussex Economic Advisors, LLC) (2012 – 2016)
Director
Principal

Concentric Energy Advisors, Inc. (2007 – 2012)
Senior Consultant
Consultant
Assistant Consultant
Analyst

RTI International (2006 – 2007)
Economist

EDUCATION

Boston College
B.A., Economics and History, 2006

SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
Regulatory Commission of Alaska				
ENSTAR Natural Gas Company, a Division of Semco Energy, Inc.	06/16	ENSTAR Natural Gas Company, a Division of Semco Energy, Inc.	TA 285-4	Cash Working Capital
Public Utilities Commission of New Hampshire				
Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities	10/13	Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities	Docket No. DE 16-383	Cash Working Capital
New York Public Service Commission				
Niagara Mohawk Power Corporation d/b/a National Grid	07/17	Niagara Mohawk Power Corporation d/b/a National Grid	Case 17-E-0238 / Case 17-G-0239	Capital Structure and Overall Cost of Capital
Public Utility Commission of Texas				
Wind Energy Transmission Texas, LLC	05/15	Wind Energy Transmission Texas, LLC	Docket No. 44746	Cash Working Capital
Lone Star Transmission, LLC	05/14	Lone Star Transmission, LLC	Docket No. 42469	Cash Working Capital
Railroad Commission of Texas				
CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	03/14	CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	GUD No. 10432	Cash Working Capital
Texas Gas Service Company, a Division of One Gas, Inc.	12/15	Texas Gas Service Company, a Division of One Gas, Inc.	GUD No. 10488	Cash Working Capital
Texas Gas Service Company, a Division of One Gas, Inc.	03/16	Texas Gas Service Company, a Division of One Gas, Inc.	GUD No. 10506	Cash Working Capital
Texas Gas Service Company, a Division of One Gas, Inc.	06/16	Texas Gas Service Company, a Division of One Gas, Inc.	GUD No. 10526	Cash Working Capital