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July 7, 2020

VIA ELECTRONIC FILING

Ms. Kimberly A. Campbell, Chief Clerk
North Carolina Utilities Commission
Dobbs Building, 5th Floor
430 North Salisbury Street
Raleigh, NC 27603-5918

**RE: Duke Energy Progress LLC's, Motion to File Direct and Rebuttal Testimony and
Exhibits of Dylan W. D'Ascendis Adopting the Direct and Rebuttal Testimony and
Exhibits of Robert B. Hevert
Docket No. E-2, Sub 1219**

Dear Ms. Campbell:

Enclosed for filing is Duke Energy Progress, LLC's Amended Rebuttal Testimony and Exhibits of
Dylan W. D'Ascendis. The Amended Rebuttal Testimony replaces the Duke Energy Carolinas
Rebuttal Testimony of Mr. D'Ascendis inadvertently filed in this Docket on June 29, 2020.

If you have any questions, please let me know.

Sincerely,

/s/ Kiran H. Mehta

Kiran H. Mehta

Enclosure

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2, SUB 1219

In the Matter of:	)	
	)	**REBUTTAL TESTIMONY OF**
Application of Duke Energy Progress, LLC	)	**DYLAN W. D'ASCENDIS**
For Adjustment of Rates and Charges	)	**FOR DUKE ENERGY**
Applicable to Electric Service in North	)	**PROGRESS, LLC**
Carolina	)	

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME, AFFILIATION, AND BUSINESS ADDRESS.

A. My name is Dylan W. D'Ascendis. I am a Director at ScottMadden, Inc. My business address is 3000 Atrium Way, Suite 241, Mount Laurel, New Jersey 08054.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am submitting this rebuttal testimony ("Rebuttal Testimony") before the North Carolina Utilities Commission ("Commission") on behalf of Duke Energy Corporation, doing business in North Carolina as Duke Energy Progress, LLC ("DE Progress" or the "Company").

Q. ARE YOU THE SAME DYLAN W. D'ASCENDIS THAT SUBMITTED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes, I am.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my Rebuttal Testimony is to respond to the direct testimony of the following Intervenor witnesses with respect to the Return on Equity ("ROE") and capital structure:

1 • Dr. J. Randall Woolridge, who testifies on behalf of Public Staff ("Staff");

2 • Mr. Richard A. Baudino, who testifies on behalf of the North Carolina

3 Attorney General's Office ("AG");

4 • Mr. Kevin W. O'Donnell, who testifies on behalf of the Carolina Utility

5 Customers Association ("CUCA");

6 • Mr. Steve W. Chriss, who testifies on behalf of the Commercial Group

7 ("Commercial Group"); and

8 • Mr. Nicholas Phillips, Jr., who testifies on behalf of Carolina Industrial

9 Group for Fair Utility Rates ("CIGFUR").

10 I refer to these witnesses collectively as the "Opposing Witnesses" as

11 their testimony relates to the Company's ROE and capital structure. I also

12 respond to the direct testimony of Staff Witness Mr. John R. Hinton, as his

13 testimony relates to the Return on Equity assumptions in the Company's nuclear

14 decommissioning trust fund ("NDTF"). My Rebuttal Testimony also updates

15 many of the analyses contained in my Direct Testimony, and provides several

16 additional analyses developed in response to the Opposing Witnesses.

1		**II. SUMMARY AND CONCLUSIONS**
2	**Q.**	**WHAT ARE YOUR SPECIFIC OBSERVATIONS REGARDING THE**
3		**OPPOSING WITNESSES' RETURN ON EQUITY AND CAPITAL**
4		**STRUCTURE RECOMMENDATIONS?**

5 A. Quite simply, the Opposing Witnesses' recommendations are below any

6 reasonable measure of the Company's Cost of Equity. As discussed throughout

7 my Rebuttal Testimony, those recommendations (1) are far below those

8 authorized for other utilities nationally and in North Carolina, (2) do not

9 appropriately reflect the current capital market environment, and (3) do not

10 recognize the risks faced by DE Progress.

11 There is no question the capital markets are undergoing a severe

12 dislocation. The speed and severity of the increase in volatility and the loss in

13 value has cut across all sectors, including utilities. As discussed below, during

14 the period from mid-February through April 17, 2020, the utility sector lost as

15 much as 34.00 percent of its value, and the correlation between utility stocks

16 and the overall market approached 100.00 percent. In my opinion,

17 recommended ROEs in the range of 8.40 percent (in the case of Dr. Woolridge's

18 alternative recommendation) to 9.00 percent (in the case of Dr. Woolridge's

19 primary recommendation, as well as Mr. Baudino's recommendation) would

20 compound the significantly elevated risks utilities currently face.[1]

---

[1]   Mr. O'Donnell's 8.75 percent ROE recommendation also falls within this range.

1   Based on the analyses discussed in my Direct and Rebuttal Testimony,

2   I continue to believe the Company faces risks that fully support my ROE

3   recommendation. Looking to all model results, and considering the quantitative

4   and qualitative data presented throughout my Rebuttal Testimony, including the

5   current capital market conditions, I continue to recommend an ROE in the range

6   of 10.00 percent to 11.00 percent, with a point estimate of 10.50 percent.

7   As to the Company's proposed capital structure, none of the Opposing

8   Witnesses have explained why their proposals properly address the many and

9   complicated financing objectives and constraints that operating utilities must

10   manage.   Rather, they inappropriately point to capital structures at the

11   consolidated parent, without acknowledging the importance of matching the

12   nature of utility assets and operations with the components of capital used to

13   fund those assets. Further, although certain of the Opposing Witnesses suggest

14   the Company should take on more financial risk to take advantage of debt costs

15   below the Cost of Equity, they fail to acknowledge the costs and risks brought

16   about by that increased financial risk. On balance, I believe the Opposing

17   Witnesses' recommendations are overly simplistic, their analyses are partial,

18   and their proposals should be rejected.

1 **Q. PLEASE NOW PROVIDE AN OVERVIEW OF YOUR RESPONSE TO**

2 **THE ROE RECOMMENDATIONS MADE BY THE OPPOSING**

3 **WITNESSES.**

4 A. Although the Opposing Witnesses believe their recommendations are

5 reasonable and support the Company's financial integrity, nearly all authorized

6 ROEs for vertically integrated electric utilities over the last five years have been

7 above their recommendations (*see* Chart 1, below). Whereas the Opposing

8 Witnesses' recommendations are far below those available to other utilities, my

9 recommended range (10.00 percent to 11.00 percent), is within that range.[2]

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[2] There have been 23 vertically integrated electric rate cases since January 1, 2017 in which the authorized ROE was 10.00 percent or greater. Of those, eleven were authorized in 2019-2020. *See*, Rebuttal Exhibit DWD-8.

Chart 1: Vertically Integrated Electric Utility Authorized ROEs

(2015 – 2020) and Witness Recommendations[3]
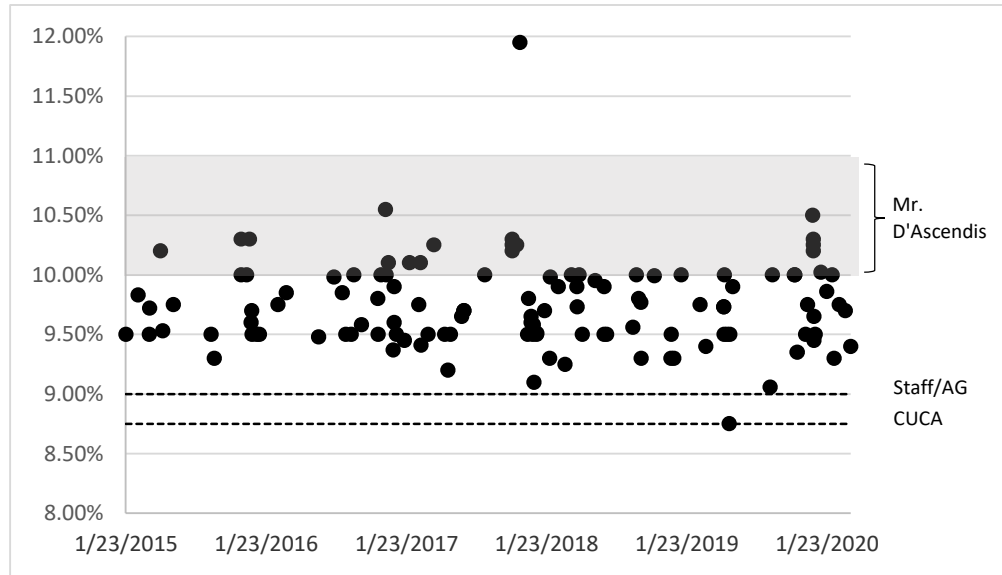
3   That significant departure from the returns available to other utilities

4   raises two concerns. First, DE Progress must compete with other companies,

5   including utilities, for the long-term capital needed to provide safe and reliable

6   utility service. Given the choice between two similarly situated utilities, one

7   with a return that falls far below industry averages and another with a return

8   that more closely aligns with returns available to other utilities, investors will

9   choose the latter. That is a particular concern for the Company, given its risk

10   profile, its need to access external capital, and the implication of Staff's overall

11   recommendation. If the Commission were to approve an ROE in the range

12   recommended by the Opposing Witnesses, investors would receive a lower

---

[3]   Source: Regulatory Research Associates ("RRA"). Authorized ROEs for vertically integrated electric utilities from January 1, 2015 through April 15, 2020. ROEs authorized for limited issue rate rider proceedings are excluded.

1   return with greater risk than would be available from other utilities. A likely

2   outcome would be increasing reluctance on the part of investors to provide

3   capital at reasonable costs and terms.

4   Second, although no regulatory commission sets returns solely by

5   reference to those authorized elsewhere, authorized returns do provide

6   observable and measurable benchmarks against which return recommendations

7   may be assessed. In my experience, regulatory commissions generally consider

8   the same types of market, methodological, and risk factors at issue in this

9   proceeding.   They recognize that financial models are important tools in

10   determining returns and understand that because all are subject to assumptions,

11   no one method is most reliable at all times, or under all conditions.

12   As discussed throughout my Rebuttal Testimony, that holds true in this

13   case. Even if we focus on a single method, it remains critically important to

14   apply reasoned judgment to determine where the Cost of Equity falls within that

15   model's range of results.   Just as investors consider company-specific and

16   general market factors in developing their return requirements, we should do

17   the same. Those considerations, and that judgment, lead to the conclusion that

18   the Opposing Witnesses' ROE recommendations are unduly low.

19 **Q.**   **HAS THE COMMISSION NOTED THE RISKS SURROUNDING**

20   **SETTING AN ROE THAT MAY BE TOO LOW?**

21 A.   Yes, it has. In its Order in Docket No. E-7, Sub 1026, the Commission clearly

22   stated it is well aware of the adverse effects of an unduly low ROE. Citing to

1   its Order in Docket No. E-2, Sub 1023, the Commission noted that:

> 2   Moreover, the Commission in establishing a rate of return on
> 3   equity and other cost of service determinations is mindful that
> 4   should it set the rate of return on equity too low, the impact on
> 5   long term rates may be harmful to ratepayers. The utilities the
> 6   Commission regulates compete in a market to raise capital.
> 7   Financial analysts, rating agencies, and investors themselves
> 8   scrutinize with great care the regulatory environment and
> 9   decisions in which these utilities operate. The regulatory
> 10   environment includes the utilities commissions, consumer
> 11   advocates, the state legislature, the executive branch and the
> 12   appellate courts. When regulatory risk is high, the cost of capital
> 13   goes up. Should regulatory ratemaking decisions swing too far
> 14   toward low consumer rates in a given case, the long term result
> 15   may likely be higher rates in the future, irrespective of the now
> 16   unknown economic conditions that will exist at such future
> 17   time.[4]

18   I appreciate that the Commission has the difficult obligation of

19 balancing the interests of investors and customers, such that rates are fair and

20 reasonable, and the Company is allowed the opportunity to receive a reasonable

21 return. As the Commission found, that balance is necessary for the Company

22 to be "financially sound and capable of providing its customers with safe and

23 reliable service".[5] That finding is particularly important during times of market

24 volatility and uncertainty, as we currently are experiencing. I also appreciate

25 the Commission's finding that the lowest rate of return does not necessarily

26 achieve that balance; as the Commission observed, a return too low in the near-

---

[4]   North Carolina Utilities Commission, Docket No. E-7, Sub 1026, *Order Granting General Rate Increase*, Issued September 24, 2013, at 39 – 40.

[5]   North Carolina Utilities Commission, Docket No. E-7, Sub 989, *Order on Remand*, Issued October 23, 2013, at 42.

1		term may produce higher customer rates in the future. In that important respect,
2		I believe the Opposing Witnesses' recommendations do not strike the balance
3		the Commission seeks to achieve.
4	Q.	**IS THERE REASON TO BE CONCERNED THAT THE FINANCIAL**
5		**COMMUNITY WOULD REACT ADVERSELY IF AN ROE IN THE**
6		**RANGE OF THE OPPOSING WITNESSES' RECOMMENDATIONS**
7		**WAS TO BE ADOPTED?**
8	A.	Yes. Investors are aware of and are concerned with decisions that depart from
9		regulatory practice. Here, the Opposing Witnesses' recommendations are far
10		removed from recent regulatory decisions. In my view, that departure presents
11		a risk that would cause investors to increase the return they would require to
12		invest in the Company. If that were to occur, and its equity were to be further
13		devalued, the Company's ability to compete for the capital needed to fund its
14		utility investments would be further diminished.
15	Q.	**ARE YOU AWARE OF A RECENT RATE DECISION IN WHICH THE**
16		**FINANCIAL COMMUNITY RESPONDED NEGATIVELY TO AN**
17		**ADVERSE REGULATORY OUTCOME?**
18	A.	Yes, I am. In February 2020, following several months of regulatory
19		deliberations, CenterPoint Energy Houston Electric, LLC ("CEHE") was
20		authorized an ROE of 9.40 percent, together with an equity ratio of 42.50

1	percent.[6] By way of background, CEHE represents about 45.00 percent of
2	CenterPoint Energy's ("CNP") combined net income.[7] The financial
3	community closely followed the Public Utility Commission of Texas's
4	("PUCT") deliberations, which initially called for an ROE of 9.25 percent and
5	an equity ratio of 40.00 percent. The real-time effect of those deliberations has
6	been clear: CNP, significantly underperformed the utility sector, and its credit
7	rating from FitchRatings ("Fitch") was downgraded by one credit "notch." The
8	equally clear effect is that CEHE's cost of capital has increased, to the detriment
9	of its customers. Please see Appendix A for further detail regarding CNP's
10	stock price performance during the PUCT's deliberations.

11 **III.   CAPITAL MARKET CONDITIONS AND THE COMPANY'S COST**
12   **OF EQUITY**

13 **Q.   PLEASE BRIEFLY SUMMARIZE THE OPPOSING WITNESSES'**

14   **POSITIONS REGARDING THE RECENT CAPITAL MARKET**

15   **DISLOCATION, AND ITS IMPLICATIONS FOR THE COMPANY'S**

16   **COST OF EQUITY.**

17 A.   Although the Opposing Witnesses recognize the significant instability arising

18   from COVID-19, they do not see the pandemic, or its effect on capital markets,

19   as meaningfully affecting the returns investors require for electric utilities. Dr.

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[6] *See,* S&P Global Market Intelligence, *Texas PUC OKs CenterPoint rate case settlement, adds no dividend restrictions*, February 14, 2020.

[7] CenterPoint Energy, Inc. SEC Form 10-K for the fiscal year ended December 31, 2019, at 61, 63. As of December 2019, CEHE represented about 50.00 percent of CNP's combined pre-tax operating profit (75.00 percent as of December 2018).

1   Woolridge points to average annual authorized ROEs since 2000,[8] along with

2   declines in Treasury yields[9] and "historically low" utility bond yields[10],

3   concluding "[c]apital costs are much lower now not only than when the

4   Company's ROE study was prepared, but also when it filed its request to

5   increase rates".[11]

6   Regarding the current market environment, Dr. Woolridge argues

7   market prices have become so disconnected from "fundamentals" that we

8   cannot rely on the models typically used to estimate the Cost of Equity.[12] Dr.

9   Woolridge notes the dislocation's effect on models is uneven, noting an

10   uncertain effect on the Discounted Cash Flow ("DCF") and Capital Asset

11   Pricing Model ("CAPM") approaches, and no meaningful effect on the Risk

12   Premium model.[13] Because those results remain highly uncertain, Dr.

13   Woolridge bases his recommendation on data from early February, prior to the

14   COVID-19 pandemic.

15   Although he "reserve[s] the right to update [his] testimony and

16   recommendations",[14] Mr. Baudino's analyses rely on data through the end of

17   February 2020, largely prior to the market dislocation associated with the

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8   Testimony of J. Randall Woolridge, at 31-32.
9   Testimony of J. Randall Woolridge, at 17, B-2.
10   Testimony of J. Randall Woolridge, at 95.
11   Testimony of J. Randall Woolridge, at 98.
12   Testimony of J. Randall Woolridge, at 25-28.
13   Testimony of J. Randall Woolridge, at 27-29.
14   Direct Testimony of Richard A. Baudino, at 5.

1   COVID-19 pandemic.[15] While Mr. O'Donnell's analyses use data into April

2   2020, he only briefly discusses the recent market disruption and does not draw

3   any conclusions regarding the effect on the Company's Cost of Equity.[16]

4 **Q.   PLEASE   DESCRIBE   THE   CURRENT   CAPITAL   MARKET**

5 **CONDITIONS, AND THEIR IMPLICATIONS FOR ESTIMATING THE**

6 **COMPANY'S COST OF EQUITY.**

7 A.   The recent, dramatic shifts in the capital markets brought about by the COVID-

8   19 virus cannot be overstated. From February 12 to April 17, the S&P 500 lost

9   about 15.00 percent of its value, and the utility sector lost about 12.00 percent.[17]

10   During that time the broad market and the utility sector both had lost as much

11   as 34.00 percent.[18] The VIX, which measures expected market volatility,

12   increased six-fold (from 13.68 on February 14 to 82.69 on March 16); on March

13   9, the 30-year Treasury yield fell below 1.00 percent.[19]

14   Central banks have implemented multiple policies to address the

15   financial market instability. On March 3, 2020, the Federal Reserve reduced the

16   overnight lending rate by 50 basis points, to a target range of 1.00 percent to

17   1.25 percent. It did so in light of the "evolving risks to economic activity"

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[15]   Direct Testimony of Richard A. Baudino, at 2; Exhibit RAB-2, Exhibit RAB-3, Exhibit RAB-4.

[16]   Direct Testimony of Kevin W. O'Donnell, at 68-70. Exhibits KWO-1 through KWO-10.

[17]   Source: S&P Capital IQ. Utility sector measured by the XLU, and Dow Jones Utility Average.

[18]   Source: S&P Capital IQ. Utility sector measured by the XLU, and Dow Jones Utility Average. Largest losses occurred on March 23, 2020.

[19]   Source: Bloomberg Professional.

1 posed by the coronavirus, and despite its view that "[t]he fundamentals of the

2 U.S. economy remain strong."[20] On March 12, 2020, the Federal Reserve Bank

3 of New York ("FRBNY") released a statement regarding "Treasury Reserve

4 Management Purchases and Repurchase Operations". In that statement, the

5 FRBNY announced that from March 13 to April 13, 2020 it would repurchase

6 $60 billion of Treasury securities "across a range of maturities". The FRBNY

7 also stated it had updated its monthly schedule of repurchase agreement

8 operations to "address temporary disruptions in Treasury financing markets."

9 Together, the FRBNY's changes were meant to "address highly unusual

10 disruptions in Treasury financing markets associated with the coronavirus

11 outbreak."

12   Three days later, on March 15, 2020, the Bank of Canada, the Bank of

13 England, the Bank of Japan, the European Central Bank, the Federal Reserve,

14 and the Swiss National Bank announced "a coordinated action to enhance the

15 provision of liquidity via the standing U.S. dollar liquidity swap line

16 arrangements."[21] The same day, the Federal Reserve lowered the Federal Funds

17 rate by an additional 100 basis points, to a target range of 0.00 percent to 0.25

18 percent, and announced its plan to increase holdings of Treasury securities and

19 agency mortgage-backed securities by a total of $700 billion.[22]

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[20]   Federal Reserve Press Release, March 3, 2020.
[21]   Federal Reserve Press Release, *Coordinated Central Bank Action to Enhance the Provision of Global U.S. Dollar Liquidity*, March 15, 2020.
[22]   Federal Reserve Press Release, March 15, 2020.

1   In late March, the Federal Reserve announced additional initiatives to

2   support the capital markets, including a new method to measure counterparty

3   credit risk derivatives contracts, an optional extension of the regulatory capital

4   transition for the new credit loss accounting standard[23], and the establishment

5   of a "temporary FIMA Repo Facility" intended to support "the smooth

6   functioning of financial markets, including the U.S. Treasury market, and thus

7   maintain the supply of credit to U.S. households and businesses."[24]

8   On March 23, the U.S. House of Representatives introduced a bill

9   providing approximately $2.5 trillion of economic stimulus payments; on

10   March 25, the U.S. Senate passed the Coronavirus Aid, Relief, and Economic

11   Security Act, which was signed into law on March 27, 2020. On April 24,

12   President Trump signed the Paycheck Protection Program and Health Care

13   Enhancement Act that provided an additional $484 billion in emergency aid.[25]

14   On April 6, the Federal Reserve announced it would "establish a facility

15   to facilitate lending to small businesses via the Small Business Administration's

16   Paycheck Protection Program ("PPP") by providing term financing backed by

17   PPP loans"[26]. On April 9, it "took additional actions to provide up to $2.3

18   trillion in loans to support the economy", explaining that the "funding will assist

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[23]   Joint Press Release, Board of Governors of the Federal Reserve System Federal Deposit
Insurance Corporation Office of the Comptroller of the Currency, March 27, 2020.
[24]   Federal Reserve Press Release, March 31, 2020.
[25]   S&P Global Market Intelligence, *Trump signs $484B coronavirus relief package into law*,
April 24, 2020.
[26]   Federal Reserve Press Release, April 6, 2020.

1   households and employers of all sizes and bolster the ability of state and local

2   governments to deliver critical services during the coronavirus pandemic."[27]

3   By April 22, Securities Held Outright on the Federal Reserve's balance sheet

4   increased to $5.45 trillion from $3.81 trillion on February 5, 2020.[28]

5   The April 10, 2020 edition of *Blue Chip Economic Indicators* ("*Blue*

6   *Chip*") described the pandemic's effect on the general economy as follows:

7   This month's Blue Chip Economic Indicators panel's forecast
8   for real GDP in Q2 2020 is estimated to set a historical record –
9   by far: a plunge of -24.5% SAAR [Seasonally Adjusted Annual
10   Rate]. The previous record was -10.0% in Q1 1958; quarterly
11   data began in Q1 1947. In its February forecast, the panel had
12   projected Q2 growth to be 1.9% SAAR and in March 1.0%.[29]

13   *Blue Chip* further explained that it expects the "easing of the current outbreak

14   of the disease and accompanying social distancing practices will support a

15   visible recovery in the second half of this year and on into 2021." At the same

16   time, *Blue Chip* cautioned that "the speed of the recovery would be nowhere

17   near the magnitude of the drop", and according to its consensus forecast, "real

18   GDP would not recover to its previous peak until the fourth quarter of 2021."[30]

19   According to the U.S. Department of Labor ("DOL"), the seasonally

20   adjusted insured unemployment rate for the week ending April 4, 2020 was 8.20

21   percent. As DOL explained, "[t]his marks the highest level of the seasonally

---

[27]   Federal Reserve Press Release, April 9, 2020.
[28]   Federal Reserve Schedule H.4.1
[29]   *Blue Chip Economic Indicators*, April 10, 2020, at 1. [clarification added]
[30]   *Ibid*.

1	adjusted insured unemployment rate in the history of the seasonally adjusted
2	series." The previous high, set in May 1975, was 7.00 percent.[31] By April 11th,
3	the rate increased to 11.00 percent.[32] On April 29, 2020, the Bureau of
4	Economic Analysis released its estimate for Gross Domestic Product ("GDP")
5	for the first quarter of 2020, showing real GDP declined by 4.80 percent (annual
6	rate) in the first three months of the year.[33]
7	It is within that broad context that on April 2, Standard & Poor's
8	("S&P") downgraded its outlook on the utility sector from "Stable" to
9	"Negative", explaining that it expects a 12.00 percent contraction in GDP
10	during the second quarter of 2020, reducing commercial and industrial usage.[34]
11	Despite central bank actions, the 30-Year Treasury bond yield has
12	remained highly volatile, as seen in its Coefficient of Variation ("CoV"), (*see*
13	Chart 2 below).

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[31]   U.S. Department of Labor News Release, April 16, 2020.
[32]   U.S. Department of Labor News Release, April 23, 2020
[33]   U.S. Bureau of Economic Analysis News Release, April 29, 2020.
[34]   S&P Global Ratings, *COVID-19: The Outlook For North American Regulated Utilities Turns Negative*, April 2, 2020, at 1, 6-7.

1 **Chart 2: Coefficient of Variation in 30-Year Treasury Yields**[35]
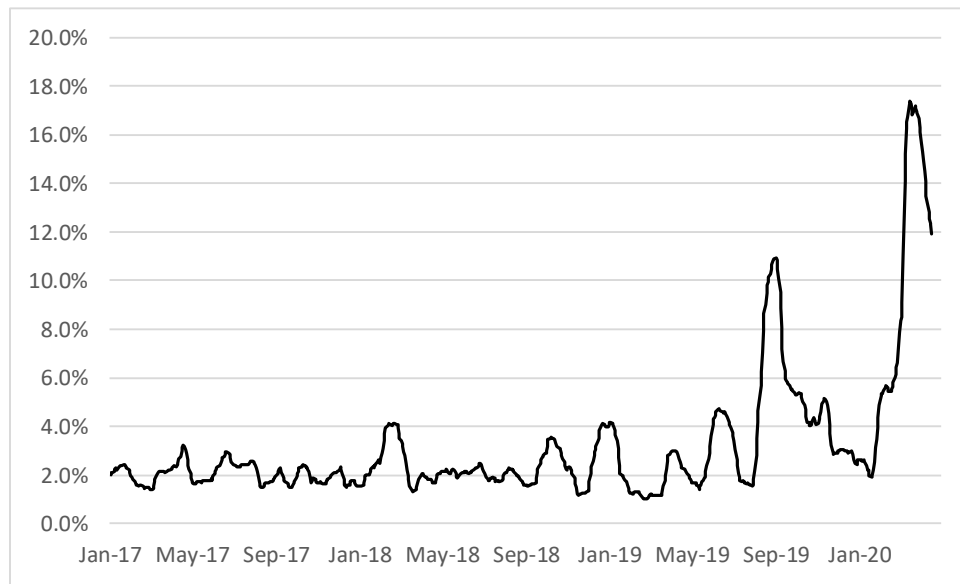
2   Investor reactions to the market instability also are reflected in the "yield

3   spread", or the difference between dividend yields and long-term Government

4   bond yields. As the 30-year Treasury yield fell, utility dividend yields

5   increased, widening the yield spread (*see* Chart 3, below). That pattern, in

6   which utility dividend yields move in the opposite direction of interest rates,

7   reflects the disjointed capital market, and investors' reactions to it. Under more

8   "normal" conditions, dividend yields tend to be directionally related to Treasury

9   yields, such that the yield spread remains relatively constant. But that

10   relationship has a limit. Investors will not continuously bid up utility prices as

11   interest rates fall; the widening yield spread demonstrates as much.

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[35]   Source: S&P Global Market Intelligence.

1 **Chart 3: Utility Dividend Yields vs. 30-Year Treasury Yields[36]**
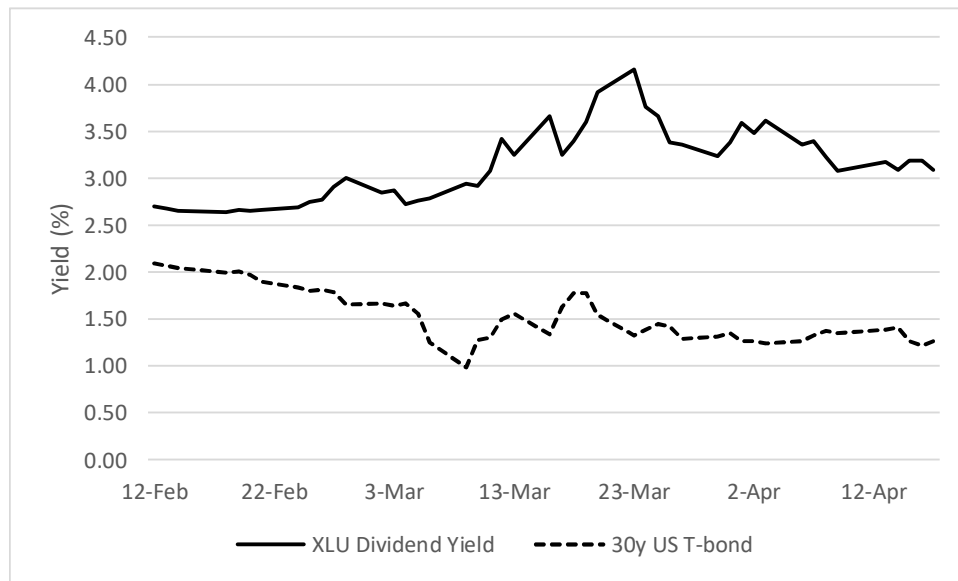
2   From a slightly different perspective, from January 1 to February 11,

3   2020, the correlation between the S&P 500 dividend yield and the utility sector

4   dividend yield was about 14.00 percent. From February 12 through April 17,

5   2020 it increased to 95.00 percent (*see* Chart 4, below).   That increasing

6   correlation is not surprising. As Morningstar recently explained, during volatile

7   markets there often is little distinction in returns across assets or portfolios.

8   That is, "correlations go to 1."[37] When that happens, utility stocks lose their

9   "defensive" quality.

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[36]   Source: S&P Capital IQ.

[37]   Morningstar, *Correlations Going to 1: Amid Market Collapse, U.S. Stock Fund Factors Show Little Differentiation*, March 6, 2020.

1 **Chart 4: Utility Sector Dividend Yield vs. S&P 500 Dividend Yield**

2 **(2/12/2020 – 4/17/2020)[38]**
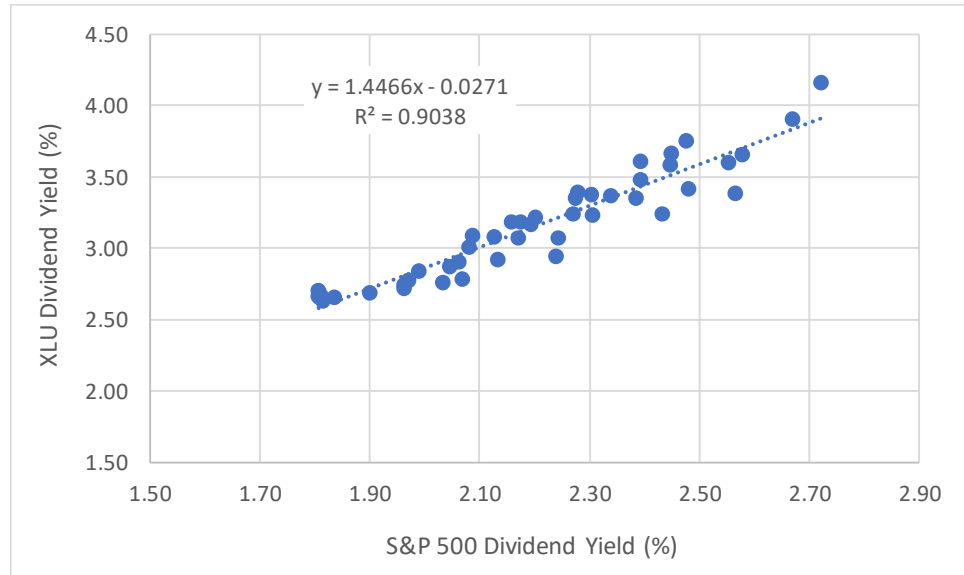
3   A direct consequence of stronger correlations is higher Beta

4   coefficients.[39] That effect is demonstrated in Rebuttal Exhibit DWD-3, where

5   Beta coefficients provided by Bloomberg have nearly doubled (from 0.499 to

6   0.995) since I filed my Direct Testimony (*see* Exhibit DWD-3). Under the

7   CAPM, those higher Beta coefficients indicate a substantial increase in the Cost

8   of Equity.

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[38]   Source: S&P Capital IQ. Utility sector represented by the XLU. Please note, R^2 of 0.9038
         indicates a correlation coefficient (R) of 0.9507.
[39]   Direct Testimony of Dylan W. D'Ascendis, at 87, Equation 7.

1 **Q.   WITH THAT BACKGROUND, DO YOU AGREE WITH DR.**

2   **WOOLRIDGE THAT THE BEST APPROACH TO INTERPRETING**

3   **THE MARKET DISLOCATION IS TO REACH BACK TO THE PRE-**

4   **COVID-19 ERA?**

5 A.   No, I do not. Dr. Woolridge's testimony provides a brief chronology of events

6   associated with COVID-19, a review of certain financial measures and how

7   they have changed since mid-February, and his interpretation of how those

8   events have affected the models commonly used to estimate the Cost of Equity.

9   Dr. Woolridge's principal position appears to be that capital markets are in a

10   state of disequilibrium, and the DCF and CAPM methods provide unreliable

11   measures of the Cost of Equity. Because the model results are highly uncertain,

12   he chose to use data as of the first week of February.[40]

13   Dr. Woolridge's conclusion that the capital markets currently are in a

14   state of disequilibrium rests on his view that "the emotions of the market and

15   the great uncertainty over the future impact of the coronavirus have resulted in

16   markets that have become disconnected from fundamentals."[41] By that he

17   means the fundamental factors investors tend to consider – national and global

18   macroeconomic factors, industry-specific factors, and company-specific

19   factors[42] – have been supplanted by investor emotion arising from the "great

---

[40]   Testimony of J. Randall Woolridge, at 30-31.
[41]   Testimony of J. Randall Woolridge, at 25.
[42]   Testimony of J. Randall Woolridge, at 25

1   uncertainty involving the spread of the virus and its impact on the economy."[43]

2   He concludes "there is not clear indication that these models would indicate that

3   equity cost rates have increased or decreased since mid-February."[44]

4   As Dr. Woolridge notes, the duration and eventual effect of the

5   pandemic are unknown, and the range of potential economic and capital market

6   outcomes is highly uncertain. The consequence of that uncertainty, he argues,

7   is that:

8   … in the current environment, investors cannot rely on
9   fundamental factors to value stocks and bonds based on
10   traditional valuation procedures and measures. Instead, I believe
11   that investors are reacting to daily news reports and updates on
12   the virus as to whether the situation is getting better or worse
13   and then allocating their investment funds accordingly.[45]

14   Dr. Woolridge then goes through each of the DCF, CAPM, and Risk Premium

15   methods, finding the DCF and CAPM approaches are susceptible to some

16   modeling error in the current environment, but the Risk Premium method less

17   so.[46] He finds the "big increase in volatility in the markets suggests that the

18   markets are not in equilibrium, and probably will not be in equilibrium until

19   more is known about the virus and the associated economic implications", and

20   concludes that "traditional financial models such as the DCF and CAPM

21   models do not provide reliable estimates of the cost of equity capital in the

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[43]   Testimony of J. Randall Woolridge, at 27-28.
[44]   Testimony of J. Randall Woolridge, at 31.
[45]   Testimony of J. Randall Woolridge, at 26.
[46]   Testimony of J. Randall Woolridge, at 27-29. I respond to Dr. Woolridge's assessment of
        these models in Section V.

1   coronavirus economic environment." [47] Dr. Woolridge's proposed solution is to

2   use "data as of the first week of February, which is before the market meltdown

3   associated with coronavirus."[48]

4 **Q.   WHAT IS YOUR GENERAL RESPONSE TO DR. WOOLRIDGE ON**

5   **THOSE POINTS?**

6 A.   I agree that since mid-February, the capital markets have been historically

7   unstable. I also agree, in part, with Dr. Woolridge's observation that when

8   market prices diverge from some measure of intrinsic value, the disequilibrium

9   affects the reliability of certain model results. That said, I disagree with Dr.

10   Woolridge's implicit position that we cannot draw conclusions from models or

11   market data as to whether the Cost of Equity has increased or decreased in

12   connection with that instability. As discussed below, we certainly can look to

13   parameters within the models themselves, or data on which they rely, to

14   comfortably conclude the Cost of Equity is higher now than it was in early

15   February. Although we cannot assign precise basis point increments to the

16   increased market risk, we can infer with reasonable confidence that there has

17   been a directional change in the Cost of Equity, and that change is upward. The

18   fundamental risk/reward relationship tells us as much.

19   I also disagree that a proper remedy is to ignore COVID-19's current

20   and possible effect on the economy and capital markets. As Dr. Woolridge

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[47]   Testimony of J. Randall Woolridge, at 30.
[48]   Testimony of J. Randall Woolridge, at 30.

1   points out, the range of possible future economic outcomes created by the

2   pandemic is significant. It is that uncertainty that has driven the unprecedented

3   volatility in the capital markets. We therefore cannot say the post-COVID-19

4   environment, whenever that comes about, will resemble early February 2020.

5   Lastly, the proposed approach of looking back to early 2020 does not solve

6   the problem of market prices that may be "disconnected from fundamentals".

7   Rather, it looks to a period of unusually high valuations, and produces a series

8   of unreasonably low ROE estimates.

9 **Q.   ARE YOU AWARE OF ANY GENERAL INDICATORS THAT THE**

10   **COST OF CAPITAL FOR UTILITIES HAS INCREASED DURING THE**

11   **RECENT MARKET DISLOCATION?**

12 A.   Yes. At page 37 of his Testimony, Dr. Woolridge refers to the Company's credit

13   rating, arguing it demonstrates less risk than other electric utilities. That is, he

14   argues credit ratings are a measure of equity risk. As noted earlier, S&P

15   downgraded its outlook for the North American utility sector from stable to

16   negative. In its review of how COVID-19 may affect the utility sector, S&P

17   explained it expects a 12.00 percent contraction in GDP during the second

18   quarter of 2020, reducing commercial and industrial usage. S&P further noted

19   that although companies with decoupling structures may be able to offset some

20   of that lower usage, bad debt expenses likely will increase. Even though some

21   utilities may be able to defer those costs, S&P notes that in prior incidents

22   utilities have negotiated with regulatory commissions to "write off some of

1   these costs as part of a larger agreement."[49]

2   Regarding liquidity and capital access, S&P observes that "the industry

3   continues to exhibit adequate liquidity and access to the debt markets, despite

4   uneven performance of the commercial paper market for tier 2 issuers", but

5   availability to equity markets "remains extraordinarily challenging."[50] S&P

6   expects the negative discretionary cash flow associated with high capital

7   investment commitments and the "lack of access to the equity markets" to "lead

8   to a weakening of credit measures."[51]

9 **Q.**   **HAVE UTILITY CREDIT SPREADS REFLECTED THE CONCERNS**

10   **NOTED BY S&P AND MOODY'S?**

11 A.   Yes, they have. As Chart 5 (below) demonstrates, credit spreads for, A, BBB+,

12   and BBB rated utility debt increased significantly from February 19 to April 17,

13   2020, nearly 50.00 percent by the end of the period and more than doubling

14   during the period. Looking back to 2007, before the 2008/2009 Financial

15   Crisis, utility credit spreads as of April 17, 2020 were in the top 90th to 93rd

16   percentile. Put another way, even considering the Financial Crisis, credit

17   spreads currently are at historically high levels.

---

[49]   S&P Global Ratings, *COVID-19: The Outlook For North American Regulated Utilities Turns Negative*, April 2, 2020, at 7.
[50]   *Ibid.*
[51]   *Ibid.*

1   **Chart 5: Utility Credit Spreads (January 1, 2020 to April 17, 2020)[52]**
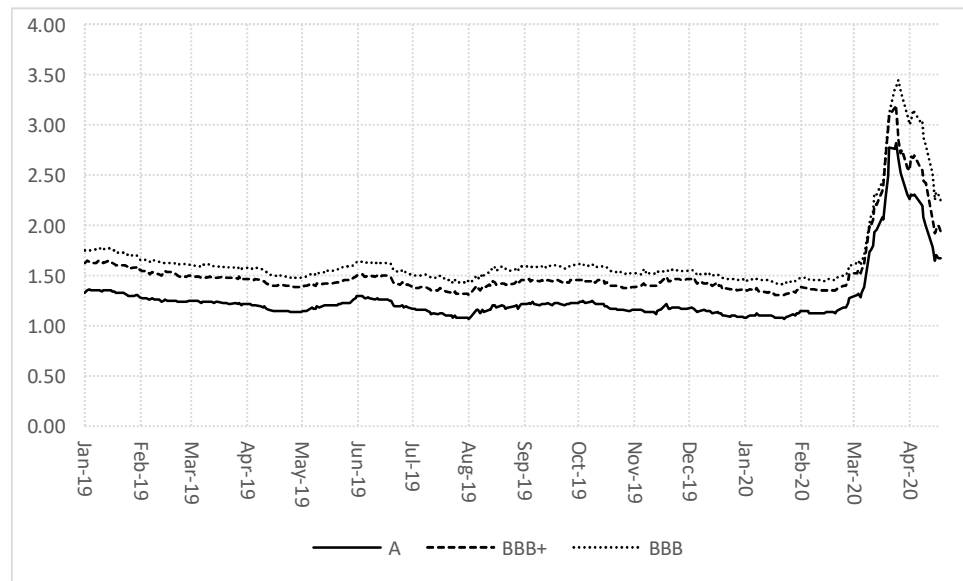
2   **Q.**   **WHAT CONCLUSIONS DO YOU DRAW FROM THOSE ANALYSES?**

3   A.   First, certain of the Opposing Witnesses look to debt cost rates as a measure of

4   the Cost of Equity.[53] Because underlying Treasury yields have been depressed

5   due to investors seeking the safety of Treasury securities, the relevant measure

6   of incremental return requirements is the change in credit spreads. Debt

7   investors have a contractual, senior claim on cash flows over a limited horizon

8   whereas equity investors bear the residual risk of ownership in perpetuity.

9   Despite those protections, the additional return required by debt investors

10   approximately doubled during the current market dislocation. Given its lower

11   priority claim on cash flows and its perpetual exposure to risk, we can assume

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[52]   Source: Bloomberg Professional. Data based on Fair Value Curves for 30-year maturities.
[53]   Testimony of J. Randall Woolridge, at 16-17, 55; Direct Testimony of Richard A. Baudino, at 54-55; Direct Testimony of Kevin W. O'Donnell, CFA, at 68-69.

1   the increase in the Cost of Equity would be greater than the increase in credit

2   spreads. Again, even if we cannot precisely measure the increase in the Cost of

3   Equity associated with market dislocation, we reasonably can conclude it has

4   increased, not decreased.

5   Second, S&P and Moody's both point to reducing the growth in

6   dividends as a means of preserving credit quality in the event of a prolonged

7   economic downturn. Doing so, however, comes at the expense of equity

8   investors.   The potential tension between maintaining credit quality and

9   preserving dividends is another reason the Cost of Equity may increase more

10   than credit spreads.

11   Lastly, rating agency discussions of the importance of cash flow

12   demonstrate the risks the Opposing Witnesses' recommendations would create.

13   The two principal sources of cash flow to utilities are net income and

14   depreciation. By reducing the ROE, the Opposing Witnesses would reduce the

15   Company's earnings, cash flow, and ability to internally fund capital

16   investments and dividends, putting further downward pressure on stock prices.

17   If dividends are maintained despite lower earnings and cash flow,

18   payout ratios will increase. As Moody's observed, over time companies with

19   higher payout ratios are more likely to reduce dividends, which would put

20   further downward pressure on stock valuations. And as S&P noted, reduced

21   equity valuations diminish the ability to access external equity, further eroding

22   credit quality.

1   In short, during a period of heightened and possibly prolonged market

2   uncertainty, observable market information makes clear that utility investors

3   now face greater risks and require higher returns. I therefore cannot agree that

4   because certain models become less reliable under unusual market conditions,

5   we should look to the pre-COVID-19 period as Dr. Woolridge suggests, or

6   conclude the Cost of Equity has decreased. Rather, we reasonably can conclude

7   risks and required returns have increased, even if not all models are able to

8   precisely measure that increase.

9 **Q.**   **WITH THOSE CONSIDERATIONS IN MIND, DO YOU AGREE IT IS**

10   **PROPER TO EXCLUDE THE CURRENT MARKET ENVIRONMENT**

11   **IN DETERMINING THE COMPANY'S ROE?**

12 A.   No, I do not. As Dr. Woolridge notes, the potential range of economic and

13   financial outcomes due to COVID-19 is wide; we cannot know at this time

14   which path eventually will prevail. On that point, we agree. I also agree the

15   assumptions underlying the models used to estimate the Cost of Equity may be

16   disconnected from the current market. As discussed earlier, however, even if

17   we cannot precisely measure its change, we can say with confidence the market-

18   required Return on Equity has increased. In my opinion, there is no reason to

19   believe investors, including the institutional investors that hold about 75.00

20   percent of the proxy companies' shares,[54] would assume the current market

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[54]   Source: S&P Global Market Intelligence; downloaded April 24, 2020.

1   instability and economic uncertainty has no meaning for the returns they

2   require.

3   Lastly, as noted earlier, Dr. Woolridge's proposed remedy would have

4   the Commission set rates based on a period of unusually high valuations. From

5   January 2 to February 11, 2020, Dr. Woolridge's proxy group average

6   Market/Book ratio was about 2.49x; by April 3 it had fallen to about 1.98x, a

7   decline of more than 20.00 percent.[55]

8   Although the current Market/Book ratio is lower than its recent level, it

9   is consistent with the long-term average. Dr. Woolridge's approach, however,

10   would look to a period during which the Market/Book was in the top 93rd

11   percentile of historical observations. If Dr. Woolridge is concerned with market

12   prices that are disassociated with "fundamentals", that same concern should

13   apply to the unusually high valuation multiples on which he bases his

14   recommendation.

15   As discussed above, it is difficult to attribute basis points to the

16   increased risks brought about by the COVID-19 pandemic. That does not mean

17   those risks do not exist or should be disregarded. Rather, the risks to investors

18   are real, and should be considered in some fashion. Further, if the Opposing

19   Witnesses' ROE recommendations were adopted, it would compound those

20   risks at a time when regulatory support is critically important.

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[55]   Source: S&P Global Market Intelligence. Dr. Woolridge's proxy group calculated as an
         Index.

1   Although the Opposing Witnesses may take those concerns lightly,

2   market participants such as S&P have not. Nor have the debt investors who

3   require considerably higher credit spreads than they had as recently as early

4   February 2020, the policy-makers that would add $2.5 trillion of liquidity to the

5   economy, or economists that have noted the historic economic dislocation

6   created by COVID-19. Taken in that broad context, I continue to support my

7   10.50 percent ROE recommendation.

8   **IV.   SUMMARY OF UPDATED ANALYSES**

9   **Q.   PLEASE SUMMARIZE THE ANALYSES CONTAINED IN YOUR**

10   **REBUTTAL TESTIMONY.**

11   A.   I have updated many of the analyses contained in my Direct Testimony,

12   including the Constant Growth DCF analyses, the CAPM, the Empirical CAPM

13   ("ECAPM"), the Bond Yield Plus Risk Premium approach, and the Expected

14   Earnings approach. I also have updated my proxy group based on recent data.

15   Lastly, I have provided additional analyses in response to the Opposing

16   Witnesses.

17   **Q.   PLEASE DESCRIBE YOUR UPDATED PROXY GROUP.**

18   A.   I have included Avista Corporation ("Avista"), which had been party to a

19   proposed acquisition by Hydro One Limited; that transaction was terminated on

20   January 23, 2019.[56] Because Avista meets all my screening criteria and enough

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[56]   *See*, *Hydro One and Avista Mutually Agree to Terminate Merger Agreement*, Press Release,
        January 23, 2019.

1   time has passed that the model inputs no longer are affected by the proposed

2   transaction, I included Avista in my proxy group. I refer to the resulting group

3   as the "Updated Proxy Group" and is provided in Table 1, below.

4   **Table 1: Updated Proxy Group**

Company	Ticker
ALLETE, Inc.	ALE
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power Company	AEP
Avangrid, Inc.	AGR
Avista Corporation	AVA
CMS Energy Corporation	CMS
DTE Energy Company	DTE
Evergy, Inc.	EVRG
Hawaiian Electric Industries, Inc.	HE
NextEra Energy, Inc.	NEE
NorthWestern Corporation	NWE
OGE Energy Corp.	OGE
Otter Tail Corporation	OTTR
Pinnacle West Capital Corporation	PNW
PNM Resources, Inc.	PNM
Portland General Electric Company	POR
Southern Company	SO
WEC Energy Group, Inc.	WEC
Xcel Energy Inc.	XEL

5   My updated analytical results based on the Updated Proxy Group are provided

6   in Section XI, Table 15.

| 1 | | **V.   RESPONSE TO STAFF WITNESS DR. WOOLRIDGE** |

1   **V.   RESPONSE TO STAFF WITNESS DR. WOOLRIDGE**

2   **Q.   PLEASE BRIEFLY SUMMARIZE DR. WOOLDRIDGE'S ROE**

3   **ANALYSES AND RECOMMENDATIONS.**

4   A.   Although Dr. Woolridge asserts "an appropriate ROE for the Company is in the

5   range of 6.90% to 8.40%", his "primary" recommendation is an ROE of 9.00

6   percent, assuming his 50.00 percent proposed common equity ratio.[57]   He

7   provides an "alternative" recommendation of 8.40 percent, based on the

8   Company's December 31, 2019 equity ratio of 51.50 percent.[58]   In each case,

9   Dr. Woolridge's recommendation is based primarily on his Constant Growth

10   DCF analysis, although he did provide a CAPM analysis, to which he gives less

11   weight.[59]

12   **Q.   WHAT ARE THE SPECIFIC AREAS IN WHICH YOU DISAGREE**

13   **WITH DR. WOOLRIDGE'S ANALYSES AND CONCLUSIONS?**

14   A.   There are several areas in which I disagree with Dr. Woolridge, including:

15   (1) the interpretation of current capital market conditions; (2) the overall

16   reasonableness of his ROE recommendation; (3) the selection of the proxy

17   companies; (4) Dr. Woolridge's application of the Constant Growth DCF

18   model; (5) Dr. Woolridge's application of the CAPM; (6) the applicability of

19   the ECAPM; (7) the reasonableness of the Bond Yield Plus Risk Premium

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[57]   Testimony of J. Randall Woolridge, at 6.
[58]   Testimony of J. Randall Woolridge, at 7.
[59]   Testimony of J. Randall Woolridge, at 59.

1		method; (8) Dr. Woolridge's position that the Expected Earnings approach is
2		not an accurate measure of investor expectations; (9) the relevance of
3		Market/Book ("M/B") ratios in determining the ROE; (10) Dr. Woolridge's
4		position that the Company is less risky than its peers; (11) the implications of
5		economic conditions in North Carolina for the Company's Cost of Equity; and
6		(12) the reasonableness of his capital structure proposal.

7 *A. Capital Market Conditions*

8 **Q.   PLEASE SUMMARIZE DR. WOOLRIDGE'S TESTIMONY AS IT**

9 **RELATES TO CURRENT CAPITAL MARKET CONDITIONS.**

10 A.   Dr. Woolridge argues that my "analyses, ROE results, and recommendations

11 reflect an assumption of higher interest rates and capital costs".[60] He goes on

12 to state that "[d]espite the Federal Reserve's moves to increase the federal funds

13 rate over the 2015-18 time period, interest rates and capital costs remained at

14 low levels"[61] and observes that "[i]n 2019, interest rates fell dramatically with

15 slow economic growth and low inflation."[62]   On that basis, Dr. Woolridge

16 suggests the Commission "set an equity cost rate based on indicators of market-

17 cost rates rather than speculating on the future direction of interest rates"[63]

18 based on his conclusion that "it is practically impossible to accurately forecast

19 interest rates and prices of investments that are determined in financial

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[60]   Testimony of J. Randall Woolridge, at 9.
[61]   Testimony of J. Randall Woolridge, at 9.
[62]   Testimony of J. Randall Woolridge, at 9.
[63]   Testimony of J. Randall Woolridge, at 20.

1   markets".[64]

2   Q. **DO YOU AGREE WITH DR. WOOLRIDGE'S CONCLUSION THAT**

3   **THE CAPITAL MARKET ENVIRONMENT SUGGESTS A LOWER**

4   **COST OF EQUITY FOR THE COMPANY?**

5   A. No, I do not. As Chart 2 (above) indicates, one means of viewing the increasing

6   volatility of Treasury yields is to view the CoV over time. As that chart

7   demonstrates, long-term Treasury yields have become increasingly variable

8   through mid-April 2020. At issue is the extent to which that volatility should

9   be considered in assessing the relationship between Treasury yields and the

10   Cost of Equity. If the variability in yields relates to something other than long-

11   term fundamental market factors, we should question the extent to which

12   changes in bond yields reflect changes in investor return requirements.

13   As noted in my Direct Testimony, over time, significant and abrupt

14   declines in Treasury yields have been associated with increases in equity market

15   volatility.[65] That relationship makes intuitive sense; as investors see increasing

16   risk their objectives may shift to capital preservation (that is, avoiding a capital

17   loss), rather than capital appreciation. Consistent with that objective, investors

18   may allocate capital to the relative safety of Treasury yields, in a "flight to

19   safety." Because bond yields are inversely related to bond prices, as investors

20   bid up the prices of bonds, they bid down the yields. That pattern is seen in

---

[64]   Testimony of J. Randall Woolridge, at 23.
[65]   Direct Testimony of Dylan W. D'Ascendis at 62.

1   Chart 10 in my Direct Testimony, in which decreases in the 30-year Treasury

2   yield coincided with increases in the VIX. In those instances, the fall in yields

3   does not reflect a reduction in required returns, it reflects an increase in risk

4   aversion and, therefore, an increase in investor-required returns.

5   As explained in Section III, February and March 2020, the VIX

6   increased six-fold. That increase corresponded with the increasing volatility in

7   Treasury yields. And as noted in Chart 3 (above), the recent decline in Treasury

8   yields also corresponded with an increase in utility dividend yields. To

9   summarize, the recent decline in interest cannot be seen as indicating a decrease

10   in the Cost of Equity. Rather, the fall in interest rates is the result of safety-

11   seeking behavior on the part of investors facing an extraordinarily volatile

12   market.

13   **Q.   PLEASE   BRIEFLY   SUMMARIZE   APPENDIX   B   TO   DR.**

14   **WOOLRIDGE'S TESTIMONY.**

15   A.   Appendix B generally provides a chronology of events associated with the

16   Coronavirus, a review of certain financial measures and how they have changed

17   since mid-February, and Dr. Woolridge's interpretation of how those events are

18   reflected in the models commonly used to estimate the Cost of Equity. Dr.

19   Woolridge's principal position appears to be straightforward: The capital

20   markets are in a state of disequilibrium, and the DCF and CAPM methods

1   provide unreliable measures of the Cost of Equity.[66]

2   Dr. Woolridge then goes through each of the DCF method, the CAPM

3   approach, and the Risk Premium model, finding the DCF and CAPM methods

4   are susceptible to some modeling error in the current environment, but the Risk

5   Premium method is not.[67] He concludes "security prices are disconnected from

6   fundamentals, and therefore traditional financial models such as the DCF and

7   CAPM models do not provide reliable estimates of the cost of equity capital."[68]

8   In the end, Dr. Woolridge argues "the volatility of the markets since mid-

9   February suggests that the markets are not in equilibrium and therefore

10   traditional models, using the current market data, do not provide reliable

11   estimates of the cost of equity capital".[69] His proposed solution is to use "data

12   as of the first week of February, which is before the market meltdown associated

13   with coronavirus occurred."[70]

14   **Q.   WHAT IS YOUR GENERAL RESPONSE TO DR. WOOLRIDGE'S**

15   **APPENDIX B?**

16   A.   First, there is no question that since mid-February, the capital markets have

17   become historically unstable. As discussed in Section III, the utility sector has

---

[66]   Testimony of J. Randall Woolridge, at B-13.
[67]   Testimony of J. Randall Woolridge, at B-10 – B-12. As to the Risk Premium approach, Dr.
       Woolridge describes a method very similar to that included in my Direct Testimony (*see*,
       Direct Testimony of Dylan W. D'Ascendis, at 95-99), concluding it is not affected by the
       current environment.
[68]   Testimony of J. Randall Woolridge, at B-13.
[69]   Testimony of J. Randall Woolridge, at B-14.
[70]   Testimony of J. Randall Woolridge, at B-14.

1   not been immune to that risk. As also discussed in Section III, when market

2   prices diverge from some measure of intrinsic value, the disequilibrium affects

3   the reliability of certain model results, including the DCF method.

4   That said, I disagree with Dr. Woolridge's conclusion that we cannot

5   draw conclusions from the models or market data as to whether the Cost of

6   Equity has increased or decreased in connection with that instability. As

7   discussed below, we certainly can look to readily identifiable data to conclude

8   the Cost of Equity increased during the market dislocation. The fundamental

9   risk/reward relationship tells us as much.

10   I also disagree that a proper remedy is to ignore COVID-19's current

11   and possible effect on the economy and capital markets. As Dr. Woolridge

12   points out, the range of possible future economic outcomes created by COVID-

13   19 is significant. It is that uncertainty that has driven the unprecedented

14   volatility in the capital markets. We therefore cannot say the post-COVID-19

15   environment, whenever that comes about, will resemble February 2020.

16   Even though we cannot quantify the risk created by the coronavirus,

17   neither should we ignore it, as Dr. Woolridge's proposed remedy requires. The

18   fact that we cannot rely on models to tell us precisely how much the Cost of

19   Equity has changed since mid-February does not mean we cannot infer from

20   them, and from other relevant data, that it has increased.

21   Lastly, Dr. Woolridge's proposed approach of looking to February 2020

22   does not solve the problem of market prices that may be "disconnected from

1   fundamentals". Rather, it looks to a period of anomalously high valuations and

2   produces a series of unreliably low ROE estimates.

3   **Q.   TURNING NOW TO DR. WOOLRIDGE'S ASSESSMENT OF THE DCF,**

4   **CAPM, AND RISK PREMIUM METHODS, DO YOU AGREE WITH**

5   **HIS REVIEW AND CONCLUSIONS?**

6   A.   Not entirely. As noted earlier, my principal disagreement is with Dr.

7   Woolridge's conclusion that we cannot rely on the models in any sense to draw

8   conclusions regarding how the current market instability has affected the Cost

9   of Equity.

10   Turning first to the DCF method, I agree utility dividend yields have

11   increased. As discussed in Section III, that increase corresponds with the

12   increase in market volatility, and the decrease in Treasury yields. As risk

13   increased, investors allocated their capital away from equity securities,

14   including utility stocks, toward the relative safety of Treasury securities. The

15   increasing dividend yields and decreasing Treasury yields indicate investors

16   have become less tolerant of equity risk, and require higher returns to bear that

17   risk.

18   As to the growth rate component, I agree it is difficult to determine what

19   they might be going forward. Nonetheless, if the DCF model is in equilibrium,

20   further decreases in growth rates would put downward pressure on stock prices

21   and, therefore, upward pressure on dividend yields. But for now, we safely can

22   say dividend yields have increased by about 54 basis points since the filing of

1   my Direct Testimony (based on the 30-day average), and we reasonably can

2   conclude that increase is a directional indicator that the Cost of Equity has

3   increased.

4 **Q.   TURNING TO THE CAPM, DO YOU AGREE WITH DR. WOOLRIDGE**

5   **THAT WE CANNOT DRAW CONCLUSIONS REGARDING THE**

6   **CHANGES IN THE COST OF EQUITY FROM THAT METHOD?[71]**

7 A.   No, I do not. Dr. Woolridge looks to the model's three components, finding

8   that: (1) the 30-year Treasury yield decreased by about 40 basis points

9   "primarily in response to the market's appetite for risk"[72]; (2) Beta coefficients

10   are not likely to have changed much, given that they are measured using

11   "periods up to five years"[73]; and (3) the Market Risk Premium would change

12   only by reference to changes in expected market return which, he argues is very

13   "indeterminate"[74].

14   As discussed earlier, I agree Treasury yields are depressed in response to

15   investor risk appetites. For that reason, I believe it is proper to consider

16   projected Treasury yields. Even if we continue to focus on recently observed

17   yields, the CAPM and ECAPM results have increased approximately 175 basis

18   points on average since I filed my Direct Testimony.[75]

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[71] Testimony of J. Randall Woolridge, at B-7 – B-9, B-11.
[72] Testimony of J. Randall Woolridge, at B-7.
[73] Testimony of J. Randall Woolridge, at B-8.
[74] Testimony of J. Randall Woolridge, at B-9, B-11. Dr. Woolridge notes Market Risk Premium estimates based on historical data or surveys would not be affected by the current market dislocation.
[75] Exhibit DWD-4 and Rebuttal Exhibit DWD-4.

1   As explained in my Direct Testimony, Beta coefficients are a function

2   of two parameters: (1) relative volatility (the standard deviation of the subject

3   company's returns relative to the standard deviation of the market return; and

4   (2) the correlation between the subject company's returns and the market

5   return.[76] Applying Bloomberg's two-year calculation convention, the increase

6   in correlations, and in relative volatility, since mid-February 2020 is apparent

7   (*see* Chart 6, below).

8   **Chart 6: Components of Proxy Group (Two-Year) Beta Coefficients[77]**
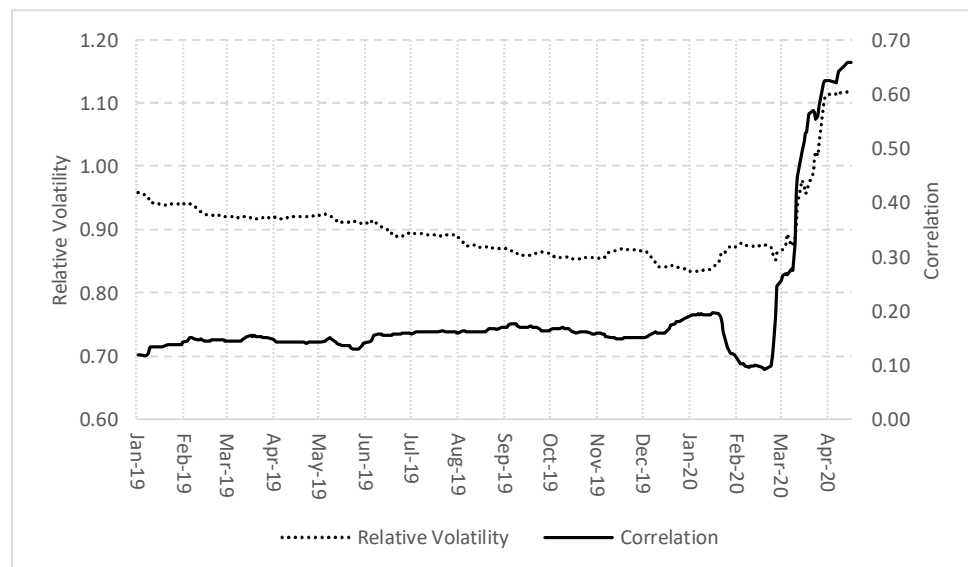
9   Not surprisingly, the increased correlation and relative volatility combine to

10   produce significantly increased (adjusted) Beta coefficients.

---

[76] Direct Testimony of Dylan W. D'Ascendis, at 87, Equation [7].
[77] Source: S&P Global Market Intelligence. Weekly returns calculated over 24 months.

1 **Chart 7: Proxy Group (Two-Year) Beta Coefficient Over Time[78]**
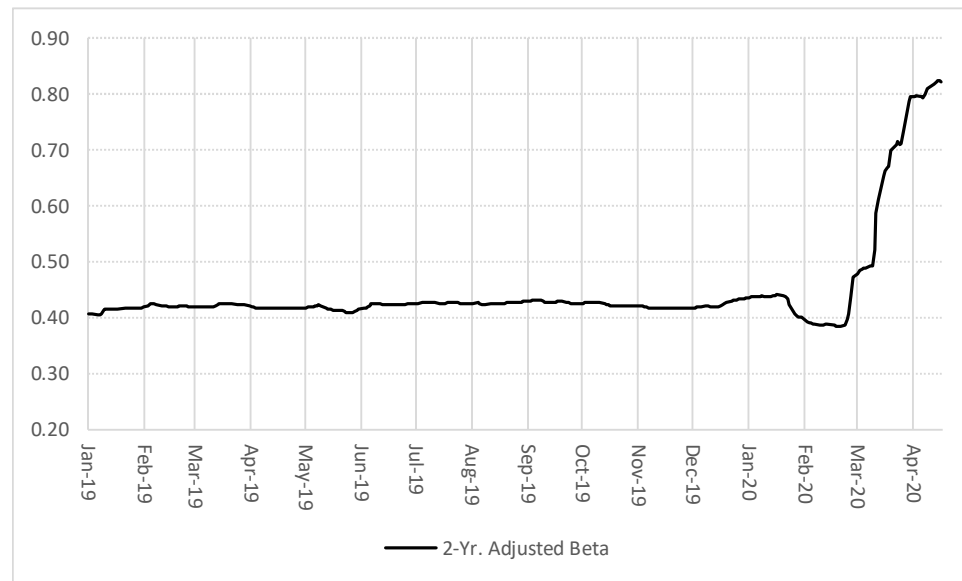
2   Even if we extend the calculation period to five years, the increase in

3   correlations increases calculated Beta coefficients well above their January and

4   February 2020 levels (see Chart 8, below).

---

[78]   Source: S&P Global Market Intelligence. Beta coefficients based on weekly returns calculated over 24 months.

1   **Chart 8: Proxy Group (Five-Year) Beta Coefficient Over Time[79]**
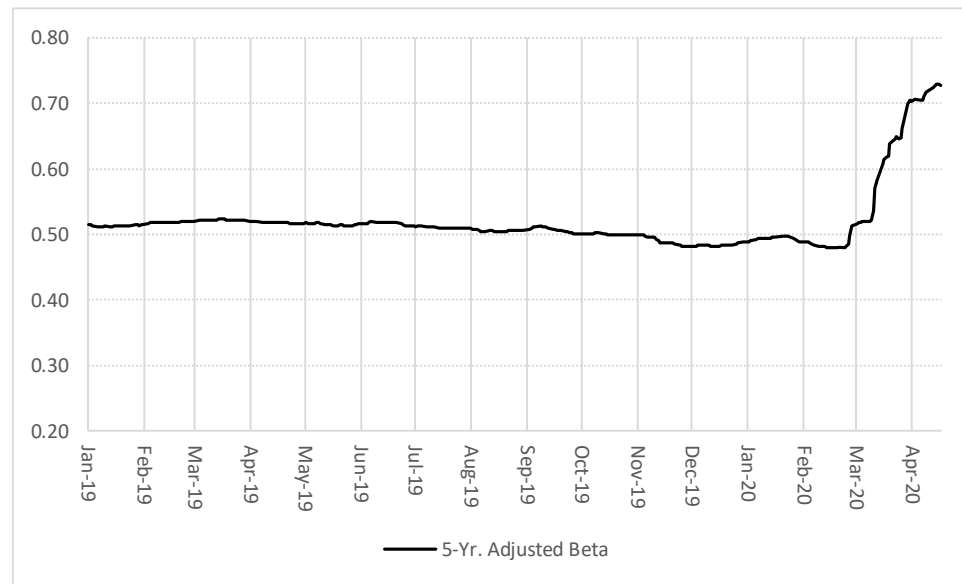
2   I understand Beta coefficients are one component of the CAPM. Nonetheless,

3   as Dr. Woolridge notes, long-term Treasury yields remain highly variable. Even

4   if we hold constant the risk-free rate, and assume (for the sake of discussion)

5   the Market Risk Premium also remains constant, the increase in systematic risk

6   manifested in elevated Beta coefficients is another observable indicator that

7   directionally, the Cost of Equity has increased during the recent market

8   dislocation.

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[79]   Source: S&P Global Market Intelligence. Beta coefficients based on weekly returns
         calculated over 60 months.

1 **Q.   AT PAGES 89 AND 90 OF HIS TESTIMONY DR. WOOLRIDGE**

2   **REFERS TO MARKET RISK PREMIUM ESTIMATES BY DUFF &**

3   **PHELPS AND PROFESSOR DAMODARAN. ARE YOU AWARE OF**

4   **WHETHER EITHER OR BOTH THOSE SOURCES HAVE**

5   **INCREASED THEIR ESTIMATES DURING THE RECENT MARKET**

6   **DISLOCATION?**

7 A.   Yes. Although Dr. Woolridge notes that Duff & Phelps decreased its Market

8   Risk Premium estimate in the fourth quarter of 2019 to 5.00 percent,[80] on March

9   27, 2020 (the date Dr. Woolridge's direct testimony was filed), Duff & Phelps

10   increased its estimate of the Market Risk Premium by 100 basis points to 6.00

11   percent.[81] Similarly, Dr. Woolridge noted Professor Damodaran's estimate of

12   the Market Risk Premium generally has been between 5.00 percent and 6.00

13   percent.[82] On April 1, 2020 Professor Damodaran's risk premium estimate

14   increased to 6.52 percent, higher than any annual value provided in Dr.

15   Woolridge's Figure 5.[83]

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[80]   Testimony of J. Randall Woolridge, at 90.

[81]   Harrington, James P. and Nunes, Carla, *Duff & Phelps Recommended U.S. Equity Risk Premium Increased from 5.0% to 6.0% Effective March 25, 2020*, March 27, 2020.

[82]   Testimony of J. Randall Woolridge, at 89.

[83]   http://pages.stern.nyu.edu/~adamodar/, accessed April 24, 2020. I recognize that Professor Damodaran has also presented an adjusted Equity Risk Premium, which he calls the "COVID Adjusted" Equity Risk Premium of 6.02 percent.

1 **Q.   DO YOU AGREE WITH DR. WOOLRIDGE'S VIEW THAT THE BOND**

2 **YIELD PLUS RISK PREMIUM METHOD IS LARGELY**

3 **UNAFFECTED BY CURRENT MARKET CONDITIONS[84]?**

4 A.   No, I do not. As explained in my Direct Testimony, the Bond Yield Plus Risk

5   Premium method makes use of the finding that the Equity Risk Premium is

6   inversely related to interest rates. The semi-log form of the regression analysis

7   quantifying that relationship is well-suited to environments in which Treasury

8   yields have fallen due to the "risk appetite" of investors. In that case, the Equity

9   Risk Premium increases at a somewhat faster rate when Treasury yields become

10   unusually depressed. Table 2, below, demonstrates that effect, as a decline in

11   interest rates is more than offset by an increase in the Equity Risk Premium.

12 **Table 2: Bond Yield Plus Risk Premium Results[85]**

	30-Yr. Treasury Yield	Risk Premium	Return on Equity
Current 30-Year Treasury	1.37%	8.98%	10.35%
Near-Term Projected 30-Year Treasury	1.75%	8.33%	10.08%
Long-Term Projected 30-Year Treasury	3.45%	6.52%	9.97%

13   The model also can be expanded to directly reflect changes in expected market

14   volatility, as measured by the VIX. Including the VIX as a second explanatory

15   variable produces a positive, statistically significant coefficient (*see*, Rebuttal

---

[84]   Testimony of J. Randall Woolridge, at 29, B-12.
[85]   Source: S&P Global Market Intelligence. The 208-basis point negative change between 3.45
       percent and 1.37 percent is more than offset by the 246-basis point positive change in the
       Equity Risk Premium. The result is an approximate 38-basis point increase in the Return on
       Equity. *See also*, Rebuttal Exhibit DWD-5.

1   Exhibit DWD-9). That finding is consistent with the fundamental theory that

2   the Cost of Equity increases with uncertainty (that is, volatility). Back-testing

3   the model demonstrates that from 2008 through 2019, the average annual

4   difference between the authorized and projected ROE was four basis points. In

5   2008, during the peak of the financial crisis, the difference was nine basis

6   points.

7   As Dr. Woolridge explains, during his review period the VIX increased

8   from 15 to over 50, "a level which has not been seen since the financial crisis

9   in 2008."[86] Assuming the VIX level of 50.00 Dr. Woolridge noted, the Cost of

10   Equity increases by about 80 basis points (*see*, Table 3, below).

11   **Table 3: Bond Yield Plus Risk Premium Results, Including VIX[87]**

	30-Yr. Treasury Yield	**VIX**	**Risk Premium**	**Return on Equity**
Current 30-Year Treasury	1.37%	50.00	9.73%	11.10%
Near-Term Projected 30-Year Treasury	1.75%	50.00	9.10%	10.85%
Long-Term Projected 30-Year Treasury	3.45%	50.00	7.35%	10.80%

12 **Q.   WHAT DO YOU CONCLUDE FROM THOSE ANALYSES?**

13 A.   The Bond Yield Plus Risk Premium approach is well-suited to estimate the

14   ROE, even during volatile markets. Including the VIX as an explanatory

15   variable indicates that (at a VIX of 50) the ROE would be as high as 11.10

16   percent. Those results support my position that if the Commission were to

---

[86]   Testimony of J. Randall Woolridge, at 25. As noted in Section III, in late March 2020 the VIX exceeded 80.
[87]   Rebuttal Exhibit DWD-9.

1   consider the current market dislocation, it reasonably could support an ROE at,

2   or above, the upper end of my recommended range.

3 **Q.** **DO YOU AGREE WITH DR. WOOLRIDGE'S PROPOSED REMEDY,**

4   **WHICH IS TO LOOK BACK TO EARLY FEBRUARY 2020, BEFORE**

5   **THE CORONAVIRUS AFFECTED THE CAPITAL MARKETS, AS THE**

6   **BASIS FOR HIS ROE ESTIMATES?**

7 A. No, I do not. As noted earlier, I agree with Dr. Woolridge that the potential

8   range of economic and financial outcomes due to the coronavirus is wide and

9   we cannot know at this time which path will prevail. I also agree that certain

10   assumptions underlying the models used to estimate the Cost of Equity may be

11   disconnected from the current market.

12   As discussed earlier, I do not agree we should effectively disregard the

13   market and economic risks created by the coronavirus by looking back to early

14   February, before those risks emerged, to estimate the forward-looking Cost of

15   Equity. In my opinion, there is no reason to believe investors would assume the

16   current market instability and economic uncertainty has no meaning for the

17   returns they require.

1   *B. Recommended ROE*

2   **Q.   ARE DR. WOOLRIDGE'S 8.40 PERCENT OR 9.00 PERCENT ROE**

3   **RECOMMENDATIONS CONSISTENT WITH RETURNS RECENTLY**

4   **AUTHORIZED IN NORTH CAROLINA?**

5   A.   No, they are not. On February 25, 2020, in Docket No. E-22, Sub 562, the

6   Commission authorized an ROE of 9.75 percent for Dominion Energy North

7   Carolina. Prior to that, the Commission authorized an ROE of 9.90 percent for

8   the Company, Duke Energy Carolinas, and Piedmont Natural Gas.[88] That is,

9   the Commission's most recent authorized return is 75 to 135 basis points above

10   Dr. Woolridge's recommendations, and 285 basis points above the low end of

11   his range. Dr. Woolridge has provided no evidence to support the conclusion

12   the Company has become so less risky than its peers that investors would

13   require a return so far below those recently authorized by this Commission.

14   **Q.   ARE DR. WOOLRIDGE'S ROE RECOMMENDATIONS CONSISTENT**

15   **WITH   RETURNS   RECENTLY   AUTHORIZED   IN   OTHER**

16   **JURISDICTIONS   CONSIDERED   TO   HAVE   CONSTRUCTIVE**

17   **REGULATORY ENVIRONMENTS?**

18   A.   No.   As discussed in my response to Mr. Chriss, Regulatory Research

19   Associates ("RRA") currently ranks North Carolina in the top third of all

20   jurisdictions from investors' perspectives. Since 2016, the average and median

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[88]   *See,* NCUC Docket Nos. E-2, Sub 1142; E-7 Sub 1146; and G-9, Sub 743.

1		authorized ROE in jurisdictions similar to North Carolina was 9.93 percent and
2		9.95 percent, respectively (within a range of 9.37 percent to 10.55 percent).[89]
3		Dr. Woolridge's recommendations are well below even the low end of that
4		range. If adopted, Dr. Woolridge's 9.00 percent ROE recommendation would
5		be only 25 basis points above the lowest authorized return for a vertically
6		integrated electric utility since at least 1980.[90]
7	**Q.**	**DO YOU AGREE WITH DR. WOOLRIDGE'S POSITION THAT**
8		**AUTHORIZED RETURNS FOR ELECTRIC AND NATURAL GAS**
9		**UTILITIES HAVE DECLINED OVER THE PAST FIVE YEARS?[91]**
10	A.	No, I do not. In fact, Dr. Woolridge's own data contradicts that position. As
11		shown in Table 4 below, according to Dr. Woolridge's data,[92] the average annual
12		authorized ROE for electric utilities has been relatively stable over the past five
13		years. If anything, Dr. Woolridge's data shows the average authorized ROE has
14		increased slightly over the past five years.

---

[89]   Rebuttal Exhibit DWD-25 and Table 13.
[90]   Source: Regulatory Research Associates. As discussed in my response to Mr. O'Donnell, the market response after the South Dakota PUC's 8.75 percent ROE decision for Otter Tail Power was immediate and negative.
[91]   Testimony of J. Randall Woolridge, at 31.
[92]   Dr. Woolridge's source is Regulatory Research Associates.

1 **Table 4: Dr. Woolridge's Reported Average Authorized ROE**

2 **for Electric Utilities[93]**

Year	Average
2015	9.58%
2016	9.60%
2017	9.68%
2018	9.56%
2019	9.64%

3   Moreover, Dr. Woolridge's data includes returns authorized for

4 distribution-only electric utilities, in addition to vertically integrated electric

5 utilities. Looking to the average and median ROE authorized for vertically

6 integrated electric utilities only, the trend over the past five years also has been

7 relatively stable (*see* Table 5, below). In either case, Tables 4 and 5 demonstrate

8 that there has not been a downward trend in authorized ROEs, and the

9 unreasonableness of Dr. Woolridge's recommendation.

10 **Table 5: Average and Median Authorized ROE**

11 **for Vertically Integrated Electric Utilities[94]**

Year	Average	Median
2015	9.75%	9.70%
2016	9.77%	9.78%
2017	9.80%	9.65%
2018	9.68%	9.73%
2019	9.73%	9.73%

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[93]   Testimony of J. Randall Woolridge, at 31.
[94]   Source: Regulatory Research Associates. Excludes Limited Issue Rate Rider proceedings.

1 **Q.** **PLEASE SUMMARIZE DR. WOOLRIDGE'S REFERENCE TO A**

2   **MARCH 2015 REPORT BY MOODY'S REGARDING THE EFFECT OF**

3   **ROES ON UTILITIES' NEAR-TERM CREDIT PROFILES.**

4 A. Dr. Woolridge points to the March 2015 Moody's report and concludes lower

5   authorized ROEs are not impairing utilities' credit profiles and are not

6   "deterring them from raising record amounts of capital."[95] He argues the

7   Moody's article "supports the prevailing/emerging belief that lower authorized

8   ROEs are unlikely to hurt the financial integrity of utilities or their ability to

9   attract capital."[96]

10 **Q.** **DO YOU AGREE WITH DR. WOOLRIDGE'S ASSESSMENT OF THAT**

11   **ARTICLE?**

12 A. No, I do not. The March 2015 Moody's article makes clear utilities' cash flow

13   had benefited from increased deferred taxes, which themselves were due to

14   bonus depreciation. In that report, Moody's noted the rise in deferred taxes

15   eventually would reverse.[97] In January 2018, Moody's spoke to the effect of

16   that reversal on utility credit profiles in the context of tax reform:

17   Tax reform is credit negative for US regulated utilities because
18   the lower 21% statutory tax rate reduces cash collected from
19   customers, while the loss of bonus depreciation reduces tax
20   deferrals, all else being equal. Moody's calculates that the recent
21   changes in tax laws will dilute a utility's ratio of cash flow before
22   changes in working capital to debt by approximately 150 - 250

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[95] Testimony of J. Randall Woolridge, at 33.
[96] Testimony of J. Randall Woolridge, at 34.
[97] Moody's Investors Service, *Lower Authorized Returns Will Not Hurt Near-Term Credit Profiles*, March 10, 2015, at 4.

1		basis points on average, depending to some degree on the size of
2		the company's capital expenditure programs. From a leverage
3		perspective, Moody's estimates that debt to total capitalization
4		ratios will increase, based on the lower value of deferred tax
5		liabilities.[98]

6   In June 2018, Moody's changed its outlook on the U.S. regulated sector to

7   "negative" from "stable". Moody's explained that its change in outlook

8   "…primarily reflects a degradation in key financial credit ratios, specifically

9   the ratio of cash flow from operations to debt, funds from operations ("FFO")

10   to debt and retained cash flow to debt, as well as certain book leverage ratios."[99]

11   The sector's outlook could remain "negative" if cash flow-based metrics

12   continue to decline, or if there emerge signs of a more "contentious" regulatory

13   environment (which, Moody's notes, is not fully reflected in lower authorized

14   returns). Dr. Woolridge's reference to a 2015 article does not consider Moody's

15   more recent position.

16   **Q.   IN YOUR VIEW, IS THE S&P SECTOR DOWNGRADE DISCUSSED**

17   **IN SECTION III A MORE RELEVANT VIEW OF RATING**

18   **AGENCIES' ASSESSMENT OF UTILITY RISK THAN THE 2015**

19   **MOODY'S ARTICLE DR. WOOLRIDGE CITES?**

20   A.   Yes, it is.

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[98]   Moody's Investors' Service, *Rating Action: Moody's changes outlooks on 25 US regulated utilities primarily impacted by tax reform*, January 19, 2018.

[99]   Moody's Investors Service*, Announcement: Moody's changes the US regulated utility sector outlook to negative from stable,* June 18, 2018.

1 **Q.   DO YOU AGREE WITH DR. WOOLRIDGE'S PRIMARY RELIANCE**

2 **ON A SINGLE MODEL (*I.E.,* THE CONSTANT GROWTH DCF**

3 **MODEL) IN DEVELOPING HIS RECOMMENDED ROE?**

4 A.   No, I do not. I understand Dr. Woolridge applied the CAPM in addition to the

5   DCF model. Nonetheless, he gives the DCF method primary weight in arriving

6   at his ROE recommendation.[100] The relevant issue is whether investors use

7   multiple methods in evaluating investment opportunities and making

8   investment decisions. Nowhere has Dr. Woolridge demonstrated investors

9   disregard other methods in favor of the Constant Growth DCF approach.

10   Because no individual model is more reliable than all others at all times and

11   under all conditions, it is important to use multiple methods to mitigate the

12   effects of assumptions and inputs associated with any single approach. To that

13   point, in its February 2018 *Order Accepting Stipulation* authorizing the 9.90

14   percent ROE for the Company, the Commission noted it "carefully evaluated

15   the DCF analysis recommendations" of the ROE witnesses (which ranged from

16   8.25 percent to 9.00 percent) and found "all of these DCF analyses in the current

17   market produce unrealistic low results."[101] As noted in my Direct Testimony,

18   other regulatory commissions have come to similar conclusions.[102]

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[100]   Testimony of J. Randall Woolridge, at 59.
[101]   North Carolina Utilities Commission, Docket No. E-2, Sub 1142, *In the Matter of Application of Duke Energy Progress, LLC, for Adjustment of Rates and Charges Applicable to Electric Utility Service in North Carolina*, Order Accepting Stipulation, Deciding Contested Issues, and Granting Partial Rate Increase, February 23, 2018, at 84-85.
[102]   Direct Testimony of Dylan W. D'Ascendis, at, 6-9, 15-16.

1   As to its use among investors, an article published in <u>Financial Analysts</u>

2   <u>Journal</u> surveyed financial analysts to determine the analytical techniques that

3   are used in practice, which included the CAPM.[103]   That survey clearly

4   indicated that the CAPM is used by practitioners. Similarly, a 2001 article by

5   Professors Graham and Harvey demonstrated that industry practitioners are far

6   more likely to use the CAPM than the DCF model.[104]

7 **Q.   IS THERE PUBLISHED SUPPORT FOR THE USE OF MULTIPLE**

8   **METHODS IN ESTIMATING THE COST OF EQUITY?**

9 A.   Yes, there is. For example, Dr. Morin notes:

10   Each methodology requires the exercise of considerable
11   judgment on the reasonableness of the assumptions underlying
12   the methodology and on the reasonableness of the proxies used
13   to validate the theory. The inability of the DCF model to account
14   for changes in relative market valuation, discussed below, is a
15   vivid example of the potential shortcomings of the DCF model
16   when applied to a given company. Similarly, the inability of the
17   CAPM to account for variables that affect security returns other
18   than beta tarnishes its use.

19   No one individual method provides the necessary level of
20   precision for determining a fair return, but each method provides
21   useful evidence to facilitate the exercise of an informed
22   judgment. *Reliance on any single method or preset formula is*
23   *inappropriate when dealing with investor expectations because*
24   *of possible measurement difficulties and vagaries in individual*

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[103]   *See*, Stanley B. Block, *A Study of Financial Analysts: Practice and Theory*, <u>Financial Analysts</u>
        <u>Journal</u>, July/August, 1999.

[104]   *See*, John R. Graham, Campbell R. Harvey, *The Theory and Practice of Corporate Finance:*
        Evidence from the Field, <u>Journal of Financial Economics</u>, 2001. *See*, Robert S. Harris, Felicia
        C. Marston, *The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts,*
        <u>Journal of Applied Finance</u>, 2001.

1	*companies' market data.*[105]

2   In a similar fashion, Professor Eugene Brigham, a widely respected scholar and

3   finance academician, recommends the CAPM, DCF, and Bond Yield Plus Risk

4   Premium approaches:

5   Three methods typically are used: (1) the Capital Asset Pricing
6   Model (CAPM), (2) the discounted cash flow (DCF) method,
7   and (3) the bond-yield-plus-risk-premium approach. These
8   methods are not mutually exclusive – no method dominates the
9   others, and all are subject to error when used in practice.
10   Therefore, when faced with the task of estimating a company's
11   cost of equity, *we generally use all three methods and then*
12   *choose among them on the basis of our confidence in the data*
13   *used for each in the specific case at hand.*[106]

14   Similarly, Dr. Morin (quoting, in part, Professor Stewart Myers), stated:

15   Use more than one model when you can. Because estimating
16   the opportunity cost of capital is difficult, only a fool throws
17   away useful information. *That means you should not use any*
18   *one model or measure mechanically and exclusively.* Beta is
19   helpful as one tool in a kit, to be used in parallel with DCF
20   models or other techniques for interpreting capital market data.

21   ***

22   While it is certainly appropriate to use the DCF methodology to
23   estimate the cost of equity, there is no proof that the DCF
24   produces a more accurate estimate of the cost of equity than
25   other methodologies. Sole reliance on the DCF model ignores
26   the capital market evidence and financial theory formalized in
27   the CAPM and other risk premium methods. The DCF model is
28   one of many tools to be employed in conjunction with other

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[105]   Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at 428.
        [*Emphasis added*]
[106]   *Ibid.*, at 430-431, citing Eugene Brigham, Louis Gapenski, Financial Management: Theory
        and Practice, 7th Ed., 1994, at 341. [*Emphasis added*]

1		methods to estimate the cost of equity. It is not a superior
2		methodology that supplants other financial theory and market
3		evidence. The broad usage of the DCF methodology in
4		regulatory proceedings in contrast to its virtual disappearance in
5		academic textbooks does not make it superior to other methods.
6		The same is true of the Risk Premium and CAPM
7		methodologies.[107]

8   As those authors make clear, we should not mechanically apply models. Rather,

9   as Brigham noted, we should choose among them based on our confidence in

10   the data at hand. That is what I have done.

11   Lastly, we know investors consider multiple metrics – including

12   Price/Earnings ("P/E"), M/B, and Enterprise Value/EBITDA[108] multiples – in

13   their buying and selling decisions. They do so because no single financial

14   model produces the most accurate and reliable measure of value at all times and

15   under all conditions. That practice extends to the Cost of Equity which, like

16   fundamental (or intrinsic) value, is unobservable and must be estimated.

17 **Q.**   **ARE THERE STRUCTURAL REASONS WHY THE CONSTANT**

18   **GROWTH DCF MODEL MAY NOT ALWAYS PROVIDE RELIABLE**

19   **ROE ESTIMATES?**

20 **A.**   Yes, there are. As explained in my Direct Testimony, the DCF model noted by

21   the equation $k = \frac{D(1+g)}{P_0} + g$ is derived from the longer-form present value

22   formula:

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[107]   Roger A. Morin, <u>New Regulatory Finance</u> (Public Utility Reports, Inc., 2006), at 430-431. [*Emphasis added*]

[108]   Earnings Before Interest, Taxes, Depreciation, and Amortization.

1
$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \cdots + \frac{D_\infty}{(1+k)^\infty} \qquad [1]$$

2   Using the DCF model as the principal method[109] to estimate the Cost of Equity

3   fundamentally assumes investors use the present value structure alone to find

4   the intrinsic value of common stock, and intrinsic value always equals market

5   value.[110]   The model therefore will not produce accurate estimates of the

6   market-required ROE if the market price diverges from the present value-based

7   estimate of intrinsic value.   Differences between market prices and intrinsic

8   valuations may arise when investors take short-term trading positions to hedge

9   risk (*e.g.*, a "flight to safety"), to speculate (*e.g.*, momentum trades), or as

10   temporary position to increase current income (*i.e.*, a "reach for yield"), much

11   like the pre-COVID-19 market environment.[111]

12   The implications of market prices diverging from DCF-based estimates

13   of intrinsic value was studied in an article published in the <u>Journal of Applied</u>

14   <u>Finance</u>. That article, which focused on back-tests of the Constant Growth DCF

15   model, found that even under "ideal" circumstances:

16   … it is difficult to obtain good intrinsic value estimates in
17   models stretching over lengthy periods of time. Shorter horizon
18   models based on five or fewer years show more promise. Any
19   model based on dividend streams of ten years or more, whether
20   as a teaching tool or in practice, should be used with caution

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[109]   At page 59 of his testimony, Dr. Woolridge refers to the DCF method as providing "the best measure of equity cost rates for public utilities."

[110]   Direct Testimony of Dylan W. D'Ascendis, at 10.

[111]   Some investors may select relatively high dividend yield companies as a "reach for yield" in response to the shortage of investment alternatives that provide adequate yield in today's capital market, rather than investing in stocks based on their long-term return potential.

1   since they are likely to produce low-quality estimates. [112]

2   In short, because the DCF model is derived from a valuation model that

3   assumes constancy in perpetuity, it is likely to produce less reliable ROE

4   estimates when market conditions are non-constant, and when investor practice

5   is to consider multiple valuation methods.

6   **Q. IS IT YOUR VIEW THAT THE DCF MODEL SHOULD BE GIVEN NO**

7   **WEIGHT IN DETERMINING THE COMPANY'S COST OF EQUITY?**

8   A.   No, it is not. It is my view, however, that we should carefully consider the

9   model's results relative to its underlying assumptions, and in the context of the

10 recent market instability, and doing so fully supports my ROE range and

11 recommendation and is consistent with the Commission's prior orders. As

12 explained in my Direct Testimony, models are approximations of investor

13 behavior; no one method best measures that behavior at all times and under all

14 market conditions.[113] Because no sensible investor would systematically ignore

15 relevant information, nor should we ignore models used by investors to estimate

16 the Cost of Equity.

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[112]   P. McLemore, G. Woodward, and T. Zwirlein, *Back-tests of the Dividend Discount Model using Time-varying Cost of Equity*, Journal of Applied Finance, No. 2, 2015, at 19.

[113]   Direct Testimony of Dylan W. D'Ascendis, at 5.

1 **Q. DO YOU AGREE WITH DR. WOOLRIDGE'S PROPOSED**

2 **REDUCTION TO HIS ROE RECOMMENDATION TO 8.40 PERCENT**

3 **IF THE COMMISSION ACCEPTS THE COMPANY'S CAPITAL**

4 **STRUCTURE AS OF DECEMBER 31, 2019?**[114]

5 A. No, I do not. Dr. Woolridge's recommendation is based on his view that holding

6 company capital structures are the proper benchmark.[115] Because they can be

7 directly observed and reflect the common practice of matching permanent

8 assets with permanent capital, operating company capital structures should be

9 used as the measure of industry practice. Dr. Woolridge fails to perform such

10 an analysis. Consequently, there is no basis for a 60-basis point adjustment to

11 the Company's ROE in connection with the Company's actual capital structure.

12 **Q. WHAT ARE YOUR CONCLUSIONS RELATED TO DR.**

13 **WOOLRIDGE'S ROE RECOMMENDATION?**

14 A. Dr. Woolridge's 8.40 percent and 9.00 percent recommendations are unduly low

15 and inconsistent with authorized returns by this Commission and in other

16 constructive jurisdictions. In large measure, Dr. Woolridge's recommendations

17 are driven by his focus on the Constant Growth DCF method. Even under more

18 stable conditions, relying principally on a single method may lead to unreliable

19 ROE estimates.

20 There is little question investors' motivations change during volatile

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[114] Testimony of J. Randall Woolridge, at 7, 49.
[115] Testimony of J. Randall Woolridge, at 40-41.

1   markets; capital preservation becomes a principal objective. The DCF model,

2   which requires us to assume constancy in perpetuity, is particularly susceptible

3   to estimation error during those periods. It requires us to assume the

4   motivations underlying investor decisions in that environment, including

5   capital preservation, are the same motivations that will persist, every day,

6   forever. Because that assumption is not likely to hold, we should be very

7   cautious about giving the Constant Growth DCF method undue weight.

8 **Q.   IS THERE "A DISCONNECT" BETWEEN YOUR RECOMMENDED**

9   **ROE OF 10.50 PERCENT AND YOUR ROE STUDIES?[116]**

10 A.   No, there is not. Dr. Woolridge states "the vast majority of [my] equity cost

11   rate results point to a lower ROE" and "the only results that point to an ROE as

12   high as 10.50% are some of [my] CAPM/ECAPM results".[117] As discussed in

13   my Direct Testimony, practitioners and academics recognize that financial

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

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

16   approach, can lead to flawed or misleading conclusions.[118]   My ROE

17   recommendation considers all my analyses, not a single method.

18   Further, Dr. Woolridge is incorrect in stating that only my CAPM results

19   point to an ROE as high as 10.50 percent. For example, in Exhibit DWD-1 in

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[116]   Testimony of J. Randall Woolridge, at 10, 99.
[117]   Testimony of J. Randall Woolridge, at 99. [clarification added]
[118]   Direct Testimony of Dylan W. D'Ascendis, at 15.

1   my Direct Testimony, my DCF method produces a range of ROE results from a

2   low of 5.79 percent to a high of 13.71 percent. My recommended ROE of 10.50

3   percent fits squarely within this range. Exhibit DWD-6 in my Direct Testimony

4   also corroborates my recommended ROE. The Expected Earnings approach in

5   Exhibit DWD-6 in my Direct Testimony produces a range of results from a low

6   of 6.00 percent to a high of 14.06 percent. Again, my recommended ROE of

7   10.50 percent fits squarely within this range.

8   *C. Proxy Group Selection*

9   **Q.   PLEASE DESCRIBE THE SCREENING CRITERIA BY WHICH DR.**

10   **WOOLRIDGE DEVELOPED HIS PROXY GROUP.**

11   A.   Dr. Woolridge relied on six screening criteria to develop his proxy group of 31

12   companies:

13   1.   Received at least 50.00 percent of revenues from regulated electric
14   operations as reported in SEC Form 10-K report;

15   2.   Is listed as a U.S.-based Electric Utility by *Value Line Investment Survey*;

16   3.   Has an investment-grade corporate credit and bond rating;

17   4.   Has paid a cash dividend for the past six months with no cuts or omissions;

18   5.   Is not involved in an acquisition of another utility, or be the target of an
19   acquisition; and

20   6.   Has analysts' long-term EPS growth forecasts available from Yahoo or
21   Zacks.[119]

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[119]   Testimony of J. Randall Woolridge, at 36.

1 **Q.** **DO YOU AGREE WITH DR. WOOLRIDGE'S SCREENING**

2 **CRITERIA?**

3 A. Not entirely. Although we do have certain criteria in common (for example, we

4 both exclude companies that are party to a significant corporate transaction or

5 that do not consistently pay dividends), as explained below, Dr. Woolridge's

6 screens do not render a group of companies that is sufficiently comparable to

7 the Company.

8 **Q.** **WHAT IS YOUR CONCERN WITH DR. WOOLRIDGE'S USE OF**

9 **REVENUE, RATHER THAN INCOME, AS A SCREENING**

10 **CRITERION?**

11 A. Measures of income are far more likely to be considered by the financial

12 community in making credit assessments and investment decisions than are

13 measures of revenue. From the perspective of credit markets, measures of

14 financial strength and liquidity are focused on cash from operations, which is

15 directly derivative of earnings, as opposed to revenue. As part of its rating

16 methodology, for example, Moody's assigns a 40.00 percent weight to measures

17 of financial strength and liquidity, of which 22.50 percent specifically relates to

18 the ability to cover debt obligations with cash from operations.[120]

19 Just as rating agencies focus on measures of cash from operations,

20 equity analysts rely on measures of income in assessing equity valuation levels;

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[120] *See,* Moody's Investors Service, Rating Methodology, *Regulated Electric and Gas Utilities,* June 23, 2017, at 4.

1   common measures of relative value include the P/E ratio, and the ratio of

2   Enterprise Value to EBITDA. Revenue, however, may be several steps

3   removed from the earnings and cash flows that form the basis of equity

4   valuations. Focusing on revenue may mislead the analyst into assuming a given

5   operating unit is the primary driver of expected growth, when the majority of

6   earnings and cash flows are derived from other business segments. Here, we

7   are considering whether the underlying utility is the principal source of long-

8   term growth, and as such, focusing on revenue may obscure important elements

9   of the analysis.

10 **Q.**   **DO YOU AGREE WITH DR. WOOLRIDGE'S CONSIDERATION OF**

11   **DUKE ENERGY CORPORATION, DE PROGRESS' PARENT, IN HIS**

12   **PROXY GROUP?**

13 **A.**   No, I do not. As noted in my Direct Testimony, it is my practice to exclude

14   parent companies from the proxy groups of subsidiary utilities, as the inclusion

15   of a parent involves circular logic.[121]

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[121]   Direct Testimony of Dylan W. D'Ascendis, at 23.

1   *D. Constant Growth DCF Model*

2   **Q.   PLEASE SUMMARIZE YOUR CONCERNS WITH THE CONSTANT**

3   **GROWTH DCF MODEL AND DR. WOOLRIDGE'S APPLICATION OF**

4   **THE MODEL.**

5   A.   There are several practical concerns with Dr. Woolridge's application of the

6   model, and his interpretation of its results. For example, Dr. Woolridge's

7   approach includes a degree of subjectivity that prevents us from replicating the

8   fundamental inputs that drive his results. Moreover, Dr. Woolridge's judgment

9   is to give "primary weight"[122] to growth rate projections produced by equity

10   analysts, even though he argues those analysts knowingly and persistently

11   produce biased growth rate forecasts.

12   **Q.   WHAT GROWTH RATES DID DR. WOOLRIDGE REVIEW IN HIS**

13   **CONSTANT GROWTH DCF ANALYSIS?**

14   A.   Dr. Woolridge reviewed a number of growth rates, including historical and

15   projected Dividends Per Share ("DPS"), Book Value Per Share ("BVPS"), and

16   Earnings Per Share ("EPS") growth rates as reported by Value Line; analysts'

17   consensus EPS growth rate projections from Yahoo!, Reuters, and Zacks; and

18   an estimate of sustainable growth derived from data provided by Value Line.[123]

19   Dr. Woolridge states that in arriving at his growth rate projections for the proxy

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122   Testimony of J. Randall Woolridge, at 75.
123   Exhibit JRW-7.

1   group he gave "primary weight" to projected EPS growth rates.[124]

2   **Table 6: Summary of Dr. Woolridge's Growth Rate Estimates[125]**

	Dr. Woolridge's Proxy Group	D'Ascendis Proxy Group
Value Line Historical Growth Rates (DPS, BVPS, EPS)	4.40%	5.00%
Value Line Projected Growth Rates (DPS, BVPS, EPS)	5.30%	5.20%
Sustainable Growth	3.60%	3.50%
Analyst Projected EPS Growth Rates (Yahoo! And Zacks) – Mean/Median	5.00% / 4.80%	5.40% / 5.40%
Dr. Woolridge's Assumed DCF Growth Rate	5.00%	5.40%

3 **Q.   DO YOU AGREE WITH DR. WOOLRIDGE'S POSITION THAT**

4   **ANALYSTS'   EARNINGS   GROWTH   PROJECTIONS   ARE**

5   **CONSISTENTLY BIASED?**

6 A.   No, I do not. Dr. Woolridge argues analysts' earnings growth estimates are

7   "overly optimistic and upwardly biased",[126] and believes relying on such

8   estimates is a methodological error. He further argues that, due to that bias, "the

9   DCF growth rate must be adjusted downward from the projected EPS growth

10   rate".[127]   Dr. Woolridge's position, however, is based on observations of the

11   broad market; he has provided no evidence that any of the growth rates used in

12   my (or his) DCF analyses are the result of a consistent and pervasive bias on

13   the part of the analysts providing those projections. Notably, despite his view

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[124]   Testimony of J. Randall Woolridge, at 75.
[125]   Testimony of J. Randall Woolridge, at 75; Exhibit JRW-7, at 1, 6.
[126]   Testimony of J. Randall Woolridge, at 70.
[127]   Testimony of J. Randall Woolridge, at 72.

1   that they are biased, it was by "[g]iving primary weight to the projected EPS

2   growth rate of Wall Street analysts" that Dr. Woolridge arrived at his assumed

3   growth rates.[128]

4   **Q.   WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE ON THAT POINT?**

5   A.   There is no reason to believe the analyst growth rates used in my DCF analyses

6   are biased. As a practical matter, the October 2003 Global Research Analyst

7   Settlement required financial institutions to insulate investment banking from

8   analysis, prohibited analysts from participating in "road shows," and required

9   the settling financial institutions to fund independent third-party research.[129] I

10   have reviewed the Letters of Acceptance, Waiver and Consent signed by

11   financial institutions that were party to the Global Settlement, and found no

12   reference to misconduct by analysts following the utility sector.

13   Moreover, pursuant to Regulation AC, which became effective in April

14   2003, analysts must certify that "…the views expressed in the report accurately

15   reflect his or her personal views, and disclose whether or not the analyst

16   received compensation or other payments in connection with his or her specific

17   recommendations or views."[130] I further understand industry practice is to

18   avoid conflicts of interest by ensuring that compensation is not directly or

---

[128]   Testimony of J. Randall Woolridge, at 75.
[129]   The 2002 Global Financial Settlement resolved an investigation by the U.S. Securities and
         Exchange Commission and the New York Attorney General's Office of a number of
         investment banks related to concerns about conflicts of interest that might influence the
         independence of investment research provided by equity analysts.
[130]   Securities and Exchange Commission, 17 CFR PART 242 [Release Nos. 33-8193; 34-47384;
         File No. S7-30-02], RIN 3235-AI60 Regulation Analyst Certification.

1   indirectly linked to the opinions contained in those reports. Dr. Woolridge has

2   not explained why any of the analysts covering our respective proxy companies

3   would bias their projections despite those certification requirements.

4   Lastly, Dr. Woolridge argues utilities generally are in the "mature" stage

5   of their industry life cycle.[131] Key characteristics of a mature industry include

6   predictable cash flows and earnings, both of which would enable more stable,

7   less "biased" earnings estimates. Dr. Woolridge has not reconciled those two

8   largely competing points.

9 **Q.   IS THE USE OF ANALYSTS' EARNINGS GROWTH PROJECTIONS**

10   **IN THE DCF MODEL SUPPORTED BY FINANCIAL LITERATURE?**

11 A.   Yes, it is. Several published articles support the use of analysts' earnings growth

12   projections in the DCF model. Dr. Robert Harris, for example, found financial

13   analysts' earnings forecasts (referred to in the article as "FAF") to be

14   appropriate in calculating the expected Market Risk Premium:[132]

15   ... a growing body of knowledge shows that analysts' earnings
16   forecasts are indeed reflected in stock prices. Such studies
17   typically employ a consensus measure of FAF calculated as a
18   simple average of forecasts by individual analysts.[133]

19   Dr. Harris further noted that:

20   Given the demonstrated relationship of FAF to equity prices and

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[131]   Testimony of J. Randall Woolridge, at 63.
[132]   *See,* Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return*, Financial Management, 1986, at 66.
[133]   *Ibid.*, at 59. As noted in my Direct Testimony, Zacks and First Call, the sources of earnings growth projections that Dr. Woolridge uses in addition to Value Line, are consensus forecasts.

1	the direct theoretical appeal of expectational data, it is no
2	surprise that FAF have been used in conjunction with DCF
3	models to estimate equity return requirements.[134]

4   Similarly, in *Estimating Shareholder Risk Premia Using Analysts Growth*

5   *Forecasts*, Harris and Marston presented "estimates of shareholder required

6   rates of return and risk premia which are derived using forward-looking

7   analysts' growth forecasts."[135] As Harris and Marston reported:

8	... in addition to fitting the theoretical requirement of being
9	forward-looking, the utilization of analysts' forecasts in
10	estimating return requirements provides reasonable empirical
11	results that can be useful in practical applications.[136]

12   Here again, the finding was clear: Analysts' earnings forecasts are highly

13   related to stock price valuations and are appropriate inputs to stock valuation

14   and ROE estimation models.[137]

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[134]   *Ibid.*, at 60.
[135]   Robert S. Harris, Felicia C. Marston, *Estimating Shareholder Risk Premia Using Analysts'
        Growth Forecasts*, Financial Management, Summer 1992, at 63.
[136]   *Ibid.*
[137]   In *the Risk Premium Approach to Measuring a Utility's Cost of Equity*, published in Financial
        Management, Spring 1985, Brigham, Shome and Vinson noted that "evidence in the current
        literature indicates that (i) analysts' forecasts are superior to forecasts based solely on time
        series data; and (ii) investors do rely on analysts' forecasts."

1 **Q.   DO YOU AGREE WITH DR. WOOLRIDGE'S POSITION THAT "THE**

2 **DCF GROWTH RATE MUST BE ADJUSTED DOWNWARD FROM**

3 **THE PROJECTED EPS GROWTH RATE TO REFLECT THIS**

4 **UPWARD BIAS"?[138]**

5 A.   No, I do not. If current stock prices (and therefore the dividend yield) reflect

6   some measure of assumed bias,[139] it would not be necessary to adjust the growth

7   rate. Although Dr. Woolridge argues "…long-term EPS growth-rate forecasts

8   of Wall Street securities analysts are overly optimistic and upwardly biased"[140],

9   he has not demonstrated that to be the case for the electric companies in the

10   proxy groups. To that point, I reviewed quarterly earnings presentations of

11   companies in the proxy groups and found analysts' growth rate projections to

12   be within the long-term growth rate ranges provided by the companies'

13   management teams (*see* Table 7, below). I therefore do not believe the earnings

14   projections included in our respective analyses are likely to be systemically

15   biased.

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[138]   Testimony of J. Randall Woolridge, at 72.
[139]   Testimony of J. Randall Woolridge, at 72.
[140]   Testimony of J. Randall Woolridge, at 70.

1   **Table 7: Analysts' Earnings Growth Projections**

2   **Relative to Management Presentations[141]**

Company	Ticker	Zacks Earnings Growth	First Call Earnings Growth	Investor Presentation Earnings Growth Range
ALLETE, Inc.	ALE	NA	7.00%	5.00% - 7.00%
American Electric Power	AEP	5.80%	6.15%	5.00% - 7.00%
CMS Energy Corp.	CMS	7.10%	7.50%	6.00% - 8.00%
DTE Energy Company	DTE	6.00%	6.00%	5.00% - 7.00%
NextEra Energy, Inc.	NEE	7.60%	7.59%	6.00% - 8.00%
WEC Energy Group	WEC	6.20%	6.23%	5.00% - 7.00%
Xcel Energy Inc.	XEL	6.00%	6.10%	5.00% - 7.00%

3 **Q. DO YOU AGREE WITH DR. WOOLRIDGE THAT HISTORICAL**

4   **GROWTH RATES ARE APPROPRIATE MEASURES OF EXPECTED**

5   **GROWTH FOR THE CONSTANT GROWTH DCF MODEL?[142]**

6 A.   No, I do not. As Dr. Woolridge notes, the growth component of the Constant

7   Growth DCF model is a forward-looking measure of investors' expectations.[143]

8   To the extent historical growth influences expectations of future growth, it

9   already will be reflected in analysts' consensus earnings growth estimates.

10   Carlton and Vander Weide found "overwhelming evidence that consensus

11   analysts' forecast of future growth is superior to historically oriented growth

---

[141]   Source: Zacks, Yahoo! Finance (*see,* Rebuttal Exhibit DWD-1), and individual company
        investor presentations released in Q1 2020 and early Q2 2020.
[142]   Testimony of J. Randall Woolridge, at 67.
[143]   Testimony of J. Randall Woolridge, at 67-68.

1   measures in predicting the firm's stock price."[144] Consequently, I do not believe

2   historical growth rates are appropriate for the Constant Growth DCF model.

3 **Q.   WHY DO YOU DISAGREE WITH DR. WOOLRIDGE'S POSITION**

4   **THAT DIVIDEND AND BOOK VALUE GROWTH RATES ARE**

5   **APPROPRIATE INPUTS TO THE CONSTANT GROWTH DCF**

6   **MODEL?[145]**

7 A.   Earnings growth enables both dividend and book value growth. Under the strict

8   assumptions of the Constant Growth DCF model, earnings, dividends, book

9   value, and stock prices all grow at the same, constant rate in perpetuity.

10   Book value increases with the amount of earnings not distributed as

11   dividends (that is, retained earnings), and the price at which new equity is issued

12   is a function of the EPS and the then-current P/E ratio. Similarly, the ability to

13   pay dividends depends fundamentally on expected earnings.[146] Because

14   dividend policy contemplates additional factors, including the

15   disproportionately negative effect on prices resulting from dividend cuts, as

16   opposed to dividend increases, in the short-run dividend growth may be

17   disconnected from earnings growth.[147] In the long run, however, dividends

18   cannot be increased without earnings growth.

---

[144]   Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs History*, The Journal of Portfolio Management (Spring 1988).

[145]   Testimony of J. Randall Woolridge, at 66-67.

[146]   *See,* Jing Liu, Doron Nissim, and Jacob Thomas, *Is Cash Flow King in Valuations?*, Financial Analysts Journal, Volume 63, Number 2, 2007.

[147]   *See,* Servaes and Tufano, *Corporate Dividend Policy: The Theory and Practice of Corporate Dividend and Share Repurchase Policy*, Deutsche Bank, February 2006.

1   As Rebuttal Exhibit DWD-10 demonstrates, under those assumptions

2   the assumed growth rate equals the rate of capital appreciation (*i.e.*, the stock

3   price growth rate). Because investors often assess stock values on the basis of

4   P/E ratios, it is important to consider whether the growth rates used in the DCF

5   model are related to those valuations.

6 **Q. HAVE YOU UNDERTAKEN ANY ANALYSES TO DETERMINE**

7   **WHICH MEASURES OF GROWTH ARE STATISTICALLY RELATED**

8   **TO THE PROXY COMPANIES' STOCK VALUATION LEVELS?**

9 A.   Yes, I have. My analysis is based on the methodological approach used by

10   Professors Carleton and Vander Weide, who compared the predictive capability

11   of historical growth estimates and analysts' forecasts on the valuation levels of

12   sixty-five utility companies.[148] I structured the analysis to understand whether

13   projected and historical earnings, dividend, book value, or retention growth

14   rates best explain utility stock valuations. In particular, my analysis examined

15   the statistical relationship between the P/E ratios of the natural gas and electric

16   utilities as classified by Value Line, and the projected EPS, DPS, BVPS, and

17   the "BxR" retention growth[149] rates as reported by Value Line, as well as the

18   historical EPS, DPS, and BVPS as reported by Value Line. To determine which,

19   if any, of those growth rates are statistically related to utility stock valuations, I

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[148]   Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs History*, The Journal
         of Portfolio Management (Spring 1988).
[149]   As discussed below, Dr. Woolridge reviews the more limiting "BxR" form of the retention
         growth rate.

1   performed a series of regression analyses in which the projected growth rates

2   were explanatory variables and the P/E ratio was the dependent variable. The

3   results of those analyses are presented in Rebuttal Exhibit DWD-11.

4   In that analysis, I performed ten separate regressions with the P/E as the

5   dependent variable, and historical EPS, DPS, and BVPS; projected EPS, DPS

6   and BVPS; and the sustainable growth rate, respectively, as the independent

7   variable. I also performed a separate regression with all ten growth rates as

8   independent variables. I then reviewed the T- and F-Statistics to determine

9   whether the variables and equations were statistically significant.[150]

10 Q.   **WHAT DID THOSE ANALYSES REVEAL?**

11 A.   As shown in Rebuttal Exhibit DWD-11, the only growth rate that was

12   statistically significant and positively related to the P/E ratio was projected

13   Earnings Per Share. Because EPS growth is the only growth rate that is both

14   statistically and positively related to utility valuation, earnings is the proper

15   measure of growth in the Constant Growth DCF Model.

16 Q.   **DO YOU HAVE ANY CONCERNS WITH DR. WOOLRIDGE'S**

17   **SPECIFICATION OF THE RETENTION GROWTH RATE?**

18 A.   Yes, I do. The full form of the model assumes growth is a function of its

19   expected earnings, and the extent to which it retains earnings to invest in the

---

[150]   In general, a T-Statistic of 2.00 or greater indicates that the variable is likely to be different
        than zero, or "statistically significant." The F-Statistic is used to determine whether the
        model as a whole has statistically significant predictive capability.

1   enterprise. The form of the model on which Dr. Woolridge relies is its simplest

2   form, which defines growth solely as a function of internally generated funds.

3   Although I do not believe it is appropriate to use the Retention Growth rate to

4   estimate the Cost of Equity in this proceeding, if Dr. Woolridge is going to

5   consider a form of Retention Growth, he should use the "BR + SV" form of the

6   model, which reflects growth both from internally generated funds (*i.e.*, the

7   "BR" term) and from issuances of equity (*i.e.*, the "SV" term). As noted above,

8   the first term is the product of the retention ratio (*i.e.*, "B", or the portion of net

9   income not paid in dividends) and the expected ROE (*i.e.*, "R"), which

10   represents the portion of net income that is "plowed back" into the company as

11   a means of funding growth. The "SV" term is represented as:

12
$$\left(\frac{m}{b} - 1\right) x \ Common \ shares \ growth \ rate \quad [2]$$

13   where:

14
$$\left(\frac{m}{b}\right) = \ the \ Market - to - Book \ ratio.$$

15   In that form, the "SV" term reflects an element of growth as the product of (1)

16   the growth in shares outstanding, and (2) that portion of the M/B ratio that

17   exceeds unity.

1 *E. Capital Asset Pricing Model*

2 **Q.   PLEASE BRIEFLY DESCRIBE DR. WOOLRIDGE'S CAPM ANALYSIS**

3 **AND RESULTS.**

4 A.   Dr. Woolridge's CAPM analysis produces an estimated Cost of Equity of 6.70

5 percent for both his and my proxy group.[151] I strongly disagree with the position

6 that 6.70 percent is a reasonable measure of the Company's Cost of Equity. As

7 discussed below, Dr. Woolridge's unduly low CAPM estimate principally falls

8 from his estimated Market Risk Premium.

9   Dr. Woolridge combines a risk-free rate of 3.50 percent and a Market

10 Risk Premium ("MRP") of 5.75 percent to the average Beta coefficient of his

11 and my proxy groups (0.55). In estimating his MRP, Dr. Woolridge reviews a

12 series of studies that calculate the MRP using different methodologies; he also

13 considers the results of his "Building Blocks" approach. Based on that review,

14 Dr. Woolridge argues the MRP ranges from 4.00 percent to 6.00 percent and,

15 within that range, 5.75 percent is "conservatively high".[152]

16 **Q.   DOES DR. WOOLRIDGE EXPRESS ANY CONCERNS REGARDING**

17 **YOUR CAPM ANALYSIS?**

18 A.   Dr. Woolridge's disagreement with my CAPM analysis includes: (1) the Market

19 Risk Premium component of the model; and (2) the applicability of the

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[151]   Testimony of J. Randall Woolridge, at 92, Exhibit JRW-8.
[152]   Testimony of J. Randall Woolridge, at 91-92.

1   Empirical form of the CAPM.[153]

2   Q.   **PLEASE BRIEFLY SUMMARIZE DR. WOOLRIDGE'S CONCERNS**

3   **REGARDING YOUR USE OF EXPECTED MARKET RETURNS.**

4   A.   Regarding the use of expected market returns, Dr. Woolridge states that the

5   result is "excessive."[154] Dr. Woolridge also points to the long-term EPS growth

6   rates for the S&P 500 based on the data from Bloomberg and Value Line,

7   respectively, and notes that they "are inconsistent with both historic and

8   projected economic and earnings growth in the U.S".[155] He also points to MRPs

9   provided in academic studies, assumed by investment banks and management

10   consulting firms, and found in surveys of financial professionals as support for

11   his position that the MRP is in the range of 4.00 percent to 6.00 percent.[156]

12   Q.   **WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE ON THOSE**

13   **POINTS?**

14   A.   Dr. Woolridge refers to two surveys of financial professionals in support of his

15   MRP: the Duke Chief Financial Officer ("Duke CFO") survey and the

16   Philadelphia Federal Reserve Survey of Professional Forecasters.[157] Looking

17   to the Federal Bank of Philadelphia's First Quarter 2020 survey, only 17 of 37

18   participants responded to the question regarding the expected return for the S&P

19   500 over the next ten years, and 23 of 37 responded to the question regarding

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[153]   Testimony of J. Randall Woolridge, at 116.
[154]   Testimony of J. Randall Woolridge, at 130.
[155]   Testimony of J. Randall Woolridge, at 116.
[156]   Testimony of J. Randall Woolridge, at 87-91, 112-113.
[157]   Testimony of J. Randall Woolridge, at 83-84.

1   expected return on ten-year Treasury bonds.[158]

2   Even if all 37 economists provided expected market returns and

3   Treasury yields, Dr. Woolridge gives economists' interest rate projections little

4   weight, going so far as to note that in a 2014 Bloomberg survey, "100% of the

5   economists were wrong".[159] Despite that conviction, Dr. Woolridge gives

6   economists' forecasts of market returns and GDP considerable weight in

7   supporting his ROE recommendation. It is unclear why Dr. Woolridge finds

8   economists' estimates appropriate for his analyses, but improper for mine.

9   Regarding the Duke CFO survey, Dr. Woolridge's 8.40 percent and 9.00

10   percent ROE recommendations, which apply to a company that is less risky

11   than the overall market,[160] are 159 to 219 basis points above the expected

12   market return suggested by the survey results. If the survey was a reasonable

13   method of determining the expected market return, Dr. Woolridge's ROE

14   recommendation would be no higher than 6.81 percent.[161] Lastly, over time the

15   survey results have rather significantly underestimated actual market

16   performance (*see* Table 8, below).

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[158]   *See*, Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters, First Quarter
        of 2020 at 19.

[159]   Testimony of J. Randall Woolridge, at 20-21.

[160]   Dr. Woolridge agrees that Beta coefficients for our proxy companies are less than 1.0.

[161]   6.81 percent equals the expected annual average market return over the next 10 years
        suggested by the Duke CFO survey. Duke/CFO Magazine Global Business Outlook survey –
        U.S., Fourth Quarter 2019, at 38. *See also*, Testimony of J. Randall Woolridge, at 83.

1 **Table 8: S&P 500 Market Return: Accuracy of Survey Estimates[162]**

	Actual	Survey Estimate
2019	31.49%	4.59%
2018	-4.38%	6.57%
2017	21.83%	5.00%
2016	11.96%	4.32%
2015	1.38%	6.07%
2014	13.69%	5.00%
2013	32.39%	3.40%
2012	16.00%	4.00%
2011	2.11%	5.30%
2010	15.06%	6.28%
Average	14.15%	5.05%

2   The Duke CFO Survey authors also have noted a distinction between the

3   expected market return on one hand, and the "hurdle rate" on the other. In the

4   Third Quarter 2017 survey, the authors reported an average hurdle rate, which

5   is the return required for capital investments, of 13.50 percent. The authors

6   further reported the average Weighted Average Cost of Capital, which includes

7   the cost of debt, was 9.20 percent even though the expected market return was

8   6.50 percent.[163] In my view, Dr. Woolridge's reference to a 4.99 percent[164]

9   expected MRP estimate based on the Duke CFO Survey should be given little

10   weight.

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[162]   Source: Duff & Phelps, 2020 SBBI Yearbook Appendix A-1; http://www.cfosurvey.org (One-year return estimates as of fourth quarter of the previous year).
[163]   Duke/CFO Magazine Global Business Outlook survey – U.S., Third Quarter 2017.
[164]   Testimony of J. Randall Woolridge, at 88.

1   **Q.**   **AT PAGE 91 OF HIS TESTIMONY, DR. WOOLRIDGE REFERS TO**

2   **THE WEBSITE MARKET-RISK-PREMIA.COM, WHICH SUGGESTS**

3   **A RISK-FREE RATE OF 1.51 PERCENT, AND AN MRP OF 4.14**

4   **PERCENT. DO YOU HAVE ANY OBSERVATIONS REGARDING**

5   **THOSE DATA POINTS?**

6   **A.**   Yes, I do. First, as Dr. Woolridge points out, those estimates combine to suggest

7   an expected market return of 5.65 percent. Because that estimate falls 125 basis

8   points below the low end of his recommended range (6.90 percent),[165] it is

9   unclear what, if any, weight Dr. Woolridge gives that data. Second, I reviewed

10   the website, and it is unclear how the service calculates the expected market

11   return, or the Market Risk Premium.[166] In any case, if Dr. Woolridge believed

12   the website's 5.65 percent expected market return was proper, his CAPM

13   estimate would be 4.68 percent,[167] only 53 basis points above the Company's

14   4.15 percent embedded cost of debt.

15   **Q.**   **DO YOU AGREE WITH DR. WOOLRIDGE'S REFERENCE TO**

16   **STUDIES THAT REPORT MRP ESTIMATES BASED ON EXPECTED**

17   **GEOMETRIC RETURNS?**

18   **A.**   No, I do not. The MRP should reflect the expected arithmetic average return.

19   The important distinction between the arithmetic and geometric averages is that

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[165]   Testimony of J. Randall Woolridge, at 93.
[166]   http://www.market-risk-premia.com/theoretical-background.html
[167] $4.68\% = 3.50\% + (0.55 \times (5.65\% - 3.50\%))$.

1	the arithmetic mean assumes that each periodic return is an independent
2	observation and, therefore, incorporates uncertainty into the calculation of the
3	long-term average. The geometric mean, on the other hand, is a backward-
4	looking calculation that equates a beginning value to an ending value. Although
5	geometric averages provide a standardized basis of review of historical
6	performance across investments or investment managers, they do not reflect
7	forward-looking uncertainty. That is why investors and researchers commonly
8	use the arithmetic mean when estimating the risk premium over historical
9	periods to estimate the Cost of Equity. As Morningstar notes:

> 10 The arithmetic average equity risk premium can be
> 11 demonstrated to be the most appropriate when discounting
> 12 future cash flows. For use as the expected equity risk premium
> 13 in either the CAPM or the building block approach, the
> 14 arithmetic mean or the simple difference of the arithmetic means
> 15 of the stock market returns and riskless rates is the relevant
> 16 number.[168]

17	Lastly, investment risk, or volatility, typically is measured based on the standard
18	deviation. The standard deviation, in turn, is a function of the arithmetic mean,
19	not the geometric mean. In that regard, the Beta coefficients applied in CAPM
20	analyses are a function of the standard deviation of returns.[169]

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[168]   Morningstar, Inc., 2013 Ibbotson SBBI Valuation Yearbook, at 56.
[169]   Direct Testimony of Dylan W. D'Ascendis, at 87.

1 **Q.   TURNING TO DR. WOOLRIDGE'S POSITION THAT THE EPS**

2 **GROWTH RATES USED TO DEVELOP YOUR ESTIMATED MARKET**

3 **RETURN ARE TOO HIGH,[170] DID YOU CONSIDER WHERE YOUR**

4 **ESTIMATE FALLS WITHIN THE RANGE OF HISTORICAL**

5 **OBSERVATIONS?**

6 A.   Yes. I gathered the annual capital appreciation[171] return on Large Company

7   Stocks reported by Morningstar for the years 1926 through 2018, produced a

8   histogram of those observations (*see* Chart 9, below), and calculated the

9   probability that a given capital appreciation return estimate would be observed.

10   The results of that analysis demonstrate that capital appreciation rates of 12.50

11   percent to 12.53 percent (as Dr. Woolridge calculates) and higher actually

12   occurred quite often, representing approximately the 57th percentile.

---

[170]   Testimony of J. Randall Woolridge, at 113-114.
[171]   Under the Constant Growth DCF model's assumptions, the growth rate equals the rate of
         capital appreciation.

Chart 9: Frequency Distribution of Capital Appreciation Returns,

1926-2019[172]
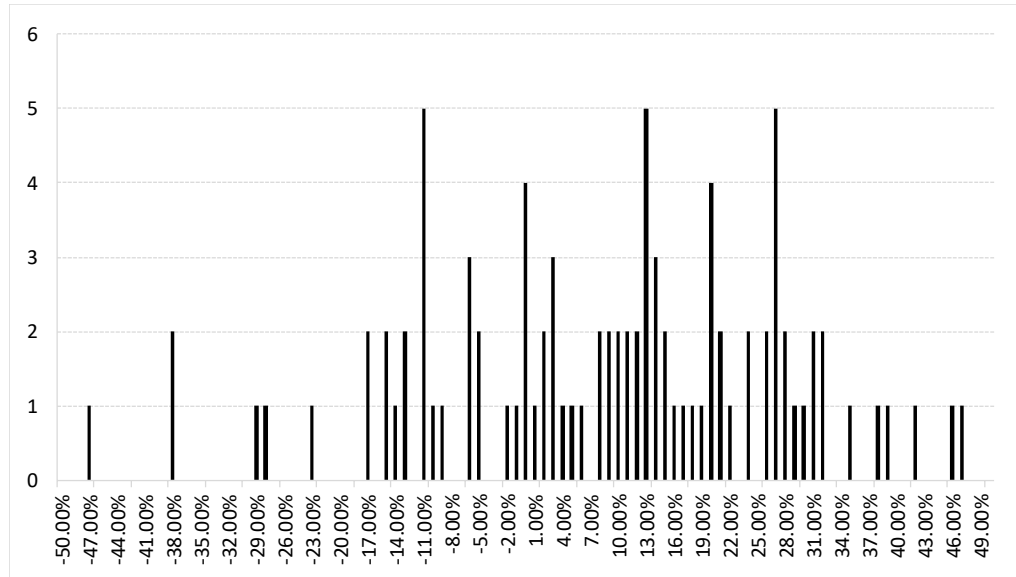
3   Regarding Dr. Woolridge's analysis of the S&P 500 EPS and GDP growth rates

4   (in his Table 9), his conclusion that net income of the S&P 500 would grow to

5   represent approximately 75.78 of GDP[173] is substantially driven by his unduly

6   low GDP growth rate. Under the Sustainable Growth model, if the retention

7   ratio is higher now than it historically has been, there would be reason to believe

8   that expected growth rates would be higher than historical growth rates. To

9   determine whether that has been the case, I calculated the annual retention ratio

10   from 1926 to 2019 using earnings and dividends data published by Dr. Robert

11   J. Shiller. As shown in Chart 10 (below), that data indicates the S&P 500

12   earnings retention has trended upward over time and is currently well above its

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[172]   Duff & Phelps, <u>2020 SBBI Yearbook</u>, at A-3.
[173]   Testimony of J. Randall Woolridge, at 127.

1   historical average. Consequently, the Sustainable Growth model included in

2   Dr. Woolridge's DCF analysis suggests that the future growth of the S&P 500

3   could outpace its historical growth.

4   **Chart 10: S&P 500 Annual Earnings Retention Ratio, 1926 – 2019[174]**
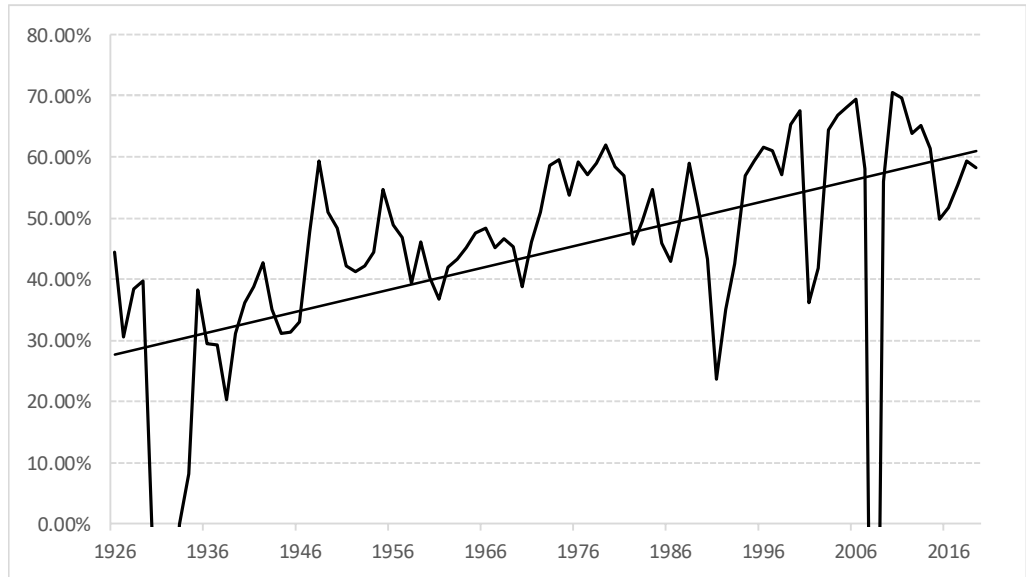
5 **Q.   HAVE ANY REGULATORY COMMISSIONS CONSIDERED THE**

6   **SUSTAINABILITY OF GROWTH RATES IN THE MARKET RISK**

7   **PREMIUM?**

8 A.   The Federal Energy Regulatory Commission ("FERC") has found the DCF-

9   based growth rates used to calculate the Market Risk Premium in the CAPM

10   need not meet a sustainability threshold because, although an individual

11   company may not be expected to sustain high short-term growth rates in

---

[174]   Source: http://www.econ.yale.edu/~shiller/data.htm.

| 1 | | perpetuity, the same cannot be said for a stock index like the S&P 500 that is |

| 2 | | regularly updated to contain only companies with high market capitalization. |

| 3 | | As the FERC stated in Opinion 531-B (March 3, 2015): |

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> The rationale for incorporating a long-term growth rate estimate in conducting a two-step DCF analysis of a specific group of utilities does not necessarily apply when conducting a DCF study of the companies in the S&P 500. That is because the S&P 500 is regularly updated to include only companies with high market capitalization. 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.[175]

16   In my view, Dr. Woolridge's concern regarding sustainability of growth rates in

17   the S&P 500 is misplaced.

18 **Q.   WHAT IS THE BASIS OF DR. WOOLRIDGE'S CONCERN WITH**

19 **YOUR MRP ESTIMATE AS IT RELATES TO HISTORICAL NOMINAL**

20 **GDP GROWTH RATES?**

21 A.   Dr. Woolridge argues "nominal GDP growth in recent decades has slowed and

22   that a figure in the range of 4.0% to 5.0% is more appropriate today for the U.S.

23   economy."[176] To support his position, Dr. Woolridge reviews average nominal

24   GDP growth over periods of ten to 50 years. As shown on Chart 11 (below),

25   however, since 1990 (*i.e.*, in "recent decades") the annual nominal growth rate

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[175] Docket No. EL11-66-002, *Opinion 531-B Order on Rehearing*, 150 FERC ¶ 61,165 (March 3, 2015), at Para. 113.
[176] Testimony of J. Randall Woolridge, at 119.

1   in GDP has remained relatively stable, but for the period 2008 to 2012, which

2   includes the recent recession. Over that time, annual nominal GDP growth rates

3   greater than 5.00 percent (the high end of Dr. Woolridge's suggested range)

4   occurred in 13 of 30 years.

5   **Chart 11: Annual Nominal GDP Growth Rates (1990 – 2019)[177]**
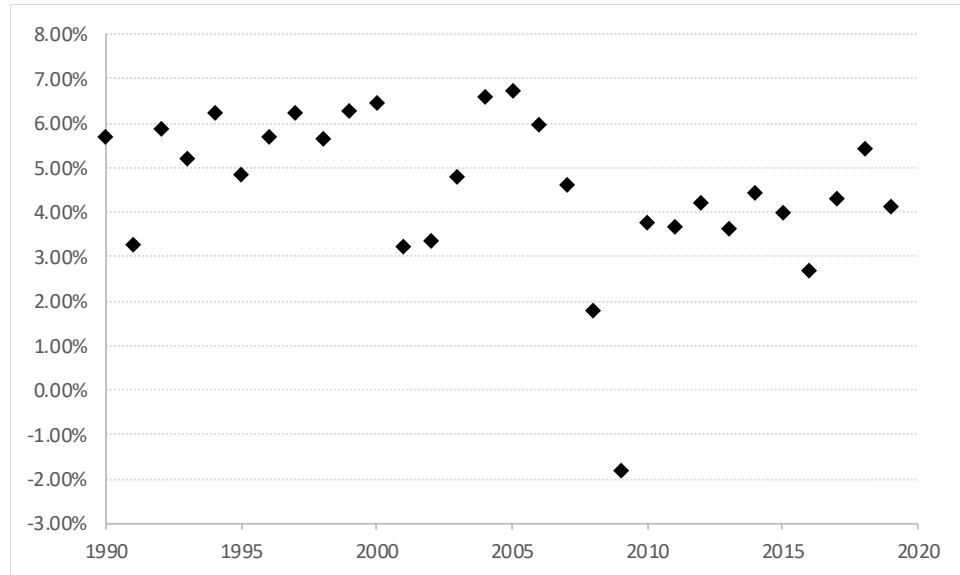
6   **Q.   AT PAGE 122 OF HIS TESTIMONY, DR. WOOLRIDGE REFERS TO A**

7   **2015 STUDY BY MCKINSEY & CO. ("MCKINSEY") AND ARGUES**

8   **THAT REAL GDP GROWTH MAY FALL BY 40.00 PERCENT. DO YOU**

9   **AGREE WITH DR. WOOLRIDGE'S CONCLUSION?**

10   A.   No, I do not. Dr. Woolridge argues future real global economic growth will fall

11   to 2.10 percent, principally due to slow growth in the working age population.

12   He suggests that is the case "even if productivity remains at the rapid rate of the

---

[177]   Source: Bureau of Economic Analysis, March 30, 2020 update.

1	past 50 years of 1.8%".[178] McKinsey, however, also points to five "sector case
2	studies", that find "more than enough productivity-acceleration scope to
3	counter slower labor growth."[179] Based on those studies, McKinsey finds
4	sufficient potential for productivity growth to reach 4.00 percent. Of note,
5	about three-quarters of that global potential "would come from the broader
6	adoption of existing best practices", which the firm would characterize as
7	"catch-up" productivity improvements."[180] As to the remainder, McKinsey
8	states:

9	The remaining one-quarter, or about one percentage point a year,
10	could come from technological, operational, or business
11	innovations that go beyond today's best practices and that "push
12	the frontier" of the world's GDP potential. In contrast to some
13	observers, we do not find that a drying up of technological or
14	business innovations will act as a constraint to growth. On the
15	contrary, we see a strong innovation pipeline in both developed
16	and developing economies in the sectors we studied. Our
17	estimate of the potential here is based only on the innovations
18	that we can foresee. It is quite possible that waves of innovation
19	may, in reality, push the frontier far further than we can ascertain
20	based on the current evidence.[181]

21	In short, the McKinsey study does not conclude the declining workforce
22	necessarily means lower real global GDP growth. Rather, the potential for
23	meaningful productivity increases may provide greater avenues for global real
24	economic growth well greater than Dr. Woolridge assumes.

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[178]   Testimony of J. Randall Woolridge, at 122.
[179]   McKinsey Global Institute, *Global Growth: Can Productivity Save the Day In An Aging World?*, January 2015, at PDF 9.
[180]   *Ibid.*, at 53 (PDF 63).
[181]   *Ibid.*

1 **Q.   WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE'S REFERENCE**

2 **TO GDP FORECASTS PROVIDED BY THE *SURVEY OF***

3 ***PROFESSIONAL FORECASTERS*, THE ENERGY INFORMATION**

4 **ADMINISTRATION ("EIA"), AND THE CONGRESSIONAL BUDGET**

5 **OFFICE ("CBO")?[182]**

6 A.   First, Dr. Woolridge has not demonstrated investors rely on the surveys cited in

7   his testimony. Second, as Dr. Woolridge points out, the *Survey of Professional*

8   *Forecasters* relates to the years 2019 to 2029; given Dr. Woolridge's concern

9   with my growth rates over the coming period of three-to-five years, his use of

10   the *Survey of Professional Forecasters* does not address that issue. As to the

11   CBO and EIA forecasts, those forecasts cover only fifteen to 25 years of a

12   perpetual period and are not consensus forecasts. Lastly, because the EIA's

13   GDP growth forecast is an input to its annual energy projections, the

14   assumptions and methods underlying its GDP forecast are for that specific

15   purpose.

16   The CBO provides updates regarding its forecasting record. In that

17   context, the CBO has noted that comparisons to other forecasts are not always

18   appropriate, at least in part because forecasts may be based on different

19   assumptions and used for different purposes.[183] The CBO also observes it is

20   required to assume future fiscal policy generally will reflect current law, so that

---

182   Testimony of J. Randall Woolridge, at 120.
183   *See*, *CBO's Economic Forecasting Record: 2019 Update*, October 2019, at 8.

1   it may provide a benchmark against which proposed changes in law may be

2   assessed.[184] The CBO goes on to explain that "[d]ifferent assumptions about

3   monetary policy can also make it difficult to compare CBO's forecasts with

4   other forecasts. CBO's forecasts incorporate the assumption that monetary

5   policy will reflect the economic conditions that the agency expects to prevail

6   under the fiscal policy specified in current law."[185] The CBO also notes that

7   among its two-year forecasts (since the early 1980s), the forecast error for

8   "growth of real output" and inflation (measured by the Consumer Price Index)

9   has been 1.30 percentage points and 0.90 percentage points, respectively.[186]

10   As to the accuracy of the EIA's GDP forecast, the agency reviews its

11   projections in its *Annual Energy Outlook ("AEO") Retrospective Review*.

12   There, the EIA has noted "[t]he projections in the AEO are not statements of

13   what will happen but of what may happen given assumptions in the underlying

14   National Energy Modeling System (NEMS)."[187]

15   As EIA makes clear, the reference case projections assume current laws

---

[184]   *Ibid*. "CBO is required by statute to assume that future fiscal policy will generally reflect the provisions in current law, an approach that derives from the agency's responsibility to provide a benchmark for lawmakers as they consider proposed legislative changes. When the Administration prepares its forecasts, however, it assumes that the fiscal policy in the President's proposed budget will be adopted…Forecast errors may be affected by those different fiscal policy assumptions, especially when forecasts are made while policymakers are considering major legislative changes."

[185]   *Ibid*.

[186]   *Ibid.*, at 2. Root mean square error.

[187]   U.S. Energy Information Administration, *Annual Energy Outlook Retrospective Review: Evaluation of AEO2018 and Prior Reference Case Projections,* December 2018, at 1. Clarification added.

1   and regulations remain unchanged throughout the projection period.[188]   The

2   agency's projections, therefore, are based on the economic environment at the

3   time of the forecast. As shown in Table 3 of the *AEO Retrospective Review*, the

4   EIA compares its past real GDP growth projections to actual real GDP growth.

5   In its 1994 forecast of GDP growth – a time during which the U.S. was coming

6   out of a recession – the agency generally underestimated GDP growth. During

7   the stronger economic times of the 2000s, the agency generally overestimated

8   GDP growth into the future.[189]   The agency's 2020 to 2050 reference case is

9   based on the current economic environment of below average GDP growth,

10   inflation, and interest rates.[190]

11   **Q.   PLEASE DESCRIBE DR. WOOLRIDGE'S CONCERNS WITH THE**

12   **EMPIRICAL CAPITAL ASSET PRICING MODEL.**

13   A.   Dr. Woolridge believes the ECAPM is an "ad hoc version of the CAPM and has

14   not been theoretically or empirically validated in refereed journals."[191]   That

15   point aside, he does not agree with the use of adjusted Beta coefficients in the

16   ECAPM.[192]   For the reasons discussed below, I disagree with Dr. Woolridge's

17   concerns.

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[188]   U.S. Energy Information Administration, Annual Energy Outlook 2020 with Projections to 2050, January 2020, at 4.

[189]   U.S. Energy Information Administration, *Annual Energy Outlook Retrospective Review: Evaluation of AEO2018 and Prior Reference Case Projections,* December 2018, Table 3.

[190]   U.S. Energy Information Administration, Annual Energy Outlook 2020 with Projections to 2050, January 2020, at Table 20.

[191]   Testimony of J. Randall Woolridge, at 130.

[192]   Testimony of J. Randall Woolridge, at 131.

1 **Q.   WHY DID YOU INCLUDE THE ECAPM IN YOUR ANALYSES?**

2 A.   As discussed in my Direct Testimony, numerous tests have measured the extent

3   to which security returns and Beta coefficients are related as predicted by the

4   CAPM. Empirical studies have found that returns on low-Beta securities are

5   higher than the CAPM would predict and lower than the CAPM would predict

6   for high-Beta securities.[193] Simply, the ECAPM method addresses the tendency

7   of the CAPM to underestimate the Cost of Equity for low-Beta coefficient

8   companies such as regulated utilities. In its text on cost of capital analysis for

9   regulated industries, for example, the Brattle Group summarizes a number of

10   studies estimating the alpha component of the ECAPM.[194]

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[193]   Direct Testimony of Dylan W. D'Ascendis, at 92-93.
[194]   Villadsen, Vilbert, Harris, and Kolbe, Risk and Return for Regulated Industries, 2017, Table
         4.1 at 83. Alpha is an adjustment to the security market line that increases the intercept and
         lowers the slope of the line.

1 **Q.   HAS THE ECAPM METHOD BEEN RECOGNIZED IN OTHER**

2   **REGULATORY JURISDICTIONS?**

3 A.   Yes, it has been accepted in Minnesota, Mississippi, and New York.[195]

4   Additionally, the Commission recently found the ECAPM to be "credible,

5   probative, and entitled to substantial weight."[196]

6 **Q.   HAVE YOU UNDERTAKEN ANY INDEPENDENT ANALYSES TO**

7   **DETERMINE WHETHER THERE IS A RELATIONSHIP BETWEEN**

8   **BETA COEFFICIENTS AND EXCESS RETURNS PRODUCED BY THE**

9   **CAPM AND ECAPM?**

10 A.   Yes, I performed an analysis of excess returns produced by the CAPM, by Beta

11   coefficient decile, over the eleven years ended 2019. The analysis compared

12   the observed returns of the companies in the S&P 500 Index to expected returns

13   based on the CAPM. Observed returns were calculated as the total return for

14   each company from the first day of a given year to the end of that year. The

---

[195]   Minnesota Public Utilities Commission, MPUC Docket No. G011/GR-15-736, *In the Matter of the Application of Minnesota Energy Resources Corporation for Authority to Increase Rates for Natural Gas Service in Minnesota, Findings of Fact, Conclusions of Law, and Recommendation*, August 19, 2016, at 29; Mississippi Public Service Commission, Docket No. 01-UN-0548, *Notice of Intent of Mississippi Power Company to Change Rates for Electric Service in its Certificated Areas in the Twenty-Three Counties of Southeast Mississippi*, Final Order, December 3, 2001, at 19; New York Public Service Commission, Case 16-G-0058, P*roceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of KeySpan Gas East Corporation d/b/a National Grid for Gas Service*, Order Adopting Terms of Joint Proposal and Establishing Gas Rate Plans, December 16, 2016, at 32.

[196]   *In the Matter of Application of Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina for Adjustment of Rates and Charges Applicable to Electric Service in North Carolina*, Docket No. E-22, Sub 562 Order Accepting Public Staff Stipulation in Part, Accepting CIGFUR Stipulation, Deciding Contested Issues, and Granting Partial Rate Increase, February 24, 2020, at 40.

1   expected return for each company was calculated using the CAPM as applied

2   to the following annual data: (1) a risk-free rate equal to the average 30-year

3   Treasury yield for that year; (2) an adjusted Beta coefficient as of the beginning

4   of the year using Bloomberg's standard calculation method (two years of

5   weekly return data, using the S&P 500 Index as the comparison benchmark);

6   and (3) a market return equal to the S&P 500 Index total return for that year.

7   The companies were grouped into deciles each year based on their Beta

8   coefficients, and the median excess return (or return deficiency) was calculated

9   for each decile group. Excess returns were calculated as the observed return

10   less the return implied by the CAPM. Chart 12 (below) summarizes those

11   results.

12   **Chart 12: Excess Returns Under CAPM[197]**

$y = -0.014x + 0.0717$

$R^2 = 0.8041$
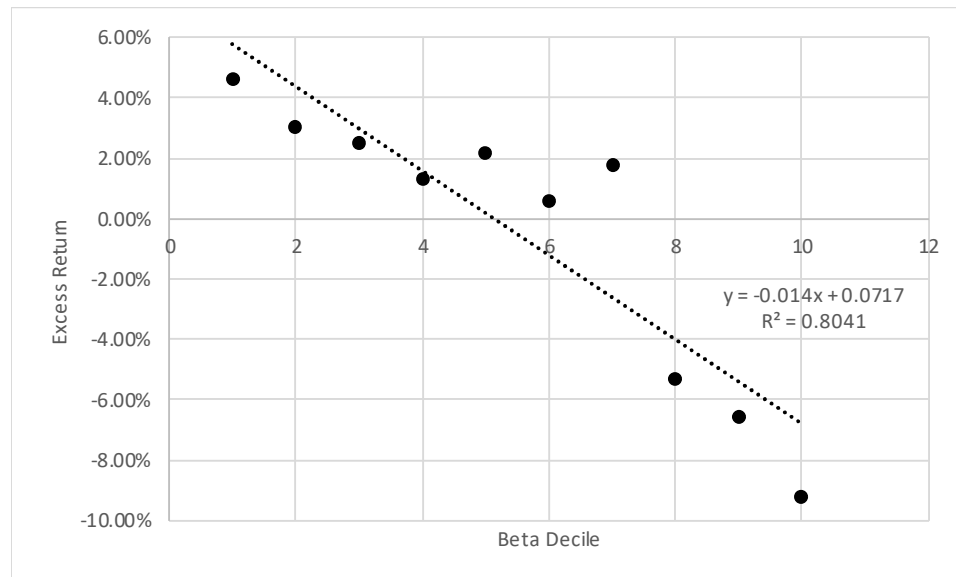
Excess Return (y-axis)

Beta Decile (x-axis)

---

1   As Chart 12 demonstrates, the relationship between excess return and Beta

2   coefficient deciles is strong, with deciles explaining approximately 80.00

3   percent of the excess return. Using the same data and calculating the excess

4   return by reference to the ECAPM, produces the same downward sloping

5   relationship, but not to the same degree (*see* Chart 13, below).

6   **Chart 13: Excess Returns Under ECAPM[198]**
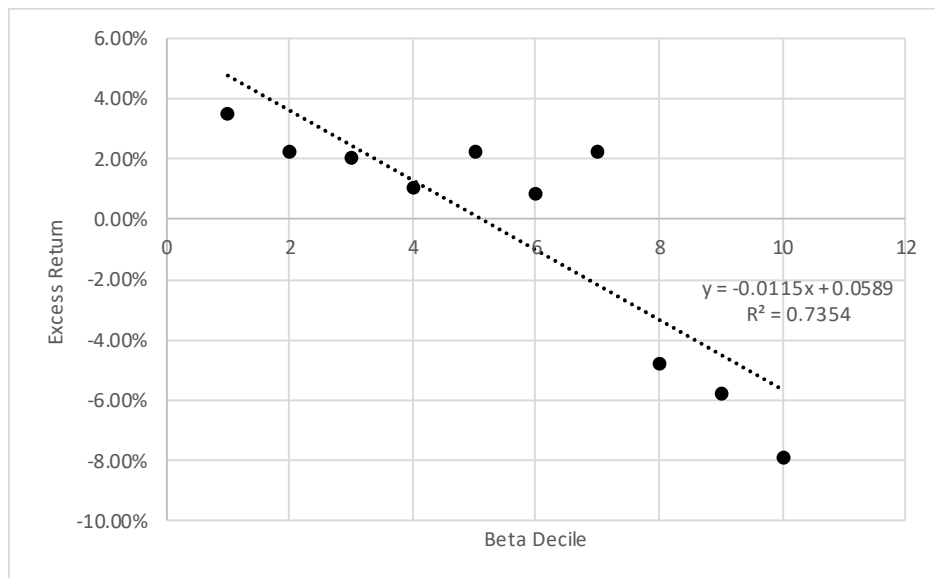
7   There are two principal observations to be drawn from the data

8   presented in Charts 12 and 13. First, under the ECAPM the slope coefficient is

9   somewhat less negative (relative to the CAPM), suggesting a flatter relationship

10   between Beta coefficient deciles and the excess return. The flatter slope moves

11   closer to the point at which the excess return is zero across all deciles. Second,

12   the excess return values are somewhat moderated under the ECAPM; the high

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[198]   Source: Bloomberg Professional Services.

1   excess returns are lower than under the CAPM, and the low excess returns are

2   higher. Again, that finding suggests the ECAPM mitigates, but does not solve

3   the issue of the CAPM underestimating returns for low-Beta coefficient firms.

4   In summary, Charts 12 and 13 support the position that the CAPM tends

5   to underestimate returns for low-Beta coefficient firms, and the ECAPM

6   moderates that effect to some extent, but it does not appear to eliminate it.

7   Because the ECAPM mitigates the drift in Beta coefficients, I believe it is a

8   reasonable method.

9 Q.   **WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE'S CONCERN**

10   **WITH THE USE OF ADJUSTED BETA COEFFICIENTS IN THE**

11   **ECAPM APPROACH?**

12 A.   As discussed in my Direct Testimony, the use of adjusted Beta coefficients is

13   not equivalent to the use of the ECAPM.[199] Beta coefficients are adjusted

14   because of their general regression tendency to converge toward 1.00 over time,

15   *i.e.*, over successive calculations. Numerous studies have determined that at

16   any given point in time the Security Market Line ("SML") described by the

17   CAPM formula is not as steeply sloped as the predicted SML.[200] As noted by

18   Dr. Morin, "[t]he ECAPM is a formal recognition that the observed risk-return

19   tradeoff is flatter than predicted by the CAPM based on myriad empirical

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[199]   Direct Testimony of Dylan W. D'Ascendis, at 93-94.
[200]   Direct Testimony of Dylan W. D'Ascendis, at 92-93.

1   evidence."[201]

2 *F. Bond Yield Plus Risk Premium Analysis*

3 **Q.   PLEASE SUMMARIZE DR. WOOLRIDGE'S RESPONSE TO YOUR**

4 **BOND YIELD PLUS RISK PREMIUM ANALYSIS.**

5 A.   Dr. Woolridge argues the Risk Premium derived from the analysis is "inflated"

6   and "is a gauge of *commission* behavior and not *investor* behavior."[202] Dr.

7   Woolridge further notes that the Risk Premium approach results reflect "other

8   utility- and rate case-specific information in setting ROEs"[203] and points to what

9   he views as a potential discrepancy between settled and litigated cases.[204] Dr.

10   Woolridge also suggests the analysis overstates the actual ROE because the

11   estimated risk premium is based on historical Treasury yields, whereas the

12   model is applied to current and expected yields.[205]

13 **Q.   WHAT IS DR. WOOLRIDGE'S POSITION REGARDING THE RISK-**

14 **FREE RATES APPLIED IN YOUR BOND YIELD PLUS RISK**

15 **PREMIUM ANALYSIS?**

16 A.   Dr. Woolridge finds the Treasury bond yields used in my Bond Yield Plus Risk

17   Premium analysis "excessive", and argues they must not be accurate because if

18   they were, "investors would not be buying long-term Treasury bonds at their

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[201] Roger A. Morin, *New Regulatory Finance*, at 191 (2006).
[202] Testimony of J. Randall Woolridge, at 133. [*Emphasis included in original*]
[203] Testimony of J. Randall Woolridge, at 133.
[204] Testimony of J. Randall Woolridge, at 133-134.
[205] Testimony of J. Randall Woolridge, at 133.

1   current yields if they expected interest rates to suddenly increase".[206]

2 **Q.   WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE ON THAT POINT?**

3 A.   Dr. Woolridge's argument is misplaced. In his CAPM analysis, Dr. Woolridge

4   relies on a 3.50 percent risk-free rate,[207] which is higher than the three risk-free

5   rates presented in my updated Bond Yield Plus Risk Premium analysis and over

6   200 basis points above the current 30-day average risk-free rate.[208] Still, Dr.

7   Woolridge argues investors give such projections no weight in their decision to

8   purchase bonds at current yields. I disagree. The Cost of Equity is

9   fundamentally forward-looking, and the use of expected Treasury yields (such

10   as the 3.50 percent Dr. Woolridge uses) is consistent with that principle.

11   Lastly, Dr. Woolridge's argument that investors would not acquire

12   Treasury securities if they felt interest rates were to increase (because the price

13   would decrease) appears to assume investors take short-term trading positions.

14   Although that may be the case for some, I do not believe it is for all Treasury

15   bond investors. In my experience, Treasury securities often are "immunized",

16   by matching their duration to the duration of a corresponding liability (for

17   example, in a benefit plan). In that case, reductions in the price brought about

18   by higher interest rates are offset by the higher interest income associated with

19   those rates. Because many investors in Treasury securities are institutions,

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[206]   Testimony of J. Randall Woolridge, at 132.
[207]   Testimony of J. Randall Woolridge, at 79; Exhibit JRW-8.
[208]   Rebuttal Exhibit DWD-5.

1   whose objectives and strategies may go beyond short-term trading positions,

2   we cannot say there is no implied risk of future rate increases.

3 **Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE'S POSITION**

4   **THAT THE RISK PREMIUM ANALYSIS IS A STUDY OF UTILITY**

5   **COMMISSION BEHAVIOR RATHER THAN INVESTOR BEHAVIOR?**

6 A.   Those cases, and their associated decisions, reflect the same type of market-

7   based analyses at issue in this proceeding. Because authorized returns are

8   publicly available (the proxy companies disclose authorized returns, by

9   jurisdiction, in their 2019 SEC Forms 10-K),[209] it therefore is reasonable to

10   conclude that data is reflected, at least to some degree, in investors' return

11   expectations and requirements. From that perspective, ROE recommendations

12   that are far removed from prevailing levels, such as Dr. Woolridge's, should be

13   reconciled by reference to differences in risk. I do not believe Dr. Woolridge's

14   recommendation reasonably does so.

---

[209]   *See*, *for example*, American Electric Power Company, Inc., SEC Form 10-K for the year ended December 31, 2019, at 4; ALLETE Inc., SEC Form 10-K for the year ended December 31, 2019, at 14-15; Duke Energy Corporation, SEC Form 10-K for the year ended December 31, 2019, at 16; WEC Energy Group, Inc., SEC Form 10-K for the year ended December 31, 2019, at 129-131.

1   **Q.   WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE'S POSITION**

2   **THAT YOUR ANALYSIS APPLIES AN HISTORICAL RISK PREMIUM**

3   **TO PROJECTED RATES AND, AS SUCH, OVERSTATES THE COST**

4   **OF EQUITY?[210]**

5   A.   I applied both historical and projected interest rates to the regression

6   coefficients developed in the Risk Premium analysis, not to an average

7   historical risk premium. As discussed in my Direct Testimony, the regression

8   coefficients specifically recognize that as interest rates decrease, the Equity

9   Risk Premium increases.[211] A consequence of that relationship is that interest

10   rates and the Cost of Equity generally move in the same direction, although not

11   on a one-to-one basis. As projected interest rates increase, the Cost of Equity

12   also increases, but not to the same degree. Dr. Woolridge's concern that I

13   applied projected interest rates to an historical risk premium is misplaced, in

14   that: (1) the analysis does not rely on an historical risk premium; and (2)

15   because the estimated risk premium does not increase in lock step with interest

16   rates, the resulting ROE estimate does not overstate the Cost of Equity.

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[210]   Testimony of J. Randall Woolridge, at 133.
[211]   Direct Testimony of Dylan W. D'Ascendis, at 96-97.

1 Q.   **WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE'S POSITION**

2   **THAT YOUR RISK PREMIUM ANALYSIS MUST TAKE INTO**

3   **CONSIDERATION THE SPECIFIC ASPECTS OF THIS PROCEEDING**

4   **RELATIVE TO ALL OTHERS?[212]**

5 A.   There is no disagreement that every case has its unique set of issues and

6   circumstances. Reviewing over 1,600 cases over many economic cycles and

7   using that data to develop the relationship between the Equity Risk Premium

8   and interest rates mitigates that concern.

9 Q.   **IS IT A CONCERN, AS DR. WOOLRIDGE ARGUES, TO INCLUDE**

10   **BOTH FULLY LITIGATED AND SETTLED RATE CASES IN YOUR**

11   **RISK PREMIUM ANALYSIS?[213]**

12 A.   No, it is not. Of the more than 1,600 rate cases in my updated Risk Premium

13   analysis (*see* Rebuttal Exhibit DWD-5), 1,162 were fully litigated and 462 were

14   settled. More recently (from January 2015 through April 17, 2020), 80 cases

15   were fully litigated and 101 were settled. Over the same period, the difference

16   in average authorized returns between the two, however, was approximately 13

17   basis points. Further, the same inverse relationship between interest rates and

18   the Equity Risk Premium is present, whether the analysis includes fully litigated

19   rate cases, settled rate cases, or both.[214]   I therefore disagree with Dr.

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[212]   Testimony of J. Randall Woolridge, at 133-134.
[213]   Testimony of J. Randall Woolridge, at 133-134.
[214]   Rebuttal Exhibit DWD-12.

1   Woolridge's concern.

G. Expected Earnings Analysis

3 **Q.   PLEASE SUMMARIZE DR. WOOLRIDGE'S CONCERNS WITH**

4   **YOUR EXPECTED EARNINGS ANALYSIS.**

5 A.   Dr. Woolridge argues the Expected Earnings approach is inappropriate because:

6   (1) it is accounting-based and does not measure market-based investor return

7   requirements; (2) book equity does not change with investor return

8   requirements as do market prices; (3) the approach is circular; and (4) the data

9   partially reflect earnings of non-regulated operations.[215]

10 **Q.   WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE?**

11 A.   Although I agree economic and financial factors and the market-based models

12   that depend on them are important, those factors do not invalidate the Expected

13   Earnings approach. As discussed in my Direct Testimony, no single method

14   best captures investor expectations at all times and under all conditions.[216]

15   Market-based models necessarily require us to draw inferences from market

16   data based on the assumptions and construction of methods such as the DCF

17   and CAPM approaches. The simplicity of the Expected Earnings approach is a

18   benefit, not a detriment.

19   Although many factors affect stock returns and M/B ratios, the

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[215]   Testimony of J. Randall Woolridge, at 135-137.
[216]   Direct Testimony of Dylan W. D'Ascendis, at 5.

1   accounting-based ROE is one of them and cannot be ignored.[217] As a practical

2   matter, the Economic Value Added consulting practices[218] and related value-

3   based-management systems[219] encourage financial managers to focus on

4   elements of the Return on Net Assets, and Return on Invested Capital.

5   In addition, the standard revenue requirements formula applied by the

6   Commission explicitly recognizes the validity of the book value of equity by

7   choosing to measure capital structures based on book values, rather than market

8   value. The Expected Earnings approach provides a direct measure of the book-

9   based return comparable-risk utilities are expected to earn. In that sense, it is a

10   direct measure of the expected opportunity cost on the book value of equity.

11   Equally important, because it looks to the earnings expected of comparable-risk

12   companies, the approach is consistent with the *Hope* and *Bluefield* "comparable

13   return" standard. As Dr. Morin notes, the method "is easily understood, and is

14   firmly anchored in regulatory tradition," concluding that "because the

15   investment base for ratemaking purposes is expressed in book value terms, a

16   rate of return on book value, as is the case with [Expected] Earnings, is highly

17   meaningful."[220]

18   Lastly, among the growth rates Dr. Woolridge considers in his DCF

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[217]   I am not suggesting the M/B ratio necessarily will equal 1.00 when the accounting-based ROE
        equals the Cost of Equity.
[218]   *See,* G. Bennett Stewart, <u>The Quest for Value</u>, HarperCollins Publishers, Inc., 1990.
[219]   *See,* Institute of Management Accountants, *Measuring and Managing Shareholder Value
        Creation*, 1997.
[220]   Roger A. Morin, <u>New Regulatory Finance</u>, Public Utilities Reports, Inc., 2006 at 395.
        [clarification added].

1		analyses is the "sustainable growth" method. Under that method, expected
2		growth depends on the expected return on the book value of common equity,
3		and the extent to which that return is retained (that is, not paid in dividends).
4		Although he does not adjust them to reflect average book value balances, Dr.
5		Woolridge reports both mean and median expected returns of 10.50.[221]
6	Q.	HAS THE COMMISSION ACCEPTED THE EXPECTED EARNINGS
7		ANALYSIS IN PAST CASES?
8	A.	Yes. In the Company's prior rate case (Docket No. E-2, Sub 1142), the
9		Commission found the Comparable Earnings analysis, which is similar to my
10		Expected Earnings Analysis, to be "credible".[222] The Commission also has
11		noted the reasonableness of the Comparable Earnings analysis in prior orders,
12		stating that it is "credible and deserving of great weight."[223]

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[221] Exhibit JRW-7, page 4. Mean and median of Dr. Woolridge's proxy group.
[222] North Carolina Utilities Commission, Docket No. E-2, Sub 1142, *Order Accepting Stipulation, Deciding Contested Issues, and Granting Partial Rate Increase*, February 23, 2018, at 74, 81, 82.
[223] North Carolina Utilities Commission, Docket No. E-2, Sub 1023, *Order Granting General Rate Increase*, May 30, 2013, at 39.

1   *H. Market/Book Ratios and the Cost of Equity*

2   **Q.   PLEASE BRIEFLY SUMMARIZE DR. WOOLRIDGE'S POSITION**

3   **REGARDING THE RELATIONSHIP BETWEEN M/B RATIOS AND**

4   **THE COST OF EQUITY.**

5   A.   Dr. Woolridge suggests M/B ratios greater than one[224] indicate the subject

6   company's earned Return on Equity exceeds its Cost of Equity.[225]   In Dr.

7   Woolridge's view, the relationship between M/B ratios and the Cost of Equity

8   is "relatively straightforward":

9   A firm that earns a return on equity above its cost of equity will
10   see its common stock sell at a price above its book value.
11   Conversely, a firm that earns a return on equity below its cost of
12   equity will see its common stock sell at a price below its book
13   value.[226]

14   In discussing normative economic models of firms, which he notes are

15   "developed under very restrictive assumptions",[227] Dr. Woolridge explains that

16   in a perfectly competitive market, firms will produce to the point that price

17   equals marginal cost:

18   Over time, a long-run equilibrium is established where price
19   equals average cost, including the firm's capital costs. In
20   equilibrium, total revenues equal total costs, and because capital
21   costs represent investors' required return on the firm's capital,
22   actual returns equal required returns, and the market value must

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[224]   M/B ratios in excess of unity simply means that the firm is worth more as a going concern
        than the book value of its assets.
[225]   Testimony of J. Randall Woolridge, at 54-55.
[226]   Testimony of J. Randall Woolridge, at 53.
[227]   Testimony of J. Randall Woolridge, at 51.

1		equal the book value of the firm's securities.[228]

2   Dr. Woolridge suggests the same relationship holds in the utility sector, arguing

3   "[g]iven that the market-to-book ratios have been above 1.0 for a number of

4   years, this also demonstrates that utilities have been earnings ROEs above the

5   cost of equity capital for many years."[229] In short, Dr. Woolridge's position is

6   clear: If a utility's M/B ratio is greater than one, its earned return is greater than

7   its investor-required return.

8 **Q.   HAS DR. WOOLRIDGE UNDERTAKEN HIS OWN ANALYSES OF**

9   **THE RELATIONSHIP BETWEEN M/B RATIOS AND EARNED**

10   **RETURNS?**

11 A.   Yes, Dr. Woolridge performs a regression analysis to examine the relationship

12   between the earned Return on Equity and M/B ratios for all electric and gas

13   utilities covered by Value Line.[230] Based on his analysis, Dr. Woolridge argues

14   there is a strong relationship between the two variables. In fact, because he

15   reports an R-Squared of 50.00 percent, Dr. Woolridge concludes there is a

16   "statistically significant positive relationship between ROEs and market-to-

17   book ratios for electric utilities and gas companies."[231]

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[228]   Testimony of J. Randall Woolridge, at 51.
[229]   Testimony of J. Randall Woolridge, at 55.
[230]   Testimony of J. Randall Woolridge, at 54-55, Exhibit JRW-4.
[231]   Testimony of J. Randall Woolridge, at 54-55, Exhibit JRW-4.

1 **Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE ON THOSE**

2 **POINTS?**

3 A. Although expected earned returns are a factor that weigh in M/B ratios, they are

4 not the only factor. Dr. Woolridge's linear regression says as much; other

5 variables account for 50.00 percent of the variation in M/B ratios. Based on Dr.

6 Woolridge's regression analysis, we cannot conclude earned returns are greater

7 than required returns whenever M/B ratios are greater than one.

8 Looking beyond Dr. Woolridge's analysis, there are fundamental

9 reasons we should not rely on M/B ratios as the measure of excess returns. By

10 way of background, the M/B ratio equals the market value (or stock price) per

11 share, divided by the total common equity (or the book value) per share. Book

12 value per share is an accounting construct that reflects historical costs. In

13 contrast, market value per share (*i.e.,* the stock price) is forward-looking, and a

14 function of many variables, including, but not limited to, expected earnings and

15 cash flow growth, expected payout ratios, measures of "earnings quality," the

16 regulatory climate, the equity ratio, expected capital expenditures, and the

17 earned return on common equity.[232] As Dr. Morin states, it is rarely the case in

18 cost of service-based regulation that M/B ratios equal 1.00:

19 The third and perhaps most important reason for caution and
20 skepticism is that application of the DCF model produces
21 estimates of common equity cost that are consistent with

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[232] *See*, Roger A. Morin, <u>New Regulatory Finance</u>, Public Utility Reports, Inc., 2006, at 366.
Please note, Dr. Morin cites several academic articles that address the various factors that
affect the M/B ratio for utilities.

1	investors' expected return only when stock price and book value
2	are reasonably similar, that is, when the M/B is close to unity.
3	As shown below, application of the standard DCF model to
4	utility stocks understates the investor's expected return when the
5	market-to-book (M/B) ratio of a given stock exceeds unity. This
6	was particularly relevant in the capital market environment of
7	the 1990s and 2000s whose utility stocks are trading at M/B
8	ratios well above unity and have been for nearly two decades.
9	The converse is also true, that is, the DCF model overstates the
10	investor's return when the stock's M/B ratio is less than unity.
11	The reason for the distortion is that the DCF market return is
12	applied to a book value rate base by the regulator, that is, a
13	utility's earnings are limited to earnings on a book value rate
14	base.[233]

15   Here, Dr. Woolridge argues that whenever the earned ROE is greater than the

16   Cost of Equity ("k"), the M/B ratio will exceed one.[234] Under certain restrictive

17   assumptions, the DCF model can be rewritten to express the M/B ratio[235] as

18   follows:

$$19 \qquad \frac{M}{B} = \frac{ROE - g}{k - g} \qquad [3]$$

20   where ROE is the return on book equity, k is the Cost of Equity, and g is the

21   long-term growth rate. Rearranging Equation [3] produces the familiar Gordon

22   Growth model:

$$23 \qquad P = \frac{D}{k - g} \qquad [4]$$

24   and the Constant Growth DCF model:

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[233]   *Ibid.*, at 434.
[234]   Testimony of J. Randall Woolridge, at 54.
[235]   B. Branch, A. Sharma, C. Chawla, and F. Tu, *An Updated Model of Price-to-Book*, Journal of Applied Finance, No. 1 (2014).

$$P = \frac{D}{P} + g \quad [5]$$

1

2   Dr. Woolridge's assumed relationship between the accounting Return on

3   Equity and the Cost of Equity therefore directly relies on the Constant Growth

4   DCF model; one cannot be assumed without the other. Any inferences drawn

5   from relationships among M/B, ROE, and k from Equation [3] therefore rely on

6   the explicit acceptance of all assumptions underlying the Constant Growth DCF

7   model. That is, Equation [3] only can be drawn from the Constant Growth DCF

8   model if we assume: (1) a constant dividend payout ratio in perpetuity; (2) no

9   stock issuances or repurchases; (3) the P/E ratio and the M/B ratio will remain

10   constant in perpetuity; and (4) the Cost of Equity estimated today will never

11   change. Taken together, those assumptions are quite restrictive, especially in

12   the currently unstable capital market. Consequently, I do not believe we can

13   assume the definitive and permanent relationship among M/B, ROE, and k that

14   Dr. Woolridge's position assumes.

15 **Q.**   **WHAT WOULD BE THE RESULT IF REGULATORY COMMISSIONS**

16   **DID FORCE M/B RATIOS TOWARD UNITY?**

17 A.   Looking to Dr. Woolridge's Electric Proxy Group, the average capital loss for

18   equity investors would be about 58.00 percent.[236] That loss would not just

19   affect investors, it also would substantially diminish the ability of utilities to

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[236]   Based on Dr. Woolridge's proxy group average M/B ratio of 237.00. (237.00 -100.00)/
237.00 = 57.81 percent. Exhibit JRW-2, page 1.

1   attract external capital. To summarize, if regulatory commissions were to set

2   rates with an eye toward moving the M/B ratio toward unity, that practice may

3   well impede the ability to attract the capital required to support its operations,

4   especially in markets during which the M/B ratio for the overall market is

5   significantly greater than 100.00 percent.

6   **Q.   HAVE UTILITY M/B RATIOS GENERALLY EXCEEDED 1.00?**

7   A.   Yes, they have. Chart 14 (below) demonstrates that since 2010, the Opposing

8   Witnesses' proxy group M/B ratios have exceeded 1.00, and generally have

9   moved with the S&P 500 Index M/B ratio. If Dr. Woolridge is of the view that

10   M/B ratios greater than 1.00 reflect earned returns greater than the Cost of

11   Equity, it follows that utility commissions have long been incorrect in their ROE

12   determinations. If, over many years and across many companies, investors felt

13   the returns they expected had so significantly exceeded the returns they

14   required, they would adjust their requirements. In Dr. Woolridge's construct,

15   the difference between expected and required returns would dissipate, and take

16   with it the difference between market and book values. That has not occurred.

1 **Chart 14: Comparison Groups, S&P 500 Market/Book Ratios**

2 **(2010 – 2020)[237]**
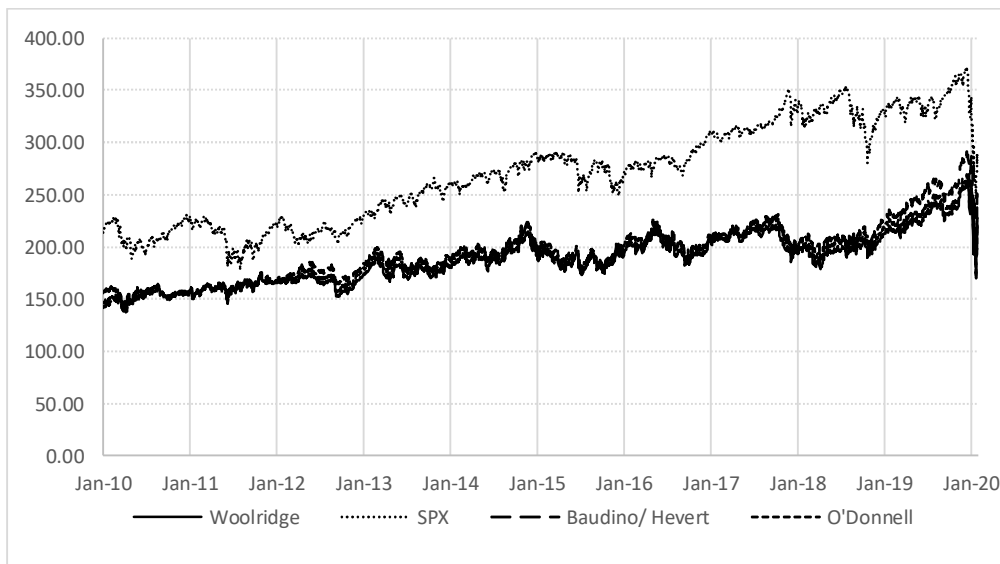
3   Lastly, although the broad market represents a cross section of market

4   sectors, of which the utility sector is just one, the observed variation in market-

5   level M/B ratios speaks to the time-varying influence of general

6   macroeconomic factors, not to any failure of regulation.   The relationship

7   between the Opposing Witnesses' proxy group M/B ratios and the S&P 500

8   M/B ratio is positive and statistically significant.   That is the case even when

9   we control for serial correlation.[238] We therefore reasonably can conclude that

10 broad macroeconomic and capital market factors affect both utilities and non-

11 regulated entities.

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[237]   Source: S&P Global Market Intelligence, Bloomberg Professional.
[238]   Using the Prais-Winsten routine.

1   **Q.   HAVE M/B VALUES GENERALLY EXCEEDED 1.00 FOR THE BROAD**

2   **EQUITY MARKET?**

3   A.   Yes, they have. As Chart 15 (below) demonstrates, since 1990 the average M/B

4   ratio for the S&P 500 Index has been 2.89; it has never reached unity.

5   **Chart 15: S&P 500 M/B Ratio Over Time[239]**
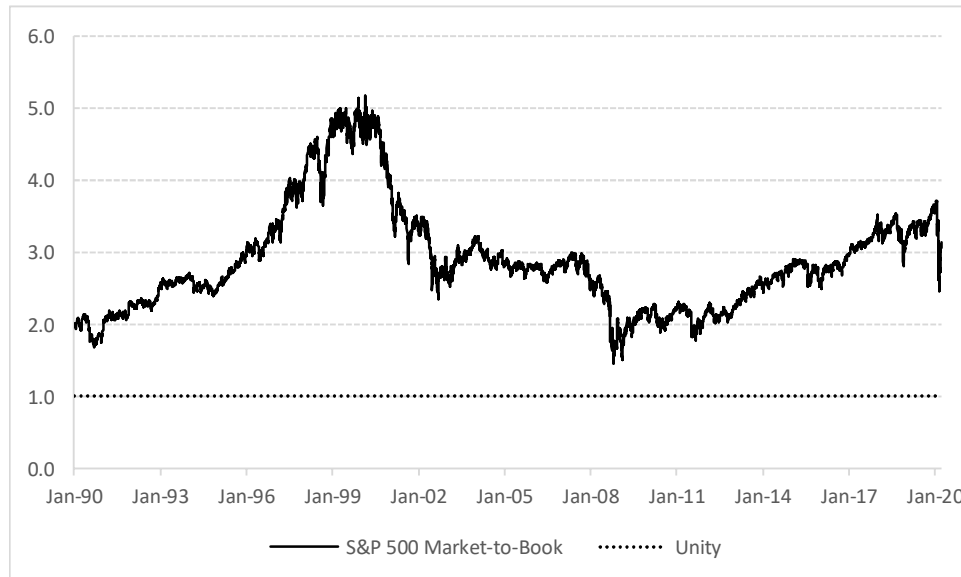
6   **Q.   ARE YOU AWARE OF LITERATURE THAT HAS FOCUSED ON THE**

7   **M/B RATIOS OF REGULATED UTILITIES?**

8   A.   Yes. Literature focusing on utilities has long concluded that regulation may not

9   necessarily result in M/B ratios approaching unity. As noted by Phillips in

10   1993:

11   Many question the assumption that market price should
12   equal book value, believing that 'the earnings of utilities
13   should be sufficiently high to achieve market-to-book ratios
14   which are consistent with those prevailing for stocks of

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[239]   Source: Bloomberg Professional Services.

1   unregulated companies.'[240]

2   In 1988 Bonbright stated:

3   In the first place, commissions cannot forecast, except within
4   wide limits, the effect their rate orders will have on the
5   market prices of the stocks of the companies they regulate.
6   In the second place, whatever the initial market prices may
7   be, they are sure to change not only with the changing
8   prospects for earnings, but with the changing outlook of an
9   inherently volatile stock market. In short, market prices are
10   beyond the control, though not beyond the influence, of rate
11   regulation. Moreover, even if a commission did possess the
12   power of control, any attempt to exercise it ... would result
13   in harmful, uneconomic shifts in public utility rate levels.[241]

14   And in 1972 Stewart Myers came to the following conclusion:

15   In short, a straightforward application of the cost of capital
16   to a book value rate base does not automatically imply that
17   the market and book values will be equal. This is an obvious
18   but important point. If straightforward approaches did imply
19   equality of market and book values, then there would be no
20   need to estimate the cost of capital. It would suffice to lower
21   (raise) allowed earnings whenever markets were above
22   (below) book.[242]

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[240]   Charles F. Phillips, The Regulation of Public Utilities – Theory and Practice (Public Utility
         Reports, Inc., 1993) at 395.
[241]   James C. Bonbright, Albert L. Danielsen and David R. Kamerschen, Principles of Public
         Utility Rates (Public Utilities Reports, Inc., 1988), at 334.
[242]   Stewart C. Myers, The Application of Finance Theory to Public Utility Rate Cases, The Bell
         Journal of Economics and Management Science, Vol. 3, No. 1 (Spring 1972), at 58-97.

1 **Q.   HAVE YOU REVIEWED THE ROE AND M/B RATIO DATA**

2   **PROVIDED IN EXHIBIT JRW-4?**

3 A.   Yes, I have updated the chart contained in Exhibit JRW-4, including the

4   regression coefficients, based on the method described by Dr. Woolridge[243] (*see*

5   Chart 16, below).

6   **Chart 16: Update of Exhibit JRW-4, With Regression Coefficients[244]**
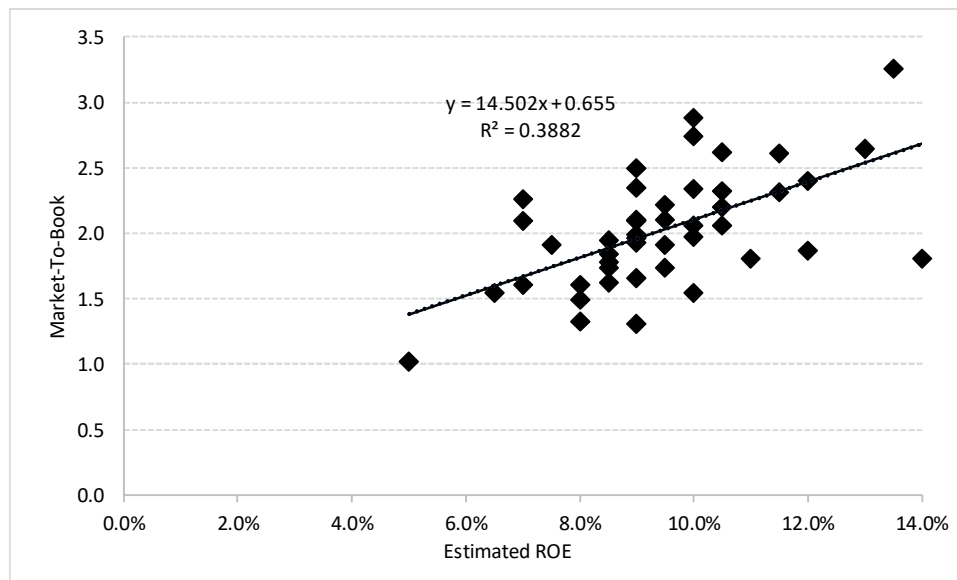
7   Based on Dr. Woolridge's approach, an M/B ratio of 1.00 is associated

8   with an ROE of 2.38 percent,[245] a highly improbable condition. Even the one

9   observation for which the M/B ratio is about 1.00 suggests an ROE of

10   approximately 5.00 percent. Dr. Woolridge's data, therefore, do not support the

11   theory that ROEs greater than 1.00 demonstrate earned returns exceed

---

243   Testimony of J. Randall Woolridge, at 54-55; Exhibit JRW-4.
244   Source: Value Line, accessed April 24, 2020.
245      $1.00 = 0.655 + (14.502 \times 2.38\%)$.

1   investors' required returns.

2   Q. **HAVE YOU ANALYZED WHETHER THE ACTUAL EARNED**

3   **RETURN ON EQUITY EXPLAINS UTILITIES' M/B RATIOS?**

4   A. Yes, I have. Using data provided by S&P Global Market Intelligence, I

5   performed a regression analysis in which the M/B ratio was the dependent

6   variable, and the Return on Average Common Equity ("ROACE") for 2019 was

7   the explanatory variable. As shown in Rebuttal Exhibit DWD-13, the R-

8   squared was approximately 17.60 percent. An R-squared of 17.60 percent

9   means that factors other than ROACE explain up to 82.40 percent of M/B ratios

10   in the proxy group.[246] Those results support the position that although the

11   earned Return on Equity is a factor that explains M/B ratios, it is not the only

12   factor. In any case, the regression equation indicates that an M/B ratio of 1.00

13   (that is, 100.00 percent) is associated with a Return on Common Equity of

14   approximately -5.06 percent; an M/B ratio of 1.10 relates to an ROACE of

15   approximately -3.88 percent. Because those estimates are nonsensical, I do not

16   agree that M/B ratios greater than 1.00 demonstrate earnings in excess of

17   investors' requirements.

---

[246] $0.824 = (1 - 0.176)$.

1   *I. Relative Risk*

2   **Q.   ON PAGE 38 OF HIS DIRECT TESTIMONY, DR. WOOLRIDGE**

3   **ARGUES THAT THE COMPANY IS "LESS RISKY" THAN THE**

4   **PROXY COMPANIES, BECAUSE ITS CREDIT RATING IS HIGHER**

5   **THAN THE PROXY GROUP AVERAGE. DO YOU BELIEVE CREDIT**

6   **RATINGS ARE A FULL MEASURE OF THE COMPANY'S EQUITY**

7   **RISK COMPARED TO ITS PEERS?**

8   A.   No, I do not. Although over the long term credit ratings (and therefore credit

9   spreads) may be directionally related to the Cost of Equity over the long-term,

10   a change in one is not a direct measure of a change in the other. Debt and equity

11   are entirely different securities with different risk/return characteristics,

12   different lives, and different investors. Debt investors have a contractual, senior

13   claim on cash flows not available to equity investors and as such, equity

14   investors bear the residual risk of ownership.   Moreover, debt investors'

15   exposure to business and financial risk is finite (due to the finite life of debt),

16   whereas equity investors are exposed to residual risk in perpetuity.

17   Consequently, any inferences drawn from differences in credit ratings regarding

18   the Company's Cost of Equity should be drawn with caution.

19   A visible measure of the distinction of the risks to which debt and equity

20   investors are exposed is the difference in their respective Beta coefficients.

21   Although I disagree with his conclusions, Dr. Woolridge recommends an

1		average Beta coefficient of 0.55 for his proxy group.[247] Duff & Phelps notes
2		that as of December 2019, Beta coefficients for A-rated debt was 0.04,[248] far
3		below the equity Beta coefficient assumed by Dr. Woolridge. In fact, a debt
4		Beta coefficient of 0.72 is associated with Caa-rated debt, which is considered
5		below investment grade.[249] Those differences are a clear indication that the
6		risks assumed by debt investors are far different than those assumed by equity
7		investors.
8	**Q.**	**DOES THE DATA PROVIDED BY DR. WOOLRIDGE INDICATE A**
9		**RELATIONSHIP BETWEEN COST OF EQUITY ESTIMATES AND**
10		**CREDIT RATINGS?**
11	A.	No, they do not. Using the growth rates and dividend yields reported by Dr.
12		Woolridge, I produced Constant Growth DCF results for each of the comparison
13		companies.[250] Those results do not support Dr. Woolridge's conclusion. For
14		example, Southern Company is rated A-, and Hawaiian Electric Industries, Inc.
15		is rated BBB-, three credit "notches" apart. Yet, based on Dr. Woolridge's data,
16		their DCF results are 6.79 percent and 6.56 percent, respectively, only 23 basis
17		points apart. On the other hand, Consolidated Edison, Inc. and Evergy Inc. are
18		both rated A-, but their DCF results differ by 412 basis points.[251] We cannot
19		say, based on Dr. Woolridge's primary method, that there is a definitive

---

[247]   Exhibit JRW-8, page 1.
[248]   Source: Duff & Phelps Cost of Capital Navigator, accessed April 24, 2020.
[249]   *Ibid*.
[250]   Rebuttal Exhibit DWD-14.
[251]   30-day average dividend yields.

1   relationship between credit rating notches and Cost of Equity estimates.

2 **Q.**   **DID YOU PERFORM ANY ANALYSES TO DETERMINE WHETHER**

3   **DR. WOOLRIDGE'S DATA SUPPORTS THE ASSUMPTION THAT**

4   **THERE IS A QUANTIFIABLE DIFFERENCE IN THE COST OF**

5   **EQUITY FOR COMPANIES WITH DIFFERENT BOND CREDIT**

6   **RATINGS?**

7 A.   Yes. Using the same Constant Growth DCF results for each of Dr. Woolridge's

8   comparison companies discussed above, I applied "credit scores" to Dr.

9   Woolridge's comparison companies by converting the S&P bond ratings

10   reported in his direct testimony to a numerical value. If there is a quantifiable

11   relationship between the proxy companies' credit ratings and Cost of Equity,

12   there should be a positive, statistically significant relationship between the

13   credit score and the DCF results. That is, as credit quality deteriorates (resulting

14   in a higher score), the Cost of Equity should increase. Therefore, I performed

15   a regression analysis in which the dependent variable was the DCF result and

16   the explanatory variable was the credit score. As shown in Rebuttal Exhibit

17   DWD-14, the regression analysis showed no significant statistical relationship

18   between the two, and the relationship was negative. In fact, the highest R-

19   squared of the regressions was only 0.00006, which indicates that credit ratings

20   accounted for, at most, 0.006 percent of the change in the DCF-estimated Cost

1   of Equity.[252]

2   Q. **DO YOU HAVE ANY OTHER CONCERNS WITH DR. WOOLRIDGE'S**

3   **REVIEW OF CREDIT RATINGS?**

4   A. Yes, I do. My concern with Dr. Woolridge's comparison of DE Progress to the

5   credit ratings of the proxy companies is that Moody's ratings methodology

6   specifically considers the relationship between parent and operating companies,

7   and typically rates parent companies lower than the operating company

8   subsidiaries. As Moody's explains:

9   Most HoldCos present their financial statements on a
10   consolidated basis that blurs legal considerations about priority
11   of creditors based on the legal structure of the family, and grid
12   scoring is thus based on consolidated ratios. However, HoldCo
13   creditors typically have a secondary claim on the group's cash
14   flows and assets after OpCo creditors. We refer to this as
15   structural subordination, because it is the corporate legal
16   structure, rather than specific subordination provisions, that
17   causes creditors at each of the utility and nonutility subsidiaries
18   to have a more direct claim on the cash flows and assets of their
19   respective OpCo obligors.[253]

20   Moody's further explains its assessment of structural subordination considers a

21   variety of factors, such that "a formulaic approach is not practical".[254] Based

22   on its review, Moody's may reduce the parent company rating up to three

23   notches relative to the operating companies.

24   That relationship holds among the companies in Dr. Woolridge's proxy

---

[252]   The rank correlation coefficient between DCF results and credit ratings was approximately
        negative 0.0234, which is statistically insignificant at the 95.00 percent level.
[253]   Moody's Investors Service, *Rating Methodology, Regulated Electric and Gas Utilities*, June
        23, 2017, at 22.
[254]   *Ibid*. at 23.

1		group. For example, Southern Company's Long-Term Corporate Rating from
2		Moody's is Baa2, whereas Alabama Power's rating is A1. Similarly, whereas
3		WEC Energy Group's rating is Baa1, Wisconsin Electric Power's rating is A2.
4		A similar relationship applies to Duke Energy Corporation and DE Progress;
5		the parent rating is Baa1, and DE Progress' rating is A2.[255] Rebuttal Exhibit
6		DWD-15 provides the parent and operating subsidiary credit ratings for the 31
7		companies in Dr. Woolridge's proxy group. As that exhibit demonstrates, in
8		each case the parent company credit rating is generally one to two notches
9		below the utility operating company ratings.

10   Because Dr. Woolridge's comparison of DE Progress to parent
11   companies does not reflect Moody's focus on structural subordination, it
12   incorrectly suggests the Company is less risky than its peers. When we apply
13   the proper comparison, operating companies to operating companies, we see
14   that is not the case.

15 **Q.   DID DR. WOOLRIDGE STATE THE COMPANY'S OTHER UNIQUE**
16 **RISK FACTORS CAN BE ATTRIBUTED TO THE COMPANY'S**
17 **CREDIT RATING?**

18 A.   Yes, Dr. Woolridge believes the credit rating process reflects the unique risk
19   factors I described in my Direct Testimony, including the Company's relatively
20   high level of capital investment, its generation portfolio, and environmental

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[255]   Source Direct: S&P Global Market Intelligence.

1   regulations.[256] I do not disagree with Dr. Woolridge that rating agencies may

2   analyze those specific factors in their review. As explained above, however, I

3   do not believe credit ratings are a full measure of equity risk.

4 *J. Flotation Costs*

5 **Q.**   **DID DR. WOOLRIDGE ADDRESS THE ISSUE OF FLOTATION**

6   **COSTS IN HIS DIRECT TESTIMONY?**

7 A.   Yes, Dr. Woolridge devotes several pages of his testimony discussing various

8   reasons why he believes such an adjustment is not necessary.[257] Dr. Woolridge

9   does not account for flotation costs, reasoning that flotation costs for stock

10   issuances are not out-of-pocket costs and, even if they were, current market

11   conditions suggest that a *reduction* to the Cost of Equity is required to account

12   for flotation costs.[258] Additionally, Dr. Woolridge asserts I did not identify any

13   flotation costs for DEC and that North Carolina legal precedent precludes the

14   Company from recovering flotation costs when it does not expect to issue stock

15   in the near future.[259]

16 **Q.**   **PLEASE RESPOND TO DR. WOOLRIDGE IN THAT REGARD.**

17 A.   I disagree with Dr. Woolridge's position that flotation costs for stock issuances

18   are different than issuance costs associated with long-term debt. Companies

19   pay the same types of fees (both direct and indirect) regardless of whether they

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[256]   Testimony of J. Randall Woolridge, at 138.
[257]   Testimony of J. Randall Woolridge, at 138-142.
[258]   Testimony of J. Randall Woolridge, at 141-142.
[259]   Testimony of J. Randall Woolridge, at 139.

1		are issuing equity or debt. As to Dr. Woolridge's observation that underwriter
2		fees are not "out-of-pocket" expenses,[260] I view that to be a distinction without
3		a meaningful difference. Whether paid directly or via an underwriting discount,
4		the cost results in net proceeds that are less than the gross proceeds. I also
5		disagree with Dr. Woolridge's position that flotation costs could represent a
6		*reduction* in Cost of Equity. Flotation costs are true and necessary costs to the
7		issuer, and represent funds that otherwise would be invested in long-lived
8		assets. As explained in my Direct Testimony, to the extent flotation costs are
9		not recovered, the issuing company is denied a portion of the opportunity to
10		earn its expected (or required) return;[261] that point is further demonstrated in
11		Rebuttal Exhibit DWD-16.

12 **Q. HAS DUKE ENERGY CORPORATION RECENTLY ISSUED**
13 **COMMON STOCK?**

14 A. Yes, it has. Duke Energy Corporation issued 28.75 million shares of common
15 stock on November 18, 2019, after the Company filed its rate case. As
16 explained in my Direct Testimony, although the Company is a wholly owned
17 subsidiary of Duke Energy, it is appropriate to consider flotation costs because
18 wholly owned subsidiaries receive equity capital from their parents and provide
19 returns on the capital that roll up to the parent, which is designated to attract
20 and raise capital based on the returns of those subsidiaries. To deny recovery

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[260] Testimony of J. Randall Woolridge, at 141.
[261] Direct Testimony of Dylan W. D'Ascendis at 34.

1   of issuance costs associated with the capital that is invested in the subsidiaries

2   ultimately would penalize the investors that fund the utility operations and

3   would inhibit the utility's ability to obtain new equity capital at a reasonable

4   cost.[262] Consequently, Dr. Woolridge's position that the Company had no plans

5   to issue stock is incorrect.

6   *K. North Carolina Economic Conditions*

7   **Q.   PLEASE BRIEFLY SUMMARIZE DR. WOOLRIDGE'S RESPONSE TO**

8   **   YOUR ASSESSMENT OF ECONOMIC CONDITIONS IN NORTH**

9   **   CAROLINA.**

10 A.   In my Direct Testimony I reviewed several measures of economic conditions,

11   including the rate of unemployment, real Gross Domestic Product growth,

12   median household income, residential electricity rates, and broad measures of

13   income and consumption.[263] Based on that review, I found economic conditions

14   in North Carolina have improved during the last several years; Dr. Woolridge

15   generally agrees with that conclusion.[264] Dr. Woolridge argues, however, that

16   although economic conditions generally have improved, certain measures do

17   not support the Company's proposed Rate of Return, including my

18   recommended ROE.[265]

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[262]   Direct Testimony of Dylan W. D'Ascendis, at 34.
[263]   Direct Testimony of Dylan W. D'Ascendis, at 52-61.
[264]   Testimony of J. Randall Woolridge, at 144.
[265]   Testimony of J. Randall Woolridge, at 144-145.

1   Q.   **WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE ON THAT POINT?**

2   A.   For the reasons discussed in my response to Mr. Baudino, I disagree with Dr.

3   Woolridge's position regarding my review of the economic conditions in North

4   Carolina. I recognize we do not yet know the extent of the effect of the

5   pandemic on North Carolina's economy, however, as discussed in my response

6   to Mr. Baudino, the unemployment rate in March 2020 for North Carolina was

7   equal to the unemployment rate for the overall U.S.   While real GDP declined

8   at an annual rate of 4.80 percent in the first quarter of 2020, we will not know

9   how North Carolina's GDP fared in the first quarter of 2020 until early July.

10   I appreciate there seems to be no fundamental disagreement that

11   conditions have improved over the last several years. I also recognize the extent

12   of the effect of the pandemic on North Carolina's economy is unclear. I further

13   appreciate that the Commission has the difficult task of considering those

14   conditions as it balances the interests of investors and consumers. In my view,

15   Dr. Woolridge's recommendation is unduly low and unsupported by the data

16   available.

1 *L. Capital Structure*

2 **Q. PLEASE   BRIEFLY   SUMMARIZE   DR.   WOOLRIDGE'S**

3 **RECOMMENDATION REGARDING THE COMPANY'S CAPITAL**

4 **STRUCTURE.**

5 A. Dr. Woolridge suggests that because Duke Energy's equity ratio is lower than

6   DE Progress, the Company is engaging in double leverage.[266] On that basis, Dr.

7   Woolridge's primary recommendation is a hypothetical capital structure

8   consisting of 50.00 percent long-term debt and 50.00 percent common equity.[267]

9   To support his recommendation, Dr. Woolridge compares the Company's

10   capital structure to electric utility capital structures at the holding company

11   level. That review suggests the Company's peers finance their utility assets

12   with as little as 24.70 percent common equity.[268]

13 **Q. DO YOU AGREE WITH DR. WOOLRIDGE'S APPROACH AND**

14 **CONCLUSIONS?**

15 A. No, I do not. As explained below, companies (including subsidiary companies)

16   are financed in light of the specific risks and funding requirements associated

17   with their individual operations. As such, the proper point of comparison is the

18   mix of long-term capital (common equity, preferred stock, and long-term debt)

19   in place at utility operating companies, not utility holding companies. The

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[266] Testimony of J. Randall Woolridge, at 42-47.
[267] Testimony of J. Randall Woolridge, at 47-48.
[268] Exhibit JRW-2, page 1.

1		nature of utility operations, and the corresponding nature of the assets providing
2		utility service, create common financing objectives and constraints addressed
3		by financing practices at the operating company level. Instead, Dr. Woolridge's
4		recommendation to increase the Company's financial leverage by reference to
5		holding company capital structures would increase its financial risk and,
6		therefore, its cost of capital.
7	**Q.**	**WHAT FACTORS DO UTILITIES GENERALLY CONSIDER IN**
8		**DEVELOPING THEIR TARGET CAPITAL STRUCTURES?**
9	A.	Capital structure management is dynamic and complex, looking to satisfy
10		multiple objectives subject to multiple constraints. Utilities must focus on the
11		nature of the assets providing utility service, and recognize the constraints
12		brought about by the obligation to serve. It therefore is important to understand
13		utility financing practice, including the principles and constraints that drive
14		financing decisions, and how that practice is reflected in the cost of capital.
15		In many ways, the nature of regulation determines the nature of utility
16		assets, and how they are financed. In exchange for the obligation to serve,
17		equity investors expect utilities to have the opportunity to earn a fair return on
18		prudent investments. As the regulated rate of return granted to utilities is below
19		that expected from unregulated enterprises, the nature of regulation is such that
20		the variation in returns (that is, the expected risk) for utilities is expected to be
21		less than those of unregulated companies. It is the nature of regulation that
22		enables utilities to finance large, essentially irreversible, investments that are

1   recovered over decades. Financing practice therefore must address the nature

2   of investments made under the regulatory compact.

3   It also is important to keep in mind that capital structures, and the

4   financial strength they support, are set not only to ensure capital access during

5   normal markets, but to enable access when markets are constrained. The reason

6   is straightforward: The obligation to serve is not contingent on capital market

7   conditions. When markets are constrained, only those utilities with sufficient

8   financial strength are able to attract capital at reasonable terms. That ability

9   provides those utilities with critically important financing flexibility.

10   The requirement to access the capital markets in all market conditions

11   can be contrasted with the financial needs of other entities without the legal

12   obligation to serve. Because of that obligation, the financial flexibility brought

13   about by the access to both long-term capital and short-term liquidity is critical

14   for utilities' financial integrity, and their ability to continually attract capital.

15   Unregulated firms have options to choose whether, where, and when to make

16   investments; what services or products will be offered; whether to invest in

17   expansions; and whether to cease operations in a given location. That is,

18   unregulated companies may adjust the timing and amount of their major capital

19   expenditures to align with economic cycles, and to defer decisions and

20   investments to better match market conditions. Regulated companies have

21   limited options to do so. Ensuring the financial strength to access capital

22   because of the reduced spending flexibility therefore is critically important to

1   utilities, their investors, and their customers.

2   As noted above, an appropriate capital structure is important not only to

3   ensure long-term financial integrity, it also is critical to enabling access to

4   capital during constrained markets, or when near-term liquidity is needed to

5   fund extraordinary requirements.   In that important respect, the capital

6   structure, and the financial strength it engenders, must support both normal

7   circumstances and periods of market uncertainty.   Optimizing the capital

8   structure therefore is a very complex process, which balances the need to

9   maintain an appropriate financial profile while ensuring reasonable capital cost

10   rates.

11 Q. **IS THERE A GENERAL FINANCING PRACTICE TYPICALLY USED**

12   **BY UTILITIES?**

13 A. Yes, there is. Although capital structure optimization is complex, there are

14   certain principles that commonly apply among utilities. In my experience, the

15   financing practice sometimes referred to as "maturity matching" is chief among

16   those principles. That practice aligns the average life of the securities in the

17   capital structure with the average lives of the assets being financed.[269] As noted

18   by Brigham and Houston, "[t]his strategy minimizes the risk that the firm will

19   be unable to pay off its maturing obligations."[270]

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[269]   This is not to say that an individual dollar may be traced from its source to its use.
[270]   Brigham, Eugene F. and Joel F. Houston, Fundamentals of Financial Management, Concise
        4th Ed., Thomson South-Western, 2004, at 574.

1   The perpetual nature of common equity makes it an important

2   component of the capital structure. Because long-term debt generally has a

3   duration shorter than the average life of the rate base, common equity is needed

4   to extend the capital structure's duration to more closely match that of the rate

5   base. That is, owing to its perpetual life, common equity extends the weighted

6   average life of the capital structure, and mitigates financing risk. Conversely,

7   relying more heavily on debt increases the risk of refinancing maturing

8   obligations during less accommodating market environments.

9 **Q.**   **IF COMPANIES MATCH THE LIVES OF THEIR ASSETS WITH THE**

10   **TERM OF THE SECURITIES FINANCING THEM, CAN INDIVIDUAL**

11   **SOURCES OF FINANCING BE TRACKED TO SPECIFIC ASSETS?**

12 A.   No. Because cash is fungible, it is not feasible to track a given dollar from its

13   source to its use. Rather, companies tend to apply the more general maturity

14   matching strategy under which short-term debt is borrowed to satisfy the

15   overall, day-to-day, fluctuating, and somewhat unpredictable, cash needs, not

16   to finance an individual utility function.

1   Q.   **DO YOU AGREE WITH DR. WOOLRIDGE'S CONCLUSION THAT**

2   **THE COMPANY'S PROPOSED CAPITAL STRUCTURE "CONSISTS**

3   **OF MORE COMMON EQUITY AND LESS FINANCIAL RISK"[271]**

4   **THAN THE OTHER COMPANIES IN THE PROXY GROUP?**

5   A.   No, I do not. Dr. Woolridge's assessment focuses on the proxy group average,

6   without considering differences within the group. As with all statistical

7   analyses, a single metric – in this case a simple average – may not be meaningful

8   in isolation. For example, the common equity ratio for my Updated Proxy

9   Group ranges from 45.65 percent to 61.20 percent (*see* Rebuttal Exhibit DWD-

10   7). The Company's proposed equity ratio of 53.00 percent is 8.20 percentage

11   points below the high end of the range. Eleven of the 20 proxy companies have

12   average common equity ratios above the Company's proposed equity ratio.

13   Based on the Updated Proxy Group as a whole, it is apparent that a capital

14   structure of 53.00 percent common equity and 47.00 percent long-term debt is

15   consistent with industry practice.

16   Q.   **HAS THE COMMISSION RECENTLY AUTHORIZED COMMON**

17   **EQUITY RATIOS IN LINE WITH THE COMPANY'S PROPOSED**

18   **RATEMAKING CAPITAL STRUCTURE?**

19   A.   Yes, it has. In recent cases, the Commission has authorized common equity

20   ratios of 52.00 percent for Dominion Energy North Carolina, the Company,

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[271]   Testimony of J. Randall Woolridge, at 48.

1   Duke Energy Carolinas, and Piedmont Natural Gas.[272]

2 **Q.**   **DO YOU AGREE WITH DR. WOOLRIDGE'S POSITION THAT IT IS**

3   **APPROPRIATE TO LOOK TO THE PROXY GROUP CAPITAL**

4   **STRUCTURE AT THE HOLDING COMPANY LEVEL?[273]**

5 A.   No, I do not. Dr. Woolridge's position is based on the fact that the operating

6   subsidiaries are not publicly traded. Although there may not be market data at

7   the operating subsidiary level on which to perform cost of capital analyses, Dr.

8   Woolridge fails to acknowledge the proxy companies generally report capital

9   structure data for its regulated operating subsidiaries.

10   Quite simply, when assessing the appropriate capital structure for

11   ratemaking purposes for a regulated operating company, the relevant point of

12   comparison is to the capital structure of the proxy group companies' *regulated*

13   operations, *i.e.*, at the regulated operating company level. Because capital at

14   the parent holding company level may finance non-regulated operations,

15   comparisons to the parent company capital structure may lead to flawed and

16   misleading conclusions.

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[272]   *See,* NCUC Docket Nos. E-22, Sub 562; E-2, Sub 1142; E-7, Sub 1146; and G-9, Sub 743.
[273]   Testimony of J. Randall Woolridge, at 40-41.

1 **Q.   ARE THERE COMPANIES WITHIN DR. WOOLRIDGE'S PROXY**

2 **GROUP THAT DEMONSTRATE WHY IT IS INAPPROPRIATE TO**

3 **USE HOLDING COMPANIES TO SET OPERATING UTILITY**

4 **CAPITAL STRUCTURES?**

5 A.   Yes, there are. As explained in my response to Mr. O'Donnell, NextEra

6   Energy's capital structure, which includes debt not associated with utility

7   operations, is an example of how comparisons to holding company capital

8   structures can be misplaced. Another example is, Hawaiian Electric Industries

9   ("HE"). In 2019, HE had approximately $13.75 billion of consolidated assets,

10   of which $7.10 billion was associated with its commercial banking

11   operations.[274] Only a small portion (9.30 percent) of the banking segment's

12   assets were financed with equity;[275] the vast majority was supported by

13   customer deposits.[276] Although it is common in the commercial banking

14   industry to fund assets with customer deposits, that is not the case in the electric

15   utility industry. The important point is that by looking to the operating utility

16   capital structure, we can avoid those types of distortions.

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[274]   Hawaiian Electric Industries, Inc., SEC Form 10-K For the fiscal year ended December 31, 2019, at 55, 80.
[275]   *Ibid.,* at 55.
[276]   *Ibid.,* at 55.

1 **Q. HAVE YOU REVIEWED THE OPERATING COMPANY CAPITAL**

2 **STRUCTURES FOR DR. WOOLRIDGE'S PROXY GROUP?**

3 A. Yes, I have. Rebuttal Exhibit DWD-17 which provides that data, shows quite

4 clearly that over time and across companies, operating utility equity ratios tend

5 to be higher than the parent company ratio. That finding makes sense, given

6 the utility financing practices discussed above.

7 As Rebuttal Exhibit DWD-17 also makes clear, the Company's

8 proposed equity ratio is highly consistent with those in place at the operating

9 utilities held within his proxy group. In fact, the average equity ratio for Dr.

10 Woolridge's proxy group is 53.52 percent, 52 basis points above the Company's

11 proposed equity ratio. Among the operating utilities in my Updated Proxy

12 Group, the average has been 53.69 percent,[277] again, quite consistent with the

13 Company's proposal.

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[277] Rebuttal Exhibit DWD-17.

1 **Q.   DR. WOOLRIDGE OBSERVES THAT THE COMPANY'S PROPOSED**

2 **CAPITAL STRUCTURE IS "MUCH HIGHER"[278] THAN THE**

3 **COMMON EQUITY RATIO OF ITS PARENT, DUKE ENERGY**

4 **CORPORATION, AND FURTHER DISCUSSES THE "ISSUE OF**

5 **PUBLIC UTILITY HOLDING COMPANIES SUCH AS DUKE ENERGY**

6 **USING DEBT TO FINANCE THE EQUITY IN SUBSIDIARIES SUCH**

7 **AS THE COMPANY."[279] WHAT IS YOUR RESPONSE?**

8 A.   Dr. Woolridge's position appears to suggest the Company is engaging in double

9   leverage, to the detriment of customers.[280] I have several concerns with that

10   position. First, as discussed above, in my experience utilities typically apply

11   the prudent financing principle of maturity, or duration matching. Under that

12   principle, long-lived assets are financed with correspondingly long-lived

13   securities. As discussed earlier, due to its perpetual life, common equity has a

14   long duration. Adding equity to the capital structure therefore extends the

15   capital structure's weighted average duration, more closely aligning it with the

16   assets that form the rate base.

17   Dr. Woolridge's position also runs counter to the widely accepted

18   "stand-alone" regulatory principle, which treats each utility subsidiary as its

19   own company. Under the stand-alone approach, the cost of capital is

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[278]   Direct Testimony of J. Randall Woolridge, at 42.
[279]   Testimony of J. Randall Woolridge, at 43-44.
[280]   Testimony of J. Randall Woolridge, at 43-46.

1	determined using the subsidiary's capital structure and cost of debt and equity;
2	the Cost of Equity is generally estimated by reference to a proxy group of firms
3	of comparable risk.
4	Consistent with the stand-alone principle, the ownership structure does
5	not affect the operating utility's capital structure or cost of capital. Parent
6	entities, like other investors, have capital constraints and must consider the
7	attractiveness of the expected risk-adjusted return of each investment
8	alternative as part of their capital budgeting process. This opportunity cost
9	concept applies regardless of the source of the funding. When funding is
10	provided by a parent entity, the return on that financing must still be sufficient
11	to provide an incentive to the parent entity to allocate equity capital to the
12	subsidiary or business unit rather than other internal or external investment
13	opportunities. That is, the regulated subsidiary must compete for capital with
14	its affiliates and with other, similarly situated utility companies.
15	From an external investor's perspective, the combined company must
16	provide a return reflecting the risks of the company's constituent parts.
17	Investors therefore value combined entities on a sum-of-the-parts basis,
18	expecting each operating segment to provide its appropriate risk-adjusted
19	return. That practical financial principle is consistent with the regulatory
20	principle of treating utilities as stand-alone entities. From both perspectives, it
21	is the utility's operating risk that defines the capital structure and cost of capital,
22	not investors' sources of funds.

1   Contrary to those basic principles, Dr. Woolridge's double leverage

2   argument assumes the required return depends on the source of financing, not

3   on the risks of the underlying utility operations. The position that a company

4   would have a different cost rate depending on how its investors fund their equity

5   investments violates the widely acknowledged economic "law of one price",

6   which states that in an efficient market, identical assets would have the same

7   value. In other words, two utilities, identical in all respects but for their form

8   of ownership, should have the same common equity cost rates.

9   Moreover, if the common equity of a subsidiary were held by both the

10   parent and an external investor, the equity held by the parent would have one

11   required return, and the equity held by outside investors would have another.

12   To the extent the required returns differ, so would the value of the equity. But

13   in an efficient market, identical assets must have the same price (value). If not,

14   the difference quickly would be arbitraged away. As Dr. Roger Morin noted in

15   New Regulatory Finance:

16   Carrying the double leverage standard to its logical conclusion
17   leads to even more unreasonable prescriptions. If the common
18   shares of a subsidiary were held by both the parent and by
19   individual investors, the equity contributed by the parent would
20   have one cost under the double leverage computation while the
21   equity contributed by the public would have another.[281]

22   The double leverage argument also requires every affiliate within the

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[281]   Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 523.

1   corporate family to have the same cost of capital, regardless of differences in

2   risk.   Duke Energy Corporation reports four operating segments: electric

3   utilities and infrastructure, gas utilities and infrastructure, commercial

4   renewables, and other operations.[282] Because they are separately reported, we

5   reasonably can assume those segments face different risks. And because they

6   face different risks, we reasonably may assume they require different returns.

7   Dr. Morin further noted:

8   Just as individual investors require different returns from
9   different assets in managing their personal affairs, why should
10   regulation cause parent companies making investment decisions
11   on behalf of their shareholders to act any differently? A parent
12   company normally invests money in many operating companies
13   of varying sizes and varying risks. These operating subsidiaries
14   pay different rates for the use of investor capital, such as long-
15   term debt capital, because investors recognize the differences in
16   capital structure, risk, and prospects between the subsidiaries.
17   Yet, the double leverage calculation would assign the same
18   return to each activity, based on the parent's cost of capital.
19   Investors recognize that different subsidiaries are exposed to
20   different risks, as evidenced by the different bond ratings and
21   cost rates of operating subsidiaries. The same argument carries
22   over to common equity. If the cost rate for debt is different
23   because the risk is different, the cost rate for common equity is
24   also different, and the double leverage adjustment shouldn't
25   obscure this fact.[283]

26   Longstanding academic literature has thoroughly discussed the flaws

27   associated with the double leverage approach. For example:

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[282]   *See*, Duke Energy Corporation, SEC Form 10-K for the year ended December 31, 2019, at 9.
[283]   Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 524-525.

1   1. Pettway and Jordan (1983), and Beranek and Miles (1988) point out the

2   flaws in the double leverage argument, particularly the excess return

3   argument, and also demonstrate that the "stand-alone" method is the

4   superior approach.[284]

5   2. Rozeff (1983) discusses the ratepayer cross-subsidies of one subsidiary by

6   another when employing double leverage.[285]

7   3. Lerner (1973) concludes that the returns granted to equity investors must be

8   based on the risks to which the investors' capital is exposed and not the

9   investors' source of funds.[286]

10   Basic finance texts reach the same conclusions.   In Principles of

11   Corporate Finance, 8th edition, Brealey, Myers, and Allen state:

12   In principle, each project should be evaluated at its own
13   opportunity cost of capital; the true cost of capital depends on
14   the use to which the capital is put. If we wish to estimate the
15   cost of capital for a particular project, it is project risk that
16   counts.[287]

17   Likewise, in Modern Corporate Finance, 1st edition, Shapiro states:

18   Each project has its own required return, reflecting three basic
19   elements: (1) the real or inflation-adjusted risk-free interest rate;

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[284]   Richard H. Pettway and Bradford D. Jordan, *Diversification, Double Leverage, and the Cost of Capital,* The Journal of Financial Research, Vol. VI, No. 4, Winter 1983; William Beranek and James A. Miles, *The Excess Return Argument and Double Leverage,* The Financial Review, Vo. 23, No. 2, May 1988.

[285]   Michael S. Rozeff, *Modified Double Leverage – A New Approach*, Public Utilities Fortnightly, March 31, 1983.

[286]   Eugene M. Lerner, *What are the Real Double Leverage Problems?*, Public Utilities Fortnightly, June 7, 1973.

[287]   Richard A. Brealey, Steward C. Meyers, Franklin Allen, Principles of Corporate Finance, McGraw-Hill Irwin, 8th Ed., 2006, at 234.

1	(2) an inflation premium approximately equal to the amount of
2	expected inflation; and (3) a premium for risk. The first two cost
3	elements are shared by all projects and reflect the time value of
4	money, whereas the third component varies according to the
5	risks borne by investors in the different projects. For a project
6	to be acceptable to the firm's shareholders, its return must be
7	sufficient to compensate them for all three cost components.
8	This minimum or required return is the project's cost of capital
9	and is sometimes referred to as a hurdle rate.

10	The preceding paragraph bears a crucial message: The cost of
11	capital for a project depends on the riskiness of the assets being
12	financed, not on the identity of the firm undertaking the
13	project.[288]

14 Simply, the notion of double leverage runs counter to both financial and

15 regulatory principles.

16 Lastly, double leverage arguments have been rejected by several

17 regulatory commissions. As the Maryland Public Service Commission

18 explained:

19	We reject People's Counsel's proposed capital structure
20	[reflecting a double leverage adjustment] because it suffers from
21	numerous flaws. First, it assumes that the rate of return depends
22	on the source of capital rather than the risks faced by the
23	capital.[289]

24 In 2016, the FERC reiterated its previous position on "double

25 leveraging,"[290] stating that "the motivations of a parent company are

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[288]   Alan C. Shapiro, <u>Modern Corporate Finance</u>, Wiley, 1st Ed., 1990, at 276.
[289]   Maryland Public Service Commission, Order No. 81517, Case No. 9092, *In the Matter of the Application of Potomac Electric Power Company for Authority to Revise its Rate and Charges for Electric Service and for Certain Rate Design Changes*, July 19, 2007, at 73. [Clarification added]
[290]   *See*, *Transcontinental Gas Pipe Line Corp.*, 80 FERC ¶ 61,157, 61,657 (1997) ("Opinion No. 414").

1   irrelevant"[291] so long as the operating company passes the FERC's three-part

2   test: (1) it issues its own debt without guarantees; (2) it has its own bond rating;

3   and (3) it has a capital structure within the range of capital structures approved

4   by the commission.[292] Under FERC guidance, the capital structure of Duke

5   Energy Corporation is not applicable to DE Progress.

6   The Washington Utilities and Transportation Commission ("WUTC")

7   has cited to FERC's position on the use of double leverage in support of its

8   decision in Docket No. UE 050684:

9   The FERC does not embrace the concept of double leverage.
10   For purposes of calculating rate of return for wholly owned
11   subsidiaries, FERC uses the stand-alone capital structure and
12   return on equity of the subsidiary so long as the subsidiary issues
13   its own debt, maintains its own credit ratings and meets other
14   standards related to equity ratio. The courts have upheld this
15   policy. *See Missouri Pub. Serv. Comm'n v. Federal Energy Reg*
16   *Comm'n, 215 F.3d 1, 342 U. S. App. DC. 1* (D.C. Cir. June 27,
17   2000).[293]

18   In that same Order, the WUTC considered the effects of ring fencing in

19   protecting ratepayers against financial leverage at the parent level:

20   The ring fencing provisions required by our final order in Docket
21   UE-051090 insulate PacifiCorp and its customers from risks and
22   financial distress at the MEHC level. Nonetheless, after having
23   insulated PacifiCorp and its customers from the risks of
24   leveraged financing at the parent, Staff and Public Counsel seek
25   to secure for customers the cost and tax benefits of that

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[291]   *See*, 154 FERC ¶ 61,004, Docket No. ER15-945-001, at 15.
[292]   *Ibid*. *See also*, *Transcontinental Gas Pipe Line Corp.*, 80 FERC ¶ 61,157, 61,657 (1997)
        ("Opinion No. 414").
[293]   Washington Utilities and Transportation Commission, Docket No. UE 050684, Order No. 4, at
        117.

1 financing. The Company's expert witness argues this may
2 violate the familiar principle in utility law that financial benefits
3 should follow burden of risks. We agree. If the risks and costs
4 of activities at the parent-level are born exclusively by
5 shareholders—because customers are insulated from them by
6 the ring fence—then it is fair and appropriate for the
7 shareholders, and not the customers, to receive the benefits that
8 result from those activities.[294]

9 **Q. HAS THE COMMISSION NOTED THE REASONABLENESS OF THE**

10 **DIFFERENCES BETWEEN THE CAPITAL STRUCTURES OF**

11 **OPERATING COMPANIES AND PARENT COMPANIES?**

12 A. Yes, it has. In Docket No. G-5, Sub 565, the Commission gave "significant

13 weight" to my testimony regarding the differences in the financing needs of

14 holding companies and operating companies, and concluded "[t]hus, the

15 appropriate mix of debt and equity for a public utility operating company can

16 be significantly different from that of its holding company."[295] In that case, the

17 Commission approved a stipulated equity ratio of 52.00 percent,[296] similar to

18 the equity ratio requested by the Company.

19 **Q. WHAT IS YOUR CONCLUSION REGARDING THE APPROPRIATE**

20 **CAPITAL STRUCTURE FOR THE COMPANY?**

21 A. As shown in Rebuttal Exhibit DWD-7, the Company's proposed capital

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[294] *Ibid.*, at 54.
[295] North Carolina Utilities Commission Docket No. G-5, Sub 565, *Order Approving Rate Increase and Integrity Management Tracker*, October 28, 2016, at 24.
[296] As noted earlier, the Commission similarly authorized a 52.00 percent equity ratio for the Company in its last rate case, as well as for Duke Energy Carolinas and Dominion Energy North Carolina.

1   structure is in line with the capital structure in place at the proxy group

2   companies and is consistent with the Commission's past decisions.

3   Consequently, I disagree that Dr. Woolridge's recommended hypothetical

4   capital structure of 50.00 percent long-term debt, and 50.00 percent common

5   equity is appropriate for DE Progress. For the reasons noted earlier, I further

6   disagree that the Company's ROE should be reduced if its proposed capital

7   structure is adopted.

8   **VI.   RESPONSE TO AG WITNESS MR. BAUDINO**

9   **Q.   PLEASE SUMMARIZE MR. BAUDINO'S ROE ANALYSES AND**

10   **RECOMMENDATION IN THIS PROCEEDING.**

11 A.   Mr. Baudino recommends an ROE of 9.00 percent, which is based primarily on

12   the results of his Constant Growth DCF analyses applied to the proxy group of

13   19 companies used in my Direct Testimony.[297] Mr. Baudino also performs two

14   CAPM analyses, although he does not give those results substantial weight.[298]

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[297]   Direct Testimony of Richard A. Baudino, at 2-3.
[298]   Direct Testimony of Richard A. Baudino, at 3, 35.

1 **Q. WHAT ARE THE PRINCIPAL AREAS IN WHICH YOU DISAGREE**

2 **WITH MR. BAUDINO'S ROE ANALYSES?**

3 A. The principal areas in which I disagree with Mr. Baudino include: (1) our

4 interpretations of current capital market conditions and their effect on the

5 Company's Cost of Equity; (2) the growth rates applied in the Constant Growth

6 DCF model; (3) his reliance on the Constant Growth DCF model to determine

7 the Company's Cost of Equity; (4) the Market Risk Premium used in the

8 CAPM; (5) the relevance of the ECAPM method; (6) whether the Bond Yield

9 Plus Risk Premium analysis provides reasonable estimates of the Company's

10 Cost of Equity; (7) the Expected Earnings analysis; (8) the relevance of flotation

11 costs, (9) our respective assessments of the Company's level of business and

12 financial risk; (10) our interpretations of North Carolina's current economic

13 conditions; and (11) Mr. Baudino's proposed capital structure.

14 **Q. AS A PRELIMINARY MATTER, DO YOU AGREE WITH MR.**

15 **BAUDINO'S POSITION THAT HIS 9.00 PERCENT**

16 **RECOMMENDATION "IS REASONABLY CLOSE TO RECENTLY**

17 **ALLOWED ROES"[299]?**

18 A. No, I do not. As shown in Rebuttal Exhibit DWD-8, the average and median

19 authorized ROE for vertically integrated electric utilities since 2015 is 9.75

20 percent and 9.71 percent, respectively. On February 24, 2020 in Docket No. E-

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[299] Direct Testimony of Richard A. Baudino, at 37-38.

1   22, Sub 562 the Commission authorized Dominion Energy North Carolina an

2   ROE of 9.75 percent. Since January 2019, there have been eleven cases in

3   which a regulatory commission authorized an ROE within my range of 10.00

4   percent to 11.00 percent. During that same time period, only two were

5   "reasonably close"[300] to Mr. Baudino's recommendation of 9.00 percent (s*ee*

6   *also* Chart 24 presented in my response to Mr. Phillips).

7 **Q.   MR. BAUDINO ASSERTS YOU IGNORE "A SIGNIFICANT**

8 **PORTION" OF YOUR ROE ANALYSES.[301]   WHAT IS YOUR**

9 **RESPONSE?**

10 A.   As noted in my Direct Testimony and throughout my Rebuttal Testimony, all

11   models are subject to limiting assumptions and no single model is more reliable

12   than all others under all market conditions.[302]   As also noted in my Direct

13   Testimony, it is my view that the Constant Growth DCF model is subject to

14   several assumptions that likely are not consistent with current market

15   conditions, and therefore should be given less weight in the current capital

16   market. To that point, authorized returns consistently have exceeded Constant

17   Growth DCF estimates.[303]   Further, as discussed in my Direct Testimony,

18   regulatory commissions, including this Commission, have found it appropriate

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[300]   That is, within 25 basis points of Mr. Baudino's 9.00 percent ROE recommendation. The
South Dakota PUC authorized an ROE of 8.75 percent for Otter Tail Power and the Vermont
PUC authorized a 9.06 percent ROE for Green Mountain Power. I address the Otter Tail
Power decision in my response to Mr. O'Donnell.
[301]   Direct Testimony of Richard A. Baudino, at 4, 50-51.
[302]   Direct Testimony of Dylan W. D'Ascendis, at 5.
[303]   Direct Testimony of Dylan W. D'Ascendis, at 5.

1   to place less weight on the DCF model results.[304] As to Mr. Baudino's argument

2   that I "reject" certain of my results, he disregards two of his three approaches,

3   relying primarily on his Constant Growth DCF model results. Lastly, although

4   Mr. Baudino argues that relying on the high DCF results is inappropriate, his

5   9.00 percent recommendation is based on his high DCF result.[305]

6 **Q.   AT PAGES 64-65 OF HIS TESTIMONY, MR. BAUDINO POINTS TO**

7   **FERC OPINION NO. 569 REGARDING THE ORDER DIRECTING**

8   **BRIEFS YOU REFER TO IN YOUR DIRECT TESTIMONY. WHAT IS**

9   **YOUR RESPONSE?**

10 A.   If Mr. Baudino's point is FERC's Opinion No. 569 implies the Risk Premium

11   and Expected Earnings approaches should be disregarded, I disagree. The

12   revised approach under Opinion No. 569 is not settled policy. As FERC has

13   acknowledged, there have been multiple requests for rehearing of Opinion No.

14   569.[306] Further, FERC recently has established a paper hearing to address the

15   methods proposed in its prior Coakley Briefing Order, and MISO Briefing

16   Order, the same Briefing Orders that proposed the DCF, CAPM, Risk Premium,

17   and Expected Earnings approaches.[307] That process is ongoing, with no current

18   resolution. Consequently, as a general proposition I do not agree Opinion No.

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[304] Direct Testimony of Dylan W. D'Ascendis, at 6-9, 15-16.
[305] Direct Testimony of Richard A. Baudino, at 36; Exhibit RAB-3, page 2.
[306] *See*, Potomac-Appalachian Transmission Highline, LLC, Opinion No. 554-A, 170 FERC ¶ 61,050 (2020), Order on Rehearing, Directing Briefs, and Accepting in Part and Rejecting in Part Compliance Filings, at para. 5.
[307] *Ibid*. *See also*, Direct Testimony of Dylan W. D'Ascendis, at 7-8.

1		569 "invalidates" my use of the Expected Earnings, and Risk Premium
2		approaches.

A. Capital Market Environment

4	**Q.**	**DOES MR. BAUDINO ADDRESS THE CURRENT MARKET**
5		**DISLOCATION ASSOCIATED WITH COVID-19?**

6	A.	Yes, Mr. Baudino briefly addresses the "unprecedented volatility, with steep and
7		sharp declines in the stock market, including regulated utilities."[308] He further
8		notes the decline in the 30-year Treasury yield and the increase in utility bond
9		yields. Despite his brief summary, Mr. Baudino concludes it would not be
10		"prudent" to "estimate the impact of the these changed conditions on [his] ROE
11		recommendation".[309] Consequently, Mr. Baudino chooses to apply data as of
12		the end of February in his analyses, and "reserve the right to update [his]
13		testimony and recommendations to the Commission later in this proceeding."[310]
14		That brief summary aside, much of Mr. Baudino's testimony regarding
15		the trend in interest rates and the implication for the Cost of Equity simply is
16		not reflective of the current market. For example, Mr. Baudino discusses the
17		trend in interest rates since 2007, noting that utilities are "interest rate sensitive"
18		and therefore, the Cost of Equity moves directionally with changes in interest
19		rates.[311] Based on that observation, Mr. Baudino concludes that the current low

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[308] Direct Testimony of Richard A. Baudino, at 5.
[309] Direct Testimony of Richard A. Baudino, at 5.
[310] Direct Testimony of Richard A. Baudino, at 5.
[311] Direct Testimony of Richard A. Baudino, at 7-11.

1   interest rate environment "support[s] lower required ROEs for regulated

2   utilities."[312] As noted earlier, the current low level of interest rates reflects

3   investors' "flight to safety" suggesting an increase in equity risk, and therefore

4   the Cost of Equity. The recent increase in utility bond yields and credit spreads

5   that Mr. Baudino observes,[313] support that conclusion.

6   **Q.   DO YOU AGREE WITH MR. BAUDINO THAT IT IS APPROPRIATE**

7   **TO USE DATA PRIOR TO THE MARKET DISLOCATION?**

8   A.   No, I do not. As discussed earlier, although we cannot precisely quantify the

9   effect of the increased market risk on the Cost of Equity, we can infer with

10   reasonable confidence that, directionally, the Cost of Equity has increased. I

11   also disagree that the post-COVID-19 environment will resemble February

12   2020.

13 **Q.   WHAT IS YOUR RESPONSE TO MR. BAUDINO'S POSITION THAT**

14 **"SECURITIES MARKETS ARE EFFICIENT AND MOST LIKELY**

15 **REFLECT   INVESTORS'   EXPECTATIONS   ABOUT   FUTURE**

16 **INTEREST RATES"?[314]**

17 A.   Mr. Baudino makes that argument in the context of "market efficiency",

18   suggesting that if markets are efficient, expectations regarding the direction and

19   level of interest rates already are embedded in stock prices and Treasury yields.

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[312]   Direct Testimony of Richard A. Baudino, at 11.
[313]   Direct Testimony of Richard A. Baudino, at 5.
[314]   Direct Testimony of Richard A. Baudino, at 12.

1   Mr. Baudino points to Dr. Morin's 2006 reference to the forecast accuracy of

2   naïve extrapolations and "no-change" methods of projecting interest rates in

3   support of his position that there is no need to consider projected interest rates

4   in setting the current ROE.[315] I have several responses to Mr. Baudino on those

5   points.

6   Regarding the suggestion that the "no-change" method of projecting

7   interest rates is appropriate in the current market, I disagree. As Mr. Baudino

8   acknowledges,[316] the Federal Reserve's Quantitative Easing program, which

9   was initiated after 2006 (that is, after Dr. Morin's book was published), was

10   designed to put downward pressure on long-term interest rates. Consequently,

11   the observed Treasury yield in a given month likely would over-forecast the

12   observed Treasury yield twelve months in the future. Conversely, when the

13   Federal Reserve completed its Quantitative Easing program, it would be

14   reasonable to assume the observed Treasury yield would under-forecast the

15   yield twelve months in the future (as yields increase).

16   Mr. Baudino's data support that position. As shown in Table 9 below,

17   from February 2007 through the end of Quantitative Easing (October 2015),[317]

18   the 30-year Treasury yield over-forecast the twelve-month forward yield 71.00

19   percent of the time. After October 2015, current yields over-forecast future

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315   Direct Testimony of Richard A. Baudino, at 12.
316   Direct Testimony of Richard A. Baudino, at 11.
317   Because the Treasury Department discontinued issuances of 30-year Treasury bonds from
       March 2002 to January 2006, February 2007 was the first month for which the forecast yield
       was available.

1   yields only 47.00 percent of the time; from 2017 through March 2020, in only

2   15 of 39 months (about 44.00 percent of the time). That is, from 2017 through

3   March 2020, the "no-change" approach under-forecast Treasury yields in 22 of

4   39 months.

5   **Table 9: "No-Change" Forecast Error Observations[318]**

	Feb. 2007 – Oct. 2015	Nov. 2015 – March 2020	Jan. 2017 – March 2020
	Number of Observations		
Over-Forecast	75	25	17
Under-Forecast	30	28	22
Total	105	53	39
% Over-Forecast	71.00%	47.00%	44.00%
% Under-Forecast	29.00%	53.00%	56.00%

6   If Mr. Baudino wishes to consider current Treasury yields as measures

7   of future rates, we can view the market's expectations based on the current yield

8   curve. Those expected rates, often referred to as "forward yields" are derived

9   from the "Expectations" theory, which states that (for example) the current 30-

10   year Treasury yield equals the combination of the current five-year Treasury

11   yield, and the 25-year Treasury yield expected in five years. That is, an investor

12   would be indifferent to (1) holding a 30-year Treasury bond to maturity, or (2)

13   holding a five-year Treasury note to maturity, then a 25-year Treasury bond,

14   also to maturity.[319]   Here, we can compare historical Treasury yield data to

---

[318]   Source: Mr. Baudino's workpapers; Federal Reserve Board Schedule H.15.

[319]   In addition to Expectations theory, there are other theories regarding the term structure of
         interest rates including: Liquidity Premium Theory, which asserts that investors require a
         premium for holding long term bonds; Market Segmentation Theory, which states that
         securities of different terms are not substitutable and, as such, the supply of and demand for

	calculate the forward and current (interpolated) 25-year Treasury yield. If the
2	forward 25-year Treasury yield exceeds the current 25-year yield, that
3	relationship indicates expectations of future rate increases.

4   Based on the data from the Federal Reserve, forward yields generally

5   exceeded current spot yields over the previous six months (*see* Table 10, below).

6   The exceptions, of course, were in February and March, when current yields

7   were pushed down as investors moved to the relative safety of Treasury

8   securities. Nonetheless, just as economists' projections (such as *Blue Chip*)

9   called for increased interest rates, so have forward Treasury yields.

10   **Table 10: Forward vs. Interpolated 25-Year Treasury Yields[320]**

	30-Year Treasury Yield	5-Year Treasury Yield	Forward 25-Year Treasury Yield	Interpolated 25-Year Treasury Yield
October 2019	2.19%	1.53%	2.32%	1.99%
November 2019	2.28%	1.64%	2.41%	2.04%
December 2019	2.30%	1.68%	2.42%	2.06%
January 2020	2.22%	1.56%	2.35%	2.15%
February 2020	1.97%	1.32%	2.10%	2.18%
March 2020	1.46%	0.59%	1.63%	2.09%
Average	2.07%	1.39%	2.21%	1.93%

11   Importantly, forward yields assume the current slope of the yield curve

12   will remain constant going forward. They therefore assume the conditions

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short-term and long-term instruments is developed independently; and Preferred Habitat
Theory, which states that in addition to interest rate expectations, certain investors have
distinct investment horizons and will require a return premium for bonds with maturities
outside of that preference.

[320]   Source: Federal Reserve Board of Governors Schedule H.15.

1   supporting the current slope also will remain constant. Consequently, the

2   current yield curve may not fully reflect market expectations. Nonetheless,

3   implied forward yields certainly are known and considered by the professionals

4   that contribute to the consensus long-term bond yield projections published by

5   sources such as *Blue Chip Financial Forecasts*. In that case, forward yields

6   would be reflected in economists' projections.

7   *B. Constant Growth DCF Model*

8   **Q.   PLEASE   BRIEFLY   DESCRIBE   MR.   BAUDINO'S   CONSTANT**

9   **GROWTH DCF ANALYSIS AND RESULTS.**

10 A.   Mr. Baudino calculates an average dividend yield of 2.88 percent by dividing

11 each proxy company's annualized dividend by its monthly stock price for the

12 six-month period ending February 2020,[321] noting that the average dividend

13 yield for the proxy group ranged from 2.84 percent to 2.94 percent during the

14 six-month period.[322] For the expected growth rate, Mr. Baudino relies on

15 Earnings Per Share growth rate projections from Value Line, Zacks, and First

16 Call, as well as Dividend Per Share growth rate projections from Value Line.[323]

17 Mr. Baudino then calculates his DCF results based on the mean and median

18 growth rate of the four sources noted above, producing eight ROE estimates,

19 which range from 8.21 percent to 9.02 percent.[324]

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[321]   Direct Testimony of Richard A. Baudino, at 24.
[322]   Direct Testimony of Richard A. Baudino, at 24.
[323]   Direct Testimony of Richard A. Baudino, at 25-26, Exhibit RAB-3.
[324]   Direct Testimony of Richard A. Baudino. at 26-27; Exhibit RAB-3, page 2.

1   Mr. Baudino refers to the DCF results produced using mean growth rates

2   as "Method 1", and DCF results produced using median growth rates as

3   "Method 2". The mean DCF results of his Methods 1 and 2 were 8.60 percent

4   and 8.67 percent, respectively.[325]

5 **Q.   DO YOU AGREE WITH MR. BAUDINO THAT DIVIDEND GROWTH**

6   **RATES ARE APPROPRIATE MEASURES OF EXPECTED GROWTH**

7   **FOR THE CONSTANT GROWTH DCF MODEL?**

8 A.   No, I do not. As discussed in my Direct Testimony, academic literature supports

9   the use of earnings growth rates in the DCF model.[326] Earnings growth is the

10   fundamental driver of the ability to pay dividends. Further, as noted in my

11   Direct Testimony, to reduce growth to a single measure we assume a fixed

12   payout ratio, and a constant growth rate for Earnings Per Share, Dividend Per

13   Share, and Book Value Per Share.[327]   Because earnings are the fundamental

14   driver of dividends, and knowing investors tend to value common equity on the

15   basis of P/E ratios, the Cost of Equity is a function of the expected growth in

16   earnings, not dividends. As discussed in my response to Dr. Woolridge,

17   earnings growth rate projections are the only growth rates that are statistically

18   and positively related to the P/E ratio.

19   Lastly, as discussed in my response to Mr. O'Donnell, Value Line is the

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[325]   Direct Testimony of Richard A. Baudino, at 27; Exhibit RAB-3, page 2.
[326]   Direct Testimony of Dylan W. D'Ascendis, at 80-81.
[327]   Direct Testimony of Dylan W. D'Ascendis., at 77-78. *See also*, Rebuttal Exhibit DWD-10.

1   only service that reports dividend growth projections. The fact that services

2   such as Zacks and First Call provide earnings, but not dividend growth

3   estimates indicates that they see little investor demand for such data.

4   *C. DCF Model Assumptions*

5 **Q.   PLEASE BRIEFLY DESCRIBE MR. BAUDINO'S CONCERNS WITH**

6   **YOUR ARGUMENTS REGARDING THE ASSUMPTIONS OF THE**

7   **DCF MODEL.**

8 A.   Mr. Baudino argues the industry's current P/E ratio's departure from its long-

9   term average is not a valid concern because current stock prices reflect

10   investors' required returns.[328]

11 **Q.   WHAT IS YOUR RESPONSE TO MR. BAUDINO'S CONCERN WITH**

12   **YOUR ASSUMPTION REGARDING P/E RATIOS?**

13 A.   As explained in my response to Dr. Woolridge, the DCF model will not produce

14   accurate estimates of the market-required ROE if the market price diverges

15   from intrinsic value as defined by the present value formula. As also discussed

16   in my response to Dr. Woolridge, recently elevated utility valuations likely

17   arose from the "reach for yield" that sometimes occurs during periods of low

18   Treasury yields. During those periods, some investors would turn to dividend-

19   paying sectors, such as utilities, as an alternative source of income (that is, for

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[328]   Direct Testimony of Richard A. Baudino, at 53-54.

1   the dividend yield).[329] Then, when interest rates increased, investors rotated out

2   of the utility sector, causing prices to fall.

3   The Constant Growth DCF model also assumes the dividend yield will

4   remain constant, as stock prices and dividends grow at the same, constant rate.

5   As the recent decline in utility prices demonstrates, the assumption of a constant

6   dividend yield is limiting. For example, between the beginning of February

7   2020 and April 1, 2020, the dividend yield for Mr. Baudino's proxy group

8   increased from 2.59 percent to 3.48 percent (*see* Chart 17 below).

9   **Chart 17: Mr. Baudino's Proxy Group Dividend Yield**

10   **2/3/2020 – 4/1/2020[330]**
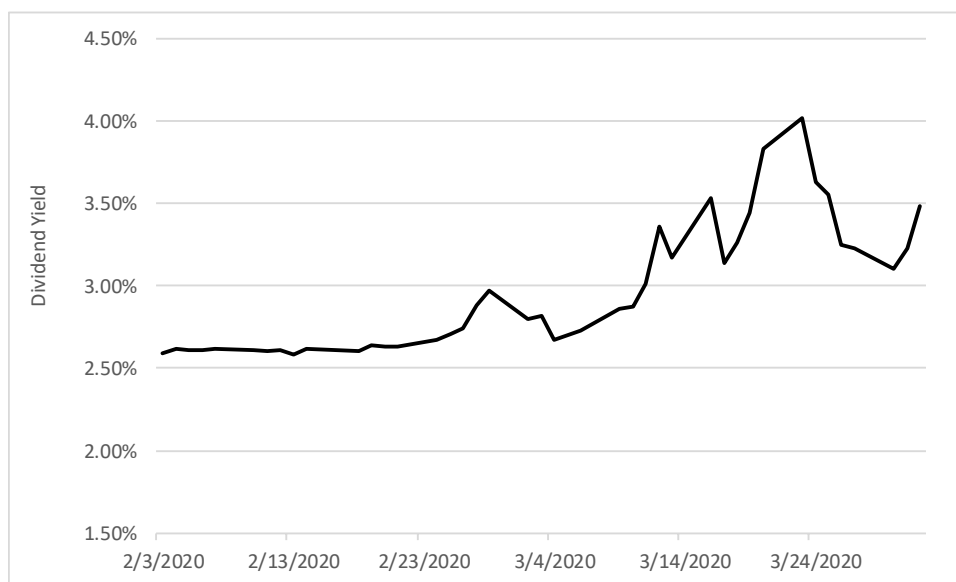
11   Over the same time period, the P/E ratio of Mr. Baudino's proxy group

12   fell significantly (*see* Chart 18 below).

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[329]   The relationship between utility prices and utility dividend yields is given in Equation [5], page 78 of my Direct Testimony.

[330]   Source: S&P Global Market Intelligence. Mr. Baudino's proxy group calculated as an index.

1   **Chart 18: Mr. Baudino's Proxy Group P/E Ratio in February 2020[331]**
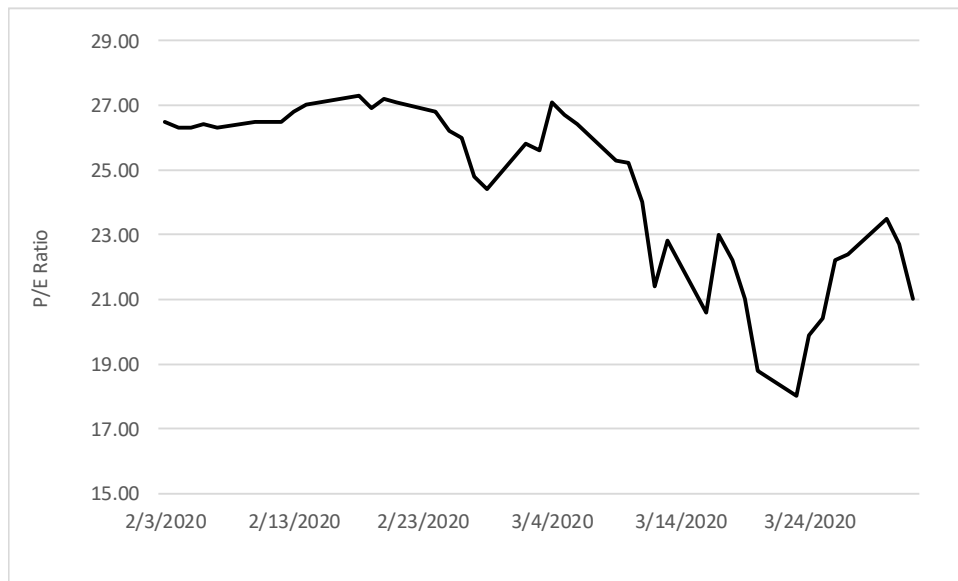
2   Because the Constant Growth DCF model assumes a constant P/E ratio

3   in perpetuity, during periods of elevated P/E ratios, it will underestimate the

4   required return. I do not believe we should place significant weight on the

5   Constant Growth DCF model's results during that time period, as Mr. Baudino

6   recommends, when the assumptions underlying that model are plainly

7   inconsistent with market expectations.

8   *D. Capital Asset Pricing Model*

9   **Q.   PLEASE SUMMARIZE MR. BAUDINO'S CAPM ANALYSES.**

10   A.   Mr. Baudino's CAPM analyses include two Market Risk Premium measures.

11   His first set relies on the forecasted total market return as determined using

12   Value Line projections, and the six-month average 30-year Treasury yield and

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[331]   Source: S&P Global Market Intelligence. Mr. Baudino's proxy group calculated as an index.

1	Duff & Phelps' normalized risk-free rate (*i.e.*, 2.19 percent and 3.00 percent,
2	respectively).[332] He assumes an expected growth rate for the market of 9.25
3	percent, using the average of the book value and earnings growth forecasts (8.00
4	percent and 10.50 percent, respectively) for all companies covered by Value
5	Line. Mr. Baudino combines that average growth rate with Value Line's
6	average expected dividend yield of 1.05 percent for the same group of
7	companies, producing an estimated market return of 10.35 percent. He
8	averages that estimate with Value Line's projected annual total return of 12.71
9	percent[333] to arrive at his final expected market return of 11.53 percent.[334]
10	Mr. Baudino's two forward-looking Market Risk Premium measures
11	represent the difference between (1) his calculated expected market total return,
12	and (2) the average yield over the past six months on 30-year Treasury securities
13	(2.19 percent) and Duff & Phelps' normalized risk-free rate (3.00 percent). Mr.
14	Baudino arrives at his CAPM results using the average Value Line Beta
15	coefficient of 0.56 for his proxy companies.[335]
16	Mr. Baudino's second set of CAPM analyses calculate the arithmetic
17	mean long-term annual returns on stocks, and long-term annual income returns
18	on long-term government bonds, producing an historical measure of the Market

---

[332]   Direct Testimony of Richard A. Baudino, at 34; Exhibit RAB-4.
[333]   The average of Value Line's median and average projected annual total return of 12.00
        percent and 13.42 percent, respectively.
[334]   Direct Testimony of Richard A. Baudino, at 32. Exhibit RAB-4.
[335]   Exhibit RAB-4.

1   Risk Premium.[336]   He also considers an adjusted historical Market Risk

2   Premium calculated by Dr. Roger Ibbotson and Dr. Peng Chen, and reported by

3   Duff & Phelps.[337] Mr. Baudino uses those two Market Risk Premium measures

4   in combination with the six month average 30-year Treasury bond yield, Duff

5   and Phelps' normalized risk-free rate, and the average Value Line Beta

6   coefficient to calculate four additional CAPM results. Although Mr. Baudino

7   advises the Commission to consider only his DCF results in establishing the

8   Company's ROE, he reports CAPM results ranging from 7.40 percent to 7.75

9   percent for his forward-looking return analysis and 5.61 percent to 6.85 percent

10   for his historical return analysis.[338]

11 **Q.   DO YOU AGREE WITH MR. BAUDINO'S APPLICATION OF THE**

12   **CAPM AND HIS INTERPRETATION OF ITS RESULTS?**

13 A.   No. My primary area of disagreement with Mr. Baudino's CAPM approach is

14   his calculation of the Market Risk Premium.

15 **Q.   WHAT CONCERNS DO YOU HAVE WITH MR. BAUDINO'S *EX-ANTE***

16   **MARKET RISK PREMIUM CALCULATIONS?**

17 A.   Mr. Baudino calculates the expected market return using an average of earnings

18   growth projections (10.50 percent) and book value growth projections (8.00

19   percent).   As noted above, academic research indicates investors rely on

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[336]   Direct Testimony of Richard A. Baudino, at 33. Exhibit RAB-5.
[337]   Direct Testimony of Richard A. Baudino, at 34. Exhibit RAB-5.
[338]   Direct Testimony of Richard A. Baudino, at 35.

1   estimates of earnings growth in arriving at their investment decisions. In that

2   regard, Mr. Baudino did not include book value growth projections in his proxy

3   group DCF analysis, nor has he explained why it is reasonable to include those

4   growth rates in his Market Risk Premium analysis, but not his proxy company

5   DCF analyses. Excluding book value growth estimates from Mr. Baudino's

6   market return calculation would increase his Market Risk Premium estimate by

7   approximately 63 basis points.[339]

8 **Q.** **DO YOU AGREE WITH MR. BAUDINO'S USE OF HISTORICAL**

9   **ESTIMATES OF THE MARKET RISK PREMIUM?**

10 A.   No, I do not. For the reasons discussed in my response to Dr. Woolridge, the

11   Market Risk Premium is meant to be a forward-looking parameter. A Market

12   Risk Premium calculated using historical market returns does not necessarily

13   reflect investors' expectations or, for that matter, the relationship between

14   market risk and returns. The relevant analytical issue in applying the CAPM is

15   to ensure that all three components of the model (*i.e.*, the risk-free rate, Beta

16   coefficient, and the Market Risk Premium) are consistent with market

17   conditions and investor expectations. Therefore, *ex-ante* CAPM analyses are

18   the more appropriate method to estimate DE Progress' Cost of Equity.

---

[339] $[(1.05\% \times (1+(0.5*10.50\%)) + 10.50\%) + 12.71\%] / 2 = 12.16\%$. $((12.16\% - 2.19\%) - (11.53\% - 2.19\%)) = 0.63\%$

1   **Q.   PLEASE BRIEFLY SUMMARIZE MR. BAUDINO'S COMMENTS**

2   **REGARDING YOUR *EX-ANTE* CAPM ANALYSES.**

3   A.   Mr. Baudino disagrees with my *ex-ante* Market Risk Premium, arguing that the

4   market return estimates "are extraordinarily high."[340] He further disagrees with

5   the use of forecasted Treasury bond yields applied in my CAPM analyses, but

6   notes his and my risk-free rates "do not differ significantly in this

7   proceeding."[341]

8   **Q.   WHAT IS YOUR RESPONSE TO MR. BAUDINO'S POSITION THAT**

9   **YOUR MARKET RISK PREMIA ARE "EXTRAORDINARILY**

10   **HIGH"[342]?**

11   A.   As shown in Rebuttal Exhibit DWD-18, the market return estimates presented

12   in my Direct Testimony represent approximately the 51st percentile of actual

13   returns observed from 1926 to 2019. Moreover, because market returns

14   historically have been volatile, my market return estimates are statistically

15   indistinguishable from the long-term arithmetic average market data on which

16   Mr. Baudino relies.[343] Regarding the use of projected interest rates, it is

17   important to remember that, as Mr. Baudino states, the "[r]eturn on equity

18   analysis is a forward-looking process."[344] In that regard, I have considered

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[340]   Direct Testimony of Richard A. Baudino, at 59.
[341]   Direct Testimony of Richard A. Baudino, at 58.
[342]   Direct Testimony of Richard A. Baudino, at 59.
[343]   Source: Duff & Phelps, 2020 SBBI Yearbook Appendix A-1. Even if we were to look at the
         standard error, my estimates are within two standard errors of the long-term average.
[344]   Direct Testimony of Richard A. Baudino, at 25.

1   forward-looking estimates of the risk-free rate. Because my analyses are

2   predicated on market expectations, the expected increase in Treasury yields (as

3   reflected in consensus projections) is a measurable and relevant data point.

4   *E. Empirical Capital Asset Pricing Model*

5   **Q.   PLEASE SUMMARIZE MR. BAUDINO'S POSITION REGARDING**

6   **THE EMPIRICAL CAPITAL ASSET PRICING MODEL.**

7   A.   Mr. Baudino argues the ECAPM suggests Beta coefficients published by Value

8   Line and Bloomberg are "incorrect and that investors should not rely on

9   them".[345]

10 **Q.   IS MR. BAUDINO CORRECT?**

11 A.   No. The ECAPM reflects published research finding companies with lower

12   Beta coefficients tend to have higher returns than those predicted by the CAPM,

13   and those with higher Beta coefficients tend to have lower returns than

14   expected.[346] Beta coefficient adjustments such as those used by Value Line on

15   the other hand, address the tendency of "raw" Beta coefficients to regress

16   toward the market mean of 1.00 over time. The two are different issues and are

17   addressed with different methods.

18   Fama and French succinctly describe the empirical issue addressed by

19   the ECAPM when they note that "[t]he returns on the low beta portfolios are

---

[345]   Direct Testimony of Richard A. Baudino, at 60.
[346]   Direct Testimony of Dylan W. D'Ascendis, at 92-93. *See also*, Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 175-176.

1   too high, and the returns on the high beta portfolios are too low."[347] Fama and

2   French further note:

3   The early tests firmly reject the Sharpe-Lintner version of the
4   CAPM. There is a positive relation between beta and average
5   return, but it is too 'flat.'… The regressions consistently find that
6   the intercept is greater than the average risk-free rate… and the
7   coefficient on beta is less than the average excess market
8   return… This is true in the early tests… as well as in more recent
9   cross-section regressions tests, like Fama and French (1992).[348]

10   * * *

11   Confirming earlier evidence, the relation between beta and
12   average return for the ten portfolios is much flatter than the
13   Sharpe-Linter CAPM predicts.   The returns on low beta
14   portfolios are too high, and the returns on the high beta portfolios
15   are too low. For example, the predicted return on the portfolio
16   with the lowest beta is 8.3 percent per year; the actual return as
17   11.1 percent. The predicted return on the portfolio with the t
18   beta is 16.8 percent per year; the actual is 13.7 percent.[349]

19   Similarly, Dr. Morin states:[350]

20   With few exceptions, the empirical studies agree that … low-
21   beta securities earn returns somewhat higher than the CAPM
22   would predict, and high-beta securities earn less than predicted.

23   * * *

24   For an alpha in the range of 1%-2% and for reasonable values of
25   the market risk premium and the risk-free rate, Equation 6-5
26   reduces to the following more pragmatic form:

27           $K = R_F + 0.25 (R_M - R_F) + 0.75 \ \beta(R_M - R_F)$ (6-6)

28   Over reasonable values of the risk-free rate and the market risk

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[347]   Eugene F. Fama and Kenneth R. French, *The Capital Asset Pricing Model: Theory and Evidence*, Journal of Economic Perspectives, Vol. 18, No. 3, Summer 2004, at 33.
[348]   *Ibid.*, at 32.
[349]   *Ibid.,* at 33.
[350]   Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at 175 and 190.

| 1 | premium, Equation 6-6 produces results that are |
| 2 | indistinguishable from the ECAPM of Equation 6-5. |

3	. . . Therefore, the empirical evidence suggests that the expected
4	return on a security is related to its risk by the following
5	approximation:

$$K = R_F + x\,\beta(R_M - R_F) + (1\text{-}x)\,\beta(R_M - R_F)$$

6

7	where x is a fraction to be determined empirically. The value of
8	x that best explains the observed relationship Return = 0.0829 +
9	0.0520 β is between 0.25 and 0.30. If x = 0.25, the equation
10	becomes:

$$K = R_F + 0.25(R_M - R_F) + 0.75\,\beta(R_M - R_F)$$

11

12

13 Dianna R. Harrington summarizes studies on the predicted results of the

14 CAPM versus the actual returns in her text <u>Modern Portfolio Theory & the</u>

15 <u>Capital Asset Pricing Model</u>:

16	So far we have learned some very interesting things about the
17	CAPM and reality. Some of the earliest work tested realized
18	data (history) against data generated by simulated portfolios.
19	Early studies by Douglas (1969) and Lintner (Douglas [1969])
20	showed discrepancies between what was expected on the basis
21	of the CAPM and the actual relationships that were apparent in
22	the capital markets. Theoretically, the minimal rate of return
23	from the portfolios (the intercept) and the actual risk-free rate
24	for the period should have been equal. They were not.

25   * * *

26	Another study, now more famous than Lintner's was done by
27	Black, Jensen, and Scholes (1972). Lintner had used what is
28	called a cross-sectional method (looking at a number of stock
29	returns during one time period), whereas Black, Jensen, and
30	Scholes used a time-series method (using returns for a number
31	of stocks over several time periods). To make their test, Black,
32	Jensen, and Scholes assumed that what had happened in the past
33	was a good proxy for the investor expectations (a frequent

1 assumption in CAPM tests). Using historical data, they
2 generated estimates using what we call the market model:

3 $$R_{jt} = \alpha_j + \beta_j\,(R_{mt}) + \varepsilon_j$$

4 Where:

5 R = total returns

6 β = the slope of the line (the incremental return for risk)

7 α = the intercept or a constant (expected to be 0 over time and across
8 all firms)

9 ε = an error term (expected to be random, without information)

10 m = the market proxy

11 j = the firm or portfolio

12 t = the time period

13 Instead of using single stocks, they formed portfolios in an effort
14 to wash out one source of error; because betas of single firms are
15 quite unstable. On the basis of the CAPM, they expected to find

16   1. That the intercept was equal to the risk-free
17   rate (their proxy was the Treasury bill rate)

18   2. That the capital market line had a positive
19   slope and that riskier (higher beta) securities
20   provided higher return

21 Instead, they found

22   1. That the intercept was different from the risk-
23   free rate

24   2. That high-risk securities earned less and low-
25   risk securities earned more than predicted by
26   the model

27   3. That the intercept seemed to depend on the
28   beta of any asset: high-beta stocks had a
29   different intercept than low-beta stocks

30   * * *

1	Fama and MacBeth (1974) criticized the Black, Jensen, and
2	Scholes study (hereafter called BJS). In a reformation of the
3	study, they supported the first of the BJS findings. They found
4	that the intercept exceeded the risk-free proxy, but did not find
5	the evidence to support the other BJS conclusions.[351]

| 6 | Harrington discusses Black's potential solution to this phenomenon: |

7	Black's replacement for the risk-free asset was a portfolio that
8	had no covariability with the market portfolio. Because the
9	relevant risk in the CAPM is systematic risk, a risk-free asset
10	would be the one with no volatility relative to the market – that
11	is, a portfolio with a beta of zero. All investor-perceived levels
12	of risk could be obtained from various linear combinations of
13	Black's zero-beta portfolio and the market portfolio… Since R_z
14	(the rate of return of the zero-beta asset) and R_m are uncorrelated
15	(as R_f and R_m were assumed to be in the simple CAPM), the
16	investor can choose from various combinations of R_z and R_m.
17	On segment R_mY, R_z, is sold short and proceeds are invested in
18	R_m. On segment R_zR_m, portions of the zero-beta portfolio are
19	purchased. At R_m, the investor is fully invested in the market
20	portfolio. The equilibrium CAPM was rewritten by Black as
21	follows:

22
$$E (R_i) = (1 – \beta_i) E (R_z) + \beta_i E(R_m)$$

| 23 | where: |

| 24 | E indicates expected, |
| 25 | E (R_z) is less than E(R_m), and |

26	R_z holdings over the whole market must be in equilibrium. That
27	is, the number of short sellers and lenders of securities must be
28	equal.

29	Black's adaptation is intriguing. The result of using this model
30	is a capital market line that has a less steep slope and a higher
31	intercept than those of the simple CAPM. If Black's model is
32	more correct in its description of investor behavior in the
33	marketplace, then the use of the simple model would produce

[351]   Dianna R. Harrington, Modern Portfolio Theory & the Capital Asset Pricing Model – A User's Guide, Prentice-Hall, Inc. 1983, at 43-45.

1	equity return predictions that would be too low for sticks with
2	betas greater than one and too high for stocks with betas of less
3	than one.

4   The relationship between expected returns from the CAPM and

5   ECAPM can be seen in Chart 19, below. That chart, which reflects Mr.

6   Baudino's risk-free rate and MRP, illustrates the extent to which the CAPM

7   under-states the expected return relative to the ECAPM when Beta coefficients,

8   whether adjusted or unadjusted, are less than 1.00.

9   **Chart 19: CAPM and ECAPM Expected Returns[352]**
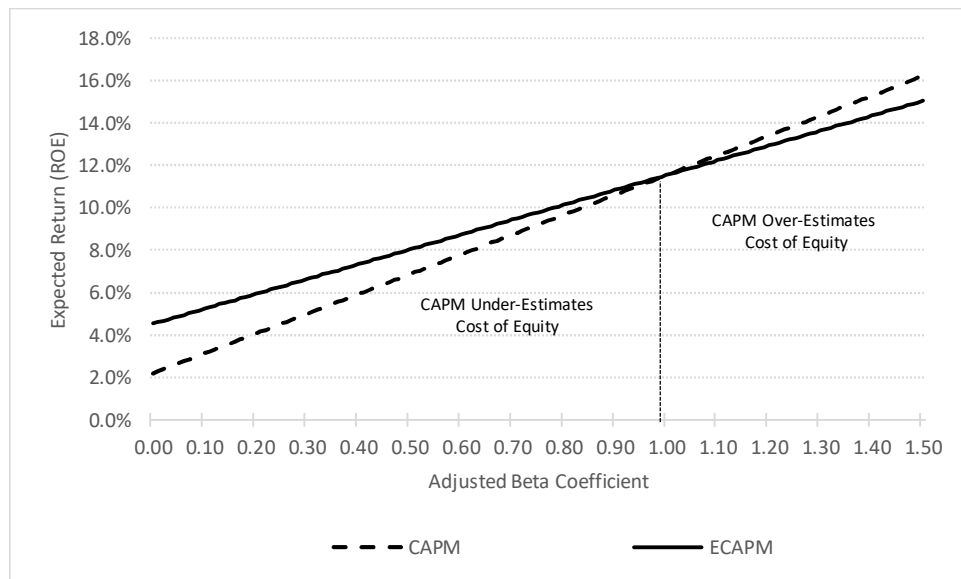
10   The ECAPM is an adjustment to the risk/return line which, as noted in

11   Chart 19 above, is flatter than the CAPM assumes. That adjustment is required

12   even with the use of adjusted Beta coefficients, such as those provide by Value

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[352]   Rebuttal Exhibit DWD-19. The finding that the ECAPM is not an adjustment to the Beta
        coefficient also is clear in the equation ($k_e = R_f + \alpha + \beta(MRP - \alpha)$), in which the alpha
        coefficient increases the intercept (the expected return when the Beta coefficient equals zero),
        and reduces the Market Risk Premium.

1   Line. As Dr. Morin observes:

2   Fundamentally, the ECAPM is not an adjustment, increase or
3   decrease, in beta. This is obvious from the fact that the expected
4   return on high beta securities is actually lower than that
5   produced by the CAPM estimate. The ECAPM is a formal
6   recognition that the observed risk-return tradeoff is flatter than
7   predicted by the CAPM based on myriad empirical evidence.
8   *The ECAPM and the use of adjusted betas comprised two*
9   *separate features of asset pricing…Both adjustments are*
10   *necessary.*[353]

11   **Q.   PLEASE EXPLAIN WHY VALUE LINE ADJUSTS ITS BETA**

12   **COEFFICIENTS.**

13   A.   Value Line's adjustment is based on the research of Marshall Blume, who found

14   that "[n]o economic variable including the beta coefficient is constant over

15   time."[354] Consistent with that finding, Blume observed a tendency of raw Beta

16   coefficients to change gradually over time:

17   …there is obviously some tendency for the estimated values of
18   the risk parameter [beta] to change gradually over time. This
19   tendency is most pronounced in the lowest risk portfolios, for
20   which the estimated risk in the second period is invariably higher
21   than that estimated in the first period. There is some tendency
22   for the high risk portfolios to have lower estimated risk
23   coefficients in the second period than in those estimated in the
24   first. Therefore, the estimated values of the risk coefficients in
25   one period are biased assessments of the <u>future values</u>, and
26   furthermore the values of the risk coefficients as measured by
27   the estimates of β_1 tend to regress towards the means with this
28   tendency stronger for the lower risk portfolios than the higher
29   risk portfolios. (emphasis added)

---

[353]   Roger A. Morin, <u>New Regulatory Finance,</u> Public Utility Reports, Inc., 2006, at 191
        [*emphasis added*].
[354]   Marshall E. Blume, *On the Assessment of Risk*, <u>The Journal of Finance</u>, Vol. XXVI, No. 1,
        March 1971.

1   Blume proposed a correction for that "regression bias" to provide more accurate

2   assessments of risk and, therefore, the Cost of Equity:

3   For individual securities as well as portfolios of two or more
4   securities, the assessments adjusted for the historical rate of
5   regression are more accurate than the unadjusted or naïve
6   assessments. Thus, an improvement in the accuracy of one's
7   assessments of risk can be obtained by adjusting for the
8   historical rate of regression even though the rate of regression
9   over time is not strictly stationary.[355]

10   Based on Blume's results, Value Line adjusts its "raw" Beta coefficients

11   according to the following formula:

12    $$\beta_{adjusted} = 0.35 + \left(0.67 \text{ x } \beta_{raw}\right) \quad [6]$$

13   Lastly, as discussed in my response to Dr. Woolridge, the ECAPM mitigates the

14   CAPM's tendency to underestimate returns for relatively low Beta coefficient

15   stocks, but does not eliminate that effect. That is the case assuming adjusted

16   Beta coefficients.

17   *F. Bond Yield Plus Risk Premium Approach*

18   **Q.   WHAT CONCERNS DOES MR. BAUDINO EXPRESS REGARDING**

19   **YOUR BOND YIELD PLUS RISK PREMIUM ANALYSIS?**

20   A.   Mr. Baudino suggests the Bond Yield Plus Risk Premium method is "imprecise

21   and can only provide very general guidance," and notes that "[r]isk premiums

22   can change substantially over time."[356] He suggests the approach is a "blunt

---

[355]   *Ibid.*
[356]   Direct Testimony of Richard A. Baudino, at 62.

1   instrument".[357] Regarding its application, Mr. Baudino disagrees with the use

2   of projected Treasury yields.

3   **Q.   WHAT IS YOUR RESPONSE TO MR. BAUDINO'S OBSERVATIONS?**

4   A.   Turning first to Mr. Baudino's point that the Risk Premium can change over

5   time, I agree. As noted in my Direct Testimony, there is a statistically

6   significant negative relationship between long-term Treasury yields and the

7   Equity Risk Premium.[358] Given Mr. Baudino's observation that interest rates

8   have declined since 2008,[359] the Bond Yield Plus Risk Premium analysis

9   provides an empirically and theoretically sound method of quantifying the

10   relationship between the Cost of Equity and interest rates. That is, it provides

11   a method to quantify the change Mr. Baudino has observed.

12   As to Mr. Baudino's notion that the approach is a "blunt instrument," I

13   disagree. As shown in Chart 17 in my Direct Testimony, the R-squared of the

14   Bond Yield Plus Risk Premium regression analysis is approximately 0.74,

15   indicating a rather high degree of explanatory value. More importantly, the

16   relationship is highly statistically significant. Consequently, the Bond Yield

17   Plus Risk Premium approach provides empirically and theoretically sound

18   results that can be used, at a minimum, to assess the wide range of ROE results

19   produced by Mr. Baudino's analyses in general, and his 9.00 percent

---

[357]   Direct Testimony of Richard A. Baudino, at 62.
[358]   Direct Testimony of Dylan W. D'Ascendis, at 98.
[359]   Direct Testimony of Richard A. Baudino, at 7.

1   recommendation in particular.

2 **Q.**   **DO YOU AGREE WITH MR. BAUDINO'S POSITION THAT YOUR**

3   **BOND YIELD PLUS RISK PREMIUM RESULTS DO NOT**

4   **ACCURATELY TRACK RECENTLY ALLOWED ROES?[360]**

5 A.   No, I do not. Although Mr. Baudino points to a 36-basis point difference

6   between the model's result and the actual authorized ROE for one specific year

7   (*i.e.*, 2018), as shown in Chart 20 below,[361] since 2000, the model has been quite

8   accurate on average, underestimating the authorized ROE by about ten basis

9   points, well within one standard deviation of the average error. Further, as

10   discussed below, my approach has been considerably more accurate than using

11   a constant historical average risk premium.

12 **Q.**   **HAVE YOU PERFORMED AN ANALYSIS TO DEMONSTRATE THE**

13   **RELATIVE ACCURACY OF A RISK PREMIUM THAT REFLECTS**

14   **THE INVERSE RELATIONSHIP BETWEEN BOND YIELDS AND THE**

15   **EQUITY RISK PREMIUM COMPARED TO AN AVERAGE EQUITY**

16   **RISK PREMIUM?**

17 A.   Yes, I have. I first calculated the ROE that an average 4.68 percent[362] "static"

18   risk premium would predict using 2000-2019 annual average 30-year Treasury

19   yields, and the error between the predicted ROE and the actual observed

---

[360]   Direct Testimony of Richard A. Baudino, at 62.
[361]   Rebuttal Exhibit DWD-20.
[362]   The average Equity Risk Premium over the 1980 – 2019 time period calculated in Exhibit DWD-5.

1	average ROE. I then calculated the ROE predicted in each year using my
2	methodology, which accounts for the log normal[363] relationship discussed in my
3	Direct Testimony, and the error between the actual and predicted observations.
4	As shown in Rebuttal Exhibit DWD-20, using an average Equity Risk
5	Premium, produces estimates that are as much as 258 basis points removed from
6	the actual observed ROE. Using a Risk Premium approach to reflect the inverse
7	relationship between bond yields and the Equity Risk Premium, however,
8	reduces the largest prediction error to 55 basis points. Chart 20 (*see also*
9	Rebuttal Exhibit DWD-20) demonstrates that, contrary to Mr. Baudino's
10	position, my approach produces generally accurate estimates of observed
11	average authorized ROEs. That certainly is true for 2008, the last time the
12	financial markets experienced a significant dislocation.

---

[363]   Direct Testimony of Dylan W. D'Ascendis, at 97.

1 **Chart 20: Accuracy of Risk Premium ROE Estimates**
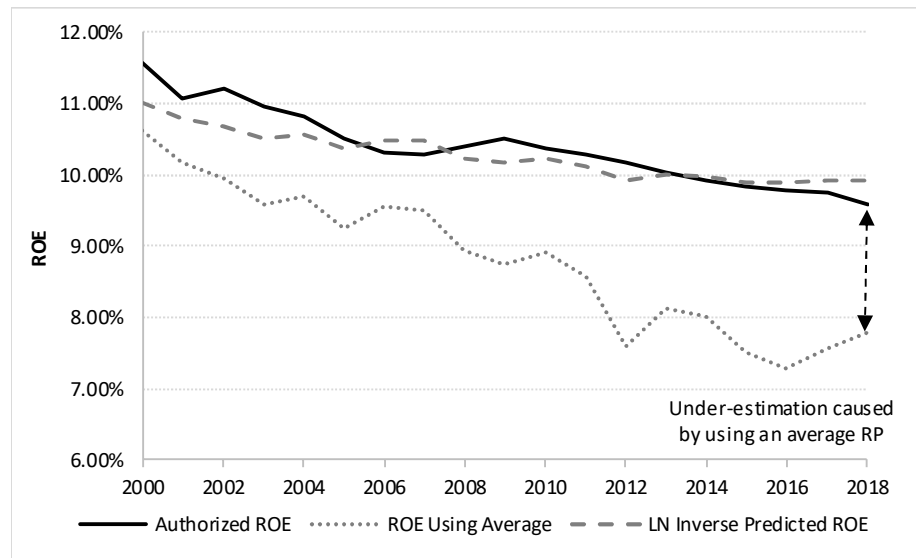
2 **Q.   DO YOU AGREE WITH MR. BAUDINO'S CLAIM THAT INCLUDING**

3 **RATE   CASE   RESULTS   SINCE   1980   IS   "AN   IRRELEVANT**

4 **EXERCISE"?[364]**

5 A.   No, I do not. The model focuses on the relationship between interest rates and

6 the Equity Risk Premium; it does not view the two in isolation. There is no

7 evidence that excluding data from my analysis would improve the model's

8 ability to estimate expected returns. In any event, an authorized ROE of 9.00

9 percent and lower for a vertically integrated electric utility has occurred very

10 infrequently, even in the current lower interest rate environment. In fact, it has

11 only occurred twice: in 2013 for Maui Electric Company in Hawaii[365] and in

---

[364]   Direct Testimony of Richard A. Baudino, at 55.
[365]   The 2013 order for Maui Electric included a 50-basis point reduction for "system
inefficiencies". Hawaii PUC Docket No. 2011-0092, Decision and Order No. 31288, May
2013, at 107.

1		2019 for Otter Tail Power in South Dakota.[366] From that perspective, Mr.
2		Baudino's recommendation is far below returns authorized for other vertically
3		integrated electric utilities.

4   *G. Expected Earnings Analysis*

5   **Q.**   **PLEASE   BRIEFLY   SUMMARIZE   MR.   BAUDINO'S   POSITION**

6   **REGARDING THE EXPECTED EARNINGS ANALYSIS.**

7   A.   Mr. Baudino asserts that the "flaw" in the Expected Earnings approach is that

8   "it measures forecasted accounting returns on book value, not investor required

9   returns in the marketplace."[367]

10   **Q.**   **WHAT IS YOUR RESPONSE TO MR. BAUDINO ON THAT POINT?**

11   A.   Although I agree economic and financial factors, and the market-based models

12   that depend on them are important, I do not agree those factors invalidate the

13   Expected Earnings approach. As discussed in my response to Dr. Woolridge,

14   no single method best captures investor expectations at all times and under all

15   conditions. The simplicity of the Expected Earnings approach is a benefit, not

16   a detriment. Further, The Expected Earnings method's relative stability during

17   unusually volatile markets provides an important perspective not reflected in

18   market-based methods. Lastly, utility rates are set based on the book value of

19   equity and the Expected Earnings approach provides a direct measure of the

20   book-based return comparable-risk utilities are expected to earn.

---

[366]   I discuss the Otter Tail Power order in my response to Mr. O'Donnell.
[367]   Direct Testimony of Richard A. Baudino, at 64.

H. Flotation Costs

1 **Q. MR. BAUDINO ARGUES THAT FLOTATION COSTS SHOULD NOT**

2 **BE CONSIDERED BECAUSE, IN HIS OPINION, "IT IS LIKELY THAT**

3 **FLOTATION COSTS ARE ALREADY ACCOUNTED FOR IN**

4 **CURRENT STOCK PRICES".[368] WHAT IS YOUR RESPONSE TO MR.**

5 **BAUDINO ON THAT POINT?**

6

7 A. I disagree. The models used to estimate the appropriate ROE assume no

8 "friction" or transaction costs, as these costs are not reflected in the market price

9 (in the case of the DCF model) or risk premium (in the case of the CAPM and

10 the Bond Yield Plus Risk Premium model). Mr. Baudino provides no support

11 for his opinion that current stock prices account for flotation costs, and his

12 position should be disregarded.

13 *I. Relative Risk*

14 **Q. WHAT IS YOUR RESPONSE TO MR. BAUDINO'S POSITION**

15 **REGARDING THE COMPANY'S BUSINESS RISKS?**

16 A. Mr. Baudino asserts my review of the Company's business risks is "one-

17 sided"[369] and that its risks are accounted for in its credit rating. As explained in

18 my response to Dr. Woolridge, although I do not disagree that rating agencies

19 may analyze company-specific factors in their review, I do not believe credit

20 ratings are a full measure of equity risk.

---

[368]   Direct Testimony of Richard A. Baudino, at 65-66.
[369]   Direct Testimony of Richard A. Baudino, at 66.

1   As to his position that my assessment is "one-sided", I disagree. As

2   shown in Rebuttal Exhibit DWD-25, and discussed in my response to Mr.

3   Chriss, my recommended range is consistent with the returns authorized in

4   more constructive jurisdictions such as North Carolina. That is, my

5   recommendation accounts for the Company's "constructive regulatory

6   framework".[370]

7   *J. North Carolina Economic Conditions*

8   **Q.   PLEASE PROVIDE A SUMMARY OF MR. BAUDINO'S REVIEW OF**

9   **YOUR NORTH CAROLINA ECONOMIC CONDITIONS.**

10   A.   Mr. Baudino observes the unemployment rate in North Carolina and the

11   Company's service territory slightly higher in July 2019 than the national

12   average, and the median income in North Carolina and in the Company's

13   service territory are lower than the national average. He concludes that the

14   Company's lower than average residential rates and the lower than average cost

15   of living in North Carolina do not justify the Company's requested ROE.[371]

16   **Q.   WHAT IS YOUR RESPONSE TO MR. BAUDINO?**

17   A.   First, Mr. Baudino acknowledges that the difference in the unemployment rate

18   between North Carolina and the U.S. overall narrowed since I filed my Direct

19   Testimony.[372] In fact, the unemployment rate in North Carolina has declined

---

[370]   Direct Testimony of Richard A. Baudino, at 19.
[371]   Direct Testimony of Richard A. Baudino, at 45-46.
[372]   Direct Testimony of Richard A. Baudino, at 46.

1	by 0.60 percentage points from July 2019 to December 2019, whereas the U.S.
2	unemployment rate has declined by 0.20 percentage points.[373] As Mr. Baudino
3	acknowledges, North Carolina's unemployment rate is "now roughly equal to
4	the national average."[374] As of March 2020, the seasonally adjusted.
5	unemployment rate was 4.40 percent for both the U.S. and North Carolina.[375]
6	Second, as noted in my Direct Testimony, since 2009, median household
7	income in North Carolina has grown at a slightly faster compound annual rate
8	(2.72 percent) than it has in the U.S. (2.68 percent compound annual rate).[376]
9	I recognize that economic conditions across the U.S. have deteriorated,
10	as businesses have shut down to mitigate the spread of COVID-19. While
11	North Carolina' GDP outpaced U.S. GDP in the fourth quarter of 2019,[377] we
12	won't know how North Carolina's economy fared in the first quarter of 2020
13	(reflecting the beginning of the COVID-19 pandemic) until early July. Those
14	points aside, the data available thus far indicate that the North Carolina
15	economy has been generally consistent with the U.S. economy. Consequently,
16	I continue to believe my recommended ROE is fair and reasonable in light of
17	North Carolina's current economic conditions.

---

[373]   Direct Testimony of Richard A. Baudino, at 46. Mr. Baudino notes the seasonally adjusted U.S. unemployment rate was 3.50 percent and the North Carolina unemployment rate was 3.60 percent.

[374]   Direct Testimony of Richard A. Baudino, at 47.

[375]   Source: Bureau of Labor Statistics: Table A-10, April 3, 2020; Local Area Unemployment Statistics, Unemployment Rates for States, April 17, 2020.

[376]   Direct Testimony of Dylan W. D'Ascendis, at 56.

[377]   https://www.bea.gov/news/2020/gross-domestic-product-state-4th-quarter-and-annual-2019

1   *K. Capital Structure*

2   **Q.   WHAT CAPITAL STRUCTURE DOES MR. BAUDINO RECOMMEND**

3   **IN THIS PROCEEDING?**

4   A.   Mr. Baudino recommends a capital structure including 51.50 percent common

5   equity and 48.50 percent long-term debt, consistent with his recommendation

6   for DE Carolinas.[378] In Mr. Baudino's view, the Company's proposed 53.00

7   percent equity ratio is high relative to the actual equity ratios in 2018 at the

8   consolidated parent company level among the proxy groups.[379]

9   **Q.   DO YOU AGREE WITH MR. BAUDINO'S CAPITAL STRUCTURE**

10 **RECOMMENDATION?**

11 A.   No, I do not. As discussed throughout my Rebuttal Testimony, the Company's

12   proposal is consistent with the capital structures in place at the proxy companies

13   and with those recently approved by the Commission. Further, any comparison

14   to the capital structures at the consolidated parent company level is

15   inappropriate and should be disregarded.

---

[378]   Direct Testimony of Richard A. Baudino, at 3, 40.
[379]   Direct Testimony of Richard A. Baudino, at 41-42.

1   **VII.**   <u>**RESPONSE TO CUCA WITNESS MR. O'DONNELL**</u>

2 **Q.**   **PLEASE PROVIDE A SUMMARY OF MR. O'DONNELL'S**

3   **TESTIMONY AND RECOMMENDATION.**

4 A.   Mr. O'Donnell recommends an ROE of 8.75 percent[380] based on his application

5   of the Constant Growth DCF method.[381] As to the Company's capital structure,

6   he recommends 50.00 percent common equity and 50.00 percent long-term

7   debt.[382] In performing his analyses, Mr. O'Donnell reviews data for his and my

8   proxy groups. Regarding his assumed growth rates, Mr. O'Donnell reviews a

9   variety of historical and prospective growth rates for each of his proxy

10   companies. His DCF-based recommendation, which ranges from 7.00 percent

11   to 10.00 percent, are based on his conclusion that a "proper" range of growth

12   rates is from 4.00 percent to 6.00 percent.[383]

13   In his Comparable Earnings approach, Mr. O'Donnell reviews the actual

14   and expected returns on equity for his and my proxy groups from 2017 to 2025,

15   and finds ranges of 9.50 percent to 10.30 percent to be reasonable for both his

16   and my proxy group.[384] He then concludes the proper range for his Comparable

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[380]   Direct Testimony of Kevin W. O'Donnell, CFA, at 6.
[381]   Direct Testimony of Kevin W. O'Donnell, CFA, at 102.
[382]   Direct Testimony of Kevin W. O'Donnell, CFA, at 6, 116.
[383]   Direct Testimony of Kevin W. O'Donnell, CFA, at 86, 87.
[384]   Direct Testimony of Kevin W. O'Donnell, CFA, at 99, Exhibit KWO-3, Exhibit KWO-8. I
    note the range of results for his proxy group presented in Exhibit KWO-3 show a range of
    9.90 percent to 10.60 percent.

1   Earnings approach is 9.25 percent to 10.25 percent, based on the trend of recent

2   authorized ROEs and the forecasted earned returns of his proxy group.[385]

3   In developing his CAPM analyses, Mr. O'Donnell uses the current 30-

4   year Treasury bond, together with Value Line Beta coefficients and MRP

5   estimates of 4.00 percent and 6.00 percent, producing ROE estimates ranging

6   from 3.17 percent to 6.74 percent for his proxy group and 3.15 percent to 6.69

7   percent for my proxy group.[386]

8 Q.   **WHAT ARE THE PRINCIPAL AREAS IN WHICH YOU DISAGREE**

9   **WITH MR. O'DONNELL'S ROE ANALYSES, METHODOLOGIES,**

10   **AND CONCLUSIONS?**

11 A.   My principal areas of disagreement include: (1) the interpretation of current

12   capital market conditions; (2) the inclusion of Duke Energy Corporation in Mr.

13   O'Donnell's proxy group; (3) certain aspects of Mr. O'Donnell's Constant

14   Growth DCF analyses, particularly the growth rate component; (4) the

15   application of the Comparable Earnings approach; (5) the application of the

16   CAPM; (6) Mr. O'Donnell's criticisms of my Bond Yield Plus Risk Premium

17   approach; (7) Mr. O'Donnell's concerns regarding the weight given certain

18   model results; (8) Mr. O'Donnell's review of select orders from other regulatory

19   commissions; and (9) his proposed capital structure consisting of 50.00 percent

20   common equity and 50.00 percent long-term debt.

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[385]   Direct Testimony of Kevin W. O'Donnell, CFA, at 101.
[386]   Direct Testimony of Kevin W. O'Donnell, CFA, at 97, and Exhibit KWO-5, Exhibit KWO-10.

1 **Q. AT PAGE 64 OF HIS TESTIMONY, MR. O'DONNELL ASSERTS THAT**

2 **THE NATURE OF REGULATION DOES NOT POSE ANY RISK TO A**

3 **UTILITY. DO YOU AGREE WITH HIS POSITION?**

4 A. No, I do not. Although I agree the nature of regulation may provide a "risk-

5 reducing component"[387] relative to non-regulated businesses, I disagree with

6 Mr. O'Donnell's position that the nature of regulation poses no risk at all (*i.e.*,

7 that regulatory risk is non-existent). If that were the case, there would be no

8 need for credit rating agencies to consider the regulatory environment in their

9 rating assessments. To that point, the fact that utilities disclose regulatory risks

10 in their SEC Form 10-Ks demonstrates such risks are present.

11 As Mr. O'Donnell acknowledges, the regulatory compact provides that

12 a utility should be afforded a reasonable opportunity to recover its return of,

13 and return on, its prudently incurred investments.[388] It does not guarantee that

14 return. Statutes and commission precedents change.[389] As noted earlier in my

15 Rebuttal Testimony and Appendix A, the risk of adverse regulatory outcomes

16 is valid, and the financial community carefully monitors the regulatory

17 environment. Consequently, Mr. O'Donnell's position that regulation does not

18 pose any risk is misplaced.

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[387] Direct Testimony of Kevin W. O'Donnell, CFA, at 64.
[388] Direct Testimony of Kevin W. O'Donnell, CFA, at 64.
[389] For example, South Carolina recently repealed legislation that supported the construction and cost recovery of new nuclear generating plants. After the repeal, the regulatory environment in South Carolina deteriorated from the top third of regulatory environments to the bottom third, as evaluated by Regulatory Research Associates.

1   Lastly, as discussed in Section III, the correlation in returns between the

2   utility sector and the overall market increased significantly during March and

3   April, to approximately 95.00 percent. As a result, Beta coefficients also

4   significantly increased. That data clearly demonstrates utilities are not immune

5   to market dislocations, despite the nature of regulation.

6   *A. Capital Market Conditions*

7 **Q.   WHAT IS YOUR RESPONSE TO MR. O'DONNELL AS IT RELATES**

8 **   TO RECENT CAPITAL MARKET CONDITIONS?**

9 A.   Mr. O'Donnell's focus on the decrease in interest rates and his conclusion it

10   implies a lower cost of capital[390] is misplaced. As described in Section III, the

11   recent decline in interest rates is driven by investors seeking the safety of

12   Treasury yields. Increases in the VIX, utility dividend yields, and credit spreads

13   indicate an increasing, not decreasing, cost of capital. As also explained in

14   Section III, utilities have not been immune to the recent market instability. The

15   same holds for Mr. O'Donnell's proxy group, which lost about 22.50 percent

16   of its value between February 12 and April 1, 2020.[391]

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[390]   Direct Testimony of Kevin W. O'Donnell, CFA, at 68.
[391]   Source: S&P Global Market Intelligence. Calculated as an index.

1 **Q. WHAT ARE YOUR OBSERVATIONS RELATED TO MR.**

2 **O'DONNELL'S REVIEW OF AUTHORIZED RETURNS?[392]**

3 A. It is difficult to draw any conclusions regarding trends in authorized returns

4 based on so few observations and on a simple review of annual averages.

5 However, as shown in Chart 21, below, if all authorized ROEs are charted

6 (rather than the simple average), there has been no meaningful trend since 2015;

7 time explains no more than 0.04 percent of the change in ROEs, and the trend

8 is statistically insignificant.

9 **Chart 21: Electric Authorized Returns (2015-2020)[393]**
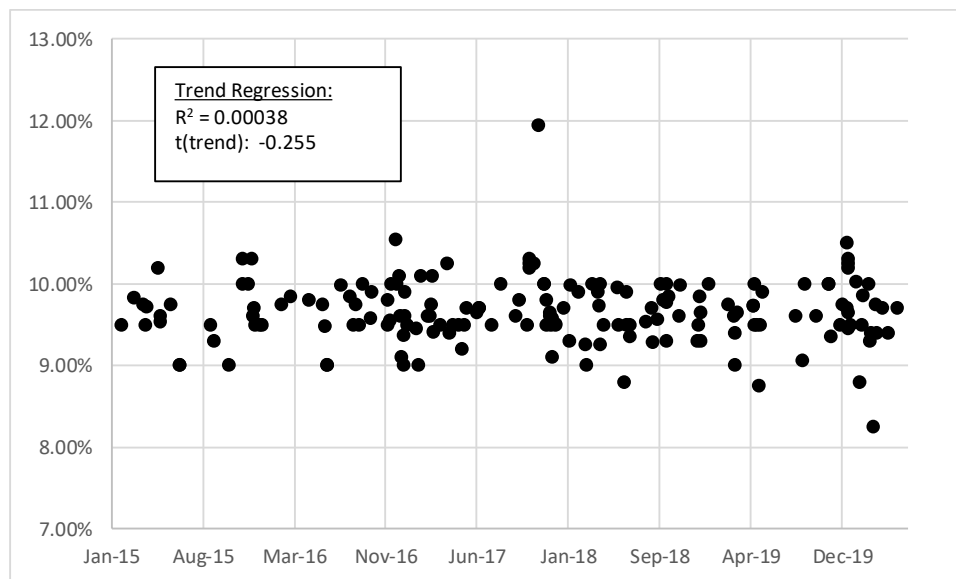
10 Mr. O'Donnell's assumption of a downward trend in authorized returns is

11 demonstrably incorrect.

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[392] Direct Testimony of Kevin W. O'Donnell, CFA, at 71-72.
[393] Source: Regulatory Research Associates. Excludes Illinois formula rate plans.

1 **Q.   DO YOU HAVE ANY OBSERVATIONS REGARDING THE 8.75**

2 **PERCENT ROE AUTHORIZED TO OTTER TAIL POWER MR.**

3 **O'DONNELL REFERS TO ON PAGE 61 OF HIS DIRECT**

4 **TESTIMONY?**

5 A   Yes, the lowest authorized ROE for a vertically integrated electric utility (8.75

6   percent) was authorized for Otter Tail Power by the South Dakota Public

7   Utilities Commission ("SDPUC") on May 30, 2019.[394] In considering the effect

8   of that order, there are several points to keep in mind. First, South Dakota

9   represents 10.00 percent of Otter Tail Corporation's ("OTTR") retail electric

10   revenues.[395] From May 6 to May 31, 2019, OTTR lost about 5.20 percent of its

11   market value, even though the Dow Jones Utility Average gained about 1.00

12   percent.[396] I recognize that is a limited observation, but it still appears OTTR

13   meaningfully underperformed the utility sector around the time the SDPUC

14   issued its order. My view that the SDPUC's order was anomalously low

15   relative to returns authorized in other jurisdictions seems to be consistent with

16   OTTR's price behavior.

17   In the case of Otter Tail Power, it appears the market reacted adversely

18   to an unfavorable regulatory decision, even though the operations affected by

19   that decision represented only a small portion of the company's consolidated

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[394] Public Utilities Commission of the State of South Dakota, In the Matter of the Application of
       Otter Tail Power Company Fore Authority to Increase its Electric Rates, Final Decision and
       Order; Notice of Entry, Docket No. EL18-021, May 30, 2019.
[395] Otter Tail Corporation, SEC Form 10-K for the fiscal year ended December 31, 2019, at 5.
[396] Source: Yahoo! Finance.

1   operations. As noted earlier, and discussed in more detail in Appendix A, the

2   case of CenterPoint Energy is very clear, with its substantially underperforming

3   stock price and credit rating downgrade.

4   Because utilities such as DE Progress invest in long-lived assets, the

5   stability, predictability, and supportiveness of the regulatory environment is a

6   key concern to investors. That concern is especially acute during periods of

7   heightened market instability when utility stocks, like all stocks, are susceptible

8   to market risk. If the Commission were to adopt Mr. O'Donnell's

9   recommendation, the financial community's reaction would be adverse.

10   Whether manifested in negative credit actions, or simply a perception on the

11   part of investors and analysts that the regulatory environment has deteriorated,

12   an adverse reaction would impede the Company's ability to raise capital at

13   reasonable costs, to the detriment of customers.

14   To summarize, we have seen the financial community react negatively

15   to adverse regulatory decisions. A consequence of those reactions is a

16   diminished ability to compete for capital, and an increase in the cost of capital,

17   to the detriment of customers. If Mr. O'Donnell's ROE recommendation, which

18   is far removed from the returns available to other utilities, were adopted, the

19   eventual result would be an increase in the Company's cost of capital.

1 *B. Proxy Group Selection*

2 **Q. PLEASE DESCRIBE THE SCREENING CRITERIA BY WHICH MR.**

3 **O'DONNELL DEVELOPED HIS PROXY GROUP.**

4 A. Mr. O'Donnell relied on six screening criteria to develop his proxy group of 29

5 companies:

6 1. Followed by *Value Line Investment Survey* as an electric utility;

7 2. Derived at least 50.00 percent of 2018 revenues from regulated

8 operations;

9 3. Has an investment-grade corporate credit and bond rating;

10 4. Is not in the midst of merger or acquisition discussions;

11 5. Have at least five years of historical data; and

12 6. Must have paid a dividend each quarter in the past year.[397]

13 **Q. DO YOU AGREE WITH MR. O'DONNELL'S SCREENING**

14 **CRITERIA?**

15 A. Not entirely. As discussed in my response to Dr. Woolridge, I disagree with

16 the use of revenue, rather than income as a screening criterion.

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[397]   Direct Testimony of Kevin W. O'Donnell, CFA, at 72.

1 **Q.** **DO YOU AGREE WITH MR. O'DONNELL'S INCLUSION OF DUKE**

2 **ENERGY CORPORATION, DE PROGRESS' PARENT, IN HIS PROXY**

3 **GROUP?**

4 A. No, I do not. As noted earlier in my response to Dr. Woolridge, including parent

5 companies creates circular logic.[398]

6 *C. Constant Growth Discounted Cash Flow Model*

7 **Q.** **DO YOU AGREE WITH MR. O'DONNELL'S PRIMARY RELIANCE**

8 **ON A SINGLE MODEL (*I.E.,* THE CONSTANT GROWTH DCF**

9 **MODEL) IN DEVELOPING HIS RECOMMENDED ROE?**

10 A. No, I do not. As explained in my response to Dr. Woolridge, the relevant issue

11 is whether investors use multiple methods in evaluating investment

12 opportunities and making investment decisions. Nowhere has Mr. O'Donnell

13 demonstrated investors are inclined to disregard other methods in favor of the

14 Constant Growth DCF model. As noted earlier, no one model is more reliable

15 than all others at all times and under all conditions, including the DCF method.

16 As to its use among investors, there is academic support for the use of multiple

17 methods in estimating the Cost of Equity.

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[398] Direct Testimony of Dylan W. D'Ascendis, at 23.

1 Q.   **AT PAGES 68 TO 70 OF HIS DIRECT TESTIMONY, MR. O'DONNELL**

2   **SPEAKS TO CHANGES IN INTEREST RATES, AND THE INCREASE**

3   **IN THE DOW JONES UTILITY AVERAGE. HOW DOES THAT**

4   **DISCUSSION RELATE TO THE DCF METHOD AND MR.**

5   **O'DONNELL'S DECISION TO GIVE THAT APPROACH PRIMARY**

6   **WEIGHT?**

7 A.   It does so in several ways. First, Mr. O'Donnell asserts I "fail to acknowledge"

8   the "mathematical certainty" that changes in equity prices result in changes in

9   the Cost of Equity.[399] His argument is simplistic and misplaced. First, as Mr.

10   O'Donnell surely understands, the Cost of Equity is not observable – it is not

11   capable of precise "mathematical" quantification as are yields on debt

12   securities. As Graham and Dodd long ago recognized, the investor sentiments

13   that underlie market prices cannot be captured by a single analytical approach.

14   Mr. O'Donnell's notion that the relationship between equity prices and the Cost

15   of Equity are "a mathematical certainty" is inconsistent with years of financial

16   research and practice.

17   Second, Mr. O'Donnell seems to suggest the relationship between

18   utility stock valuations and interest rates is direct and unconstrained, arguing

19   "investors are paying more and more for a given level of income."[400] Even that

20   "reach for yield", however, has a limit; investors will not accept the incremental

---

[399]   Direct Testimony of Kevin W. O'Donnell, CFA, at 56.
[400]   Direct Testimony of Kevin W. O'Donnell, CFA, at 56.

1   risk of capital losses when valuation multiples continually expand. That is,

2   valuations do not strictly follow interest rates. The incremental risk of capital

3   losses as valuations expand may be seen in the DCF model, and its derivative

4   measure of "equity duration".

5 Q. **PLEASE EXPLAIN THE CONCEPT OF "EQUITY DURATION", AND**

6   **HOW IT MAY BE APPLIED IN THIS CIRCUMSTANCE.**

7 A. In general, "duration" measures the security's price sensitivity to changes in the

8   underlying discount rate. For bonds, duration measures the percent change in

9   price relative to the percent change in the yield to maturity.[401]   The same

10   concept may be applied to equity investments, where equity duration measures

11   the sensitivity of equity prices to changes in the Cost of Equity. In each case

12   (that is, for both stocks and bonds), duration represents the weighted average

13   time (in years) over which cash flows are received. Because it measures the

14   sensitivity of prices to changes in yields, duration is an important measure of

15   risk to investors.

16 Q. **PLEASE   GENERALLY   DESCRIBE   HOW   DURATION   IS**

17   **CALCULATED.**

18 A. Consistent with the Constant Growth DCF model, equity duration recognizes

19   that equity cash flows (dividends) continue in perpetuity. Based on the

20   Constant Growth DCF model's structure, duration may be defined as $d =$

---

[401]   https://www.investopedia.com/terms/d/duration.asp

1    $\dfrac{1}{k - g}$ [7],   where d is duration, k is the Cost of Equity, and g is the assumed

2   growth rate.[402] Because the DCF model assumes the Cost of Equity is the sum

3   of the dividend yield and the growth rate, the denominator equals the assumed

4   dividend yield. Modified duration (d_m), sometimes considered a more precise

5   measure, adjusts Equation [7] by the discount rate:

6    $$d_m = \dfrac{d}{1 + k} \quad [8]$$

7   The percent change in stock prices (P) brought about by a change in the Cost of

8   Equity is calculated as:

9    $$\dfrac{\Delta P}{P} = -d_m \text{ x } \Delta k \quad [9]$$

10   Two points bear particular attention. First, lower-yielding stocks will

11   tend to have higher durations and, therefore, are more sensitive to changes in

12   the Cost of Equity. The second, and related, point is that as the dividend yield

13   decreases, duration, and duration-related risk, increases at an increasing rate

14   (*see,* Chart 22, below).

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[402]   James L. Farrell, Jr., *The Dividend Discount Model: A Primer*, <u>Financial Analysts Journal</u>, November/December 1985, at 23.

1 **Chart 22: Duration and Dividend Yields**
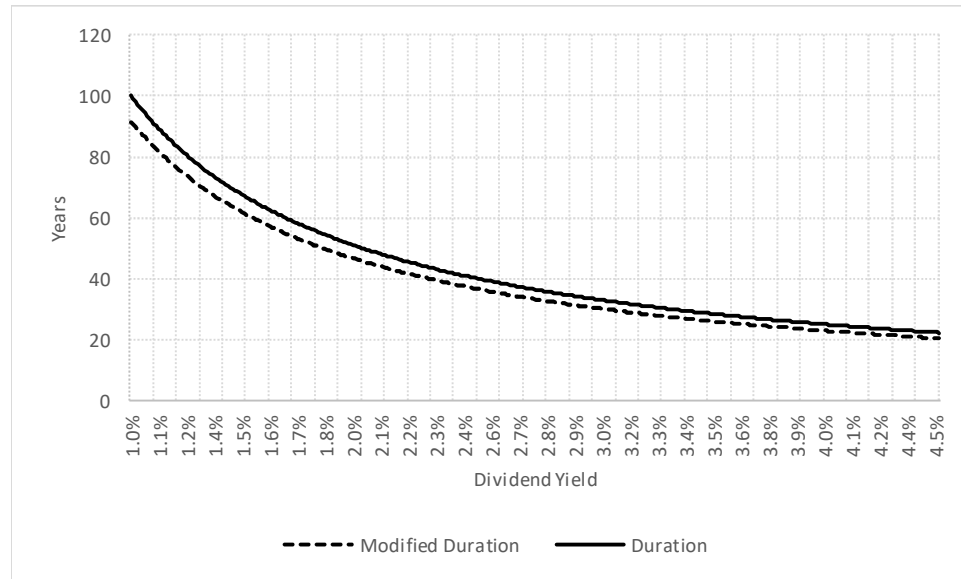
2   In this case, Mr. O'Donnell reports a current dividend yield of 3.50

3   percent for his proxy group,[403] indicating an equity duration of about 28.57

4   years.[404]   Based on his 8.75 percent ROE recommendation, the modified

5   duration is about 26.27 years.[405] There is no reason to assume investors would

6   continuously follow interest rates down, continuously taking on increasing

7   levels of duration risk. As discussed in Section III, that is what we recently

8   have seen – utility dividend yields increased as interest rates decreased.

9 **Q.**   **WHAT CONCLUSIONS DO YOU DRAW FROM THOSE ANALYSES?**

10 A.   Mr. O'Donnell's assessments and recommendations do not consider the risks

11   implied by them. Even if we assume investors rely principally on the DCF

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[403]   Exhibit KWO-1.

[404] $\dfrac{1}{.035} = 28.57$

[405] $\dfrac{28.57}{1.0875} = 26.27$

1   method, and market prices always equal the estimate of intrinsic value produced

2   by that method, we should not lose sight of the risk implied by extended equity

3   durations. That being the case, we should be very cautious about accepting Mr.

4   O'Donnell's position that the relationship between prices and the Cost of Equity

5   is purely mathematical, or that yield-seeking behavior is a simple matter.

6   Neither is the case in practice.

7 **Q. HAS THE COMMISSION RECOGNIZED THE VALUE OF APPLYING**

8   **MULTIPLE METHODS TO DETERMINING THE COST OF EQUITY?**

9 A.   Yes. In its prior Orders, the Commission has thoroughly considered the

10   evidence presented by each ROE witness reflecting a variety of approaches,

11   including the methods I present in this proceeding.

12 **Q. WHAT ARE YOUR GENERAL CONCLUSIONS REGARDING MR.**

13   **O'DONNELL'S   PRINCIPAL   RELIANCE   ON   HIS   CONSTANT**

14   **GROWTH DCF MODEL RESULTS?**

15 A.   Given the extreme volatility underlying the current capital markets, relying on

16   a single method creates unnecessary modeling risk, and departs from investor

17   practice. Because all models are subject to limiting assumptions, it is important

18   to recognize that no model is appropriate under all market conditions. Mr.

19   O'Donnell acknowledges his DCF results fall well below the returns authorized

20   by other regulatory commissions.[406] That finding should raise concerns

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[406]   Direct Testimony of Kevin W. O'Donnell, at 102.

1   regarding the weight he gives that model. That is especially true since, as noted

2   earlier, other commissions have not been inclined to give sole weight to a single

3   method, including the DCF model.

4 **Q.   WHAT GROWTH RATES DID MR. O'DONNELL CONSIDER IN HIS**

5   **CONSTANT GROWTH DCF ANALYSIS?**

6 A.   Mr. O'Donnell reviews a variety of growth rates, including: (1) the historical

7   and projected "plowback ratio" (also referred to as "sustainable growth" rates

8   or "Retention Growth" rates) as reported by Value Line; (2) the historical ten-

9   year and five-year compound annual growth rates in EPS, BVPS, and DPS as

10   reported by Value Line; (3) the Value Line projected EPS, BVPS, and DPS

11   growth rates; and (4) consensus projected EPS growth rates, as reported by

12   CFRA and Charles Schwab & Co.[407]

13 **Q.   DO YOU AGREE WITH MR. O'DONNELL THAT HISTORICAL**

14   **GROWTH RATES ARE APPROPRIATE MEASURES OF EXPECTED**

15   **GROWTH FOR THE CONSTANT GROWTH DCF MODEL?**

16 A.   No. For the reasons discussed in my response to Dr. Woolridge and Mr.

17   Baudino, I do not believe historical growth rates are appropriate for the

18   Constant Growth DCF model.

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[407]   Direct Testimony of Kevin W. O'Donnell, CFA, at 82-85; Exhibit KWO-1, Exhibit KWO-2,
        Exhibit KWO-6; Exhibit KWO-7.

1   **Q.   WHY DO YOU DISAGREE WITH MR. O'DONNELL'S POSITION**

2   **THAT DIVIDEND OR BOOK VALUE GROWTH RATES ARE**

3   **APPROPRIATE INPUTS TO THE CONSTANT GROWTH DCF**

4   **MODEL?**

5   A.   As explained earlier in my response to Dr. Woolridge, earnings growth enables

6   both dividend and book value growth. Under the strict assumptions of the

7   Constant Growth DCF model, earnings, dividends, book value, and stock prices

8   all grow at the same, constant rate.[408]

9   In addition, Value Line is the only service relied on by Mr. O'Donnell

10   that provides either DPS or BVPS growth projections. The fact that services

11   such as Zacks and First Call provide earnings, but not dividend or book value

12   growth estimates indicates that they see little investor demand for such data.

13   As Dr. Roger Morin notes:

14   Casual inspection of the Zacks Investment Research, First Call
15   Thompson, and Multex Web sites reveals that earnings per share
16   forecasts dominate the information provided. There are few, if
17   any, dividend growth forecasts. Only Value Line provides
18   comprehensive long-term dividend growth forecasts. The wide
19   availability of earnings forecast is not surprising. There is an
20   abundance of evidence attesting to the importance of earnings in
21   assessing investors' expectations. The sheer volume of earnings
22   forecasts available from the investment community relative to
23   the scarcity of dividend forecasts attests to their importance. The
24   fact that these investment information providers focus on growth
25   in earnings rather than growth in dividend indicates that the

---

[408]   Direct Testimony of Dylan W. D'Ascendis, at 77. *See also*, Rebuttal Exhibit DWD-10.

1   investment community regards earnings growth as a superior
2   indicator of future long term growth.[409]

3   Moreover, Value Line estimates are available only via a subscription

4   service and are attributable to a single analyst. Services such as Zacks and First

5   Call, on the other hand, provide consensus growth estimates of multiple

6   analysts and, as such, are less likely to be skewed in one direction or another by

7   an individual analyst.

8 Q. **DO YOU AGREE WITH MR. O'DONNELL'S POSITION THAT**

9   **ANALYSTS'   EARNINGS   GROWTH   FORECASTS   ARE**

10   **"UNREALISTICALLY HIGH"[410] AND INACCURATE[411]?**

11 A. No, I do not. Mr. O'Donnell cites several studies to support his position

12   regarding the "accuracy" of analysts' earnings forecasts.[412] His position,

13   however, is based on observations of the broad market; Mr. O'Donnell has

14   provided no evidence that any of the growth rates used in my DCF analyses are

15   the result of a consistent and pervasive bias on the part of the analysts providing

16   those projections. More importantly, the salient issue is the growth that

17   investors *expect*, not what actually happens.

18   Further, and as discussed in my response to Dr. Woolridge, regulations

19   implemented in 2003 insulated financial institutions' investment banking

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[409]   Roger A. Morin, PhD, New Regulatory Finance, (Public Utilities Reports, Inc., 2006), at 302-303.
[410]   Direct Testimony of Kevin W. O'Donnell, CFA, at 89.
[411]   Direct Testimony of Kevin W. O'Donnell, CFA, at 89.
[412]   Direct Testimony of Kevin W. O'Donnell, CFA, at 87-89.

1   functions from its analysis functions. In reviewing the Letters of Acceptance,

2   Waiver and Consent signed by financial institutions that were party to the

3   Global Settlement, I found no reference to misconduct by analysts following

4   the utility sector.

5 **Q.   IS THE USE OF ANALYSTS' EARNINGS GROWTH PROJECTIONS**

6 **IN THE DCF MODEL SUPPORTED BY FINANCIAL LITERATURE?**

7 A.   Yes, it is. As noted in my Direct Testimony[413] and discussed in my response to

8   Dr. Woolridge, peer-reviewed, published articles support the use of analysts'

9   earnings growth projections in the DCF model. Again, earnings growth, not

10   dividend growth, is the appropriate estimate in the Constant Growth DCF

11   model. As discussed in my response to Dr. Woolridge, and shown in Rebuttal

12   Exhibit DWD-11, the only growth rate that is statistically significant and

13   positively related to the P/E ratio is projected Earnings Per Share. Because EPS

14   growth is the only growth rate that is both statistically and positively related to

15   utility valuation, earnings growth is the proper measure of growth in the

16   Constant Growth DCF Model.

17 **Q.   PLEASE SUMMARIZE YOUR CONCERNS WITH MR. O'DONNELL'S**

18   **USE OF THE RETENTION GROWTH MODEL.**

19 A.   I have several concerns with Mr. O'Donnell's use of the Retention Growth

20   model. First, as discussed below, the model's underlying premise is that future

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[413]   Direct Testimony of Dylan W. D'Ascendis, at 81-82.

1   earnings will increase as the retention ratio increases. That is, if future growth

2   is modeled as "B x R" (where B is the retention ratio, and R is the earned return

3   on book equity), growth will increase as B increases. There are several reasons,

4   however, why that may not be the case. Management decisions to conserve

5   cash for capital investments, to manage the dividend payout to minimize future

6   dividend reductions, or to signal future earnings prospects can and do influence

7   dividend payout (and therefore earnings retention) decisions in the near-term.

8   Consequently, it is appropriate to determine whether the data relied on by Mr.

9   O'Donnell supports the assumption that higher earnings retention ratios

10   necessarily are associated with higher future earnings growth rates.

11 **Q. DID YOU PERFORM ANY ANALYSES TO TEST THE RELATIONSHIP**

12   **BETWEEN RETENTION RATIOS AND FUTURE GROWTH RATES?**

13 A.   Yes, I did. Using EPS and DPS data from Value Line (the source of the data

14   Mr. O'Donnell used to calculate his earnings Retention Growth estimate), I

15   calculated the historical dividend payout ratio, retention ratio, and subsequent

16   five-year average earnings growth rate for each of his proxy companies with a

17   consistent history of dividend payments. I then performed a regression analysis

18   in which the dependent variable was the five-year earnings growth rate, and the

19   explanatory variable was the earnings retention ratio. The purpose of that

20   analysis was to determine whether Mr. O'Donnell's data empirically supports

21   the assumption that higher retention ratios necessarily produce higher earnings

22   growth rates.

1 **Q.   WHAT DID THAT ANALYSIS REVEAL?**

2 A.   As shown in Table 11 below (*see also* Rebuttal Exhibit DWD-21), there was a

3   statistically significant negative relationship between the five-year average

4   earnings growth rate and the earnings retention ratio. That is, based on Mr.

5   O'Donnell's own data source, earnings growth actually *decreased* as the

6   retention ratio increased.   Those findings clearly call into question Mr.

7   O'Donnell's reliance on his "Retention Growth" estimate.

8   **Table 11: Regression Results - Retention Ratio / Earnings Growth[414]**

	Coefficient	Standard Error	t-Statistic
Intercept	0.108	0.012	9.201
Retention Ratio	-0.166	0.023	-7.150

9 **Q.   ARE YOU AWARE OF INDEPENDENT RESEARCH THAT SUPPORTS**

10   **YOUR FINDINGS?**

11 A.   Yes, I am. In 2006, for example, two articles in <u>Financial Analysts Journal</u>

12   addressed the theory that high dividend payouts (*i.e.*, low retention ratios) are

13   associated with low future earnings growth.[415] Both articles cite a 2003 study

14   by Arnott and Asness,[416] who found that over the course of 130 years of data,

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414   Rebuttal Exhibit DWD-21.
415   *See*, Ping Zhou, William Ruland, *Dividend Payout and Future Earnings Growth,* <u>Financial Analysts Journal</u>, Vol. 62, No. 3, 2006. *See also,* Owain ap Gwilym, James Seaton, Karina Suddason, Stephen Thomas, *International Evidence on the Payout Ratio, Earnings, Dividends and Returns,* <u>Financial Analysts Journal</u>, Vol. 62, No. 7, 2006.
416   *See,* Robert Arnott, Clifford Asness, *Surprise: Higher Dividends = Higher Earnings Growth*, <u>Financial Analysts Journal</u>, Vol. 59, No. 1, January/February 2003.

1   future earnings growth is associated with high, rather than low, payout ratios.[417]

2   In essence, the findings of all three studies are consistent with my findings

3   regarding the relationship between retention ratios and future earnings growth

4   for Mr. O'Donnell's proxy companies: there is a negative, not a positive

5   relationship between the two. In light of those articles, it appears my findings

6   are reasonable. Given the strong statistical results of my analyses, and the

7   corroborating research discussed above, I continue to believe Mr. O'Donnell's

8   substantial reliance on the "B x R" approach is inappropriate.

9   **Q.   ARE VALUE LINE'S PROJECTIONS FOR THE PROXY COMPANIES'**

10 **GROWTH IN EARNINGS PER SHARE CONSISTENT WITH THE**

11 **RETENTION GROWTH ESTIMATE?**

12 A.   No, they are not. As shown in Rebuttal Exhibit DWD-22, I calculated the

13 Retention Growth rate using Value Line's projected financial metrics for each

14 company in our combined proxy group for the year 2019, and their respective

15 three- to five-year projections. I then compared those estimates to Value Line's

16 expected earnings growth for each company. As shown in Rebuttal Exhibit

17 DWD-22, Value Line frequently expects actual earnings growth to exceed the

18 growth rate indicated by the Retention Growth formula.[418] Consequently, the

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[417]   Because the payout ratio is the inverse of the retention ratio, the authors found that future
earnings growth is negatively related to the retention ratio.

[418]   To be conservative, I calculated the Retention Growth rate using the "BR + SV" approach
described below; however, if I had used the "BxR" approach Mr. O'Donnell uses, there would
have been more observations in which the Retention Growth rate underestimated the expected
earnings growth rate. *See,* Rebuttal Exhibit DWD-22.

1   assumption that the Retention Growth estimate accurately reflects future

2   growth may be too limiting.

3 **Q.**   **ASIDE FROM THOSE CONCERNS, DO YOU AGREE WITH MR.**

4   **O'DONNELL'S SPECIFICATION OF THE RETENTION GROWTH**

5   **RATE?**

6 A.   No, I do not. As discussed in my response to Dr. Woolridge, if Mr. O'Donnell

7   is going to consider a form of Retention Growth, he should use the "BR + SV"

8   form of the model, which reflects growth both from internally generated funds

9   (*i.e.*, the "BR" term) and from issuances of equity (*i.e.*, the "SV" term).

10 **Q.**   **WHAT IS YOUR RESPONSE TO MR. O'DONNELL'S USE OF**

11   **NEGATIVE GROWTH RATES IN HIS DCF ANALYSIS?[419]**

12 A.   Consideration of negative growth rates as Mr. O'Donnell has applied them is

13   intuitively incorrect.[420] No rational investor would invest in an individual stock

14   that is expected to decrease its earnings in perpetuity. Recall that under the

15   Constant Growth DCF model's assumptions, the assumed growth rate equals

16   the assumed rate of capital appreciation. By including negative growth rates,

17   Mr. O'Donnell assumes investors knowingly and willingly would invest in a

18   company that they expect to lose value every year, in perpetuity.

---

[419]   Mr. O'Donnell includes negative growth rates in his review of historical EPS, BVPS, and DPS growth. *See*, Exhibit KWO-1.

[420]   Applying negative growth rates to establish the expected market return is a different matter. There, investors understand that over time, the market will include companies that grow quickly, and others that recede.

1 **Q.   WHAT   ARE   YOUR   CONCLUSIONS   REGARDING   THE**

2 **APPROPRIATE GROWTH RATE FOR THE CONSTANT GROWTH**

3 **DCF MODEL?**

4 A.   Based on the analyses and research noted above, I conclude projected EPS

5 growth rates represent the appropriate measure of growth in the Constant

6 Growth DCF model.

7 *D. Comparable Earnings Method*

8 **Q.   HOW DID MR. O'DONNELL DERIVE HIS 9.25 PERCENT TO 10.25**

9 **PERCENT ROE RANGE BASED ON THE COMPARABLE EARNINGS**

10 **METHOD?**

11 A.   As Mr. O'Donnell states at page 101 of his direct testimony, the low end of his

12 comparable earnings method range of results (*i.e.*, 9.25 percent) recognizes "the

13 unmistakable downward trend of the average ROE allowed by state regulators

14 for electric utilities dating back to 2005" and the high end (*i.e.*, 10.25 percent)

15 "recognizes high forecasted earned returns on equity for the O'Donnell and

16 [D'Ascendis] comparable groups".

1   **Q.   BEFORE DISCUSSING YOUR CONCERNS WITH MR. O'DONNELL'S**

2   **COMPARABLE EARNINGS METHOD, PLEASE COMMENT ON MR.**

3   **O'DONNELL'S DETERMINATION OF THE LOW-END OF HIS**

4   **RANGE BASED ON THAT APPROACH.**

5   A.   As shown in Exhibits KWO-3 and KWO-8, Mr. O'Donnell's Comparable

6   Earnings results range from 9.50 percent to 10.60 percent. The low end of his

7   Comparable Earnings-based range, therefore, is 25 basis points below the low

8   end of the range of his model results. As discussed earlier in my response to

9   Mr. O'Donnell, authorized ROEs have been in a relatively narrow range since

10   2015; time explains less than 0.04 percent of the variation in returns.[421] There

11   is no "unmistakable downward trend". Mr. O'Donnell's premise that recent

12   years reflect lower authorized returns and capital costs is incorrect. That point

13   aside, Mr. O'Donnell argues the average authorized ROE for all electric utilities

14   in 2019 was 9.65 percent,[422] 40 basis points above the 9.25 percent low end of

15   his Comparable Earnings range.

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[421]   *See* Chart 21 above.

[422]   Direct Testimony of Kevin W. O'Donnell, CFA, at 100. The average for vertically integrated
electric utilities in 2019 was 9.73 percent.

1 **Q.** **PLEASE DISCUSS YOUR CONCERNS REGARDING THE USE OF**

2 **HISTORICAL EARNED RATES OF RETURN IN THE COMPARABLE**

3 **EARNINGS ANALYSIS.**

4 A. Because the Cost of Equity is inherently forward-looking,[423] the only relevant

5 earnings figures provided on Exhibit KWO-3 and Exhibit KWO-8 are the 2019

6 and 2022-2025 expected returns. Notably, the proxy groups' average expected

7 return for 2019 and 2022-2025 range from 9.90 percent to 10.60 percent, 115

8 to 185 basis points above Mr. O'Donnell's estimate of the market required ROE,

9 and overlapping my recommended range. Again, that inconsistency calls into

10 question the relevance of Mr. O'Donnell's 8.75 percent ROE recommendation.

11 **Q.** **MR. O'DONNELL SUGGESTS THE COMPARABLE EARNINGS**

12 **ANALYSIS PRODUCES ESTIMATES HIGHER THAN INVESTORS**

13 **ARE EXPECTING IN TODAY'S MARKETPLACE.[424] IS THAT**

14 **SUGGESTION CORRECT?**

15 A. No, it is not. Mr. O'Donnell's position is that because market values exceed

16 book values, any analyses based on book value will overstate the market return

17 investors require. He appears to largely dismiss the Comparable Earnings

18 method on that basis, looking instead to a fifteen-year trend in authorized

19 ROEs.[425]

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[423] Direct Testimony of Dylan W. D'Ascendis, at 33.
[424] Direct Testimony of Kevin W. O'Donnell, CFA, at 98.
[425] Direct Testimony of Kevin W. O'Donnell, CFA, at 99-100.

1	I appreciate there is a difference between market and book value. That
2	does not mean, however, that book-based earnings are of no consequence to
3	investors. Rather, accounting-based performance measures are related to
4	market-based performance measures, such as market returns, and market to
5	book ratios. Lehn and Makhija document a positive correlation between ROE
6	and stock returns, significant at the 0.01 percent level.[426] In regressing market
7	to book on factors including the excess of ROE over Cost of Equity (the "equity
8	spread"), Varaiya, Kerin and Weeks find a positive and significant coefficient
9	on the equity spread.[427] Nichols and Wahlen document a significant positive
10	relationship between stock returns and earnings relative to assets measured at
11	book value.[428] Taken together, these results suggest that although many factors
12	may affect stock returns and market to book ratios, the accounting-based ROE
13	is one of them, and should not be ignored.[429]
14	Alongside those peer-reviewed empirical investigations is a parallel
15	body of literature based on the importance of managing ROE and other
16	accounting-based metrics. Arzac proposes a value-creation model for managers

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[426] Kenneth Lehn, Anil Makhija, *EVA, Accounting Profits, and CEO Turnover: An Empirical Examination, 1985-1994*, Journal of Applied Corporate Finance, Vol 10.2, Summer 1997, at 90.

[427] Nikhil Varaiya, Roger Kerin, David Weeks, *The Relationship Between Growth, Profitability, and Firm Value*, Strategic Management Journal, Vol. 8 No. 5, September-October 1987, at 487.

[428] D. Craig Nichols, James M. Wahlen, *How Do Earnings Numbers Relate to Stock Returns? A Review of Classic Accounting Research with Updated Evidence*, Accounting Horizons, Vol 18, No. 4, December 2004, at 272 – 274, 285.

[429] I am not suggesting the M/B ratio necessarily will equal 1.00 when the accounting-based ROE equals the Cost of Equity.

1		based on the equity spread.[430] As discussed in my response to Dr. Woolridge,
2		the Economic Value Added consulting practices and related value-based-
3		management systems encourage managers to focus on elements of return on net
4		assets and return on invested capital.
5		Lastly, I have not suggested using the Expected Earnings approach as
6		the sole measure of the appropriate ROE. Rather, I have used that method to
7		corroborate the DCF, CAPM, ECAPM, and Risk Premium methods.
8	Q.	**ARE THE RESULTS OF MR. O'DONNELL'S COMPARABLE**
9		**EARNINGS APPROACH SIMILAR TO THE RESULTS OF YOUR**
10		**EXPECTED EARNINGS ANALYSIS?**
11	A.	Yes, they are. Mr. O'Donnell's projected earned returns produce ROE estimates
12		of 10.00 percent and 10.60 percent for his proxy group, and 9.90 percent to
13		10.30 percent for my proxy group. Those results are within the range of results
14		in my updated Expected Earnings analysis (*see* Rebuttal Exhibit DWD-6) and
15		overlap with my recommended range and point estimate.
16		*E. Capital Asset Pricing Model*
17	Q.	**PLEASE SUMMARIZE MR. O'DONNELL'S CAPM ANALYSIS.**
18	A.	Mr. O'Donnell uses the range of the 30-year Treasury yield over the last year,
19		Value Line Beta coefficients, and MRPs of 4.00 percent and 6.00 percent based
20		on historical and investment professionals' forecasts to derive CAPM estimates

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[430] *See*, Enrique R. Arzac, *Do Your Business Units Create Shareholder Value?*, <u>Harvard Business Review</u>, January – February 1986, at 122.

1   of 3.17 percent to 6.74 percent for his proxy group and 3.15 percent to 6.69

2   percent for my proxy group.[431] In Mr. O'Donnell's view, the Constant Growth

3   "DCF model is superior to other approaches"[432] because the DCF incorporates

4   "daily and ongoing market prices."[433]

5 **Q.   DO YOU AGREE WITH MR. O'DONNELL'S ASSESSMENT OF THE**

6   **CAPM AND OTHER METHODS?**

7 A.   No, I do not.   First, Mr. O'Donnell has provided no evidence that the DCF

8   model is "superior" to other methods, or that investors prefer the DCF approach.

9   The relevant issue is whether investors use multiple methods, including risk

10   premium-based approaches, in evaluating investment opportunities and making

11   investment decisions.   Nowhere has Mr. O'Donnell demonstrated investors

12   would disregard those methods in favor of the Constant Growth DCF approach.

13   As discussed in my response to Dr. Woolridge, an article published in Financial

14   Analysts Journal surveyed financial analysts to determine the analytical

15   techniques that are used in practice, and this included the CAPM.[434]   That

16   survey clearly indicated that the CAPM is used by practitioners. Similarly, a

17   2001 article by Professors Graham and Harvey demonstrated that industry

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[431]   Direct Testimony of Kevin W. O'Donnell, CFA, at 97. Mr. O'Donnell concludes that the "proper" ROE range based on his CAPM results is 5.00 percent to 7.00 percent.
[432]   Direct Testimony of Kevin W. O'Donnell, CFA, at 77.
[433]   Direct Testimony of Kevin W. O'Donnell, CFA, at 77.
[434]   *See*, Stanley B. Block, *A Study of Financial Analysts: Practice and Theory*, Financial Analysts Journal, July/August, 1999.

1		practitioners are far more likely to use the CAPM than the DCF model.[435] As
2		such, I strongly disagree with Mr. O'Donnell's assertion that the DCF approach
3		is "superior" to other approaches such as the CAPM.
4	**Q.**	**ARE THERE OTHER REASONS YOU BELIEVE THE CAPM IS**
5		**APPLICABLE IN THE CONTEXT OF SETTING THE ROE IN**
6		**REGULATORY PROCEEDINGS?**
7	A.	Yes. As discussed in my Direct Testimony at page 19, the Commission applies
8		the standards established under *Hope* and *Bluefield,* which includes the
9		"comparability" standard. Although I am not an attorney, I understand that
10		standard to recognize the authorized ROE should reflect the return investors
11		require in light of the subject company's risks, and the returns available to
12		investments of comparable risk. My Direct Testimony also noted that under the
13		CAPM, the Beta coefficient reflects "systematic" risk, or the portion of market
14		risk that cannot be diversified away.[436] That is, the Beta coefficient is a measure
15		of relative risk. Because Beta coefficients provide a direct measure of relative
16		risk, they address the "comparable risk" standard in a way that DCF-based
17		methods do not. Putting aside the finding that the CAPM is regularly used in
18		practice, its ability to address the "comparable risk" standard fully supports its
19		use in regulatory proceedings.

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[435] *See*, John R. Graham, Campbell R. Harvey, *The Theory and Practice of Corporate Finance: Evidence from the Field*, Journal of Financial Economics, 2001. *See*, Robert S. Harris, Felicia C. Marston, *The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts,* Journal of Applied Finance, 2001.

[436] Direct Testimony of Dylan W. D'Ascendis, at 86-87.

1 **Q. WHAT CONCERNS HAS MR. O'DONNELL EXPRESSED**

2 **REGARDING YOUR CAPM ANALYSES?**

3 A. Mr. O'Donnell's concern is the market return estimates used in my *ex-ante* MRP

4 calculation are higher than what is forecasted by some market participants.[437]

5 **Q. PLEASE DESCRIBE HOW YOU DERIVED YOUR MARKET RISK**

6 **PREMIUM ESTIMATE IN THIS PROCEEDING.**

7 A. The Market Risk Premium represents the incremental return (over the risk-free

8 rate) investors currently require for assuming the risk of equity ownership, as

9 measured by the market as a whole. In my Direct Testimony, I calculated the

10 expected market return using consensus analysts' projected growth rates and

11 current expected dividend yields on a market capitalization-weighted basis for

12 the S&P 500 Index.[438] That calculation was performed using earnings growth

13 rate projections from two sources, Bloomberg and Value Line. From those

14 estimates of the required market return, I calculated the MRP by subtracting the

15 current 30-day average yield on 30-year Treasury securities.[439]

16 **Q. IS THE MRP CONSTANT OVER TIME?**

17 A. No, it is not. Mr. O'Donnell fails to recognize the MRP can be influenced by

18 factors such as investors' changing levels of risk aversion, or changes in interest

19 rates. Regarding the relationship between interest rates and the MRP, academic

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[437] Direct Testimony of Kevin W. O'Donnell, CFA, at 59-60, 94-96.
[438] Direct Testimony of Dylan W. D'Ascendis, at 89-90.
[439] Direct Testimony of Dylan W. D'Ascendis, at 89; Exhibit DWD-2, Rebuttal Exhibit DWD-2.

| 1 | studies found an inverse relationship between the two. Discussing that |

1   studies found an inverse relationship between the two.   Discussing that

2   relationship, Dr. Morin notes:

3   … [p]ublished studies by Brigham, Shome, and Vinson (1985),
4   Harris (1986), Harris and Marston (1992, 1993), Carleton,
5   Chambers, and Lakonishok (1983), Morin (2005), and McShane
6   (2005), and others demonstrate that, beginning in 1980, risk
7   premiums varied inversely with the level of interest rates - rising
8   when rates fell and declining when interest rates rose.[440]

9   As such, increases in the MRP coincident with declining interest rates is

10   consistent with financial theory.

11   **Q.   WHAT IS YOUR RESPONSE TO MR. O'DONNELL'S REFERENCE TO**

12   **PROFESSIONAL INVESTOR FORECASTS AND MARKET SURVEYS**

13   **THAT INDICATE EXPECTED MARKET RETURNS RANGE FROM**

14   **NEGATIVE   4.40   PERCENT   (REAL)   TO   6.10   PERCENT**

15   **(NOMINAL)?[441]**

16   A.   I have several concerns with his reference. First, Mr. O'Donnell's 8.75 percent

17   ROE estimate is entirely at odds with the data he presents. In this instance, Mr.

18   O'Donnell refers to the market forecasts summarized in Table 12, below.

19   **Table 12: Summary of Mr. O'Donnell's Market Return Forecast**

20   **References[442]**

INSTITUTION	MARKET RETURN FORECAST
BlackRock Investment Institute	6.1% nominal (not inflation adjusted) return for US large caps over the next decade

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[440]   Roger A. Morin, <u>New Regulatory Finance</u>, Public Utilities Reports, Inc. 2006, at 128 [clarification added].
[441]   Direct Testimony of Kevin W. O'Donnell, CFA, at 94-95.
[442]   Direct Testimony of Kevin W. O'Donnell, CFA, at 94-95.

Grantham, Mayo, & van Otterloo ("GMO")	-4.4% real (inflation adjusted) returns for US large caps over the next 7 years
JP Morgan Asset Management	5.6% nominal return for US equities over a 10-15 year horizon
Morningstar Investment Management	1.7% 10-year nominal returns for US stocks
Research Affiliates	0.3% real (inflation adjusted) returns for US large caps furring [*sic*] the next 10 years
Vanguard	Nominal equity market returns of 3.5% to 5.5% during the next decade

1   As Table 12 indicates, the expected market returns (on a nominal basis) range

2   from 1.70 percent to 6.10 percent for U.S. equities. Mr. O'Donnell, however,

3   estimates an ROE of 8.75 percent for a utility that, we agree, is less risky than

4   the overall market. If Mr. O'Donnell believed these expected returns were

5   meaningful measures of investor-required returns, which is the subject of his

6   testimony, his recommendation would be no higher than 6.10 percent.[443]

7   Lastly, Mr. O'Donnell does not consider the limiting language often

8   contained in documents providing expected market returns. For example, JP

9   Morgan Asset Management's *2020 Long-Term Capital Market Assumptions*

10   (the source document for the 5.60 percent expected market return noted in Table

11   12, above) states:

12   Please note that all information shown is based on qualitative
13   analysis. Exclusive reliance on the above is not advised. This
14   information is not intended as a recommendation to invest in any
15   particular asset class or strategy or as a promise of future
16   performance. Note that these asset class and strategy
17   assumptions are passive only – they do not consider the impact
18   of active management. References to future returns are not

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[443]   Mr. O'Donnell also points to the results of the Duke University CFO Survey ("Duke University CFO Survey"), which, as discussed in my response to Dr. Woolridge, has consistently underestimated market returns.

1		promises or even estimates of actual returns a client portfolio
2		may achieve. Assumptions, opinions and estimates are provided
3		for illustrative purposes only.[444]

4 **Q. DO YOU AGREE WITH MR. O'DONNELL'S USE OF THE TOTAL**

5 **RETURN ON LONG-TERM GOVERNMENT BONDS IN HIS**

6 **CALCULATION OF THE HISTORICAL MRP?**

7 A. No, I do not. The MRP should reflect the difference between the arithmetic

8 average return on large company stocks and the income-only return on long-

9 term government bonds as reported by Duff & Phelps (producing an estimated

10 risk premium in 2018 of 6.90 percent).[445] Mr. O'Donnell, however, calculates

11 the risk premium as the difference between the total return on those two asset

12 classes, implying a risk premium of 4.10 percent to 5.60 percent in 2018.[446]

13 As Morningstar points out, the total return on a security is composed of

14 three components: (1) the income return; (2) capital gains (or capital losses, if

15 the value of the security falls); and (3) reinvestment return.[447] The income

16 return is generally defined as the coupon, or interest rate on the security, which

17 does not change over the life of the security. In contrast, the value of the

18 security rises or falls as interest rates change, resulting in uncertain capital

19 gains. As such, the income return is the only "riskless" component of the total

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444 JP Morgan Asset Management, *2020 Long-Term Capital Market Assumptions,* at PDF 116.
445 Duff & Phelps, 2019 SBBI Yearbook, at 6-17.
446 Direct Testimony of Kevin W. O'Donnell, CFA, at 94.
447 *See,* Duff & Phelps 2019 SBBI Yearbook, at 10-22.

1   return. Consequently, it is the income-only portion of the return, as opposed to

2   the total return, that should be used in calculating the MRP.

3 **Q.   WHAT IS YOUR RESPONSE TO MR. O'DONNELL'S CONCERN**

4 **THAT YOU USED AN EXPECTED MARKET RATE OF RETURN**

5 **HIGHER THAN THE 12.00 PERCENT AVERAGE MARKET RETURN**

6 **AS REPORTED BY DUFF & PHELPS (WHICH NOW PUBLISHES THE**

7 **MORNINGSTAR DATA MR. O'DONNELL REFERS TO)?[448]**

8 A.   Although Mr. O'Donnell notes the arithmetic average is approximately 11.90

9   percent,[449] the standard deviation was approximately 19.80 percent.[450] One

10   standard deviation around the long-term average through 2018 suggests a range

11   of -7.90 percent to 31.70 percent.[451]   As Rebuttal Exhibit DWD-18

12   demonstrates, and as noted in my response to Mr. Baudino, the expected returns

13   included in my Direct Testimony are well within the range of historical results,

14   especially when we consider the historical standard deviation.

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[448]   Direct Testimony of Kevin W. O'Donnell, CFA, at 60.
[449]   Direct Testimony of Kevin W. O'Donnell, CFA, at 94.
[450]   Duff & Phelps, 2019 SBBI Yearbook, at 6-17.
[451]   11.90% - 19.80% = -7.90%; 11.90% + 19.80% = 31.70%.

1   Q.   AT PAGE 59 OF HIS TESTIMONY, MR. O'DONNELL COMPARES

2   THE MARKET RISK PREMIA APPLIED IN YOUR CAPM ANALYSES

3   TO THE EQUITY RISK PREMIA APPLIED IN YOUR BOND YIELD

4   PLUS RISK PREMIUM ANALYSIS. IS HIS COMPARISON APT?

5   A.   No, it is not. Mr. O'Donnell appears to conflate the Market Risk Premium

6   applied in the CAPM (calculated as the difference between the total expected

7   return on the market and the current 30-year Treasury yield) with the Equity

8   Risk Premium applied in the Bond Yield Plus Risk Premium analysis

9   (calculated as the difference between the authorized ROE and the lagged 30-

10   year Treasury yield). The two are different concepts and, therefore, are not

11   comparable.

12   *F. Bond Yield Plus Risk Premium Method*

13   Q.   DOES MR. O'DONNELL COMMENT ON YOUR BOND YIELD PLUS

14   RISK PREMIUM ANALYSIS?

15   A.   Other than his view that certain "flaws" he perceives in my CAPM analysis

16   "flow through" to my Bond Yield Plus Risk Premium analysis,[452] Mr.

17   O'Donnell does not comment on the model. Nor does he explain the particular

18   "flaws" with which he seems to be concerned. Nonetheless, Mr. O'Donnell

19   asserts the model is "biased upwards for [my] utility clients".[453]

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[452]   Direct Testimony of Kevin W. O'Donnell, CFA, at 60, 61.
[453]   Direct Testimony of Kevin W. O'Donnell, at 60.

1 **Q. WHAT IS YOUR RESPONSE TO MR. O'DONNELL?**

2 A. First, the Bond Yield Plus Risk Premium analysis is empirically structured and

3   data-driven – it does not require subjective assumptions or inputs. Mr.

4   O'Donnell's assertion that it is "biased upwards" is incorrect. More important,

5   the model captures the inverse relationship between interest rates and the Equity

6   Risk Premium, an element of security pricing not addressed by the Constant

7   Growth DCF model. As my Direct Testimony explained, longstanding research

8   has shown the Equity Risk Premium is nonconstant, and varies with economic

9   factors, including long-term interest rates.[454] Quantifying that relationship is

10   particularly important when interest rates have been driven down by investors

11   seeking the safety of Treasury securities, as currently is the case.

12   Second, Mr. O'Donnell's assertion that the Equity Risk Premiums

13   included in the model "are nonsensical and have no fundamental basis in

14   reality"[455] is fundamentally incorrect. As my Direct Testimony explained,

15   those premiums are the observed difference between authorized ROEs and the

16   prevailing 30-year Treasury yield. They are real. And they would be

17   "nonsensical" only if the observed authorized returns and/or observed Treasury

18   yields were "nonsensical". That may be Mr. O'Donnell's position, but he

19   certainly has not explained why his judgment should prevail over the many

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[454]   Direct Testimony of Dylan W. D'Ascendis at 96-97.
[455]   Direct Testimony of Kevin W. O'Donnell, CFA at 60.

1   regulatory commissions that have authorized ROEs, or why his view is more

2   sensible than the many investors that have determined Treasury yields.

3   Third, the Equity Risk Premium under the Bond Yield Plus Risk

4   Premium approach is developed in a fundamentally different manner than it is

5   under the CAPM. One is not "flowed through"[456] to the other, as Mr. O'Donnell

6   seems to believe. The two models approach the Equity Risk Premium from

7   different perspectives[457] and because they do, applying both provides a more

8   robust estimate of the Company's Cost of Equity.

9   **Q.   CAN THE BOND YIELD PLUS RISK PREMIUM APPROACH**

10   **CAPTURE OTHER VARIABLES BEYOND INTEREST RATES THAT**

11   **AFFECT THE EQUITY RISK PREMIUM?**

12   A.   Yes, it can. Harris and Marston found expected market volatility and credit

13   spreads to be positively related to the Equity Risk Premium.[458] Adopting that

14   approach, I calculated the "credit spread", or the difference between the

15   Moody's Baa-Utility Bond yield and the 30-Year Treasury yield. To reflect the

16   risk of equity investments, I calculated the market volatility as measured by the

17   VIX since 1990, the first year for which data was available. I then performed a

18   regression analysis in which the Equity Risk Premium is the dependent variable,

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[456]   Direct Testimony of Kevin W. O'Donnell, CFA at 60.
[457]   Under the CAPM, the Equity Risk Premium is the product of the Beta coefficient and the
         Market Risk Premium. Under the Bond Yield Plus Risk Premium approach, it is the
         difference between authorized ROEs and observed 30-year Treasury yields. *See*, Direct
         Testimony of Dylan W. D'Ascendis at 96-97.
[458]   *See*, Robert S. Harris, Felicia C. Marston, *The Market Risk Premium: Expectational Estimates
         Using Analysts' Forecasts,* Journal of Applied Finance, 2001, at 11.

1   and Treasury yields, credit spreads, and the VIX are the explanatory variables

2   (*see* Rebuttal Exhibit DWD-23).

3   Consistent with Harris and Marston's findings, credit spreads and the

4   VIX are positively related to the Equity Risk Premium, and Treasury yields

5   remain negatively related. At the same time, credit spreads and the VIX are

6   strongly correlated, such that it is difficult to disentangle the effects of each on

7   the Equity Risk Premium. Nonetheless, the findings make theoretical and

8   intuitive sense; as measures of risk (*i.e,,* the VIX and credit spreads) increase,

9   so does the Equity Risk Premium.

10   Using that expanded regression analysis, we can estimate the increased

11   return required in the current market, with its elevated VIX and expanded credit

12   spreads. As Rebuttal Exhibit DWD-23 demonstrates, the indicated Cost of

13   Equity is 10.98 percent.

1   *G. Weighting of Model Results*

2   **Q.   MR. O'DONNELL ACCUSES YOU OF "DISAVOWING"[459] THE**

3   **CONSTANT GROWTH DCF MODEL, IN PART BECAUSE YOU**

4   **QUESTION WHETHER THE CONSTANT GROWTH DCF MODEL'S**

5   **ASSUMPTIONS ARE CONSISTENT WITH THE CURRENT MARKET.**

6   **IS HIS POSITION CORRECT?**

7   A.   No, it is not. My concern is not with the model itself. As discussed earlier, my

8   concern is whether the model's fundamental assumptions reasonably hold in the

9   current market. Given the DCF model's restrictive assumptions and the high

10   level of market volatility, it not only is reasonable to consider and give weight

11   to alternative methods, it is prudent to do so.

12

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[459]   Direct Testimony of Kevin W. O'Donnell, CFA, at 55. To be clear, I have not "disavowed"
         the DCF model, as Mr. O'Donnell suggests. Rather, I have considered the model and its
         results in the proper context. Mr. O'Donnell's use of the term "disavow", however, is ironic
         given the North Carolina Utility Commission's finding in Docket No. E-2, Sub 1023: "In
         complying with the Supreme Court's mandate in CUCA I that the Commission evaluate all of
         the testimony in determining the appropriate ROE, it remains for the Commission to consider
         the testimony of CUCA witness O'Donnell. As noted previously, O'Donnell's pre-filed direct
         testimony recommended an ROE of 9.25%. However, when testifying at the evidentiary
         hearing, witness O'Donnell in effect disavowed reliance upon those portions of his testimony
         except for rate design and Rider IER. Accordingly, the Commission gives only very limited
         weight to witness O'Donnell's ROE recommendation in the selection of an appropriate ROE."
         State of North Carolina Utilities Commission, Docket No. E-2, Sub 1023, Order Granting
         General Rate Increase, May 30, 2013, at 27.

1   *H. Orders from Other Regulatory Commissions Cited by Mr. O'Donnell*

2   **Q.   AT PAGES 60-61 OF HIS DIRECT TESTIMONY, MR. O'DONNELL**

3   **REFERS TO AN ORDER FROM THE VIRGINIA CORPORATION**

4   **COMMISSION REGARDING A DOCKET IN WHICH YOU**

5   **PROVIDED TESTIMONY. WHAT IS YOUR RESPONSE TO MR.**

6   **O'DONNELL ON THAT POINT?**

7   A.   Mr. O'Donnell fails to note orders that were supportive of [Mr. Robert B.

8   Hevert's] analyses and conclusions. For example, Mr. O'Donnell refers to

9   orders in May 2019 by the South Carolina Public Service Commission

10   ("SCPSC"), and the SDPUC, pointing to the authorized return in those cases

11   relative to [Mr. Robert B. Hevert's] recommendations.[460]   Mr. O'Donnell

12   neglects to point out, however, that in February 2019, the SCPSC reviewed [Mr.

13   Robert B. Hevert's] testimony and found "there is ample evidence and reason

14   to conclude that the analyses conducted by Mr. Hevert are accurate and reliable

15   estimates of SCE&G's cost of equity."[461]

16   Regarding the SDPUC's order relating to Otter Tail Power, as noted

17   earlier, OTTR meaningfully underperformed the utility sector around the time

18   the SDPUC issued its order.

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[460]   Direct Testimony of Kevin W. O'Donnell, CFA, at 61-62.
[461]   Public Service Commission of South Carolina, Docket Nos. 2017-207-E, 2017-305-E, and
        2017-370-E, Order No. 2019-122, dated February 12, 2019, at 26.

1 *I. Capital Structure*

2 **Q. WHAT CAPITAL STRUCTURE DOES MR. O'DONNELL**

3   **RECOMMEND IN THIS PROCEEDING?**

4 A. Mr. O'Donnell recommends a hypothetical capital structure including 50.00

5   percent common equity, and 50.00 percent long-term debt.[462] In Mr.

6   O'Donnell's view, the Company's proposed 53.00 percent equity ratio is high

7   relative to authorized equity ratios, the equity ratios at the consolidated parent

8   company level among the proxy groups, and Duke Energy Corporation's

9   consolidated equity ratio as of December 2018.[463]

10 **Q. WHAT IS YOUR RESPONSE TO MR. O'DONNELL'S COMPARISON**

11   **TO THE PROXY GROUP EQUITY RATIO AT THE HOLDING**

12   **COMPANY LEVEL?**

13 A. First, by relying on the parent capital structure, Mr. O'Donnell assumes all

14   subsidiaries can and should be financed in the same proportions as the parent.

15   That clearly is not the case – companies (including subsidiary companies) are

16   financed in light of the specific risks and funding requirements associated with

17   their individual operations.

18   The use of the operating subsidiary's actual capital structure – the capital

19   funding the utility plant and equipment that enables utility service – also is

20   consistent with FERC's precedent, under which the commission prefers to use

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[462]   Direct Testimony of Kevin W. O'Donnell, CFA, at 116.
[463]   Direct Testimony of Kevin W. O'Donnell, CFA, at 115-116.

1   the applicant's capital structure, where possible.[464] As noted earlier, FERC will

2   use the utility operating company's capital structure if it meets three criteria: (1)

3   it issues its own debt without guarantees; (2) it has its own bond rating; and (3)

4   it has a capital structure within the range of capital structures approved by the

5   Commission.[465] FERC noted that if those conditions are not met, it may apply

6   the consolidated capital structure.[466]

7   FERC also noted that it does not apply a specific cap to the equity ratio.

8   Rather, the commission stated:

9
10
11
12
> [we] recognize that a utility may consider a range of factors beyond simple capital cost minimization in developing their capital structures. Such considerations include, but are not limited to, managing risk and cash flow.[467]

13   FERC therefore has recognized that the capital structure is tied to the assets

14   being financed, and to the nature of utility operations.

15   Because vertically integrated electric utilities must finance similar types

16   of assets (electric generation, transmission, and distribution infrastructure), it

17   would be reasonable to expect those companies to have comparable capital

18   structures. Although I do not agree with Mr. O'Donnell's view that the parent

19   is the appropriate point of comparison for operating company capital structures,

20   the Company's proposed common equity ratio of 53.00 percent is well within

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[464]   *See, Transcontinental Gas Pipe Line Corp,* 80 FERC ¶ 61,157, 61,657 (1997) ("Opinion No. 414").

[465]   148 FERC ¶ 61,049 Docket No. EL14-12-000, at P 190.

[466]   *Ibid.*, at P 191.

[467]   *Ibid.*, at P 197.

1		the range of results presented in his Tables 10 and 11. In fact, the Company's
2		proposed equity ratio is within approximately one standard deviation of the
3		average.
4	**Q.**	**IS IT APPROPRIATE TO ASSUME THE PROXY GROUP AVERAGE**
5		**CAPITAL STRUCTURE APPLIES TO DE PROGRESS?**
6	A.	No, it is not. Although utilities have certain factors in common, each has its
7		own risk profile, which influences its target capital structure. In my view,
8		although it is proper to review the range of operating utility equity ratios in
9		assessing the Company's proposed capital structure, there is no reason to
10		assume we should default to the average. Nonetheless, as noted above, the
11		Company's proposal is within approximately one standard deviation from the
12		proxy group average, as provided by Mr. O'Donnell's data.
13	**Q.**	**AT PAGES 111-112 OF HIS TESTIMONY, MR. O'DONNELL REVIEWS**
14		**THE CONSOLIDATED PARENT CAPITAL STRUCTURES FOR THE**
15		**COMPANIES IN HIS PROXY GROUP. DO YOU HAVE ANY**
16		**OBSERVATION REGARDING MR. O'DONNELL'S REVIEW?**
17	A.	Yes, I do. As discussed in my response to Dr. Woolridge, if we are going to
18		review capital structures in place at other utilities, the appropriate reference is
19		to operating companies, not consolidated parent companies. The reason is quite
20		straightforward: Parent company capital structures may reflect operations other
21		than the rate base at issue in this proceeding. It therefore would not be

1		surprising to see operating utility equity ratios that differ from the consolidated
2		parent company equity ratio.
3	**Q.**	**HAVE YOU REVIEWED THE OPERATING COMPANY CAPITAL**
4		**STRUCTURES FOR MR. O'DONNELL'S PROXY GROUP?**
5	A.	Yes, I have. Rebuttal Exhibit DWD-24 which provides that data, shows quite
6		clearly that over time and across companies, operating utility equity ratios tend
7		to be higher than the parent company ratio. That finding makes sense, given
8		the utility financing practices discussed earlier in my Rebuttal Testimony. As
9		Rebuttal Exhibit DWD-24 demonstrates, the average equity ratio for Mr.
10		O'Donnell's proxy group is 53.05 percent, consistent with the Company's
11		proposal.
12	**Q.**	**LOOKING TO MR. O'DONNELL'S PROXY GROUP, ARE THERE**
13		**EXAMPLES OF WHY THE PARENT COMPANY CAPITAL**
14		**STRUCTURE DOES NOT APPLY TO UTILITY OPERATING**
15		**COMPANIES?**
16	A.	Yes, there are. For example, in addition to Florida Power & Light ("FPL"),
17		NextEra Energy, Inc. ("NEE") holds NextEra Energy Resources, LLC,
18		("NEER") which develops, owns, and operates electric generating facilities in
19		wholesale energy markets.[468] Among the vehicles used by NEER to fund those
20		facilities are project-specific, limited, or non-recourse financing structures.[469]

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[468]   NextEra Energy, Inc., SEC Form 10-K For the fiscal year ended December 31, 2019, at 11.
[469]   NextEra Energy, Inc., SEC Form 10-K For the fiscal year ended December 31, 2019, at 30.

1   Because they are not used to fund rate base assets, the debt associated with those

2   financing structures should not be considered in assessing the Company's

3   capital structure. In any event, whereas NEE's equity ratio has historically been

4   approximately 45.00 percent on average,[470] FPL's equity ratio has been

5   considerably higher, in the range of 62.00 percent.[471]

6   Again, the ratemaking capital structure should relate to utility

7   operations, and the permanent assets that support those operations. Because, as

8   in the case of NEE, parent company capital structures may contain debt not

9   associated with utility operations, the parent company capital structure should

10   not be used to assess the Company's proposed equity ratio.

11   **Q.   WHY IS THE CAPITAL STRUCTURE IMPORTANT TO UTILITIES'**

12   **FINANCIAL INTEGRITY?**

13   A.   As explained earlier in my response to Dr. Woolridge, utility capital structures,

14   and the financial strength they support, are set not only to ensure capital access

15   during normal markets, but to enable access when markets are constrained. The

16   reason is straightforward: A utility's obligation to serve is not contingent on

17   capital market conditions. When markets are constrained, only those utilities

18   with sufficient financial strength are able to attract capital at reasonable terms.

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[470]   Source: *Value Line Investment Survey*, NextEra Energy Inc., November 15, 2019 for the years
        2009 - 2018.
[471]   Rebuttal Exhibit DWD-7.

1   That ability provides those utilities with critically important financing

2   flexibility.

3 **Q.   WHAT IS YOUR RESPONSE TO MR. O'DONNELL'S REVIEW OF**

4   **AUTHORIZED EQUITY RATIOS?**

5 A.   First, Mr. O'Donnell's reported 49.94 percent average equity ratio[472] includes

6   distribution-only electric utilities. The more appropriate comparison is to

7   vertically integrated electric utilities, for which the average and median

8   authorized equity ratio in 2019 was 50.24 percent and 52.00 percent,

9   respectively, within a range of 33.71 percent to 57.02 percent. Again, the

10   Company's proposed 53.00 percent equity ratio is well within that range (and

11   less than one standard deviation from the mean).

12 **Q.   HAVE AUTHORIZED EQUITY RATIOS CHANGED OVER TIME?**

13 A.   Yes, they generally have increased. Mr. O'Donnell's Chart 8 demonstrates as

14   much. Excluding capital structures authorized in jurisdictions that include non-

15   investor supplied sources of capital (principally, Accumulated Deferred Income

16   Taxes), authorized equity ratios have increased over time (*see*, Chart 23, below).

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[472]   Direct Testimony of Kevin W. O'Donnell, CFA, at 113.

1   **Chart 23: Average Authorized Equity for Electric Utilities**[473]

The chart shows a scatter plot with trend line. Y-axis ranges from 47.50 to 52.00. X-axis shows years from 2005 to 2019. Equation shown: $y = 0.1863x - 325.11$, $R^2 = 0.6432$.
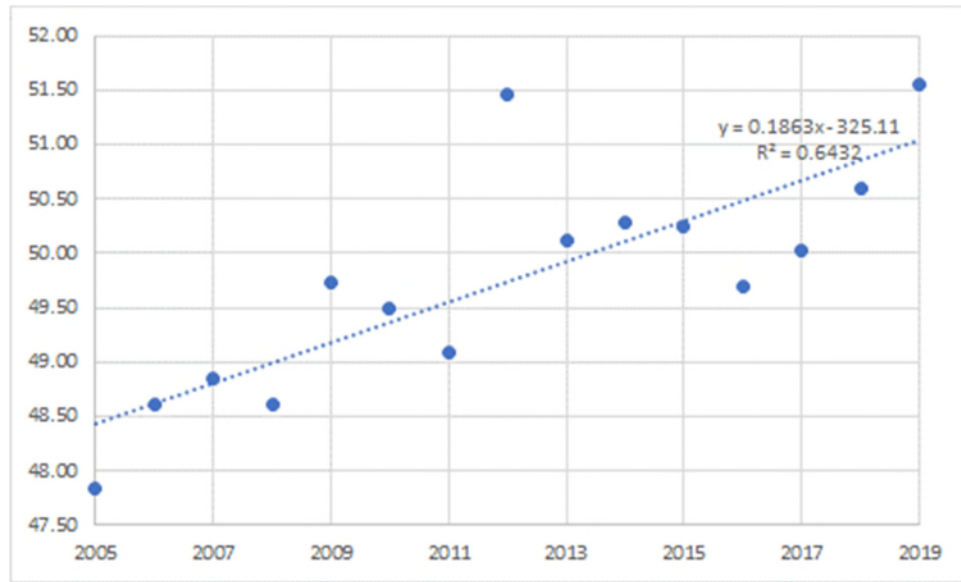
2   The upward trend in equity ratios since 2005, in particular since 2008/2009,

3   makes sense as the financial crisis focused attention on balance sheet strength

4   and capital access. Now, as the capital markets undergo another severe

5   dislocation, the balance sheet strength built over time has become extremely

6   important. The Opposing Witnesses' capital structure recommendations not

7   only would undo the financial strength needed during volatile capital markets,

8   it would indicate a degree of regulatory risk that would further diminish the

9   Company's financial profile, just as that profile is most needed.

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[473]   Source: S&P Global Market Intelligence. Excludes equity ratios authorized in AR, FL, IN, and MI.

1 **Q.** **DO YOU HAVE ANY ADDITIONAL OBSERVATIONS REGARDING**

2   **MR. O'DONNELL'S REFERENCE TO AUTHORIZED EQUITY**

3   **RATIOS?**

4 A. Yes, I do. Mr. O'Donnell's review includes equity ratios authorized in

5   jurisdictions that include non-investor supplied capital in the capital structure

6   (*i.e.*, Arkansas, Florida, Indiana, and Michigan). If those jurisdictions are

7   excluded, the average and median authorized equity ratio in 2019 was 52.08

8   percent and 52.00 percent, respectively, for vertically integrated utilities.

9   Again, that review suggests the Company's proposed 53.00 percent equity ratio

10   is consistent with authorized equity ratios.

11
12 **VIII.** **RESPONSE TO COMMERCIAL GROUP WITNESS MR. CHRISS**

13 **Q.** **PLEASE SUMMARIZE MR. CHRISS' TESTIMONY REGARDING**

14   **THE COMPANY'S ROE.**

15 A. Mr. Chriss opposes the Company's proposed ROE based on his review of

16   authorized ROEs since 2016 nationwide and within North Carolina.[474] He

17   recommends the Commission "closely examine" the Company's proposed

18   ROE:

19   [I]n light of: (1) The customer impact of the resulting revenue
20   requirement increase as discussed above; (2) recent rate case
21   ROEs approved by the Commission; and (3) recent rate case

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[474]   Direct Testimony of Steve W. Chriss, at 9-12.

1   ROEs approved by commissions nationwide.[475]

2   However, Mr. Chriss did not undertake an independent, market-based analysis

3   of the Company's Cost of Equity.

4 **Q.   ARE THERE OTHER DISTINCTIONS THAT ARE IMPORTANT TO**

5   **CONSIDER WHEN REVIEWING AUTHORIZED RETURNS?**

6 A.   Yes, there are. The regulatory environment is one of the most important factors

7   debt and equity investors factor in their assessment of risk. Further, utility

8   credit ratings and outlooks depend substantially on the extent to which rating

9   agencies view the regulatory environment credit supportive, or not.   For

10   example, Moody's finds the regulatory environment to be so important that

11   50.00 percent of the factors that weigh in its ratings determination are

12   determined by the nature of regulation.[476] Given the Company's need to access

13   external capital and the weight rating agencies place on the nature of the

14   regulatory environment, I believe it is important to consider the extent to which

15   the jurisdictions that recently have authorized ROEs for electric utilities are

16   viewed as having constructive regulatory environments.

---

[475]   Direct Testimony of Steve W. Chriss, at 4, 13.
[476]   *See,* Moody's Investors Service Rating Methodology: Regulated Electric and Gas Utilities, June 23, 2017, at 4.

1 **Q. HAVE YOU REVIEWED AND UPDATED THE INFORMATION**

2 **CONTAINED IN MR. CHRISS' EXHIBIT 3?**

3 A. Yes. As shown in Table 13 (below; *see also* Rebuttal Exhibit DWD-25), I

4 analyzed the authorized ROE for electric utilities based on the jurisdiction's

5 ranking by RRA. RRA, which is the source of Mr. Chriss' data, provides an

6 assessment of the extent to which regulatory jurisdictions are constructive from

7 investors' perspectives, or not. As RRA explains, less constructive

8 environments are associated with higher levels of risk:

9 RRA maintains three principal rating categories, Above Average,
10 Average, and Below Average, with Above Average indicating a
11 relatively more constructive, lower-risk regulatory environment
12 from an investor viewpoint, and Below Average indicating a less
13 constructive, higher-risk regulatory climate from an investor
14 viewpoint, Within the three principal rating categories, the numbers
15 1, 2, and 3 indicate relative position. The designation 1 indicates a
16 stronger (more constructive) rating; 2, a mid-range rating; and, 3, a
17 weaker (less constructive) rating. We endeavor to maintain an
18 approximately equal number of ratings above the average and below
19 the average.[477]

20 The Commission currently is ranked "Average/1", which falls in the top third

21 of the 53 jurisdictions ranked by RRA.

22 Across the 103 vertically integrated rate cases for which RRA reports

23 an authorized ROE since 2016, there was a 45-basis point difference between

24 the median return for jurisdictions ranked in the top third of all jurisdictions and

25 jurisdictions ranked in the bottom third of all jurisdictions (the higher-ranked

---

477 Source: Regulatory Research Associates, accessed April 24, 2020.

1   jurisdictions providing the higher authorized returns, *see* Table 13, below). As

2   Table 13 indicates, authorized ROEs for vertically integrated electric utilities in

3   jurisdictions rated in the top third of all jurisdictions, including North Carolina,

4   range from 9.37 percent to 10.55 percent, with an average of 9.93 percent, and

5   a median of 9.95 percent.

6   **Table 13: Vertically Integrated Authorized ROE by RRA Ranking[478]**

Authorized ROE (%) Vertically Integrated Electric Utilities			
RRA Ranking	Top Third	Middle Third	Bottom Third
Mean	9.93%	9.53%	9.62%
Median	9.95%	9.50%	9.50%
Maximum	10.55%	10.30%	11.95%
Minimum	9.37%	8.75%	9.06%

7   My recommended range, 10.00 percent to 11.00 percent, is consistent with the

8   returns authorized in more constructive jurisdictions.

9   **Q.   DO YOU AGREE WITH MR. CHRISS' CALCULATION OF THE**

10   **AVERAGE AUTHORIZED ROE FOR ALL UTILITIES?[479]**

11   A.   No, I do not. Mr. Chriss's average authorized ROE reported in his Chriss

12   Exhibit 3 for the 2016 to 2020 period for all utilities and for distribution only

13   utilities includes ROEs authorized as part of the Illinois Formula Rate Plan

---

[478]   Source: Regulatory Research Associates. "Top Third" includes Above Average/1,2,3 and
Average/1;   "Middle Third" includes Average/2; "Bottom Third" includes Average/3 and
Below Average/1,2,3. The "Top Third" and "Bottom Third" groups each include 19 (of the 53
total) jurisdictions. The "Middle Third" group includes 15 jurisdictions. *See also*, Rebuttal
Exhibit DWD-25. Excludes limited issue riders.

[479]   Chriss Exhibit 3.

1 ("FRP") proceedings,[480] which has resulted in the lowest ROEs in at least 30

2 years and biases his calculated average downward. Table 14 below illustrates

3 the effect of removing the Illinois Formula Rate Plans from his average ROE

4 calculations.[481]

Table 14: Average Authorized ROE Presented in Chriss Exhibit 3

Excluding Illinois Formula Rate Plan Proceedings

	All Electric Utility Rate Cases	
	Average Including Illinois FRPs	Average Excluding Illinois FRPs
Entire Period (2016-2020)	9.60%	9.67%
2016	9.60%	9.66%
2017	9.68%	9.74%
2018	9.54%	9.59%
2019	9.64%	9.69%

7 **Q. HAS MR. CHRISS CONSIDERED THE EFFECT OF HIS**

8 **RECOMMENDATION ON THE COMPANY'S FINANCIAL PROFILE?**

9 A. No, he has not. The financial community carefully monitors utility companies'

10 financial conditions, both current and expected, as well as the regulatory

11 environment in which those companies operate. Here, Mr. Chriss suggests the

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[480] In Illinois, statutes require the ROEs for Commonwealth Edison and Ameren Illinois to be re-set annually, under a formula rate plan ratemaking paradigm where the allowed ROE is set by application of a 580 basis-point premium to the 12-month average 30-year Treasury Bond yield. In the historically low interest rate environment, this framework has resulted in the lowest ROEs in at least 30 years. Source: Regulatory Research Associates.

[481] Source: Regulatory Research Associates. The average authorized ROE period for distribution-only electric utilities excluding Illinois FRPs over the 2016-2020 period is 9.45 percent.

1   Commission should reduce the Company's ROE by some unspecified amount

2   without the benefit of market-based, comparative analyses to support that

3   recommendation. The consequence of doing so would indicate an increased

4   degree of regulatory risk.

5   IX.   RESPONSE TO CIGFUR WITNESS MR. PHILLIPS

6 Q.   PLEASE SUMMARIZE MR. PHILLIPS'S TESTIMONY REGARDING

7   THE COMPANY'S ROE.

8 A.   Mr. Phillips opposes the Company's proposed ROE based on his review of

9   authorized ROEs during 2019, as reported by RRA.[482] Mr. Phillips reasons that

10   because RRA reports the average authorized ROE for vertically integrated

11   electric utilities to be 9.73 percent, that the Commission should not authorize

12   an ROE above that level for the Company.[483] Further, Mr. Phillips recommends

13   that Company's authorized capital structure "not exceed 52.00% equity."[484]

14 Q.   HAVE YOU REVIEWED THE 9.73 PERCENT RETURN MR. PHILLIPS

15   DISCUSSED IN HIS TESTIMONY?

16 A.   Yes, I have. To gain another perspective regarding the returns authorized in

17   2019, I prepared a histogram of the returns authorized for vertically integrated

18   electric utilities. As shown in Chart 24 below, nearly one-third (*i.e.*, eleven of

19   32) of the rate cases in 2019 through January 2020 awarded an ROE of 10.00

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[482]   Direct Testimony and Exhibits of Nicholas Phillips, Jr., at 26.
[483]   Direct Testimony and Exhibits of Nicholas Phillips, Jr., at 26, 27.
[484]   Direct Testimony and Exhibits of Nicholas Phillips, Jr., at 28.

1   percent and higher, within my recommended range.

2   **Chart 24: Frequency of Vertically Integrated Electric Utility Authorized**
3   **ROEs in 2019-2020[485]**
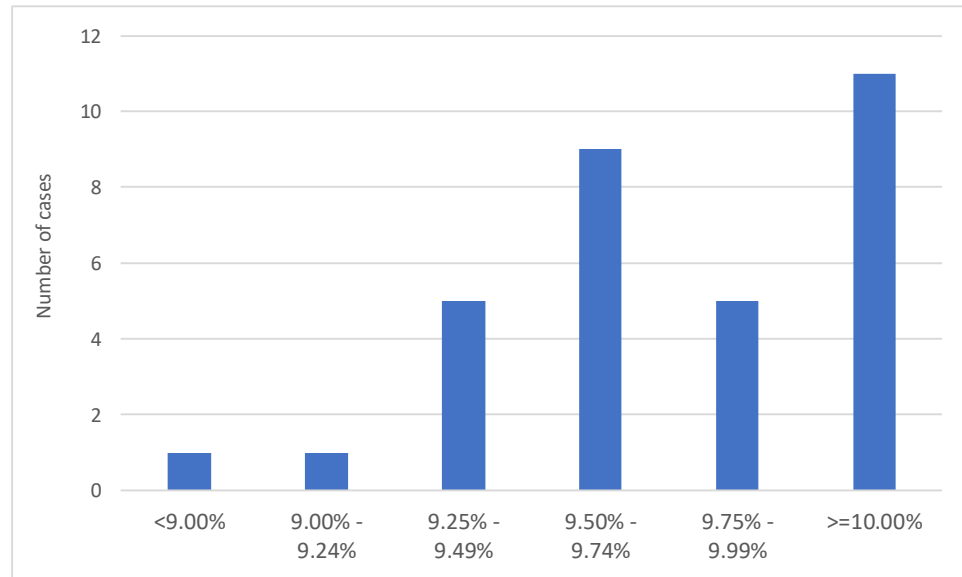
4   As discussed in my response to Mr. Chriss, and as shown in Table 13

5   (above; *see also* Rebuttal Exhibit DWD-25), I analyzed the authorized ROE for

6   vertically integrated electric utilities based on each jurisdiction's ranking by

7   RRA. As discussed in my response to Mr. Chriss, authorized ROEs for

8   vertically integrated electric utilities in jurisdictions rated in the top third of all

9   jurisdictions range from 9.37 percent to 10.55 percent, with an average of 9.93

10   percent, and a median of 9.95 percent (*see* Table 13 above).

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[485]   Source: Regulatory Research Associates. *See*, Rebuttal Exhibit DWD-8.

1	Q.	**ARE THERE OTHER DISTINCTIONS THAT ARE IMPORTANT TO**

1   Q.   **ARE THERE OTHER DISTINCTIONS THAT ARE IMPORTANT TO**

2   **CONSIDER WHEN REVIEWING AUTHORIZED RETURNS?**

3   A.   Yes, there are. Utility credit ratings and outlooks depend substantially on the

4   extent to which rating agencies view the regulatory environment as credit

5   supportive, or not. As noted in my response to Mr. Chriss, Moody's finds the

6   regulatory environment to be so important that 50.00 percent of the factors that

7   weigh in its ratings determination are determined by the nature of regulation.

8   Given the Company's need to access external capital and the weight rating

9   agencies place on the nature of the regulatory environment, it is important to

10   consider the extent to which the jurisdictions that recently have authorized

11   ROEs are viewed as having constructive regulatory environments.

12   Q.   **DO YOU AGREE WITH MR. PHILLIPS' RECOMMENDED EQUITY**

13   **RATIO FOR RATEMAKING PURPOSES?**

14   A.   No, I do not. Mr. Phillips reviews authorized equity ratios nationally during

15   2019 and the Commission's authorized equity ratios for electric and natural gas

16   utilities since 2009, and concludes the Company's proposed equity ratio of

17   53.00 percent is "inconsistent with broader electric industry trends and the

18   Commission's recent decisions."[486] Based on that review, he recommends a

19   capital structure no higher than 52.00 percent.[487]

20   Moreover, Mr. Phillips has not demonstrated an equity ratio of 53.00

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[486]   Direct Testimony and Exhibits of Nicholas Phillips, Jr., at 27-28.
[487]   Direct Testimony and Exhibits of Nicholas Phillips, Jr., at 28.

1   percent is "inconsistent" with equity ratios authorized by other jurisdictions and

2   by the Commission. Mr. Phillips refers to a January 2020 RRA publication

3   percent that noted the average authorized equity ratio for electric utility cases

4   nationwide was 51.55 percent (excluding jurisdictions that include cost-free

5   items or tax credit balances in the capital structure). However, he fails to note

6   that the range of authorized equity ratios for electric utilities in 2019 was 47.97

7   percent to 57.02 percent.[488] An equity ratio of 53.00 percent is squarely within

8   that range. As such, I do not agree an equity ratio of 53.00 percent is

9   "inconsistent with broader electric industry trends" as Mr. Phillips asserts.

10   **X.   RESPONSE TO STAFF WITNESS MR. HINTON**

11   **Q.   PLEASE SUMMARIZE MR. HINTON'S TESTIMONY AS IT RELATES**

12   **TO THE RETURN ON EQUITY ASSUMPTIONS IN THE COMPANY'S**

13   **NUCLEAR DECOMMISSIONING TRUST FUND ("NDTF") COST AND**

14   **FUNDING MODEL.**

15   A.   Mr. Hinton believes the Company's proposed rates of return for its qualified

16   trust fund are "unreasonable and overly conservative" based on (1) his work

17   with cost of equity for regulated utilities; (2) Dr. Woolridge's testimony filed in

18   this proceeding; (3) the performance of the Company's qualified funds, pension

19   funds, and other pension funds; and (4) Dominion Energy North Carolina's filed

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[488]   S&P Global Market Intelligence, *RRA Regulatory Focus: Major Rate Case Decisions –
         January – December 2019*, Table 5, January 30, 2020.

1   2015 Decommissioning Cost and Funding report.[489] Based upon his review of

2   those factors, Mr. Hinton recommends a 6.00 percent rate of return for the

3   NDTF Cost and Funding model, which is based on a 9.50 percent expected

4   Return on Equity (after taxes and fees).

5 **Q.   IS MR. HINTON'S ASSUMED 9.50 PERCENT MARKET RETURN**

6   **APPROPRIATE FOR USE IN THE NDTF COST AND FUNDING**

7   **MODEL?**

8 A.   No, it is not. Mr. Hinton believes his "expected return on the market" of 9.50

9   percent is "a more reasonable expected rate of return for these assets".[490] His

10   conclusion is based on Dr. Woolridge's CAPM inputs consisting of a MRP of

11   5.75 percent, a risk-free rate of 3.75 percent,[491] and a Beta coefficient for the

12   overall market of 1.0.[492]   Mr. Hinton's position, however, turns on his

13   assumption that there is no distinction between the expected returns assumed in

14   the NDTF funding assumptions (and other managed asset funds such as pension

15   funds) and the required returns that are the subject of my and Dr. Woolridge's

16   testimony.   As explained below, the expected return included in NDTF

17   assumptions is distinct from the required return that is the subject of my

18   testimony. Mr. Hinton's argument, therefore, is without merit.

---

[489]   Testimony of John R. Hinton, at 18.
[490]   Testimony of John R. Hinton, at 18-19. Within his range of 9.00 percent to 9.50 percent.
[491]   I note that in this proceeding, Dr. Woolridge applies a risk-free rate of 3.50 percent in his
        CAPM analysis. Dr. Woolridge applied a risk-free rate of 3.75 percent in DE Carolina's
        pending proceeding. For the reasons discussed in my response to Dr. Woolridge, I disagree
        with Dr. Woolridge's estimate of the market return in his CAPM analysis.
[492]   Testimony of John R. Hinton, at 19.

1   **Q.**   **PLEASE EXPLAIN THE DISTINCTION BETWEEN EXPECTED AND**

2   **REQUIRED RETURNS AND WHY MR. HINTON'S USE OF DR.**

3   **WOOLRIDGE'S CAPM ESTIMATE OF THE REQUIRED RETURN ON**

4   **THE MARKET IS INAPPROPRIATE.**

5   **A.**   Mr. Hinton inappropriately assumes the investor-required return on the market

6   is equivalent to the expected market return estimates used by asset fund

7   managers (such as nuclear decommissioning fund and pension funds), and that

8   one can be substituted for the other. There is an important distinction between

9   expected and required returns. As discussed below, investors may use a more

10   conservative return estimate for asset fund management purposes than the

11   required return that applies to individual equity investments.

12   The Cost of Equity is a measure of investors' required returns. An asset

13   fund manager will match the expected returns available from various asset

14   classes to the expected liabilities that must be funded. Investors seeking to

15   maximize their risk-adjusted return will only invest in a security if the expected

16   return is equal to or greater than the required return. If it is not, investors will

17   look to alternative investments for which the expected return is compensatory

18   relative to the expected risks. Because expected returns may or may not equal

19   required returns, it is not clear that asset funding assumptions (that is, expected

20   returns) and investors' required returns should be viewed as synonymous and

21   used interchangeably.

22   From the perspective of an asset fund manager, asset allocation and

1   investment decisions must be made based on expected risks and returns for

2   various asset classes, and subject to the investment objective or expected timing

3   and nature of the liabilities being funded by those investments. In the U.S., they

4   must consider: (1) the diversification of the portfolio; (2) the liquidity and

5   current return of the portfolio relative to the expected cash flow requirements

6   under the plan; (3) the portfolio's projected return relative to the plan's funding

7   objective; and (4) the return expected on alternative investments with similar

8   risks.[493] Asset fund managers, therefore, are concerned with investing funds at

9   an expected return to meet expected liabilities over a finite period.

10   An individual equity investor, on the other hand, decides whether to

11   commit capital to a given security based on the return that they require to be

12   compensated for the risks associated with the that security, in perpetuity. As

13   noted earlier, if the expected return is less than the required return, the investor

14   would not commit capital, but instead commit their capital to alternative

15   investments with appropriate risk-adjusted returns.

16 **Q.** **HAS THE COMMISSION RECOGNIZED THE DIFFERENCE**

17   **BETWEEN EXPECTED AND REQUIRED RETURNS IN PRIOR**

18   **PROCEEDINGS?**

19 **A.** Yes, it has. In its Order on Remand in Docket No. E-7, Sub 989, the

20   Commission found that:

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[493]   29 CFR 2509.908-1, Interpretive bulletin relating to the fiduciary standard under ERISA in consider economically targeted investments, October 17, 2008.

<table>
<tr><td>1</td><td>…there are aspects of witness O'Donnell's pre-filed testimony</td></tr>
<tr><td>2</td><td>which lead the Commission to doubt its overall conclusions. For</td></tr>
<tr><td>3</td><td>example, O'Donnell relies in part upon the assumed equity rate</td></tr>
<tr><td>4</td><td>of return for the Company's pension expense, which he indicates</td></tr>
<tr><td>5</td><td>is 8.5%. Tr. vol. 6, pp. 21-22. The Commission finds this</td></tr>
<tr><td>6</td><td>reliance to be misplaced. In particular, the testimony ignores the</td></tr>
<tr><td>7</td><td>crucial distinction between expected returns, which underlie</td></tr>
<tr><td>8</td><td>pension expense, and required returns, which underlie the</td></tr>
<tr><td>9</td><td>appropriate rate of return on equity.[494]</td></tr>
</table>

10   Although the Commission's finding relates to the relevance of expected returns

11   in pension funding assumptions, the concept applies to the assumptions in the

12   NDTF Cost and Funding model as well.

13   **XI.   CONCLUSION**

14   **Q.   PLEASE   SUMMARIZE   THE   ANALYSES   AND   CONCLUSIONS**

15   **CONTAINED IN YOUR REBUTTAL TESTIMONY.**

16   A.   My updated analytical results applied to my Updated Proxy Group described

17   above are provided in Table 15 below. Based on the analyses discussed

18   throughout my Rebuttal Testimony, and the results summarized in Table 15, I

19   continue to believe the reasonable range of ROE estimates is from 10.00 percent

20   to 11.00 percent and within that range, 10.50 percent is a reasonable and

21   appropriate estimate of the Company's Cost of Equity, particularly in light of

22   current volatile capital market conditions. Although we do not yet know the

23   extent of the effect of the pandemic on North Carolina's economy, based on the

24   data available, North Carolina's economy has been generally consistent with

---

[494]   North Carolina Utilities Commission, *Order on Remand*, Docket No. E-7, Sub 989, issued
         October 23, 2013, at 39.

1   that of the U.S.

2   **Table 15: Summary of Updated Analytical Results**

Discounted Cash Flow	Mean Low	Mean	Mean High
30-Day Constant Growth DCF	8.24%	9.00%	9.70%
90-Day Constant Growth DCF	7.82%	8.59%	9.28%
180-Day Constant Growth DCF	7.80%	8.56%	9.26%
CAPM Results		**Bloomberg Derived Market Risk Premium**	**Value Line Derived Market Risk Premium**
Average Bloomberg Beta Coefficient			
Current 30-Year Treasury (1.37%)		12.87%	14.75%
Near-Term Projected 30-Year Treasury (1.75%)		13.25%	15.13%
Long-Term Projected 30-Year Treasury (3.45%)		14.95%	16.83%
Average Value Line Beta Coefficient			
Current 30-Year Treasury (1.37%)		7.70%	8.74%
Near-Term Projected 30-Year Treasury (1.75%)		8.08%	9.11%
Long-Term Projected 30-Year Treasury (3.45%)		9.78%	10.81%
ECAPM Results		**Bloomberg Derived Market Risk Premium**	**Value Line Derived Market Risk Premium**
Average Bloomberg Beta Coefficient			
Current 30-Year Treasury (1.37%)		12.89%	14.77%
Near-Term Projected 30-Year Treasury (1.75%)		13.27%	15.15%
Long-Term Projected 30-Year Treasury (3.45%)		14.97%	16.85%
Average Value Line Beta Coefficient			
Current 30-Year Treasury (1.37%)		9.01%	10.26%
Near-Term Projected 30-Year Treasury (1.75%)		9.39%	10.64%
Long-Term Projected 30-Year Treasury (3.45%)		11.09%	12.34%
Bond Yield Risk Premium			
	Low	**Mid**	**High**
Bond Yield Risk Premium	10.35%	10.08%	9.97%
		Median	**Average**
Expected Earnings		10.30%	10.21%

3   **Q.   LASTLY, ARE YOU CONCERNED WITH THE DIFFERENCE IN**

4   **CAPM RESULTS BASED ON BLOOMBERG AND VALUE LINE BETA**

5   **COEFFICIENTS?**

1   A.   No, I am not. Because Bloomberg calculates Beta coefficients over two years,

2   the ongoing market instability will be more acutely reflected in them than it

3   would be in Value Line's Beta coefficients, which are calculated over five

4   years. Further, because Value Line reports are provided on a periodic basis,

5   they are not as current as the Bloomberg Beta coefficients, which may be

6   calculated at any time. That said, as demonstrated in Chart 8, applying Value

7   Line's method to current data indicates Beta coefficients calculated on that basis

8   also have increased. From that perspective, the CAPM results based on the

9   "Average Value Line Beta Coefficient" may be considered conservatively low.

10 **Q.   DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

11 A.   Yes, it does.

APPENDIX A

2 **Q.** **EARLIER, YOU REFERRED TO THE FINANCIAL COMMUNITY'S**

3 **REACTION TO THE PUCT'S DELIBERATIONS REGARDING**

4 **CEHE'S[495] RECENT RATE PROCEEDING. HAVE YOU FURTHER**

5 **ANALYZED THAT REACTION?**

6 A. Yes, I have. By way of background, in April 2019, CEHE filed a rate case

7 including a proposed ROE of 10.40 percent, and an equity ratio of 50.00

8 percent.[496] In their September 16, 2019 Proposal For Decision ("PFD"), the

9 Administrative Law Judges recommended an ROE of 9.42 percent (including a

10 three-basis point penalty for service complaints), and a capital structure

11 including 45.00 percent equity (55.00 percent long-term debt).[497]

12 In its November 14, 2019 open meeting deliberations, the PUCT

13 discussed authorizing an ROE of 9.25 percent, and a hypothetical equity ratio

14 of 40.00 percent, both downward revisions to the PFD, and to the PUCT's

15 previously authorized ROE of 10.00 percent and hypothetical equity ratio of

16 45.00 percent. The PUCT also discussed ordering a series of "ring-fencing"

17 provisions, similar to those approved for Oncor Electric Delivery Company

18 LLC ("Oncor") in connection with Oncor's acquisition by Sempra Energy,

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[495] As of December 2018, CEHE represented about 75.00 percent of CNP's combined pre-tax operating profit.

[496] Source: PUCT Docket No. 49421, Item Number: 1.

[497] As a point of reference, in December 2018 the PUCT approved a settlement for Texas-New Mexico Power, also a distribution electric utility operating in the ERCOT region of Texas, including a 9.65 percent ROE, and a 45.00 percent equity ratio.

1	recommended in the PFD. The ring-fencing provisions included in the PFD
2	were beyond those already (voluntarily) put in place by CEHE. Although the
3	PUCT indicated it had reached its decision regarding CEHE's ROE, capital
4	structure, and ring-fencing provisions, it directed PUCT Staff to quantify the
5	revenue requirement effect of certain revenue requirement determinations, and
6	allowed parties to the proceeding to file briefs regarding the ring-fencing
7	issue.[498] With that information, the PUCT was expected to issue its final
8	decision at its December 13, 2019 open meeting.[499]
9	On November 15, 2019, CNP's stock was downgraded by analysts at
10	Bank of America, Merrill Lynch, Credit Suisse, Guggenheim, and SunTrust
11	RH.[500] For the day, CNP lost nearly 5.00 percent of its value, making it the
12	worst performing stock in the S&P 500.[501] On Monday November 18, 2019,
13	analysts at Morgan Stanley reduced their price target for CNP, and financial

---

[498] As CEHE explained in its November 25, 2019 brief, one of the ring-fencing provisions proposed by PUCT Staff was to limit dividends from CEHE to CNP to CEHE's net income. At the same time, reducing the equity ratio to 40.00 percent would require CEHE to dividend about $800 million to CNP, violating the ring-fencing provision. Together, the capital structure and ring-fencing provisions would put CEHE in the difficult position of choosing between violating the ring-fencing provisions, or maintaining considerably more equity in its actual capital structure than provided in its authorized capital structure. That equity would be "trapped" at the CEHE level, with no ability to earn the authorized return. Source: S&P Global Market Intelligence, *Texas PUC puts off ruling on CenterPoint rate case to allow settlement talks*, December 13, 2019.

[499] Source: S&P Global Market Intelligence, *Texas Regulators signal lower ROE, more ring-fencing for CenterPoint Houston*, November 15, 2019.

[500] Source: Seeking Alpha, *CenterPoint Energy slammed with downgrades at four Wall Street firms,* November 15, 2019. Each of those four companies also lower their price targets for CNP.

[501] *Ibid*.

1   market reporting services noted an increase in options activity for CNP stock.[502]

2   By closing that day, CNP had lost about 10.50 percent of its value since

3   November 13, only three trading days, representing a loss in market

4   capitalization of about $1.5 billion. By December 3, 2019, CNP's stock price

5   had lost nearly 14.00 percent of its value, reflecting a decline in market

6   capitalization of about $1.85 billion.[503]

7   On December 12, 2019, CEHE notified the PUCT that several parties to

8   the proceeding were engaged in discussions regarding a possible stipulation,

9   and requested additional time to continue those discussions.[504] At its December

10   13, 2019 open meeting, the PUCT agreed to give the parties additional time to

11   discuss the potential stipulation, and postponed its final deliberations.   On

12   January 23, 2020, CEHE filed a Stipulation and Settlement Agreement among

13   CEHE and intervening parties, including PUCT Staff. The stipulation included

14   an ROE of 9.40 percent, an equity ratio of 42.50 percent, and various ring-

15   fencing measures.[505] During its February 14, 2020 open meeting, the PUCT

16   approved the stipulation.[506]

17   On February 19, 2020, Fitch downgraded CEHE from A- to BBB+, with

18   a Negative outlook. In summarizing its decision to downgrade CEHE (while

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[502]   Source: Bloomberg Professional.
[503]   Source: S&P Capital IQ.
[504]   Source: PUCT Docket No. 49421, Item Number: 777.
[505]   Source: PUCT Docket No. 49421, Item Number: 785.
[506]   S&P Global Market Intelligence, *Texas PUC OKs CenterPoint rate case settlement, adds no dividend restrictions*, February 14, 2020.

1   affirming CNP's existing rating), Fitch explained it "believes that the

2   unfavorable outcome signals a more challenging regulatory environment in

3   Texas for CEHE." Fitch went on to note that "[l]ower authorized returns and

4   equity capitalization, combined with tax-reform related refund will pressure

5   CEHE's and CNP's credit metrics in the next few years", and explained further

6   negative rating action is possible if the Company's credit metrics deteriorate.[507]

7   To summarize, debt and equity analysts became concerned not only

8   with the financial implication of the PUCT's decision, they became quite

9   concerned with what appeared to be a deterioration in the regulatory

10   environment. As Fitch's downgrade and Guggenheim's comments suggest,

11   those concerns likely reflect higher costs of capital for CEHE.

12 **Q.   HAVE YOU ANALYZED THE MARKET REACTIONS TO THE**

13 **REGULATORY ACTIVITY ASSOCIATED WITH CEHE'S RATE**

14 **CASE?**

15 A.   Although it is difficult to disentangle the effect of the PUCT's deliberations

16   relating to ROE, capital structure, and ring-fencing, it is clear investors found

17   the combined effect of those factors on CEHE's financial and risk profile to be

18   troubling. One perspective on the extent of that concern is to view CNP's daily

19   returns relative to the daily returns on indices of utility stocks. As noted above,

20   there had been certain events that affected investors' perceptions of CEHE's

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[507]   FitchRatings, *Fitch Downgrades CenterPoint Energy Houston Electric to 'BBB+'; Affirms CNP; Outlooks Negative*, February 19, 2020.

1   risk and, therefore, CNP's stock price. To assess the effect of those events, we

2   can view CNP's daily return on a cumulative basis, relative to the cumulative

3   daily returns of utility stock indices.

4   As Chart A1 (below) suggests, coincident with the PUCT's November

5   14, 2019 open meeting, CNP began to meaningfully underperform the utility

6   sector. That underperformance continued into December, reaching its lowest

7   point on December 3, 2019. CNP's stock price began to recover around

8   December 13, 2019, when CNP notified the PUCT that settlement discussions

9   were continuing. The price recovered somewhat more through December 20,

10   2019, shortly after CEHE's update to the PUCT regarding the status of

11   settlement discussions. Subsequent to that, CNP traded in a relatively narrow

12   range.

1 **Chart A1: Cumulative Returns (10/1/2019-2/19/2020)[508]**

2
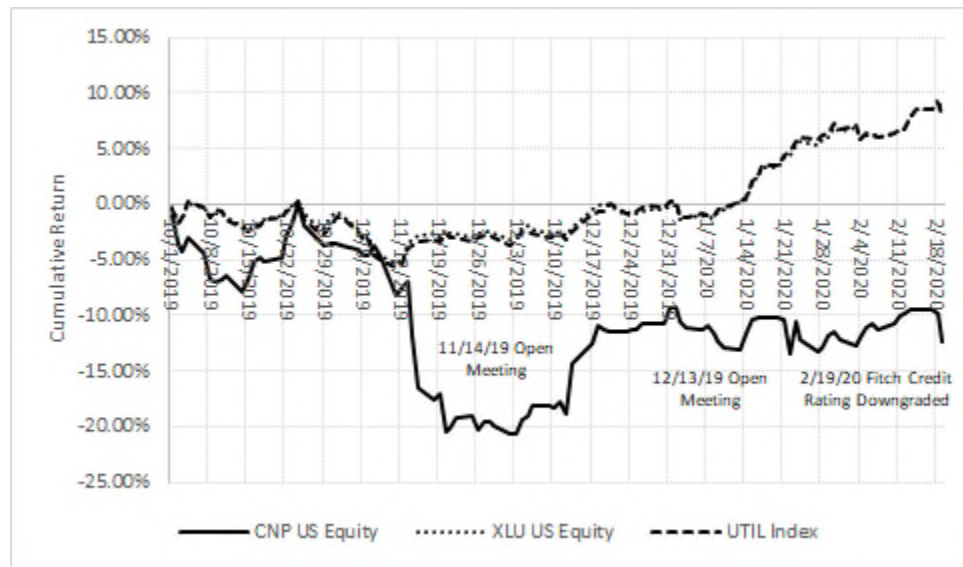
3 **Q.** **WHAT CONCLUSIONS DO YOU DRAW FROM THAT**

4 **INFORMATION?**

5 A. It is apparent that analysts and investors found the PUCT's deliberations

6 troubling. Although we cannot attribute specific portions of CNP's stock price

7 underperformance to the PUCT's deliberations regarding each of the ROE,

8 capital structure, and ring-fencing issues, we can say that in aggregate, the

9 market saw them as value-reducing.

10 **Q.** **HAVE YOU TESTED WHETHER CNP'S CUMULATIVE**

11 **UNDERPERFORMANCE IS STATISTICALLY MEANINGFUL?**

12 A. Yes, I have. A method frequently used to determine whether a given event likely

13 had a significant effect on stock returns is an "event study", sometimes referred

---

[508] Source: Bloomberg Professional.

1   to as a "cumulative abnormal return" analysis. To understand whether a specific

2   event affected stock prices and returns, it is important to look at factors beyond

3   the event under consideration. The portion of the stock's return that is not

4   attributable to those other factors is considered the "abnormal" or "excess"

5   return; the sum of those excess returns is the "cumulative" abnormal return.

6   To apply that approach, I defined the abnormal return on a given day as:

7    $$A_t = R_{i,t} - R_{m,t} \quad [A1]$$

8   where A_t is the abnormal return on day t, $R_{i,t}$ is the actual return for

9   CNP[509] on day t, and $R_{m,t}$ is the expected return for CNP. The expected return

10   is defined in Equation [A2] below.

11    $$R_{m,t} = \alpha_t + \beta_{m,t} \quad [A2]$$

12   The expected return, $R_{m,t,}$ is based on a regression equation in which

13   CNP's daily returns are the dependent variable, and the utility sector's daily

14   return (measured by XLU) is the explanatory variable. Because it relies on

15   market-adjusted returns, the approach controls for factors that affect companies

16   across the utility sector. I applied the regression (*i.e.*, Equation [A2]) over the

17   period January 1, 2019 to February 19, 2020, using daily returns.[510] The

18   equation and slope coefficient both were statistically significant (*see* Table A1,

19   below).

---

[509]   Calculated as an index. Source: S&P Global Market Intelligence.
[510]   I did not use a longer historical period to avoid any possible effect of CNP's acquisition of
         Vectren, which closed on February 1, 2019.

Table A1: Regression Statistics (XLU as Index)

	Slope	Intercept
Coefficient	0.8323	-0.0010
Std. Err.	0.0847	0.0006
R-Square	0.2472	
F-Statistic	96.5161	
T-Statistic	9.8243	-1.6376

To determine whether the PUCT's deliberations likely affected CNP's stock price and return, I considered the "event date" to be October 1, 2019. Because it pre-dates the deliberations and post-dates the PFD, the event date provides for the possibility that equity investors were aware of the regulatory process, and began to consider how the PUCT's decision might affect CNP's risk profile. I then calculated the cumulative abnormal return for each day from October 1, 2019 to February 19, 2020. Chart A2 (below) provides the cumulative abnormal return during that period. Not surprisingly, the cumulative abnormal return reached its lowest point around December 3, 2019, reversing itself around December 13, 2019 (when PUCT deferred its final decision pending ongoing settlement discussions), then falling coincident with the Stipulation and Settlement, and the Fitch downgrade.

1   **Chart A2: Cumulative Abnormal Return (XLU as Index)**

2
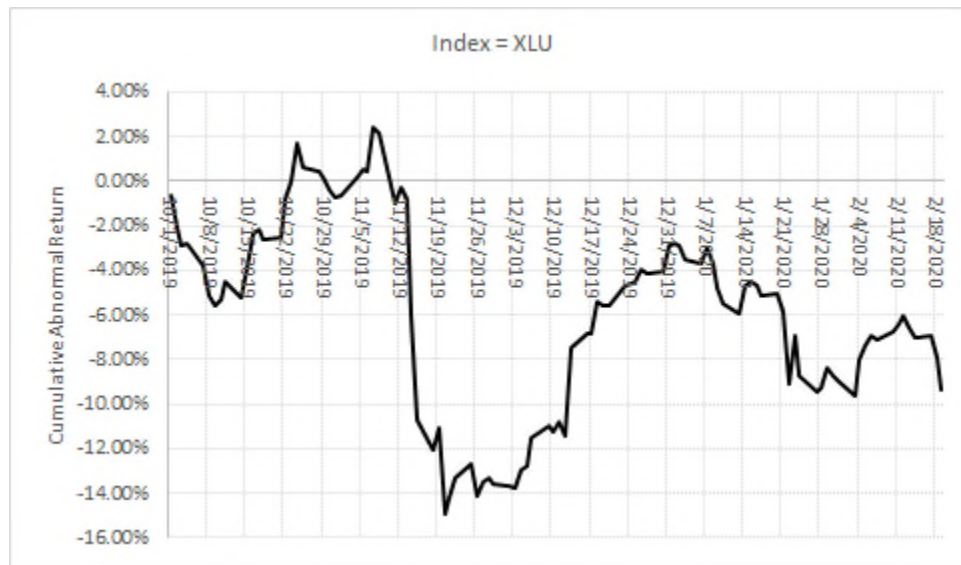
3   **Q.   WHAT CONCLUSIONS DO YOU DRAW FROM THAT ANALYSIS?**

4   A.   Controlling for sector-wide events, the PUCT's deliberations had a significant

5   effect on CNP's price performance. That is true even if we measure the

6   cumulative abnormal return through February 19, 2020.[511] If that level of

7   underperformance were to continue, CNP would be disadvantaged in its ability

8   to compete for capital, to the detriment of ratepayers and investors.

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[511]   Based on a t-test. Please note that the same findings hold when the Dow Jones Utility
         Average is used as the sector index.

Constant Growth Discounted Cash Flow Model
30 Day Average Stock Price

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	$2.47	$61.34	4.03%	4.15%	NA	7.00%	5.50%	6.25%	9.64%	10.40%	11.17%
Alliant Energy Corporation	LNT	$1.52	$49.05	3.10%	3.19%	5.50%	5.65%	6.50%	5.88%	8.68%	9.07%	9.70%
Ameren Corporation	AEE	$1.98	$73.95	2.68%	2.75%	5.90%	4.90%	6.00%	5.60%	7.64%	8.35%	8.76%
American Electric Power Company, Inc.	AEP	$2.80	$82.61	3.39%	3.49%	5.80%	6.15%	5.00%	5.65%	8.47%	9.14%	9.64%
Avangrid, Inc.	AGR	$1.76	$44.42	3.96%	4.11%	6.80%	6.30%	8.50%	7.20%	10.39%	11.31%	12.63%
Avista Corporation	AVA	$1.62	$43.56	3.72%	3.81%	5.40%	6.10%	3.50%	5.00%	7.28%	8.81%	9.93%
CMS Energy Corporation	CMS	$1.63	$59.21	2.75%	2.85%	7.10%	7.50%	7.50%	7.37%	9.95%	10.22%	10.36%
DTE Energy Company	DTE	$4.05	$96.10	4.21%	4.33%	6.00%	6.00%	5.00%	5.67%	9.32%	10.00%	10.34%
Evergy, Inc	EVRG	$2.02	$57.44	3.52%	3.59%	5.00%	3.90%	NMF	4.45%	7.49%	8.04%	8.60%
Hawaiian Electric Industries, Inc.	HE	$1.32	$42.72	3.09%	3.14%	3.50%	3.30%	2.50%	3.10%	5.63%	6.24%	6.64%
NextEra Energy, Inc.	NEE	$5.60	$228.30	2.45%	2.56%	7.60%	7.59%	10.00%	8.40%	10.14%	10.95%	12.58%
NorthWestern Corporation	NWE	$2.40	$60.71	3.95%	4.01%	3.30%	3.79%	2.00%	3.03%	5.99%	7.04%	7.82%
OGE Energy Corp.	OGE	$1.55	$30.64	5.06%	5.14%	3.40%	1.70%	4.50%	3.20%	6.80%	8.34%	9.67%
Otter Tail Corporation	OTTR	$1.48	$43.20	3.43%	3.55%	NA	9.00%	5.00%	7.00%	8.51%	10.55%	12.58%
Pinnacle West Capital Corporation	PNW	$3.13	$77.40	4.04%	4.13%	4.40%	4.62%	4.00%	4.34%	8.12%	8.47%	8.76%
PNM Resources, Inc.	PNM	$1.23	$39.99	3.08%	3.17%	5.90%	6.30%	7.00%	6.40%	9.07%	9.57%	10.18%
Portland General Electric Company	POR	$1.54	$48.75	3.16%	3.23%	4.70%	4.70%	4.50%	4.63%	7.73%	7.87%	7.93%
Southern Company	SO	$2.48	$54.86	4.52%	4.60%	4.00%	2.10%	4.00%	3.37%	6.67%	7.96%	8.61%
WEC Energy Group, Inc.	WEC	$2.53	$92.21	2.74%	2.83%	6.20%	6.23%	6.00%	6.14%	8.83%	8.97%	9.06%
Xcel Energy Inc.	XEL	$1.72	$61.55	2.79%	2.88%	6.00%	6.10%	5.50%	5.87%	8.37%	8.74%	8.98%
Proxy Group Mean				3.48%	3.58%	5.36%	5.45%	5.39%	5.43%	8.24%	9.00%	9.70%
Proxy Group Median				3.41%	3.52%	5.65%	6.05%	5.00%	5.66%	8.42%	8.89%	9.66%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals indicated number of trading day average as of April 17, 2020
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.5 x [8])
[5] Source: Zacks
[6] Source: Yahoo! Finance
[7] Source: Value Line
[8] Equals Average([5], [6], [7])
[9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])

Constant Growth Discounted Cash Flow Model
90 Day Average Stock Price

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
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Alliant Energy Corporation	LNT	$1.52	$53.94	2.82%	2.90%	5.50%	5.65%	6.50%	5.88%	8.40%	8.78%	9.41%
Ameren Corporation	AEE	$1.98	$78.00	2.54%	2.61%	5.90%	4.90%	6.00%	5.60%	7.50%	8.21%	8.61%
American Electric Power Company, Inc.	AEP	$2.80	$92.55	3.03%	3.11%	5.80%	6.15%	5.00%	5.65%	8.10%	8.76%	9.27%
Avangrid, Inc.	AGR	$1.76	$49.41	3.56%	3.69%	6.80%	6.30%	8.50%	7.20%	9.97%	10.89%	12.21%
Avista	AVA	$1.62	$47.39	3.42%	3.50%	5.40%	6.10%	3.50%	5.00%	6.98%	8.50%	9.62%
CMS Energy Corporation	CMS	$1.63	$63.06	2.58%	2.68%	7.10%	7.50%	7.50%	7.37%	9.78%	10.05%	10.18%
DTE Energy Company	DTE	$4.05	$118.20	3.43%	3.52%	6.00%	6.00%	5.00%	5.67%	8.51%	9.19%	9.53%
Evergy, Inc	EVRG	$2.02	$64.35	3.14%	3.21%	5.00%	3.90%	NMF	4.45%	7.10%	7.66%	8.22%
Hawaiian Electric Industries, Inc.	HE	$1.32	$45.68	2.89%	2.93%	3.50%	3.30%	2.50%	3.10%	5.43%	6.03%	6.44%
NextEra Energy, Inc.	NEE	$5.60	$246.91	2.27%	2.36%	7.60%	7.59%	10.00%	8.40%	9.94%	10.76%	12.38%
NorthWestern Corporation	NWE	$2.40	$69.83	3.44%	3.49%	3.30%	3.79%	2.00%	3.03%	5.47%	6.52%	7.29%
OGE Energy Corp.	OGE	$1.55	$39.69	3.90%	3.97%	3.40%	1.70%	4.50%	3.20%	5.64%	7.17%	8.49%
Otter Tail Corporation	OTTR	$1.48	$49.38	3.00%	3.10%	NA	9.00%	5.00%	7.00%	8.07%	10.10%	12.13%
Pinnacle West Capital Corporation	PNW	$3.13	$88.33	3.54%	3.62%	4.40%	4.62%	4.00%	4.34%	7.61%	7.96%	8.25%
PNM Resources, Inc.	PNM	$1.23	$47.94	2.57%	2.65%	5.90%	6.30%	7.00%	6.40%	8.54%	9.05%	9.66%
Portland General Electric Company	POR	$1.54	$55.12	2.79%	2.86%	4.70%	4.70%	4.50%	4.63%	7.36%	7.49%	7.56%
Southern Company	SO	$2.48	$62.17	3.99%	4.06%	4.00%	2.10%	4.00%	3.37%	6.13%	7.42%	8.07%
WEC Energy Group, Inc.	WEC	$2.53	$94.83	2.67%	2.75%	6.20%	6.23%	6.00%	6.14%	8.75%	8.89%	8.98%
Xcel Energy Inc.	XEL	$1.72	$64.44	2.67%	2.75%	6.00%	6.10%	5.50%	5.87%	8.24%	8.61%	8.85%
Proxy Group Mean				3.08%	3.16%	5.36%	5.45%	5.39%	5.43%	7.82%	8.59%	9.28%
Proxy Group Median				3.01%	3.11%	5.65%	6.05%	5.00%	5.66%	8.09%	8.69%	9.12%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals indicated number of trading day average as of April 17, 2020
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.5 x [8])
[5] Source: Zacks
[6] Source: Yahoo! Finance
[7] Source: Value Line
[8] Equals Average([5], [6], [7])
[9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])

Constant Growth Discounted Cash Flow Model
180 Day Average Stock Price

Company	Ticker	[1] Annualized Dividend	[2] Average Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Zacks Earnings Growth	[6] First Call Earnings Growth	[7] Value Line Earnings Growth	[8] Average Earnings Growth	[9] Low ROE	[10] Mean ROE	[11] High ROE
ALLETE, Inc.	ALE	$2.47	$79.42	3.11%	3.21%	NA	7.00%	5.50%	6.25%	8.70%	9.46%	10.22%
Alliant Energy Corporation	LNT	$1.52	$53.24	2.86%	2.94%	5.50%	5.65%	6.50%	5.88%	8.43%	8.82%	9.45%
Ameren Corporation	AEE	$1.98	$77.25	2.56%	2.63%	5.90%	4.90%	6.00%	5.60%	7.53%	8.23%	8.64%
American Electric Power Company, Inc.	AEP	$2.80	$92.13	3.04%	3.13%	5.80%	6.15%	5.00%	5.65%	8.12%	8.78%	9.28%
Avangrid, Inc.	AGR	$1.76	$49.69	3.54%	3.67%	6.80%	6.30%	8.50%	7.20%	9.95%	10.87%	12.19%
Avista	AVA	$1.62	$47.33	3.42%	3.51%	5.40%	6.10%	3.50%	5.00%	6.98%	8.51%	9.63%
CMS Energy Corporation	CMS	$1.63	$62.61	2.60%	2.70%	7.10%	7.50%	7.50%	7.37%	9.80%	10.07%	10.20%
DTE Energy Company	DTE	$4.05	$123.14	3.29%	3.38%	6.00%	6.00%	5.00%	5.67%	8.37%	9.05%	9.39%
Evergy, Inc	EVRG	$2.02	$64.23	3.14%	3.21%	5.00%	3.90%	NMF	4.45%	7.11%	7.66%	8.22%
Hawaiian Electric Industries, Inc.	HE	$1.32	$45.06	2.93%	2.97%	3.50%	3.30%	2.50%	3.10%	5.47%	6.07%	6.48%
NextEra Energy, Inc.	NEE	$5.60	$236.68	2.37%	2.47%	7.60%	7.59%	10.00%	8.40%	10.05%	10.86%	12.48%
NorthWestern Corporation	NWE	$2.40	$71.02	3.38%	3.43%	3.30%	3.79%	2.00%	3.03%	5.41%	6.46%	7.23%
OGE Energy Corp.	OGE	$1.55	$41.46	3.74%	3.80%	3.40%	1.70%	4.50%	3.20%	5.47%	7.00%	8.32%
Otter Tail Corporation	OTTR	$1.48	$50.78	2.91%	3.02%	NA	9.00%	5.00%	7.00%	7.99%	10.02%	12.05%
Pinnacle West Capital Corporation	PNW	$3.13	$90.47	3.46%	3.53%	4.40%	4.62%	4.00%	4.34%	7.53%	7.87%	8.16%
PNM Resources, Inc.	PNM	$1.23	$49.16	2.50%	2.58%	5.90%	6.30%	7.00%	6.40%	8.48%	8.98%	9.59%
Portland General Electric Company	POR	$1.54	$55.56	2.77%	2.84%	4.70%	4.70%	4.50%	4.63%	7.33%	7.47%	7.54%
Southern Company	SO	$2.48	$61.34	4.04%	4.11%	4.00%	2.10%	4.00%	3.37%	6.19%	7.48%	8.12%
WEC Energy Group, Inc.	WEC	$2.53	$93.29	2.71%	2.80%	6.20%	6.23%	6.00%	6.14%	8.79%	8.94%	9.03%
Xcel Energy Inc.	XEL	$1.72	$63.61	2.70%	2.78%	6.00%	6.10%	5.50%	5.87%	8.28%	8.65%	8.89%
Proxy Group Mean				3.05%	3.14%	5.36%	5.45%	5.39%	5.43%	7.80%	8.56%	9.26%
Proxy Group Median				2.98%	3.07%	5.65%	6.05%	5.00%	5.66%	8.05%	8.71%	9.15%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals indicated number of trading day average as of April 17, 2020
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.5 x [8])
[5] Source: Zacks
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[11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])

Ex-Ante Market Risk Premium
Market DCF Method Based - Bloomberg

	[1]	[2]	[3]
	S&P 500 Est. Required Market Return	Current 30-Year Treasury (30-day average)	Implied Market Risk Premium
	12.93%	1.37%	11.56%

Company	Ticker	[4] Market Capitalization ($ mil)	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Agilent Technologies Inc	A	24,632.77	N/A	0.91%	N/A	N/A	N/A
American Airlines Group Inc	AAL	4,929.50	0.02%	2.59%	-12.30%	-9.87%	-0.0020%
Advance Auto Parts Inc	AAP	8,211.97	0.03%	0.63%	11.15%	11.82%	0.0039%
Apple Inc	AAPL	1,237,385.74	5.01%	1.14%	10.98%	12.18%	0.6096%
AbbVie Inc	ABBV	123,228.35	0.50%	5.77%	1.53%	7.35%	0.0366%
AmerisourceBergen Corp	ABC	18,363.49	0.07%	1.87%	12.35%	14.33%	0.0106%
ABIOMED Inc	ABMD	7,481.30	N/A	0.00%	N/A	N/A	N/A
Abbott Laboratories	ABT	169,307.23	0.69%	1.48%	8.10%	9.64%	0.0660%
Accenture PLC	ACN	111,705.15	0.45%	1.82%	10.50%	12.42%	0.0561%
Adobe Inc	ADBE	165,792.49	0.67%	0.00%	17.67%	17.67%	0.1185%
Analog Devices Inc	ADI	37,853.03	0.15%	2.33%	12.15%	14.63%	0.0224%
Archer-Daniels-Midland Co	ADM	20,722.56	0.08%	3.89%	8.80%	12.86%	0.0108%
Automatic Data Processing Inc	ADP	60,911.89	0.25%	2.48%	16.00%	18.68%	0.0460%
Alliance Data Systems Corp	ADS	1,803.18	0.01%	23.67%	-0.40%	23.22%	0.0017%
Autodesk Inc	ADSK	39,720.21	0.16%	0.00%	33.95%	33.95%	0.0546%
Ameren Corp	AEE	19,203.56	0.08%	2.60%	6.45%	9.13%	0.0071%
American Electric Power Co Inc	AEP	42,743.65	0.17%	3.27%	6.91%	10.29%	0.0178%
AES Corp/VA	AES	8,721.76	0.04%	4.45%	7.81%	12.43%	0.0044%
Aflac Inc	AFL	26,357.22	0.11%	3.12%	0.67%	3.80%	0.0041%
Allergan PLC	AGN	61,523.38	N/A	1.60%	N/A	N/A	N/A
American International Group Inc	AIG	21,101.61	0.09%	5.31%	15.85%	21.58%	0.0184%
Apartment Investment & Management Co	AIV	5,830.63	0.02%	4.21%	2.35%	6.61%	0.0016%
Assurant Inc	AIZ	6,329.95	N/A	2.40%	N/A	N/A	N/A
Arthur J Gallagher & Co	AJG	15,851.19	0.06%	2.14%	10.44%	12.69%	0.0081%
Akamai Technologies Inc	AKAM	17,054.25	0.07%	0.00%	11.80%	11.80%	0.0081%
Albemarle Corp	ALB	6,535.41	0.03%	2.47%	8.00%	10.57%	0.0028%
Align Technology Inc	ALGN	15,200.43	0.06%	0.00%	21.00%	21.00%	0.0129%
Alaska Air Group Inc	ALK	3,668.96	0.01%	1.23%	-14.87%	-13.73%	-0.0020%
Allstate Corp/The	ALL	33,197.25	0.13%	2.00%	7.37%	9.45%	0.0127%
Allegion plc	ALLE	9,003.27	0.04%	1.06%	3.01%	4.09%	0.0015%
Alexion Pharmaceuticals Inc	ALXN	22,879.43	0.09%	0.00%	10.92%	10.92%	0.0101%
Applied Materials Inc	AMAT	48,853.83	0.20%	1.63%	13.16%	14.90%	0.0294%
Amcor PLC	AMCR	14,083.54	0.06%	5.39%	8.10%	13.71%	0.0078%
Advanced Micro Devices Inc	AMD	66,270.24	0.27%	0.00%	20.33%	20.33%	0.0545%
AMETEK Inc	AME	18,406.26	0.07%	0.79%	7.90%	8.72%	0.0065%
Amgen Inc	AMGN	138,106.56	0.56%	2.68%	8.06%	10.85%	0.0606%
Ameriprise Financial Inc	AMP	13,643.36	0.06%	3.70%	3.90%	7.67%	0.0042%
American Tower Corp	AMT	112,663.38	0.46%	1.78%	16.80%	18.72%	0.0853%
Amazon.com Inc	AMZN	1,183,996.93	4.79%	0.00%	34.85%	34.85%	1.6695%
Arista Networks Inc	ANET	15,889.85	0.06%	0.00%	15.80%	15.80%	0.0102%
ANSYS Inc	ANSS	22,584.66	0.09%	0.00%	11.50%	11.50%	0.0105%
Anthem Inc	ANTM	67,527.40	0.27%	1.42%	12.76%	14.27%	0.0390%
Aon PLC	AON	44,136.65	0.18%	0.99%	11.30%	12.35%	0.0220%
AO Smith Corp	AOS	6,655.17	0.03%	2.49%	8.00%	10.59%	0.0029%
Apache Corp	APA	3,204.28	0.01%	3.89%	-18.00%	-14.46%	-0.0019%
Air Products & Chemicals Inc	APD	48,880.28	0.20%	2.31%	11.35%	13.80%	0.0273%
Amphenol Corp	APH	24,916.09	0.10%	1.17%	6.02%	7.22%	0.0073%
Aptiv PLC	APTV	16,313.59	0.07%	0.98%	8.39%	9.42%	0.0062%
Alexandria Real Estate Equities Inc	ARE	19,599.32	0.08%	2.70%	3.33%	6.08%	0.0048%
Atmos Energy Corp	ATO	13,539.40	0.05%	2.08%	7.35%	9.50%	0.0052%
Activision Blizzard Inc	ATVI	51,445.54	0.21%	0.59%	8.59%	9.20%	0.0192%
AvalonBay Communities Inc	AVB	23,976.90	0.10%	3.73%	6.68%	10.53%	0.0102%
Broadcom Inc	AVGO	106,296.52	0.43%	4.89%	5.40%	10.42%	0.0448%
Avery Dennison Corp	AVY	9,109.25	0.04%	2.16%	7.00%	9.24%	0.0034%
American Water Works Co Inc	AWK	23,851.14	0.10%	1.62%	8.19%	9.88%	0.0095%
American Express Co	AXP	70,416.95	0.28%	2.02%	4.85%	6.92%	0.0197%
AutoZone Inc	AZO	23,160.94	0.09%	0.00%	9.63%	9.63%	0.0090%
Boeing Co/The	BA	86,890.78	0.35%	1.33%	12.90%	14.32%	0.0503%
Bank of America Corp	BAC	201,965.35	0.82%	3.18%	9.25%	12.58%	0.1028%
Baxter International Inc	BAX	47,144.81	0.19%	1.01%	11.95%	13.02%	0.0248%
Best Buy Co Inc	BBY	18,128.24	0.07%	3.21%	7.00%	10.33%	0.0076%
Becton Dickinson and Co	BDX	70,884.66	0.29%	1.37%	11.40%	12.85%	0.0369%
Franklin Resources Inc	BEN	8,119.31	0.03%	6.63%	-9.73%	-3.42%	-0.0011%
Brown-Forman Corp	BF/B	29,746.50	0.12%	1.06%	2.77%	3.84%	0.0046%
Biogen Inc	BIIB	59,625.63	0.24%	0.00%	0.16%	0.16%	0.0004%
Bank of New York Mellon Corp/The	BK	33,106.71	0.13%	3.35%	4.15%	7.57%	0.0101%
Booking Holdings Inc	BKNG	60,396.59	0.24%	0.00%	12.43%	12.43%	0.0304%
Baker Hughes Co	BKR	13,436.13	0.05%	5.55%	16.89%	22.91%	0.0125%
BlackRock Inc	BLK	74,024.18	0.30%	3.04%	3.84%	6.95%	0.0208%
Ball Corp	BLL	22,870.21	0.09%	0.77%	8.53%	9.34%	0.0086%
Bristol-Myers Squibb Co	BMY	137,105.28	0.55%	2.97%	11.38%	14.52%	0.0805%
Broadridge Financial Solutions Inc	BR	12,621.39	0.05%	1.98%	7.10%	9.15%	0.0047%
Berkshire Hathaway Inc	BRK/B	463,136.35	1.87%	0.00%	-3.10%	-3.10%	-0.0581%
Boston Scientific Corp	BSX	53,575.36	0.22%	0.00%	11.03%	11.03%	0.0239%
BorgWarner Inc	BWA	5,576.88	0.02%	2.59%	9.38%	12.10%	0.0027%
Boston Properties Inc	BXP	14,814.11	0.06%	4.17%	3.29%	7.53%	0.0045%
Citigroup Inc	C	94,617.81	0.38%	4.53%	-1.53%	2.97%	0.0114%

		[4] Market Capitalization ($ mil)	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Company	Ticker						
Conagra Brands Inc	CAG	16,356.02	0.07%	2.53%	8.40%	11.04%	0.0073%
Cardinal Health Inc	CAH	14,948.07	0.06%	3.94%	4.73%	8.76%	0.0053%
Carrier Global Corp	CARR	11,901.02	N/A	0.00%	N/A	N/A	N/A
Caterpillar Inc	CAT	63,974.61	0.26%	3.68%	7.83%	11.66%	0.0302%
Chubb Ltd	CB	53,682.13	0.22%	2.59%	10.00%	12.72%	0.0276%
Cboe Global Markets Inc	CBOE	11,191.42	0.05%	1.46%	10.00%	11.53%	0.0052%
CBRE Group Inc	CBRE	14,960.66	0.06%	0.00%	8.45%	8.45%	0.0051%
Crown Castle International Corp	CCI	69,618.00	0.28%	2.92%	16.00%	19.15%	0.0539%
Carnival Corp	CCL	9,310.71	0.04%	11.42%	-2.76%	8.50%	0.0032%
Cadence Design Systems Inc	CDNS	22,087.53	0.09%	0.00%	9.84%	9.84%	0.0088%
CDW Corp/DE	CDW	15,480.49	0.06%	1.37%	13.10%	14.56%	0.0091%
Celanese Corp	CE	9,345.30	0.04%	3.42%	5.32%	8.83%	0.0033%
Cerner Corp	CERN	21,300.24	0.09%	0.64%	14.47%	15.15%	0.0131%
CF Industries Holdings Inc	CF	6,048.32	0.02%	4.27%	6.00%	10.40%	0.0025%
Citizens Financial Group Inc	CFG	8,476.27	0.03%	7.71%	-38.61%	-32.39%	-0.0111%
Church & Dwight Co Inc	CHD	18,076.85	0.07%	1.31%	7.82%	9.18%	0.0067%
CH Robinson Worldwide Inc	CHRW	9,749.35	0.04%	2.79%	10.00%	12.93%	0.0051%
Charter Communications Inc	CHTR	132,774.53	0.54%	0.00%	24.58%	24.58%	0.1320%
Cigna Corp	CI	72,200.73	0.29%	0.03%	11.02%	11.05%	0.0323%
Cincinnati Financial Corp	CINF	13,920.70	N/A	3.00%	N/A	N/A	N/A
Colgate-Palmolive Co	CL	62,953.78	0.25%	2.48%	5.24%	7.78%	0.0198%
Clorox Co/The	CLX	24,206.77	0.10%	2.18%	4.40%	6.63%	0.0065%
Comerica Inc	CMA	4,210.31	0.02%	9.21%	-4.66%	4.34%	0.0007%
Comcast Corp	CMCSA	173,379.56	0.70%	2.41%	8.78%	11.29%	0.0792%
CME Group Inc	CME	68,691.86	0.28%	3.25%	8.27%	11.65%	0.0324%
Chipotle Mexican Grill Inc	CMG	22,809.94	0.09%	0.00%	13.20%	13.20%	0.0122%
Cummins Inc	CMI	22,096.89	0.09%	3.55%	0.31%	3.87%	0.0035%
CMS Energy Corp	CMS	17,953.42	0.07%	2.57%	7.17%	9.84%	0.0071%
Centene Corp	CNC	41,833.74	0.17%	0.00%	14.77%	14.77%	0.0250%
CenterPoint Energy Inc	CNP	8,308.22	0.03%	4.94%	-1.04%	3.87%	0.0013%
Capital One Financial Corp	COF	24,988.90	0.10%	2.98%	7.17%	10.26%	0.0104%
Cabot Oil & Gas Corp	COG	8,354.14	0.03%	1.94%	1.10%	3.05%	0.0010%
Cooper Cos Inc/The	COO	16,334.05	0.07%	0.02%	8.93%	8.95%	0.0059%
ConocoPhillips	COP	37,970.08	0.15%	4.79%	-13.00%	-8.52%	-0.0131%
Costco Wholesale Corp	COST	140,387.10	0.57%	0.85%	8.07%	8.96%	0.0509%
Coty Inc	COTY	4,373.76	0.02%	6.26%	2.89%	9.24%	0.0016%
Campbell Soup Co	CPB	15,189.82	0.06%	2.80%	7.48%	10.38%	0.0064%
Capri Holdings Ltd	CPRI	1,931.29	0.01%	0.00%	-0.89%	-0.89%	-0.0001%
Copart Inc	CPRT	16,850.17	N/A	0.00%	N/A	N/A	N/A
salesforce.com Inc	CRM	145,544.90	0.59%	0.00%	19.15%	19.15%	0.1128%
Cisco Systems Inc	CSCO	180,152.59	0.73%	3.33%	5.42%	8.84%	0.0644%
CSX Corp	CSX	48,377.54	0.20%	1.62%	10.48%	12.19%	0.0239%
Cintas Corp	CTAS	21,242.84	N/A	1.25%	N/A	N/A	N/A
CenturyLink Inc	CTL	11,253.48	0.05%	9.76%	0.63%	10.42%	0.0047%
Cognizant Technology Solutions Corp	CTSH	29,522.16	0.12%	1.61%	10.38%	12.07%	0.0144%
Corteva Inc	CTVA	19,114.22	0.08%	1.96%	11.58%	13.65%	0.0106%
Citrix Systems Inc	CTXS	18,568.21	0.08%	0.93%	9.17%	10.14%	0.0076%
CVS Health Corp	CVS	82,722.29	0.33%	3.16%	8.30%	11.59%	0.0388%
Chevron Corp	CVX	162,744.53	N/A	5.85%	N/A	N/A	N/A
Concho Resources Inc	CXO	10,216.96	0.04%	1.53%	4.60%	6.16%	0.0025%
Dominion Energy Inc	D	68,327.64	0.28%	4.64%	4.90%	9.65%	0.0267%
Delta Air Lines Inc	DAL	15,535.08	0.06%	1.65%	-15.05%	-13.53%	-0.0085%
DuPont de Nemours Inc	DD	28,148.37	0.11%	3.21%	2.22%	5.46%	0.0062%
Deere & Co	DE	43,423.83	0.18%	2.30%	1.10%	3.41%	0.0060%
Discover Financial Services	DFS	10,730.58	0.04%	5.16%	4.36%	9.64%	0.0042%
Dollar General Corp	DG	45,803.41	0.19%	0.78%	10.53%	11.35%	0.0210%
Quest Diagnostics Inc	DGX	12,755.09	0.05%	2.37%	5.60%	8.03%	0.0041%
DR Horton Inc	DHI	14,610.59	0.06%	1.72%	10.45%	12.26%	0.0072%
Danaher Corp	DHR	109,085.00	0.44%	0.46%	11.21%	11.70%	0.0516%
Walt Disney Co/The	DIS	192,513.92	0.78%	1.74%	18.26%	20.16%	0.1570%
Discovery Inc	DISCA	15,187.87	0.06%	0.00%	-0.63%	-0.63%	-0.0004%
DISH Network Corp	DISH	11,779.12	0.05%	0.00%	-0.08%	-0.08%	0.0000%
Digital Realty Trust Inc	DLR	40,003.87	0.16%	3.07%	18.50%	21.85%	0.0354%
Dollar Tree Inc	DLTR	19,354.55	0.08%	0.00%	8.45%	8.45%	0.0066%
Dover Corp	DOV	12,749.99	0.05%	2.27%	10.70%	13.09%	0.0068%
Dow Inc	DOW	24,820.36	0.10%	8.54%	3.33%	12.01%	0.0121%
Duke Realty Corp	DRE	12,862.53	0.05%	2.68%	4.11%	6.84%	0.0036%
Darden Restaurants Inc	DRI	7,654.17	0.03%	4.05%	6.89%	11.07%	0.0034%
DTE Energy Co	DTE	20,334.32	0.08%	3.84%	6.03%	9.98%	0.0082%
Duke Energy Corp	DUK	66,135.98	0.27%	4.30%	4.86%	9.26%	0.0248%
DaVita Inc	DVA	9,816.90	0.04%	0.00%	15.18%	15.18%	0.0060%
Devon Energy Corp	DVN	3,530.34	0.01%	4.61%	7.47%	12.25%	0.0018%
DXC Technology Co	DXC	3,889.54	0.02%	5.38%	-7.39%	-2.21%	-0.0003%
Electronic Arts Inc	EA	33,356.00	0.13%	0.00%	8.09%	8.09%	0.0109%
eBay Inc	EBAY	29,817.21	0.12%	1.69%	11.23%	13.02%	0.0157%
Ecolab Inc	ECL	51,688.47	0.21%	1.08%	10.70%	11.83%	0.0247%
Consolidated Edison Inc	ED	29,910.90	0.12%	3.42%	3.46%	6.94%	0.0084%
Equifax Inc	EFX	15,514.54	0.06%	1.25%	7.69%	8.98%	0.0056%
Edison International	EIX	22,503.84	0.09%	4.10%	4.81%	9.01%	0.0082%
Estee Lauder Cos Inc/The	EL	62,653.48	0.25%	1.03%	11.33%	12.42%	0.0315%
Eastman Chemical Co	EMN	7,487.77	0.03%	4.79%	5.27%	10.18%	0.0031%
Emerson Electric Co	EMR	30,922.45	0.13%	3.93%	6.37%	10.43%	0.0130%
EOG Resources Inc	EOG	24,353.18	0.10%	3.40%	-4.97%	-1.66%	-0.0016%
Equinix Inc	EQIX	59,379.23	0.24%	1.53%	21.46%	23.15%	0.0556%
Equity Residential	EQR	25,960.38	N/A	3.43%	N/A	N/A	N/A
Eversource Energy	ES	30,245.21	0.12%	2.48%	6.33%	8.88%	0.0109%
Essex Property Trust Inc	ESS	17,262.75	0.07%	3.15%	6.30%	9.55%	0.0067%
E*TRADE Financial Corp	ETFC	8,812.23	0.04%	1.46%	3.38%	4.86%	0.0017%
Eaton Corp PLC	ETN	32,610.49	0.13%	3.63%	9.33%	13.13%	0.0173%
Entergy Corp	ETR	20,336.60	0.08%	3.70%	2.85%	6.59%	0.0054%

Company	Ticker	[4] Market Capitalization ($ mil)	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Evergy Inc	EVRG	13,821.67	0.06%	3.35%	5.63%	9.08%	0.0051%
Edwards Lifesciences Corp	EW	47,355.31	0.19%	0.00%	13.18%	13.18%	0.0253%
Exelon Corp	EXC	37,437.86	0.15%	3.97%	1.19%	5.18%	0.0079%
Expeditors International of Washington I	EXPD	12,051.52	0.05%	1.46%	9.70%	11.23%	0.0055%
Expedia Group Inc	EXPE	8,850.11	0.04%	1.69%	13.67%	15.47%	0.0055%
Extra Space Storage Inc	EXR	12,055.88	0.05%	3.92%	4.17%	8.17%	0.0040%
Ford Motor Co	F	20,360.64	0.08%	6.74%	11.67%	18.80%	0.0155%
Diamondback Energy Inc	FANG	4,989.13	0.02%	4.50%	11.96%	16.73%	0.0034%
Fastenal Co	FAST	20,581.38	0.08%	2.74%	13.85%	16.78%	0.0140%
Facebook Inc	FB	510,974.40	2.07%	0.00%	20.64%	20.64%	0.4266%
Fortune Brands Home & Security Inc	FBHS	6,510.31	0.03%	2.06%	5.63%	7.75%	0.0020%
Freeport-McMoRan Inc	FCX	12,101.11	0.05%	1.63%	138.40%	141.16%	0.0691%
FedEx Corp	FDX	32,617.03	0.13%	2.09%	14.06%	16.29%	0.0215%
FirstEnergy Corp	FE	25,033.36	0.10%	3.38%	1.61%	5.02%	0.0051%
F5 Networks Inc	FFIV	7,546.40	0.03%	0.00%	5.20%	5.20%	0.0016%
Fidelity National Information Services I	FIS	79,045.62	0.32%	1.15%	18.45%	19.71%	0.0630%
Fiserv Inc	FISV	68,059.71	0.28%	0.00%	14.77%	14.77%	0.0407%
Fifth Third Bancorp	FITB	11,826.14	0.05%	6.57%	1.80%	8.43%	0.0040%
FLIR Systems Inc	FLIR	4,591.66	0.02%	2.14%	10.40%	12.65%	0.0023%
Flowserve Corp	FLS	3,226.79	N/A	3.19%	N/A	N/A	N/A
FleetCor Technologies Inc	FLT	19,101.08	0.08%	0.04%	11.05%	11.09%	0.0086%
FMC Corp	FMC	11,144.83	0.05%	1.99%	9.80%	11.88%	0.0054%
Fox Corp	FOXA	16,139.63	0.07%	1.69%	-9.57%	-7.97%	-0.0052%
First Republic Bank/CA	FRC	17,132.19	0.07%	0.79%	6.49%	7.31%	0.0051%
Federal Realty Investment Trust	FRT	5,698.92	0.02%	5.61%	6.08%	11.86%	0.0027%
TechnipFMC PLC	FTI	3,630.17	0.01%	6.40%	3.00%	9.50%	0.0014%
Fortinet Inc	FTNT	19,487.26	0.08%	0.00%	16.20%	16.20%	0.0128%
Fortive Corp	FTV	20,306.03	0.08%	0.51%	5.90%	6.42%	0.0053%
General Dynamics Corp	GD	40,104.52	0.16%	3.13%	7.18%	10.42%	0.0169%
General Electric Co	GE	59,790.61	0.24%	0.58%	6.33%	6.94%	0.0168%
Gilead Sciences Inc	GILD	105,744.66	0.43%	3.23%	0.80%	4.04%	0.0173%
General Mills Inc	GIS	36,774.45	0.15%	3.23%	5.87%	9.20%	0.0137%
Globe Life Inc	GL	8,296.43	0.03%	0.93%	5.95%	6.91%	0.0023%
Corning Inc	GLW	15,801.49	0.06%	4.35%	9.40%	13.96%	0.0089%
General Motors Co	GM	32,123.97	0.13%	6.14%	13.36%	19.90%	0.0259%
Alphabet Inc	GOOGL	880,586.70	3.56%	0.00%	16.09%	16.09%	0.5734%
Genuine Parts Co	GPC	10,852.74	0.04%	4.20%	2.58%	6.83%	0.0030%
Global Payments Inc	GPN	46,483.90	0.19%	0.38%	20.52%	20.95%	0.0394%
Gap Inc/The	GPS	3,111.54	0.01%	10.92%	8.50%	19.89%	0.0025%
Garmin Ltd	GRMN	15,657.34	0.06%	2.94%	7.03%	10.08%	0.0064%
Goldman Sachs Group Inc/The	GS	65,776.61	0.27%	2.76%	5.13%	7.95%	0.0212%
WW Grainger Inc	GWW	15,040.27	0.06%	2.14%	11.50%	13.76%	0.0084%
Halliburton Co	HAL	6,620.00	N/A	9.50%	N/A	N/A	N/A
Hasbro Inc	HAS	10,302.92	0.04%	3.69%	10.61%	14.50%	0.0060%
Huntington Bancshares Inc/OH	HBAN	8,245.19	0.03%	7.51%	-9.95%	-2.81%	-0.0009%
Hanesbrands Inc	HBI	3,296.11	0.01%	6.55%	2.89%	9.53%	0.0013%
HCA Healthcare Inc	HCA	39,147.30	0.16%	1.59%	10.25%	11.92%	0.0189%
Home Depot Inc/The	HD	224,941.40	0.91%	2.80%	9.49%	12.43%	0.1131%
Hess Corp	HES	11,399.76	N/A	2.67%	N/A	N/A	N/A
HollyFrontier Corp	HFC	4,374.09	0.02%	5.20%	1.40%	6.64%	0.0012%
Hartford Financial Services Group Inc/Th	HIG	14,322.43	0.06%	3.30%	12.00%	15.49%	0.0090%
Huntington Ingalls Industries Inc	HII	7,980.25	0.03%	2.19%	40.00%	42.63%	0.0138%
Hilton Worldwide Holdings Inc	HLT	20,980.60	0.08%	0.17%	1.56%	1.73%	0.0015%
Harley-Davidson Inc	HOG	2,963.17	0.01%	6.81%	7.70%	14.77%	0.0018%
Hologic Inc	HOLX	11,566.11	0.05%	0.00%	11.10%	11.10%	0.0052%
Honeywell International Inc	HON	97,831.89	0.40%	2.60%	6.19%	8.87%	0.0351%
Helmerich & Payne Inc	HP	1,931.49	N/A	12.68%	N/A	N/A	N/A
Hewlett Packard Enterprise Co	HPE	12,509.80	0.05%	4.97%	2.05%	7.08%	0.0036%
HP Inc	HPQ	22,189.94	0.09%	4.54%	3.57%	8.19%	0.0074%
H&R Block Inc	HRB	2,763.95	0.01%	7.26%	10.00%	17.63%	0.0020%
Hormel Foods Corp	HRL	27,163.00	0.11%	1.83%	4.63%	6.50%	0.0071%
Henry Schein Inc	HSIC	7,657.43	0.03%	0.00%	1.13%	1.13%	0.0003%
Host Hotels & Resorts Inc	HST	8,025.88	0.03%	6.11%	-2.30%	3.74%	0.0012%
Hershey Co/The	HSY	30,655.63	0.12%	2.18%	7.70%	9.96%	0.0124%
Humana Inc	HUM	49,360.15	0.20%	0.65%	11.97%	12.66%	0.0253%
Howmet Aerospace Inc	HWM	5,078.45	0.02%	0.00%	51.10%	51.10%	0.0105%
International Business Machines Corp	IBM	106,715.57	0.43%	5.57%	2.66%	8.30%	0.0359%
Intercontinental Exchange Inc	ICE	49,642.04	0.20%	1.31%	9.77%	11.14%	0.0224%
IDEXX Laboratories Inc	IDXX	22,598.24	0.09%	0.00%	17.29%	17.29%	0.0158%
IDEX Corp	IEX	11,644.02	0.05%	1.36%	11.60%	13.04%	0.0061%
International Flavors & Fragrances Inc	IFF	13,363.09	0.05%	2.40%	7.47%	9.95%	0.0054%
Illumina Inc	ILMN	46,446.16	0.19%	0.00%	18.80%	18.80%	0.0353%
Incyte Corp	INCY	21,677.55	0.09%	0.00%	20.20%	20.20%	0.0177%
IHS Markit Ltd	INFO	26,795.22	0.11%	0.71%	12.20%	12.95%	0.0140%
Intel Corp	INTC	258,372.40	1.05%	2.18%	6.94%	9.19%	0.0961%
Intuit Inc	INTU	69,123.48	0.28%	0.78%	16.20%	17.05%	0.0477%
International Paper Co	IP	12,530.77	0.05%	6.44%	-30.30%	-24.84%	-0.0126%
Interpublic Group of Cos Inc/The	IPG	5,864.96	0.02%	6.35%	0.13%	6.48%	0.0015%
IPG Photonics Corp	IPGP	6,326.58	N/A	0.00%	N/A	N/A	N/A
IQVIA Holdings Inc	IQV	25,368.87	0.10%	0.00%	11.85%	11.85%	0.0122%
Ingersoll Rand Inc	IR	11,141.61	0.05%	0.41%	9.40%	9.83%	0.0044%
Iron Mountain Inc	IRM	7,193.85	0.03%	9.97%	6.70%	17.01%	0.0049%
Intuitive Surgical Inc	ISRG	61,041.04	0.25%	0.00%	7.87%	7.87%	0.0194%
Gartner Inc	IT	9,441.21	0.04%	0.00%	10.82%	10.82%	0.0041%
Illinois Tool Works Inc	ITW	50,351.92	0.20%	2.60%	5.65%	8.32%	0.0170%
Invesco Ltd	IVZ	4,112.61	0.02%	13.68%	-8.63%	4.46%	0.0007%
Jacobs Engineering Group Inc	J	11,202.82	0.05%	0.89%	12.69%	13.63%	0.0062%
JB Hunt Transport Services Inc	JBHT	11,431.34	0.05%	1.00%	11.70%	12.76%	0.0059%
Johnson Controls International plc	JCI	22,569.96	0.09%	3.66%	9.67%	13.50%	0.0123%
Jack Henry & Associates Inc	JKHY	13,016.25	0.05%	0.97%	12.10%	13.13%	0.0069%

		[4]	[5]	[6]	[7]	[8]	[9]
Company	Ticker	Market Capitalization ($ mil)	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Johnson & Johnson	JNJ	400,778.27	1.62%	2.62%	5.85%	8.55%	0.1386%
Juniper Networks Inc	JNPR	7,470.94	0.03%	3.52%	8.70%	12.38%	0.0037%
JPMorgan Chase & Co	JPM	289,969.40	1.17%	3.82%	5.70%	9.63%	0.1130%
Nordstrom Inc	JWN	2,939.31	0.01%	3.98%	6.00%	10.10%	0.0012%
Kellogg Co	K	22,269.26	0.09%	3.58%	3.22%	6.86%	0.0062%
KeyCorp	KEY	10,543.20	0.04%	6.85%	3.36%	10.33%	0.0044%
Keysight Technologies Inc	KEYS	17,959.97	0.07%	0.00%	20.00%	20.00%	0.0145%
Kraft Heinz Co/The	KHC	35,834.13	0.14%	5.35%	-0.21%	5.14%	0.0075%
Kimco Realty Corp	KIM	3,857.98	0.02%	12.15%	4.72%	17.16%	0.0027%
KLA Corp	KLAC	25,273.25	0.10%	2.10%	11.04%	13.26%	0.0136%
Kimberly-Clark Corp	KMB	48,466.87	0.20%	3.00%	4.51%	7.57%	0.0149%
Kinder Morgan Inc	KMI	33,861.06	0.14%	8.02%	5.60%	13.85%	0.0190%
CarMax Inc	KMX	10,636.17	0.04%	0.00%	11.64%	11.64%	0.0050%
Coca-Cola Co/The	KO	206,340.88	0.83%	3.44%	4.66%	8.18%	0.0683%
Kroger Co/The	KR	24,838.09	0.10%	2.06%	5.25%	7.37%	0.0074%
Kohl's Corp	KSS	2,868.96	0.01%	13.46%	8.00%	22.00%	0.0026%
Kansas City Southern	KSU	13,242.02	0.05%	1.12%	11.00%	12.18%	0.0065%
Loews Corp	L	10,232.55	N/A	0.00%	N/A	N/A	N/A
L Brands Inc	LB	3,810.63	0.02%	6.71%	11.50%	18.60%	0.0029%
Leidos Holdings Inc	LDOS	14,082.58	0.06%	1.40%	9.93%	11.39%	0.0065%
Leggett & Platt Inc	LEG	3,820.68	N/A	5.68%	N/A	N/A	N/A
Lennar Corp	LEN	13,021.50	0.05%	0.77%	9.66%	10.46%	0.0055%
Laboratory Corp of America Holdings	LH	14,421.79	0.06%	0.00%	5.12%	5.12%	0.0030%
L3Harris Technologies Inc	LHX	44,138.38	0.18%	1.64%	16.72%	18.50%	0.0330%
Linde PLC	LIN	100,250.82	0.41%	2.02%	9.50%	11.62%	0.0471%
LKQ Corp	LKQ	6,441.51	0.03%	0.00%	14.20%	14.20%	0.0037%
Eli Lilly & Co	LLY	150,532.58	0.61%	1.89%	10.88%	12.87%	0.0784%
Lockheed Martin Corp	LMT	113,172.98	0.46%	2.46%	7.76%	10.31%	0.0472%
Lincoln National Corp	LNC	5,794.72	0.02%	5.55%	9.00%	14.80%	0.0035%
Alliant Energy Corp	LNT	12,965.24	0.05%	2.86%	5.83%	8.78%	0.0046%
Lowe's Cos Inc	LOW	73,305.51	0.30%	2.48%	16.29%	18.98%	0.0563%
Lam Research Corp	LRCX	40,610.93	0.16%	1.68%	12.09%	13.87%	0.0228%
Southwest Airlines Co	LUV	15,868.50	0.06%	1.62%	4.03%	5.68%	0.0036%
Las Vegas Sands Corp	LVS	35,902.93	0.15%	5.76%	6.10%	12.04%	0.0175%
Lamb Weston Holdings Inc	LW	8,750.65	0.04%	1.43%	-1.85%	-0.43%	-0.0002%
LyondellBasell Industries NV	LYB	17,411.52	0.07%	8.25%	6.20%	14.71%	0.0104%
Live Nation Entertainment Inc	LYV	8,227.27	N/A	0.00%	N/A	N/A	N/A
Mastercard Inc	MA	261,298.18	1.06%	0.55%	16.43%	17.03%	0.1800%
Mid-America Apartment Communities Inc	MAA	12,970.74	N/A	3.53%	N/A	N/A	N/A
Marriott International Inc/MD	MAR	27,318.81	0.11%	0.57%	0.42%	0.99%	0.0011%
Masco Corp	MAS	10,547.58	0.04%	1.36%	10.18%	11.61%	0.0050%
McDonald's Corp	MCD	138,368.16	0.56%	2.68%	7.15%	9.93%	0.0556%
Microchip Technology Inc	MCHP	19,244.49	0.08%	1.69%	8.31%	10.07%	0.0078%
McKesson Corp	MCK	22,870.57	0.09%	1.17%	3.90%	5.08%	0.0047%
Moody's Corp	MCO	44,810.04	0.18%	0.94%	11.70%	12.69%	0.0230%
Mondelez International Inc	MDLZ	76,460.05	0.31%	2.18%	7.80%	10.07%	0.0311%
Medtronic PLC	MDT	138,479.37	0.56%	2.07%	7.38%	9.52%	0.0534%
MetLife Inc	MET	30,277.28	0.12%	5.59%	4.58%	10.30%	0.0126%
MGM Resorts International	MGM	6,937.04	0.03%	3.81%	16.23%	20.35%	0.0057%
Mohawk Industries Inc	MHK	5,666.28	0.02%	0.00%	1.57%	1.57%	0.0004%
McCormick & Co Inc/MD	MKC	20,835.66	0.08%	1.54%	9.17%	10.78%	0.0091%
MarketAxess Holdings Inc	MKTX	16,297.93	N/A	0.55%	N/A	N/A	N/A
Martin Marietta Materials Inc	MLM	12,358.52	0.05%	1.06%	13.48%	14.61%	0.0073%
Marsh & McLennan Cos Inc	MMC	49,673.63	0.20%	1.93%	11.12%	13.16%	0.0264%
3M Co	MMM	84,252.68	0.34%	4.03%	7.05%	11.22%	0.0382%
Monster Beverage Corp	MNST	33,389.57	0.14%	0.00%	7.90%	7.90%	0.0107%
Altria Group Inc	MO	75,914.34	0.31%	8.32%	5.25%	13.79%	0.0424%
Mosaic Co/The	MOS	4,339.78	0.02%	1.76%	7.00%	8.83%	0.0015%
Marathon Petroleum Corp	MPC	16,542.52	0.07%	9.17%	15.18%	25.04%	0.0168%
Merck & Co Inc	MRK	210,743.74	0.85%	2.88%	7.72%	10.71%	0.0913%
Marathon Oil Corp	MRO	3,438.12	0.01%	4.60%	-3.20%	1.32%	0.0002%
Morgan Stanley	MS	61,605.84	0.25%	3.66%	-0.03%	3.63%	0.0091%
MSCI Inc	MSCI	26,964.98	0.11%	0.89%	13.17%	14.11%	0.0154%
Microsoft Corp	MSFT	1,358,440.00	5.50%	1.11%	12.86%	14.04%	0.7716%
Motorola Solutions Inc	MSI	27,065.95	0.11%	1.61%	8.90%	10.58%	0.0116%
M&T Bank Corp	MTB	13,707.19	0.06%	4.21%	-0.73%	3.46%	0.0019%
Mettler-Toledo International Inc	MTD	17,287.80	0.07%	0.00%	12.16%	12.16%	0.0085%
Micron Technology Inc	MU	50,826.90	0.21%	0.00%	6.95%	6.95%	0.0143%
Maxim Integrated Products Inc	MXIM	14,302.14	0.06%	3.62%	10.00%	13.80%	0.0080%
Mylan NV	MYL	8,315.61	0.03%	0.70%	0.43%	1.14%	0.0004%
Noble Energy Inc	NBL	3,371.01	0.01%	4.99%	5.87%	11.00%	0.0015%
Norwegian Cruise Line Holdings Ltd	NCLH	2,639.45	0.01%	0.21%	-56.12%	-55.97%	-0.0060%
Nasdaq Inc	NDAQ	18,282.05	0.07%	1.78%	12.01%	13.90%	0.0103%
NextEra Energy Inc	NEE	120,527.74	0.49%	2.28%	8.32%	10.70%	0.0522%
Newmont Corp	NEM	47,845.25	0.19%	1.64%	-3.00%	-1.39%	-0.0027%
Netflix Inc	NFLX	185,597.66	0.75%	0.00%	26.38%	26.38%	0.1981%
NiSource Inc	NI	10,095.19	0.04%	3.21%	4.68%	7.97%	0.0033%
NIKE Inc	NKE	139,813.17	0.57%	1.04%	12.09%	13.19%	0.0746%
NortonLifeLock Inc	NLOK	12,079.73	0.05%	41.53%	2.05%	44.01%	0.0215%
Nielsen Holdings PLC	NLSN	4,726.86	0.02%	1.81%	8.75%	10.64%	0.0020%
Northrop Grumman Corp	NOC	59,606.57	0.24%	1.57%	20.99%	22.73%	0.0548%
National Oilwell Varco Inc	NOV	4,530.56	N/A	1.69%	N/A	N/A	N/A
ServiceNow Inc	NOW	56,862.18	0.23%	0.00%	30.15%	30.15%	0.0694%
NRG Energy Inc	NRG	7,859.50	0.03%	3.83%	-11.51%	-7.90%	-0.0025%
Norfolk Southern Corp	NSC	41,308.99	0.17%	2.36%	6.95%	9.40%	0.0157%
NetApp Inc	NTAP	9,322.61	0.04%	4.54%	5.20%	9.86%	0.0037%
Northern Trust Corp	NTRS	16,741.35	0.07%	3.57%	-2.87%	0.65%	0.0004%
Nucor Corp	NUE	11,236.45	0.05%	4.31%	12.00%	16.57%	0.0075%
NVIDIA Corp	NVDA	179,041.78	0.72%	0.23%	14.44%	14.68%	0.1063%
NVR Inc	NVR	10,760.76	0.04%	0.00%	8.89%	8.89%	0.0039%

Company	Ticker	[4] Market Capitalization ($ mil)	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Newell Brands Inc	NWL	5,760.95	0.02%	6.69%	-2.82%	3.77%	0.0009%
News Corp	NWSA	5,289.47	0.02%	2.11%	-9.39%	-7.38%	-0.0016%
Realty Income Corp	O	17,983.75	0.07%	5.34%	3.73%	9.17%	0.0067%
Old Dominion Freight Line Inc	ODFL	16,335.95	0.07%	0.51%	8.99%	9.52%	0.0063%
ONEOK Inc	OKE	12,159.12	0.05%	12.81%	9.15%	22.55%	0.0111%
Omnicom Group Inc	OMC	11,834.42	0.05%	4.86%	4.13%	9.09%	0.0044%
Oracle Corp	ORCL	172,248.76	0.70%	1.75%	9.25%	11.08%	0.0772%
O'Reilly Automotive Inc	ORLY	27,733.70	0.11%	0.00%	9.19%	9.19%	0.0103%
Otis Worldwide Corp	OTIS	19,986.62	N/A	0.00%	N/A	N/A	N/A
Occidental Petroleum Corp	OXY	12,267.25	0.05%	11.94%	-1.50%	10.35%	0.0051%
Paycom Software Inc	PAYC	13,236.54	0.05%	0.00%	22.35%	22.35%	0.0120%
Paychex Inc	PAYX	24,213.29	0.10%	3.69%	7.00%	10.82%	0.0106%
People's United Financial Inc	PBCT	4,875.11	0.02%	6.23%	2.00%	8.29%	0.0016%
PACCAR Inc	PCAR	23,433.43	0.09%	4.14%	0.70%	4.85%	0.0046%
Healthpeak Properties Inc	PEAK	13,277.88	0.05%	5.65%	3.04%	8.77%	0.0047%
Public Service Enterprise Group Inc	PEG	27,590.05	0.11%	3.59%	4.52%	8.19%	0.0091%
PepsiCo Inc	PEP	191,090.10	0.77%	2.92%	4.16%	7.14%	0.0552%
Pfizer Inc	PFE	204,763.36	0.83%	4.08%	3.10%	7.25%	0.0600%
Principal Financial Group Inc	PFG	8,347.92	0.03%	7.44%	1.95%	9.46%	0.0032%
Procter & Gamble Co/The	PG	307,916.08	1.25%	2.39%	7.20%	9.68%	0.1206%
Progressive Corp/The	PGR	48,287.25	0.20%	3.27%	6.00%	9.37%	0.0183%
Parker-Hannifin Corp	PH	17,791.13	0.07%	2.56%	9.19%	11.86%	0.0085%
PulteGroup Inc	PHM	6,877.13	0.03%	1.87%	10.77%	12.74%	0.0035%
Packaging Corp of America	PKG	8,616.17	0.03%	3.48%	-4.10%	-0.69%	-0.0002%
PerkinElmer Inc	PKI	9,308.39	0.04%	0.33%	5.14%	5.49%	0.0021%
Prologis Inc	PLD	66,680.66	0.27%	2.52%	6.72%	9.32%	0.0252%
Philip Morris International Inc	PM	121,391.95	0.49%	6.11%	6.45%	12.75%	0.0626%
PNC Financial Services Group Inc/The	PNC	43,036.00	0.17%	4.55%	-3.03%	1.46%	0.0025%
Pentair PLC	PNR	5,307.32	0.02%	2.37%	4.33%	6.75%	0.0015%
Pinnacle West Capital Corp	PNW	8,988.98	0.04%	3.96%	4.59%	8.64%	0.0031%
PPG Industries Inc	PPG	22,012.81	0.09%	2.25%	4.54%	6.83%	0.0061%
PPL Corp	PPL	20,272.26	0.08%	6.29%	0.70%	7.01%	0.0057%
Perrigo Co PLC	PRGO	7,060.89	0.03%	1.75%	-1.00%	0.75%	0.0002%
Prudential Financial Inc	PRU	22,416.09	0.09%	7.77%	7.83%	15.91%	0.0144%
Public Storage	PSA	34,312.67	0.14%	4.14%	4.09%	8.32%	0.0115%
Phillips 66	PSX	26,064.48	0.11%	6.21%	7.02%	13.45%	0.0142%
PVH Corp	PVH	3,181.25	0.01%	0.16%	2.97%	3.13%	0.0004%
Quanta Services Inc	PWR	4,822.19	0.02%	0.55%	10.00%	10.58%	0.0021%
Pioneer Natural Resources Co	PXD	12,633.46	0.05%	2.83%	18.98%	22.08%	0.0113%
PayPal Holdings Inc	PYPL	131,187.01	0.53%	0.00%	22.44%	22.44%	0.1191%
QUALCOMM Inc	QCOM	87,065.57	0.35%	3.33%	16.31%	19.91%	0.0701%
Qorvo Inc	QRVO	9,980.11	0.04%	0.05%	11.15%	11.20%	0.0045%
Royal Caribbean Cruises Ltd	RCL	7,814.51	0.03%	6.65%	-29.88%	-24.22%	-0.0077%
Everest Re Group Ltd	RE	8,941.96	0.04%	2.72%	10.00%	12.86%	0.0047%
Regency Centers Corp	REG	6,490.31	0.03%	5.69%	5.68%	11.53%	0.0030%
Regeneron Pharmaceuticals Inc	REGN	62,578.17	0.25%	0.00%	8.74%	8.74%	0.0221%
Regions Financial Corp	RF	9,114.38	0.04%	6.68%	-3.62%	2.94%	0.0011%
Robert Half International Inc	RHI	4,961.41	0.02%	3.04%	-1.18%	1.85%	0.0004%
Raymond James Financial Inc	RJF	8,868.21	0.04%	2.26%	9.50%	11.87%	0.0043%
Ralph Lauren Corp	RL	5,359.65	0.02%	3.75%	2.62%	6.41%	0.0014%
ResMed Inc	RMD	23,884.93	0.10%	1.04%	15.88%	17.00%	0.0164%
Rockwell Automation Inc	ROK	19,587.40	0.08%	2.41%	5.75%	8.23%	0.0065%
Rollins Inc	ROL	12,770.19	N/A	1.36%	N/A	N/A	N/A
Roper Technologies Inc	ROP	34,164.13	0.14%	0.63%	11.93%	12.60%	0.0174%
Ross Stores Inc	ROST	32,596.10	0.13%	1.18%	8.67%	9.90%	0.0131%
Republic Services Inc	RSG	25,621.64	0.10%	2.06%	5.05%	7.16%	0.0074%
Raytheon Technologies Corp	RTX	100,179.89	0.41%	3.25%	-3.56%	-0.36%	-0.0015%
SBA Communications Corp	SBAC	35,324.87	0.14%	0.60%	10.00%	10.63%	0.0152%
Starbucks Corp	SBUX	90,492.27	0.37%	2.16%	13.60%	15.91%	0.0582%
Charles Schwab Corp/The	SCHW	46,071.60	0.19%	2.02%	5.00%	7.07%	0.0132%
Sealed Air Corp	SEE	4,591.90	0.02%	2.15%	4.67%	6.87%	0.0013%
Sherwin-Williams Co/The	SHW	47,439.70	0.19%	0.99%	11.71%	12.75%	0.0245%
SVB Financial Group	SIVB	8,953.17	0.04%	0.00%	8.00%	8.00%	0.0029%
JM Smucker Co/The	SJM	13,864.73	0.06%	2.83%	0.49%	3.33%	0.0019%
Schlumberger Ltd	SLB	21,211.12	0.09%	10.29%	50.00%	62.87%	0.0540%
SL Green Realty Corp	SLG	4,047.53	0.02%	6.69%	4.98%	11.84%	0.0019%
Snap-on Inc	SNA	6,471.17	0.03%	3.58%	5.06%	8.73%	0.0023%
Synopsys Inc	SNPS	23,282.20	0.09%	0.00%	14.14%	14.14%	0.0133%
Southern Co/The	SO	60,746.17	0.25%	4.42%	4.18%	8.70%	0.0214%
Simon Property Group Inc	SPG	17,151.52	0.07%	14.47%	1.83%	16.44%	0.0114%
S&P Global Inc	SPGI	68,087.05	0.28%	0.90%	11.80%	12.76%	0.0351%
Sempra Energy	SRE	36,385.33	0.15%	3.36%	7.22%	10.71%	0.0158%
STERIS PLC	STE	13,143.49	0.05%	0.93%	10.10%	11.08%	0.0059%
State Street Corp	STT	20,600.21	0.08%	3.60%	1.83%	5.46%	0.0045%
Seagate Technology PLC	STX	13,431.41	0.05%	4.99%	8.11%	13.30%	0.0072%
Constellation Brands Inc	STZ	31,291.39	0.13%	1.87%	2.11%	4.00%	0.0051%
Stanley Black & Decker Inc	SWK	17,334.01	0.07%	2.48%	4.87%	7.41%	0.0052%
Skyworks Solutions Inc	SWKS	16,176.29	0.07%	1.85%	11.84%	13.80%	0.0090%
Synchrony Financial	SYF	9,110.09	0.04%	5.73%	-7.98%	-2.48%	-0.0009%
Stryker Corp	SYK	71,033.69	0.29%	1.22%	8.90%	10.17%	0.0292%
Sysco Corp	SYY	25,583.07	0.10%	3.46%	8.97%	12.58%	0.0130%
AT&T Inc	T	224,328.39	0.91%	6.68%	4.62%	11.45%	0.1040%
Molson Coors Beverage Co	TAP	9,739.03	0.04%	4.95%	-6.37%	-1.58%	-0.0006%
TransDigm Group Inc	TDG	18,114.22	0.07%	3.85%	7.17%	11.16%	0.0082%
TE Connectivity Ltd	TEL	22,534.54	0.09%	2.73%	7.18%	10.01%	0.0091%
Truist Financial Corp	TFC	44,923.05	0.18%	5.49%	-2.44%	2.98%	0.0054%
Teleflex Inc	TFX	16,075.80	0.07%	0.39%	13.53%	13.95%	0.0091%
Target Corp	TGT	56,819.10	0.23%	2.46%	9.41%	11.98%	0.0275%
Tiffany & Co	TIF	15,651.86	N/A	1.90%	N/A	N/A	N/A
TJX Cos Inc/The	TJX	59,561.53	0.24%	1.49%	8.40%	9.95%	0.0240%

Company	Ticker	[4] Market Capitalization ($ mil)	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Thermo Fisher Scientific Inc	TMO	130,957.89	0.53%	0.25%	10.60%	10.87%	0.0576%
T-Mobile US Inc	TMUS	111,852.65	0.45%	0.66%	6.00%	6.68%	0.0302%
Tapestry Inc	TPR	4,201.16	0.02%	7.98%	9.30%	17.65%	0.0030%
T Rowe Price Group Inc	TROW	24,150.92	0.10%	3.46%	-2.96%	0.46%	0.0004%
Travelers Cos Inc/The	TRV	26,569.81	0.11%	3.25%	10.00%	13.41%	0.0144%
Tractor Supply Co	TSCO	10,757.81	0.04%	1.57%	10.45%	12.10%	0.0053%
Tyson Foods Inc	TSN	22,756.48	0.09%	2.73%	5.44%	8.24%	0.0076%
Trane Technologies PLC	TT	21,434.64	0.09%	2.33%	2.51%	4.86%	0.0042%
Take-Two Interactive Software Inc	TTWO	14,114.52	0.06%	0.00%	8.70%	8.70%	0.0050%
Twitter Inc	TWTR	20,949.60	0.08%	0.00%	39.40%	39.40%	0.0334%
Texas Instruments Inc	TXN	106,019.99	0.43%	3.20%	7.50%	10.82%	0.0464%
Textron Inc	TXT	6,317.16	N/A	0.29%	N/A	N/A	N/A
Under Armour Inc	UAA	4,214.98	0.02%	0.00%	12.77%	12.77%	0.0022%
United Airlines Holdings Inc	UAL	7,190.23	0.03%	0.00%	1.56%	1.56%	0.0005%
UDR Inc	UDR	11,482.67	N/A	3.69%	N/A	N/A	N/A
Universal Health Services Inc	UHS	9,227.72	0.04%	0.74%	8.59%	9.36%	0.0035%
Ulta Beauty Inc	ULTA	12,135.26	0.05%	0.00%	15.68%	15.68%	0.0077%
UnitedHealth Group Inc	UNH	275,617.48	1.12%	1.58%	11.80%	13.47%	0.1502%
Unum Group	UNM	3,153.57	0.01%	7.59%	9.00%	16.93%	0.0022%
Union Pacific Corp	UNP	101,708.45	0.41%	2.60%	7.50%	10.20%	0.0420%
United Parcel Service Inc	UPS	88,205.40	0.36%	3.90%	8.45%	12.51%	0.0447%
United Rentals Inc	URI	7,781.89	0.03%	0.00%	-15.30%	-15.30%	-0.0048%
US Bancorp	USB	52,800.36	0.21%	4.80%	6.43%	11.38%	0.0243%
Visa Inc	V	332,723.43	1.35%	0.69%	14.60%	15.34%	0.2066%
Varian Medical Systems Inc	VAR	10,494.57	0.04%	0.00%	8.40%	8.40%	0.0036%
VF Corp	VFC	22,696.42	0.09%	3.29%	6.88%	10.28%	0.0094%
ViacomCBS Inc	VIAC	9,838.01	0.04%	5.81%	1.85%	7.71%	0.0031%
Valero Energy Corp	VLO	21,146.33	0.09%	7.63%	8.06%	16.00%	0.0137%
Vulcan Materials Co	VMC	14,850.17	0.06%	1.07%	15.30%	16.46%	0.0099%
Vornado Realty Trust	VNO	8,035.92	0.03%	8.02%	3.80%	11.97%	0.0039%
Verisk Analytics Inc	VRSK	24,983.47	0.10%	0.70%	10.00%	10.74%	0.0109%
VeriSign Inc	VRSN	24,301.69	0.10%	0.00%	4.00%	4.00%	0.0039%
Vertex Pharmaceuticals Inc	VRTX	70,121.78	0.28%	0.00%	41.58%	41.58%	0.1180%
Ventas Inc	VTR	11,673.17	0.05%	9.63%	-2.32%	7.20%	0.0034%
Verizon Communications Inc	VZ	241,782.60	0.98%	4.25%	2.96%	7.27%	0.0711%
Westinghouse Air Brake Technologies Corp	WAB	9,358.60	0.04%	1.01%	15.00%	16.09%	0.0061%
Waters Corp	WAT	12,244.16	0.05%	0.00%	3.98%	3.98%	0.0020%
Walgreens Boots Alliance Inc	WBA	39,036.30	0.16%	4.17%	9.09%	13.45%	0.0212%
Western Digital Corp	WDC	12,650.78	0.05%	4.73%	3.52%	8.33%	0.0043%
WEC Energy Group Inc	WEC	31,650.70	0.13%	2.50%	6.60%	9.18%	0.0118%
Welltower Inc	WELL	20,158.28	0.08%	6.94%	0.50%	7.45%	0.0061%
Wells Fargo & Co	WFC	116,255.83	0.47%	7.21%	9.41%	16.95%	0.0797%
Whirlpool Corp	WHR	6,601.85	0.03%	4.77%	0.17%	4.94%	0.0013%
Willis Towers Watson PLC	WLTW	25,150.75	0.10%	1.44%	10.00%	11.51%	0.0117%
Waste Management Inc	WM	42,477.10	N/A	2.18%	N/A	N/A	N/A
Williams Cos Inc/The	WMB	21,933.29	0.09%	8.81%	3.50%	12.47%	0.0111%
Walmart Inc	WMT	374,200.47	1.51%	1.65%	5.30%	6.99%	0.1058%
WR Berkley Corp	WRB	10,453.20	N/A	2.40%	N/A	N/A	N/A
Westrock Co	WRK	7,932.02	0.03%	6.04%	-10.90%	-5.19%	-0.0017%
Western Union Co/The	WU	8,188.67	0.03%	4.40%	5.33%	9.85%	0.0033%
Weyerhaeuser Co	WY	14,998.74	N/A	6.77%	N/A	N/A	N/A
Wynn Resorts Ltd	WYNN	8,435.72	0.03%	3.43%	21.50%	25.30%	0.0086%
Xcel Energy Inc	XEL	35,255.73	0.14%	2.56%	5.92%	8.56%	0.0122%
Xilinx Inc	XLNX	22,146.45	0.09%	1.66%	6.87%	8.58%	0.0077%
Exxon Mobil Corp	XOM	182,839.20	0.74%	7.83%	1.73%	9.62%	0.0711%
DENTSPLY SIRONA Inc	XRAY	8,949.41	0.04%	0.93%	3.27%	4.22%	0.0015%
Xerox Holdings Corp	XRX	3,856.51	N/A	5.53%	N/A	N/A	N/A
Xylem Inc/NY	XYL	12,520.35	0.05%	1.47%	11.65%	13.21%	0.0067%
Yum! Brands Inc	YUM	25,326.75	0.10%	2.14%	12.00%	14.27%	0.0146%
Zimmer Biomet Holdings Inc	ZBH	24,508.30	0.10%	0.86%	4.89%	5.78%	0.0057%
Zebra Technologies Corp	ZBRA	10,771.13	0.04%	0.00%	11.05%	11.05%	0.0048%
Zions Bancorp NA	ZION	4,769.50	0.02%	4.80%	-5.41%	-0.74%	-0.0001%
Zoetis Inc	ZTS	62,080.30	N/A	0.61%	N/A	N/A	N/A
Total Market Capitalization:		24,715,828					12.93%

Notes:
[1] Equals sum of Col. [9]
[2] Source: Bloomberg Professional
[3] Equals [1] − [2]
[4] Source: Bloomberg Professional
[5] Equals weight in S&P 500 based on market capitalization
[6] Source: Bloomberg Professional
[7] Source: Bloomberg Professional
[8] Equals ([6] x (1 + (0.5 x [7]))) + [7]
[9] Equals Col. [5] x Col. [8]

Ex-Ante Market Risk Premium
Market DCF Method Based - Value Line

	[1]	[2]	[3]
	S&P 500 Est. Required Market Return	Current 30-Year Treasury (30-day average)	Implied Market Risk Premium
	14.82%	1.37%	13.45%

Company	Ticker	[4] Market Capitalization ($ mil)	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Agilent Technologies Inc	A	23,773.90	0.11%	0.94%	10.50%	11.49%	0.0123%
American Airlines Group Inc	AAL	4,851.54	0.02%	3.53%	6.50%	10.14%	0.0022%
Advance Auto Parts Inc	AAP	7,097.67	0.03%	0.98%	14.00%	15.05%	0.0048%
Apple Inc	AAPL	1,166,706.00	5.23%	1.23%	14.00%	15.32%	0.8014%
AbbVie Inc	ABBV	116,183.20	0.52%	6.01%	8.00%	14.25%	0.0743%
AmerisourceBergen Corp	ABC	18,176.37	0.08%	1.90%	7.50%	9.47%	0.0077%
ABIOMED Inc	ABMD	7,049.81	0.03%	0.00%	11.00%	11.00%	0.0035%
Abbott Laboratories	ABT	150,230.30	0.67%	1.70%	10.50%	12.29%	0.0828%
Accenture PLC	ACN	109,532.70	0.49%	1.91%	8.50%	10.49%	0.0515%
Adobe Inc	ADBE	153,197.90	0.69%	0.00%	20.50%	20.50%	0.1408%
Analog Devices Inc	ADI	37,337.51	0.17%	2.45%	7.00%	9.54%	0.0160%
Archer-Daniels-Midland Co	ADM	20,319.36	0.09%	3.95%	9.00%	13.13%	0.0120%
Automatic Data Processing Inc	ADP	59,817.25	0.27%	2.79%	13.50%	16.48%	0.0442%
Alliance Data Systems Corp	ADS	1,937.80	0.01%	6.19%	8.00%	14.44%	0.0013%
Autodesk Inc	ADSK	35,031.45	N/A	0.00%	N/A	N/A	N/A
Ameren Corp	AEE	18,713.66	0.08%	2.67%	6.00%	8.75%	0.0073%
American Electric Power Co Inc	AEP	41,164.28	0.18%	3.46%	5.00%	8.55%	0.0158%
AES Corp/VA	AES	9,380.81	N/A	4.03%	N/A	N/A	N/A
Aflac Inc	AFL	27,450.97	0.12%	2.99%	7.00%	10.09%	0.0124%
Allergan PLC	AGN	59,412.34	0.27%	1.64%	2.50%	4.16%	0.0111%
American International Group Inc	AIG	20,993.08	N/A	5.31%	N/A	N/A	N/A
Apartment Investment & Management Co	AIV	5,575.97	0.03%	4.49%	-1.50%	2.96%	0.0007%
Assurant Inc	AIZ	6,484.20	0.03%	2.36%	8.00%	10.45%	0.0030%
Arthur J Gallagher & Co	AJG	15,859.96	0.07%	2.12%	14.50%	16.77%	0.0119%
Akamai Technologies Inc	AKAM	15,774.04	0.07%	0.00%	14.00%	14.00%	0.0099%
Albemarle Corp	ALB	6,555.39	0.03%	2.49%	5.50%	8.06%	0.0024%
Align Technology Inc	ALGN	14,533.17	0.07%	0.00%	20.00%	20.00%	0.0130%
Alaska Air Group Inc	ALK	3,584.04	0.02%	5.15%	6.50%	11.82%	0.0019%
Allstate Corp/The	ALL	31,022.75	0.14%	2.22%	9.00%	11.32%	0.0157%
Allegion plc	ALLE	8,776.33	0.04%	1.35%	9.00%	10.41%	0.0041%
Alexion Pharmaceuticals Inc	ALXN	21,811.33	0.10%	0.00%	37.50%	37.50%	0.0367%
Applied Materials Inc	AMAT	47,255.97	0.21%	1.71%	7.50%	9.27%	0.0197%
Amcor PLC	AMCR	13,777.69	N/A	5.64%	N/A	N/A	N/A
Advanced Micro Devices Inc	AMD	57,084.30	0.26%	0.00%	18.00%	18.00%	0.0461%
AMETEK Inc	AME	17,692.08	0.08%	0.93%	12.50%	13.49%	0.0107%
Amgen Inc	AMGN	129,629.00	0.58%	2.99%	6.50%	9.59%	0.0557%
Ameriprise Financial Inc	AMP	14,229.81	0.06%	3.47%	12.50%	16.19%	0.0103%
American Tower Corp	AMT	110,376.60	0.50%	1.84%	11.50%	13.45%	0.0666%
Amazon.com Inc	AMZN	1,011,285.00	4.54%	0.00%	39.00%	39.00%	1.7688%
Arista Networks Inc	ANET	16,392.31	0.07%	0.00%	5.50%	5.50%	0.0040%
ANSYS Inc	ANSS	20,950.82	0.09%	0.00%	13.00%	13.00%	0.0122%
Anthem Inc	ANTM	62,476.79	0.28%	1.54%	14.00%	15.65%	0.0438%
Aon PLC	AON	44,001.43	0.20%	0.94%	11.00%	11.99%	0.0237%
AO Smith Corp	AOS	6,530.56	0.03%	2.39%	6.00%	8.46%	0.0025%
Apache Corp	APA	2,850.25	0.01%	1.32%	46.00%	47.62%	0.0061%
Air Products & Chemicals Inc	APD	47,613.49	0.21%	2.48%	10.50%	13.11%	0.0280%
Amphenol Corp	APH	23,663.06	0.11%	1.26%	9.00%	10.32%	0.0109%
Aptiv PLC	APTV	15,368.34	0.07%	0.00%	9.50%	9.50%	0.0065%
Alexandria Real Estate Equities Inc	ARE	16,367.61	0.07%	2.79%	16.50%	19.52%	0.0143%
Atmos Energy Corp	ATO	12,550.19	0.06%	2.32%	7.00%	9.40%	0.0053%
Activision Blizzard Inc	ATVI	46,948.17	0.21%	0.67%	8.00%	8.70%	0.0183%
AvalonBay Communities Inc	AVB	22,262.39	0.10%	4.01%	2.50%	6.56%	0.0065%
Broadcom Inc	AVGO	104,178.90	0.47%	4.98%	17.00%	22.40%	0.1047%
Avery Dennison Corp	AVY	9,211.90	0.04%	2.25%	9.50%	11.86%	0.0049%
American Water Works Co Inc	AWK	22,664.91	0.10%	1.69%	8.50%	10.26%	0.0104%
American Express Co	AXP	74,584.80	0.33%	1.93%	10.00%	12.03%	0.0402%
AutoZone Inc	AZO	21,496.69	0.10%	0.00%	13.50%	13.50%	0.0130%
Boeing Co/The	BA	82,674.45	0.37%	0.00%	16.00%	16.00%	0.0593%
Bank of America Corp	BAC	207,207.70	0.93%	3.24%	10.50%	13.91%	0.1293%
Baxter International Inc	BAX	42,918.63	0.19%	1.04%	10.50%	11.59%	0.0223%
Best Buy Co Inc	BBY	16,757.00	0.08%	3.41%	10.50%	14.09%	0.0106%
Becton Dickinson and Co	BDX	67,793.25	0.30%	1.27%	9.00%	10.33%	0.0314%
Franklin Resources Inc	BEN	8,553.74	0.04%	6.40%	10.00%	16.72%	0.0064%
Brown-Forman Corp	BF/B	29,212.47	0.13%	1.14%	11.00%	12.20%	0.0160%
Biogen Inc	BIIB	57,653.21	0.26%	0.00%	9.50%	9.50%	0.0246%
Bank of New York Mellon Corp/The	BK	32,109.35	0.14%	3.48%	7.00%	10.60%	0.0153%
Booking Holdings Inc	BKNG	57,743.15	0.26%	0.00%	12.00%	12.00%	0.0311%
Baker Hughes Co	BKR	8,385.00	N/A	5.58%	N/A	N/A	N/A
BlackRock Inc	BLK	69,618.94	0.31%	3.22%	10.00%	13.38%	0.0418%
Ball Corp	BLL	21,942.08	0.10%	0.89%	21.00%	21.98%	0.0216%
Bristol-Myers Squibb Co	BMY	94,905.35	0.43%	3.09%	9.50%	12.74%	0.0542%
Broadridge Financial Solutions Inc	BR	11,721.08	0.05%	2.29%	11.00%	13.42%	0.0071%
Berkshire Hathaway Inc	BRK/B	-	N/A	0.00%	N/A	N/A	N/A
Boston Scientific Corp	BSX	48,963.35	0.22%	0.00%	14.00%	14.00%	0.0307%
BorgWarner Inc	BWA	5,269.60	0.02%	2.66%	6.00%	8.74%	0.0021%
Boston Properties Inc	BXP	15,431.90	0.07%	3.98%	3.50%	7.55%	0.0052%
Citigroup Inc	C	96,628.17	0.43%	4.88%	10.00%	15.12%	0.0655%

		[4] Market Capitalization ($ mil)	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Company	Ticker						
Conagra Brands Inc	CAG	15,250.35	0.07%	2.78%	5.00%	7.85%	0.0054%
Cardinal Health Inc	CAH	14,424.80	0.06%	3.91%	11.00%	15.13%	0.0098%
Carrier Global Corp	CARR	N/A	N/A	0.00%	N/A	N/A	N/A
Caterpillar Inc	CAT	70,408.63	0.32%	3.23%	10.50%	13.90%	0.0439%
Chubb Ltd	CB	51,979.53	0.23%	2.62%	9.00%	11.74%	0.0274%
Cboe Global Markets Inc	CBOE	10,589.78	0.05%	1.51%	12.50%	14.10%	0.0067%
CBRE Group Inc	CBRE	15,196.27	0.07%	0.00%	10.50%	10.50%	0.0072%
Crown Castle International Corp	CCI	65,461.75	0.29%	3.15%	15.50%	18.89%	0.0555%
Carnival Corp	CCL	8,932.55	0.04%	0.00%	10.00%	10.00%	0.0040%
Cadence Design Systems Inc	CDNS	20,104.78	0.09%	0.00%	12.50%	12.50%	0.0113%
CDW Corp/DE	CDW	14,624.61	0.07%	1.49%	11.50%	13.08%	0.0086%
Celanese Corp	CE	9,946.88	0.04%	3.32%	8.50%	11.96%	0.0053%
Cerner Corp	CERN	20,847.30	0.09%	1.08%	9.50%	10.63%	0.0099%
CF Industries Holdings Inc	CF	6,446.13	0.03%	4.12%	29.50%	34.23%	0.0099%
Citizens Financial Group Inc	CFG	9,113.53	0.04%	7.99%	9.50%	17.87%	0.0073%
Church & Dwight Co Inc	CHD	16,837.92	0.08%	1.40%	7.50%	8.95%	0.0068%
CH Robinson Worldwide Inc	CHRW	9,841.77	0.04%	2.80%	8.00%	10.91%	0.0048%
Charter Communications Inc	CHTR	97,413.70	0.44%	0.00%	33.50%	33.50%	0.1464%
Cigna Corp	CI	69,539.20	0.31%	0.02%	14.00%	14.02%	0.0437%
Cincinnati Financial Corp	CINF	13,248.47	0.06%	2.96%	11.00%	14.12%	0.0084%
Colgate-Palmolive Co	CL	60,017.18	0.27%	2.51%	5.50%	8.08%	0.0217%
Clorox Co/The	CLX	22,634.53	0.10%	2.34%	2.50%	4.87%	0.0049%
Comerica Inc	CMA	4,759.37	0.02%	8.24%	8.00%	16.57%	0.0035%
Comcast Corp	CMCSA	171,558.40	0.77%	2.44%	9.50%	12.06%	0.0928%
CME Group Inc	CME	64,691.71	0.29%	1.88%	2.50%	4.40%	0.0128%
Chipotle Mexican Grill Inc	CMG	20,125.71	0.09%	0.00%	17.50%	17.50%	0.0158%
Cummins Inc	CMI	22,912.59	0.10%	3.50%	7.00%	10.62%	0.0109%
CMS Energy Corp	CMS	17,213.51	0.08%	2.74%	7.50%	10.34%	0.0080%
Centene Corp	CNC	27,040.38	0.12%	0.00%	13.00%	13.00%	0.0158%
CenterPoint Energy Inc	CNP	8,447.71	0.04%	3.57%	6.50%	10.19%	0.0039%
Capital One Financial Corp	COF	26,415.70	0.12%	2.82%	6.00%	8.90%	0.0105%
Cabot Oil & Gas Corp	COG	7,828.06	0.04%	2.08%	40.50%	43.00%	0.0151%
Cooper Cos Inc/The	COO	14,633.56	0.07%	0.02%	11.00%	11.02%	0.0072%
ConocoPhillips	COP	38,708.40	0.17%	4.71%	37.00%	42.58%	0.0739%
Costco Wholesale Corp	COST	135,123.10	0.61%	0.94%	11.00%	11.99%	0.0727%
Coty Inc	COTY	4,471.74	0.02%	8.50%	4.50%	13.19%	0.0026%
Campbell Soup Co	CPB	14,909.68	0.07%	3.03%	1.50%	4.55%	0.0030%
Capri Holdings Ltd	CPRI	2,054.88	0.01%	0.00%	10.50%	10.50%	0.0010%
Copart Inc	CPRT	16,817.19	0.08%	0.00%	16.00%	16.00%	0.0121%
salesforce.com Inc	CRM	134,950.20	0.61%	0.00%	31.50%	31.50%	0.1906%
Cisco Systems Inc	CSCO	177,019.30	0.79%	3.45%	7.00%	10.57%	0.0839%
CSX Corp	CSX	49,130.88	0.22%	1.64%	12.00%	13.74%	0.0303%
Cintas Corp	CTAS	20,015.84	0.09%	1.51%	15.00%	16.62%	0.0149%
CenturyLink Inc	CTL	10,715.27	0.05%	10.17%	2.50%	12.80%	0.0061%
Cognizant Technology Solutions Corp	CTSH	28,161.72	0.13%	1.71%	5.00%	6.75%	0.0085%
Corteva Inc	CTVA	19,500.43	N/A	2.07%	N/A	N/A	N/A
Citrix Systems Inc	CTXS	19,096.44	0.09%	0.95%	9.00%	9.99%	0.0086%
CVS Health Corp	CVS	77,292.41	0.35%	3.37%	6.00%	9.47%	0.0328%
Chevron Corp	CVX	161,828.80	0.73%	6.00%	13.50%	19.91%	0.1445%
Concho Resources Inc	CXO	10,480.42	0.05%	1.54%	18.00%	19.68%	0.0092%
Dominion Energy Inc	D	65,548.36	0.29%	4.81%	7.00%	11.98%	0.0352%
Delta Air Lines Inc	DAL	15,023.84	0.07%	0.00%	9.50%	9.50%	0.0064%
DuPont de Nemours Inc	DD	28,700.60	N/A	3.17%	N/A	N/A	N/A
Deere & Co	DE	46,030.00	0.21%	2.07%	10.00%	12.17%	0.0251%
Discover Financial Services	DFS	11,544.04	0.05%	4.73%	7.50%	12.41%	0.0064%
Dollar General Corp	DG	43,083.41	0.19%	0.85%	12.00%	12.90%	0.0249%
Quest Diagnostics Inc	DGX	11,682.72	0.05%	2.55%	9.00%	11.66%	0.0061%
DR Horton Inc	DHI	14,522.72	0.07%	1.77%	7.00%	8.83%	0.0058%
Danaher Corp	DHR	100,937.90	0.45%	0.50%	15.00%	15.54%	0.0703%
Walt Disney Co/The	DIS	180,005.70	0.81%	1.74%	7.50%	9.31%	0.0751%
Discovery Inc	DISCA	11,372.66	0.05%	0.00%	18.00%	18.00%	0.0092%
DISH Network Corp	DISH	11,391.79	0.05%	0.00%	-1.00%	-1.00%	-0.0005%
Digital Realty Trust Inc	DLR	30,098.97	0.13%	3.07%	6.00%	9.16%	0.0124%
Dollar Tree Inc	DLTR	18,751.30	0.08%	0.00%	10.00%	10.00%	0.0084%
Dover Corp	DOV	13,015.83	0.06%	2.19%	9.50%	11.79%	0.0069%
Dow Inc	DOW	25,796.72	N/A	8.19%	N/A	N/A	N/A
Duke Realty Corp	DRE	11,992.80	0.05%	2.87%	-1.00%	1.86%	0.0010%
Darden Restaurants Inc	DRI	7,680.72	0.03%	0.00%	11.00%	11.00%	0.0038%
DTE Energy Co	DTE	19,958.88	0.09%	4.05%	5.00%	9.15%	0.0082%
Duke Energy Corp	DUK	62,671.50	0.28%	4.48%	6.00%	10.61%	0.0298%
DaVita Inc	DVA	9,684.80	0.04%	0.00%	11.50%	11.50%	0.0050%
Devon Energy Corp	DVN	3,638.85	0.02%	5.10%	16.50%	22.02%	0.0036%
DXC Technology Co	DXC	4,004.87	0.02%	5.32%	10.00%	15.59%	0.0028%
Electronic Arts Inc	EA	31,037.04	0.14%	0.00%	10.50%	10.50%	0.0146%
eBay Inc	EBAY	26,275.96	0.12%	1.94%	10.00%	12.04%	0.0142%
Ecolab Inc	ECL	49,227.44	0.22%	1.10%	8.50%	9.65%	0.0213%
Consolidated Edison Inc	ED	27,915.39	0.13%	3.69%	3.50%	7.25%	0.0091%
Equifax Inc	EFX	14,868.82	0.07%	1.27%	7.50%	8.82%	0.0059%
Edison International	EIX	20,839.48	0.09%	4.48%	14.00%	18.79%	0.0176%
Estee Lauder Cos Inc/The	EL	59,562.70	0.27%	1.19%	13.00%	14.27%	0.0381%
Eastman Chemical Co	EMN	7,686.16	0.03%	4.67%	5.00%	9.79%	0.0034%
Emerson Electric Co	EMR	31,833.10	0.14%	3.84%	9.00%	13.01%	0.0186%
EOG Resources Inc	EOG	26,348.68	0.12%	3.31%	26.50%	30.25%	0.0357%
Equinix Inc	EQIX	56,666.69	0.25%	1.63%	16.00%	17.76%	0.0451%
Equity Residential	EQR	24,103.68	0.11%	3.72%	-11.50%	-7.99%	-0.0086%
Eversource Energy	ES	27,495.50	0.12%	2.72%	5.50%	8.29%	0.0102%
Essex Property Trust Inc	ESS	15,426.17	0.07%	3.58%	1.00%	4.60%	0.0032%
E*TRADE Financial Corp	ETFC	8,887.07	0.04%	1.40%	5.50%	6.94%	0.0028%
Eaton Corp PLC	ETN	33,129.88	0.15%	3.64%	6.50%	10.26%	0.0152%
Entergy Corp	ETR	20,018.36	0.09%	3.74%	3.00%	6.80%	0.0061%

		[4]	[5]	[6]	[7]	[8]	[9]
Company	Ticker	Market Capitalization ($ mil)	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Evergy Inc	EVRG	13,793.37	N/A	3.42%	N/A	N/A	N/A
Edwards Lifesciences Corp	EW	43,294.15	0.19%	0.00%	15.00%	15.00%	0.0291%
Exelon Corp	EXC	36,575.00	0.16%	4.07%	8.00%	12.23%	0.0201%
Expeditors International of Washington I	EXPD	12,337.51	0.06%	1.38%	7.50%	8.93%	0.0049%
Expedia Group Inc	EXPE	8,809.42	0.04%	2.25%	24.00%	26.52%	0.0105%
Extra Space Storage Inc	EXR	12,480.34	0.06%	3.75%	3.00%	6.81%	0.0038%
Ford Motor Co	F	19,587.04	0.09%	0.00%	2.50%	2.50%	0.0022%
Diamondback Energy Inc	FANG	5,959.40	0.03%	4.00%	17.00%	21.34%	0.0057%
Fastenal Co	FAST	18,633.86	0.08%	3.08%	9.00%	12.22%	0.0102%
Facebook Inc	FB	497,046.60	2.23%	0.00%	17.50%	17.50%	0.3901%
Fortune Brands Home & Security Inc	FBHS	6,580.45	0.03%	2.03%	7.50%	9.61%	0.0028%
Freeport-McMoRan Inc	FCX	11,651.53	0.05%	0.00%	19.50%	19.50%	0.0102%
FedEx Corp	FDX	32,797.20	0.15%	2.07%	5.00%	7.12%	0.0105%
FirstEnergy Corp	FE	23,372.39	0.10%	3.63%	7.00%	10.76%	0.0113%
F5 Networks Inc	FFIV	7,351.08	0.03%	0.00%	10.00%	10.00%	0.0033%
Fidelity National Information Services I	FIS	76,608.78	0.34%	1.12%	23.50%	24.75%	0.0850%
Fiserv Inc	FISV	66,970.30	0.30%	0.00%	15.00%	15.00%	0.0451%
Fifth Third Bancorp	FITB	11,831.81	0.05%	6.47%	6.50%	13.18%	0.0070%
FLIR Systems Inc	FLIR	4,683.63	0.02%	2.04%	9.00%	11.13%	0.0023%
Flowserve Corp	FLS	3,751.46	0.02%	2.78%	12.50%	15.45%	0.0026%
FleetCor Technologies Inc	FLT	19,116.52	0.09%	0.00%	16.50%	16.50%	0.0141%
FMC Corp	FMC	10,700.50	0.05%	2.17%	11.00%	13.29%	0.0064%
Fox Corp	FOXA	16,056.75	N/A	1.75%	N/A	N/A	N/A
First Republic Bank/CA	FRC	15,733.24	0.07%	0.81%	10.50%	11.35%	0.0080%
Federal Realty Investment Trust	FRT	6,063.68	0.03%	5.28%	1.50%	6.82%	0.0019%
TechnipFMC PLC	FTI	N/A	N/A	0.00%	N/A	N/A	N/A
Fortinet Inc	FTNT	18,702.53	0.08%	0.00%	28.00%	28.00%	0.0235%
Fortive Corp	FTV	20,356.85	0.09%	0.46%	8.00%	8.48%	0.0077%
General Dynamics Corp	GD	39,791.86	0.18%	3.20%	7.00%	10.31%	0.0184%
General Electric Co	GE	63,790.57	0.29%	0.55%	8.00%	8.57%	0.0245%
Gilead Sciences Inc	GILD	94,937.34	0.43%	3.63%	-1.50%	2.10%	0.0090%
General Mills Inc	GIS	33,761.23	0.15%	3.57%	4.00%	7.64%	0.0116%
Globe Life Inc	GL	8,101.62	0.04%	1.00%	9.00%	10.05%	0.0036%
Corning Inc	GLW	15,674.34	0.07%	4.28%	13.50%	18.07%	0.0127%
General Motors Co	GM	32,382.00	0.15%	6.74%	2.50%	9.32%	0.0135%
Alphabet Inc	GOOGL	N/A	N/A	0.00%	N/A	N/A	N/A
Genuine Parts Co	GPC	10,642.71	0.05%	4.31%	7.00%	11.46%	0.0055%
Global Payments Inc	GPN	44,820.59	0.20%	0.52%	20.50%	21.07%	0.0424%
Gap Inc/The	GPS	2,912.35	0.01%	0.00%	3.00%	3.00%	0.0004%
Garmin Ltd	GRMN	14,751.47	0.07%	3.15%	7.00%	10.26%	0.0068%
Goldman Sachs Group Inc/The	GS	61,465.81	0.28%	2.83%	6.50%	9.42%	0.0260%
WW Grainger Inc	GWW	14,517.24	0.07%	2.13%	8.00%	10.22%	0.0067%
Halliburton Co	HAL	7,682.50	0.03%	8.23%	19.50%	28.53%	0.0098%
Hasbro Inc	HAS	9,361.66	0.04%	3.67%	9.50%	13.34%	0.0056%
Huntington Bancshares Inc/OH	HBAN	8,986.23	0.04%	7.15%	9.00%	16.47%	0.0066%
Hanesbrands Inc	HBI	3,330.46	0.01%	6.52%	3.00%	9.62%	0.0014%
HCA Healthcare Inc	HCA	36,572.37	0.16%	1.59%	10.50%	12.17%	0.0200%
Home Depot Inc/The	HD	212,353.80	0.95%	3.08%	8.00%	11.20%	0.1067%
Hess Corp	HES	11,857.08	N/A	2.55%	N/A	N/A	N/A
HollyFrontier Corp	HFC	4,310.41	0.02%	5.26%	16.50%	22.19%	0.0043%
Hartford Financial Services Group Inc/Th	HIG	13,970.04	0.06%	3.36%	12.50%	16.07%	0.0101%
Huntington Ingalls Industries Inc	HII	8,013.04	0.04%	2.11%	6.00%	8.17%	0.0029%
Hilton Worldwide Holdings Inc	HLT	23,277.24	0.10%	0.00%	17.00%	17.00%	0.0177%
Harley-Davidson Inc	HOG	2,874.02	0.01%	8.06%	8.50%	16.90%	0.0022%
Hologic Inc	HOLX	10,391.48	0.05%	0.00%	8.00%	8.00%	0.0037%
Honeywell International Inc	HON	99,020.67	0.44%	2.59%	8.00%	10.69%	0.0475%
Helmerich & Payne Inc	HP	2,043.62	N/A	5.33%	N/A	N/A	N/A
Hewlett Packard Enterprise Co	HPE	13,227.39	0.06%	4.89%	7.50%	12.57%	0.0075%
HP Inc	HPQ	22,526.76	0.10%	4.58%	10.50%	15.32%	0.0155%
H&R Block Inc	HRB	2,802.42	0.01%	7.35%	7.00%	14.61%	0.0018%
Hormel Foods Corp	HRL	25,457.36	0.11%	2.07%	8.50%	10.66%	0.0122%
Henry Schein Inc	HSIC	7,659.38	0.03%	0.00%	6.50%	6.50%	0.0022%
Host Hotels & Resorts Inc	HST	8,336.90	0.04%	7.11%	-2.50%	4.52%	0.0017%
Hershey Co/The	HSY	29,801.98	0.13%	2.28%	4.50%	6.83%	0.0091%
Humana Inc	HUM	44,553.73	0.20%	0.74%	10.50%	11.28%	0.0225%
Howmet Aerospace Inc	HWM	5,661.74	0.03%	0.00%	12.00%	12.00%	0.0030%
International Business Machines Corp	IBM	105,823.30	0.47%	5.53%	1.50%	7.07%	0.0336%
Intercontinental Exchange Inc	ICE	51,545.36	0.23%	1.41%	9.00%	10.47%	0.0242%
IDEXX Laboratories Inc	IDXX	21,878.25	0.10%	0.00%	12.50%	12.50%	0.0123%
IDEX Corp	IEX	11,481.59	0.05%	1.33%	7.50%	8.88%	0.0046%
International Flavors & Fragrances Inc	IFF	12,946.59	0.06%	2.56%	7.50%	10.16%	0.0059%
Illumina Inc	ILMN	41,305.53	0.19%	0.00%	12.00%	12.00%	0.0222%
Incyte Corp	INCY	19,022.01	0.09%	0.00%	64.50%	64.50%	0.0550%
IHS Markit Ltd	INFO	25,294.06	0.11%	1.06%	12.00%	13.12%	0.0149%
Intel Corp	INTC	256,563.00	1.15%	2.24%	9.00%	11.34%	0.1305%
Intuit Inc	INTU	64,068.95	0.29%	0.91%	14.50%	15.48%	0.0445%
International Paper Co	IP	12,986.35	0.06%	6.19%	6.50%	12.89%	0.0075%
Interpublic Group of Cos Inc/The	IPG	6,153.30	0.03%	6.42%	11.00%	17.77%	0.0049%
IPG Photonics Corp	IPGP	6,378.38	0.03%	0.00%	9.50%	9.50%	0.0027%
IQVIA Holdings Inc	IQV	24,594.39	0.11%	0.00%	9.50%	9.50%	0.0105%
Ingersoll Rand Inc	IR	N/A	N/A	0.00%	N/A	N/A	N/A
Iron Mountain Inc	IRM	7,451.15	0.03%	9.56%	7.50%	17.42%	0.0058%
Intuitive Surgical Inc	ISRG	59,013.80	0.26%	0.00%	14.00%	14.00%	0.0371%
Gartner Inc	IT	9,358.92	0.04%	0.00%	12.50%	12.50%	0.0052%
Illinois Tool Works Inc	ITW	51,038.32	0.23%	2.70%	8.00%	10.81%	0.0247%
Invesco Ltd	IVZ	4,298.33	0.02%	13.09%	6.00%	19.48%	0.0038%
Jacobs Engineering Group Inc	J	10,765.10	0.05%	0.94%	14.00%	15.01%	0.0072%
JB Hunt Transport Services Inc	JBHT	10,533.10	0.05%	1.10%	7.50%	8.64%	0.0041%
Johnson Controls International plc	JCI	22,394.22	0.10%	3.55%	5.50%	9.15%	0.0092%
Jack Henry & Associates Inc	JKHY	12,993.82	0.06%	1.02%	12.00%	13.08%	0.0076%

Company	Ticker	[4] Market Capitalization ($ mil)	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Johnson & Johnson	JNJ	376,911.50	1.69%	2.65%	11.50%	14.30%	0.2418%
Juniper Networks Inc	JNPR	7,473.78	0.03%	3.60%	6.00%	9.71%	0.0033%
JPMorgan Chase & Co	JPM	290,823.20	1.30%	3.92%	8.50%	12.59%	0.1642%
Nordstrom Inc	JWN	2,948.80	0.01%	0.00%	5.00%	5.00%	0.0007%
Kellogg Co	K	20,991.23	0.09%	3.74%	3.00%	6.80%	0.0064%
KeyCorp	KEY	11,071.54	0.05%	6.71%	10.50%	17.56%	0.0087%
Keysight Technologies Inc	KEYS	17,094.26	0.08%	0.00%	21.00%	21.00%	0.0161%
Kraft Heinz Co/The	KHC	33,357.72	0.15%	5.86%	-0.50%	5.35%	0.0080%
Kimco Realty Corp	KIM	4,158.38	0.02%	11.84%	5.00%	17.14%	0.0032%
KLA Corp	KLAC	23,887.35	0.11%	2.23%	11.50%	13.86%	0.0148%
Kimberly-Clark Corp	KMB	45,296.57	0.20%	3.23%	7.00%	10.34%	0.0210%
Kinder Morgan Inc	KMI	33,589.00	0.15%	6.74%	22.00%	29.48%	0.0444%
CarMax Inc	KMX	10,355.12	0.05%	0.00%	10.50%	10.50%	0.0049%
Coca-Cola Co/The	KO	204,669.60	0.92%	3.43%	6.50%	10.04%	0.0922%
Kroger Co/The	KR	24,443.76	0.11%	2.26%	5.50%	7.82%	0.0086%
Kohl's Corp	KSS	2,750.64	0.01%	16.90%	6.50%	23.95%	0.0030%
Kansas City Southern	KSU	13,850.76	0.06%	1.15%	12.00%	13.22%	0.0082%
Loews Corp	L	11,361.61	0.05%	0.66%	14.00%	14.71%	0.0075%
L Brands Inc	LB	4,024.08	0.02%	0.00%	-2.50%	-2.50%	-0.0005%
Leidos Holdings Inc	LDOS	13,457.04	0.06%	1.43%	9.00%	10.49%	0.0063%
Leggett & Platt Inc	LEG	3,791.89	0.02%	5.56%	8.00%	13.78%	0.0023%
Lennar Corp	LEN	13,538.77	0.06%	1.15%	7.00%	8.19%	0.0050%
Laboratory Corp of America Holdings	LH	13,748.98	0.06%	0.00%	8.00%	8.00%	0.0049%
L3Harris Technologies Inc	LHX	N/A	N/A	0.00%	N/A	N/A	N/A
Linde PLC	LIN	100,547.00	N/A	2.06%	N/A	N/A	N/A
LKQ Corp	LKQ	6,740.84	0.03%	0.00%	10.00%	10.00%	0.0030%
Eli Lilly & Co	LLY	140,009.50	0.63%	2.02%	10.00%	12.12%	0.0761%
Lockheed Martin Corp	LMT	101,194.80	0.45%	2.71%	8.50%	11.33%	0.0514%
Lincoln National Corp	LNC	6,403.51	0.03%	5.16%	9.50%	14.91%	0.0043%
Alliant Energy Corp	LNT	12,552.53	0.06%	2.97%	5.50%	8.55%	0.0048%
Lowe's Cos Inc	LOW	72,460.80	0.32%	2.49%	10.50%	13.12%	0.0426%
Lam Research Corp	LRCX	38,001.74	0.17%	1.72%	10.00%	11.81%	0.0201%
Southwest Airlines Co	LUV	17,803.90	0.08%	2.10%	10.00%	12.21%	0.0097%
Las Vegas Sands Corp	LVS	35,540.23	0.16%	6.79%	7.50%	14.54%	0.0232%
Lamb Weston Holdings Inc	LW	8,433.75	0.04%	1.65%	9.50%	11.23%	0.0042%
LyondellBasell Industries NV	LYB	18,494.14	0.08%	7.57%	3.00%	10.68%	0.0089%
Live Nation Entertainment Inc	LYV	8,069.92	N/A	0.00%	N/A	N/A	N/A
Mastercard Inc	MA	273,659.50	1.23%	0.59%	16.00%	16.64%	0.2042%
Mid-America Apartment Communities Inc	MAA	12,628.71	0.06%	3.61%	0.50%	4.12%	0.0023%
Marriott International Inc/MD	MAR	26,979.00	0.12%	0.00%	11.50%	11.50%	0.0139%
Masco Corp	MAS	10,897.22	0.05%	1.47%	7.00%	8.52%	0.0042%
McDonald's Corp	MCD	132,460.80	0.59%	2.87%	8.00%	10.98%	0.0653%
Microchip Technology Inc	MCHP	19,047.82	0.09%	1.89%	7.50%	9.46%	0.0081%
McKesson Corp	MCK	23,286.12	0.10%	1.25%	9.00%	10.31%	0.0108%
Moody's Corp	MCO	42,514.86	0.19%	0.99%	10.50%	11.54%	0.0220%
Mondelez International Inc	MDLZ	74,318.96	0.33%	2.32%	8.00%	10.41%	0.0347%
Medtronic PLC	MDT	133,113.20	0.60%	2.22%	7.50%	9.80%	0.0585%
MetLife Inc	MET	30,636.36	0.14%	5.26%	7.50%	12.96%	0.0178%
MGM Resorts International	MGM	7,547.22	0.03%	4.00%	14.00%	18.28%	0.0062%
Mohawk Industries Inc	MHK	6,113.29	N/A	0.00%	N/A	N/A	N/A
McCormick & Co Inc/MD	MKC	19,815.99	0.09%	1.66%	6.50%	8.21%	0.0073%
MarketAxess Holdings Inc	MKTX	15,007.84	0.07%	0.61%	13.50%	14.15%	0.0095%
Martin Marietta Materials Inc	MLM	12,278.45	0.06%	1.13%	10.50%	11.69%	0.0064%
Marsh & McLennan Cos Inc	MMC	47,272.86	0.21%	1.97%	9.00%	11.06%	0.0234%
3M Co	MMM	85,676.84	0.38%	3.95%	4.50%	8.54%	0.0328%
Monster Beverage Corp	MNST	32,341.42	0.15%	0.00%	11.50%	11.50%	0.0167%
Altria Group Inc	MO	74,560.81	0.33%	8.37%	6.00%	14.62%	0.0489%
Mosaic Co/The	MOS	4,593.06	0.02%	1.86%	22.00%	24.06%	0.0050%
Marathon Petroleum Corp	MPC	15,801.50	0.07%	9.54%	9.00%	18.97%	0.0134%
Merck & Co Inc	MRK	207,234.50	0.93%	2.99%	9.00%	12.12%	0.1127%
Marathon Oil Corp	MRO	3,163.90	N/A	5.06%	N/A	N/A	N/A
Morgan Stanley	MS	62,754.72	0.28%	3.56%	5.00%	8.65%	0.0243%
MSCI Inc	MSCI	25,173.23	0.11%	0.97%	19.50%	20.56%	0.0232%
Microsoft Corp	MSFT	1,256,805.00	5.64%	1.24%	15.50%	16.84%	0.9490%
Motorola Solutions Inc	MSI	25,268.67	0.11%	1.81%	9.50%	11.40%	0.0129%
M&T Bank Corp	MTB	14,056.60	0.06%	4.09%	9.50%	13.78%	0.0087%
Mettler-Toledo International Inc	MTD	18,046.01	0.08%	0.00%	10.50%	10.50%	0.0085%
Micron Technology Inc	MU	53,698.48	0.24%	0.00%	13.50%	13.50%	0.0325%
Maxim Integrated Products Inc	MXIM	14,382.70	0.06%	3.60%	4.50%	8.18%	0.0053%
Mylan NV	MYL	7,814.37	0.04%	0.00%	3.00%	3.00%	0.0011%
Noble Energy Inc	NBL	3,453.31	N/A	6.65%	N/A	N/A	N/A
Norwegian Cruise Line Holdings Ltd	NCLH	2,497.32	0.01%	0.00%	16.00%	16.00%	0.0018%
Nasdaq Inc	NDAQ	17,191.24	0.08%	1.81%	6.00%	7.86%	0.0061%
NextEra Energy Inc	NEE	114,181.50	0.51%	2.42%	10.00%	12.54%	0.0642%
Newmont Corp	NEM	40,828.24	0.18%	1.98%	11.00%	13.09%	0.0240%
Netflix Inc	NFLX	162,850.00	0.73%	0.00%	32.00%	32.00%	0.2337%
NiSource Inc	NI	9,511.70	0.04%	3.30%	14.00%	17.53%	0.0075%
NIKE Inc	NKE	132,641.50	0.59%	1.15%	17.50%	18.75%	0.1115%
NortonLifeLock Inc	NLOK	12,022.12	0.05%	2.55%	5.00%	7.61%	0.0041%
Nielsen Holdings PLC	NLSN	5,306.64	0.02%	1.61%	41.00%	42.94%	0.0102%
Northrop Grumman Corp	NOC	55,264.89	0.25%	1.60%	10.00%	11.68%	0.0289%
National Oilwell Varco Inc	NOV	4,506.73	N/A	1.71%	N/A	N/A	N/A
ServiceNow Inc	NOW	51,674.50	N/A	0.00%	N/A	N/A	N/A
NRG Energy Inc	NRG	7,420.99	N/A	4.08%	N/A	N/A	N/A
Norfolk Southern Corp	NSC	40,999.16	0.18%	2.37%	13.00%	15.52%	0.0285%
NetApp Inc	NTAP	9,745.56	0.04%	5.12%	10.00%	15.38%	0.0063%
Northern Trust Corp	NTRS	17,666.72	0.08%	3.36%	7.50%	10.99%	0.0087%
Nucor Corp	NUE	11,801.50	0.05%	4.12%	11.00%	15.35%	0.0081%
NVIDIA Corp	NVDA	163,373.40	0.73%	0.24%	10.00%	10.25%	0.0751%
NVR Inc	NVR	10,661.58	0.05%	0.00%	9.50%	9.50%	0.0045%

| | | [4] | [5] | [6] | [7] | [8] | [9] |
| | | Market Capitalization | | Estimated | Long-Term | | Weighted |
Company	Ticker	($ mil)	Weight in Index	Dividend Yield	Growth Est.	DCF Result	DCF Result
Newell Brands Inc	NWL	5,704.55	0.03%	6.83%	6.00%	13.03%	0.0033%
News Corp	NWSA	5,264.68	N/A	2.24%	N/A	N/A	N/A
Realty Income Corp	O	16,137.81	0.07%	5.33%	6.50%	12.00%	0.0087%
Old Dominion Freight Line Inc	ODFL	16,571.93	0.07%	0.46%	9.00%	9.48%	0.0070%
ONEOK Inc	OKE	10,925.86	0.05%	14.75%	16.00%	31.93%	0.0156%
Omnicom Group Inc	OMC	11,868.86	0.05%	5.12%	6.50%	11.79%	0.0063%
Oracle Corp	ORCL	164,782.90	0.74%	1.84%	10.00%	11.93%	0.0882%
O'Reilly Automotive Inc	ORLY	25,712.39	0.12%	0.00%	12.00%	12.00%	0.0138%
Otis Worldwide Corp	OTIS	N/A	N/A	0.00%	N/A	N/A	N/A
Occidental Petroleum Corp	OXY	13,900.01	0.06%	2.83%	20.50%	23.62%	0.0147%
Paycom Software Inc	PAYC	11,680.15	0.05%	0.00%	26.00%	26.00%	0.0136%
Paychex Inc	PAYX	23,337.02	0.10%	4.18%	10.50%	14.90%	0.0156%
People's United Financial Inc	PBCT	4,968.32	0.02%	6.43%	4.00%	10.56%	0.0024%
PACCAR Inc	PCAR	22,975.22	0.10%	4.21%	6.00%	10.34%	0.0107%
Healthpeak Properties Inc	PEAK	12,739.59	0.06%	5.55%	-15.50%	-10.38%	-0.0059%
Public Service Enterprise Group Inc	PEG	25,633.44	0.11%	3.85%	6.00%	9.97%	0.0115%
PepsiCo Inc	PEP	184,460.50	0.83%	3.08%	6.00%	9.17%	0.0759%
Pfizer Inc	PFE	191,476.40	0.86%	4.39%	8.50%	13.08%	0.1123%
Principal Financial Group Inc	PFG	8,462.32	0.04%	7.36%	5.50%	13.06%	0.0050%
Procter & Gamble Co/The	PG	284,234.10	1.27%	2.59%	8.50%	11.20%	0.1428%
Progressive Corp/The	PGR	45,487.73	0.20%	0.51%	13.50%	14.04%	0.0287%
Parker-Hannifin Corp	PH	18,149.25	0.08%	2.49%	9.00%	11.60%	0.0094%
PulteGroup Inc	PHM	6,896.40	0.03%	1.96%	7.50%	9.53%	0.0029%
Packaging Corp of America	PKG	8,314.50	0.04%	3.87%	4.00%	7.95%	0.0030%
PerkinElmer Inc	PKI	8,655.58	0.04%	0.36%	10.00%	10.38%	0.0040%
Prologis Inc	PLD	54,448.26	0.24%	2.74%	6.00%	8.82%	0.0215%
Philip Morris International Inc	PM	116,163.10	0.52%	6.27%	5.50%	11.94%	0.0622%
PNC Financial Services Group Inc/The	PNC	43,083.50	0.19%	4.62%	8.00%	12.80%	0.0247%
Pentair PLC	PNR	5,501.50	0.02%	2.33%	6.00%	8.40%	0.0021%
Pinnacle West Capital Corp	PNW	8,867.83	0.04%	4.08%	4.00%	8.16%	0.0032%
PPG Industries Inc	PPG	22,000.73	0.10%	2.19%	6.00%	8.26%	0.0081%
PPL Corp	PPL	19,802.29	0.09%	6.43%	2.50%	9.01%	0.0080%
Perrigo Co PLC	PRGO	6,648.49	0.03%	1.90%	3.50%	5.43%	0.0016%
Prudential Financial Inc	PRU	21,943.73	0.10%	8.00%	7.00%	15.28%	0.0150%
Public Storage	PSA	34,664.26	0.16%	4.02%	3.50%	7.59%	0.0118%
Phillips 66	PSX	28,305.60	0.13%	6.28%	9.00%	15.56%	0.0198%
PVH Corp	PVH	3,462.11	0.02%	0.00%	9.00%	9.00%	0.0014%
Quanta Services Inc	PWR	4,811.80	0.02%	0.59%	15.00%	15.63%	0.0034%
Pioneer Natural Resources Co	PXD	13,299.47	0.06%	2.74%	35.00%	38.22%	0.0228%
PayPal Holdings Inc	PYPL	123,340.40	0.55%	0.00%	20.00%	20.00%	0.1106%
QUALCOMM Inc	QCOM	83,816.20	0.38%	3.55%	9.50%	13.22%	0.0497%
Qorvo Inc	QRVO	10,071.52	0.05%	0.00%	53.00%	53.00%	0.0239%
Royal Caribbean Cruises Ltd	RCL	7,842.51	0.04%	8.31%	12.50%	21.33%	0.0075%
Everest Re Group Ltd	RE	8,058.57	0.04%	3.13%	9.50%	12.78%	0.0046%
Regency Centers Corp	REG	6,865.64	0.03%	5.82%	13.50%	19.71%	0.0061%
Regeneron Pharmaceuticals Inc	REGN	56,498.21	0.25%	0.00%	6.00%	6.00%	0.0152%
Regions Financial Corp	RF	9,679.12	0.04%	6.33%	10.00%	16.65%	0.0072%
Robert Half International Inc	RHI	4,806.42	0.02%	3.33%	8.00%	11.46%	0.0025%
Raymond James Financial Inc	RJF	9,253.17	0.04%	2.25%	6.50%	8.82%	0.0037%
Ralph Lauren Corp	RL	5,612.99	0.03%	3.61%	8.00%	11.75%	0.0030%
ResMed Inc	RMD	22,435.98	0.10%	1.01%	14.50%	15.58%	0.0157%
Rockwell Automation Inc	ROK	19,498.36	0.09%	2.44%	7.00%	9.53%	0.0083%
Rollins Inc	ROL	11,758.44	0.05%	1.34%	11.00%	12.41%	0.0065%
Roper Technologies Inc	ROP	33,112.13	0.15%	0.64%	8.00%	8.67%	0.0129%
Ross Stores Inc	ROST	32,002.61	0.14%	1.28%	9.50%	10.84%	0.0156%
Republic Services Inc	RSG	27,642.19	0.12%	2.15%	10.00%	12.26%	0.0152%
Raytheon Technologies Corp	RTX	54,126.60	0.24%	4.70%	8.00%	12.89%	0.0313%
SBA Communications Corp	SBAC	34,013.16	0.15%	0.62%	31.50%	32.22%	0.0491%
Starbucks Corp	SBUX	84,058.98	0.38%	2.43%	13.50%	16.09%	0.0607%
Charles Schwab Corp/The	SCHW	46,916.10	0.21%	1.97%	6.50%	8.53%	0.0180%
Sealed Air Corp	SEE	4,417.53	0.02%	2.24%	26.00%	28.53%	0.0057%
Sherwin-Williams Co/The	SHW	44,994.84	0.20%	1.10%	8.50%	9.65%	0.0195%
SVB Financial Group	SIVB	8,691.31	0.04%	0.00%	15.00%	15.00%	0.0058%
JM Smucker Co/The	SJM	13,015.50	0.06%	3.11%	3.00%	6.16%	0.0036%
Schlumberger Ltd	SLB	23,924.42	0.11%	11.57%	15.00%	27.44%	0.0294%
SL Green Realty Corp	SLG	4,128.48	0.02%	7.27%	0.50%	7.79%	0.0014%
Snap-on Inc	SNA	6,385.17	0.03%	3.71%	5.50%	9.31%	0.0027%
Synopsys Inc	SNPS	20,855.55	0.09%	0.00%	12.50%	12.50%	0.0117%
Southern Co/The	SO	61,278.14	0.27%	4.40%	4.00%	8.49%	0.0233%
Simon Property Group Inc	SPG	19,439.76	N/A	13.35%	N/A	N/A	N/A
S&P Global Inc	SPGI	63,913.05	0.29%	1.03%	11.00%	12.09%	0.0346%
Sempra Energy	SRE	35,603.45	0.16%	3.44%	11.00%	14.63%	0.0234%
STERIS PLC	STE	12,655.06	0.06%	0.99%	9.50%	10.54%	0.0060%
State Street Corp	STT	20,750.27	0.09%	3.65%	5.50%	9.25%	0.0086%
Seagate Technology PLC	STX	13,314.95	0.06%	5.19%	3.00%	8.27%	0.0049%
Constellation Brands Inc	STZ	30,105.51	0.14%	1.90%	7.50%	9.47%	0.0128%
Stanley Black & Decker Inc	SWK	20,234.17	0.09%	2.47%	8.00%	10.57%	0.0096%
Skyworks Solutions Inc	SWKS	15,856.50	0.07%	1.89%	10.00%	11.98%	0.0085%
Synchrony Financial	SYF	10,994.51	0.05%	5.23%	9.50%	14.98%	0.0074%
Stryker Corp	SYK	66,055.39	0.30%	1.30%	12.00%	13.38%	0.0396%
Sysco Corp	SYY	24,042.83	0.11%	3.81%	9.50%	13.49%	0.0145%
AT&T Inc	T	216,838.60	0.97%	6.99%	5.50%	12.68%	0.1233%
Molson Coors Beverage Co	TAP	9,867.61	0.04%	5.00%	5.00%	10.13%	0.0045%
TransDigm Group Inc	TDG	17,604.38	0.08%	0.00%	15.50%	15.50%	0.0122%
TE Connectivity Ltd	TEL	23,095.73	0.10%	2.66%	5.50%	8.23%	0.0085%
Truist Financial Corp	TFC	43,888.82	0.20%	5.63%	11.50%	17.45%	0.0344%
Teleflex Inc	TFX	14,887.87	0.07%	0.42%	14.00%	14.45%	0.0096%
Target Corp	TGT	53,013.72	0.24%	2.52%	9.50%	12.14%	0.0289%
Tiffany & Co	TIF	15,511.46	0.07%	1.84%	10.50%	12.44%	0.0087%
TJX Cos Inc/The	TJX	59,088.37	0.27%	2.12%	13.50%	15.76%	0.0418%

		[4] Market Capitalization ($ mil)	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Company	Ticker						
Thermo Fisher Scientific Inc	TMO	133,311.70	0.60%	0.29%	11.00%	11.31%	0.0676%
T-Mobile US Inc	TMUS	74,422.20	0.33%	0.00%	14.00%	14.00%	0.0467%
Tapestry Inc	TPR	4,131.72	0.02%	0.00%	10.50%	10.50%	0.0019%
T Rowe Price Group Inc	TROW	24,763.41	0.11%	3.41%	10.00%	13.58%	0.0151%
Travelers Cos Inc/The	TRV	26,812.17	0.12%	3.13%	7.50%	10.75%	0.0129%
Tractor Supply Co	TSCO	10,717.57	0.05%	1.72%	9.50%	11.30%	0.0054%
Tyson Foods Inc	TSN	21,319.65	0.10%	2.95%	7.00%	10.05%	0.0096%
Trane Technologies PLC	TT	N/A	N/A	0.00%	N/A	N/A	N/A
Take-Two Interactive Software Inc	TTWO	13,499.99	0.06%	0.00%	20.50%	20.50%	0.0124%
Twitter Inc	TWTR	21,720.19	N/A	0.00%	N/A	N/A	N/A
Texas Instruments Inc	TXN	102,682.00	0.46%	3.27%	4.50%	7.84%	0.0361%
Textron Inc	TXT	6,365.47	0.03%	0.29%	8.50%	8.80%	0.0025%
Under Armour Inc	UAA	4,404.73	0.02%	0.00%	17.50%	17.50%	0.0035%
United Airlines Holdings Inc	UAL	6,977.20	0.03%	0.00%	10.00%	10.00%	0.0031%
UDR Inc	UDR	10,652.61	0.05%	3.54%	5.00%	8.63%	0.0041%
Universal Health Services Inc	UHS	9,370.40	0.04%	0.75%	11.00%	11.79%	0.0050%
Ulta Beauty Inc	ULTA	11,489.25	0.05%	0.00%	13.00%	13.00%	0.0067%
UnitedHealth Group Inc	UNH	253,902.90	1.14%	1.61%	12.00%	13.71%	0.1561%
Unum Group	UNM	3,086.67	0.01%	7.50%	7.50%	15.28%	0.0021%
Union Pacific Corp	UNP	103,552.10	0.46%	2.59%	11.50%	14.24%	0.0661%
United Parcel Service Inc	UPS	84,722.60	0.38%	4.09%	7.00%	11.23%	0.0427%
United Rentals Inc	URI	8,301.77	0.04%	0.00%	9.50%	9.50%	0.0035%
US Bancorp	USB	54,692.63	0.25%	4.83%	5.00%	9.95%	0.0244%
Visa Inc	V	343,757.10	1.54%	0.72%	18.00%	18.78%	0.2896%
Varian Medical Systems Inc	VAR	10,451.36	0.05%	0.00%	13.50%	13.50%	0.0063%
VF Corp	VFC	22,878.68	0.10%	3.31%	7.00%	10.43%	0.0107%
ViacomCBS Inc	VIAC	5,923.13	0.03%	6.08%	12.00%	18.44%	0.0049%
Valero Energy Corp	VLO	21,119.47	0.09%	7.60%	10.00%	17.98%	0.0170%
Vulcan Materials Co	VMC	14,953.95	0.07%	1.20%	13.00%	14.28%	0.0096%
Vornado Realty Trust	VNO	7,725.61	0.03%	6.52%	-5.00%	1.36%	0.0005%
Verisk Analytics Inc	VRSK	24,335.05	0.11%	0.73%	10.50%	11.27%	0.0123%
VeriSign Inc	VRSN	22,549.34	0.10%	0.00%	11.00%	11.00%	0.0111%
Vertex Pharmaceuticals Inc	VRTX	64,228.78	0.29%	0.00%	46.00%	46.00%	0.1325%
Ventas Inc	VTR	10,750.65	0.05%	10.51%	1.50%	12.09%	0.0058%
Verizon Communications Inc	VZ	239,048.30	1.07%	4.27%	4.50%	8.87%	0.0951%
Westinghouse Air Brake Technologies Corp	WAB	10,069.95	0.05%	0.91%	12.50%	13.47%	0.0061%
Waters Corp	WAT	12,768.14	0.06%	0.00%	10.50%	10.50%	0.0060%
Walgreens Boots Alliance Inc	WBA	38,267.80	0.17%	4.25%	6.50%	10.89%	0.0187%
Western Digital Corp	WDC	13,556.66	0.06%	4.41%	0.50%	4.92%	0.0030%
WEC Energy Group Inc	WEC	29,083.01	0.13%	2.79%	6.00%	8.87%	0.0116%
Welltower Inc	WELL	19,794.05	0.09%	6.75%	9.50%	16.57%	0.0147%
Wells Fargo & Co	WFC	129,269.60	0.58%	6.87%	5.50%	12.56%	0.0728%
Whirlpool Corp	WHR	6,279.84	0.03%	4.82%	5.00%	9.94%	0.0028%
Willis Towers Watson PLC	WLTW	24,457.53	0.11%	1.43%	17.50%	19.06%	0.0209%
Waste Management Inc	WM	40,558.18	0.18%	2.28%	7.00%	9.36%	0.0170%
Williams Cos Inc/The	WMB	18,592.08	0.08%	10.43%	13.00%	24.11%	0.0201%
Walmart Inc	WMT	345,903.80	1.55%	1.77%	7.50%	9.34%	0.1448%
WR Berkley Corp	WRB	10,128.01	0.05%	0.80%	10.00%	10.84%	0.0049%
Westrock Co	WRK	7,930.30	0.04%	6.13%	6.50%	12.83%	0.0046%
Western Union Co/The	WU	8,468.68	0.04%	4.44%	6.50%	11.08%	0.0042%
Weyerhaeuser Co	WY	14,499.08	0.07%	6.99%	10.50%	17.86%	0.0116%
Wynn Resorts Ltd	WYNN	7,415.63	0.03%	5.79%	14.50%	20.71%	0.0069%
Xcel Energy Inc	XEL	32,941.05	0.15%	2.74%	5.50%	8.32%	0.0123%
Xilinx Inc	XLNX	21,026.73	0.09%	1.75%	6.00%	7.80%	0.0074%
Exxon Mobil Corp	XOM	185,660.90	0.83%	8.07%	9.00%	17.43%	0.1452%
DENTSPLY SIRONA Inc	XRAY	8,798.63	0.04%	1.01%	6.00%	7.04%	0.0028%
Xerox Holdings Corp	XRX	4,098.32	0.02%	5.19%	9.50%	14.94%	0.0027%
Xylem Inc/NY	XYL	12,445.87	0.06%	1.51%	8.50%	10.07%	0.0056%
Yum! Brands Inc	YUM	22,837.11	0.10%	2.49%	11.00%	13.63%	0.0140%
Zimmer Biomet Holdings Inc	ZBH	22,879.17	0.10%	0.86%	4.50%	5.38%	0.0055%
Zebra Technologies Corp	ZBRA	10,628.34	0.05%	0.00%	15.00%	15.00%	0.0071%
Zions Bancorp NA	ZION	4,859.28	0.02%	4.62%	9.50%	14.34%	0.0031%
Zoetis Inc	ZTS	60,510.94	0.27%	0.63%	12.00%	12.67%	0.0344%
Total Market Capitalization:		22,297,457.29					14.82%

Notes:
[1] Equals sum of Col. [9]
[2] Source: Bloomberg Professional
[3] Equals [1] − [2]
[4] Source: Value Line
[5] Equals weight in S&P 500 based on market capitalization
[6] Source: Value Line
[7] Source: Value Line
[8] Equals ([6] x (1 + (0.5 x [7]))) + [7]
[9] Equals Col. [5] x Col. [8]

Bloomberg and Value Line Beta Coefficients

Company	Ticker	[1] Bloomberg	[2] Value Line
ALLETE, Inc.	ALE	0.939	0.60
Alliant Energy Corporation	LNT	1.003	0.55
Ameren Corporation	AEE	0.922	0.50
American Electric Power Company, Inc.	AEP	0.983	0.50
Avangrid, Inc.	AGR	0.755	0.40
Avista	AVA	0.927	0.60
CMS Energy Corporation	CMS	0.940	0.50
DTE Energy Company	DTE	1.097	0.50
Evergy, Inc	EVRG	1.043	0.66
Hawaiian Electric Industries, Inc.	HE	0.768	0.55
NextEra Energy, Inc.	NEE	0.912	0.50
NorthWestern Corporation	NWE	1.184	0.60
OGE Energy Corp.	OGE	1.163	0.70
Otter Tail Corporation	OTTR	0.973	0.70
Pinnacle West Capital Corporation	PNW	1.051	0.50
PNM Resources, Inc.	PNM	1.269	0.60
Portland General Electric Company	POR	0.986	0.55
Southern Company	SO	1.050	0.50
WEC Energy Group, Inc.	WEC	0.978	0.50
Xcel Energy Inc.	XEL	0.958	0.45
Mean		0.995	0.548

Notes:
[1] Source: Bloomberg Professional
[2] Source: Value Line. Value Line does not report a Beta coefficient for Evergy, Inc. Therefore, the

Capital Asset Pricing Model and Empirical Capital Asset Pricing Model Results
Bloomberg and Value Line Derived Market Risk Premium

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
			Ex-Ante Market Risk Premium		CAPM Result		ECAPM Result	
	Risk-Free Rate	Average Beta Coefficient	Bloomberg Market DCF Derived	Value Line Market DCF Derived	Bloomberg MRP	Value Line MRP	Bloomberg Market DCF Derived	Value Line Market DCF Derived
PROXY GROUP AVERAGE BLOOMBERG BETA COEFFICIENT								
Current 30-Year Treasury [9]	1.37%	0.995	11.56%	13.45%	12.87%	14.75%	12.89%	14.77%
Near-Term Projected 30-Year Treasury [10]	1.75%	0.995	11.56%	13.45%	13.25%	15.13%	13.27%	15.15%
Long-Term Projected 30-Year Treasury [11]	3.45%	0.995	11.56%	13.45%	14.95%	16.83%	14.97%	16.85%
Mean					13.06%	14.94%	13.08%	14.96%

			Ex-Ante Market Risk Premium		CAPM Result		ECAPM Result	
	Risk-Free Rate	Average Beta Coefficient	Bloomberg Market DCF Derived	Value Line Market DCF Derived	Bloomberg MRP	Value Line MRP	Bloomberg Market DCF Derived	Value Line Market DCF Derived
PROXY GROUP AVERAGE VALUE LINE AVERAGE BETA COEFFICIENT								
Current 30-Year Treasury [9]	1.37%	0.548	11.56%	13.45%	7.70%	8.74%	9.01%	10.26%
Near-Term Projected 30-Year Treasury [10]	1.75%	0.548	11.56%	13.45%	8.08%	9.11%	9.39%	10.64%
Long-Term Projected 30-Year Treasury [11]	3.45%	0.548	11.56%	13.45%	9.78%	10.81%	11.09%	12.34%
Mean					7.89%	8.93%	9.20%	10.45%

Notes:
[1] *See Notes [9], [10], [11]*
[2] Source: Rebuttal Exhibit DWD-3
[3] Source: Rebuttal Exhibit DWD-2
[4] Source: Rebuttal Exhibit DWD-2
[5] Equals Col. [1] + (Col. [2] x Col. [3])
[6] Equals Col. [1] + (Col. [2] x Col. [4])
[7] Equals Col. [1] + 0.25 x Col. [3] + 0.75 x Col. [2] x Col. [3]
[8] Equals Col. [1] + 0.25 x Col. [4] + 0.75 x Col. [2] x Col. [4]
[9] Source: Bloomberg Professional
[10] Source: Blue Chip Financial Forecasts, Vol. 39, No. 4, April 1, 2020, at 2.
[11] Source: Blue Chip Financial Forecasts, Vol. 38, No. 12, December 1, 2019, at 14.

Bond Yield Plus Risk Premium

	[1]	[2]	[3] 30-Year Treasury Yield	[4] Risk Premium	[5] Return on Equity
	Constant	Slope			
	-2.42%	-2.66%			
Current 30-Year Treasury			1.37%	8.98%	10.35%
Near-Term Projected 30-Year Treasury			1.75%	8.33%	10.08%
Long-Term Projected 30-Year Treasury			3.45%	6.52%	9.97%
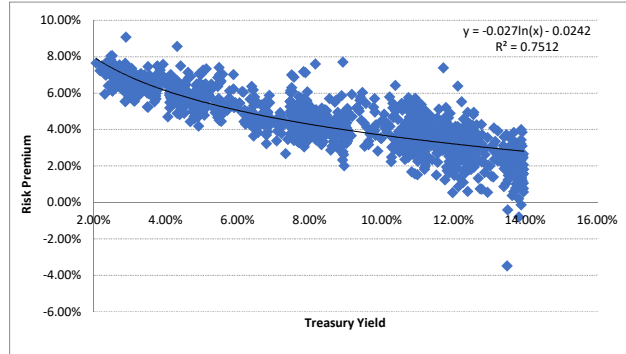
Notes:
[1] Constant of regression equation
[2] Slope of regression equation
[3] Source: Current = Bloomberg Professional,
    Near Term Projected = Blue Chip Financial Forecasts, Vol. 39, No. 4, April 1, 2020, at 2.
    Long Term Projected = Blue Chip Financial Forecasts, Vol. 38, No. 12, December 1, 2019, at 14
[4] Equals [1] + ln([3]) x [2]
[5] Equals [3] + [4]
[6] Source: S&P Global Market Intelligence
[7] Source: S&P Global Market Intelligence
[8] Source: Bloomberg Professional, equals 200-trading day average (i.e. lag period)
[9] Equals [7] - [8]

Bond Yield Plus Risk Premium

[6] Date of Electric Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
1/1/1980	14.50%	9.36%	5.14%
1/7/1980	14.39%	9.39%	5.00%
1/9/1980	15.00%	9.40%	5.60%
1/14/1980	15.17%	9.42%	5.75%
1/17/1980	13.93%	9.44%	4.49%
1/23/1980	15.50%	9.47%	6.03%
1/30/1980	13.86%	9.52%	4.34%
1/31/1980	12.61%	9.53%	3.08%
2/6/1980	13.71%	9.58%	4.13%
2/13/1980	12.80%	9.64%	3.16%
2/14/1980	13.00%	9.65%	3.35%
2/19/1980	13.50%	9.68%	3.82%
2/27/1980	13.75%	9.78%	3.97%
2/29/1980	13.75%	9.81%	3.94%
2/29/1980	14.00%	9.81%	4.19%
2/29/1980	14.77%	9.81%	4.96%
3/7/1980	12.70%	9.90%	2.80%
3/14/1980	13.50%	9.97%	3.53%
3/26/1980	14.16%	10.11%	4.05%
3/27/1980	14.24%	10.12%	4.12%
3/28/1980	14.50%	10.14%	4.36%
4/11/1980	12.75%	10.28%	2.47%
4/14/1980	13.85%	10.29%	3.56%
4/16/1980	15.50%	10.32%	5.18%
4/22/1980	13.25%	10.36%	2.89%
4/22/1980	13.90%	10.36%	3.54%
4/24/1980	16.80%	10.38%	6.42%
4/29/1980	15.50%	10.41%	5.09%
5/6/1980	13.70%	10.45%	3.25%
5/7/1980	15.00%	10.46%	4.54%
5/8/1980	13.75%	10.47%	3.28%
5/9/1980	14.35%	10.47%	3.88%
5/13/1980	13.60%	10.49%	3.11%
5/15/1980	13.25%	10.50%	2.75%
5/19/1980	13.75%	10.52%	3.23%
5/27/1980	13.62%	10.55%	3.07%
5/27/1980	14.60%	10.55%	4.05%
5/29/1980	16.00%	10.56%	5.44%
5/30/1980	13.80%	10.57%	3.23%
6/2/1980	15.63%	10.58%	5.05%
6/9/1980	15.90%	10.61%	5.29%
6/10/1980	13.78%	10.61%	3.17%
6/12/1980	14.25%	10.62%	3.63%
6/19/1980	13.40%	10.63%	2.77%
6/30/1980	13.00%	10.65%	2.35%
6/30/1980	13.40%	10.65%	2.75%
7/9/1980	14.75%	10.68%	4.07%
7/10/1980	15.00%	10.69%	4.31%
7/15/1980	15.80%	10.70%	5.10%
7/18/1980	13.80%	10.72%	3.08%
7/22/1980	14.10%	10.73%	3.37%
7/24/1980	15.00%	10.73%	4.27%
7/25/1980	13.48%	10.74%	2.74%
7/31/1980	14.58%	10.76%	3.82%
8/8/1980	13.50%	10.78%	2.72%
8/8/1980	14.00%	10.78%	3.22%
8/8/1980	15.45%	10.78%	4.67%
8/11/1980	14.85%	10.78%	4.07%
8/14/1980	14.00%	10.79%	3.21%
8/14/1980	16.25%	10.79%	5.46%
8/25/1980	13.75%	10.82%	2.93%
8/27/1980	13.80%	10.83%	2.97%
8/29/1980	12.50%	10.84%	1.66%
9/15/1980	13.50%	10.88%	2.62%
9/15/1980	13.93%	10.88%	3.05%
9/15/1980	15.80%	10.88%	4.92%
9/24/1980	12.50%	10.93%	1.57%
9/24/1980	15.00%	10.93%	4.07%
9/26/1980	13.75%	10.95%	2.80%
9/30/1980	14.10%	10.96%	3.14%
9/30/1980	14.20%	10.96%	3.24%
10/1/1980	13.90%	10.97%	2.93%
10/3/1980	15.50%	10.99%	4.51%
10/7/1980	12.50%	11.00%	1.50%
10/9/1980	13.25%	11.01%	2.24%
10/9/1980	14.50%	11.01%	3.49%
10/9/1980	14.50%	11.01%	3.49%
10/16/1980	16.10%	11.03%	5.07%
10/17/1980	14.50%	11.03%	3.47%
10/31/1980	13.75%	11.11%	2.64%
10/31/1980	14.25%	11.11%	3.14%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
11/4/1980	15.00%	11.12%	3.88%
11/5/1980	13.75%	11.13%	2.62%
11/5/1980	14.00%	11.13%	2.87%
11/8/1980	13.75%	11.15%	2.60%
11/10/1980	14.85%	11.15%	3.70%
11/17/1980	14.00%	11.18%	2.82%
11/18/1980	14.00%	11.19%	2.81%
11/19/1980	13.00%	11.19%	1.81%
11/24/1980	14.00%	11.20%	2.80%
11/26/1980	14.00%	11.21%	2.79%
12/8/1980	14.15%	11.22%	2.93%
12/8/1980	15.10%	11.22%	3.88%
12/9/1980	15.35%	11.22%	4.13%
12/12/1980	15.45%	11.22%	4.23%
12/17/1980	13.25%	11.23%	2.02%
12/18/1980	15.80%	11.23%	4.57%
12/19/1980	14.50%	11.23%	3.27%
12/19/1980	14.64%	11.23%	3.41%
12/22/1980	13.45%	11.22%	2.23%
12/22/1980	15.00%	11.22%	3.78%
12/30/1980	14.50%	11.21%	3.29%
12/30/1980	14.95%	11.21%	3.74%
12/31/1980	13.39%	11.21%	2.18%
1/2/1981	15.25%	11.21%	4.04%
1/7/1981	14.30%	11.21%	3.09%
1/19/1981	15.25%	11.19%	4.06%
1/23/1981	13.10%	11.20%	1.90%
1/23/1981	14.40%	11.20%	3.20%
1/26/1981	15.25%	11.20%	4.05%
1/27/1981	15.00%	11.20%	3.80%
1/31/1981	13.47%	11.21%	2.26%
2/3/1981	15.25%	11.23%	4.02%
2/5/1981	15.75%	11.25%	4.50%
2/11/1981	15.60%	11.28%	4.32%
2/20/1981	15.25%	11.34%	3.91%
3/11/1981	15.40%	11.50%	3.90%
3/12/1981	14.51%	11.51%	3.00%
3/12/1981	16.00%	11.51%	4.49%
3/13/1981	13.02%	11.52%	1.50%
3/18/1981	16.19%	11.55%	4.64%
3/19/1981	13.75%	11.56%	2.19%
3/23/1981	14.30%	11.58%	2.72%
3/25/1981	15.30%	11.61%	3.69%
4/1/1981	14.53%	11.69%	2.84%
4/3/1981	19.10%	11.72%	7.38%
4/9/1981	15.00%	11.79%	3.21%
4/9/1981	15.30%	11.79%	3.51%
4/9/1981	16.50%	11.79%	4.71%
4/9/1981	17.00%	11.79%	5.21%
4/10/1981	13.75%	11.81%	1.94%
4/13/1981	13.57%	11.83%	1.74%
4/15/1981	15.30%	11.86%	3.44%
4/16/1981	13.50%	11.88%	1.62%
4/17/1981	14.10%	11.88%	2.22%
4/21/1981	14.00%	11.91%	2.09%
4/21/1981	16.80%	11.91%	4.89%
4/24/1981	16.00%	11.96%	4.04%
4/27/1981	12.50%	11.98%	0.52%
4/27/1981	13.61%	11.98%	1.63%
4/29/1981	13.65%	12.01%	1.64%
4/30/1981	13.50%	12.02%	1.48%
5/4/1981	16.22%	12.06%	4.16%
5/5/1981	14.40%	12.08%	2.32%
5/7/1981	16.25%	12.12%	4.13%
5/7/1981	16.27%	12.12%	4.15%
5/8/1981	13.00%	12.14%	0.86%
5/8/1981	16.00%	12.14%	3.86%
5/12/1981	13.50%	12.17%	1.33%
5/15/1981	15.75%	12.23%	3.52%
5/18/1981	14.88%	12.24%	2.64%
5/20/1981	16.00%	12.27%	3.73%
5/21/1981	14.00%	12.28%	1.72%
5/26/1981	14.90%	12.31%	2.59%
5/27/1981	15.00%	12.32%	2.68%
5/29/1981	15.50%	12.34%	3.16%
6/1/1981	16.50%	12.35%	4.15%
6/3/1981	14.67%	12.38%	2.29%
6/5/1981	13.00%	12.40%	0.60%
6/10/1981	16.75%	12.42%	4.33%
6/17/1981	14.40%	12.46%	1.94%
6/18/1981	16.33%	12.47%	3.86%
6/25/1981	14.75%	12.52%	2.23%
6/26/1981	16.00%	12.53%	3.47%
6/30/1981	15.25%	12.55%	2.70%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
7/1/1981	15.50%	12.56%	2.94%
7/1/1981	17.50%	12.56%	4.94%
7/10/1981	16.00%	12.62%	3.38%
7/14/1981	16.90%	12.64%	4.26%
7/15/1981	16.00%	12.65%	3.35%
7/17/1981	15.00%	12.67%	2.33%
7/20/1981	15.00%	12.68%	2.32%
7/21/1981	14.00%	12.69%	1.31%
7/28/1981	13.48%	12.75%	0.73%
7/31/1981	13.50%	12.79%	0.71%
7/31/1981	15.00%	12.79%	2.21%
7/31/1981	16.00%	12.79%	3.21%
8/5/1981	15.71%	12.83%	2.88%
8/10/1981	14.50%	12.87%	1.63%
8/11/1981	15.00%	12.88%	2.12%
8/20/1981	13.50%	12.95%	0.55%
8/20/1981	16.50%	12.95%	3.55%
8/24/1981	15.00%	12.97%	2.03%
8/28/1981	15.00%	13.01%	1.99%
9/3/1981	14.50%	13.06%	1.44%
9/10/1981	14.50%	13.11%	1.39%
9/11/1981	16.00%	13.12%	2.88%
9/16/1981	16.00%	13.15%	2.85%
9/17/1981	16.50%	13.16%	3.34%
9/23/1981	15.85%	13.20%	2.65%
9/28/1981	15.50%	13.23%	2.27%
10/9/1981	15.75%	13.34%	2.41%
10/15/1981	16.25%	13.37%	2.88%
10/16/1981	15.50%	13.39%	2.11%
10/16/1981	16.50%	13.39%	3.11%
10/19/1981	14.25%	13.40%	0.85%
10/20/1981	15.25%	13.41%	1.84%
10/20/1981	17.00%	13.41%	3.59%
10/23/1981	16.00%	13.46%	2.54%
10/27/1981	10.00%	13.49%	-3.49%
10/29/1981	14.75%	13.52%	1.23%
10/29/1981	16.50%	13.52%	2.98%
11/3/1981	15.17%	13.54%	1.63%
11/5/1981	16.60%	13.56%	3.04%
11/6/1981	15.17%	13.57%	1.60%
11/24/1981	15.50%	13.61%	1.89%
11/25/1981	15.25%	13.61%	1.64%
11/25/1981	15.35%	13.61%	1.74%
11/25/1981	16.10%	13.61%	2.49%
11/25/1981	16.10%	13.61%	2.49%
12/1/1981	15.70%	13.61%	2.09%
12/1/1981	16.00%	13.61%	2.39%
12/1/1981	16.49%	13.61%	2.88%
12/1/1981	16.50%	13.61%	2.89%
12/4/1981	16.00%	13.61%	2.39%
12/11/1981	16.25%	13.63%	2.62%
12/14/1981	14.00%	13.63%	0.37%
12/15/1981	15.81%	13.63%	2.18%
12/15/1981	16.00%	13.63%	2.37%
12/16/1981	15.25%	13.63%	1.62%
12/17/1981	16.50%	13.64%	2.86%
12/18/1981	15.45%	13.64%	1.81%
12/30/1981	14.25%	13.67%	0.58%
12/30/1981	16.00%	13.67%	2.33%
12/30/1981	16.25%	13.67%	2.58%
12/31/1981	16.15%	13.68%	2.47%
1/4/1982	15.50%	13.68%	1.82%
1/11/1982	14.50%	13.73%	0.77%
1/11/1982	17.00%	13.73%	3.27%
1/13/1982	14.75%	13.74%	1.01%
1/14/1982	15.75%	13.75%	2.00%
1/15/1982	15.00%	13.76%	1.24%
1/15/1982	16.50%	13.76%	2.74%
1/22/1982	16.25%	13.80%	2.45%
1/27/1982	16.84%	13.81%	3.03%
1/28/1982	13.00%	13.82%	-0.82%
1/29/1982	15.50%	13.82%	1.68%
2/1/1982	15.85%	13.83%	2.02%
2/3/1982	16.44%	13.84%	2.60%
2/8/1982	15.50%	13.86%	1.64%
2/11/1982	16.00%	13.88%	2.12%
2/11/1982	16.20%	13.88%	2.32%
2/17/1982	15.00%	13.89%	1.11%
2/19/1982	15.17%	13.89%	1.28%
2/26/1982	15.25%	13.89%	1.36%
3/1/1982	15.03%	13.89%	1.14%
3/1/1982	16.00%	13.89%	2.11%
3/3/1982	15.00%	13.88%	1.12%
3/8/1982	17.10%	13.88%	3.22%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
3/12/1982	16.25%	13.88%	2.37%
3/17/1982	17.30%	13.88%	3.42%
3/22/1982	15.10%	13.89%	1.21%
3/27/1982	15.40%	13.90%	1.50%
3/30/1982	15.50%	13.91%	1.59%
3/31/1982	17.00%	13.91%	3.09%
4/1/1982	14.70%	13.92%	0.78%
4/1/1982	16.50%	13.92%	2.58%
4/2/1982	15.50%	13.92%	1.58%
4/5/1982	15.50%	13.93%	1.57%
4/8/1982	16.40%	13.94%	2.46%
4/13/1982	14.50%	13.94%	0.56%
4/23/1982	15.75%	13.94%	1.81%
4/27/1982	15.00%	13.94%	1.06%
4/28/1982	15.75%	13.94%	1.81%
4/30/1982	14.70%	13.94%	0.76%
4/30/1982	15.50%	13.94%	1.56%
5/3/1982	16.60%	13.94%	2.66%
5/4/1982	16.00%	13.94%	2.06%
5/14/1982	15.50%	13.92%	1.58%
5/18/1982	15.42%	13.92%	1.50%
5/19/1982	14.69%	13.92%	0.77%
5/20/1982	15.00%	13.91%	1.09%
5/20/1982	15.10%	13.91%	1.19%
5/20/1982	15.50%	13.91%	1.59%
5/20/1982	16.30%	13.91%	2.39%
5/21/1982	17.75%	13.91%	3.84%
5/27/1982	15.00%	13.89%	1.11%
5/28/1982	15.50%	13.89%	1.61%
5/28/1982	17.00%	13.89%	3.11%
6/1/1982	13.75%	13.89%	-0.14%
6/1/1982	16.60%	13.89%	2.71%
6/9/1982	17.86%	13.88%	3.98%
6/14/1982	15.75%	13.88%	1.87%
6/15/1982	14.85%	13.87%	0.98%
6/18/1982	15.50%	13.86%	1.64%
6/21/1982	14.90%	13.86%	1.04%
6/23/1982	16.00%	13.86%	2.14%
6/23/1982	16.17%	13.86%	2.31%
6/24/1982	14.85%	13.86%	0.99%
6/25/1982	14.70%	13.85%	0.85%
7/1/1982	16.00%	13.84%	2.16%
7/2/1982	15.62%	13.83%	1.79%
7/2/1982	17.00%	13.83%	3.17%
7/13/1982	14.00%	13.82%	0.18%
7/13/1982	16.80%	13.82%	2.98%
7/14/1982	15.76%	13.81%	1.95%
7/14/1982	16.02%	13.81%	2.21%
7/19/1982	16.50%	13.79%	2.71%
7/22/1982	14.50%	13.76%	0.74%
7/22/1982	17.00%	13.76%	3.24%
7/27/1982	16.75%	13.74%	3.01%
7/29/1982	16.50%	13.73%	2.77%
8/11/1982	17.50%	13.68%	3.82%
8/18/1982	17.07%	13.62%	3.45%
8/20/1982	15.73%	13.60%	2.13%
8/25/1982	16.00%	13.57%	2.43%
8/26/1982	15.50%	13.56%	1.94%
8/30/1982	15.00%	13.55%	1.45%
9/3/1982	16.20%	13.53%	2.67%
9/8/1982	15.00%	13.52%	1.48%
9/15/1982	13.08%	13.51%	-0.43%
9/15/1982	16.25%	13.51%	2.74%
9/16/1982	16.00%	13.50%	2.50%
9/17/1982	15.25%	13.50%	1.75%
9/23/1982	17.17%	13.47%	3.70%
9/24/1982	14.50%	13.47%	1.03%
9/27/1982	15.25%	13.46%	1.79%
10/1/1982	15.50%	13.42%	2.08%
10/15/1982	15.90%	13.32%	2.58%
10/22/1982	15.75%	13.24%	2.51%
10/22/1982	17.15%	13.24%	3.91%
10/29/1982	15.54%	13.16%	2.38%
11/1/1982	15.50%	13.14%	2.36%
11/3/1982	17.20%	13.12%	4.08%
11/4/1982	16.25%	13.10%	3.15%
11/5/1982	16.20%	13.09%	3.11%
11/9/1982	16.00%	13.05%	2.95%
11/23/1982	15.50%	12.88%	2.62%
11/23/1982	15.85%	12.88%	2.97%
11/30/1982	16.50%	12.80%	3.70%
12/1/1982	17.04%	12.78%	4.26%
12/6/1982	15.00%	12.72%	2.28%
12/6/1982	16.35%	12.72%	3.63%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
12/10/1982	15.50%	12.66%	2.84%
12/13/1982	16.00%	12.64%	3.36%
12/14/1982	15.30%	12.62%	2.68%
12/14/1982	16.40%	12.62%	3.78%
12/20/1982	16.00%	12.57%	3.43%
12/21/1982	14.75%	12.55%	2.20%
12/21/1982	15.85%	12.55%	3.30%
12/22/1982	16.25%	12.54%	3.71%
12/22/1982	16.58%	12.54%	4.04%
12/22/1982	16.75%	12.54%	4.21%
12/29/1982	14.90%	12.48%	2.42%
12/29/1982	16.25%	12.48%	3.77%
12/30/1982	16.00%	12.46%	3.54%
12/30/1982	16.35%	12.46%	3.89%
12/30/1982	16.77%	12.46%	4.31%
1/5/1983	17.33%	12.40%	4.93%
1/11/1983	15.90%	12.34%	3.56%
1/12/1983	14.63%	12.32%	2.31%
1/12/1983	15.50%	12.32%	3.18%
1/20/1983	17.75%	12.23%	5.52%
1/21/1983	15.00%	12.21%	2.79%
1/24/1983	14.50%	12.20%	2.30%
1/24/1983	15.50%	12.20%	3.30%
1/25/1983	15.85%	12.19%	3.66%
1/27/1983	16.14%	12.16%	3.98%
2/1/1983	18.50%	12.13%	6.37%
2/4/1983	14.00%	12.09%	1.91%
2/10/1983	15.00%	12.05%	2.95%
2/21/1983	15.50%	11.98%	3.52%
2/22/1983	15.50%	11.96%	3.54%
2/23/1983	15.10%	11.95%	3.15%
2/23/1983	16.00%	11.95%	4.05%
3/2/1983	15.25%	11.89%	3.36%
3/9/1983	15.20%	11.82%	3.38%
3/15/1983	13.00%	11.76%	1.24%
3/18/1983	15.25%	11.72%	3.53%
3/23/1983	15.40%	11.68%	3.72%
3/24/1983	15.00%	11.66%	3.34%
3/29/1983	15.50%	11.62%	3.88%
3/30/1983	16.71%	11.60%	5.11%
3/31/1983	15.00%	11.58%	3.42%
4/4/1983	15.20%	11.57%	3.63%
4/8/1983	15.50%	11.49%	4.01%
4/11/1983	14.81%	11.48%	3.33%
4/19/1983	14.50%	11.36%	3.14%
4/20/1983	16.00%	11.35%	4.65%
4/29/1983	16.00%	11.23%	4.77%
5/1/1983	14.50%	11.23%	3.27%
5/9/1983	15.50%	11.14%	4.36%
5/11/1983	16.46%	11.11%	5.35%
5/12/1983	14.14%	11.10%	3.04%
5/18/1983	15.00%	11.04%	3.96%
5/23/1983	14.90%	11.00%	3.90%
5/23/1983	15.50%	11.00%	4.50%
5/25/1983	15.50%	10.97%	4.53%
5/27/1983	15.00%	10.95%	4.05%
5/31/1983	14.00%	10.94%	3.06%
5/31/1983	15.50%	10.94%	4.56%
6/2/1983	14.50%	10.92%	3.58%
6/17/1983	15.03%	10.83%	4.20%
7/1/1983	14.80%	10.77%	4.03%
7/1/1983	14.90%	10.77%	4.13%
7/8/1983	16.25%	10.75%	5.50%
7/13/1983	13.20%	10.75%	2.45%
7/19/1983	15.00%	10.74%	4.26%
7/19/1983	15.10%	10.74%	4.36%
7/25/1983	16.25%	10.73%	5.52%
7/28/1983	15.90%	10.74%	5.16%
8/3/1983	16.34%	10.75%	5.59%
8/3/1983	16.50%	10.75%	5.75%
8/19/1983	15.00%	10.80%	4.20%
8/22/1983	15.50%	10.80%	4.70%
8/22/1983	16.40%	10.80%	5.60%
8/31/1983	14.75%	10.85%	3.90%
9/7/1983	15.00%	10.87%	4.13%
9/14/1983	15.78%	10.89%	4.89%
9/16/1983	15.00%	10.90%	4.10%
9/19/1983	14.50%	10.91%	3.59%
9/20/1983	16.50%	10.91%	5.59%
9/28/1983	14.50%	10.94%	3.56%
9/29/1983	15.50%	10.95%	4.55%
9/30/1983	15.25%	10.95%	4.30%
9/30/1983	16.15%	10.95%	5.20%
10/4/1983	14.80%	10.96%	3.84%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
10/7/1983	16.00%	10.97%	5.03%
10/13/1983	15.52%	10.99%	4.53%
10/17/1983	15.50%	11.00%	4.50%
10/18/1983	14.50%	11.00%	3.50%
10/19/1983	16.25%	11.01%	5.24%
10/19/1983	16.50%	11.01%	5.49%
10/26/1983	15.00%	11.04%	3.96%
10/27/1983	15.20%	11.04%	4.16%
11/1/1983	16.00%	11.06%	4.94%
11/9/1983	14.90%	11.09%	3.81%
11/10/1983	14.35%	11.10%	3.25%
11/23/1983	16.00%	11.13%	4.87%
11/23/1983	16.15%	11.13%	5.02%
11/30/1983	15.00%	11.14%	3.86%
12/5/1983	15.25%	11.15%	4.10%
12/6/1983	15.07%	11.16%	3.91%
12/8/1983	15.90%	11.16%	4.74%
12/9/1983	14.75%	11.17%	3.58%
12/12/1983	14.50%	11.18%	3.32%
12/15/1983	15.56%	11.20%	4.36%
12/19/1983	14.80%	11.21%	3.59%
12/20/1983	14.69%	11.22%	3.47%
12/20/1983	16.00%	11.22%	4.78%
12/20/1983	16.25%	11.22%	5.03%
12/22/1983	14.75%	11.23%	3.52%
12/22/1983	15.75%	11.23%	4.52%
1/3/1984	14.75%	11.27%	3.48%
1/10/1984	15.90%	11.30%	4.60%
1/12/1984	15.60%	11.31%	4.29%
1/18/1984	13.75%	11.33%	2.42%
1/19/1984	15.90%	11.33%	4.57%
1/30/1984	16.10%	11.37%	4.73%
1/31/1984	15.25%	11.38%	3.87%
2/1/1984	14.80%	11.39%	3.41%
2/6/1984	13.75%	11.41%	2.34%
2/6/1984	14.75%	11.41%	3.34%
2/9/1984	15.25%	11.43%	3.82%
2/15/1984	15.70%	11.45%	4.25%
2/20/1984	15.00%	11.46%	3.54%
2/20/1984	15.00%	11.46%	3.54%
2/22/1984	14.75%	11.48%	3.27%
2/28/1984	14.50%	11.52%	2.98%
3/2/1984	14.25%	11.54%	2.71%
3/20/1984	16.00%	11.65%	4.35%
3/23/1984	15.50%	11.67%	3.83%
3/26/1984	14.71%	11.68%	3.03%
4/2/1984	15.50%	11.72%	3.78%
4/6/1984	14.74%	11.76%	2.98%
4/11/1984	15.72%	11.78%	3.94%
4/17/1984	15.00%	11.81%	3.19%
4/18/1984	16.20%	11.82%	4.38%
4/25/1984	14.64%	11.85%	2.79%
4/30/1984	14.40%	11.88%	2.52%
5/16/1984	14.69%	11.99%	2.70%
5/16/1984	15.00%	11.99%	3.01%
5/22/1984	14.40%	12.02%	2.38%
5/29/1984	15.10%	12.06%	3.04%
6/13/1984	15.25%	12.16%	3.09%
6/15/1984	15.60%	12.17%	3.43%
6/22/1984	16.25%	12.21%	4.04%
6/29/1984	15.25%	12.26%	2.99%
7/2/1984	13.35%	12.27%	1.08%
7/10/1984	16.00%	12.31%	3.69%
7/12/1984	16.50%	12.33%	4.17%
7/13/1984	16.25%	12.34%	3.91%
7/17/1984	14.14%	12.35%	1.79%
7/18/1984	15.30%	12.36%	2.94%
7/18/1984	15.50%	12.36%	3.14%
7/19/1984	14.30%	12.37%	1.93%
7/24/1984	16.79%	12.40%	4.39%
7/31/1984	16.00%	12.43%	3.57%
8/3/1984	14.25%	12.45%	1.80%
8/17/1984	14.30%	12.49%	1.81%
8/20/1984	15.00%	12.49%	2.51%
8/27/1984	16.30%	12.51%	3.79%
8/31/1984	15.55%	12.53%	3.02%
9/6/1984	16.00%	12.54%	3.46%
9/10/1984	14.75%	12.55%	2.20%
9/13/1984	15.00%	12.55%	2.45%
9/17/1984	17.38%	12.56%	4.82%
9/26/1984	14.50%	12.57%	1.93%
9/28/1984	15.00%	12.57%	2.43%
9/28/1984	16.25%	12.57%	3.68%
10/9/1984	14.75%	12.58%	2.17%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
10/12/1984	15.60%	12.59%	3.01%
10/22/1984	15.00%	12.59%	2.41%
10/26/1984	16.40%	12.59%	3.81%
10/31/1984	16.25%	12.59%	3.66%
11/7/1984	15.60%	12.58%	3.02%
11/9/1984	16.00%	12.58%	3.42%
11/14/1984	15.75%	12.59%	3.16%
11/20/1984	15.25%	12.58%	2.67%
11/20/1984	15.92%	12.58%	3.34%
11/23/1984	15.00%	12.58%	2.42%
11/28/1984	16.15%	12.57%	3.58%
12/3/1984	15.80%	12.57%	3.23%
12/4/1984	16.50%	12.56%	3.94%
12/18/1984	16.40%	12.54%	3.86%
12/19/1984	14.75%	12.53%	2.22%
12/19/1984	15.00%	12.53%	2.47%
12/20/1984	16.00%	12.53%	3.47%
12/28/1984	16.00%	12.50%	3.50%
1/3/1985	14.75%	12.49%	2.26%
1/10/1985	15.75%	12.47%	3.28%
1/11/1985	16.30%	12.46%	3.84%
1/23/1985	15.80%	12.43%	3.37%
1/24/1985	15.82%	12.43%	3.39%
1/25/1985	16.75%	12.42%	4.33%
1/30/1985	14.90%	12.40%	2.50%
1/31/1985	14.75%	12.39%	2.36%
2/8/1985	14.47%	12.35%	2.12%
3/1/1985	13.84%	12.30%	1.54%
3/8/1985	16.85%	12.28%	4.57%
3/14/1985	15.50%	12.25%	3.25%
3/15/1985	15.62%	12.25%	3.37%
3/29/1985	15.62%	12.16%	3.46%
4/3/1985	14.60%	12.13%	2.47%
4/9/1985	15.50%	12.10%	3.40%
4/16/1985	15.70%	12.05%	3.65%
4/22/1985	14.00%	12.01%	1.99%
4/26/1985	15.50%	11.97%	3.53%
4/29/1985	15.00%	11.96%	3.04%
5/2/1985	14.68%	11.93%	2.75%
5/8/1985	15.62%	11.88%	3.74%
5/10/1985	16.50%	11.86%	4.64%
5/29/1985	14.61%	11.73%	2.88%
5/31/1985	16.00%	11.71%	4.29%
6/14/1985	15.50%	11.60%	3.90%
7/9/1985	15.00%	11.44%	3.56%
7/16/1985	14.50%	11.39%	3.11%
7/26/1985	14.50%	11.32%	3.18%
8/2/1985	14.80%	11.29%	3.51%
8/7/1985	15.00%	11.26%	3.74%
8/28/1985	14.25%	11.15%	3.10%
8/28/1985	15.50%	11.15%	4.35%
8/29/1985	14.50%	11.14%	3.36%
9/9/1985	14.60%	11.11%	3.49%
9/9/1985	14.90%	11.11%	3.79%
9/17/1985	14.90%	11.08%	3.82%
9/23/1985	15.00%	11.06%	3.94%
9/27/1985	15.50%	11.04%	4.46%
9/27/1985	15.80%	11.04%	4.76%
10/2/1985	14.00%	11.03%	2.97%
10/2/1985	14.75%	11.03%	3.72%
10/3/1985	15.25%	11.03%	4.22%
10/24/1985	15.40%	10.96%	4.44%
10/24/1985	15.82%	10.96%	4.86%
10/24/1985	15.85%	10.96%	4.89%
10/28/1985	16.00%	10.95%	5.05%
10/29/1985	16.65%	10.94%	5.71%
10/31/1985	15.06%	10.93%	4.13%
11/4/1985	14.50%	10.91%	3.59%
11/7/1985	15.50%	10.89%	4.61%
11/8/1985	14.30%	10.89%	3.41%
12/12/1985	14.75%	10.73%	4.02%
12/18/1985	15.00%	10.69%	4.31%
12/20/1985	14.50%	10.66%	3.84%
12/20/1985	14.50%	10.66%	3.84%
12/20/1985	15.00%	10.66%	4.34%
1/24/1986	15.40%	10.40%	5.00%
1/31/1986	15.00%	10.35%	4.65%
2/5/1986	15.00%	10.32%	4.68%
2/5/1986	15.75%	10.32%	5.43%
2/10/1986	13.30%	10.29%	3.01%
2/11/1986	12.50%	10.27%	2.23%
2/14/1986	14.40%	10.24%	4.16%
2/18/1986	16.00%	10.22%	5.78%
2/24/1986	14.50%	10.17%	4.33%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
2/26/1986	14.00%	10.15%	3.85%
3/5/1986	14.90%	10.07%	4.83%
3/11/1986	14.50%	10.01%	4.49%
3/12/1986	13.50%	10.00%	3.50%
3/27/1986	14.10%	9.85%	4.25%
3/31/1986	13.50%	9.84%	3.66%
4/1/1986	14.00%	9.82%	4.18%
4/2/1986	15.50%	9.81%	5.69%
4/4/1986	15.00%	9.78%	5.22%
4/14/1986	13.40%	9.68%	3.72%
4/23/1986	15.00%	9.57%	5.43%
5/16/1986	14.50%	9.31%	5.19%
5/16/1986	14.50%	9.31%	5.19%
5/29/1986	13.90%	9.19%	4.71%
5/30/1986	15.10%	9.17%	5.93%
6/2/1986	12.81%	9.16%	3.65%
6/11/1986	14.00%	9.06%	4.94%
6/24/1986	16.63%	8.93%	7.70%
6/26/1986	12.00%	8.90%	3.10%
6/26/1986	14.75%	8.90%	5.85%
6/30/1986	13.00%	8.86%	4.14%
7/10/1986	14.34%	8.74%	5.60%
7/11/1986	12.75%	8.72%	4.03%
7/14/1986	12.60%	8.71%	3.89%
7/17/1986	12.40%	8.65%	3.75%
7/25/1986	14.25%	8.56%	5.69%
8/6/1986	13.50%	8.43%	5.07%
8/14/1986	13.50%	8.34%	5.16%
9/16/1986	12.75%	8.06%	4.69%
9/19/1986	13.25%	8.02%	5.23%
10/1/1986	14.00%	7.94%	6.06%
10/3/1986	13.40%	7.92%	5.48%
10/31/1986	13.50%	7.77%	5.73%
11/5/1986	13.00%	7.74%	5.26%
12/3/1986	12.90%	7.58%	5.32%
12/4/1986	14.44%	7.57%	6.87%
12/16/1986	13.60%	7.52%	6.08%
12/22/1986	13.80%	7.50%	6.30%
12/30/1986	13.00%	7.49%	5.51%
1/2/1987	13.00%	7.48%	5.52%
1/12/1987	12.40%	7.46%	4.94%
1/27/1987	12.71%	7.46%	5.25%
3/2/1987	12.47%	7.47%	5.00%
3/3/1987	13.60%	7.47%	6.13%
3/4/1987	12.38%	7.47%	4.91%
3/10/1987	13.50%	7.47%	6.03%
3/13/1987	13.00%	7.47%	5.53%
3/31/1987	13.00%	7.46%	5.54%
4/6/1987	13.00%	7.47%	5.53%
4/14/1987	12.50%	7.49%	5.01%
4/16/1987	14.50%	7.50%	7.00%
4/27/1987	12.00%	7.54%	4.46%
5/5/1987	12.85%	7.58%	5.27%
5/12/1987	12.65%	7.62%	5.03%
5/28/1987	13.50%	7.70%	5.80%
6/15/1987	13.20%	7.78%	5.42%
6/29/1987	15.00%	7.84%	7.16%
6/30/1987	12.50%	7.84%	4.66%
7/8/1987	12.00%	7.86%	4.14%
7/10/1987	12.90%	7.87%	5.03%
7/15/1987	13.50%	7.88%	5.62%
7/16/1987	13.50%	7.88%	5.62%
7/16/1987	15.00%	7.88%	7.12%
7/27/1987	13.00%	7.92%	5.08%
7/27/1987	13.40%	7.92%	5.48%
7/27/1987	13.50%	7.92%	5.58%
7/31/1987	12.98%	7.95%	5.03%
8/26/1987	12.63%	8.06%	4.57%
8/26/1987	12.75%	8.06%	4.69%
8/27/1987	13.25%	8.07%	5.18%
9/9/1987	13.00%	8.14%	4.86%
9/30/1987	12.75%	8.31%	4.44%
9/30/1987	13.00%	8.31%	4.69%
10/2/1987	11.50%	8.33%	3.17%
10/15/1987	13.00%	8.44%	4.56%
11/2/1987	13.00%	8.55%	4.45%
11/19/1987	13.00%	8.64%	4.36%
11/30/1987	12.00%	8.69%	3.31%
12/3/1987	14.20%	8.71%	5.49%
12/15/1987	13.25%	8.78%	4.47%
12/16/1987	13.50%	8.79%	4.71%
12/16/1987	13.72%	8.79%	4.93%
12/17/1987	11.75%	8.80%	2.95%
12/18/1987	13.50%	8.80%	4.70%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
12/21/1987	12.01%	8.81%	3.20%
12/22/1987	12.00%	8.82%	3.18%
12/22/1987	12.00%	8.82%	3.18%
12/22/1987	12.75%	8.82%	3.93%
12/22/1987	13.00%	8.82%	4.18%
1/20/1988	13.80%	8.94%	4.86%
1/26/1988	13.90%	8.96%	4.94%
1/29/1988	13.20%	8.96%	4.24%
2/4/1988	12.60%	8.96%	3.64%
3/1/1988	11.56%	8.94%	2.62%
3/23/1988	12.87%	8.92%	3.95%
3/24/1988	11.24%	8.92%	2.32%
3/30/1988	12.72%	8.92%	3.80%
4/1/1988	12.50%	8.92%	3.58%
4/7/1988	13.25%	8.93%	4.32%
4/25/1988	10.96%	8.96%	2.00%
5/3/1988	12.91%	8.98%	3.93%
5/11/1988	13.50%	8.99%	4.51%
5/16/1988	13.00%	8.99%	4.01%
6/30/1988	12.75%	8.99%	3.76%
7/1/1988	12.75%	8.99%	3.76%
7/20/1988	13.40%	8.96%	4.44%
8/5/1988	12.75%	8.91%	3.84%
8/23/1988	11.70%	8.93%	2.77%
8/29/1988	12.75%	8.94%	3.81%
8/30/1988	13.50%	8.94%	4.56%
9/8/1988	12.60%	8.95%	3.65%
10/13/1988	13.10%	8.93%	4.17%
12/19/1988	13.00%	9.02%	3.98%
12/20/1988	12.25%	9.02%	3.23%
12/20/1988	13.00%	9.02%	3.98%
12/21/1988	12.90%	9.02%	3.88%
12/27/1988	13.00%	9.03%	3.97%
12/28/1988	13.10%	9.03%	4.07%
12/30/1988	13.40%	9.04%	4.36%
1/27/1989	13.00%	9.06%	3.94%
1/31/1989	13.00%	9.06%	3.94%
2/17/1989	13.00%	9.05%	3.95%
2/20/1989	12.40%	9.05%	3.35%
3/1/1989	12.76%	9.05%	3.71%
3/8/1989	13.00%	9.05%	3.95%
3/30/1989	14.00%	9.05%	4.95%
4/5/1989	14.20%	9.05%	5.15%
4/18/1989	13.00%	9.05%	3.95%
5/5/1989	12.40%	9.05%	3.35%
6/2/1989	13.20%	9.00%	4.20%
6/8/1989	13.50%	8.98%	4.52%
6/27/1989	13.25%	8.91%	4.34%
6/30/1989	13.00%	8.90%	4.10%
8/14/1989	12.50%	8.77%	3.73%
9/28/1989	12.25%	8.63%	3.62%
10/24/1989	12.50%	8.54%	3.96%
11/9/1989	13.00%	8.48%	4.52%
12/15/1989	13.00%	8.33%	4.67%
12/20/1989	12.90%	8.31%	4.59%
12/21/1989	12.90%	8.31%	4.59%
12/27/1989	12.50%	8.29%	4.21%
12/27/1989	13.00%	8.29%	4.71%
1/10/1990	12.80%	8.24%	4.56%
1/11/1990	12.90%	8.23%	4.67%
1/17/1990	12.80%	8.22%	4.58%
1/26/1990	12.00%	8.19%	3.81%
2/9/1990	12.10%	8.17%	3.93%
2/24/1990	12.86%	8.15%	4.71%
3/30/1990	12.90%	8.16%	4.74%
4/4/1990	15.76%	8.17%	7.59%
4/12/1990	12.52%	8.18%	4.34%
4/19/1990	12.75%	8.20%	4.55%
5/21/1990	12.10%	8.28%	3.82%
5/29/1990	12.40%	8.30%	4.10%
5/31/1990	12.00%	8.30%	3.70%
6/4/1990	12.90%	8.30%	4.60%
6/6/1990	12.25%	8.31%	3.94%
6/15/1990	13.20%	8.32%	4.88%
6/20/1990	12.92%	8.32%	4.60%
6/27/1990	12.90%	8.33%	4.57%
6/29/1990	12.50%	8.34%	4.16%
7/6/1990	12.10%	8.34%	3.76%
7/6/1990	12.35%	8.34%	4.01%
8/10/1990	12.55%	8.41%	4.14%
8/16/1990	13.21%	8.43%	4.78%
8/22/1990	13.10%	8.45%	4.65%
8/24/1990	13.00%	8.46%	4.54%
9/26/1990	11.45%	8.59%	2.86%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
10/2/1990	13.00%	8.61%	4.39%
10/5/1990	12.84%	8.63%	4.21%
10/19/1990	13.00%	8.67%	4.33%
10/25/1990	12.30%	8.68%	3.62%
11/21/1990	12.70%	8.69%	4.01%
12/13/1990	12.30%	8.67%	3.63%
12/17/1990	12.87%	8.67%	4.20%
12/18/1990	13.10%	8.67%	4.43%
12/19/1990	12.00%	8.66%	3.34%
12/20/1990	12.75%	8.66%	4.09%
12/21/1990	12.50%	8.66%	3.84%
12/27/1990	12.79%	8.66%	4.13%
1/2/1991	13.10%	8.66%	4.44%
1/4/1991	12.50%	8.65%	3.85%
1/15/1991	12.75%	8.65%	4.10%
1/25/1991	11.70%	8.63%	3.07%
2/4/1991	12.50%	8.60%	3.90%
2/7/1991	12.50%	8.59%	3.91%
2/12/1991	13.00%	8.57%	4.43%
2/14/1991	12.72%	8.56%	4.16%
2/22/1991	12.80%	8.55%	4.25%
3/6/1991	13.10%	8.53%	4.57%
3/8/1991	12.30%	8.52%	3.78%
3/8/1991	13.00%	8.52%	4.48%
4/22/1991	13.00%	8.49%	4.51%
5/7/1991	13.50%	8.47%	5.03%
5/13/1991	13.25%	8.47%	4.78%
5/30/1991	12.75%	8.43%	4.32%
6/12/1991	12.00%	8.41%	3.59%
6/25/1991	11.70%	8.38%	3.32%
6/28/1991	12.50%	8.38%	4.12%
7/1/1991	12.00%	8.37%	3.63%
7/3/1991	12.50%	8.36%	4.14%
7/19/1991	12.10%	8.34%	3.76%
8/1/1991	12.90%	8.32%	4.58%
8/16/1991	13.20%	8.29%	4.91%
9/27/1991	12.50%	8.23%	4.27%
9/30/1991	12.25%	8.23%	4.02%
10/17/1991	13.00%	8.20%	4.80%
10/23/1991	12.50%	8.20%	4.30%
10/23/1991	12.55%	8.20%	4.35%
10/31/1991	11.80%	8.19%	3.61%
11/1/1991	12.00%	8.19%	3.81%
11/5/1991	12.25%	8.19%	4.06%
11/12/1991	12.50%	8.18%	4.32%
11/12/1991	13.25%	8.18%	5.07%
11/25/1991	12.40%	8.18%	4.22%
11/26/1991	11.60%	8.18%	3.42%
11/26/1991	12.50%	8.18%	4.32%
11/27/1991	12.10%	8.18%	3.92%
12/18/1991	12.25%	8.15%	4.10%
12/19/1991	12.60%	8.15%	4.45%
12/19/1991	12.80%	8.15%	4.65%
12/20/1991	12.65%	8.14%	4.51%
1/9/1992	12.80%	8.09%	4.71%
1/16/1992	12.75%	8.07%	4.68%
1/21/1992	12.00%	8.06%	3.94%
1/22/1992	13.00%	8.06%	4.94%
1/27/1992	12.65%	8.05%	4.60%
1/31/1992	12.00%	8.04%	3.96%
2/11/1992	12.40%	8.03%	4.37%
2/25/1992	12.50%	8.01%	4.49%
3/16/1992	11.43%	7.98%	3.45%
3/18/1992	12.28%	7.98%	4.30%
4/2/1992	12.10%	7.95%	4.15%
4/9/1992	11.45%	7.93%	3.52%
4/10/1992	11.50%	7.93%	3.57%
4/14/1992	11.50%	7.92%	3.58%
5/5/1992	11.50%	7.89%	3.61%
5/12/1992	11.87%	7.88%	3.99%
5/12/1992	12.46%	7.88%	4.58%
6/1/1992	12.30%	7.86%	4.44%
6/12/1992	10.90%	7.85%	3.05%
6/26/1992	12.35%	7.85%	4.50%
6/29/1992	11.00%	7.85%	3.15%
6/30/1992	13.00%	7.85%	5.15%
7/13/1992	11.90%	7.84%	4.06%
7/13/1992	13.50%	7.84%	5.66%
7/22/1992	11.20%	7.83%	3.37%
8/3/1992	12.00%	7.81%	4.19%
8/6/1992	12.50%	7.80%	4.70%
9/22/1992	12.00%	7.71%	4.29%
9/28/1992	11.40%	7.71%	3.69%
9/30/1992	11.75%	7.71%	4.04%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
10/2/1992	13.00%	7.70%	5.30%
10/12/1992	12.20%	7.70%	4.50%
10/16/1992	13.16%	7.71%	5.45%
10/30/1992	11.75%	7.71%	4.04%
11/3/1992	12.00%	7.71%	4.29%
12/3/1992	11.85%	7.68%	4.17%
12/15/1992	11.00%	7.66%	3.34%
12/16/1992	11.90%	7.66%	4.24%
12/16/1992	12.40%	7.66%	4.74%
12/17/1992	12.00%	7.66%	4.34%
12/22/1992	12.30%	7.65%	4.65%
12/22/1992	12.40%	7.65%	4.75%
12/29/1992	12.25%	7.63%	4.62%
12/30/1992	12.00%	7.63%	4.37%
12/31/1992	11.90%	7.62%	4.28%
1/12/1993	12.00%	7.61%	4.39%
1/21/1993	11.25%	7.59%	3.66%
2/2/1993	11.40%	7.56%	3.84%
2/15/1993	12.30%	7.52%	4.78%
2/24/1993	11.90%	7.49%	4.41%
2/26/1993	11.80%	7.48%	4.32%
2/26/1993	12.20%	7.48%	4.72%
4/23/1993	11.75%	7.29%	4.46%
5/11/1993	11.75%	7.24%	4.51%
5/14/1993	11.50%	7.24%	4.26%
5/25/1993	11.50%	7.22%	4.28%
5/28/1993	11.00%	7.22%	3.78%
6/3/1993	12.00%	7.21%	4.79%
6/16/1993	11.50%	7.19%	4.31%
6/18/1993	12.10%	7.18%	4.92%
6/25/1993	11.67%	7.17%	4.50%
7/21/1993	11.38%	7.10%	4.28%
7/23/1993	10.46%	7.09%	3.37%
8/24/1993	11.50%	6.95%	4.55%
9/21/1993	10.50%	6.80%	3.70%
9/29/1993	11.47%	6.76%	4.71%
9/30/1993	11.60%	6.76%	4.84%
11/2/1993	10.80%	6.60%	4.20%
11/12/1993	12.00%	6.56%	5.44%
11/26/1993	11.00%	6.52%	4.48%
12/14/1993	10.55%	6.48%	4.07%
12/16/1993	10.60%	6.48%	4.12%
12/21/1993	11.30%	6.47%	4.83%
1/4/1994	10.07%	6.44%	3.63%
1/13/1994	11.00%	6.42%	4.58%
1/21/1994	11.00%	6.40%	4.60%
1/28/1994	11.35%	6.39%	4.96%
2/3/1994	11.40%	6.38%	5.02%
2/17/1994	10.60%	6.36%	4.24%
2/25/1994	11.25%	6.35%	4.90%
2/25/1994	12.00%	6.35%	5.65%
3/1/1994	11.00%	6.35%	4.65%
3/4/1994	11.00%	6.34%	4.66%
4/25/1994	11.00%	6.40%	4.60%
5/10/1994	11.75%	6.44%	5.31%
5/13/1994	10.50%	6.46%	4.04%
6/3/1994	11.00%	6.54%	4.46%
6/27/1994	11.40%	6.65%	4.75%
8/5/1994	12.75%	6.88%	5.87%
10/31/1994	10.00%	7.33%	2.67%
11/9/1994	10.85%	7.40%	3.45%
11/9/1994	10.85%	7.40%	3.45%
11/18/1994	11.20%	7.46%	3.74%
11/22/1994	11.60%	7.47%	4.13%
11/28/1994	11.06%	7.50%	3.56%
12/8/1994	11.50%	7.55%	3.95%
12/8/1994	11.70%	7.55%	4.15%
12/14/1994	10.95%	7.57%	3.38%
12/15/1994	11.50%	7.57%	3.93%
12/19/1994	11.50%	7.58%	3.92%
12/28/1994	12.15%	7.61%	4.54%
1/9/1995	12.28%	7.64%	4.64%
1/31/1995	11.00%	7.69%	3.31%
2/10/1995	12.60%	7.70%	4.90%
2/17/1995	11.90%	7.70%	4.20%
3/9/1995	11.50%	7.72%	3.78%
3/20/1995	12.00%	7.72%	4.28%
3/23/1995	12.81%	7.72%	5.09%
3/29/1995	11.60%	7.72%	3.88%
4/6/1995	11.10%	7.72%	3.38%
4/7/1995	11.00%	7.71%	3.29%
4/19/1995	11.00%	7.70%	3.30%
5/12/1995	11.63%	7.68%	3.95%
5/25/1995	11.20%	7.65%	3.55%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
6/9/1995	11.25%	7.60%	3.65%
6/21/1995	12.25%	7.56%	4.69%
6/30/1995	11.10%	7.51%	3.59%
9/11/1995	11.30%	7.20%	4.10%
9/27/1995	11.30%	7.12%	4.18%
9/27/1995	11.50%	7.12%	4.38%
9/27/1995	11.75%	7.12%	4.63%
9/29/1995	11.00%	7.11%	3.89%
11/9/1995	11.38%	6.89%	4.49%
11/9/1995	12.36%	6.89%	5.47%
11/17/1995	11.00%	6.85%	4.15%
12/4/1995	11.35%	6.78%	4.57%
12/11/1995	11.40%	6.74%	4.66%
12/20/1995	11.60%	6.69%	4.91%
12/27/1995	12.00%	6.66%	5.34%
2/5/1996	12.25%	6.48%	5.77%
3/29/1996	10.67%	6.42%	4.25%
4/8/1996	11.00%	6.42%	4.58%
4/11/1996	12.59%	6.43%	6.16%
4/11/1996	12.59%	6.43%	6.16%
4/24/1996	11.25%	6.43%	4.82%
4/30/1996	11.00%	6.43%	4.57%
5/13/1996	11.00%	6.44%	4.56%
5/23/1996	11.25%	6.43%	4.82%
6/25/1996	11.25%	6.48%	4.77%
6/27/1996	11.20%	6.48%	4.72%
8/12/1996	10.40%	6.57%	3.83%
9/27/1996	11.00%	6.71%	4.29%
10/16/1996	12.25%	6.76%	5.49%
11/5/1996	11.00%	6.81%	4.19%
11/26/1996	11.30%	6.83%	4.47%
12/18/1996	11.75%	6.84%	4.91%
12/31/1996	11.50%	6.83%	4.67%
1/3/1997	10.70%	6.83%	3.87%
2/13/1997	11.80%	6.82%	4.98%
2/20/1997	11.80%	6.82%	4.98%
3/31/1997	10.02%	6.80%	3.22%
4/2/1997	11.65%	6.80%	4.85%
4/28/1997	11.50%	6.81%	4.69%
4/29/1997	11.70%	6.81%	4.89%
7/17/1997	12.00%	6.77%	5.23%
12/12/1997	11.00%	6.60%	4.40%
12/23/1997	11.12%	6.57%	4.55%
2/2/1998	12.75%	6.39%	6.36%
3/2/1998	11.25%	6.28%	4.97%
3/6/1998	10.75%	6.27%	4.48%
3/20/1998	10.50%	6.22%	4.28%
4/30/1998	12.20%	6.12%	6.08%
7/10/1998	11.40%	5.94%	5.46%
9/15/1998	11.90%	5.78%	6.12%
11/30/1998	12.60%	5.58%	7.02%
12/10/1998	12.20%	5.54%	6.66%
12/17/1998	12.10%	5.52%	6.58%
2/5/1999	10.30%	5.38%	4.92%
3/4/1999	10.50%	5.34%	5.16%
4/6/1999	10.94%	5.32%	5.62%
7/29/1999	10.75%	5.52%	5.23%
9/23/1999	10.75%	5.70%	5.05%
11/17/1999	11.10%	5.90%	5.20%
1/7/2000	11.50%	6.05%	5.45%
1/7/2000	11.50%	6.05%	5.45%
2/17/2000	10.60%	6.17%	4.43%
3/28/2000	11.25%	6.20%	5.05%
5/24/2000	11.00%	6.18%	4.82%
7/18/2000	12.20%	6.16%	6.04%
9/29/2000	11.16%	6.03%	5.13%
11/28/2000	12.90%	5.89%	7.01%
11/30/2000	12.10%	5.88%	6.22%
1/23/2001	11.25%	5.79%	5.46%
2/8/2001	11.50%	5.77%	5.73%
5/8/2001	10.75%	5.62%	5.13%
6/26/2001	11.00%	5.62%	5.38%
7/25/2001	11.02%	5.60%	5.42%
7/25/2001	11.02%	5.60%	5.42%
7/31/2001	11.00%	5.59%	5.41%
8/31/2001	10.50%	5.56%	4.94%
9/7/2001	10.75%	5.55%	5.20%
9/10/2001	11.00%	5.55%	5.45%
9/20/2001	10.00%	5.55%	4.45%
10/24/2001	10.30%	5.54%	4.76%
11/28/2001	10.60%	5.49%	5.11%
12/3/2001	12.88%	5.49%	7.39%
12/20/2001	12.50%	5.50%	7.00%
1/22/2002	10.00%	5.50%	4.50%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
3/27/2002	10.10%	5.45%	4.65%
4/22/2002	11.80%	5.45%	6.35%
5/28/2002	10.17%	5.46%	4.71%
6/10/2002	12.00%	5.47%	6.53%
6/18/2002	11.16%	5.48%	5.68%
6/20/2002	11.00%	5.48%	5.52%
6/20/2002	12.30%	5.48%	6.82%
7/15/2002	11.00%	5.48%	5.52%
9/12/2002	12.30%	5.45%	6.85%
9/26/2002	10.45%	5.41%	5.04%
12/4/2002	11.55%	5.29%	6.26%
12/13/2002	11.75%	5.27%	6.48%
12/20/2002	11.40%	5.25%	6.15%
1/8/2003	11.10%	5.19%	5.91%
1/31/2003	12.45%	5.13%	7.32%
2/28/2003	12.30%	5.04%	7.26%
3/6/2003	10.75%	5.02%	5.73%
3/7/2003	9.96%	5.02%	4.94%
3/20/2003	12.00%	4.98%	7.02%
4/3/2003	12.00%	4.95%	7.05%
4/15/2003	11.15%	4.93%	6.22%
6/25/2003	10.75%	4.79%	5.96%
6/26/2003	10.75%	4.79%	5.96%
7/9/2003	9.75%	4.79%	4.96%
7/16/2003	9.75%	4.79%	4.96%
7/25/2003	9.50%	4.79%	4.71%
8/26/2003	10.50%	4.83%	5.67%
12/17/2003	9.85%	4.94%	4.91%
12/17/2003	10.70%	4.94%	5.76%
12/18/2003	11.50%	4.94%	6.56%
12/19/2003	12.00%	4.94%	7.06%
12/19/2003	12.00%	4.94%	7.06%
12/23/2003	10.50%	4.94%	5.56%
1/13/2004	12.00%	4.95%	7.05%
3/2/2004	10.75%	4.99%	5.76%
3/26/2004	10.25%	5.02%	5.23%
4/5/2004	11.25%	5.03%	6.22%
5/18/2004	10.50%	5.07%	5.43%
5/25/2004	10.25%	5.07%	5.18%
5/27/2004	10.25%	5.08%	5.17%
6/2/2004	11.22%	5.08%	6.14%
6/30/2004	10.50%	5.10%	5.40%
6/30/2004	10.50%	5.10%	5.40%
7/16/2004	11.60%	5.11%	6.49%
8/25/2004	10.25%	5.10%	5.15%
9/9/2004	10.40%	5.10%	5.30%
11/9/2004	10.50%	5.07%	5.43%
11/23/2004	11.00%	5.06%	5.94%
12/14/2004	10.97%	5.07%	5.90%
12/21/2004	11.25%	5.07%	6.18%
12/21/2004	11.50%	5.07%	6.43%
12/22/2004	10.70%	5.07%	5.63%
12/22/2004	11.50%	5.07%	6.43%
12/29/2004	9.85%	5.08%	4.77%
1/6/2005	10.70%	5.08%	5.62%
2/18/2005	10.30%	4.98%	5.32%
2/25/2005	10.50%	4.96%	5.54%
3/10/2005	11.00%	4.93%	6.07%
3/24/2005	10.30%	4.89%	5.41%
4/4/2005	10.00%	4.87%	5.13%
4/7/2005	10.25%	4.87%	5.38%
5/18/2005	10.25%	4.78%	5.47%
5/25/2005	10.75%	4.76%	5.99%
5/26/2005	9.75%	4.76%	4.99%
6/1/2005	9.75%	4.75%	5.00%
7/19/2005	11.50%	4.64%	6.86%
8/5/2005	11.75%	4.62%	7.13%
8/15/2005	10.13%	4.61%	5.52%
9/28/2005	10.00%	4.54%	5.46%
10/4/2005	10.75%	4.53%	6.22%
12/12/2005	11.00%	4.55%	6.45%
12/13/2005	10.75%	4.55%	6.20%
12/21/2005	10.29%	4.54%	5.75%
12/21/2005	10.40%	4.54%	5.86%
12/22/2005	11.00%	4.54%	6.46%
12/22/2005	11.15%	4.54%	6.61%
12/28/2005	10.00%	4.54%	5.46%
12/28/2005	10.00%	4.54%	5.46%
1/5/2006	11.00%	4.53%	6.47%
1/27/2006	9.75%	4.52%	5.23%
3/3/2006	10.39%	4.53%	5.86%
4/17/2006	10.20%	4.62%	5.58%
4/26/2006	10.60%	4.64%	5.96%
5/17/2006	11.60%	4.69%	6.91%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
6/6/2006	10.00%	4.75%	5.25%
6/27/2006	10.75%	4.80%	5.95%
7/6/2006	10.20%	4.83%	5.37%
7/24/2006	9.60%	4.86%	4.74%
7/26/2006	10.50%	4.86%	5.64%
7/28/2006	10.05%	4.87%	5.18%
8/23/2006	9.55%	4.89%	4.66%
9/1/2006	10.54%	4.90%	5.64%
9/14/2006	10.00%	4.91%	5.09%
10/6/2006	9.67%	4.92%	4.75%
11/21/2006	10.08%	4.95%	5.13%
11/21/2006	10.08%	4.95%	5.13%
11/21/2006	10.12%	4.95%	5.17%
12/1/2006	10.25%	4.96%	5.29%
12/1/2006	10.50%	4.96%	5.54%
12/7/2006	10.75%	4.96%	5.79%
12/21/2006	10.90%	4.95%	5.95%
12/21/2006	11.25%	4.95%	6.30%
12/22/2006	10.25%	4.95%	5.30%
1/5/2007	10.00%	4.95%	5.05%
1/11/2007	10.10%	4.95%	5.15%
1/11/2007	10.10%	4.95%	5.15%
1/11/2007	10.90%	4.95%	5.95%
1/12/2007	10.10%	4.95%	5.15%
1/13/2007	10.40%	4.95%	5.45%
1/19/2007	10.80%	4.94%	5.86%
3/21/2007	11.35%	4.86%	6.49%
3/22/2007	9.75%	4.86%	4.89%
5/15/2007	10.00%	4.81%	5.19%
5/17/2007	10.25%	4.80%	5.45%
5/17/2007	10.25%	4.80%	5.45%
5/22/2007	10.20%	4.80%	5.40%
5/22/2007	10.50%	4.80%	5.70%
5/23/2007	10.70%	4.80%	5.90%
5/25/2007	9.67%	4.80%	4.87%
6/15/2007	9.90%	4.82%	5.08%
6/21/2007	10.20%	4.83%	5.37%
6/22/2007	10.50%	4.83%	5.67%
6/28/2007	10.75%	4.84%	5.91%
7/12/2007	9.67%	4.86%	4.81%
7/19/2007	10.00%	4.87%	5.13%
7/19/2007	10.00%	4.87%	5.13%
8/15/2007	10.40%	4.88%	5.52%
10/9/2007	10.00%	4.91%	5.09%
10/17/2007	9.10%	4.91%	4.19%
10/31/2007	9.96%	4.90%	5.06%
11/29/2007	10.90%	4.87%	6.03%
12/6/2007	10.75%	4.86%	5.89%
12/13/2007	9.96%	4.86%	5.10%
12/14/2007	10.70%	4.86%	5.84%
12/14/2007	10.80%	4.86%	5.94%
12/19/2007	10.20%	4.86%	5.34%
12/20/2007	10.20%	4.86%	5.34%
12/20/2007	11.00%	4.86%	6.14%
12/28/2007	10.25%	4.85%	5.40%
12/31/2007	11.25%	4.85%	6.40%
1/8/2008	10.75%	4.83%	5.92%
1/17/2008	10.75%	4.81%	5.94%
1/28/2008	9.40%	4.80%	4.60%
1/30/2008	10.00%	4.79%	5.21%
1/31/2008	10.71%	4.79%	5.92%
2/29/2008	10.25%	4.75%	5.50%
3/12/2008	10.25%	4.73%	5.52%
3/25/2008	9.10%	4.68%	4.42%
4/22/2008	10.25%	4.60%	5.65%
4/24/2008	10.10%	4.60%	5.50%
5/1/2008	10.70%	4.58%	6.12%
5/19/2008	11.00%	4.56%	6.44%
5/27/2008	10.00%	4.55%	5.45%
6/10/2008	10.70%	4.54%	6.16%
6/27/2008	10.50%	4.54%	5.96%
6/27/2008	11.04%	4.54%	6.50%
7/10/2008	10.43%	4.52%	5.91%
7/16/2008	9.40%	4.51%	4.89%
7/30/2008	10.80%	4.51%	6.29%
7/31/2008	10.70%	4.51%	6.19%
8/11/2008	10.25%	4.50%	5.75%
8/26/2008	10.18%	4.50%	5.68%
9/10/2008	10.30%	4.50%	5.80%
9/24/2008	10.65%	4.48%	6.17%
9/24/2008	10.65%	4.48%	6.17%
9/24/2008	10.65%	4.48%	6.17%
9/30/2008	10.20%	4.47%	5.73%
10/8/2008	10.15%	4.46%	5.69%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
11/13/2008	10.55%	4.45%	6.10%
11/17/2008	10.20%	4.44%	5.76%
12/1/2008	10.25%	4.39%	5.86%
12/23/2008	11.00%	4.27%	6.73%
12/29/2008	10.00%	4.24%	5.76%
12/29/2008	10.20%	4.24%	5.96%
12/31/2008	10.75%	4.22%	6.53%
1/14/2009	10.50%	4.15%	6.35%
1/21/2009	10.50%	4.11%	6.39%
1/21/2009	10.50%	4.11%	6.39%
1/21/2009	10.50%	4.11%	6.39%
1/27/2009	10.76%	4.09%	6.67%
1/30/2009	10.50%	4.07%	6.43%
2/4/2009	8.75%	4.06%	4.69%
3/4/2009	10.50%	3.96%	6.54%
3/12/2009	11.50%	3.93%	7.57%
4/2/2009	11.10%	3.85%	7.25%
4/21/2009	10.61%	3.80%	6.81%
4/24/2009	10.00%	3.78%	6.22%
4/30/2009	11.25%	3.77%	7.48%
5/4/2009	10.74%	3.77%	6.97%
5/20/2009	10.25%	3.74%	6.51%
5/28/2009	10.50%	3.74%	6.76%
6/22/2009	10.00%	3.76%	6.24%
6/24/2009	10.80%	3.76%	7.04%
7/8/2009	10.63%	3.76%	6.87%
7/17/2009	10.50%	3.77%	6.73%
8/31/2009	10.25%	3.82%	6.43%
10/14/2009	10.70%	4.02%	6.68%
10/23/2009	10.88%	4.06%	6.82%
11/2/2009	10.70%	4.10%	6.60%
11/3/2009	10.70%	4.10%	6.60%
11/24/2009	10.25%	4.16%	6.09%
11/25/2009	10.75%	4.16%	6.59%
11/30/2009	10.35%	4.17%	6.18%
12/3/2009	10.50%	4.18%	6.32%
12/7/2009	10.70%	4.19%	6.51%
12/16/2009	10.90%	4.22%	6.68%
12/16/2009	11.00%	4.22%	6.78%
12/18/2009	10.40%	4.22%	6.18%
12/18/2009	10.40%	4.22%	6.18%
12/22/2009	10.20%	4.23%	5.97%
12/22/2009	10.40%	4.23%	6.17%
12/22/2009	10.40%	4.23%	6.17%
12/30/2009	10.00%	4.26%	5.74%
1/4/2010	10.80%	4.28%	6.52%
1/11/2010	11.00%	4.31%	6.69%
1/26/2010	10.13%	4.35%	5.78%
1/27/2010	10.40%	4.36%	6.04%
1/27/2010	10.40%	4.36%	6.04%
1/27/2010	10.70%	4.36%	6.34%
2/9/2010	9.80%	4.38%	5.42%
2/18/2010	10.60%	4.40%	6.20%
2/24/2010	10.18%	4.41%	5.77%
3/2/2010	9.63%	4.41%	5.22%
3/4/2010	10.50%	4.41%	6.09%
3/5/2010	10.50%	4.41%	6.09%
3/11/2010	11.90%	4.42%	7.48%
3/17/2010	10.00%	4.41%	5.59%
3/25/2010	10.15%	4.42%	5.73%
4/2/2010	10.10%	4.43%	5.67%
4/27/2010	10.00%	4.46%	5.54%
4/29/2010	9.90%	4.46%	5.44%
4/29/2010	10.06%	4.46%	5.60%
4/29/2010	10.26%	4.46%	5.80%
5/12/2010	10.30%	4.45%	5.85%
5/12/2010	10.30%	4.45%	5.85%
5/28/2010	10.10%	4.44%	5.66%
5/28/2010	10.20%	4.44%	5.76%
6/7/2010	10.30%	4.44%	5.86%
6/16/2010	10.00%	4.44%	5.56%
6/28/2010	9.67%	4.43%	5.24%
6/28/2010	10.50%	4.43%	6.07%
6/30/2010	9.40%	4.43%	4.97%
7/1/2010	10.25%	4.43%	5.82%
7/15/2010	10.53%	4.43%	6.10%
7/15/2010	10.70%	4.43%	6.27%
7/30/2010	10.70%	4.41%	6.29%
8/4/2010	10.50%	4.41%	6.09%
8/6/2010	9.83%	4.41%	5.42%
8/25/2010	9.90%	4.37%	5.53%
9/3/2010	10.60%	4.35%	6.25%
9/14/2010	10.70%	4.33%	6.37%
9/16/2010	10.00%	4.32%	5.68%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
9/16/2010	10.00%	4.32%	5.68%
9/30/2010	9.75%	4.28%	5.47%
10/14/2010	10.35%	4.24%	6.11%
10/28/2010	10.70%	4.21%	6.49%
11/2/2010	10.38%	4.20%	6.18%
11/4/2010	10.70%	4.19%	6.51%
11/19/2010	10.20%	4.17%	6.03%
11/22/2010	10.00%	4.17%	5.83%
12/1/2010	10.13%	4.16%	5.97%
12/6/2010	9.86%	4.15%	5.71%
12/9/2010	10.25%	4.15%	6.10%
12/13/2010	10.70%	4.15%	6.55%
12/14/2010	10.13%	4.15%	5.98%
12/15/2010	10.44%	4.15%	6.29%
12/17/2010	10.00%	4.14%	5.86%
12/20/2010	10.60%	4.14%	6.46%
12/21/2010	10.30%	4.14%	6.16%
12/27/2010	9.90%	4.14%	5.76%
12/29/2010	11.15%	4.14%	7.01%
1/5/2011	10.15%	4.13%	6.02%
1/12/2011	10.30%	4.12%	6.18%
1/13/2011	10.30%	4.12%	6.18%
1/18/2011	10.00%	4.12%	5.88%
1/20/2011	9.30%	4.12%	5.18%
1/20/2011	10.13%	4.12%	6.01%
1/31/2011	9.60%	4.11%	5.49%
2/3/2011	10.00%	4.11%	5.89%
2/25/2011	10.00%	4.14%	5.86%
3/25/2011	9.80%	4.18%	5.62%
3/30/2011	10.00%	4.18%	5.82%
4/12/2011	10.00%	4.21%	5.79%
4/25/2011	10.74%	4.23%	6.51%
4/26/2011	9.67%	4.24%	5.43%
4/27/2011	10.40%	4.24%	6.16%
5/4/2011	10.00%	4.25%	5.75%
5/4/2011	10.00%	4.25%	5.75%
5/24/2011	10.50%	4.27%	6.23%
6/8/2011	10.75%	4.30%	6.45%
6/16/2011	9.20%	4.32%	4.88%
6/17/2011	9.95%	4.32%	5.63%
7/13/2011	10.20%	4.37%	5.83%
8/1/2011	9.20%	4.39%	4.81%
8/8/2011	10.00%	4.38%	5.62%
8/11/2011	10.00%	4.38%	5.62%
8/12/2011	10.35%	4.38%	5.97%
8/19/2011	10.25%	4.36%	5.89%
9/2/2011	12.88%	4.32%	8.56%
9/22/2011	10.00%	4.24%	5.76%
10/12/2011	10.30%	4.14%	6.16%
10/20/2011	10.50%	4.10%	6.40%
11/30/2011	10.90%	3.87%	7.03%
11/30/2011	10.90%	3.87%	7.03%
12/14/2011	10.00%	3.79%	6.21%
12/14/2011	10.30%	3.79%	6.51%
12/20/2011	10.20%	3.76%	6.44%
12/21/2011	10.20%	3.75%	6.45%
12/22/2011	9.90%	3.75%	6.15%
12/22/2011	10.40%	3.75%	6.65%
12/23/2011	10.19%	3.74%	6.45%
1/25/2012	10.50%	3.57%	6.93%
1/27/2012	10.50%	3.55%	6.95%
2/15/2012	10.20%	3.47%	6.73%
2/23/2012	9.90%	3.43%	6.47%
2/27/2012	10.25%	3.42%	6.83%
2/29/2012	10.40%	3.41%	6.99%
3/29/2012	10.37%	3.31%	7.06%
4/4/2012	10.00%	3.29%	6.71%
4/26/2012	10.00%	3.20%	6.80%
5/2/2012	10.00%	3.18%	6.82%
5/7/2012	9.80%	3.16%	6.64%
5/15/2012	10.00%	3.14%	6.86%
5/29/2012	10.05%	3.11%	6.94%
6/7/2012	10.30%	3.07%	7.23%
6/14/2012	9.40%	3.06%	6.34%
6/15/2012	10.40%	3.06%	7.34%
6/18/2012	9.60%	3.05%	6.55%
6/19/2012	9.25%	3.05%	6.20%
6/26/2012	10.10%	3.04%	7.06%
6/29/2012	10.00%	3.04%	6.96%
7/9/2012	10.20%	3.03%	7.17%
7/16/2012	9.80%	3.02%	6.78%
7/20/2012	9.31%	3.01%	6.30%
7/20/2012	9.81%	3.01%	6.80%
9/13/2012	9.80%	2.94%	6.86%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
9/19/2012	9.80%	2.94%	6.86%
9/19/2012	10.05%	2.94%	7.11%
9/26/2012	9.50%	2.94%	6.56%
10/12/2012	9.60%	2.93%	6.67%
10/23/2012	9.75%	2.93%	6.82%
10/24/2012	10.30%	2.93%	7.37%
11/9/2012	10.30%	2.92%	7.38%
11/28/2012	10.40%	2.90%	7.50%
11/29/2012	9.75%	2.89%	6.86%
11/29/2012	9.88%	2.89%	6.99%
12/5/2012	9.71%	2.89%	6.82%
12/5/2012	10.40%	2.89%	7.51%
12/12/2012	9.80%	2.88%	6.92%
12/13/2012	9.50%	2.88%	6.62%
12/13/2012	10.50%	2.88%	7.62%
12/14/2012	10.40%	2.88%	7.52%
12/19/2012	9.71%	2.87%	6.84%
12/19/2012	10.25%	2.87%	7.38%
12/20/2012	9.50%	2.87%	6.63%
12/20/2012	9.80%	2.87%	6.93%
12/20/2012	10.25%	2.87%	7.38%
12/20/2012	10.25%	2.87%	7.38%
12/20/2012	10.30%	2.87%	7.43%
12/20/2012	10.40%	2.87%	7.53%
12/20/2012	10.45%	2.87%	7.58%
12/21/2012	10.20%	2.87%	7.33%
12/26/2012	9.80%	2.86%	6.94%
1/9/2013	9.70%	2.84%	6.86%
1/9/2013	9.70%	2.84%	6.86%
1/9/2013	9.70%	2.84%	6.86%
1/16/2013	9.60%	2.84%	6.76%
1/16/2013	9.60%	2.84%	6.76%
2/13/2013	10.20%	2.84%	7.36%
2/22/2013	9.75%	2.85%	6.90%
2/27/2013	10.00%	2.86%	7.14%
3/14/2013	9.30%	2.88%	6.42%
3/27/2013	9.80%	2.90%	6.90%
5/1/2013	9.84%	2.94%	6.90%
5/15/2013	10.30%	2.96%	7.34%
5/30/2013	10.20%	2.98%	7.22%
5/31/2013	9.00%	2.98%	6.02%
6/11/2013	10.00%	3.00%	7.00%
6/21/2013	9.75%	3.02%	6.73%
6/25/2013	9.80%	3.03%	6.77%
7/12/2013	9.36%	3.08%	6.28%
8/8/2013	9.83%	3.14%	6.69%
8/14/2013	9.15%	3.16%	5.99%
9/11/2013	10.20%	3.27%	6.93%
9/11/2013	10.25%	3.27%	6.98%
9/24/2013	10.20%	3.31%	6.89%
10/3/2013	9.65%	3.33%	6.32%
11/6/2013	10.20%	3.41%	6.79%
11/21/2013	10.00%	3.44%	6.56%
11/26/2013	10.00%	3.45%	6.55%
12/3/2013	10.25%	3.47%	6.78%
12/4/2013	9.50%	3.47%	6.03%
12/5/2013	10.20%	3.48%	6.72%
12/9/2013	8.72%	3.49%	5.23%
12/9/2013	9.75%	3.49%	6.26%
12/13/2013	9.75%	3.50%	6.25%
12/16/2013	9.95%	3.50%	6.45%
12/16/2013	9.95%	3.50%	6.45%
12/16/2013	10.12%	3.50%	6.62%
12/17/2013	9.50%	3.51%	5.99%
12/17/2013	10.95%	3.51%	7.44%
12/18/2013	8.72%	3.51%	5.21%
12/18/2013	9.80%	3.51%	6.29%
12/19/2013	10.15%	3.51%	6.64%
12/30/2013	9.50%	3.54%	5.96%
2/20/2014	9.20%	3.69%	5.51%
2/26/2014	9.75%	3.70%	6.05%
3/17/2014	9.55%	3.72%	5.83%
3/26/2014	9.40%	3.73%	5.67%
3/26/2014	9.96%	3.73%	6.23%
4/2/2014	9.70%	3.73%	5.97%
5/16/2014	9.80%	3.70%	6.10%
5/30/2014	9.70%	3.68%	6.02%
6/6/2014	10.40%	3.67%	6.73%
6/30/2014	9.55%	3.64%	5.91%
7/2/2014	9.62%	3.64%	5.98%
7/10/2014	9.95%	3.63%	6.32%
7/23/2014	9.75%	3.61%	6.14%
7/29/2014	9.45%	3.60%	5.85%
7/31/2014	9.90%	3.60%	6.30%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
8/20/2014	9.75%	3.56%	6.19%
8/25/2014	9.60%	3.56%	6.04%
8/29/2014	9.80%	3.54%	6.26%
9/11/2014	9.60%	3.51%	6.09%
9/15/2014	10.25%	3.51%	6.74%
10/9/2014	9.80%	3.44%	6.36%
11/6/2014	9.56%	3.37%	6.19%
11/6/2014	10.20%	3.37%	6.83%
11/14/2014	10.20%	3.35%	6.85%
11/26/2014	9.70%	3.32%	6.38%
11/26/2014	10.20%	3.32%	6.88%
12/4/2014	9.68%	3.30%	6.38%
12/10/2014	9.25%	3.29%	5.96%
12/10/2014	9.25%	3.29%	5.96%
12/11/2014	10.07%	3.28%	6.79%
12/12/2014	10.20%	3.28%	6.92%
12/17/2014	9.17%	3.27%	5.90%
12/18/2014	9.83%	3.26%	6.57%
1/23/2015	9.50%	3.14%	6.36%
2/24/2015	9.83%	3.04%	6.79%
3/18/2015	9.75%	2.98%	6.77%
3/25/2015	9.50%	2.95%	6.55%
3/26/2015	9.72%	2.95%	6.77%
4/23/2015	10.20%	2.87%	7.33%
4/29/2015	9.53%	2.86%	6.67%
5/1/2015	9.60%	2.85%	6.75%
5/26/2015	9.75%	2.83%	6.92%
6/17/2015	9.00%	2.82%	6.18%
6/17/2015	9.00%	2.82%	6.18%
9/2/2015	9.50%	2.79%	6.71%
9/10/2015	9.30%	2.79%	6.51%
10/15/2015	9.00%	2.81%	6.19%
11/19/2015	10.00%	2.88%	7.12%
11/19/2015	10.30%	2.88%	7.42%
12/3/2015	10.00%	2.90%	7.10%
12/9/2015	9.14%	2.90%	6.24%
12/9/2015	9.14%	2.90%	6.24%
12/11/2015	10.30%	2.90%	7.40%
12/15/2015	9.60%	2.91%	6.69%
12/17/2015	9.70%	2.91%	6.79%
12/18/2015	9.50%	2.91%	6.59%
12/30/2015	9.50%	2.93%	6.57%
1/6/2016	9.50%	2.94%	6.56%
2/23/2016	9.75%	2.94%	6.81%
3/16/2016	9.85%	2.91%	6.94%
4/29/2016	9.80%	2.83%	6.97%
6/3/2016	9.75%	2.80%	6.95%
6/8/2016	9.48%	2.80%	6.68%
6/15/2016	9.00%	2.78%	6.22%
6/15/2016	9.00%	2.78%	6.22%
7/18/2016	9.98%	2.71%	7.27%
8/9/2016	9.85%	2.66%	7.19%
8/18/2016	9.50%	2.63%	6.87%
8/24/2016	9.75%	2.61%	7.14%
9/1/2016	9.50%	2.59%	6.91%
9/8/2016	10.00%	2.57%	7.43%
9/28/2016	9.58%	2.53%	7.05%
9/30/2016	9.90%	2.53%	7.37%
11/9/2016	9.80%	2.48%	7.32%
11/10/2016	9.50%	2.48%	7.02%
11/15/2016	9.55%	2.49%	7.06%
11/18/2016	10.00%	2.50%	7.50%
11/29/2016	10.55%	2.51%	8.04%
12/1/2016	10.00%	2.51%	7.49%
12/6/2016	8.64%	2.52%	6.12%
12/6/2016	8.64%	2.52%	6.12%
12/7/2016	10.10%	2.52%	7.58%
12/12/2016	9.60%	2.53%	7.07%
12/14/2016	9.10%	2.53%	6.57%
12/19/2016	9.00%	2.54%	6.46%
12/19/2016	9.37%	2.54%	6.83%
12/22/2016	9.60%	2.55%	7.05%
12/22/2016	9.90%	2.55%	7.35%
12/28/2016	9.50%	2.55%	6.95%
1/18/2017	9.45%	2.58%	6.87%
1/24/2017	9.00%	2.59%	6.41%
1/31/2017	10.10%	2.60%	7.50%
2/15/2017	9.60%	2.62%	6.98%
2/22/2017	9.60%	2.64%	6.96%
2/24/2017	9.75%	2.64%	7.11%
2/28/2017	10.10%	2.64%	7.46%
3/2/2017	9.41%	2.65%	6.76%
3/20/2017	9.50%	2.68%	6.82%
4/4/2017	10.25%	2.72%	7.53%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
4/12/2017	9.40%	2.74%	6.66%
4/20/2017	9.50%	2.76%	6.74%
5/3/2017	9.50%	2.79%	6.71%
5/11/2017	9.20%	2.81%	6.39%
5/18/2017	9.50%	2.83%	6.67%
5/23/2017	9.70%	2.84%	6.86%
6/16/2017	9.65%	2.89%	6.76%
6/22/2017	9.70%	2.90%	6.80%
6/22/2017	9.70%	2.90%	6.80%
7/24/2017	9.50%	2.95%	6.55%
8/15/2017	10.00%	2.97%	7.03%
9/22/2017	9.60%	2.93%	6.67%
9/28/2017	9.80%	2.92%	6.88%
10/20/2017	9.50%	2.91%	6.59%
10/26/2017	10.20%	2.91%	7.29%
10/26/2017	10.25%	2.91%	7.34%
10/26/2017	10.30%	2.91%	7.39%
11/6/2017	10.25%	2.90%	7.35%
11/15/2017	11.95%	2.89%	9.06%
11/30/2017	10.00%	2.88%	7.12%
11/30/2017	10.00%	2.88%	7.12%
12/5/2017	9.50%	2.88%	6.62%
12/6/2017	8.40%	2.87%	5.53%
12/6/2017	8.40%	2.87%	5.53%
12/7/2017	9.80%	2.87%	6.93%
12/14/2017	9.60%	2.86%	6.74%
12/14/2017	9.65%	2.86%	6.79%
12/18/2017	9.50%	2.86%	6.64%
12/20/2017	9.58%	2.85%	6.73%
12/21/2017	9.10%	2.85%	6.25%
12/28/2017	9.50%	2.85%	6.65%
12/29/2017	9.51%	2.85%	6.66%
1/18/2018	9.70%	2.84%	6.86%
1/31/2018	9.30%	2.84%	6.46%
2/2/2018	9.98%	2.84%	7.14%
2/23/2018	9.90%	2.85%	7.05%
3/12/2018	9.25%	2.86%	6.39%
3/15/2018	9.00%	2.87%	6.13%
3/29/2018	10.00%	2.88%	7.12%
4/12/2018	9.90%	2.89%	7.01%
4/13/2018	9.73%	2.89%	6.84%
4/18/2018	9.25%	2.89%	6.36%
4/18/2018	10.00%	2.89%	7.11%
4/26/2018	9.50%	2.90%	6.60%
5/30/2018	9.95%	2.94%	7.01%
5/31/2018	9.50%	2.94%	6.56%
6/14/2018	8.80%	2.96%	5.84%
6/22/2018	9.50%	2.97%	6.53%
6/22/2018	9.90%	2.97%	6.93%
6/28/2018	9.35%	2.97%	6.38%
6/29/2018	9.50%	2.97%	6.53%
8/8/2018	9.53%	2.99%	6.54%
8/21/2018	9.70%	3.00%	6.70%
8/24/2018	9.28%	3.01%	6.27%
9/5/2018	9.56%	3.02%	6.54%
9/14/2018	10.00%	3.03%	6.97%
9/20/2018	9.80%	3.04%	6.76%
9/26/2018	9.77%	3.05%	6.72%
9/26/2018	10.00%	3.05%	6.95%
9/27/2018	9.30%	3.05%	6.25%
10/4/2018	9.85%	3.06%	6.79%
10/29/2018	9.60%	3.10%	6.50%
10/31/2018	9.99%	3.11%	6.88%
11/1/2018	8.69%	3.11%	5.58%
12/4/2018	8.69%	3.14%	5.55%
12/13/2018	9.30%	3.14%	6.16%
12/14/2018	9.50%	3.14%	6.36%
12/19/2018	9.84%	3.14%	6.70%
12/20/2018	9.65%	3.14%	6.51%
12/21/2018	9.30%	3.14%	6.16%
1/9/2019	10.00%	3.14%	6.86%
2/27/2019	9.75%	3.12%	6.63%
3/13/2019	9.60%	3.12%	6.48%
3/14/2019	9.00%	3.12%	5.88%
3/14/2019	9.40%	3.12%	6.28%
3/22/2019	9.65%	3.12%	6.53%
4/30/2019	9.73%	3.11%	6.62%
4/30/2019	9.73%	3.11%	6.62%
5/1/2019	9.50%	3.11%	6.39%
5/2/2019	10.00%	3.11%	6.89%
5/8/2019	9.50%	3.10%	6.40%
5/14/2019	8.75%	3.10%	5.65%
5/16/2019	9.50%	3.09%	6.41%
5/23/2019	9.90%	3.09%	6.81%

Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
8/12/2019	9.60%	2.89%	6.71%
8/29/2019	9.06%	2.81%	6.25%
9/4/2019	10.00%	2.78%	7.22%
9/30/2019	9.60%	2.70%	6.90%
10/31/2019	10.00%	2.60%	7.40%
10/31/2019	10.00%	2.60%	7.40%
11/7/2019	9.35%	2.58%	6.77%
11/29/2019	9.50%	2.52%	6.98%
12/4/2019	8.91%	2.51%	6.40%
12/4/2019	9.75%	2.51%	7.24%
12/16/2019	8.91%	2.48%	6.43%
12/17/2019	9.70%	2.47%	7.23%
12/17/2019	10.50%	2.47%	8.03%
12/19/2019	10.20%	2.47%	7.73%
12/19/2019	10.25%	2.47%	7.78%
12/19/2019	10.30%	2.47%	7.83%
12/20/2019	9.45%	2.46%	6.99%
12/20/2019	9.65%	2.46%	7.19%
12/24/2019	9.50%	2.46%	7.04%
1/8/2020	10.02%	2.43%	7.59%
1/16/2020	8.80%	2.41%	6.39%
1/22/2020	9.50%	2.39%	7.11%
1/23/2020	9.86%	2.39%	7.47%
2/6/2020	10.00%	2.34%	7.66%
2/11/2020	9.30%	2.33%	6.97%
2/14/2020	9.40%	2.32%	7.08%
2/19/2020	8.25%	2.31%	5.94%
2/24/2020	9.75%	2.29%	7.46%
2/27/2020	9.40%	2.28%	7.12%
3/11/2020	9.70%	2.23%	7.47%
3/25/2020	9.40%	2.17%	7.23%
4/17/2020	9.70%	2.07%	7.63%
		Average	4.72%
		Count	1625

Expected Earnings Analysis

		[1] Expected ROE	[2]	[3]	[4]	[5] Adjustment	[6] Adjusted
			Shares Outstanding				
Company	Ticker	2022-2024/ 2023-2025	2020	2022-2024/ 2023-2025	% Increase	Factor	ROE
ALLETE, Inc.	ALE	8.50%	52.00	53.00	0.38%	1.002	8.52%
Alliant Energy Corporation	LNT	10.50%	248.00	260.00	0.95%	1.005	10.55%
Ameren Corporation	AEE	10.00%	254.00	275.00	1.60%	1.008	10.08%
American Electric Power Company, Inc.	AEP	10.50%	495.00	530.00	1.38%	1.007	10.57%
Avangrid, Inc.	AGR	6.00%	309.00	309.00	0.00%	1.000	6.00%
Avista	AVA	8.00%	68.00	71.00	1.09%	1.005	8.04%
CMS Energy Corporation	CMS	13.50%	287.00	300.00	0.89%	1.004	13.56%
DTE Energy Company	DTE	10.50%	194.00	206.00	1.21%	1.006	10.56%
Evergy, Inc	EVRG	8.50%	227.00	227.00	0.00%	1.000	8.50%
Hawaiian Electric Industries, Inc.	HE	9.00%	110.00	113.00	0.67%	1.003	9.03%
NextEra Energy, Inc.	NEE	13.00%	489.00	495.00	0.24%	1.001	13.02%
NorthWestern Corporation	NWE	9.00%	50.90	51.60	0.34%	1.002	9.02%
OGE Energy Corp.	OGE	11.00%	200.00	200.00	0.00%	1.000	11.00%
Otter Tail Corporation	OTTR	11.50%	41.00	41.50	0.24%	1.001	11.51%
Pinnacle West Capital Corporation	PNW	10.00%	113.50	118.00	0.98%	1.005	10.05%
PNM Resources, Inc.	PNM	9.00%	79.65	90.00	3.10%	1.015	9.14%
Portland General Electric Company	POR	9.00%	89.55	90.00	0.13%	1.001	9.01%
Southern Company	SO	13.00%	1050.00	1080.00	0.57%	1.003	13.04%
WEC Energy Group, Inc.	WEC	12.50%	315.50	315.50	0.00%	1.000	12.50%
Xcel Energy Inc.	XEL	10.50%	539.00	546.00	0.32%	1.002	10.52%
						Median	10.30%
						Average	10.21%

Notes:
[1] Source: Value Line   [3] Source: Value Line   [5] Equals (2 x (1 + [4])) / (2 + [4])
[2] Source: Value Line   [4] Equals =([3] / [2])^(1/4)-1; ([3] / [2])^(1/5)-1   [6] Equals [1] x [5]

Proxy Group Capital Structure

Company	Ticker	2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
					% Common Equity					
ALLETE, Inc.	ALE	58.68%	59.66%	59.53%	59.12%	58.50%	58.84%	63.09%	62.51%	59.99%
Alliant Energy Corporation	LNT	51.73%	50.38%	53.18%	53.11%	51.13%	51.00%	49.74%	49.77%	51.26%
Ameren Corporation	AEE	53.67%	53.03%	52.81%	52.69%	53.22%	52.01%	53.04%	52.65%	52.89%
American Electric Power Company, Inc.	AEP	49.91%	48.80%	49.62%	49.40%	48.68%	48.52%	48.60%	48.91%	49.06%
Avangrid, Inc.	AGR	54.38%	56.33%	56.51%	55.72%	56.13%	54.93%	56.55%	55.69%	55.78%
Avista Corporation	AVA	55.80%	56.32%	56.10%	55.09%	55.75%	55.76%	56.34%	55.76%	55.86%
CMS Energy Corporation	CMS	51.70%	53.64%	52.52%	50.27%	53.01%	52.86%	53.13%	52.25%	52.42%
DTE Energy Company	DTE	49.40%	48.76%	48.69%	50.96%	49.97%	49.23%	51.12%	51.02%	49.89%
Evergy, Inc.	EVRG	60.28%	60.51%	58.16%	59.56%	59.86%	58.51%	58.73%	58.62%	59.28%
Hawaiian Electric Industries, Inc.	HE	58.43%	58.17%	58.06%	57.98%	56.09%	55.78%	57.44%	57.42%	57.42%
NextEra Energy, Inc.	NEE	56.15%	61.22%	61.05%	64.37%	64.78%	60.84%	61.23%	59.93%	61.20%
NorthWestern Corporation	NWE	47.80%	48.07%	48.74%	47.88%	48.36%	48.41%	47.48%	49.89%	48.33%
OGE Energy Corp.	OGE	54.96%	53.47%	55.38%	53.20%	53.05%	54.25%	53.59%	53.36%	53.91%
Otter Tail Corporation	OTTR	55.43%	53.75%	53.90%	53.58%	53.49%	53.11%	52.67%	57.34%	54.16%
Pinnacle West Capital Corporation	PNW	54.25%	54.41%	54.48%	54.36%	53.68%	53.71%	53.18%	53.14%	53.90%
PNM Resources, Inc.	PNM	45.33%	43.86%	43.45%	45.63%	48.01%	46.68%	46.20%	46.06%	45.65%
Portland General Electric Company	POR	51.78%	51.56%	50.60%	50.19%	50.51%	50.29%	50.14%	49.80%	50.61%
Southern Company	SO	52.36%	52.93%	52.80%	54.21%	51.50%	50.31%	49.98%	47.67%	51.47%
Wisconsin Energy Corporation	WEC	55.79%	56.71%	55.73%	53.46%	58.30%	57.72%	61.62%	54.62%	56.74%
Xcel Energy Inc.	XEL	53.98%	54.70%	54.51%	54.22%	53.37%	53.63%	54.15%	53.95%	54.06%
Mean		53.59%	53.81%	53.79%	53.75%	53.87%	53.32%	53.90%	53.52%	53.69%
										45.65%
										61.20%

Operating Company Capital Structure

Operating Company	Parent	2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
						% Common Equity				
ALLETE (Minnesota Power)	ALE	59.33%	60.94%	60.87%	61.39%	60.43%	60.33%	60.38%	60.04%	60.46%
Superior Water, Light and Power Company	ALE	58.03%	58.38%	58.19%	56.86%	56.58%	57.34%	65.80%	64.99%	59.52%
Interstate Power and Light Company	LNT	50.06%	51.76%	53.33%	53.52%	49.64%	50.47%	49.92%	50.31%	51.13%
Wisconsin Power and Light Company	LNT	53.40%	49.01%	53.03%	52.69%	52.62%	51.52%	49.57%	49.23%	51.38%
Ameren Illinois Company	AEE	54.46%	54.05%	53.65%	52.86%	53.18%	52.74%	54.24%	53.38%	53.57%
Union Electric Company	AEE	52.88%	52.00%	51.96%	52.52%	53.26%	51.28%	51.84%	51.92%	52.21%
AEP Texas Inc.	AEP	46.97%	46.32%	47.54%	45.38%	43.80%	43.20%	46.75%	45.14%	45.64%
Appalachian Power Company	AEP	48.74%	48.19%	47.77%	49.51%	49.30%	48.93%	49.35%	48.72%	48.81%
Indiana Michigan Power Company	AEP	46.51%	45.83%	45.43%	44.62%	44.53%	44.15%	46.64%	46.33%	45.50%
Kentucky Power Company	AEP	46.94%	46.50%	46.42%	45.72%	45.28%	44.89%	44.40%	43.52%	45.46%
Kingsport Power Company	AEP	54.24%	50.18%	51.54%	50.79%	50.71%	47.69%	47.28%	46.53%	49.87%
Ohio Power Company	AEP	53.63%	52.92%	58.86%	57.80%	56.85%	57.11%	52.91%	58.63%	56.09%
Public Service Company of Oklahoma	AEP	49.89%	48.02%	47.19%	49.16%	49.55%	48.59%	48.10%	48.50%	48.62%
Southwestern Electric Power Company	AEP	48.63%	47.45%	47.59%	46.97%	43.43%	47.91%	47.72%	48.52%	47.28%
Wheeling Power Company	AEP	53.66%	53.83%	54.27%	54.62%	54.70%	54.19%	54.27%	54.26%	54.23%
Central Maine Power Company	AGR	62.19%	61.96%	63.51%	63.21%	64.17%	63.53%	64.18%	63.82%	63.32%
New York State Electric & Gas Corporation	AGR	48.79%	55.84%	55.93%	54.30%	53.95%	50.99%	54.51%	53.30%	53.45%
Rochester Gas and Electric Corporation	AGR	50.50%	50.25%	49.96%	48.89%	48.16%	47.77%	50.80%	49.63%	49.50%
United Illuminating Company	AGR	56.05%	57.26%	56.65%	56.46%	58.23%	57.43%	56.70%	56.00%	56.85%
Alaska Electric Light and Power Company	AVA	61.28%	61.24%	61.02%	60.29%	61.94%	61.78%	61.53%	60.77%	61.23%
Avista Corporation	AVA	50.33%	51.40%	51.18%	49.89%	49.55%	49.74%	51.16%	50.75%	50.50%
Consumers Energy Company	CMS	51.70%	53.64%	52.52%	50.27%	53.01%	52.86%	53.13%	52.25%	52.42%
DTE Electric Company	DTE	49.40%	48.76%	48.69%	50.96%	49.97%	49.23%	51.12%	51.02%	49.89%
Evergy Kansas South, Inc.	EVRG	81.84%	81.49%	75.13%	74.97%	74.91%	74.45%	74.29%	74.18%	76.41%
Evergy Metro, Inc.	EVRG	50.43%	49.62%	46.04%	49.49%	49.50%	48.88%	49.25%	49.15%	49.05%
Evergy Missouri West, Inc.	EVRG	51.18%	51.74%	52.68%	54.71%	55.70%	52.03%	52.63%	52.40%	52.88%
Westar Energy (KPL)	EVRG	57.66%	59.18%	58.80%	59.08%	59.34%	58.68%	58.75%	58.74%	58.78%
Hawaii Electric Light Company, Inc.	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hawaiian Electric Company, Inc.	HE	58.43%	58.17%	58.06%	57.98%	56.09%	55.78%	57.44%	57.42%	57.42%
Maui Electric Company, Limited	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Florida Power & Light Company	NEE	59.78%	61.30%	64.03%	64.37%	64.78%	60.84%	61.23%	59.93%	62.03%
Gulf Power Company	NEE	52.52%	61.15%	58.06%	NA	NA	NA	NA	NA	57.24%
NorthWestern Corporation	NWE	47.80%	48.07%	48.74%	47.88%	48.36%	48.41%	47.48%	49.89%	48.33%
Oklahoma Gas and Electric Company	OGE	54.96%	53.47%	55.38%	53.20%	53.05%	54.25%	53.59%	53.36%	53.91%
Otter Tail Power Company	OTTR	55.43%	53.75%	53.90%	53.58%	53.49%	53.11%	52.67%	57.34%	54.16%
Arizona Public Service Company	PNW	54.25%	54.41%	54.48%	54.36%	53.68%	53.71%	53.18%	53.14%	53.90%
Public Service Company of New Mexico	PNM	45.33%	43.86%	43.45%	45.63%	48.01%	46.68%	46.20%	46.06%	45.65%
Portland General Electric Company	POR	51.78%	51.56%	50.60%	50.19%	50.51%	50.29%	50.14%	49.80%	50.61%
Alabama Power Company	SO	51.45%	52.54%	52.23%	47.77%	48.13%	47.51%	48.86%	47.07%	49.44%
Georgia Power Company	SO	55.38%	56.39%	56.43%	59.02%	57.27%	54.97%	53.81%	50.06%	55.42%
Gulf Power Company	SO	NA	NA	NA	59.73%	55.34%	54.90%	54.27%	54.19%	55.69%
Mississippi Power Company	SO	50.23%	49.87%	49.73%	50.35%	45.28%	43.87%	43.00%	39.34%	46.46%
Upper Michigan Energy Resources Corporation	WEC	56.09%	54.45%	52.54%	47.01%	55.08%	54.53%	70.04%	49.85%	54.95%
Wisconsin Electric Power Company	WEC	56.92%	56.64%	55.78%	56.03%	59.25%	59.09%	56.47%	55.94%	57.01%
Wisconsin Public Service Corporation	WEC	54.37%	59.04%	58.88%	57.33%	60.59%	59.53%	58.35%	58.06%	58.27%
Northern States Power Company - MN	XEL	51.79%	53.66%	53.64%	52.81%	52.64%	52.61%	52.59%	52.38%	52.77%
Northern States Power Company - WI	XEL	53.56%	53.49%	53.59%	53.60%	48.45%	53.85%	53.79%	53.36%	52.96%
Public Service Company of Colorado	XEL	56.35%	57.53%	56.68%	56.31%	56.08%	54.17%	56.67%	56.50%	56.29%
Southwestern Public Service Company	XEL	54.21%	54.14%	54.13%	54.17%	56.29%	53.88%	53.54%	53.55%	54.24%
Mean		53.68%	53.94%	53.92%	53.66%	53.58%	53.04%	53.71%	53.03%	53.63%

45.46%
76.41%

Source: S&P Global Market Intelligence

Proxy Group Capital Structure

Company	Ticker	% Long-Term Debt								
		2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
ALLETE, Inc.	ALE	41.32%	40.34%	40.47%	40.88%	41.50%	41.16%	36.91%	37.49%	40.01%
Alliant Energy Corporation	LNT	48.27%	49.62%	46.82%	46.89%	48.87%	49.00%	50.26%	50.23%	48.74%
Ameren Corporation	AEE	46.33%	46.97%	47.19%	47.31%	46.78%	47.99%	46.96%	47.35%	47.11%
American Electric Power Company, Inc.	AEP	50.09%	51.20%	50.38%	50.60%	51.32%	51.48%	51.40%	51.09%	50.94%
Avangrid, Inc.	AGR	45.62%	43.67%	43.49%	44.28%	43.87%	45.07%	43.45%	44.31%	44.22%
Avista Corporation	AVA	44.20%	43.68%	43.90%	44.91%	44.25%	44.24%	43.66%	44.24%	44.14%
CMS Energy Corporation	CMS	48.30%	46.36%	47.48%	49.73%	46.99%	47.14%	46.87%	47.75%	47.58%
DTE Energy Company	DTE	50.60%	51.24%	51.31%	49.04%	50.03%	50.77%	48.88%	48.98%	50.11%
Evergy, Inc.	EVRG	39.72%	39.49%	41.84%	40.44%	40.14%	41.49%	41.27%	41.38%	40.72%
Hawaiian Electric Industries, Inc.	HE	41.57%	41.83%	41.94%	42.02%	43.91%	44.22%	42.56%	42.58%	42.58%
NextEra Energy, Inc.	NEE	43.85%	38.78%	38.95%	35.63%	35.22%	39.16%	38.77%	40.07%	38.80%
NorthWestern Corporation	NWE	52.20%	51.93%	51.26%	52.12%	51.64%	51.59%	52.52%	50.11%	51.67%
OGE Energy Corp.	OGE	45.04%	46.53%	44.62%	46.80%	46.95%	45.75%	46.41%	46.64%	46.09%
Otter Tail Corporation	OTTR	44.57%	46.25%	46.10%	46.42%	46.51%	46.89%	47.33%	42.66%	45.84%
Pinnacle West Capital Corporation	PNW	45.75%	45.59%	45.52%	45.64%	46.32%	46.29%	46.82%	46.86%	46.10%
PNM Resources, Inc.	PNM	54.67%	56.14%	56.55%	54.37%	51.99%	53.32%	53.80%	53.94%	54.35%
Portland General Electric Company	POR	48.22%	48.44%	49.40%	49.81%	49.49%	49.71%	49.86%	50.20%	49.39%
Southern Company	SO	47.64%	47.07%	47.20%	45.79%	48.50%	49.69%	50.02%	52.33%	48.53%
Wisconsin Energy Corporation	WEC	44.21%	43.29%	44.27%	46.54%	41.70%	42.28%	38.38%	45.38%	43.26%
Xcel Energy Inc.	XEL	46.02%	45.30%	45.49%	45.78%	46.63%	46.37%	45.85%	46.05%	45.94%
Mean		46.41%	46.19%	46.21%	46.25%	46.13%	46.68%	46.10%	46.48%	46.31%

Operating Company Capital Structure

Operating Company	Parent	2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
						% Long-Term Debt				
ALLETE (Minnesota Power)	ALE	40.67%	39.06%	39.13%	38.61%	39.57%	39.67%	39.62%	39.96%	39.54%
Superior Water, Light and Power Company	ALE	41.97%	41.62%	41.81%	43.14%	43.42%	42.66%	34.20%	35.01%	40.48%
Interstate Power and Light Company	LNT	49.94%	48.24%	46.67%	46.48%	50.36%	49.53%	50.08%	49.69%	48.87%
Wisconsin Power and Light Company	LNT	46.60%	50.99%	46.97%	47.31%	47.38%	48.48%	50.43%	50.77%	48.62%
Ameren Illinois Company	AEE	45.54%	45.95%	46.35%	47.14%	46.82%	47.26%	45.76%	46.62%	46.43%
Union Electric Company	AEE	47.12%	48.00%	48.04%	47.48%	46.74%	48.72%	48.16%	48.08%	47.79%
AEP Texas Inc.	AEP	53.03%	53.68%	52.46%	54.62%	56.20%	56.80%	53.25%	54.86%	54.36%
Appalachian Power Company	AEP	51.26%	51.81%	52.23%	50.49%	50.70%	51.07%	50.65%	51.28%	51.19%
Indiana Michigan Power Company	AEP	53.49%	54.17%	54.57%	55.38%	55.47%	55.85%	53.36%	53.67%	54.50%
Kentucky Power Company	AEP	53.06%	53.50%	53.58%	54.28%	54.72%	55.11%	55.60%	56.48%	54.54%
Kingsport Power Company	AEP	45.76%	49.82%	48.46%	49.21%	49.29%	52.31%	52.72%	53.47%	50.13%
Ohio Power Company	AEP	46.37%	47.08%	41.14%	42.20%	43.15%	42.89%	47.09%	41.37%	43.91%
Public Service Company of Oklahoma	AEP	50.11%	51.98%	52.81%	50.84%	50.45%	51.41%	51.90%	51.50%	51.38%
Southwestern Electric Power Company	AEP	51.37%	52.55%	52.41%	53.03%	56.57%	52.09%	52.28%	51.48%	52.72%
Wheeling Power Company	AEP	46.34%	46.17%	45.73%	45.38%	45.30%	45.81%	45.73%	45.74%	45.77%
Central Maine Power Company	AGR	37.81%	38.04%	36.49%	36.79%	35.83%	36.47%	35.82%	36.18%	36.68%
New York State Electric & Gas Corporation	AGR	51.21%	44.16%	44.07%	45.70%	46.05%	49.01%	45.49%	46.70%	46.55%
Rochester Gas and Electric Corporation	AGR	49.50%	49.75%	50.04%	51.11%	51.84%	52.23%	49.20%	50.37%	50.50%
United Illuminating Company	AGR	43.95%	42.74%	43.35%	43.54%	41.77%	42.57%	43.30%	44.00%	43.15%
Alaska Electric Light and Power Company	AVA	38.72%	38.76%	38.98%	39.71%	38.06%	38.22%	38.47%	39.23%	38.77%
Avista Corporation	AVA	49.67%	48.60%	48.82%	50.11%	50.45%	50.26%	48.84%	49.25%	49.50%
Consumers Energy Company	CMS	48.30%	46.36%	47.48%	49.73%	46.99%	47.14%	46.87%	47.75%	47.58%
DTE Electric Company	DTE	50.60%	51.24%	51.31%	49.04%	50.03%	50.77%	48.88%	48.98%	50.11%
Evergy Kansas South, Inc.	EVRG	18.16%	18.51%	24.87%	25.03%	25.09%	25.55%	25.71%	25.82%	23.59%
Evergy Metro, Inc.	EVRG	49.57%	50.38%	53.96%	50.51%	50.50%	51.12%	50.75%	50.85%	50.95%
Evergy Missouri West, Inc.	EVRG	48.82%	48.26%	47.32%	45.29%	44.30%	47.97%	47.37%	47.60%	47.12%
Westar Energy (KPL)	EVRG	42.34%	40.82%	41.20%	40.92%	40.66%	41.32%	41.25%	41.26%	41.22%
Hawaii Electric Light Company, Inc.	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hawaiian Electric Company, Inc.	HE	41.57%	41.83%	41.94%	42.02%	43.91%	44.22%	42.56%	42.58%	42.58%
Maui Electric Company, Limited	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Florida Power & Light Company	NEE	40.22%	38.70%	35.97%	35.63%	35.22%	39.16%	38.77%	40.07%	37.97%
Gulf Power Company	NEE	47.48%	38.85%	41.94%	NA	NA	NA	NA	NA	42.76%
NorthWestern Corporation	NWE	52.20%	51.93%	51.26%	52.12%	51.64%	51.59%	52.52%	50.11%	51.67%
Oklahoma Gas and Electric Company	OGE	45.04%	46.53%	44.62%	46.80%	46.95%	45.75%	46.41%	46.64%	46.09%
Otter Tail Power Company	OTTR	44.57%	46.25%	46.10%	46.42%	46.51%	46.89%	47.33%	42.66%	45.84%
Arizona Public Service Company	PNW	45.75%	45.59%	45.52%	45.64%	46.32%	46.29%	46.82%	46.86%	46.10%
Public Service Company of New Mexico	PNM	54.67%	56.14%	56.55%	54.37%	51.99%	53.32%	53.80%	53.94%	54.35%
Portland General Electric Company	POR	48.22%	48.44%	49.40%	49.81%	49.49%	49.71%	49.86%	50.20%	49.39%
Alabama Power Company	SO	48.55%	47.46%	47.77%	52.23%	51.87%	52.49%	51.14%	52.93%	50.56%
Georgia Power Company	SO	44.62%	43.61%	43.57%	40.98%	42.73%	45.03%	46.19%	49.94%	44.58%
Gulf Power Company	SO	NA	NA	NA	40.27%	44.66%	45.10%	45.73%	45.81%	44.31%
Mississippi Power Company	SO	49.77%	50.13%	50.27%	49.65%	54.72%	56.13%	57.00%	60.66%	53.54%
Upper Michigan Energy Resources Corporation	WEC	43.91%	45.55%	47.46%	52.99%	44.92%	45.47%	29.96%	50.15%	45.05%
Wisconsin Electric Power Company	WEC	43.08%	43.36%	44.22%	43.97%	40.75%	40.91%	43.53%	44.06%	42.99%
Wisconsin Public Service Corporation	WEC	45.63%	40.96%	41.12%	42.67%	39.41%	40.47%	41.65%	41.94%	41.73%
Northern States Power Company - MN	XEL	48.21%	46.34%	46.36%	47.19%	47.36%	47.39%	47.41%	47.62%	47.23%
Northern States Power Company - WI	XEL	46.44%	46.51%	46.41%	46.40%	51.55%	46.15%	46.21%	46.64%	47.04%
Public Service Company of Colorado	XEL	43.65%	42.47%	43.32%	43.69%	43.92%	45.83%	43.33%	43.50%	43.71%
Southwestern Public Service Company	XEL	45.79%	45.86%	45.87%	45.83%	43.71%	46.12%	46.46%	46.45%	45.76%
Mean		46.32%	46.06%	46.08%	46.34%	46.42%	46.96%	46.29%	46.97%	46.37%

2015-2020 Authorized Returns on Equity, Vertically Integrated Electric Utitlity Rate Cases

State	Utility	Parent Company Ticker	Case Identification	Date Authorized	Authorized ROE
Wyoming	PacifiCorp	BRK.A	D-20000-446-ER-14	1/23/2015	9.50
Colorado	Public Service Co. of CO	XEL	D-14AL-0660E	2/24/2015	9.83
Washington	PacifiCorp	BRK.A	D-UE-140762	3/25/2015	9.50
Minnesota	Northern States Power Co. - MN	XEL	D-E-002/GR-13-868	3/26/2015	9.72
Michigan	Wisconsin Public Service Corp.	WEC	C-U-17669	4/23/2015	10.20
Missouri	Union Electric Co.	AEE	C-ER-2014-0258	4/29/2015	9.53
West Virginia	Appalachian Power Co.	AEP	C-14-1152-E-42T	5/26/2015	9.75
Missouri	Kansas City Power & Light	GXP	C-ER-2014-0370	9/2/2015	9.50
Kansas	Kansas City Power & Light	GXP	D-15-KCPE-116-RTS	9/10/2015	9.30
Wisconsin	Wisconsin Public Service Corp.	WEC	D-6690-UR-124 (Elec)	11/19/2015	10.00
Michigan	Consumers Energy Co.	CMS	C-U-17735	11/19/2015	10.30
Wisconsin	Northern States Power Co - WI	XEL	D-4220-UR-121 (Elec)	12/3/2015	10.00
Michigan	DTE Electric Co.	DTE	C-U-17767	12/11/2015	10.30
Oregon	Portland General Electric Co.	POR	D-UE-294	12/15/2015	9.60
Texas	Southwestern Public Service Co	XEL	D-43695	12/17/2015	9.70
Idaho	Avista Corp.	AVA	C-AVU-E-15-05	12/18/2015	9.50
Wyoming	PacifiCorp	BRK.A	D-20000-469-ER-15	12/30/2015	9.50
Washington	Avista Corp.	AVA	D-UE-150204	1/6/2016	9.50
Arkansas	Entergy Arkansas Inc.	ETR	D-15-015-U	2/23/2016	9.75
Indiana	Indianapolis Power & Light Co.	AES	Ca-44576	3/16/2016	9.85
New Mexico	El Paso Electric Co.	EE	C-15-00127-UT	6/8/2016	9.48
Indiana	Northern IN Public Svc Co.	NI	Ca-44688	7/18/2016	9.98
Tennessee	Kingsport Power Company	AEP	D-16-00001	8/9/2016	9.85
Arizona	UNS Electric Inc.	FTS	D-E-04204A-15-0142	8/18/2016	9.50
Washington	PacifiCorp	BRK.A	D-UE-152253	9/1/2016	9.50
Michigan	Upper Peninsula Power Co.	-	C-U-17895	9/8/2016	10.00
New Mexico	Public Service Co. of NM	PNM	C-15-00261-UT	9/28/2016	9.58
Wisconsin	Madison Gas and Electric Co.	MGEE	D-3270-UR-121 (Elec)	11/9/2016	9.80
Oklahoma	Public Service Co. of OK	AEP	Ca-PUD201500208	11/10/2016	9.50
Wisconsin	Wisconsin Power and Light Co	LNT	D-6680-UR-120 (Elec)	11/18/2016	10.00
Florida	Florida Power & Light Co.	NEE	D-160021-EI	11/29/2016	10.55
California	Liberty Utilities CalPeco Ele	AQN	A-15-05-008	12/1/2016	10.00
South Carolina	Duke Energy Progress LLC	DUK	D-2016-227-E	12/7/2016	10.10
Colorado	Black Hills Colorado Electric	BKH	D-16AL-0326E	12/19/2016	9.37
North Carolina	Virginia Electric & Power Co.	D	D-E-22, Sub 532	12/22/2016	9.90
Nevada	Sierra Pacific Power Co.	BRK.A	D-16-06006	12/22/2016	9.60
Idaho	Avista Corp.	AVA	C-AVU-E-16-03	12/28/2016	9.50

State	Utility	Parent Company Ticker	Case Identification	Date Authorized	Authorized ROE
Wyoming	MDU Resources Group Inc.	MDU	D-2004-117-ER-16	1/18/2017	9.45
Michigan	DTE Electric Co.	DTE	C-U-18014	1/31/2017	10.10
Arizona	Tucson Electric Power Co.	FTS	D-E-01933A-15-0322	2/24/2017	9.75
Michigan	Consumers Energy Co.	CMS	C-U-17990	2/28/2017	10.10
Minnesota	Otter Tail Power Co.	OTTR	D-E-017/GR-15-1033	3/2/2017	9.41
Oklahoma	Oklahoma Gas and Electric Co.	OGE	Ca-PUD201500273	3/20/2017	9.50
Florida	Gulf Power Co.	SO	D-160186-EI	4/4/2017	10.25
Missouri	Kansas City Power & Light	GXP	C-ER-2016-0285	5/3/2017	9.50
Minnesota	Northern States Power Co. - MN	XEL	D-E-002/GR-15-826	5/11/2017	9.20
Arkansas	Oklahoma Gas and Electric Co.	OGE	D-16-052-U	5/18/2017	9.50
North Dakota	MDU Resources Group Inc.	MDU	C-PU-16-666	6/16/2017	9.65
Kentucky	Kentucky Utilities Co.	PPL	C-2016-00370	6/22/2017	9.70
Kentucky	Louisville Gas & Electric Co.	PPL	C-2016-00371 (elec.)	6/22/2017	9.70
Arizona	Arizona Public Service Co.	PNW	D-E-01345A-16-0036	8/15/2017	10.00
California	San Diego Gas & Electric Co.	SRE	Advice No. 3120-E	10/26/2017	10.20
California	Pacific Gas and Electric Co.	PCG	Advise No. 3887-G/5148-E	10/26/2017	10.25
California	Southern California Edison Co.	EIX	Advice No. 3665-E	10/26/2017	10.30
Florida	Tampa Electric Co.	EMA	D-20170210-EI	11/6/2017	10.25
Alaska	Alaska Electric Light Power	AVA	D-U-16-086	11/15/2017	11.95
Washington	Puget Sound Energy Inc.		D-UE-170033	12/5/2017	9.50
Wisconsin	Northern States Power Co - WI	XEL	D-4220-UR-123 (Elec)	12/7/2017	9.80
Texas	Southwestern Electric Power Co	AEP	D-46449	12/14/2017	9.60
Texas	El Paso Electric Co.	EE	D-46831	12/14/2017	9.65
Oregon	Portland General Electric Co.	POR	D-UE-319	12/18/2017	9.50
New Mexico	Public Service Co. of NM	PNM	C-16-00276-UT	12/20/2017	9.58
Vermont	Green Mountain Power Corp.		C-17-3112-INV	12/21/2017	9.10
Idaho	Avista Corp.	AVA	D-AVU-E-17-01	12/28/2017	9.50
Nevada	Nevada Power Co.	BRK.A	D-17-06003	12/29/2017	9.51
Kentucky	Kentucky Power Co.	AEP	C-2017-00179	1/18/2018	9.70
Oklahoma	Public Service Co. of OK	AEP	Ca-PUD201700151	1/31/2018	9.30
Iowa	Interstate Power & Light Co.	LNT	D-RPU-2017-0001	2/2/2018	9.98
North Carolina	Duke Energy Progress LLC	DUK	D-E-2, Sub 1142	2/23/2018	9.90
Minnesota	ALLETE (Minnesota Power)	ALE	D-E-015/GR-16-664	3/12/2018	9.25
Michigan	Consumers Energy Co.	CMS	C-U-18322	3/29/2018	10.00
Michigan	Indiana Michigan Power Co.	AEP	C-U-18370	4/12/2018	9.90
Kentucky	Duke Energy Kentucky Inc.	DUK	C-2017-00321	4/13/2018	9.73
Michigan	DTE Electric Co.	DTE	C-U-18255	4/18/2018	10.00
Washington	Avista Corp.	AVA	D-UE-170485	4/26/2018	9.50
Indiana	Indiana Michigan Power Co.	AEP	Ca-44967	5/30/2018	9.95
Hawaii	Hawaiian Electric Co.	HE	D-2016-0328	6/22/2018	9.50
North Carolina	Duke Energy Carolinas LLC	DUK	D-E-7, Sub 1146	6/22/2018	9.90
Hawaii	Hawaii Electric Light Co	HE	D-2015-0170	6/29/2018	9.50
New Mexico	Southwestern Public Service Co	XEL	C-17-00255-UT	9/5/2018	9.56
Wisconsin	Wisconsin Power and Light Co	LNT	D-6680-UR-121 (Elec)	9/14/2018	10.00
Wisconsin	Madison Gas and Electric Co.	MGEE	D-3270-UR-122 (Elec)	9/20/2018	9.80
North Dakota	Otter Tail Power Co.	OTTR	C-PU-17-398	9/26/2018	9.77
Kansas	Evergy Kansas Central Inc.	EVRG	D-18-WSEE-328-RTS	9/27/2018	9.30
Indiana	Indianapolis Power & Light Co.	AES	Ca-45029	10/31/2018	9.99
Kansas	Evergy Metro Inc	EVRG	D-18-KCPE-480-RTS	12/13/2018	9.30
Oregon	Portland General Electric Co.	POR	D-UE-335	12/14/2018	9.50
Vermont	Green Mountain Power Corp.		C-18-0974-TF	12/21/2018	9.30

State	Utility	Parent Company Ticker	Case Identification	Date Authorized	Authorized ROE
Michigan	Consumers Energy Co.	CMS	C-U-20134	1/9/2019	10.00
West Virginia	Appalachian Power Co.	AEP	C-18-0646-E-42T	2/27/2019	9.75
Oklahoma	Public Service Co. of OK	AEP	Ca-PUD201800097	3/14/2019	9.40
Kentucky	Kentucky Utilities Co.	PPL	C-2018-00294	4/30/2019	9.73
Kentucky	Louisville Gas & Electric Co.	PPL	C-2018-00295 (elec.)	4/30/2019	9.73
South Carolina	Duke Energy Carolinas LLC	DUK	D-2018-319-E	5/1/2019	9.50
Michigan	DTE Electric Co.	DTE	C-U-20162	5/2/2019	10.00
South Carolina	Duke Energy Progress LLC	DUK	D-2018-318-E	5/8/2019	9.50
South Dakota	Otter Tail Power Co.	OTTR	D-EL18-021	5/14/2019	8.75
Hawaii	Maui Electric Company Ltd	HE	D-2017-0150	5/16/2019	9.50
Michigan	Upper Peninsula Power Co.		C-U-20276	5/23/2019	9.90
Vermont	Green Mountain Power Corp.		C-19-1932-TF	8/29/2019	9.06
Wisconsin	Northern States Power Co - WI	XEL	D- 4220-UR-124 (Elec)	9/4/2019	10.00
Wisconsin	Wisconsin Electric Power Co.	WEC	D-05-UR-109 (WEP-Elec)	10/31/2019	10.00
Wisconsin	Wisconsin Public Service Corp.	WEC	D-6690-UR-126 (Elec)	10/31/2019	10.00
Louisiana	Entergy New Orleans LLC	ETR	D-UD-18-07 (elec.)	11/7/2019	9.35
Idaho	Avista Corp.	AVA	C-AVU-E-1904	11/29/2019	9.50
Indiana	Northern IN Public Svc Co.	NI	Ca-45159	12/4/2019	9.75
Georgia	Georgia Power Co.	SO	D-42516	12/17/2019	10.50
California	San Diego Gas & Electric Co.	SRE	A-19-04-017 (Elec)	12/19/2019	10.20
California	Pacific Gas and Electric Co.	PCG	A-19-04-015	12/19/2019	10.25
California	Southern California Edison Co.	EIX	A-19-04-014	12/19/2019	10.30
Arkansas	Southwestern Electric Power Co	AEP	D-19-008-U	12/20/2019	9.45
Montana	NorthWestern Corp.	NWE	D2018.2.12	12/20/2019	9.65
Nevada	Sierra Pacific Power Co.	BRK.A	D-19-06002	12/24/2019	9.50
Iowa	Interstate Power & Light Co.	LNT	D-RPU-2019-0001	1/8/2020	10.02
Michigan	Indiana Michigan Power Co.	AEP	C-U-20359	1/23/2020	9.86
California	PacifiCorp	BRK.A	A-18-04-002	2/6/2020	10.00
Colorado	Public Service Co. of CO	XEL	D-19AL-0268E	2/11/2020	9.30
North Carolina	Virginia Electric & Power Co.	D	E-22, Sub 562	2/24/2020	9.75
Indiana	Indiana Michigan Power Co.	AEP	Ca-45235	3/11/2020	9.70
Washington	Avista Corp.	AVA	D-UE-190334	3/25/2020	9.40

Average	9.75
Median	9.71
Minimum	8.75
Maximum	11.95
Count >=10% 2017-2020	23
Count >=10% 2019-2020	11
2019-2020 Average	9.73
2019-2020 Median	9.74

Source: Regulatory Research Associates

Alternative Bond Yield Plus Risk Premium Analyses

	[1]	[2]	[3]
		LN(30-Year	
	Constant	Treasury)	VIX
	-0.0275	-0.0258	0.0003

	30-Yr. Treasury Yield [4]	VIX [5]	Risk Premium [6]	Return on Equity [7]
Current 30-Year Treasury	1.37%	50.00	9.73%	11.10%
Near-Term Projected 30-Year Treasury	1.75%	50.00	9.10%	10.85%
Long-Term Projected 30-Year Treasury	3.45%	50.00	7.35%	10.80%

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.877892
R Square	0.770695
Adjusted R Square	0.770166
Standard Error	0.005267
Observations	870

ANOVA

	df	SS	MS	F	Significance F
Regression	2	0.080823365	0.04041168	1456.993126	5.4887E-278
Residual	867	0.024047422	2.7736E-05		
Total	869	0.104870787			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-0.027508	0.001634589	-16.828393	3.33048E-55	-0.03071572	-0.024299289
LN(30-Year Treasury)	-0.02576	0.000480454	-53.615831	1.5773E-277	-0.02670294	-0.024816963
VIX	0.000286	2.91346E-05	9.82722569	1.1091E-21	0.00022913	0.000343495

Notes:

[1] Constant of regression equation (1990 - 2020)

[2] Equals Regression Coefficient of 30-year Treasury Yield variable

[3] Equals Regression Coefficient of VIX variable

[4] Source: Current = Bloomberg Professional, Rebuttal Exhibit DWD-5.
   Near-Term = Blue Chip Financial Forecasts, Vol. 39, No. 4, April 1, 2020, at 2
   Long-Term Projected = Blue Chip Financial Forecasts, Vol. 38, No. 12, December 1, 2018, at 14

[5] Source: Testimony of J. Randall Woolridge, at 25

[6] Equals [1] + (ln([4]) x [2]) + ([3] x [5])

[7] Equals [4] + [6]

[8] Source: S&P Global Market Intelligence, Regulatory Research Associates

[9] Source: S&P Global Market Intelligence, Regulatory Research Associates

[10] Source: Bloomberg Professional, equals 200-trading day average (i.e. lag period) as of April 17, 2020

[11] Equals LN[10]

[12] Source: Bloomberg Professional, equals 200-trading day average (i.e. lag period) as of April 17, 2020

[13] Equals [9] - [10]

[8] Date of Electric Rate Case	[9] Return on Equity (%)	[10] 30 Year Treasury (%)	[11] LN(30-Year Treasury)	[12] VIX	[13] Risk Premium
10/19/1990	13.00%	8.67%	-2.45	22.69	4.33%
10/25/1990	12.30%	8.68%	-2.44	22.80	3.62%
11/21/1990	12.70%	8.69%	-2.44	22.98	4.01%
12/13/1990	12.30%	8.67%	-2.44	22.97	3.63%
12/17/1990	12.87%	8.67%	-2.45	23.00	4.20%
12/18/1990	13.10%	8.67%	-2.45	23.02	4.43%
12/19/1990	12.00%	8.66%	-2.45	23.04	3.34%
12/20/1990	12.75%	8.66%	-2.45	23.05	4.09%
12/21/1990	12.50%	8.66%	-2.45	23.07	3.84%
12/27/1990	12.79%	8.66%	-2.45	23.13	4.13%
1/2/1991	13.10%	8.66%	-2.45	23.25	4.44%
1/4/1991	12.50%	8.65%	-2.45	23.31	3.85%
1/15/1991	12.75%	8.65%	-2.45	23.75	4.10%
1/25/1991	11.70%	8.63%	-2.45	23.94	3.07%
2/4/1991	12.50%	8.60%	-2.45	23.92	3.90%
2/7/1991	12.50%	8.59%	-2.45	23.95	3.91%
2/12/1991	13.00%	8.57%	-2.46	23.99	4.43%
2/14/1991	12.72%	8.56%	-2.46	24.02	4.16%
2/22/1991	12.80%	8.55%	-2.46	24.08	4.25%
3/6/1991	13.10%	8.53%	-2.46	24.18	4.57%
3/8/1991	12.30%	8.52%	-2.46	24.21	3.78%
3/8/1991	13.00%	8.52%	-2.46	24.21	4.48%
4/22/1991	13.00%	8.49%	-2.47	24.23	4.51%
5/7/1991	13.50%	8.47%	-2.47	24.22	5.03%
5/13/1991	13.25%	8.47%	-2.47	24.15	4.78%
5/30/1991	12.75%	8.43%	-2.47	23.59	4.32%
6/12/1991	12.00%	8.41%	-2.48	23.03	3.59%
6/25/1991	11.70%	8.38%	-2.48	22.47	3.32%
6/28/1991	12.50%	8.38%	-2.48	22.31	4.12%
7/1/1991	12.00%	8.37%	-2.48	22.25	3.63%
7/3/1991	12.50%	8.36%	-2.48	22.15	4.14%
7/19/1991	12.10%	8.34%	-2.48	21.55	3.76%
8/1/1991	12.90%	8.32%	-2.49	20.89	4.58%
8/16/1991	13.20%	8.29%	-2.49	20.12	4.91%
9/27/1991	12.50%	8.23%	-2.50	19.02	4.27%
9/30/1991	12.25%	8.23%	-2.50	18.99	4.02%
10/17/1991	13.00%	8.20%	-2.50	18.47	4.80%
10/23/1991	12.50%	8.20%	-2.50	18.20	4.30%
10/23/1991	12.55%	8.20%	-2.50	18.20	4.35%
10/31/1991	11.80%	8.19%	-2.50	17.68	3.61%
11/1/1991	12.00%	8.19%	-2.50	17.63	3.81%
11/5/1991	12.25%	8.19%	-2.50	17.55	4.06%
11/12/1991	12.50%	8.18%	-2.50	17.35	4.32%
11/12/1991	13.25%	8.18%	-2.50	17.35	5.07%
11/25/1991	12.40%	8.18%	-2.50	17.21	4.22%
11/26/1991	11.60%	8.18%	-2.50	17.20	3.42%
11/26/1991	12.50%	8.18%	-2.50	17.20	4.32%
11/27/1991	12.10%	8.18%	-2.50	17.19	3.92%
12/18/1991	12.25%	8.15%	-2.51	17.07	4.10%
12/19/1991	12.60%	8.15%	-2.51	17.06	4.45%
12/19/1991	12.80%	8.15%	-2.51	17.06	4.65%
12/20/1991	12.65%	8.14%	-2.51	17.04	4.51%
1/9/1992	12.80%	8.09%	-2.51	17.13	4.71%
1/16/1992	12.75%	8.07%	-2.52	17.14	4.68%
1/21/1992	12.00%	8.06%	-2.52	17.12	3.94%
1/22/1992	13.00%	8.06%	-2.52	17.10	4.94%
1/27/1992	12.65%	8.05%	-2.52	17.09	4.60%
1/31/1992	12.00%	8.04%	-2.52	17.12	3.96%
2/11/1992	12.40%	8.03%	-2.52	17.16	4.37%
2/25/1992	12.50%	8.01%	-2.52	17.14	4.49%
3/16/1992	11.43%	7.98%	-2.53	17.25	3.45%
3/18/1992	12.28%	7.98%	-2.53	17.26	4.30%
4/2/1992	12.10%	7.95%	-2.53	17.24	4.15%
4/9/1992	11.45%	7.93%	-2.53	17.24	3.52%
4/10/1992	11.50%	7.93%	-2.53	17.23	3.57%
4/14/1992	11.50%	7.92%	-2.54	17.21	3.58%
5/5/1992	11.50%	7.89%	-2.54	17.08	3.61%
5/12/1992	11.87%	7.88%	-2.54	17.09	3.99%
5/12/1992	12.46%	7.88%	-2.54	17.09	4.58%
6/1/1992	12.30%	7.86%	-2.54	17.02	4.44%
6/12/1992	10.90%	7.85%	-2.54	16.97	3.05%
6/26/1992	12.35%	7.85%	-2.54	16.91	4.50%
6/29/1992	11.00%	7.85%	-2.55	16.88	3.15%
6/30/1992	13.00%	7.85%	-2.55	16.86	5.15%
7/13/1992	11.90%	7.84%	-2.55	16.78	4.06%
7/13/1992	13.50%	7.84%	-2.55	16.78	5.66%
7/22/1992	11.20%	7.83%	-2.55	16.65	3.37%
8/3/1992	12.00%	7.81%	-2.55	16.52	4.19%
8/6/1992	12.50%	7.80%	-2.55	16.48	4.70%
9/22/1992	12.00%	7.71%	-2.56	15.88	4.29%
9/28/1992	11.40%	7.71%	-2.56	15.78	3.69%
9/30/1992	11.75%	7.71%	-2.56	15.75	4.04%
10/2/1992	13.00%	7.70%	-2.56	15.74	5.30%

[8]	[9]	[10]	[11]	[12]	[13]
	Return on	30 Year			
	Equity	Treasury	LN(30-Year		
Date of Electric Rate Case	(%)	(%)	Treasury)	VIX	Risk Premium
10/12/1992	12.20%	7.70%	-2.56	15.85	4.50%
10/16/1992	13.16%	7.71%	-2.56	15.82	5.45%
10/30/1992	11.75%	7.71%	-2.56	15.75	4.04%
11/3/1992	12.00%	7.71%	-2.56	15.74	4.29%
12/3/1992	11.85%	7.68%	-2.57	15.36	4.17%
12/15/1992	11.00%	7.66%	-2.57	15.17	3.34%
12/16/1992	11.90%	7.66%	-2.57	15.14	4.24%
12/16/1992	12.40%	7.66%	-2.57	15.14	4.74%
12/17/1992	12.00%	7.66%	-2.57	15.10	4.34%
12/22/1992	12.30%	7.65%	-2.57	14.99	4.65%
12/22/1992	12.40%	7.65%	-2.57	14.99	4.75%
12/29/1992	12.25%	7.63%	-2.57	14.86	4.62%
12/30/1992	12.00%	7.63%	-2.57	14.84	4.37%
12/31/1992	11.90%	7.62%	-2.57	14.82	4.28%
1/12/1993	12.00%	7.61%	-2.58	14.72	4.39%
1/21/1993	11.25%	7.59%	-2.58	14.52	3.66%
2/2/1993	11.40%	7.56%	-2.58	14.35	3.84%
2/15/1993	12.30%	7.52%	-2.59	14.26	4.78%
2/24/1993	11.90%	7.49%	-2.59	14.18	4.41%
2/26/1993	11.80%	7.48%	-2.59	14.16	4.32%
2/26/1993	12.20%	7.48%	-2.59	14.16	4.72%
4/23/1993	11.75%	7.29%	-2.62	13.85	4.46%
5/11/1993	11.75%	7.24%	-2.62	13.86	4.51%
5/14/1993	11.50%	7.24%	-2.63	13.87	4.26%
5/25/1993	11.50%	7.22%	-2.63	13.87	4.28%
5/28/1993	11.00%	7.22%	-2.63	13.84	3.78%
6/3/1993	12.00%	7.21%	-2.63	13.83	4.79%
6/16/1993	11.50%	7.19%	-2.63	13.77	4.31%
6/18/1993	12.10%	7.18%	-2.63	13.77	4.92%
6/25/1993	11.67%	7.17%	-2.64	13.74	4.50%
7/21/1993	11.38%	7.10%	-2.65	13.42	4.28%
7/23/1993	10.46%	7.09%	-2.65	13.34	3.37%
8/24/1993	11.50%	6.95%	-2.67	12.79	4.55%
9/21/1993	10.50%	6.80%	-2.69	12.72	3.70%
9/29/1993	11.47%	6.76%	-2.69	12.73	4.71%
9/30/1993	11.60%	6.76%	-2.69	12.74	4.84%
11/2/1993	10.80%	6.60%	-2.72	12.67	4.20%
11/12/1993	12.00%	6.56%	-2.72	12.76	5.44%
11/26/1993	11.00%	6.52%	-2.73	12.85	4.48%
12/14/1993	10.55%	6.48%	-2.74	12.75	4.07%
12/16/1993	10.60%	6.48%	-2.74	12.72	4.12%
12/21/1993	11.30%	6.47%	-2.74	12.66	4.83%
1/4/1994	10.07%	6.44%	-2.74	12.49	3.63%
1/13/1994	11.00%	6.42%	-2.75	12.45	4.58%
1/21/1994	11.00%	6.40%	-2.75	12.39	4.60%
1/28/1994	11.35%	6.39%	-2.75	12.37	4.96%
2/3/1994	11.40%	6.38%	-2.75	12.34	5.02%
2/17/1994	10.60%	6.36%	-2.76	12.38	4.24%
2/25/1994	11.25%	6.35%	-2.76	12.39	4.90%
2/25/1994	12.00%	6.35%	-2.76	12.39	5.65%
3/1/1994	11.00%	6.35%	-2.76	12.40	4.65%
3/4/1994	11.00%	6.34%	-2.76	12.43	4.66%
4/25/1994	11.00%	6.40%	-2.75	13.03	4.60%
5/10/1994	11.75%	6.44%	-2.74	13.20	5.31%
5/13/1994	10.50%	6.46%	-2.74	13.25	4.04%
6/3/1994	11.00%	6.54%	-2.73	13.32	4.46%
6/27/1994	11.40%	6.65%	-2.71	13.42	4.75%
8/5/1994	12.75%	6.88%	-2.68	13.42	5.87%
10/31/1994	10.00%	7.33%	-2.61	13.77	2.67%
11/9/1994	10.85%	7.40%	-2.60	13.94	3.45%
11/9/1994	10.85%	7.40%	-2.60	13.94	3.45%
11/18/1994	11.20%	7.46%	-2.60	14.12	3.74%
11/22/1994	11.60%	7.47%	-2.59	14.14	4.13%
11/28/1994	11.06%	7.50%	-2.59	14.20	3.56%
12/8/1994	11.50%	7.55%	-2.58	14.29	3.95%
12/8/1994	11.70%	7.55%	-2.58	14.29	4.15%
12/14/1994	10.95%	7.57%	-2.58	14.28	3.38%
12/15/1994	11.50%	7.57%	-2.58	14.26	3.93%
12/19/1994	11.50%	7.58%	-2.58	14.24	3.92%
12/28/1994	12.15%	7.61%	-2.58	14.14	4.54%
1/9/1995	12.28%	7.64%	-2.57	14.14	4.64%
1/31/1995	11.00%	7.69%	-2.57	13.71	3.31%
2/10/1995	12.60%	7.70%	-2.56	13.56	4.90%
2/17/1995	11.90%	7.70%	-2.56	13.49	4.20%
3/9/1995	11.50%	7.72%	-2.56	13.37	3.78%
3/20/1995	12.00%	7.72%	-2.56	13.35	4.28%
3/23/1995	12.81%	7.72%	-2.56	13.32	5.09%
3/29/1995	11.60%	7.72%	-2.56	13.31	3.88%
4/6/1995	11.10%	7.72%	-2.56	13.30	3.38%
4/7/1995	11.00%	7.71%	-2.56	13.28	3.29%
4/19/1995	11.00%	7.70%	-2.56	13.20	3.30%
5/12/1995	11.63%	7.68%	-2.57	13.21	3.95%
5/25/1995	11.20%	7.65%	-2.57	13.22	3.55%

[8] Date of Electric Rate Case	[9] Return on Equity (%)	[10] 30 Year Treasury (%)	[11] LN(30-Year Treasury)	[12] VIX	[13] Risk Premium
6/9/1995	11.25%	7.60%	-2.58	13.26	3.65%
6/21/1995	12.25%	7.56%	-2.58	13.24	4.69%
6/30/1995	11.10%	7.51%	-2.59	13.20	3.59%
9/11/1995	11.30%	7.20%	-2.63	12.48	4.10%
9/27/1995	11.30%	7.12%	-2.64	12.24	4.18%
9/27/1995	11.50%	7.12%	-2.64	12.24	4.38%
9/27/1995	11.75%	7.12%	-2.64	12.24	4.63%
9/29/1995	11.00%	7.11%	-2.64	12.24	3.89%
11/9/1995	11.38%	6.89%	-2.67	12.47	4.49%
11/9/1995	12.36%	6.89%	-2.67	12.47	5.47%
11/17/1995	11.00%	6.85%	-2.68	12.51	4.15%
12/4/1995	11.35%	6.78%	-2.69	12.52	4.57%
12/11/1995	11.40%	6.74%	-2.70	12.52	4.66%
12/20/1995	11.60%	6.69%	-2.70	12.50	4.91%
12/27/1995	12.00%	6.66%	-2.71	12.48	5.34%
2/5/1996	12.25%	6.48%	-2.74	12.63	5.77%
3/29/1996	10.67%	6.42%	-2.75	13.49	4.25%
4/8/1996	11.00%	6.42%	-2.75	13.63	4.58%
4/11/1996	12.59%	6.43%	-2.74	13.74	6.16%
4/11/1996	12.59%	6.43%	-2.74	13.74	6.16%
4/24/1996	11.25%	6.43%	-2.74	13.93	4.82%
4/30/1996	11.00%	6.43%	-2.74	13.99	4.57%
5/13/1996	11.00%	6.44%	-2.74	14.15	4.56%
5/23/1996	11.25%	6.43%	-2.74	14.24	4.82%
6/25/1996	11.25%	6.48%	-2.74	14.73	4.77%
6/27/1996	11.20%	6.48%	-2.74	14.77	4.72%
8/12/1996	10.40%	6.57%	-2.72	15.35	3.83%
9/27/1996	11.00%	6.71%	-2.70	15.98	4.29%
10/16/1996	12.25%	6.76%	-2.69	16.22	5.49%
11/5/1996	11.00%	6.81%	-2.69	16.44	4.19%
11/26/1996	11.30%	6.83%	-2.68	16.58	4.47%
12/18/1996	11.75%	6.84%	-2.68	16.80	4.91%
12/31/1996	11.50%	6.83%	-2.68	16.84	4.67%
1/3/1997	10.70%	6.83%	-2.68	16.85	3.87%
2/13/1997	11.80%	6.82%	-2.68	17.23	4.98%
2/20/1997	11.80%	6.82%	-2.69	17.29	4.98%
3/31/1997	10.02%	6.80%	-2.69	17.83	3.22%
4/2/1997	11.65%	6.80%	-2.69	17.86	4.85%
4/28/1997	11.50%	6.81%	-2.69	18.20	4.69%
4/29/1997	11.70%	6.81%	-2.69	18.20	4.89%
7/17/1997	12.00%	6.77%	-2.69	19.04	5.23%
12/12/1997	11.00%	6.60%	-2.72	22.58	4.40%
12/23/1997	11.12%	6.57%	-2.72	22.85	4.55%
2/2/1998	12.75%	6.39%	-2.75	23.45	6.36%
3/2/1998	11.25%	6.28%	-2.77	23.41	4.97%
3/6/1998	10.75%	6.27%	-2.77	23.39	4.48%
3/20/1998	10.50%	6.22%	-2.78	23.36	4.28%
4/30/1998	12.20%	6.12%	-2.79	23.68	6.08%
7/10/1998	11.40%	5.94%	-2.82	23.14	5.46%
9/15/1998	11.90%	5.78%	-2.85	23.80	6.12%
11/30/1998	12.60%	5.58%	-2.89	26.06	7.02%
12/10/1998	12.20%	5.54%	-2.89	26.34	6.66%
12/17/1998	12.10%	5.52%	-2.90	26.58	6.58%
2/5/1999	10.30%	5.38%	-2.92	27.54	4.92%
3/4/1999	10.50%	5.34%	-2.93	28.19	5.16%
4/6/1999	10.94%	5.32%	-2.93	28.47	5.62%
7/29/1999	10.75%	5.52%	-2.90	25.77	5.23%
9/23/1999	10.75%	5.70%	-2.86	24.95	5.05%
11/17/1999	11.10%	5.90%	-2.83	24.31	5.20%
1/7/2000	11.50%	6.05%	-2.81	23.49	5.45%
1/7/2000	11.50%	6.05%	-2.81	23.49	5.45%
2/17/2000	10.60%	6.17%	-2.78	23.35	4.43%
3/28/2000	11.25%	6.20%	-2.78	22.96	5.05%
5/24/2000	11.00%	6.18%	-2.78	23.84	4.82%
7/18/2000	12.20%	6.16%	-2.79	23.36	6.04%
9/29/2000	11.16%	6.03%	-2.81	22.44	5.13%
11/28/2000	12.90%	5.89%	-2.83	22.97	7.01%
11/30/2000	12.10%	5.88%	-2.83	23.03	6.22%
1/23/2001	11.25%	5.79%	-2.85	23.49	5.46%
2/8/2001	11.50%	5.77%	-2.85	23.15	5.73%
5/8/2001	10.75%	5.62%	-2.88	24.39	5.13%
6/26/2001	11.00%	5.62%	-2.88	24.93	5.38%
7/25/2001	11.02%	5.60%	-2.88	25.07	5.42%
7/25/2001	11.02%	5.60%	-2.88	25.07	5.42%
7/31/2001	11.00%	5.59%	-2.88	24.96	5.41%
8/31/2001	10.50%	5.56%	-2.89	24.49	4.94%
9/7/2001	10.75%	5.55%	-2.89	24.53	5.20%
9/10/2001	11.00%	5.55%	-2.89	24.55	5.45%
9/20/2001	10.00%	5.55%	-2.89	24.84	4.45%
10/24/2001	10.30%	5.54%	-2.89	25.69	4.76%
11/28/2001	10.60%	5.49%	-2.90	26.17	5.11%
12/3/2001	12.88%	5.49%	-2.90	26.22	7.39%
12/20/2001	12.50%	5.50%	-2.90	26.14	7.00%

[8] Date of Electric Rate Case	[9] Return on Equity (%)	[10] 30 Year Treasury (%)	[11] LN(30-Year Treasury)	[12] VIX	[13] Risk Premium
1/22/2002	10.00%	5.50%	-2.90	25.49	4.50%
3/27/2002	10.10%	5.45%	-2.91	24.65	4.65%
4/22/2002	11.80%	5.45%	-2.91	24.49	6.35%
5/28/2002	10.17%	5.46%	-2.91	24.29	4.71%
6/10/2002	12.00%	5.47%	-2.91	24.33	6.53%
6/18/2002	11.16%	5.48%	-2.90	24.42	5.68%
6/20/2002	11.00%	5.48%	-2.90	24.46	5.52%
6/20/2002	12.30%	5.48%	-2.90	24.46	6.82%
7/15/2002	11.00%	5.48%	-2.90	24.08	5.52%
9/12/2002	12.30%	5.45%	-2.91	25.15	6.85%
9/26/2002	10.45%	5.41%	-2.92	25.82	5.04%
12/4/2002	11.55%	5.29%	-2.94	28.03	6.26%
12/13/2002	11.75%	5.27%	-2.94	28.29	6.48%
12/20/2002	11.40%	5.25%	-2.95	28.48	6.15%
1/8/2003	11.10%	5.19%	-2.96	28.93	5.91%
1/31/2003	12.45%	5.13%	-2.97	29.66	7.32%
2/28/2003	12.30%	5.04%	-2.99	30.74	7.26%
3/6/2003	10.75%	5.02%	-2.99	30.99	5.73%
3/7/2003	9.96%	5.02%	-2.99	31.04	4.94%
3/20/2003	12.00%	4.98%	-3.00	31.54	7.02%
4/3/2003	12.00%	4.95%	-3.00	31.74	7.05%
4/15/2003	11.15%	4.93%	-3.01	31.70	6.22%
6/25/2003	10.75%	4.79%	-3.04	28.27	5.96%
6/26/2003	10.75%	4.79%	-3.04	28.19	5.96%
7/9/2003	9.75%	4.79%	-3.04	27.44	4.96%
7/16/2003	9.75%	4.79%	-3.04	26.97	4.96%
7/25/2003	9.50%	4.79%	-3.04	26.27	4.71%
8/26/2003	10.50%	4.83%	-3.03	24.78	5.67%
12/17/2003	9.85%	4.94%	-3.01	20.47	4.91%
12/17/2003	10.70%	4.94%	-3.01	20.47	5.76%
12/18/2003	11.50%	4.94%	-3.01	20.40	6.56%
12/19/2003	12.00%	4.94%	-3.01	20.31	7.06%
12/19/2003	12.00%	4.94%	-3.01	20.31	7.06%
12/23/2003	10.50%	4.94%	-3.01	20.15	5.56%
1/13/2004	12.00%	4.95%	-3.01	19.31	7.05%
3/2/2004	10.75%	4.99%	-3.00	18.17	5.76%
3/26/2004	10.25%	5.02%	-2.99	17.96	5.23%
4/5/2004	11.25%	5.03%	-2.99	17.85	6.22%
5/18/2004	10.50%	5.07%	-2.98	17.43	5.43%
5/25/2004	10.25%	5.07%	-2.98	17.36	5.18%
5/27/2004	10.25%	5.08%	-2.98	17.33	5.17%
6/2/2004	11.22%	5.08%	-2.98	17.30	6.14%
6/30/2004	10.50%	5.10%	-2.98	16.96	5.40%
6/30/2004	10.50%	5.10%	-2.98	16.96	5.40%
7/16/2004	11.60%	5.11%	-2.97	16.69	6.49%
8/25/2004	10.25%	5.10%	-2.98	16.53	5.15%
9/9/2004	10.40%	5.10%	-2.98	16.35	5.30%
11/9/2004	10.50%	5.07%	-2.98	15.94	5.43%
11/23/2004	11.00%	5.06%	-2.98	15.75	5.94%
12/14/2004	10.97%	5.07%	-2.98	15.59	5.90%
12/21/2004	11.25%	5.07%	-2.98	15.51	6.18%
12/21/2004	11.50%	5.07%	-2.98	15.51	6.43%
12/22/2004	10.70%	5.07%	-2.98	15.47	5.63%
12/22/2004	11.50%	5.07%	-2.98	15.47	6.43%
12/29/2004	9.85%	5.08%	-2.98	15.30	4.77%
1/6/2005	10.70%	5.08%	-2.98	15.12	5.62%
2/18/2005	10.30%	4.98%	-3.00	14.59	5.32%
2/25/2005	10.50%	4.96%	-3.00	14.46	5.54%
3/10/2005	11.00%	4.93%	-3.01	14.18	6.07%
3/24/2005	10.30%	4.89%	-3.02	14.05	5.41%
4/4/2005	10.00%	4.87%	-3.02	14.02	5.13%
4/7/2005	10.25%	4.87%	-3.02	14.00	5.38%
5/18/2005	10.25%	4.78%	-3.04	13.89	5.47%
5/25/2005	10.75%	4.76%	-3.04	13.75	5.99%
5/26/2005	9.75%	4.76%	-3.04	13.71	4.99%
6/1/2005	9.75%	4.75%	-3.05	13.64	5.00%
7/19/2005	11.50%	4.64%	-3.07	13.17	6.86%
8/5/2005	11.75%	4.62%	-3.07	12.94	7.13%
8/15/2005	10.13%	4.61%	-3.08	12.84	5.52%
9/28/2005	10.00%	4.54%	-3.09	12.77	5.46%
10/4/2005	10.75%	4.53%	-3.09	12.78	6.22%
12/12/2005	11.00%	4.55%	-3.09	12.97	6.45%
12/13/2005	10.75%	4.55%	-3.09	12.96	6.20%
12/21/2005	10.29%	4.54%	-3.09	12.91	5.75%
12/21/2005	10.40%	4.54%	-3.09	12.91	5.86%
12/22/2005	11.00%	4.54%	-3.09	12.90	6.46%
12/22/2005	11.15%	4.54%	-3.09	12.90	6.61%
12/28/2005	10.00%	4.54%	-3.09	12.87	5.46%
12/28/2005	10.00%	4.54%	-3.09	12.87	5.46%
1/5/2006	11.00%	4.53%	-3.09	12.82	6.47%
1/27/2006	9.75%	4.52%	-3.10	12.72	5.23%
3/3/2006	10.39%	4.53%	-3.09	12.39	5.86%
4/17/2006	10.20%	4.62%	-3.08	12.34	5.58%

[8] Date of Electric Rate Case	[9] Return on Equity (%)	[10] 30 Year Treasury (%)	[11] LN(30-Year Treasury)	[12] VIX	[13] Risk Premium
4/26/2006	10.60%	4.64%	-3.07	12.34	5.96%
5/17/2006	11.60%	4.69%	-3.06	12.47	6.91%
6/6/2006	10.00%	4.75%	-3.05	12.72	5.25%
6/27/2006	10.75%	4.80%	-3.04	13.07	5.95%
7/6/2006	10.20%	4.83%	-3.03	13.12	5.37%
7/24/2006	9.60%	4.86%	-3.02	13.29	4.74%
7/26/2006	10.50%	4.86%	-3.02	13.29	5.64%
7/28/2006	10.05%	4.87%	-3.02	13.27	5.18%
8/23/2006	9.55%	4.89%	-3.02	13.20	4.66%
9/1/2006	10.54%	4.90%	-3.02	13.19	5.64%
9/14/2006	10.00%	4.91%	-3.01	13.25	5.09%
10/6/2006	9.67%	4.92%	-3.01	13.30	4.75%
11/21/2006	10.08%	4.95%	-3.01	13.12	5.13%
11/21/2006	10.08%	4.95%	-3.01	13.12	5.13%
11/21/2006	10.12%	4.95%	-3.01	13.12	5.17%
12/1/2006	10.25%	4.96%	-3.00	13.07	5.29%
12/1/2006	10.50%	4.96%	-3.00	13.07	5.54%
12/7/2006	10.75%	4.96%	-3.00	13.06	5.79%
12/21/2006	10.90%	4.95%	-3.00	12.98	5.95%
12/21/2006	11.25%	4.95%	-3.00	12.98	6.30%
12/22/2006	10.25%	4.95%	-3.00	12.98	5.30%
1/5/2007	10.00%	4.95%	-3.01	12.98	5.05%
1/11/2007	10.10%	4.95%	-3.01	12.98	5.15%
1/11/2007	10.10%	4.95%	-3.01	12.98	5.15%
1/11/2007	10.90%	4.95%	-3.01	12.98	5.95%
1/12/2007	10.10%	4.95%	-3.01	12.98	5.15%
1/13/2007	10.40%	4.95%	-3.01	12.97	5.45%
1/19/2007	10.80%	4.94%	-3.01	12.96	5.86%
3/21/2007	11.35%	4.86%	-3.02	12.81	6.49%
3/22/2007	9.75%	4.86%	-3.02	12.78	4.89%
5/15/2007	10.00%	4.81%	-3.04	12.22	5.19%
5/17/2007	10.25%	4.80%	-3.04	12.21	5.45%
5/17/2007	10.25%	4.80%	-3.04	12.21	5.45%
5/22/2007	10.20%	4.80%	-3.04	12.19	5.40%
5/22/2007	10.50%	4.80%	-3.04	12.19	5.70%
5/23/2007	10.70%	4.80%	-3.04	12.18	5.90%
5/25/2007	9.67%	4.80%	-3.04	12.16	4.87%
6/15/2007	9.90%	4.82%	-3.03	12.27	5.08%
6/21/2007	10.20%	4.83%	-3.03	12.30	5.37%
6/22/2007	10.50%	4.83%	-3.03	12.31	5.67%
6/28/2007	10.75%	4.84%	-3.03	12.38	5.91%
7/12/2007	9.67%	4.86%	-3.02	12.56	4.81%
7/19/2007	10.00%	4.87%	-3.02	12.65	5.13%
7/19/2007	10.00%	4.87%	-3.02	12.65	5.13%
8/15/2007	10.40%	4.88%	-3.02	13.76	5.52%
10/9/2007	10.00%	4.91%	-3.01	15.94	5.09%
10/17/2007	9.10%	4.91%	-3.01	16.15	4.19%
10/31/2007	9.96%	4.90%	-3.02	16.62	5.06%
11/29/2007	10.90%	4.87%	-3.02	18.14	6.03%
12/6/2007	10.75%	4.86%	-3.02	18.45	5.89%
12/13/2007	9.96%	4.86%	-3.02	18.60	5.10%
12/14/2007	10.70%	4.86%	-3.02	18.62	5.84%
12/14/2007	10.80%	4.86%	-3.02	18.62	5.94%
12/19/2007	10.20%	4.86%	-3.02	18.74	5.34%
12/20/2007	10.20%	4.86%	-3.03	18.77	5.34%
12/20/2007	11.00%	4.86%	-3.03	18.77	6.14%
12/28/2007	10.25%	4.85%	-3.03	18.84	5.40%
12/31/2007	11.25%	4.85%	-3.03	18.88	6.40%
1/8/2008	10.75%	4.83%	-3.03	19.16	5.92%
1/17/2008	10.75%	4.81%	-3.03	19.51	5.94%
1/28/2008	9.40%	4.80%	-3.04	19.99	4.60%
1/30/2008	10.00%	4.79%	-3.04	20.14	5.21%
1/31/2008	10.71%	4.79%	-3.04	20.21	5.92%
2/29/2008	10.25%	4.75%	-3.05	21.45	5.50%
3/12/2008	10.25%	4.73%	-3.05	21.99	5.52%
3/25/2008	9.10%	4.68%	-3.06	22.55	4.42%
4/22/2008	10.25%	4.60%	-3.08	23.32	5.65%
4/24/2008	10.10%	4.60%	-3.08	23.35	5.50%
5/1/2008	10.70%	4.58%	-3.08	23.46	6.12%
5/19/2008	11.00%	4.56%	-3.09	23.32	6.44%
5/27/2008	10.00%	4.55%	-3.09	23.18	5.45%
6/10/2008	10.70%	4.54%	-3.09	22.89	6.16%
6/27/2008	10.50%	4.54%	-3.09	22.73	5.96%
6/27/2008	11.04%	4.54%	-3.09	22.73	6.50%
7/10/2008	10.43%	4.52%	-3.10	22.88	5.91%
7/16/2008	9.40%	4.51%	-3.10	23.08	4.89%
7/30/2008	10.80%	4.51%	-3.10	23.33	6.29%
7/31/2008	10.70%	4.51%	-3.10	23.34	6.19%
8/11/2008	10.25%	4.50%	-3.10	23.37	5.75%
8/26/2008	10.18%	4.50%	-3.10	23.23	5.68%
9/10/2008	10.30%	4.50%	-3.10	23.01	5.80%
9/24/2008	10.65%	4.48%	-3.11	23.46	6.17%
9/24/2008	10.65%	4.48%	-3.11	23.46	6.17%

[8] Date of Electric Rate Case	[9] Return on Equity (%)	[10] 30 Year Treasury (%)	[11] LN(30-Year Treasury)	[12] VIX	[13] Risk Premium
9/24/2008	10.65%	4.48%	-3.11	23.46	6.17%
9/30/2008	10.20%	4.47%	-3.11	23.77	5.73%
10/8/2008	10.15%	4.46%	-3.11	24.61	5.69%
11/13/2008	10.55%	4.45%	-3.11	29.58	6.10%
11/17/2008	10.20%	4.44%	-3.11	29.98	5.76%
12/1/2008	10.25%	4.39%	-3.12	31.79	5.86%
12/23/2008	11.00%	4.27%	-3.15	34.13	6.73%
12/29/2008	10.00%	4.24%	-3.16	34.34	5.76%
12/29/2008	10.20%	4.24%	-3.16	34.34	5.96%
12/31/2008	10.75%	4.22%	-3.17	34.47	6.53%
1/14/2009	10.50%	4.15%	-3.18	35.25	6.35%
1/21/2009	10.50%	4.11%	-3.19	35.81	6.39%
1/21/2009	10.50%	4.11%	-3.19	35.81	6.39%
1/21/2009	10.50%	4.11%	-3.19	35.81	6.39%
1/27/2009	10.76%	4.09%	-3.20	36.26	6.67%
1/30/2009	10.50%	4.07%	-3.20	36.58	6.43%
2/4/2009	8.75%	4.06%	-3.20	36.94	4.69%
3/4/2009	10.50%	3.96%	-3.23	39.59	6.54%
3/12/2009	11.50%	3.93%	-3.24	40.42	7.57%
4/2/2009	11.10%	3.85%	-3.26	42.04	7.25%
4/21/2009	10.61%	3.80%	-3.27	42.91	6.81%
4/24/2009	10.00%	3.78%	-3.27	43.10	6.22%
4/30/2009	11.25%	3.77%	-3.28	43.29	7.48%
5/4/2009	10.74%	3.77%	-3.28	43.40	6.97%
5/20/2009	10.25%	3.74%	-3.29	43.96	6.51%
5/28/2009	10.50%	3.74%	-3.29	44.24	6.76%
6/22/2009	10.00%	3.76%	-3.28	45.01	6.24%
6/24/2009	10.80%	3.76%	-3.28	45.06	7.04%
7/8/2009	10.63%	3.76%	-3.28	44.95	6.87%
7/17/2009	10.50%	3.77%	-3.28	44.55	6.73%
8/31/2009	10.25%	3.82%	-3.27	38.96	6.43%
10/14/2009	10.70%	4.02%	-3.21	33.90	6.68%
10/23/2009	10.88%	4.06%	-3.20	33.22	6.82%
11/2/2009	10.70%	4.10%	-3.20	32.57	6.60%
11/3/2009	10.70%	4.10%	-3.19	32.48	6.60%
11/24/2009	10.25%	4.16%	-3.18	30.89	6.09%
11/25/2009	10.75%	4.16%	-3.18	30.79	6.59%
11/30/2009	10.35%	4.17%	-3.18	30.58	6.18%
12/3/2009	10.50%	4.18%	-3.18	30.18	6.32%
12/7/2009	10.70%	4.19%	-3.17	29.90	6.51%
12/16/2009	10.90%	4.22%	-3.17	28.98	6.68%
12/16/2009	11.00%	4.22%	-3.17	28.98	6.78%
12/18/2009	10.40%	4.22%	-3.16	28.70	6.18%
12/18/2009	10.40%	4.22%	-3.16	28.70	6.18%
12/22/2009	10.20%	4.23%	-3.16	28.46	5.97%
12/22/2009	10.40%	4.23%	-3.16	28.46	6.17%
12/22/2009	10.40%	4.23%	-3.16	28.46	6.17%
12/30/2009	10.00%	4.26%	-3.16	27.91	5.74%
1/4/2010	10.80%	4.28%	-3.15	27.67	6.52%
1/11/2010	11.00%	4.31%	-3.15	27.09	6.69%
1/26/2010	10.13%	4.35%	-3.13	26.08	5.78%
1/27/2010	10.40%	4.36%	-3.13	26.01	6.04%
1/27/2010	10.40%	4.36%	-3.13	26.01	6.04%
1/27/2010	10.70%	4.36%	-3.13	26.01	6.34%
2/9/2010	9.80%	4.38%	-3.13	25.43	5.42%
2/18/2010	10.60%	4.40%	-3.12	25.05	6.20%
2/24/2010	10.18%	4.41%	-3.12	24.80	5.77%
3/2/2010	9.63%	4.41%	-3.12	24.54	5.22%
3/4/2010	10.50%	4.41%	-3.12	24.43	6.09%
3/5/2010	10.50%	4.41%	-3.12	24.37	6.09%
3/11/2010	11.90%	4.42%	-3.12	24.10	7.48%
3/17/2010	10.00%	4.41%	-3.12	23.85	5.59%
3/25/2010	10.15%	4.42%	-3.12	23.47	5.73%
4/2/2010	10.10%	4.43%	-3.12	22.82	5.67%
4/27/2010	10.00%	4.46%	-3.11	22.16	5.54%
4/29/2010	9.90%	4.46%	-3.11	22.11	5.44%
4/29/2010	10.06%	4.46%	-3.11	22.11	5.60%
4/29/2010	10.26%	4.46%	-3.11	22.11	5.80%
5/12/2010	10.30%	4.45%	-3.11	22.26	5.85%
5/12/2010	10.30%	4.45%	-3.11	22.26	5.85%
5/28/2010	10.10%	4.44%	-3.11	22.81	5.66%
5/28/2010	10.20%	4.44%	-3.11	22.81	5.76%
6/7/2010	10.30%	4.44%	-3.11	23.00	5.86%
6/16/2010	10.00%	4.44%	-3.11	23.16	5.56%
6/28/2010	9.67%	4.43%	-3.12	23.19	5.24%
6/28/2010	10.50%	4.43%	-3.12	23.19	6.07%
6/30/2010	9.40%	4.43%	-3.12	23.30	4.97%
7/1/2010	10.25%	4.43%	-3.12	23.34	5.82%
7/15/2010	10.53%	4.43%	-3.12	23.43	6.10%
7/15/2010	10.70%	4.43%	-3.12	23.43	6.27%
7/30/2010	10.70%	4.41%	-3.12	23.39	6.29%
8/4/2010	10.50%	4.41%	-3.12	23.40	6.09%
8/6/2010	9.83%	4.41%	-3.12	23.41	5.42%

[8]	[9]	[10]	[11]	[12]	[13]
	Return on Equity	30 Year Treasury	LN(30-Year		
Date of Electric Rate Case	(%)	(%)	Treasury)	VIX	Risk Premium
8/25/2010	9.90%	4.37%	-3.13	23.38	5.53%
9/3/2010	10.60%	4.35%	-3.14	23.44	6.25%
9/14/2010	10.70%	4.33%	-3.14	23.46	6.37%
9/16/2010	10.00%	4.32%	-3.14	23.44	5.68%
9/16/2010	10.00%	4.32%	-3.14	23.44	5.68%
9/30/2010	9.75%	4.28%	-3.15	23.47	5.47%
10/14/2010	10.35%	4.24%	-3.16	23.50	6.11%
10/28/2010	10.70%	4.21%	-3.17	23.55	6.49%
11/2/2010	10.38%	4.20%	-3.17	23.60	6.18%
11/4/2010	10.70%	4.19%	-3.17	23.54	6.51%
11/19/2010	10.20%	4.17%	-3.18	23.28	6.03%
11/22/2010	10.00%	4.17%	-3.18	23.24	5.83%
12/1/2010	10.13%	4.16%	-3.18	23.21	5.97%
12/6/2010	9.86%	4.15%	-3.18	23.18	5.71%
12/9/2010	10.25%	4.15%	-3.18	23.14	6.10%
12/13/2010	10.70%	4.15%	-3.18	23.13	6.55%
12/14/2010	10.13%	4.15%	-3.18	23.12	5.98%
12/15/2010	10.44%	4.15%	-3.18	23.12	6.29%
12/17/2010	10.00%	4.14%	-3.18	23.11	5.86%
12/20/2010	10.60%	4.14%	-3.18	23.10	6.46%
12/21/2010	10.30%	4.14%	-3.18	23.09	6.16%
12/27/2010	9.90%	4.14%	-3.18	23.07	5.76%
12/29/2010	11.15%	4.14%	-3.19	23.07	7.01%
1/5/2011	10.15%	4.13%	-3.19	23.08	6.02%
1/12/2011	10.30%	4.12%	-3.19	23.07	6.18%
1/13/2011	10.30%	4.12%	-3.19	23.06	6.18%
1/18/2011	10.00%	4.12%	-3.19	23.05	5.88%
1/20/2011	9.30%	4.12%	-3.19	23.06	5.18%
1/20/2011	10.13%	4.12%	-3.19	23.06	6.01%
1/31/2011	9.60%	4.11%	-3.19	23.12	5.49%
2/3/2011	10.00%	4.11%	-3.19	23.13	5.89%
2/25/2011	10.00%	4.14%	-3.18	22.58	5.86%
3/25/2011	9.80%	4.18%	-3.18	21.29	5.62%
3/30/2011	10.00%	4.18%	-3.17	21.16	5.82%
4/12/2011	10.00%	4.21%	-3.17	20.69	5.79%
4/25/2011	10.74%	4.23%	-3.16	20.17	6.51%
4/26/2011	9.67%	4.24%	-3.16	20.13	5.43%
4/27/2011	10.40%	4.24%	-3.16	20.08	6.16%
5/4/2011	10.00%	4.25%	-3.16	19.84	5.75%
5/4/2011	10.00%	4.25%	-3.16	19.84	5.75%
5/24/2011	10.50%	4.27%	-3.15	19.44	6.23%
6/8/2011	10.75%	4.30%	-3.15	19.02	6.45%
6/16/2011	9.20%	4.32%	-3.14	18.83	4.88%
6/17/2011	9.95%	4.32%	-3.14	18.83	5.63%
7/13/2011	10.20%	4.37%	-3.13	18.48	5.83%
8/1/2011	9.20%	4.39%	-3.13	18.46	4.81%
8/8/2011	10.00%	4.38%	-3.13	18.77	5.62%
8/11/2011	10.00%	4.38%	-3.13	19.05	5.62%
8/12/2011	10.35%	4.38%	-3.13	19.13	5.97%
8/19/2011	10.25%	4.36%	-3.13	19.53	5.89%
9/2/2011	12.88%	4.32%	-3.14	20.31	8.56%
9/22/2011	10.00%	4.24%	-3.16	21.34	5.76%
10/12/2011	10.30%	4.14%	-3.19	22.82	6.16%
10/20/2011	10.50%	4.10%	-3.19	23.27	6.40%
11/30/2011	10.90%	3.87%	-3.25	25.28	7.03%
11/30/2011	10.90%	3.87%	-3.25	25.28	7.03%
12/14/2011	10.00%	3.79%	-3.27	25.67	6.21%
12/14/2011	10.30%	3.79%	-3.27	25.67	6.51%
12/20/2011	10.20%	3.76%	-3.28	25.76	6.44%
12/21/2011	10.20%	3.75%	-3.28	25.76	6.45%
12/22/2011	9.90%	3.75%	-3.28	25.77	6.15%
12/22/2011	10.40%	3.75%	-3.28	25.77	6.65%
12/23/2011	10.19%	3.74%	-3.29	25.76	6.45%
1/25/2012	10.50%	3.57%	-3.33	25.89	6.93%
1/27/2012	10.50%	3.55%	-3.34	25.91	6.95%
2/15/2012	10.20%	3.47%	-3.36	26.12	6.73%
2/23/2012	9.90%	3.43%	-3.37	26.14	6.47%
2/27/2012	10.25%	3.42%	-3.37	26.15	6.83%
2/29/2012	10.40%	3.41%	-3.38	26.16	6.99%
3/29/2012	10.37%	3.31%	-3.41	25.99	7.06%
4/4/2012	10.00%	3.29%	-3.41	25.89	6.71%
4/26/2012	10.00%	3.20%	-3.44	25.91	6.80%
5/2/2012	10.00%	3.18%	-3.45	25.85	6.82%
5/7/2012	9.80%	3.16%	-3.45	25.85	6.64%
5/15/2012	10.00%	3.14%	-3.46	25.79	6.86%
5/29/2012	10.05%	3.11%	-3.47	25.23	6.94%
6/7/2012	10.30%	3.07%	-3.48	24.77	7.23%
6/14/2012	9.40%	3.06%	-3.49	24.45	6.34%
6/15/2012	10.40%	3.06%	-3.49	24.40	7.34%
6/18/2012	9.60%	3.05%	-3.49	24.33	6.55%
6/19/2012	9.25%	3.05%	-3.49	24.25	6.20%
6/26/2012	10.10%	3.04%	-3.49	23.82	7.06%
6/29/2012	10.00%	3.04%	-3.49	23.58	6.96%

[8] Date of Electric Rate Case	[9] Return on Equity (%)	[10] 30 Year Treasury (%)	[11] LN(30-Year Treasury)	[12] VIX	[13] Risk Premium
7/9/2012	10.20%	3.03%	-3.50	23.14	7.17%
7/16/2012	9.80%	3.02%	-3.50	22.59	6.78%
7/20/2012	9.31%	3.01%	-3.50	22.07	6.30%
7/20/2012	9.81%	3.01%	-3.50	22.07	6.80%
9/13/2012	9.80%	2.94%	-3.53	19.11	6.86%
9/19/2012	9.80%	2.94%	-3.53	18.84	6.86%
9/19/2012	10.05%	2.94%	-3.53	18.84	7.11%
9/26/2012	9.50%	2.94%	-3.53	18.51	6.56%
10/12/2012	9.60%	2.93%	-3.53	18.04	6.67%
10/23/2012	9.75%	2.93%	-3.53	17.84	6.82%
10/24/2012	10.30%	2.93%	-3.53	17.83	7.37%
11/9/2012	10.30%	2.92%	-3.53	17.75	7.38%
11/28/2012	10.40%	2.90%	-3.54	17.60	7.50%
11/29/2012	9.75%	2.89%	-3.54	17.58	6.86%
11/29/2012	9.88%	2.89%	-3.54	17.58	6.99%
12/5/2012	9.71%	2.89%	-3.54	17.53	6.82%
12/5/2012	10.40%	2.89%	-3.54	17.53	7.51%
12/12/2012	9.80%	2.88%	-3.55	17.48	6.92%
12/13/2012	9.50%	2.88%	-3.55	17.47	6.62%
12/13/2012	10.50%	2.88%	-3.55	17.47	7.62%
12/14/2012	10.40%	2.88%	-3.55	17.47	7.52%
12/19/2012	9.71%	2.87%	-3.55	17.44	6.84%
12/19/2012	10.25%	2.87%	-3.55	17.44	7.38%
12/20/2012	9.50%	2.87%	-3.55	17.43	6.63%
12/20/2012	9.80%	2.87%	-3.55	17.43	6.93%
12/20/2012	10.25%	2.87%	-3.55	17.43	7.38%
12/20/2012	10.25%	2.87%	-3.55	17.43	7.38%
12/20/2012	10.30%	2.87%	-3.55	17.43	7.43%
12/20/2012	10.40%	2.87%	-3.55	17.43	7.53%
12/20/2012	10.45%	2.87%	-3.55	17.43	7.58%
12/21/2012	10.20%	2.87%	-3.55	17.43	7.33%
12/26/2012	9.80%	2.86%	-3.55	17.45	6.94%
1/9/2013	9.70%	2.84%	-3.56	17.50	6.86%
1/9/2013	9.70%	2.84%	-3.56	17.50	6.86%
1/9/2013	9.70%	2.84%	-3.56	17.50	6.86%
1/16/2013	9.60%	2.84%	-3.56	17.45	6.76%
1/16/2013	9.60%	2.84%	-3.56	17.45	6.76%
2/13/2013	10.20%	2.84%	-3.56	17.01	7.36%
2/22/2013	9.75%	2.85%	-3.56	16.89	6.90%
2/27/2013	10.00%	2.86%	-3.56	16.85	7.14%
3/14/2013	9.30%	2.88%	-3.55	16.34	6.42%
3/27/2013	9.80%	2.90%	-3.54	15.87	6.90%
5/1/2013	9.84%	2.94%	-3.53	15.25	6.90%
5/15/2013	10.30%	2.96%	-3.52	15.02	7.34%
5/30/2013	10.20%	2.98%	-3.51	14.87	7.22%
5/31/2013	9.00%	2.98%	-3.51	14.89	6.02%
6/11/2013	10.00%	3.00%	-3.51	14.95	7.00%
6/21/2013	9.75%	3.02%	-3.50	14.99	6.73%
6/25/2013	9.80%	3.03%	-3.50	15.02	6.77%
7/12/2013	9.36%	3.08%	-3.48	15.06	6.28%
8/8/2013	9.83%	3.14%	-3.46	14.82	6.69%
8/14/2013	9.15%	3.16%	-3.45	14.72	5.99%
9/11/2013	10.20%	3.27%	-3.42	14.56	6.93%
9/11/2013	10.25%	3.27%	-3.42	14.56	6.98%
9/24/2013	10.20%	3.31%	-3.41	14.46	6.89%
10/3/2013	9.65%	3.33%	-3.40	14.45	6.32%
11/6/2013	10.20%	3.41%	-3.38	14.40	6.79%
11/21/2013	10.00%	3.44%	-3.37	14.36	6.56%
11/26/2013	10.00%	3.45%	-3.37	14.36	6.55%
12/3/2013	10.25%	3.47%	-3.36	14.38	6.78%
12/4/2013	9.50%	3.47%	-3.36	14.38	6.03%
12/5/2013	10.20%	3.48%	-3.36	14.38	6.72%
12/9/2013	8.72%	3.49%	-3.36	14.34	5.23%
12/9/2013	9.75%	3.49%	-3.36	14.34	6.26%
12/13/2013	9.75%	3.50%	-3.35	14.34	6.25%
12/16/2013	9.95%	3.50%	-3.35	14.35	6.45%
12/16/2013	9.95%	3.50%	-3.35	14.35	6.45%
12/16/2013	10.12%	3.50%	-3.35	14.35	6.62%
12/17/2013	9.50%	3.51%	-3.35	14.37	5.99%
12/17/2013	10.95%	3.51%	-3.35	14.37	7.44%
12/18/2013	8.72%	3.51%	-3.35	14.37	5.21%
12/18/2013	9.80%	3.51%	-3.35	14.37	6.29%
12/19/2013	10.15%	3.51%	-3.35	14.38	6.64%
12/30/2013	9.50%	3.54%	-3.34	14.41	5.96%
2/20/2014	9.20%	3.69%	-3.30	14.62	5.51%
2/26/2014	9.75%	3.70%	-3.30	14.65	6.05%
3/17/2014	9.55%	3.72%	-3.29	14.72	5.83%
3/26/2014	9.40%	3.73%	-3.29	14.66	5.67%
3/26/2014	9.96%	3.73%	-3.29	14.66	6.23%
4/2/2014	9.70%	3.73%	-3.29	14.58	5.97%
5/16/2014	9.80%	3.70%	-3.30	14.38	6.10%
5/30/2014	9.70%	3.68%	-3.30	14.35	6.02%
6/6/2014	10.40%	3.67%	-3.30	14.26	6.73%

[8]	[9]	[10]	[11]	[12]	[13]
	Return on Equity	30 Year Treasury	LN(30-Year		
Date of Electric Rate Case	(%)	(%)	Treasury)	VIX	Risk Premium
6/30/2014	9.55%	3.64%	-3.31	13.95	5.91%
7/2/2014	9.62%	3.64%	-3.31	13.91	5.98%
7/10/2014	9.95%	3.63%	-3.32	13.86	6.32%
7/23/2014	9.75%	3.61%	-3.32	13.68	6.14%
7/29/2014	9.45%	3.60%	-3.32	13.57	5.85%
7/31/2014	9.90%	3.60%	-3.32	13.55	6.30%
8/20/2014	9.75%	3.56%	-3.33	13.61	6.19%
8/25/2014	9.60%	3.56%	-3.34	13.59	6.04%
8/29/2014	9.80%	3.54%	-3.34	13.57	6.26%
9/11/2014	9.60%	3.51%	-3.35	13.57	6.09%
9/15/2014	10.25%	3.51%	-3.35	13.57	6.74%
10/9/2014	9.80%	3.44%	-3.37	13.62	6.36%
11/6/2014	9.56%	3.37%	-3.39	14.09	6.19%
11/6/2014	10.20%	3.37%	-3.39	14.09	6.83%
11/14/2014	10.20%	3.35%	-3.40	13.94	6.85%
11/26/2014	9.70%	3.32%	-3.40	13.82	6.38%
11/26/2014	10.20%	3.32%	-3.40	13.82	6.88%
12/4/2014	9.68%	3.30%	-3.41	13.78	6.38%
12/10/2014	9.25%	3.29%	-3.41	13.80	5.96%
12/10/2014	9.25%	3.29%	-3.41	13.80	5.96%
12/11/2014	10.07%	3.28%	-3.42	13.83	6.79%
12/12/2014	10.20%	3.28%	-3.42	13.86	6.92%
12/17/2014	9.17%	3.27%	-3.42	13.96	5.90%
12/18/2014	9.83%	3.26%	-3.42	13.98	6.57%
1/23/2015	9.50%	3.14%	-3.46	14.37	6.36%
2/24/2015	9.83%	3.04%	-3.49	14.67	6.79%
3/18/2015	9.75%	2.98%	-3.51	14.90	6.77%
3/25/2015	9.50%	2.95%	-3.52	14.96	6.55%
3/26/2015	9.72%	2.95%	-3.52	14.98	6.77%
4/23/2015	10.20%	2.87%	-3.55	15.21	7.33%
4/29/2015	9.53%	2.86%	-3.56	15.22	6.67%
5/1/2015	9.60%	2.85%	-3.56	15.23	6.75%
5/26/2015	9.75%	2.83%	-3.57	15.16	6.92%
6/17/2015	9.00%	2.82%	-3.57	15.30	6.18%
6/17/2015	9.00%	2.82%	-3.57	15.30	6.18%
9/2/2015	9.50%	2.79%	-3.58	15.68	6.71%
9/10/2015	9.30%	2.79%	-3.58	15.99	6.51%
10/15/2015	9.00%	2.81%	-3.57	16.66	6.19%
11/19/2015	10.00%	2.88%	-3.55	16.28	7.12%
11/19/2015	10.30%	2.88%	-3.55	16.28	7.42%
12/3/2015	10.00%	2.90%	-3.54	16.28	7.10%
12/9/2015	9.14%	2.90%	-3.54	16.33	6.24%
12/9/2015	9.14%	2.90%	-3.54	16.33	6.24%
12/11/2015	10.30%	2.90%	-3.54	16.42	7.40%
12/15/2015	9.60%	2.91%	-3.54	16.50	6.69%
12/17/2015	9.70%	2.91%	-3.54	16.54	6.79%
12/18/2015	9.50%	2.91%	-3.54	16.57	6.59%
12/30/2015	9.50%	2.93%	-3.53	16.60	6.57%
1/6/2016	9.50%	2.94%	-3.53	16.72	6.56%
2/23/2016	9.75%	2.94%	-3.53	18.32	6.81%
3/16/2016	9.85%	2.91%	-3.54	18.69	6.94%
4/29/2016	9.80%	2.83%	-3.56	18.60	6.97%
6/3/2016	9.75%	2.80%	-3.57	18.79	6.95%
6/8/2016	9.48%	2.80%	-3.58	18.56	6.68%
6/15/2016	9.00%	2.78%	-3.58	18.29	6.22%
6/15/2016	9.00%	2.78%	-3.58	18.29	6.22%
7/18/2016	9.98%	2.71%	-3.61	17.45	7.27%
8/9/2016	9.85%	2.66%	-3.63	17.07	7.19%
8/18/2016	9.50%	2.63%	-3.64	16.97	6.87%
8/24/2016	9.75%	2.61%	-3.64	16.91	7.14%
9/1/2016	9.50%	2.59%	-3.65	16.78	6.91%
9/8/2016	10.00%	2.57%	-3.66	16.69	7.43%
9/28/2016	9.58%	2.53%	-3.68	16.51	7.05%
9/30/2016	9.90%	2.53%	-3.68	16.46	7.37%
11/9/2016	9.80%	2.48%	-3.70	15.63	7.32%
11/10/2016	9.50%	2.48%	-3.70	15.60	7.02%
11/15/2016	9.55%	2.49%	-3.69	15.49	7.06%
11/18/2016	10.00%	2.50%	-3.69	15.34	7.50%
11/29/2016	10.55%	2.51%	-3.69	14.95	8.04%
12/1/2016	10.00%	2.51%	-3.68	14.87	7.49%
12/6/2016	8.64%	2.52%	-3.68	14.76	6.12%
12/6/2016	8.64%	2.52%	-3.68	14.76	6.12%
12/7/2016	10.10%	2.52%	-3.68	14.72	7.58%
12/12/2016	9.60%	2.53%	-3.68	14.62	7.07%
12/14/2016	9.10%	2.53%	-3.68	14.58	6.57%
12/19/2016	9.00%	2.54%	-3.67	14.50	6.46%
12/19/2016	9.37%	2.54%	-3.67	14.50	6.83%
12/22/2016	9.60%	2.55%	-3.67	14.40	7.05%
12/22/2016	9.90%	2.55%	-3.67	14.40	7.35%
12/28/2016	9.50%	2.55%	-3.67	14.34	6.95%
1/18/2017	9.45%	2.58%	-3.66	14.20	6.87%
1/24/2017	9.00%	2.59%	-3.65	14.12	6.41%
1/31/2017	10.10%	2.60%	-3.65	14.05	7.50%

[8] Date of Electric Rate Case	[9] Return on Equity (%)	[10] 30 Year Treasury (%)	[11] LN(30-Year Treasury)	[12] VIX	[13] Risk Premium
2/15/2017	9.60%	2.62%	-3.64	13.89	6.98%
2/22/2017	9.60%	2.64%	-3.64	13.82	6.96%
2/24/2017	9.75%	2.64%	-3.63	13.79	7.11%
2/28/2017	10.10%	2.64%	-3.63	13.77	7.46%
3/2/2017	9.41%	2.65%	-3.63	13.74	6.76%
3/20/2017	9.50%	2.68%	-3.62	13.56	6.82%
4/4/2017	10.25%	2.72%	-3.61	13.28	7.53%
4/12/2017	9.40%	2.74%	-3.60	13.06	6.66%
4/20/2017	9.50%	2.76%	-3.59	13.05	6.74%
5/3/2017	9.50%	2.79%	-3.58	12.95	6.71%
5/11/2017	9.20%	2.81%	-3.57	12.88	6.39%
5/18/2017	9.50%	2.83%	-3.56	12.88	6.67%
5/23/2017	9.70%	2.84%	-3.56	12.87	6.86%
6/16/2017	9.65%	2.89%	-3.54	12.69	6.76%
6/22/2017	9.70%	2.90%	-3.54	12.66	6.80%
6/22/2017	9.70%	2.90%	-3.54	12.66	6.80%
7/24/2017	9.50%	2.95%	-3.52	12.24	6.55%
8/15/2017	10.00%	2.97%	-3.52	11.95	7.03%
9/22/2017	9.60%	2.93%	-3.53	11.47	6.67%
9/28/2017	9.80%	2.92%	-3.53	11.42	6.88%
10/20/2017	9.50%	2.91%	-3.54	11.23	6.59%
10/26/2017	10.20%	2.91%	-3.54	11.22	7.29%
10/26/2017	10.25%	2.91%	-3.54	11.22	7.34%
10/26/2017	10.30%	2.91%	-3.54	11.22	7.39%
11/6/2017	10.25%	2.90%	-3.54	11.15	7.35%
11/15/2017	11.95%	2.89%	-3.54	11.14	9.06%
11/30/2017	10.00%	2.88%	-3.55	11.11	7.12%
11/30/2017	10.00%	2.88%	-3.55	11.11	7.12%
12/5/2017	9.50%	2.88%	-3.55	11.10	6.62%
12/6/2017	8.40%	2.87%	-3.55	11.10	5.53%
12/6/2017	8.40%	2.87%	-3.55	11.10	5.53%
12/7/2017	9.80%	2.87%	-3.55	11.09	6.93%
12/14/2017	9.60%	2.86%	-3.55	11.04	6.74%
12/14/2017	9.65%	2.86%	-3.55	11.04	6.79%
12/18/2017	9.50%	2.86%	-3.56	11.02	6.64%
12/20/2017	9.58%	2.85%	-3.56	11.00	6.73%
12/21/2017	9.10%	2.85%	-3.56	10.99	6.25%
12/28/2017	9.50%	2.85%	-3.56	10.96	6.65%
12/29/2017	9.51%	2.85%	-3.56	10.96	6.66%
1/18/2018	9.70%	2.84%	-3.56	10.84	6.86%
1/31/2018	9.30%	2.84%	-3.56	10.75	6.46%
2/2/2018	9.98%	2.84%	-3.56	10.76	7.14%
2/23/2018	9.90%	2.85%	-3.56	11.72	7.05%
3/12/2018	9.25%	2.86%	-3.55	12.08	6.39%
3/15/2018	9.00%	2.87%	-3.55	12.18	6.13%
3/29/2018	10.00%	2.88%	-3.55	12.69	7.12%
4/12/2018	9.90%	2.89%	-3.54	13.15	7.01%
4/13/2018	9.73%	2.89%	-3.54	13.18	6.84%
4/18/2018	9.25%	2.89%	-3.54	13.25	6.36%
4/18/2018	10.00%	2.89%	-3.54	13.25	7.11%
4/26/2018	9.50%	2.90%	-3.54	13.42	6.60%
5/30/2018	9.95%	2.94%	-3.53	13.84	7.01%
5/31/2018	9.50%	2.94%	-3.53	13.86	6.56%
6/14/2018	8.80%	2.96%	-3.52	13.86	5.84%
6/22/2018	9.50%	2.97%	-3.52	13.91	6.53%
6/22/2018	9.90%	2.97%	-3.52	13.91	6.93%
6/28/2018	9.35%	2.97%	-3.52	14.03	6.38%
6/29/2018	9.50%	2.97%	-3.52	14.06	6.53%
8/8/2018	9.53%	2.99%	-3.51	14.46	6.54%
8/21/2018	9.70%	3.00%	-3.51	14.58	6.70%
8/24/2018	9.28%	3.01%	-3.50	14.62	6.27%
9/5/2018	9.56%	3.02%	-3.50	14.67	6.54%
9/14/2018	10.00%	3.03%	-3.50	14.79	6.97%
9/20/2018	9.80%	3.04%	-3.49	14.81	6.76%
9/26/2018	9.77%	3.05%	-3.49	14.86	6.72%
9/26/2018	10.00%	3.05%	-3.49	14.86	6.95%
9/27/2018	9.30%	3.05%	-3.49	14.87	6.25%
10/4/2018	9.85%	3.06%	-3.49	14.93	6.79%
10/29/2018	9.60%	3.10%	-3.47	15.84	6.50%
10/31/2018	9.99%	3.11%	-3.47	15.94	6.88%
11/1/2018	8.69%	3.11%	-3.47	15.98	5.58%
12/4/2018	8.69%	3.14%	-3.46	15.93	5.55%
12/13/2018	9.30%	3.14%	-3.46	16.03	6.16%
12/14/2018	9.50%	3.14%	-3.46	16.04	6.36%
12/19/2018	9.84%	3.14%	-3.46	16.14	6.70%
12/20/2018	9.65%	3.14%	-3.46	16.20	6.51%
12/21/2018	9.30%	3.14%	-3.46	16.28	6.16%
1/9/2019	10.00%	3.14%	-3.46	16.66	6.86%
2/27/2019	9.75%	3.12%	-3.47	16.53	6.63%
3/13/2019	9.60%	3.12%	-3.47	16.60	6.48%
3/14/2019	9.00%	3.12%	-3.47	16.59	5.88%
3/14/2019	9.40%	3.12%	-3.47	16.59	6.28%
3/22/2019	9.65%	3.12%	-3.47	16.60	6.53%

[8]	[9] Return on Equity (%)	[10] 30 Year Treasury (%)	[11] LN(30-Year Treasury)	[12] VIX	[13] Risk Premium
Date of Electric Rate Case					
4/30/2019	9.73%	3.11%	-3.47	16.53	6.62%
4/30/2019	9.73%	3.11%	-3.47	16.53	6.62%
5/1/2019	9.50%	3.11%	-3.47	16.54	6.39%
5/2/2019	10.00%	3.11%	-3.47	16.55	6.89%
5/8/2019	9.50%	3.10%	-3.47	16.63	6.40%
5/14/2019	8.75%	3.10%	-3.48	16.75	5.65%
5/16/2019	9.50%	3.09%	-3.48	16.78	6.41%
5/23/2019	9.90%	3.09%	-3.48	16.88	6.81%
8/12/2019	9.60%	2.89%	-3.54	17.13	6.71%
8/29/2019	9.06%	2.81%	-3.57	17.01	6.25%
9/4/2019	10.00%	2.78%	-3.58	16.98	7.22%
9/30/2019	9.60%	2.70%	-3.61	16.53	6.90%
10/31/2019	10.00%	2.60%	-3.65	15.55	7.40%
10/31/2019	10.00%	2.60%	-3.65	15.55	7.40%
11/1/2019	9.35%	2.59%	-3.65	15.52	6.76%
11/29/2019	9.50%	2.52%	-3.68	15.10	6.98%
12/4/2019	8.91%	2.51%	-3.69	15.11	6.40%
12/4/2019	9.75%	2.51%	-3.69	15.11	7.24%
12/16/2019	8.91%	2.48%	-3.70	15.10	6.43%
12/17/2019	9.70%	2.47%	-3.70	15.08	7.23%
12/17/2019	10.50%	2.47%	-3.70	15.08	8.03%
12/19/2019	10.20%	2.47%	-3.70	15.04	7.73%
12/19/2019	10.25%	2.47%	-3.70	15.04	7.78%
12/19/2019	10.30%	2.47%	-3.70	15.04	7.83%
12/20/2019	9.45%	2.46%	-3.70	15.03	6.99%
12/20/2019	9.65%	2.46%	-3.70	15.03	7.19%
12/24/2019	9.50%	2.46%	-3.71	15.02	7.04%
1/8/2020	10.02%	2.43%	-3.72	14.99	7.59%
1/16/2020	8.80%	2.41%	-3.73	14.95	6.39%
1/22/2020	9.50%	2.39%	-3.73	14.94	7.11%
1/23/2020	9.86%	2.39%	-3.73	14.93	7.47%
2/6/2020	10.00%	2.34%	-3.75	15.13	7.66%
2/11/2020	9.30%	2.33%	-3.76	15.16	6.97%
2/14/2020	9.40%	2.32%	-3.76	15.16	7.08%
2/19/2020	8.25%	2.31%	-3.77	15.16	5.94%
2/24/2020	9.75%	2.29%	-3.78	15.16	7.46%
2/27/2020	9.40%	2.28%	-3.78	15.36	7.12%
3/11/2020	9.70%	2.23%	-3.81	16.54	7.47%
3/25/2020	9.40%	2.17%	-3.83	19.18	7.23%
4/17/2020	9.70%	2.07%	-3.88	21.82	7.63%

Average:	5.80%
# of Rate Cases:	870

Alternative Bond Yield Plus Risk Premium Backcast

	[14] Actual	[15] Projected	[16] Difference
2008	10.37%	10.46%	-0.09%
2009	10.52%	10.58%	-0.06%
2010	10.29%	10.35%	-0.05%
2011	10.19%	10.22%	-0.03%
2012	10.01%	9.89%	0.12%
2013	9.81%	9.76%	0.05%
2014	9.75%	9.79%	-0.04%
2015	9.60%	9.72%	-0.12%
2016	9.60%	9.72%	-0.12%
2017	9.68%	9.61%	0.07%
2018	9.56%	9.69%	-0.12%
2019	9.64%	9.73%	-0.09%
2008-2019 Average	9.92%	9.96%	-0.04%

[14] Average annual authorized ROE in [9]
[15] Equals the average annual projected ROE per the
regression coefficients: [1] + ([1] x [11]) + ([2] x [12]) +
[10]
[16] Equals [14] - [15]

Proof Concept: Earnings, Dividends, Book Value and
Stock Price Growth Rate Equivalence in Constant Growth DCF

Line Description	IMPLIED GROWTH RATE AT ALLOWED ROE:	
Input	Dividend Yield	4.00% [1]
Assumes g = Allowed ROE - Div. Yield	Assumed Growth Rate	6.50%
Input	Total Return	10.50% [1]
Input	Payout Ratio	65.00% [2]
Input	Book Value/Share	20 [2]

		0	1	2	3	4	5	6	7	8	9	10	250
BV/S Escalates at Constant Growth g	Book Value/Share	$ 20.00	$ 21.30	$ 22.68	$ 24.16	$ 25.73	$ 27.40	$ 29.18	$ 31.08	$ 33.10	$ 35.25	$ 37.54	$ 137,540,924.55
Demonstrating Constant BV/S growth			6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%
Earnings based on ROE applied to BV/S	Earnings/share	$ 2.10	$ 2.24	$ 2.38	$ 2.54	$ 2.70	$ 2.88	$ 3.06	$ 3.26	$ 3.48	$ 3.70	$ 3.94	$ 14,441,797.08
Demonstrating Constant EPS growth			6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%
Demonstrating Constant Return Earned based on BV/S and EPS	Allowed ROE	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%
Div/S based on EPS and Constant Payout ratio	Dividends/Share	$ 1.37	$ 1.45	$ 1.55	$ 1.65	$ 1.76	$ 1.87	$ 1.99	$ 2.12	$ 2.26	$ 2.41	$ 2.56	$ 9,387,168.10
Demonstrating Constant Div/S growth			6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%
Retained Earnings based on difference between EPS and Div/S	Earnings retained to book value	$ 0.74	$ 0.78	$ 0.83	$ 0.89	$ 0.95	$ 1.01	$ 1.07	$ 1.14	$ 1.22	$ 1.30	$ 1.38	$ 5,054,628.98
Demonstrating Constant growth in Retained Earnings			6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%
Demonstrating Constant Market/Book ratio	Market/Book Ratio	1.817	1.817	1.817	1.817	1.817	1.817	1.817	1.817	1.817	1.817	1.817	1.817
DCF calculation of market price = [Div/S]*[1+g]/[ROE-g]	Market Price	$ 36.34	$ 38.71	$ 41.22	$ 43.90	$ 46.75	$ 49.79	$ 53.03	$ 56.48	$ 60.15	$ 64.06	$ 68.22	$ 249,933,350.68
Demonstrating Price Appreciation equals Long Term Growth Rate	Price Appreciation	6.50%	OK	<== Price appreciation should equal long term growth rate									
Demonstrating Constant Price/Earnings Ratio	Price/Earnings	17.31	17.31	17.31	17.31	17.31	17.31	17.31	17.31	17.31	17.31	17.31	17.31
Present Value Factor calculated based upon the current period and the Constant ROE	Present Value Factor		0.9050	0.8190	0.7412	0.6707	0.6070	0.5493	0.4971	0.4499	0.4071	0.3684	0.00

CASE 1	DIVIDENDS IN PERPETUITY												
Present value of Div/S obtained by multiplying nominal Div/S by the Present Value Factor for the period	Present Value Dividend		1.3156	1.2680	1.2221	1.1778	1.1352	1.0941	1.0545	1.0163	0.9795	0.9441	0.00
Total Value of investment sum of all Present Value Dividends in perpetuity (250 instances for demonstration purposes)	Value of Investment		$ 36.34										

CASE 2	10-YEAR HOLDING PERIOD											
Present value of Div/S obtained by multiplying nominal Div/S by the Present Value Factor for the period	Present Value of Dividend	$ 1.32	$ 1.27	$ 1.22	$ 1.18	$ 1.14	$ 1.09	$ 1.05	$ 1.02	$ 0.98	$ 0.94	
Present value of Stock Price obtained by multiplying nominal Stock Price by the Present Value Factor for the 10th Period (Terminal Value)	Present Value of Stock Price	--	--	--	--	--	--	--	--	--	25.14	
Value of dividends = sum of all Present Value Dividends for periods 1-10	Value of Dividends	$ 11.21										
Present value of Stock Price obtained by multiplying nominal Stock Price by the Present Value Factor for the 10th Period (Terminal Value)	Value of Stock Price	$ 25.14										
Total Value of investment sum of all Present Value Dividends for periods 1-10 and Present Value of Stock in period 10 (Terminal Value)	Value of Investment	$ 36.34										

CASE 3	5-YEAR HOLDING PERIOD					
Present value of Div/S obtained by multiplying nominal Div/S by the Present Value Factor for the period	Present Value of Dividend	$ 1.32	$ 1.27	$ 1.22	$ 1.18	$ 1.14
Present value of Stock Price obtained by multiplying nominal Stock Price by the Present Value Factor for the 5th Period (Terminal Value)	Present Value of Stock Price	--	--	--	--	30.22
Value of dividends = sum of all Present Value Dividends for periods 1-5	Value of Dividends	$ 6.12				
Present value of Stock Price obtained by multiplying nominal Stock Price by the Present Value Factor for the 5th Period (Terminal Value)	Value of Stock Price	$ 30.22				
Total Value of investment sum of all Present Value Dividends for periods 1-5 and Present Value of Stock in period 5 (Terminal Value)	Value of Investment	$ 36.34				

[1] Note, for purposes of this exhibit, these data are illustrative only.
[2] Note: Illustrative only.

Growth Rate Regression Analysis

Company	Ticker	Median P/E	Past 10 Year Earnings Growth Rate	Past 10 Year Dividend Growth Rate	Past 10 Year Book Value Growth Rate	Past 5 Year Earnings Growth Rate	Past 5 Year Dividend Growth Rate	Past 5 Year Book Value Growth Rate	Proj. Earnings Growth Rate	Proj. Dividend Growth Rate	Proj. Book Value Growth Rate	BxR Sustainable Growth
Atmos Energy Corporation	ATO	18.00	7.50%	4.00%	6.50%	9.50%	6.50%	8.50%	7.00%	7.50%	7.50%	4.50%
Chesapeake Utilities Corporation	CPK	17.00	9.00%	5.00%	10.00%	8.00%	6.00%	10.50%	9.00%	9.00%	10.00%	5.51%
Spire Inc	SR	18.00	3.50%	4.00%	7.00%	9.50%	5.50%	7.00%	5.50%	5.00%	8.50%	2.80%
New Jersey Resources Corporation	NJR	17.00	7.00%	7.00%	7.00%	6.00%	6.50%	8.50%	2.50%	6.00%	6.50%	3.15%
NiSource Inc.	NI	20.00	-3.00%	-2.50%	-3.50%	-7.50%	-5.50%	-6.50%	2.50%	7.50%	4.00%	5.63%
Northwest Natural Gas Company	NWN	21.00	-10.50%	2.50%	2.00%	-18.00%	1.00%	-	22.50%	0.50%	1.50%	5.06%
ONE Gas, Inc.	OGS	NMF	-	-	-	-	-	-	7.00%	8.00%	4.00%	3.90%
South Jersey Industries, Inc.	SJI	18.00	1.50%	8.00%	6.50%	-2.50%	6.00%	6.00%	9.50%	3.50%	5.00%	5.06%
Southwest Gas Corporation	SWX	17.00	7.00%	8.50%	5.50%	4.50%	10.50%	6.00%	8.00%	5.00%	7.00%	5.04%
UGI Corporation	UGI	17.00	6.00%	7.50%	8.00%	9.50%	7.00%	6.00%	9.50%	6.00%	8.00%	9.10%
ALLETE, Inc.	ALE	18.00	2.50%	3.00%	5.00%	4.00%	3.50%	5.00%	5.50%	5.50%	4.50%	2.81%
Alliant Energy Corporation	LNT	17.00	5.00%	7.00%	4.00%	5.00%	7.00%	5.00%	6.50%	5.50%	7.50%	3.47%
Ameren Corporation	AEE	17.00	1.00%	-2.00%	-0.50%	6.50%	3.00%	2.50%	6.00%	5.00%	6.00%	4.60%
American Electric Power Company, Inc.	AEP	15.00	3.00%	4.50%	4.00%	4.00%	5.50%	3.00%	5.00%	5.50%	4.50%	3.15%
Avangrid, Inc.	AGR	NMF	-	-	-	-	-	-	8.50%	3.58%	1.50%	1.98%
Avista Corporation	AVA	17.00	5.50%	8.50%	4.00%	5.00%	4.50%	4.50%	3.50%	3.50%	3.50%	2.56%
Black Hills Corporation	BKH	18.00	6.50%	3.00%	2.50%	11.00%	4.00%	3.00%	5.00%	6.50%	5.50%	3.80%
CenterPoint Energy, Inc.	CNP	18.00	1.00%	4.50%	7.00%	-1.00%	5.00%	3.50%	6.50%	2.00%	6.50%	3.36%
CMS Energy Corporation	CMS	18.00	9.50%	15.00%	4.50%	7.00%	7.00%	5.50%	7.50%	7.00%	7.50%	5.27%
Consolidated Edison, Inc.	ED	15.00	2.50%	2.00%	4.00%	2.00%	2.50%	4.00%	3.00%	3.50%	3.50%	2.81%
Dominion Energy Inc.	D	20.00	3.00%	7.50%	4.50%	3.50%	7.50%	6.50%	7.00%	4.50%	6.50%	3.24%
DTE Energy Company	DTE	17.00	8.00%	5.50%	4.50%	7.50%	7.00%	5.00%	5.00%	6.50%	5.50%	3.89%
Duke Energy Corporation	DUK	18.00	2.50%	7.00%	1.00%	0.50%	3.00%	1.50%	6.00%	2.50%	2.50%	2.72%
Edison International	EIX	13.00	-3.50%	6.50%	3.00%	-9.00%	11.00%	3.00%	NMF	4.50%	5.50%	4.51%
El Paso Electric Company	EE	16.00	4.00%	-	7.00%	-	8.00%	5.50%	3.00%	6.50%	3.50%	2.40%
Entergy Corporation	ETR	13.00	-0.50%	2.50%	1.00%	0.50%	1.50%	-2.50%	3.00%	4.00%	5.00%	3.85%
Evergy, Inc.	EVRG	NMF	-	-	-	-	-	-	NMF	NMF	NMF	2.72%
Exelon Corporation	EXC	14.00	-5.50%	-3.50%	7.00%	-3.50%	-7.00%	4.50%	8.00%	5.50%	5.00%	4.68%
FirstEnergy Corp.	FE	17.00	-7.00%	-2.50%	-8.00%	-2.50%	-5.00%	-17.50%	7.00%	3.00%	8.50%	6.00%
Hawaiian Electric Industries, Inc.	HE	18.00	5.00%	-	3.00%	4.00%	-	3.50%	2.50%	3.00%	3.50%	2.88%
IDACORP, Inc.	IDA	14.00	7.00%	6.50%	5.50%	4.00%	10.00%	5.00%	3.50%	7.00%	4.00%	3.52%
MGE Energy, Inc.	MGEE	20.00	4.50%	3.50%	5.50%	2.50%	4.00%	5.50%	5.50%	5.50%	5.00%	4.83%
NextEra Energy, Inc.	NEE	16.00	6.00%	9.00%	8.50%	6.00%	10.50%	9.50%	10.00%	10.50%	7.00%	4.68%
Eversource Energy	ES	18.00	8.00%	9.50%	6.50%	7.00%	8.00%	5.00%	5.50%	6.00%	5.00%	3.61%
NorthWestern Corporation	NWE	16.00	8.50%	5.00%	5.50%	7.00%	7.00%	8.00%	2.00%	4.50%	3.50%	2.79%
OGE Energy Corp.	OGE	17.00	5.00%	7.00%	7.00%	2.00%	10.00%	5.50%	4.50%	6.00%	3.50%	3.08%
Otter Tail Corporation	OTTR	22.00	5.50%	1.50%	-	9.00%	2.50%	4.50%	5.00%	5.00%	5.00%	4.03%
Pinnacle West Capital Corporation	PNW	15.00	4.50%	2.50%	2.50%	5.00%	3.00%	4.50%	4.00%	6.00%	3.50%	3.20%
PNM Resources, Inc.	PNM	18.00	7.00%	2.50%	-	6.00%	11.00%	1.00%	7.00%	7.00%	5.00%	3.78%
Portland General Electric Company	POR	16.00	3.50%	4.50%	2.50%	4.00%	4.50%	3.50%	4.50%	6.50%	3.00%	3.06%
PPL Corporation	PPL	13.00	-	2.50%	1.00%	-0.50%	2.00%	-4.00%	2.50%	2.00%	6.00%	5.67%
Public Service Enterprise Group Incorporated	PEG	13.00	1.50%	3.50%	6.50%	1.00%	4.00%	5.00%	6.00%	5.00%	5.00%	4.84%
Sempra Energy	SRE	19.00	1.00%	10.00%	5.50%	2.00%	7.50%	4.00%	11.00%	8.00%	7.00%	4.83%
Southern Company	SO	16.00	3.00%	3.50%	4.00%	2.50%	3.50%	3.00%	4.00%	3.00%	4.00%	3.77%
WEC Energy Group, Inc.	WEC	18.00	8.50%	14.50%	8.00%	6.00%	9.50%	10.50%	6.00%	6.50%	3.50%	4.00%
Xcel Energy Inc.	XEL	15.00	5.50%	4.50%	4.50%	5.00%	6.00%	4.50%	5.50%	6.00%	5.50%	3.78%

Notes:
Source: Value Line Reports as of April 17, 2020

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.38418
R Square	0.14760
Adjusted R Square	0.12629
Standard Error	1.90880
Observations	42

ANOVA

	df	SS	MS	F	Significance F
Regression	1	25.23570	25.23570	6.92620	0.01201
Residual	40	145.74049	3.64351		
Total	41	170.97619			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	15.65068	0.59915	26.12165	0.00000	14.43976	16.86160
Project Earnings Growth Rate	22.84020	8.67865	2.63177	0.01201	5.29999	40.38041

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.00547
R Square	0.00003
Adjusted R Square	-0.02436
Standard Error	2.13442
Observations	43

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.00558	0.00558	0.00122	0.97225
Residual	41	186.78512	4.55573		
Total	42	186.79070			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	16.89876	0.95654	17.66646	0.00000	14.96698	18.83054
Proj. Dividend Growth Rate	0.59232	16.92641	0.03499	0.97225	-33.59125	34.77589

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.024240794
R Square	0.000587616
Adjusted R Square	-0.023788296
Standard Error	2.133821354
Observations	43

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.10976122	0.10976122	0.024106425	0.877376303
Residual	41	186.6809365	4.553193572		
Total	42	186.7906977			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	16.7812709	1.013100223	16.5642752	9.07295E-20	14.73527349	18.82726831
Proj. Book Value Growth Rate	2.809364548	18.09429609	0.155262439	0.877376303	-33.73280775	39.35153684

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.02706
R Square	0.00073
Adjusted R Square	-0.02425
Standard Error	2.06671
Observations	42

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.12522	0.12522	0.02932	0.86491
Residual	40	170.85097	4.27127		
Total	41	170.97619			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	16.97897	0.41265	41.14633	0.00000	16.14498	17.81296
Past 10 Year Earnings Growth Rate	1.25972	7.35720	0.17122	0.86491	-13.60973	16.12917

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.10269
R Square	0.01055
Adjusted R Square	-0.01483
Standard Error	2.16518
Observations	41

ANOVA

	df	SS	MS	F	Significance F
Regression	1	1.94861	1.94861	0.41566	0.52288
Residual	39	182.83187	4.68800		
Total	40	184.78049			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	16.65041	0.54605	30.49253	0.00000	15.54592	17.75489
Past 10 Year Dividend Growth Rate	5.59672	8.68089	0.64472	0.52288	-11.96204	23.15549

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.02129
R Square	0.00045
Adjusted R Square	-0.02518
Standard Error	2.01884
Observations	41

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.07205	0.07205	0.01768	0.89491
Residual	39	158.95234	4.07570		
Total	40	159.02439			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	16.83684	0.52824	31.87335	0.00000	15.76837	17.90531
Past 10 Year Book Value Growth Rate	-1.28712	9.68080	-0.13296	0.89491	-20.86839	18.29415

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.03917
R Square	0.00153
Adjusted R Square	-0.02343
Standard Error	2.15418
Observations	42

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.28526	0.28526	0.06147	0.80545
Residual	40	185.61951	4.64049		
Total	41	185.90476			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	16.90466	0.38411	44.01028	0.00000	16.12835	17.68097
Past 5 Year Earnings Growth Rate	1.51848	6.12452	0.24793	0.80545	-10.85964	13.89659

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.03246
R Square	0.00105
Adjusted R Square	-0.02392
Standard Error	2.15304
Observations	42

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.19554	0.19554	0.04218	0.83832
Residual	40	185.42351	4.63559		
Total	41	185.61905			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	16.99106	0.53567	31.71933	0.00000	15.90844	18.07369
Past 5 Year Dividend Growth Rate	-1.68983	8.22774	-0.20538	0.83832	-18.31872	14.93906

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.098261747
R Square	0.009655371
Adjusted R Square	-0.015103245
Standard Error	2.050570223
Observations	42

ANOVA

	df	SS	MS	F	Significance F
Regression	1	1.639803818	1.639803818	0.389980238	0.535855746
Residual	40	168.1935295	4.204838238		
Total	41	169.8333333			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	16.6655746	0.415066707	40.15155718	6.07414E-34	15.8266935	17.50445571
Past 5 Year Book Value Growth Rate	4.231751789	6.776397699	0.624483978	0.535855746	-9.463858835	17.92736241

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.116023492
R Square	0.013461451
Adjusted R Square	-0.010600465
Standard Error	2.083827353
Observations	43

ANOVA

	df	SS	MS	F	Significance F
Regression	1	2.42932228	2.42932228	0.559450497	0.458750721
Residual	41	178.035794	4.342336439		
Total	42	180.4651163			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	17.54125733	1.322059625	13.26812875	1.99027E-16	14.87130375	20.2112109
BxR Sustainable Growth	-24.16089973	32.30221258	-0.747964235	0.458750721	-89.39654147	41.07474201

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.748562859
R Square	0.560346353
Adjusted R Square	0.384484895
Standard Error	1.332008527
Observations	36

ANOVA

	df	SS	MS	F	Significance F
Regression	10	56.53272099	5.653272099	3.186294244	0.009062744
Residual	25	44.3561679	1.774246716		
Total	35	100.8888889			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	16.98268641	1.065469549	15.93915699	1.31988E-14	14.7883108	19.17706202
Past 10 YearEarningsGrowth Rate	8.159157225	17.84182259	0.457305143	0.651401031	-28.58676425	44.9050787
Past 10 YearDividendGrowth Rate	6.854393677	8.036053791	0.852955176	0.401782509	-9.696168918	23.40495627
Past 10 YearBook ValueGrowth Rate	-20.07636098	23.02960726	-0.871763064	0.391633055	-67.50672499	27.35400302
Past 5 YearEarningsGrowth Rate	16.82718561	11.91068235	1.41278099	0.170049431	-7.703323881	41.35769509
Past 5 YearDividendGrowth Rate	-1.506977664	10.56977991	-0.142574176	0.887769352	-23.27584688	20.26189156
Past 5 YearBook ValueGrowth Rate	-0.226215047	19.05041108	-0.011874549	0.990619958	-39.46127111	39.00884102
Proj.EarningsGrowth Rate	69.52486402	16.69329139	4.16483858	0.00032412	35.14438683	103.9053412
Proj.DividendGrowth Rate	-20.66089038	17.0184553	-1.214028536	0.236081248	-55.71105517	14.38927441
Proj. Book Value Growth Rate	-12.58594719	15.49360334	-0.812331832	0.424269388	-44.49562059	19.32372621
BxR Sustainable Growth	-84.21749433	31.63689195	-2.66200278	0.013382066	-149.374893	-19.06009567

Bond Yield Plus Risk Premium - Settled Cases

	[1]	[2]	[3] 30-Year Treasury Yield	[4] Risk Premium	[5] Return on Equity
	Constant	Slope			
Current	-1.63%	-2.40%	1.37%	8.67%	10.04%
Near-Term Projected	-1.63%	-2.40%	1.75%	8.08%	9.83%
Long-Term Projected	-1.63%	-2.40%	3.45%	6.45%	9.90%

Notes:
[1] Constant of regression equation
[2] Slope of regression equation
[3] Rebuttal Exhibit DWD-5
[4] Equals [1] + ln([3]) x [2]
[5] Equals [3] + [4]

Bond Yield Plus Risk Premium - Fully Litigated Cases

	[1]	[2]	[3] 30-Year Treasury Yield	[4] Risk Premium	[5] Return on Equity
	Constant	Slope			
Current	-2.64%	-2.74%	1.37%	9.12%	10.49%
Near Term Projected	-2.64%	-2.74%	1.75%	8.45%	10.20%
Long-Term Projected	-2.64%	-2.74%	3.45%	6.59%	10.04%

Notes:
[1] Constant of regression equation
[2] Slope of regression equation
[3] Rebuttal Exhibit DWD-5
[4] Equals [1] + ln([3]) x [2]
[5] Equals [3] + [4]

	Litigated	Settled	Difference
Authorized ROEs January 2015 - April 17, 2020	9.54%	9.66%	0.13%

Source: Regulatory Research Associates

Implied Return on Equity with M/B Ratio at Unity

Institution Name	Ticker	ROACE (%) 2019Y	Price/ Book (%) 2019Y
ALLETE, Inc.	ALE	8.43	187.9
Alliant Energy Corporation	LNT	11.58	257.6
Ameren Corporation	AEE	10.55	234.6
American Electric Power Company, Inc.	AEP	9.92	237.9
Atmos Energy Corporation	ATO	9.39	236.4
Avangrid, Inc.	AGR	4.62	103.8
Avista Corporation	AVA	10.50	166.6
Black Hills Corporation	BKH	8.67	204.4
CenterPoint Energy, Inc.	CNP	10.34	206.9
Chesapeake Utilities Corporation	CPK	11.99	278.3
CMS Energy Corporation	CMS	13.91	355.5
Consolidated Edison, Inc.	ED	7.63	167.2
Dominion Energy, Inc.	D	5.15	234.4
DTE Energy Company	DTE	10.97	213.9
Duke Energy Corporation	DUK	8.37	149.1
Edison International	EIX	11.10	205.2
El Paso Electric Company	EE	10.33	227.3
Entergy Corporation	ETR	12.95	233.4
Evergy, Inc.	EVRG	7.40	172.1
Eversource Energy	ES	7.61	222.2
Exelon Corporation	EXC	9.29	137.7
FirstEnergy Corp.	FE	12.84	376.7
Hawaiian Electric Industries, Inc.	HE	9.84	223.9
IDACORP, Inc.	IDA	9.64	218.4
MGE Energy, Inc.	MGEE	10.38	319.3
New Jersey Resources Corporation	NJR	11.07	262.3
NextEra Energy, Inc.	NEE	10.67	320.0
NiSource Inc.	NI	6.58	208.3
Northwest Natural Holding Company	NWN	7.42	259.4
NorthWestern Corporation	NWE	10.11	177.3
OGE Energy Corp.	OGE	10.68	215.0
ONE Gas, Inc.	OGS	8.89	231.9
Otter Tail Corporation	OTTR	11.59	263.6
Pinnacle West Capital Corporation	PNW	10.08	186.2
PNM Resources, Inc.	PNM	4.65	240.6
Portland General Electric Company	POR	8.39	192.5
PPL Corporation	PPL	14.43	211.9
Public Service Enterprise Group Incorporated	PEG	11.43	197.2
Sempra Energy	SRE	13.07	250.1
South Jersey Industries, Inc.	SJI	5.35	214.0
Southern Company	SO	17.72	243.9
Southwest Gas Holdings, Inc.	SWX	8.94	166.8
Spire Inc.	SR	7.66	193.3
UGI Corporation	UGI	6.79	275.2
WEC Energy Group, Inc.	WEC	11.34	287.7
Xcel Energy Inc.	XEL	10.85	251.6

Source: S&P Global Market Intelligence

Implied Return on Equity with M/B Ratio at Unity

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.419390367
R Square	0.17588828
Adjusted R Square	0.157158468
Standard Error	48.54620381
Observations	46

ANOVA

	df	SS	MS	F	Significance F
Regression	1	22131.66238	22131.66238	9.39081936	0.003716974
Residual	44	103696.2918	2356.733905		
Total	45	125827.9542			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	143.0499577	28.15860109	5.080151435	7.39609E-06	86.30002615	199.7998893
ROACE	8.510111287	2.777048702	3.06444438	0.003716974	2.913337381	14.10688519

ROE (%)	PRICE/BOOK
-5.06	100.00
-3.88	110.00

Constant Growth Discounted Cash Flow Model and Credit Ratings
30 Day Dividend Yield

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Company	Ticker	Dividend Yield	Expected Dividend Yield	Yahoo Earnings Growth	Zacks Earnings Growth	Average Earnings Growth	Mean ROE	S&P Issuer Credit Rating	Numeric Credit Score
ALLETE, Inc.	ALE	3.00%	3.11%	7.00%	7.20%	7.10%	10.21%	BBB+	5
Alliant Energy Corporation	LNT	2.68%	2.75%	5.40%	5.49%	5.45%	8.20%	A-	4
Ameren Corporation	AEE	2.50%	2.57%	6.05%	5.65%	5.85%	8.42%	BBB+	5
American Electric Power Company, Inc.	AEP	2.85%	2.92%	4.60%	6.24%	5.42%	8.34%	A-	4
Avangrid, Inc.	AGR	3.40%	3.46%	3.50%	3.36%	3.43%	6.89%	BBB+	5
Avista Corporation	AVA	3.30%	3.42%	6.20%	7.39%	6.80%	10.21%	BBB	6
CMS Energy Corporation	CMS	2.50%	2.58%	7.50%	6.42%	6.96%	9.54%	BBB+	5
Consolidated Edison, Inc.	ED	3.37%	3.40%	2.37%	2.00%	2.19%	5.59%	A- [7]	4
Dominion Energy, Inc.	D	4.50%	4.60%	4.41%	4.78%	4.60%	9.20%	BBB+	5
Duke Energy Corporation	DUK	4.03%	4.12%	4.40%	4.84%	4.62%	8.74%	A-	4
Edison International	EIX	3.34%	3.42%	3.90%	5.42%	4.66%	8.08%	BBB	6
Entergy Corporation	ETR	2.96%	3.01%	-1.50%	7.00%	2.75%	5.76%	BBB+	5
Evergy, Inc.	EVRG	2.98%	3.08%	6.70%	6.57%	6.64%	9.71%	A-	4
Eversource Energy	ES	2.58%	2.65%	5.45%	5.63%	5.54%	8.19%	A-	4
Exelon Corporation	EXC	3.26%	3.30%	0.46%	4.19%	2.33%	5.62%	BBB+	5
FirstEnergy Corp.	FE	3.16%	3.15%	-6.60%	6.00%	-0.30%	2.85%	BBB	6
Hawaiian Electric Industries, Inc.	HE	2.70%	2.75%	3.40%	4.22%	3.81%	6.56%	BBB-	7
IDACORP, Inc.	IDA	2.46%	2.50%	2.50%	3.85%	3.18%	5.68%	BBB	6
MGE Energy, Inc.	MGEE	1.79%	1.82%	4.00%	N/A	4.00%	5.82%	AA-	1
NextEra Energy, Inc.	NEE	1.96%	2.04%	7.99%	7.98%	7.99%	10.03%	A-	4
NorthWestern Corporation	NWE	3.11%	3.15%	3.23%	2.75%	2.99%	6.14%	BBB	6
OGE Energy Corp.	OGE	3.43%	3.50%	3.50%	4.26%	3.88%	7.38%	BBB+	5
Otter Tail Corporation	OTTR	2.80%	2.91%	9.00%	7.00%	8.00%	10.91%	BBB	6
Pinnacle West Capital Corporation	PNW	3.34%	3.42%	4.11%	4.91%	4.51%	7.93%	A-	4
PNM Resources, Inc.	PNM	2.37%	2.44%	6.25%	5.40%	5.83%	8.26%	BBB+	5
Portland General Electric Company	POR	2.64%	2.70%	4.80%	4.78%	4.79%	7.49%	BBB+	5
PPL Corporation	PPL	4.59%	4.60%	0.50%	N/A	0.50%	5.10%	A-	4
Sempra Energy	SRE	2.49%	2.60%	10.05%	7.73%	8.89%	11.49%	BBB+	5
Southern Company	SO	3.72%	3.78%	1.53%	4.50%	3.02%	6.79%	A-	4
WEC Energy Group, Inc.	WEC	2.64%	2.72%	6.05%	6.14%	6.10%	8.81%	A-	4
Xcel Energy Inc.	XEL	2.47%	2.54%	6.10%	5.42%	5.76%	8.30%	A-	4
PROXY GROUP MEAN		3.00%	3.07%	4.29%	5.42%	4.75%	7.81%	BBB+	4.74
PROXY GROUP MEDIAN		2.96%	3.01%	4.41%	5.42%	4.66%	8.19%	BBB+	5.00

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.007937496
R Square	6.30038E-05
Adjusted R Square	-0.034417582
Standard Error	0.01968308
Observations	31

ANOVA

	df	SS	MS	F	Significance F
Regression	1	7.07911E-07	7.0791E-07	0.0018272	0.96619692
Residual	29	0.011235286	0.00038742		
Total	30	0.011235994			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.077483509	0.015966233	4.85296127	3.817E-05	0.0448289	0.1101381
Credit Score	0.000140355	0.003283457	0.04274607	0.9661969	-0.00657507	0.0068558

Notes:
[1] Source: Exhibit JRW-7
[2] Equals [1] x (1 + 0.5 x [6])
[3] Source: Exhibit JRW-7
[4] Source: Exhibit JRW-7
[5] Equals Average([3], [4])
[6] Equals [2] + [5]
[7] Source: Exhibit JRW-2. Note: Exh. JRW-2 incorrectly denotes ED as being rated BBB+
[8] AA- = 1; A+ = 2; A = 3; A- = 4; BBB+ = 5; BBB = 6; BBB- = 7

Constant Growth Discounted Cash Flow Model and Credit Ratings
90 Day Dividend Yield

Company	Ticker	[1] Dividend Yield	[2] Expected	[3] Yahoo	[4] Zacks	[5] Average	[6] Mean	[7] S&P	[8] Numeric
ALLETE, Inc.	ALE	3.00%	3.10%	7.00%	7.20%	7.10%	10.20%	BBB+	5
Alliant Energy Corporation	LNT	2.80%	2.88%	5.40%	5.49%	5.45%	8.32%	A-	4
Ameren Corporation	AEE	2.58%	2.65%	6.05%	5.65%	5.85%	8.50%	BBB+	5
American Electric Power Company, Inc.	AEP	2.97%	3.05%	4.60%	6.24%	5.42%	8.47%	A-	4
Avangrid, Inc.	AGR	3.50%	3.56%	3.50%	3.36%	3.43%	6.99%	BBB+	5
Avista Corporation	AVA	3.37%	3.48%	6.20%	7.39%	6.80%	10.28%	BBB	6
CMS Energy Corporation	CMS	2.58%	2.67%	7.50%	6.42%	6.96%	9.63%	BBB+	5
Consolidated Edison, Inc.	ED	3.41%	3.45%	2.37%	2.00%	2.19%	5.63%	A- [7]	4
Dominion Energy, Inc.	D	4.56%	4.67%	4.41%	4.78%	4.60%	9.26%	BBB+	5
Duke Energy Corporation	DUK	4.10%	4.20%	4.40%	4.84%	4.62%	8.82%	A-	4
Edison International	EIX	3.52%	3.61%	3.90%	5.42%	4.66%	8.27%	BBB	6
Entergy Corporation	ETR	3.09%	3.13%	-1.50%	7.00%	2.75%	5.88%	BBB+	5
Evergy, Inc.	EVRG	3.11%	3.21%	6.70%	6.57%	6.64%	9.84%	A-	4
Eversource Energy	ES	2.68%	2.76%	5.45%	5.63%	5.54%	8.30%	A-	4
Exelon Corporation	EXC	3.34%	3.38%	0.46%	4.19%	2.33%	5.71%	BBB+	5
FirstEnergy Corp.	FE	3.23%	3.22%	-6.60%	6.00%	-0.30%	2.92%	BBB	6
Hawaiian Electric Industries, Inc.	HE	2.81%	2.86%	3.40%	4.22%	3.81%	6.67%	BBB-	7
IDACORP, Inc.	IDA	2.50%	2.54%	2.50%	3.85%	3.18%	5.71%	BBB	6
MGE Energy, Inc.	MGEE	1.82%	1.85%	4.00%	N/A	4.00%	5.85%	AA-	1
NextEra Energy, Inc.	NEE	2.08%	2.16%	7.99%	7.98%	7.99%	10.15%	A-	4
NorthWestern Corporation	NWE	3.17%	3.21%	3.23%	2.75%	2.99%	6.20%	BBB	6
OGE Energy Corp.	OGE	3.54%	3.61%	3.50%	4.26%	3.88%	7.49%	BBB+	5
Otter Tail Corporation	OTTR	2.84%	2.95%	9.00%	7.00%	8.00%	10.95%	BBB	6
Pinnacle West Capital Corporation	PNW	3.44%	3.51%	4.11%	4.91%	4.51%	8.02%	A-	4
PNM Resources, Inc.	PNM	2.43%	2.50%	6.25%	5.40%	5.83%	8.32%	BBB+	5
Portland General Electric Company	POR	2.72%	2.78%	4.80%	4.78%	4.79%	7.57%	BBB+	5
PPL Corporation	PPL	4.79%	4.80%	0.50%	N/A	0.50%	5.30%	A-	4
Sempra Energy	SRE	2.59%	2.70%	10.05%	7.73%	8.89%	11.59%	BBB+	5
Southern Company	SO	3.90%	3.96%	1.53%	4.50%	3.02%	6.98%	A-	4
WEC Energy Group, Inc.	WEC	2.73%	2.82%	6.05%	6.14%	6.10%	8.91%	A-	4
Xcel Energy Inc.	XEL	2.55%	2.63%	6.10%	5.42%	5.76%	8.39%	A-	4
PROXY GROUP MEAN		3.09%	3.16%	4.29%	5.42%	4.75%	7.91%	BBB+	4.74
PROXY GROUP MEDIAN		3.00%	3.10%	4.41%	5.42%	4.66%	8.30%	BBB+	5.00

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.006262744
R Square	3.9222E-05
Adjusted R Square	-0.034442184
Standard Error	0.019641716
Observations	31

ANOVA

	df	SS	MS	F	Significance F
Regression	1	4.38837E-07	4.3884E-07	0.0011375	0.97332626
Residual	29	0.011188114	0.0003858		
Total	30	0.011188552			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.078554934	0.01593268	4.9304282	3.078E-05	0.04596894	0.1111409
Credit Score	0.000110507	0.003276557	0.03372657	0.9733263	-0.0065908	0.0068118

Notes:
[1] Source: Exhibit JRW-7
[2] Equals [1] x (1 + 0.5 x [6])
[3] Source: Exhibit JRW-7
[4] Source: Exhibit JRW-7
[5] Equals Average([3], [4])
[6] Equals [2] + [5]
[7] Source: Exhibit JRW-2. Note: Exh. JRW-2 incorrectly denotes ED as being rated BBB+
[8] AA- = 1; A+ = 2; A = 3; A- = 4; BBB+ = 5; BBB = 6; BBB- = 7

Constant Growth Discounted Cash Flow Model and Credit Ratings
180 Day Dividend Yield

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Company	Ticker	Dividend Yield	Expected	Yahoo	Zacks	Average	Mean	S&P	Numeric
ALLETE, Inc.	ALE	2.94%	3.04%	7.00%	7.20%	7.10%	10.14%	BBB+	5
Alliant Energy Corporation	LNT	2.89%	2.97%	5.40%	5.49%	5.45%	8.41%	A-	4
Ameren Corporation	AEE	2.58%	2.65%	6.05%	5.65%	5.85%	8.50%	BBB+	5
American Electric Power Company, Inc.	AEP	3.03%	3.11%	4.60%	6.24%	5.42%	8.53%	A-	4
Avangrid, Inc.	AGR	3.49%	3.55%	3.50%	3.36%	3.43%	6.98%	BBB+	5
Avista Corporation	AVA	3.45%	3.56%	6.20%	7.39%	6.80%	10.36%	BBB	6
CMS Energy Corporation	CMS	2.64%	2.73%	7.50%	6.42%	6.96%	9.69%	BBB+	5
Consolidated Edison, Inc.	ED	3.43%	3.46%	2.37%	2.00%	2.19%	5.65%	A- [7]	4
Dominion Energy, Inc.	D	4.71%	4.82%	4.41%	4.78%	4.60%	9.41%	BBB+	5
Duke Energy Corporation	DUK	4.14%	4.23%	4.40%	4.84%	4.62%	8.86%	A-	4
Edison International	EIX	3.58%	3.67%	3.90%	5.42%	4.66%	8.33%	BBB	6
Entergy Corporation	ETR	3.26%	3.30%	-1.50%	7.00%	2.75%	6.05%	BBB+	5
Evergy, Inc.	EVRG	3.16%	3.27%	6.70%	6.57%	6.64%	9.90%	A-	4
Eversource Energy	ES	2.77%	2.85%	5.45%	5.63%	5.54%	8.39%	A-	4
Exelon Corporation	EXC	3.27%	3.31%	0.46%	4.19%	2.33%	5.64%	BBB+	5
FirstEnergy Corp.	FE	3.35%	3.34%	-6.60%	6.00%	-0.30%	3.04%	BBB	6
Hawaiian Electric Industries, Inc.	HE	2.85%	2.90%	3.40%	4.22%	3.81%	6.71%	BBB-	7
IDACORP, Inc.	IDA	2.51%	2.55%	2.50%	3.85%	3.18%	5.73%	BBB	6
MGE Energy, Inc.	MGEE	1.86%	1.90%	4.00%	N/A	4.00%	5.90%	AA-	1
NextEra Energy, Inc.	NEE	2.20%	2.29%	7.99%	7.98%	7.99%	10.27%	A-	4
NorthWestern Corporation	NWE	3.17%	3.22%	3.23%	2.75%	2.99%	6.21%	BBB	6
OGE Energy Corp.	OGE	3.56%	3.63%	3.50%	4.26%	3.88%	7.51%	BBB+	5
Otter Tail Corporation	OTTR	2.84%	2.95%	9.00%	7.00%	8.00%	10.95%	BBB	6
Pinnacle West Capital Corporation	PNW	3.37%	3.44%	4.11%	4.91%	4.51%	7.95%	A-	4
PNM Resources, Inc.	PNM	2.43%	2.50%	6.25%	5.40%	5.83%	8.33%	BBB+	5
Portland General Electric Company	POR	2.75%	2.81%	4.80%	4.78%	4.79%	7.60%	BBB+	5
PPL Corporation	PPL	5.09%	5.10%	0.50%	N/A	0.50%	5.60%	A-	4
Sempra Energy	SRE	2.68%	2.80%	10.05%	7.73%	8.89%	11.69%	BBB+	5
Southern Company	SO	4.10%	4.16%	1.53%	4.50%	3.02%	7.17%	A-	4
WEC Energy Group, Inc.	WEC	2.79%	2.87%	6.05%	6.14%	6.10%	8.97%	A-	4
Xcel Energy Inc.	XEL	2.59%	2.66%	6.10%	5.42%	5.76%	8.42%	A-	4
PROXY GROUP MEAN		3.14%	3.21%	4.29%	5.42%	4.75%	7.96%	BBB+	4.74
PROXY GROUP MEDIAN		3.03%	3.11%	4.41%	5.42%	4.66%	8.33%	BBB+	5.00

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.00066414
R Square	4.41E-07
Adjusted R Square	-0.034482302
Standard Error	0.019542735
Observations	31

ANOVA

	df	SS	MS	F	Significance F
Regression	1	4.88527E-09	4.8853E-09	1.279E-05	0.99717086
Residual	29	0.011075636	0.00038192		
Total	30	0.011075641			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.079588298	0.015852389	5.02058685	2.396E-05	0.04716652	0.1120101
Credit Score	1.16596E-05	0.003260045	0.00357651	0.9971709	-0.00665588	0.0066792

Notes:
[1] Source: Exhibit JRW-7
[2] Equals [1] x (1 + 0.5 x [6])
[3] Source: Exhibit JRW-7
[4] Source: Exhibit JRW-7
[5] Equals Average([3], [4])
[6] Equals [2] + [5]
[7] Source: Exhibit JRW-2. Note: Exh. JRW-2 incorrectly denotes ED as being rated BBB+
[8] AA- = 1; A+ = 2; A = 3; A- = 4; BBB+ = 5; BBB = 6; BBB- = 7

Credit Ratings - Dr. Woolridge's Proxy Group

Company	Ticker	Moody's Long-Term Issuer	Moody's Corporate Long-Term	S&P Long-Term Issuer	S&P Corporate Long-Term
ALLETE, Inc.	**ALE**	**Baa1**	**Baa1**	**BBB+**	**BBB+**
Superior Water, Light and Power Company		A3			
Alliant Energy Corporation	**LNT**	**Baa2**	**Baa2**	**A-**	**A-**
Interstate Power and Light Company		Baa1	Baa1	A-	A-
Wisconsin Power and Light Company		A3	A3	A	A
Ameren Corporation	**AEE**	**Baa1**	**Baa1**	**BBB+**	**BBB+**
Ameren Illinois Company		A3	A3	BBB+	BBB+
Union Electric Company		Baa1	Baa1	BBB+	BBB+
American Electric Power Company, Inc.	**AEP**		**Baa1**	**A-**	**A-**
AEP Texas Inc.		Baa1	Baa1	A-	A-
Appalachian Power Company		Baa1	Baa1	A-	A-
Indiana Michigan Power Company		A3	A3	A-	A-
Kentucky Power Company		Baa3	Baa3	A-	A-
Ohio Power Company		A2	A2	A-	A-
Public Service Company of Oklahoma		A3	A3	A-	A-
Southwestern Electric Power Company		Baa2	Baa2	A-	A-
Avangrid, Inc.	**AGR**	**Baa1**	**Baa1**	**BBB+**	**BBB+**
New York State Electric & Gas Corporation		A3	A3	A-	A-
United Illuminating Company		Baa1	Baa1	A-	A-
Rochester Gas and Electric Corporation		A3	A3	A-	A-
Central Maine Power Company		A2	A2	A	A
Avista Corporation	**AVA**	**Baa2**		**BBB**	
Alaska Electric Light and Power		Baa3	Baa3		
CMS Energy Corporation	**CMS**		**Baa1**	**BBB+**	**BBB+**
Consumers Energy Company			(P)A2	A-	A-
Consolidated Edison, Inc.	**ED**	**Baa2**	**Baa2**	**A-**	**A-**
Consolidated Edison Company of New York, Inc.		Baa1	Baa1	A-	A-
Orange and Rockland Utilities, Inc.		Baa1	Baa1	A-	A-
Rockland Electric				A-	A-
Dominion Energy, Inc.	**D**		**Baa2**	**BBB+**	**BBB+**
Dominion Energy South Carolina, Inc.		Baa2	Baa2	BBB+	BBB+
Virginia Electric and Power Company		A2	A2	BBB+	BBB+
Duke Energy Corporation	**DUK**	**Baa1**	**Baa1**	**A-**	**A-**
Duke Energy Carolinas, LLC		A1	A1	A-	A-
Duke Energy Florida, LLC		A3	A3	A-	A-
Duke Energy Indiana, LLC		A2	A2	A-	A-
Duke Energy Kentucky, Inc.			Baa1	A-	A-
Duke Energy Ohio, Inc.		Baa1	Baa1	A-	A-
Duke Energy Progress, LLC		A2	A2	A-	A-
Edison International	**EIX**	**Baa3**	**Baa3**	**BBB**	**BBB**
Southern California Edison Company		Baa2	Baa2	BBB	BBB
Entergy Corporation	**ETR**	**Baa2**	**Baa2**	**BBB+**	**BBB+**
Entergy Arkansas, LLC		Baa1	Baa1	A-	A-
Entergy Louisiana, LLC		Baa1	Baa1	A-	A-
Entergy Mississippi, LLC		Baa1	Baa1	A-	A-
Entergy New Orleans, LLC		Ba1	Ba1	BBB+	BBB+
Entergy Texas, Inc.		Baa3	Baa3	BBB+	BBB+
Evergy, Inc.	**EVRG**	**Baa2**	**Baa2**	**A-**	**A-**
Evergy Kansas Central, Inc.		Baa1	Baa1	A-	A-
Evergy Kansas South, Inc.		Baa1	Baa1	A-	A-
Evergy Metro, Inc.		Baa1	Baa1	A-	A-
Evergy Missouri West, Inc.		Baa2	Baa2	A-	A-
Eversource Energy	**ES**	**Baa1**	**Baa1**	**A-**	**A-**
Connecticut Light and Power Company		A3	A3	A	A
NSTAR Electric Company		A1	A1	A	A
Public Service Company of New Hampshire		A3	A3	A	A

Credit Ratings - Dr. Woolridge's Proxy Group

Company	Ticker	Moody's Long-Term Issuer	Moody's Corporate Long-Term	S&P Long-Term Issuer	S&P Corporate Long-Term
Exelon Corporation	**EXC**	**Baa2**	**Baa2**	**BBB+**	**BBB+**
Atlantic City Electric Company		Baa1	Baa1	A-	A-
Baltimore Gas and Electric Company		A3	A3	A	A
Commonwealth Edison Company		A3	A3	A-	A-
Delmarva Power & Light Company		Baa1	Baa1	A-	A-
PECO Energy Co.		A2	A2	BBB+	BBB+
Potomac Electric Power Company		Baa1	Baa1	A-	A-
FirstEnergy Corp.	**FE**	**Baa3**	**Baa3**	**BBB**	**BBB**
Cleveland Electric Illuminating Company		Baa2	Baa2	BBB	BBB
Jersey Central Power & Light Company		Baa1	Baa1	BBB	BBB
Metropolitan Edison Company		A3	A3	BBB	BBB
Monongahela Power Company		Baa2	Baa2	BBB	BBB
Ohio Edison Company		A3	A3	BBB	BBB
Pennsylvania Electric Company		Baa1	Baa1	BBB	BBB
Pennsylvania Power Company		A3	A3	BBB	BBB
Potomac Edison Company		Baa2	Baa2	BBB	BBB
Toledo Edison Company		Baa1	Baa1	BBB	BBB
West Penn Power Company		A3	A3	BBB	BBB
Hawaiian Electric Industries, Inc.	**HE**			**BBB-**	**BBB-**
Hawaiian Electric Company, Inc.		Baa2	Baa2	BBB-	BBB-
Hawaii Electric Light Company				BBB-	BBB-
Maui Electric Company, Ltd				BBB-	BBB-
IDACORP, Inc.	**IDA**	**Baa1**	**Baa1**	**BBB**	**BBB**
Idaho Power Company		A3	A3	BBB	BBB
MGE Energy, Inc.	**MGEE**				
Madison Gas and Electric Company		A1	A1	AA-	AA-
NextEra Energy, Inc.	**NEE**	**Baa1**	**Baa1**	**A-**	**A-**
Florida Power & Light Company		A1	A1	A	A
Gulf Power Company		A2	A2	A	A
NorthWestern Corporation	**NWE**		**Baa2**	**BBB**	**BBB**
OGE Energy Corp.	**OGE**		**(P)Baa1**	**BBB+**	**BBB+**
Oklahoma Gas and Electric Company		A3	A3	A-	A-
Otter Tail Corporation	**OTTR**	**Baa2**	**Baa2**	**BBB**	**BBB**
Otter Tail Power Company		A3	A3	BBB+	BBB+
Pinnacle West Capital Corporation	**PNW**	**A3**	**A3**	**A-**	**A-**
Arizona Public Service Company		A2	A2	A-	A-
PNM Resources, Inc.	**PNM**	**Baa3**	**Baa3**	**BBB**	**BBB**
Public Service Company of New Mexico		Baa2	Baa2	BBB	BBB
Texas-New Mexico Power Company		A3	A3	BBB+	BBB+
Portland General Electric Company	**POR**	**A3**	**A3**	**BBB+**	**BBB+**
PPL Corporation	**PPL**	**Baa2**	**Baa2**	**A-**	**A-**
Kentucky Utilities Company		A3	A3	A-	A-
LG&E and KU Energy LLC		Baa1	Baa1	A-	A-
Louisville Gas and Electric Company		A3	A3	A-	A-
PPL Electric Utilities Corporation		A3	A3	A-	A-
Sempra Energy	**SRE**	**Baa1**	**Baa1**	**BBB+**	**BBB+**
Oncor Electric Delivery Company LLC			A2	A	A
San Diego Gas & Electric Company		Baa1	Baa1	BBB+	BBB+
Southern Company	**SO**		**Baa2**	**A-**	**A-**
Alabama Power Company		A1	A1	A	A
Georgia Power Company		Baa1	Baa1	A-	A-
Mississippi Power Company		Baa2	Baa2	A-	A-
WEC Energy Group, Inc.	**WEC**	**Baa1**	**Baa1**	**A-**	**A-**
Wisconsin Electric Power Company		A2	A2	A-	A-
Wisconsin Public Service Corporation		A2	A2	A-	A-
Xcel Energy Inc.	**XEL**	**Baa1**	**Baa1**	**A-**	**A-**
Northern States Power Company - MN		A2	A2	A-	A-
Northern States Power Company - WI			(P)A2	A-	A-
Public Service Company of Colorado		A3	A3	A-	A-
Southwestern Public Service Company		Baa2	Baa2	A-	A-

Source: S&P Global Market Intelligence

Hypothetical Example: Flotation Cost Recovery

Return on Equity	10.50%
Flotation Costs	2.69%
Market Value	$ 25.00
Dividend Yield	4.25%
Growth Rate	6.25%
Adjusted ROE	10.62%
Flotation Cost Recovery:	**No**
DCF Estimate	**10.38%**

	Common Stock	Retained Earnings	Book Value	Market Price	Market/ Book Value	Earnings Per Share	Dividends Per Share	Payout Ratio
1	$ 24.33		$ 24.33	$ 25.00	1.0277	$ 2.55	$ 1.06	41.60%
2	$ 24.33	$ 1.49	$ 25.82	$ 26.53	1.0277	$ 2.71	$ 1.13	41.60%
3	$ 24.33	$ 3.08	$ 27.40	$ 28.16	1.0277	$ 2.88	$ 1.20	41.60%
4	$ 24.33	$ 4.76	$ 29.08	$ 29.89	1.0277	$ 3.05	$ 1.27	41.60%
5	$ 24.33	$ 6.54	$ 30.87	$ 31.72	1.0277	$ 3.24	$ 1.35	41.60%
6	$ 24.33	$ 8.43	$ 32.76	$ 33.67	1.0277	$ 3.44	$ 1.43	41.60%
7	$ 24.33	$ 10.44	$ 34.77	$ 35.73	1.0277	$ 3.65	$ 1.52	41.60%
8	$ 24.33	$ 12.57	$ 36.90	$ 37.92	1.0277	$ 3.87	$ 1.61	41.60%
9	$ 24.33	$ 14.84	$ 39.16	$ 40.25	1.0277	$ 4.11	$ 1.71	41.60%
10	$ 24.33	$ 17.24	$ 41.56	$ 42.71	1.0277	$ 4.36	$ 1.82	41.60%
	Growth Rate		6.13%	6.13%		6.13%	6.13%	

Return on Equity	10.50%
Flotation Costs	2.69%
Market Value	$ 25.00
Dividend Yield	4.25%
Growth Rate	6.25%
Adjusted ROE	10.62%
Flotation Cost Recovery:	**Yes**
DCF Estimate	**10.50%**

	Common Stock	Retained Earnings	Book Value	Market Price	Market/ Book Value	Earnings Per Share	Dividends Per Share	Payout Ratio
1	$ 24.33		$ 24.33	$ 25.00	1.0277	$ 2.58	$ 1.06	41.14%
2	$ 24.33	$ 1.52	$ 25.85	$ 26.56	1.0277	$ 2.74	$ 1.13	41.14%
3	$ 24.33	$ 3.14	$ 27.46	$ 28.22	1.0277	$ 2.92	$ 1.20	41.14%
4	$ 24.33	$ 4.85	$ 29.18	$ 29.99	1.0277	$ 3.10	$ 1.27	41.14%
5	$ 24.33	$ 6.68	$ 31.00	$ 31.86	1.0277	$ 3.29	$ 1.35	41.14%
6	$ 24.33	$ 8.61	$ 32.94	$ 33.85	1.0277	$ 3.50	$ 1.44	41.14%
7	$ 24.33	$ 10.67	$ 35.00	$ 35.97	1.0277	$ 3.72	$ 1.53	41.14%
8	$ 24.33	$ 12.86	$ 37.19	$ 38.22	1.0277	$ 3.95	$ 1.62	41.14%
9	$ 24.33	$ 15.18	$ 39.51	$ 40.60	1.0277	$ 4.20	$ 1.73	41.14%
10	$ 24.33	$ 17.65	$ 41.98	$ 43.14	1.0277	$ 4.46	$ 1.83	41.14%
	Growth Rate		6.25%	6.25%		6.25%	6.25%	

Dr. Woolridge's Proxy Group Capital Structure - Consolidated

Company	Ticker	% Common Equity								
		2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
ALLETE, Inc.	ALE	57.26%	58.49%	58.29%	59.20%	58.22%	58.12%	58.26%	57.91%	58.22%
Alliant Energy Corporation	LNT	44.45%	43.24%	45.34%	45.45%	44.27%	44.24%	46.28%	46.19%	44.93%
Ameren Corporation	AEE	47.18%	47.55%	47.28%	47.49%	48.09%	46.61%	47.67%	47.52%	47.42%
American Electric Power Co.	AEP	42.00%	41.85%	42.65%	44.60%	45.50%	45.94%	46.27%	46.00%	44.35%
Avangrid, Inc.	AGR	68.13%	69.00%	71.77%	72.39%	72.92%	72.91%	73.84%	73.70%	71.83%
Avista Corporation	AVA	47.72%	48.68%	48.46%	48.08%	47.74%	47.92%	49.17%	48.72%	48.31%
CMS Energy Corporation	CMS	27.24%	28.04%	28.66%	28.93%	30.32%	30.65%	30.71%	30.09%	29.33%
Consolidated Edison, Inc.	ED	46.91%	46.54%	46.68%	47.97%	48.89%	47.87%	49.42%	49.03%	47.91%
Dominion Energy, Inc.	D	41.58%	39.80%	39.97%	36.59%	34.36%	34.00%	33.75%	33.50%	36.69%
Duke Energy Corporation	DUK	42.74%	42.95%	43.23%	44.55%	44.34%	44.64%	44.10%	44.39%	43.87%
Edison International	EIX	41.88%	38.51%	38.65%	41.55%	45.13%	45.13%	45.79%	49.05%	43.21%
Entergy Corporation	ETR	36.10%	35.69%	33.75%	35.33%	33.72%	33.54%	32.09%	34.61%	34.35%
Evergy, Inc.	EVRG	48.39%	54.82%	53.99%	57.30%	58.99%	59.19%	NA	50.40%	54.72%
Eversource Energy	ES	44.79%	45.21%	45.82%	45.55%	46.41%	46.38%	46.03%	47.33%	45.94%
Exelon Corporation	EXC	45.54%	45.57%	45.54%	46.19%	46.51%	46.77%	46.70%	46.32%	46.14%
FirstEnergy Corporation	FE	26.62%	26.94%	26.43%	26.98%	27.72%	29.99%	28.73%	16.94%	26.29%
Hawaiian Electric Industries	HE	51.16%	50.63%	50.09%	52.91%	53.77%	53.40%	54.66%	54.75%	52.67%
IDACORP, Inc.	IDA	57.30%	56.70%	56.47%	56.37%	56.35%	55.56%	53.48%	56.32%	56.07%
MGE Energy, Inc.	MGEE	62.36%	61.80%	61.65%	62.04%	61.94%	65.38%	65.12%	64.81%	63.14%
NextEra Energy, Inc.	NEE	48.39%	48.80%	51.30%	53.48%	53.56%	52.42%	52.81%	45.88%	50.83%
NorthWestern Corporation	NWE	47.67%	47.94%	48.59%	47.76%	48.24%	48.28%	47.34%	49.74%	48.19%
OGE Energy Corp.	OGE	56.36%	55.28%	57.44%	56.00%	56.15%	56.46%	56.16%	56.22%	56.26%
Otter Tail Corporation	OTTR	55.26%	54.95%	54.78%	55.26%	55.14%	54.77%	54.54%	58.69%	55.42%
Pinnacle West Capital Corp.	PNW	50.18%	49.92%	49.98%	50.41%	51.27%	51.22%	50.74%	50.68%	50.55%
PNM Resources, Inc.	PNM	35.82%	35.57%	35.23%	38.74%	40.39%	39.91%	39.47%	41.02%	38.27%
Portland General Electric Company	POR	49.82%	49.72%	50.27%	50.28%	50.60%	50.40%	50.24%	49.90%	50.15%
PPL Corporation	PPL	35.49%	36.12%	36.25%	36.14%	36.78%	35.50%	35.32%	34.76%	35.80%
Sempra Energy	SRE	41.40%	38.85%	40.20%	39.71%	39.56%	38.70%	38.37%	41.48%	39.78%
Southern Company	SO	36.80%	37.54%	37.15%	36.01%	35.89%	34.58%	34.10%	33.32%	35.67%
WEC Energy Group	WEC	46.35%	48.28%	48.18%	48.59%	50.74%	50.58%	50.24%	49.67%	49.08%
Xcel Energy Inc.	XEL	40.20%	40.11%	40.79%	42.99%	43.09%	41.88%	43.56%	43.34%	42.00%
Mean		45.91%	45.97%	46.29%	46.93%	47.31%	47.19%	46.83%	46.85%	46.69%

Dr. Woolridge's Proxy Group Capital Structure - Consolidated

Company	Ticker	2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
						% Long-Term Debt				
ALLETE, Inc.	ALE	42.74%	41.51%	41.71%	40.80%	41.78%	41.88%	41.74%	42.09%	41.78%
Alliant Energy Corporation	LNT	55.55%	56.76%	54.66%	54.55%	55.73%	55.76%	53.72%	53.81%	55.07%
Ameren Corporation	AEE	52.82%	52.45%	52.72%	52.51%	51.91%	53.39%	52.33%	52.48%	52.58%
American Electric Power Co.	AEP	58.00%	58.15%	57.35%	55.40%	54.50%	54.06%	53.73%	54.00%	55.65%
Avangrid, Inc.	AGR	31.87%	31.00%	28.23%	27.61%	27.08%	27.09%	26.16%	26.30%	28.17%
Avista Corporation	AVA	52.28%	51.32%	51.54%	51.92%	52.26%	52.08%	50.83%	51.28%	51.69%
CMS Energy Corporation	CMS	72.76%	71.96%	71.34%	71.07%	69.68%	69.35%	69.29%	69.91%	70.67%
Consolidated Edison, Inc.	ED	53.09%	53.46%	53.32%	52.03%	51.11%	52.13%	50.58%	50.97%	52.09%
Dominion Energy, Inc.	D	58.42%	60.20%	60.03%	63.41%	65.64%	66.00%	66.25%	66.50%	63.31%
Duke Energy Corporation	DUK	57.26%	57.05%	56.77%	55.45%	55.66%	55.36%	55.90%	55.61%	56.13%
Edison International	EIX	58.12%	61.49%	61.35%	58.45%	54.87%	54.87%	54.21%	50.95%	56.79%
Entergy Corporation	ETR	63.90%	64.31%	66.25%	64.67%	66.28%	66.46%	67.91%	65.39%	65.65%
Evergy, Inc.	EVRG	51.61%	45.18%	46.01%	42.70%	41.01%	40.81%	NA	49.60%	45.28%
Eversource Energy	ES	55.21%	54.79%	54.18%	54.45%	53.59%	53.62%	53.97%	52.67%	54.06%
Exelon Corporation	EXC	54.46%	54.43%	54.46%	53.81%	53.49%	53.23%	53.30%	53.68%	53.86%
FirstEnergy Corporation	FE	73.38%	73.06%	73.57%	73.02%	72.28%	70.01%	71.27%	83.06%	73.71%
Hawaiian Electric Industries	HE	48.84%	49.37%	49.91%	47.09%	46.23%	46.60%	45.34%	45.25%	47.33%
IDACORP, Inc.	IDA	42.70%	43.30%	43.53%	43.63%	43.65%	44.44%	46.52%	43.68%	43.93%
MGE Energy, Inc.	MGEE	37.64%	38.20%	38.35%	37.96%	38.06%	34.62%	34.88%	35.19%	36.86%
NextEra Energy, Inc.	NEE	51.61%	51.20%	48.70%	46.52%	46.44%	47.58%	47.19%	54.12%	49.17%
NorthWestern Corporation	NWE	52.33%	52.06%	51.41%	52.24%	51.76%	51.72%	52.66%	50.26%	51.81%
OGE Energy Corp.	OGE	43.64%	44.72%	42.56%	44.00%	43.85%	43.54%	43.84%	43.78%	43.74%
Otter Tail Corporation	OTTR	44.74%	45.05%	45.22%	44.74%	44.86%	45.23%	45.46%	41.31%	44.58%
Pinnacle West Capital Corp.	PNW	49.82%	50.08%	50.02%	49.59%	48.73%	48.78%	49.26%	49.32%	49.45%
PNM Resources, Inc.	PNM	64.18%	64.43%	64.77%	61.26%	59.61%	60.09%	60.53%	58.98%	61.73%
Portland General Electric Company	POR	50.18%	50.28%	49.73%	49.72%	49.40%	49.60%	49.76%	50.10%	49.85%
PPL Corporation	PPL	64.51%	63.88%	63.75%	63.86%	63.22%	64.50%	64.68%	65.24%	64.20%
Sempra Energy	SRE	58.60%	61.15%	59.80%	60.29%	60.44%	61.30%	61.63%	58.52%	60.22%
Southern Company	SO	63.20%	62.46%	62.85%	63.99%	64.11%	65.42%	65.90%	66.68%	64.33%
WEC Energy Group	WEC	53.65%	51.72%	51.82%	51.41%	49.26%	49.42%	49.76%	50.33%	50.92%
Xcel Energy Inc.	XEL	59.80%	59.89%	59.21%	57.01%	56.91%	58.12%	56.44%	56.66%	58.00%
Mean		54.09%	54.03%	53.71%	53.07%	52.69%	52.81%	53.17%	53.15%	53.31%

Dr. Woolridge's Proxy Group Capital Structure - Operating Company Level

Company	Ticker	2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
						% Common Equity				
ALLETE, Inc.	ALE	58.68%	59.66%	59.53%	59.12%	58.50%	58.84%	63.09%	62.51%	59.99%
Alliant Energy Corporation	LNT	51.73%	50.38%	53.18%	53.11%	51.13%	51.00%	49.74%	49.77%	51.26%
Ameren Corporation	AEE	53.67%	53.03%	52.81%	52.69%	53.22%	52.01%	53.04%	52.65%	52.89%
American Electric Power Co.	AEP	49.91%	48.80%	49.62%	49.40%	48.68%	48.52%	48.60%	48.91%	49.06%
Avangrid, Inc.	AGR	54.38%	56.33%	56.51%	55.72%	56.13%	54.93%	56.55%	55.69%	55.78%
Avista Corporation	AVA	55.80%	56.32%	56.10%	55.09%	55.75%	55.76%	56.34%	55.76%	55.86%
CMS Energy Corporation	CMS	51.70%	53.64%	52.52%	50.27%	53.01%	52.86%	53.13%	52.25%	52.42%
Consolidated Edison, Inc.	ED	49.85%	49.08%	48.75%	47.97%	48.38%	48.73%	49.75%	49.23%	48.97%
Dominion Energy, Inc.	D	53.56%	50.98%	50.47%	48.75%	51.63%	51.12%	50.17%	50.62%	50.91%
Duke Energy Corporation	DUK	52.89%	54.48%	53.14%	54.35%	55.03%	54.94%	54.46%	54.30%	54.20%
Edison International	EIX	50.14%	48.40%	45.15%	46.90%	49.82%	50.05%	50.63%	53.08%	49.27%
Entergy Corporation	ETR	49.10%	48.19%	48.81%	50.11%	49.96%	49.95%	48.60%	48.97%	49.21%
Evergy, Inc.	EVRG	60.28%	60.51%	58.16%	59.56%	59.86%	58.51%	58.73%	58.62%	59.28%
Eversource Energy	ES	49.53%	49.38%	54.22%	53.28%	51.03%	50.14%	54.05%	54.60%	52.03%
Exelon Corporation	EXC	51.77%	52.46%	52.41%	51.93%	51.85%	52.40%	52.25%	52.10%	52.15%
FirstEnergy Corporation	FE	55.88%	55.95%	56.46%	56.61%	58.05%	57.49%	56.37%	55.73%	56.57%
Hawaiian Electric Industries	HE	58.43%	58.17%	58.06%	57.98%	56.09%	55.78%	57.44%	57.42%	57.42%
IDACORP, Inc.	IDA	55.20%	54.58%	54.36%	54.25%	54.25%	53.44%	51.37%	54.22%	53.96%
MGE Energy, Inc.	MGEE	59.66%	58.84%	58.46%	57.90%	57.36%	60.66%	60.20%	59.73%	59.10%
NextEra Energy, Inc.	NEE	56.15%	61.22%	61.05%	64.37%	64.78%	60.84%	61.23%	59.93%	61.20%
NorthWestern Corporation	NWE	47.80%	48.07%	48.74%	47.88%	48.36%	48.41%	47.48%	49.89%	48.33%
OGE Energy Corp.	OGE	54.96%	53.47%	55.38%	53.20%	53.05%	54.25%	53.59%	53.36%	53.91%
Otter Tail Corporation	OTTR	55.43%	53.75%	53.90%	53.58%	53.49%	53.11%	52.67%	57.34%	54.16%
Pinnacle West Capital Corp.	PNW	54.25%	54.41%	54.48%	54.36%	53.68%	53.71%	53.18%	53.14%	53.90%
PNM Resources, Inc.	PNM	45.33%	43.86%	43.45%	45.63%	48.01%	46.68%	46.20%	46.06%	45.65%
Portland General Electric Company	POR	51.78%	51.56%	50.60%	50.19%	50.51%	50.29%	50.14%	49.80%	50.61%
PPL Corporation	PPL	53.84%	53.74%	55.38%	55.06%	54.92%	54.59%	54.52%	54.67%	54.59%
Sempra Energy	SRE	56.17%	56.30%	53.82%	53.29%	53.13%	54.39%	54.20%	53.27%	54.32%
Southern Company	SO	52.36%	52.93%	52.80%	54.21%	51.50%	50.31%	49.98%	47.67%	51.47%
WEC Energy Group	WEC	55.79%	56.71%	55.73%	53.46%	58.30%	57.72%	61.62%	54.62%	56.74%
Xcel Energy Inc.	XEL	53.98%	54.70%	54.51%	54.22%	53.37%	53.63%	54.15%	53.95%	54.06%
Mean		53.55%	53.55%	53.50%	53.37%	53.64%	53.39%	53.66%	53.54%	53.52%

Operating Company Capital Structure

Operating Company	Parent	2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
						% Common Equity				
ALLETE (Minnesota Power)	ALE	59.33%	60.94%	60.87%	61.39%	60.43%	60.33%	60.38%	60.04%	60.46%
Superior Water, Light and Power Company	ALE	58.03%	58.38%	58.19%	56.86%	56.58%	57.34%	65.80%	64.99%	59.52%
Interstate Power and Light Company	LNT	50.06%	51.76%	53.33%	53.52%	49.64%	50.47%	49.92%	50.31%	51.13%
Wisconsin Power and Light Company	LNT	53.40%	49.01%	53.03%	52.69%	52.62%	51.52%	49.57%	49.23%	51.38%
Ameren Illinois Company	AEE	54.46%	54.05%	53.65%	52.86%	53.18%	52.74%	54.24%	53.38%	53.57%
Union Electric Company	AEE	52.88%	52.00%	51.96%	52.52%	53.26%	51.28%	51.84%	51.92%	52.21%
AEP Texas Inc.	AEP	46.97%	46.32%	47.54%	45.38%	43.80%	43.20%	46.75%	45.14%	45.64%
Appalachian Power Company	AEP	48.74%	48.19%	47.77%	49.51%	49.30%	48.93%	49.35%	48.72%	48.81%
Indiana Michigan Power Company	AEP	46.51%	45.83%	45.43%	44.62%	44.53%	44.15%	46.64%	46.33%	45.50%
Kentucky Power Company	AEP	46.94%	46.50%	46.42%	45.72%	45.28%	44.89%	44.40%	43.52%	45.46%
Kingsport Power Company	AEP	54.24%	50.18%	51.54%	50.79%	50.71%	47.69%	47.28%	46.53%	49.87%
Ohio Power Company	AEP	53.63%	52.92%	58.86%	57.80%	56.85%	57.11%	52.91%	58.63%	56.09%
Public Service Company of Oklahoma	AEP	49.89%	48.02%	47.19%	49.16%	49.55%	48.59%	48.10%	48.50%	48.62%
Southwestern Electric Power Company	AEP	48.63%	47.45%	47.59%	46.97%	43.43%	47.91%	47.72%	48.52%	47.28%
Wheeling Power Company	AEP	53.66%	53.83%	54.27%	54.62%	54.70%	54.19%	54.27%	54.26%	54.23%
Central Maine Power Company	AGR	62.19%	61.96%	63.51%	63.21%	64.17%	63.53%	64.18%	63.82%	63.32%
New York State Electric & Gas Corporation	AGR	48.79%	55.84%	55.93%	54.30%	53.95%	50.99%	54.51%	53.30%	53.45%
Rochester Gas and Electric Corporation	AGR	50.50%	50.25%	49.96%	48.89%	48.16%	47.77%	50.80%	49.63%	49.50%
United Illuminating Company	AGR	56.05%	57.26%	56.65%	56.46%	58.23%	57.43%	56.70%	56.00%	56.85%
Alaska Electric Light and Power Company	AVA	61.28%	61.24%	61.02%	60.29%	61.94%	61.78%	61.53%	60.77%	61.23%
Avista Corporation	AVA	50.33%	51.40%	51.18%	49.89%	49.55%	49.74%	51.16%	50.75%	50.50%
Consumers Energy Company	CMS	51.70%	53.64%	52.52%	50.27%	53.01%	52.86%	53.13%	52.25%	52.42%
Consolidated Edison Company of New York, Inc.	ED	49.29%	48.92%	48.30%	47.52%	48.33%	46.72%	48.66%	48.22%	48.24%
Orange and Rockland Utilities, Inc.	ED	50.40%	49.25%	49.21%	48.41%	48.44%	50.74%	50.83%	50.25%	49.69%
Rockland Electric Company	ED	NA	NA	NA	NA	NA	NA	NA	NA	NA
Virginia Electric and Power Company	D	53.33%	53.30%	52.42%	52.62%	53.64%	52.81%	51.03%	51.71%	52.61%
Dominion Energy South Carolina, Inc.	D	53.80%	48.67%	48.52%	44.88%	49.63%	49.44%	49.30%	49.54%	49.22%
Duke Energy Carolinas, LLC	DUK	51.80%	52.94%	52.32%	51.78%	52.64%	52.10%	51.70%	52.98%	52.28%
Duke Energy Florida, LLC	DUK	52.82%	51.55%	50.56%	50.04%	49.65%	48.79%	49.92%	49.25%	50.32%
Duke Energy Indiana, LLC	DUK	51.52%	54.83%	54.29%	53.26%	52.79%	52.64%	52.54%	51.94%	52.98%
Duke Energy Kentucky, Inc.	DUK	45.44%	53.04%	52.81%	51.95%	56.58%	55.79%	53.72%	53.11%	52.80%
Duke Energy Ohio, Inc.	DUK	64.90%	64.45%	59.29%	68.09%	67.73%	67.10%	66.06%	66.24%	65.48%
Duke Energy Progress, LLC	DUK	50.86%	50.09%	49.60%	51.00%	50.76%	53.22%	52.82%	52.27%	51.33%
Southern California Edison Company	EIX	50.14%	48.40%	45.15%	46.90%	49.82%	50.05%	50.63%	53.08%	49.27%
Entergy Arkansas, LLC	ETR	47.72%	46.49%	47.04%	49.42%	49.38%	48.29%	45.88%	45.95%	47.52%
Entergy Louisiana, LLC	ETR	47.13%	46.32%	45.79%	47.37%	46.77%	46.97%	44.58%	47.43%	46.55%
Entergy Mississippi, LLC	ETR	48.35%	44.93%	49.41%	49.11%	50.10%	49.10%	48.32%	47.85%	48.40%
Entergy New Orleans, LLC	ETR	53.69%	52.40%	52.40%	51.69%	51.19%	50.93%	54.02%	53.43%	52.56%
Entergy Texas, Inc.	ETR	48.63%	50.79%	50.13%	53.46%	52.61%	51.38%	50.79%	50.45%	51.03%
Evergy Kansas South, Inc.	EVRG	81.84%	81.49%	75.13%	74.97%	74.91%	74.45%	74.29%	74.18%	76.41%
Evergy Metro, Inc.	EVRG	50.43%	49.62%	46.04%	49.49%	49.50%	48.88%	49.25%	49.15%	49.05%
Evergy Missouri West, Inc.	EVRG	51.18%	51.74%	52.68%	54.71%	55.70%	52.03%	52.63%	52.40%	52.88%
Westar Energy (KPL)	EVRG	57.66%	59.18%	58.80%	59.08%	59.34%	58.68%	58.75%	58.74%	58.78%
Connecticut Light and Power Company	ES	54.12%	55.38%	58.18%	56.18%	54.49%	53.85%	50.40%	53.82%	54.55%
NSTAR Electric Company	ES	53.81%	52.74%	56.08%	55.74%	55.50%	54.51%	53.83%	53.85%	54.51%
Public Service Company of New Hampshire	ES	40.64%	40.02%	48.38%	47.92%	43.11%	42.06%	57.93%	57.30%	47.17%
Western Massachusetts Electric Company	ES	NA	NA	NA	NA	NA	NA	NA	53.43%	53.43%
Atlantic City Electric Company	EXC	49.38%	49.47%	49.30%	49.14%	50.38%	49.46%	49.14%	49.19%	49.43%
Baltimore Gas and Electric Company	EXC	51.89%	54.36%	54.43%	53.67%	52.85%	55.34%	55.36%	54.77%	54.08%
Commonwealth Edison Company	EXC	55.61%	55.29%	55.00%	55.06%	54.72%	55.36%	54.96%	54.85%	55.11%
Delmarva Power & Light Company	EXC	50.18%	50.20%	50.18%	49.98%	50.11%	49.86%	50.35%	50.38%	50.16%
PECO Energy Co.	EXC	53.37%	55.20%	55.13%	53.72%	52.82%	54.28%	53.77%	53.54%	53.98%
Potomac Electric Power Company	EXC	50.21%	50.24%	50.41%	50.01%	50.24%	50.08%	49.94%	49.89%	50.13%
Cleveland Electric Illuminating Company	FE	55.74%	55.49%	55.54%	55.44%	56.50%	56.31%	55.48%	55.27%	55.72%
Jersey Central Power & Light Company	FE	68.74%	68.23%	68.08%	69.46%	69.34%	68.81%	65.52%	65.30%	67.93%
Metropolitan Edison Company	FE	49.72%	48.46%	47.78%	53.21%	54.25%	53.10%	52.18%	52.33%	51.38%
Monongahela Power Company	FE	49.98%	49.07%	49.05%	48.87%	50.71%	51.53%	50.57%	49.15%	49.87%
Ohio Edison Company	FE	69.16%	71.42%	70.82%	69.93%	69.14%	67.33%	66.89%	64.91%	68.70%
Pennsylvania Electric Company	FE	51.78%	50.93%	53.85%	53.89%	54.01%	53.90%	53.09%	52.06%	52.94%
Pennsylvania Power Company	FE	53.09%	51.71%	50.69%	49.03%	58.27%	56.89%	55.70%	53.82%	53.65%
Potomac Edison Company	FE	53.69%	52.99%	53.29%	52.35%	52.92%	52.65%	52.64%	51.59%	52.77%
Toledo Edison Company	FE	60.76%	60.57%	60.78%	60.43%	62.25%	62.25%	60.60%	60.04%	60.96%
West Penn Power Company	FE	46.11%	50.63%	54.68%	53.50%	53.14%	52.09%	51.09%	52.82%	51.76%
Hawaii Electric Light Company, Inc.	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hawaiian Electric Company, Inc.	HE	58.43%	58.17%	58.06%	57.98%	56.09%	55.78%	57.44%	57.42%	57.42%
Maui Electric Company, Limited	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Idaho Power Company	IDA	55.20%	54.58%	54.36%	54.25%	54.25%	53.44%	51.37%	54.22%	53.96%
Madison Gas and Electric Company	MGEE	59.66%	58.84%	58.46%	57.90%	57.36%	60.66%	60.20%	59.73%	59.10%
Florida Power & Light Company	NEE	59.78%	61.30%	64.03%	64.37%	64.78%	60.84%	61.23%	59.93%	62.03%
Gulf Power Company	NEE	52.52%	61.15%	58.06%	NA	NA	NA	NA	NA	57.24%
NorthWestern Corporation	NWE	47.80%	48.07%	48.74%	47.88%	48.36%	48.41%	47.48%	49.89%	48.33%
Oklahoma Gas and Electric Company	OGE	54.96%	53.47%	55.38%	53.20%	53.05%	54.25%	53.59%	53.36%	53.91%
Otter Tail Power Company	OTTR	55.43%	53.75%	53.90%	53.58%	53.49%	53.11%	52.67%	57.34%	54.16%
Arizona Public Service Company	PNW	54.25%	54.41%	54.48%	54.36%	53.68%	53.71%	53.18%	53.14%	53.90%
Public Service Company of New Mexico	PNM	45.33%	43.86%	43.45%	45.63%	48.01%	46.68%	46.20%	46.06%	45.65%
Portland General Electric Company	POR	51.78%	51.56%	50.60%	50.19%	50.51%	50.29%	50.14%	49.80%	50.61%
Kentucky Utilities Company	PPL	52.97%	52.81%	55.44%	54.85%	54.76%	54.51%	54.08%	54.00%	54.18%
Louisville Gas and Electric Company	PPL	54.10%	53.88%	56.16%	55.80%	55.35%	54.97%	54.46%	55.42%	55.02%
PPL Electric Utilities Corporation	PPL	54.44%	54.51%	54.52%	54.52%	54.65%	54.28%	55.04%	54.57%	54.57%
Oncor Electric Delivery Company LLC	SRE	54.91%	57.43%	59.79%	59.47%	59.29%	62.31%	60.34%	58.86%	59.05%
San Diego Gas & Electric Company	SRE	57.43%	55.17%	56.60%	55.79%	55.17%	54.47%	55.92%	55.09%	55.71%
Sharyland Utilities, LLC	SRE	NA	NA	45.05%	44.62%	44.92%	46.39%	46.34%	45.86%	45.53%
Alabama Power Company	SO	51.45%	52.54%	52.23%	47.77%	48.13%	47.51%	48.86%	47.07%	49.44%
Georgia Power Company	SO	55.38%	56.39%	56.43%	59.02%	57.27%	54.97%	53.81%	50.06%	55.42%
Mississippi Power Company	SO	50.23%	49.87%	49.73%	50.35%	45.28%	43.87%	43.00%	39.34%	46.46%
Gulf Power Company	SO	NA	NA	NA	59.73%	55.34%	54.90%	54.27%	54.19%	55.69%
Upper Michigan Energy Resources Corporation	WEC	56.09%	54.45%	52.54%	47.01%	55.08%	54.53%	70.04%	49.85%	54.95%
Wisconsin Electric Power Company	WEC	56.92%	56.64%	55.78%	56.03%	59.25%	59.09%	56.47%	55.94%	57.01%
Wisconsin Public Service Corporation	WEC	54.37%	59.04%	58.88%	57.33%	60.59%	59.53%	58.35%	58.06%	58.27%
Northern States Power Company - MN	XEL	51.79%	53.66%	53.64%	52.81%	52.64%	52.61%	52.59%	52.77%	52.77%
Northern States Power Company - WI	XEL	53.56%	53.49%	53.59%	53.60%	48.45%	53.85%	53.79%	53.36%	52.96%
Public Service Company of Colorado	XEL	56.35%	57.53%	56.68%	56.31%	56.08%	54.17%	56.67%	56.50%	56.29%
Southwestern Public Service Company	XEL	54.21%	54.14%	54.13%	54.17%	56.29%	53.88%	53.54%	53.55%	54.24%
Mean		53.41%	53.55%	53.64%	53.51%	53.69%	53.41%	53.60%	53.23%	53.52%

Source: S&P Global Market Intelligence

Dr. Woolridge's Proxy Group Capital Structure - Operating Company Level

Company	Ticker	2019Q3	2019Q2	2019Q1	2018Q4	% Long-Term Debt 2018Q3	2018Q2	2018Q1	2017Q4	Average
ALLETE, Inc.	ALE	41.32%	40.34%	40.47%	40.88%	41.50%	41.16%	36.91%	37.49%	40.01%
Alliant Energy Corporation	LNT	48.27%	49.62%	46.82%	46.89%	48.87%	49.00%	50.26%	50.23%	48.74%
Ameren Corporation	AEE	46.33%	46.97%	47.19%	47.31%	46.78%	47.99%	46.96%	47.35%	47.11%
American Electric Power Co.	AEP	50.09%	51.20%	50.38%	50.60%	51.32%	51.48%	51.40%	51.09%	50.94%
Avangrid, Inc.	AGR	45.62%	43.67%	43.49%	44.28%	43.87%	45.07%	43.45%	44.31%	44.22%
Avista Corporation	AVA	44.20%	43.68%	43.90%	44.91%	44.25%	44.24%	43.66%	44.24%	44.14%
CMS Energy Corporation	CMS	48.30%	46.36%	47.48%	49.73%	46.99%	47.14%	46.87%	47.75%	47.58%
Consolidated Edison, Inc.	ED	50.15%	50.92%	51.25%	52.03%	51.62%	51.27%	50.25%	50.77%	51.03%
Dominion Energy, Inc.	D	46.44%	49.02%	49.53%	51.25%	48.37%	48.88%	49.83%	49.38%	49.09%
Duke Energy Corporation	DUK	47.11%	45.52%	46.86%	45.65%	44.97%	45.06%	45.54%	45.70%	45.80%
Edison International	EIX	49.86%	51.60%	54.85%	53.10%	50.18%	49.95%	49.37%	46.92%	50.73%
Entergy Corporation	ETR	50.90%	51.81%	51.19%	49.89%	50.04%	50.05%	51.40%	51.03%	50.79%
Evergy, Inc.	EVRG	39.72%	39.49%	41.84%	40.44%	40.14%	41.49%	41.27%	41.38%	40.72%
Eversource Energy	ES	50.47%	50.62%	45.78%	46.72%	48.97%	49.86%	45.95%	45.40%	47.97%
Exelon Corporation	EXC	48.23%	47.54%	47.59%	48.07%	48.15%	47.60%	47.75%	47.90%	47.85%
FirstEnergy Corporation	FE	44.12%	44.05%	43.54%	43.39%	41.95%	42.51%	43.63%	44.27%	43.43%
Hawaiian Electric Industries	HE	41.57%	41.83%	41.94%	42.02%	43.91%	44.22%	42.56%	42.58%	42.58%
IDACORP, Inc.	IDA	44.80%	45.42%	45.64%	45.75%	45.75%	46.56%	48.63%	45.78%	46.04%
MGE Energy, Inc.	MGEE	40.34%	41.16%	41.54%	42.10%	42.64%	39.34%	39.80%	40.27%	40.90%
NextEra Energy, Inc.	NEE	43.85%	38.78%	38.95%	35.63%	35.22%	39.16%	38.77%	40.07%	38.80%
NorthWestern Corporation	NWE	52.20%	51.93%	51.26%	52.12%	51.64%	51.59%	52.52%	50.11%	51.67%
OGE Energy Corp.	OGE	45.04%	46.53%	44.62%	46.80%	46.95%	45.75%	46.41%	46.64%	46.09%
Otter Tail Corporation	OTTR	44.57%	46.25%	46.10%	46.42%	46.51%	46.80%	47.33%	42.66%	45.84%
Pinnacle West Capital Corp.	PNW	45.75%	45.59%	45.52%	45.64%	46.32%	46.29%	46.82%	46.86%	46.10%
PNM Resources, Inc.	PNM	54.67%	56.14%	56.55%	54.37%	51.99%	53.32%	53.80%	53.94%	54.35%
Portland General Electric Company	POR	48.22%	48.44%	49.40%	49.81%	49.49%	49.71%	49.86%	50.20%	49.39%
PPL Corporation	PPL	46.16%	46.26%	44.62%	44.94%	45.08%	45.41%	45.48%	45.33%	45.41%
Sempra Energy	SRE	43.83%	43.70%	46.18%	46.71%	46.87%	45.61%	45.80%	46.73%	45.68%
Southern Company	SO	47.64%	47.07%	47.20%	45.79%	48.50%	49.69%	50.02%	52.33%	48.53%
WEC Energy Group	WEC	44.21%	43.29%	44.27%	46.54%	41.70%	42.28%	38.38%	45.38%	43.26%
Xcel Energy Inc.	XEL	46.02%	45.30%	45.49%	45.78%	46.63%	46.37%	45.85%	46.05%	45.94%
Mean		46.45%	46.45%	46.50%	46.63%	46.36%	46.61%	46.34%	46.46%	46.48%

Operating Company Capital Structure

Operating Company	Parent	2019Q3	2019Q2	2019Q1	2018Q4	% Long-Term Debt 2018Q3	2018Q2	2018Q1	2017Q4	Average
ALLETE (Minnesota Power)	ALE	40.67%	39.06%	39.13%	38.61%	39.57%	39.67%	39.62%	39.96%	39.54%
Superior Water, Light and Power Company	ALE	41.97%	41.62%	41.81%	43.14%	43.42%	42.66%	34.20%	35.01%	40.48%
Interstate Power and Light Company	LNT	49.94%	48.24%	46.67%	46.48%	50.36%	49.53%	50.08%	49.69%	48.87%
Wisconsin Power and Light Company	LNT	46.60%	50.99%	46.97%	47.31%	47.38%	48.48%	50.43%	50.77%	48.62%
Ameren Illinois Company	AEE	45.54%	45.95%	46.35%	47.14%	46.82%	47.26%	45.76%	46.62%	46.43%
Union Electric Company	AEE	47.12%	48.00%	48.04%	47.48%	46.74%	48.72%	48.16%	48.08%	47.79%
AEP Texas Inc.	AEP	53.03%	53.68%	52.46%	54.62%	56.20%	56.80%	53.25%	54.86%	54.36%
Appalachian Power Company	AEP	51.26%	51.81%	52.23%	50.49%	50.70%	51.07%	50.65%	51.28%	51.19%
Indiana Michigan Power Company	AEP	53.49%	54.17%	54.57%	55.38%	55.47%	55.85%	53.36%	53.67%	54.50%
Kentucky Power Company	AEP	53.06%	53.50%	53.58%	54.28%	54.72%	55.11%	55.60%	56.48%	54.54%
Kingsport Power Company	AEP	45.76%	49.82%	48.46%	49.21%	49.29%	52.31%	52.72%	53.47%	50.13%
Ohio Power Company	AEP	46.37%	47.08%	41.14%	42.20%	43.15%	42.89%	47.09%	41.37%	43.91%
Public Service Company of Oklahoma	AEP	50.11%	51.98%	52.81%	50.84%	50.45%	51.41%	51.90%	51.50%	51.38%
Southwestern Electric Power Company	AEP	51.37%	52.55%	52.41%	53.03%	56.57%	52.09%	52.28%	51.48%	52.72%
Wheeling Power Company	AEP	46.34%	46.17%	45.73%	45.38%	45.30%	45.81%	45.73%	45.74%	45.77%
Central Maine Power Company	AGR	37.81%	38.04%	36.49%	36.79%	35.83%	36.47%	35.82%	36.18%	36.68%
New York State Electric & Gas Corporation	AGR	51.21%	44.16%	44.07%	45.70%	46.05%	49.01%	45.49%	46.70%	46.55%
Rochester Gas and Electric Corporation	AGR	49.50%	49.75%	50.04%	51.11%	51.84%	52.23%	49.20%	50.37%	50.50%
United Illuminating Company	AGR	43.95%	42.74%	43.35%	43.54%	41.77%	42.57%	43.30%	44.00%	43.15%
Alaska Electric Light and Power Company	AVA	38.72%	38.76%	38.98%	39.71%	38.06%	38.22%	38.47%	39.23%	38.77%
Avista Corporation	AVA	49.67%	48.60%	48.82%	50.11%	50.45%	50.26%	48.84%	49.25%	49.50%
Consumers Energy Company	CMS	48.30%	46.36%	47.48%	49.73%	46.99%	47.14%	46.87%	47.75%	47.58%
Consolidated Edison Company of New York, Inc.	ED	50.71%	51.08%	51.70%	52.48%	51.67%	53.28%	51.34%	51.78%	51.76%
Orange and Rockland Utilities, Inc.	ED	49.60%	50.75%	50.79%	51.59%	51.56%	49.26%	49.17%	49.75%	50.31%
Rockland Electric Company	ED	NA	NA	NA	NA	NA	NA	NA	NA	NA
Virginia Electric and Power Company	D	46.67%	46.70%	47.58%	47.38%	46.36%	47.19%	48.97%	48.29%	47.39%
Dominion Energy South Carolina, Inc.	D	46.20%	51.33%	51.48%	55.12%	50.37%	50.56%	50.70%	50.46%	50.78%
Duke Energy Carolinas, LLC	DUK	48.20%	47.06%	47.68%	48.22%	47.36%	47.90%	48.30%	47.02%	47.72%
Duke Energy Florida, LLC	DUK	47.18%	48.45%	49.44%	49.96%	50.35%	51.21%	50.08%	50.75%	49.68%
Duke Energy Indiana, LLC	DUK	48.48%	45.17%	45.71%	46.74%	47.21%	47.36%	47.46%	48.06%	47.02%
Duke Energy Kentucky, Inc.	DUK	54.56%	46.96%	47.19%	48.05%	43.42%	44.21%	46.28%	46.89%	47.20%
Duke Energy Ohio, Inc.	DUK	35.10%	35.55%	40.71%	31.91%	32.27%	32.90%	33.94%	33.76%	34.52%
Duke Energy Progress, LLC	DUK	49.14%	49.91%	50.40%	49.00%	49.24%	46.78%	47.18%	47.73%	48.67%
Southern California Edison Company	EIX	49.86%	51.60%	54.85%	53.10%	50.18%	49.95%	49.37%	46.92%	50.73%
Entergy Arkansas, LLC	ETR	52.28%	53.51%	52.96%	50.58%	50.62%	51.71%	54.12%	54.05%	52.48%
Entergy Louisiana, LLC	ETR	52.87%	53.68%	54.21%	52.63%	53.23%	53.03%	55.42%	52.57%	53.45%
Entergy Mississippi, LLC	ETR	51.65%	55.07%	50.59%	50.89%	49.90%	50.90%	51.68%	52.15%	51.60%
Entergy New Orleans, LLC	ETR	46.31%	47.60%	48.31%	48.81%	49.07%	45.98%	46.57%	46.84%	47.44%
Entergy Texas, Inc.	ETR	51.37%	49.21%	49.87%	46.54%	47.39%	48.62%	49.21%	49.55%	48.97%
Evergy Kansas South, Inc.	EVRG	18.16%	18.51%	24.87%	25.03%	25.09%	25.55%	25.71%	25.82%	23.59%
Evergy Metro, Inc.	EVRG	49.57%	50.38%	53.96%	50.51%	50.50%	51.12%	50.75%	50.85%	50.95%
Evergy Missouri West, Inc.	EVRG	48.82%	48.26%	47.32%	45.29%	44.30%	47.97%	47.37%	47.60%	47.12%
Westar Energy (KPL)	EVRG	42.34%	40.82%	41.20%	40.92%	40.66%	41.32%	41.25%	41.26%	41.22%
Connecticut Light and Power Company	ES	45.88%	44.62%	41.82%	43.82%	45.51%	46.15%	49.60%	46.18%	45.45%
NSTAR Electric Company	ES	46.19%	47.26%	43.92%	44.26%	44.50%	45.49%	46.17%	46.15%	45.49%
Public Service Company of New Hampshire	ES	59.36%	59.98%	51.62%	52.08%	56.89%	57.94%	42.07%	42.70%	52.83%
Western Massachusetts Electric Company	ES	NA	NA	NA	NA	NA	NA	NA	NA	46.57%
Atlantic City Electric Company	EXC	50.62%	50.53%	50.70%	50.86%	49.62%	50.54%	50.86%	50.81%	50.57%
Baltimore Gas and Electric Company	EXC	48.11%	45.64%	45.57%	46.33%	47.15%	44.66%	44.64%	45.23%	45.92%
Commonwealth Edison Company	EXC	44.39%	44.71%	45.00%	44.94%	45.28%	44.64%	45.04%	45.15%	44.89%
Delmarva Power & Light Company	EXC	49.82%	49.80%	49.82%	50.02%	49.89%	50.14%	49.65%	49.62%	49.84%
PECO Energy Co.	EXC	46.63%	44.80%	44.87%	46.28%	47.18%	45.72%	46.23%	46.46%	46.02%
Potomac Electric Power Company	EXC	49.79%	49.76%	49.59%	49.99%	49.76%	49.92%	50.06%	50.11%	49.87%
Cleveland Electric Illuminating Company	FE	44.26%	44.51%	44.46%	44.56%	43.50%	43.69%	44.52%	44.73%	44.28%
Jersey Central Power & Light Company	FE	31.26%	31.77%	31.92%	30.54%	30.66%	31.19%	34.48%	34.70%	32.07%
Metropolitan Edison Company	FE	50.28%	51.54%	52.22%	46.79%	45.75%	46.90%	47.82%	47.67%	48.62%
Monongahela Power Company	FE	50.02%	50.93%	50.95%	51.13%	49.29%	48.47%	49.43%	50.85%	50.13%
Ohio Edison Company	FE	30.84%	28.58%	29.18%	30.07%	30.86%	32.67%	33.11%	35.09%	31.30%
Pennsylvania Electric Company	FE	48.22%	49.07%	46.15%	46.11%	45.99%	46.10%	46.91%	47.94%	47.06%
Pennsylvania Power Company	FE	46.91%	48.29%	49.31%	50.97%	41.73%	43.11%	44.30%	46.18%	46.35%
Potomac Edison Company	FE	46.31%	47.01%	46.71%	47.65%	47.08%	47.35%	47.36%	48.41%	47.23%
Toledo Edison Company	FE	39.24%	39.43%	39.22%	39.57%	37.75%	37.75%	39.40%	39.96%	39.04%
West Penn Power Company	FE	53.89%	49.37%	45.32%	46.50%	46.86%	47.91%	48.91%	47.18%	48.24%
Hawaii Electric Light Company, Inc.	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hawaiian Electric Company, Inc.	HE	41.57%	41.83%	41.94%	42.02%	43.91%	44.22%	42.56%	42.58%	42.58%
Maui Electric Company, Limited	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Idaho Power Company	IDA	44.80%	45.42%	45.64%	45.75%	45.75%	46.56%	48.63%	45.78%	46.04%
Madison Gas and Electric Company	MGEE	40.34%	41.16%	41.54%	42.10%	42.64%	39.34%	39.80%	40.27%	40.90%
Florida Power & Light Company	NEE	40.22%	38.70%	35.97%	35.63%	35.22%	39.16%	38.77%	40.07%	37.97%
Gulf Power Company	NEE	47.48%	38.85%	41.94%	NA	NA	NA	NA	NA	42.76%
NorthWestern Corporation	NWE	52.20%	51.93%	51.26%	52.12%	51.64%	51.59%	52.52%	50.11%	51.67%
Oklahoma Gas and Electric Company	OGE	45.04%	46.53%	44.62%	46.80%	46.95%	45.75%	46.41%	46.64%	46.09%
Otter Tail Power Company	OTTR	44.57%	46.25%	46.10%	46.42%	46.51%	46.89%	47.33%	42.66%	45.84%
Arizona Public Service Company	PNW	45.75%	45.59%	45.52%	45.64%	46.32%	46.29%	46.82%	46.86%	46.10%
Public Service Company of New Mexico	PNM	54.67%	56.14%	56.55%	54.37%	51.99%	53.32%	53.80%	53.94%	54.35%
Portland General Electric Company	POR	48.22%	48.44%	49.40%	49.81%	49.49%	49.71%	49.86%	50.20%	49.39%
Kentucky Utilities Company	PPL	47.03%	47.19%	44.56%	45.15%	45.24%	45.49%	45.92%	46.00%	45.82%
Louisville Gas and Electric Company	PPL	45.90%	46.12%	43.84%	44.20%	44.65%	45.03%	45.54%	44.58%	44.98%
PPL Electric Utilities Corporation	PPL	45.56%	45.49%	45.48%	45.48%	45.35%	45.72%	44.96%	45.43%	45.43%
Oncor Electric Delivery Company LLC	SRE	45.09%	42.57%	40.21%	40.53%	40.71%	37.69%	39.66%	41.14%	40.95%
San Diego Gas & Electric Company	SRE	42.57%	44.83%	43.40%	44.21%	44.83%	45.53%	44.08%	44.91%	44.29%
Sharyland Utilities, LLC	SRE	NA	NA	54.95%	55.38%	55.08%	53.61%	53.66%	54.14%	54.47%
Alabama Power Company	SO	48.55%	47.46%	47.77%	52.23%	51.87%	52.49%	51.14%	52.93%	50.56%
Georgia Power Company	SO	44.62%	43.61%	43.57%	40.98%	42.73%	45.03%	46.19%	49.49%	44.58%
Mississippi Power Company	SO	49.77%	50.13%	50.27%	49.65%	54.72%	56.13%	57.00%	60.66%	53.54%
Gulf Power Company	SO	NA	NA	NA	40.27%	44.66%	45.10%	45.73%	45.81%	44.31%
Upper Michigan Energy Resources Corporation	WEC	43.91%	45.55%	47.46%	52.99%	44.92%	45.47%	29.96%	50.15%	45.05%
Wisconsin Electric Power Company	WEC	43.08%	43.36%	44.22%	43.97%	40.75%	40.91%	43.53%	44.06%	42.99%
Wisconsin Public Service Corporation	WEC	45.63%	40.96%	41.12%	42.67%	39.41%	40.47%	41.65%	41.94%	41.73%
Northern States Power Company - MN	XEL	48.21%	46.34%	46.36%	47.19%	47.36%	47.39%	47.41%	47.62%	47.23%
Northern States Power Company - WI	XEL	46.44%	46.51%	46.41%	46.40%	51.55%	46.15%	46.21%	46.64%	47.04%
Public Service Company of Colorado	XEL	43.65%	42.47%	43.32%	43.69%	43.92%	45.83%	43.33%	43.50%	43.71%
Southwestern Public Service Company	XEL	45.79%	45.86%	45.87%	45.83%	43.71%	46.12%	46.46%	45.45%	45.76%
Mean		46.59%	46.45%	46.36%	46.49%	46.31%	46.59%	46.40%	46.77%	46.48%

Frequency Distribution of Market Risk Premium, 1926 - 2019

Year	Large Company Stocks Total Returns Jan-Dec*	Long-Term Government Bond Income Returns Jan-Dec*	MRP Jan-Dec*
1926	0.1162	0.0373	0.0789
1927	0.3749	0.0341	0.3408
1928	0.4361	0.0322	0.4039
1929	-0.0842	0.0347	-0.1189
1930	-0.2490	0.0332	-0.2822
1931	-0.4334	0.0333	-0.4667
1932	-0.0819	0.0369	-0.1188
1933	0.5399	0.0312	0.5087
1934	-0.0144	0.0318	-0.0462
1935	0.4767	0.0281	0.4486
1936	0.3392	0.0277	0.3115
1937	-0.3503	0.0266	-0.3769
1938	0.3112	0.0264	0.2848
1939	-0.0041	0.0240	-0.0281
1940	-0.0978	0.0223	-0.1201
1941	-0.1159	0.0194	-0.1353
1942	0.2034	0.0246	0.1788
1943	0.2590	0.0244	0.2346
1944	0.1975	0.0246	0.1729
1945	0.3644	0.0234	0.3410
1946	-0.0807	0.0204	-0.1011
1947	0.0571	0.0213	0.0358
1948	0.0550	0.0240	0.0310
1949	0.1879	0.0225	0.1654
1950	0.3171	0.0212	0.2959
1951	0.2402	0.0238	0.2164
1952	0.1837	0.0266	0.1571
1953	-0.0099	0.0284	-0.0383
1954	0.5262	0.0279	0.4983
1955	0.3156	0.0275	0.2881
1956	0.0656	0.0299	0.0357
1957	-0.1078	0.0344	-0.1422
1958	0.4336	0.0327	0.4009
1959	0.1196	0.0401	0.0795
1960	0.0047	0.0426	-0.0379
1961	0.2689	0.0383	0.2306
1962	-0.0873	0.0400	-0.1273
1963	0.2280	0.0389	0.1891
1964	0.1648	0.0415	0.1233
1965	0.1245	0.0419	0.0826
1966	-0.1006	0.0449	-0.1455
1967	0.2398	0.0459	0.1939
1968	0.1106	0.0550	0.0556
1969	-0.0850	0.0595	-0.1445
1970	0.0386	0.0674	-0.0288
1971	0.1430	0.0632	0.0798
1972	0.1899	0.0587	0.1312
1973	-0.1469	0.0651	-0.2120
1974	-0.2647	0.0727	-0.3374
1975	0.3723	0.0799	0.2924
1976	0.2393	0.0789	0.1604
1977	-0.0716	0.0714	-0.1430
1978	0.0657	0.0790	-0.0133
1979	0.1861	0.0886	0.0975
1980	0.3250	0.0997	0.2253
1981	-0.0492	0.1155	-0.1647
1982	0.2155	0.1350	0.0805
1983	0.2256	0.1038	0.1218
1984	0.0627	0.1174	-0.0547
1985	0.3173	0.1125	0.2048
1986	0.1867	0.0898	0.0969
1987	0.0525	0.0792	-0.0267
1988	0.1661	0.0897	0.0764
1989	0.3169	0.0881	0.2288
1990	-0.0310	0.0819	-0.1129
1991	0.3047	0.0822	0.2225
1992	0.0762	0.0726	0.0036
1993	0.1008	0.0717	0.0291
1994	0.0132	0.0659	-0.0527
1995	0.3758	0.0760	0.2998
1996	0.2296	0.0618	0.1678
1997	0.3336	0.0664	0.2672
1998	0.2858	0.0583	0.2275
1999	0.2104	0.0557	0.1547
2000	-0.0910	0.0650	-0.1560
2001	-0.1189	0.0553	-0.1742
2002	-0.2210	0.0559	-0.2769
2003	0.2868	0.0480	0.2388
2004	0.1088	0.0502	0.0586
2005	0.0491	0.0469	0.0022
2006	0.1579	0.0468	0.1111
2007	0.0549	0.0486	0.0063
2008	-0.3700	0.0445	-0.4145
2009	0.2646	0.0347	0.2299
2010	0.1506	0.0425	0.1081
2011	0.0211	0.0382	-0.0171
2012	0.1600	0.0246	0.1354
2013	0.3239	0.0288	0.2951
2014	0.1369	0.0341	0.1028
2015	0.0138	0.0247	-0.0109
2016	0.1196	0.0230	0.0966
2017	0.2183	0.0267	0.1916
2018	-0.0438	0.0282	-0.0720
2019	0.3149	0.0255	0.2894
Average	0.1209	0.0494	0.0715
Std. Dev.	0.1976	0.0262	0.1987

MRP

Bin	Frequency	Cumulative %
-50.00%	0	0.0%
-47.50%	0	0.0%
-45.00%	1	1.1%
-42.50%	0	1.1%
-40.00%	1	2.1%
-37.50%	1	3.2%
-35.00%	0	3.2%
-32.50%	1	4.3%
-30.00%	0	4.3%
-27.50%	2	6.4%
-25.00%	0	6.4%
-22.50%	0	6.4%
-20.00%	1	7.4%
-17.50%	0	7.4%
-15.00%	3	10.6%
-12.50%	6	17.0%
-10.00%	5	22.3%
-7.50%	0	22.3%
-5.00%	3	25.5%
-2.50%	6	31.9%
0.00%	3	35.1%
2.50%	3	38.3%
5.00%	4	42.6%
7.50%	2	44.7%
10.00%	9	54.3%
12.50%	5	59.6%
15.00%	2	61.7%
17.50%	6	68.1%
20.00%	4	72.3%
22.50%	3	75.5%
25.00%	7	83.0%
27.50%	1	84.0%
30.00%	7	91.5%
32.50%	1	92.6%
35.00%	2	94.7%
37.50%	0	94.7%
40.00%	0	94.7%
42.50%	2	96.8%
45.00%	1	97.9%
47.50%	0	97.9%
50.00%	1	98.9%
51.00%	1	100.0%

Count: 94

Highest MRP from Direct		Rank	
	12.19%	57.90%	42.10%

Historical Market Return from Direct		
D'Ascendis	% Rank	Occurrence
14.48%	50.70%	46
14.62%	50.90%	46
		94

Source: Duff & Phelps, 2020 SBBI Yearbook, Appendix A-1, A-7

CAPM vs. ECAPM Security Market Line
Using Mr. Baudino's Inputs

			ECAPM	0.25
Risk-Free Rate	2.19%			
MRP	9.34%		Factors	0.75

| | | | ECAPM alpha | |
	CAPM	ECAPM	1.00%	2.00%
0.00	2.19%	4.53%	3.19%	4.19%
0.01	2.28%	4.60%	3.27%	4.26%
0.02	2.38%	4.67%	3.36%	4.34%
0.03	2.47%	4.74%	3.44%	4.41%
0.04	2.56%	4.81%	3.52%	4.48%
0.05	2.66%	4.88%	3.61%	4.56%
0.06	2.75%	4.95%	3.69%	4.63%
0.07	2.84%	5.02%	3.77%	4.70%
0.08	2.94%	5.09%	3.86%	4.78%
0.09	3.03%	5.16%	3.94%	4.85%
0.10	3.12%	5.23%	4.02%	4.92%
0.11	3.22%	5.30%	4.11%	5.00%
0.12	3.31%	5.37%	4.19%	5.07%
0.13	3.40%	5.44%	4.27%	5.14%
0.14	3.50%	5.51%	4.36%	5.22%
0.15	3.59%	5.58%	4.44%	5.29%
0.16	3.68%	5.65%	4.52%	5.36%
0.17	3.78%	5.72%	4.61%	5.44%
0.18	3.87%	5.79%	4.69%	5.51%
0.19	3.96%	5.86%	4.77%	5.58%
0.20	4.06%	5.93%	4.86%	5.66%
0.21	4.15%	6.00%	4.94%	5.73%
0.22	4.24%	6.07%	5.02%	5.80%
0.23	4.34%	6.14%	5.11%	5.88%
0.24	4.43%	6.21%	5.19%	5.95%
0.25	4.53%	6.28%	5.28%	6.03%
0.26	4.62%	6.35%	5.36%	6.10%
0.27	4.71%	6.42%	5.44%	6.17%
0.28	4.81%	6.49%	5.53%	6.25%
0.29	4.90%	6.56%	5.61%	6.32%
0.30	4.99%	6.63%	5.69%	6.39%
0.31	5.09%	6.70%	5.78%	6.47%
0.32	5.18%	6.77%	5.86%	6.54%
0.33	5.27%	6.84%	5.94%	6.61%
0.34	5.37%	6.91%	6.03%	6.69%
0.35	5.46%	6.98%	6.11%	6.76%
0.36	5.55%	7.05%	6.19%	6.83%
0.37	5.65%	7.12%	6.28%	6.91%
0.38	5.74%	7.19%	6.36%	6.98%
0.39	5.83%	7.26%	6.44%	7.05%
0.40	5.93%	7.33%	6.53%	7.13%
0.41	6.02%	7.40%	6.61%	7.20%
0.42	6.11%	7.47%	6.69%	7.27%
0.43	6.21%	7.54%	6.78%	7.35%
0.44	6.30%	7.61%	6.86%	7.42%
0.45	6.39%	7.68%	6.94%	7.49%
0.46	6.49%	7.75%	7.03%	7.57%
0.47	6.58%	7.82%	7.11%	7.64%

	CAPM	ECAPM	1.00%	2.00%
0.48	6.67%	7.89%	7.19%	7.71%
0.49	6.77%	7.96%	7.28%	7.79%
0.50	6.86%	8.03%	7.36%	7.86%
0.51	6.95%	8.10%	7.44%	7.93%
0.52	7.05%	8.17%	7.53%	8.01%
0.53	7.14%	8.24%	7.61%	8.08%
0.54	7.23%	8.31%	7.69%	8.15%
0.55	7.33%	8.38%	7.78%	8.23%
0.56	7.42%	8.45%	7.86%	8.30%
0.57	7.51%	8.52%	7.94%	8.37%
0.58	7.61%	8.59%	8.03%	8.45%
0.59	7.70%	8.66%	8.11%	8.52%
0.60	7.79%	8.73%	8.19%	8.59%
0.61	7.89%	8.80%	8.28%	8.67%
0.62	7.98%	8.87%	8.36%	8.74%
0.63	8.07%	8.94%	8.44%	8.81%
0.64	8.17%	9.01%	8.53%	8.89%
0.65	8.26%	9.08%	8.61%	8.96%
0.66	8.35%	9.15%	8.69%	9.03%
0.67	8.45%	9.22%	8.78%	9.11%
0.68	8.54%	9.29%	8.86%	9.18%
0.69	8.63%	9.36%	8.94%	9.25%
0.70	8.73%	9.43%	9.03%	9.33%
0.71	8.82%	9.50%	9.11%	9.40%
0.72	8.91%	9.57%	9.19%	9.47%
0.73	9.01%	9.64%	9.28%	9.55%
0.74	9.10%	9.71%	9.36%	9.62%
0.75	9.20%	9.78%	9.45%	9.70%
0.76	9.29%	9.85%	9.53%	9.77%
0.77	9.38%	9.92%	9.61%	9.84%
0.78	9.48%	9.99%	9.70%	9.92%
0.79	9.57%	10.06%	9.78%	9.99%
0.80	9.66%	10.13%	9.86%	10.06%
0.81	9.76%	10.20%	9.95%	10.14%
0.82	9.85%	10.27%	10.03%	10.21%
0.83	9.94%	10.34%	10.11%	10.28%
0.84	10.04%	10.41%	10.20%	10.36%
0.85	10.13%	10.48%	10.28%	10.43%
0.86	10.22%	10.55%	10.36%	10.50%
0.87	10.32%	10.62%	10.45%	10.58%
0.88	10.41%	10.69%	10.53%	10.65%
0.89	10.50%	10.76%	10.61%	10.72%
0.90	10.60%	10.83%	10.70%	10.80%
0.91	10.69%	10.90%	10.78%	10.87%
0.92	10.78%	10.97%	10.86%	10.94%
0.93	10.88%	11.04%	10.95%	11.02%
0.94	10.97%	11.11%	11.03%	11.09%
0.95	11.06%	11.18%	11.11%	11.16%
0.96	11.16%	11.25%	11.20%	11.24%
0.97	11.25%	11.32%	11.28%	11.31%
0.98	11.34%	11.39%	11.36%	11.38%
0.99	11.44%	11.46%	11.45%	11.46%
1.00	11.53%	11.53%	11.53%	11.53%
1.01	11.62%	11.60%	11.61%	11.60%

	CAPM	ECAPM	1.00%	2.00%
1.02	11.72%	11.67%	11.70%	11.68%
1.03	11.81%	11.74%	11.78%	11.75%
1.04	11.90%	11.81%	11.86%	11.82%
1.05	12.00%	11.88%	11.95%	11.90%
1.06	12.09%	11.95%	12.03%	11.97%
1.07	12.18%	12.02%	12.11%	12.04%
1.08	12.28%	12.09%	12.20%	12.12%
1.09	12.37%	12.16%	12.28%	12.19%
1.10	12.46%	12.23%	12.36%	12.26%
1.11	12.56%	12.30%	12.45%	12.34%
1.12	12.65%	12.37%	12.53%	12.41%
1.13	12.74%	12.44%	12.61%	12.48%
1.14	12.84%	12.51%	12.70%	12.56%
1.15	12.93%	12.58%	12.78%	12.63%
1.16	13.02%	12.65%	12.86%	12.70%
1.17	13.12%	12.72%	12.95%	12.78%
1.18	13.21%	12.79%	13.03%	12.85%
1.19	13.30%	12.86%	13.11%	12.92%
1.20	13.40%	12.93%	13.20%	13.00%
1.21	13.49%	13.00%	13.28%	13.07%
1.22	13.58%	13.07%	13.36%	13.14%
1.23	13.68%	13.14%	13.45%	13.22%
1.24	13.77%	13.21%	13.53%	13.29%
1.25	13.87%	13.28%	13.62%	13.37%
1.26	13.96%	13.35%	13.70%	13.44%
1.27	14.05%	13.42%	13.78%	13.51%
1.28	14.15%	13.49%	13.87%	13.59%
1.29	14.24%	13.56%	13.95%	13.66%
1.30	14.33%	13.63%	14.03%	13.73%
1.31	14.43%	13.70%	14.12%	13.81%
1.32	14.52%	13.77%	14.20%	13.88%
1.33	14.61%	13.84%	14.28%	13.95%
1.34	14.71%	13.91%	14.37%	14.03%
1.35	14.80%	13.98%	14.45%	14.10%
1.36	14.89%	14.05%	14.53%	14.17%
1.37	14.99%	14.12%	14.62%	14.25%
1.38	15.08%	14.19%	14.70%	14.32%
1.39	15.17%	14.26%	14.78%	14.39%
1.40	15.27%	14.33%	14.87%	14.47%
1.41	15.36%	14.40%	14.95%	14.54%
1.42	15.45%	14.47%	15.03%	14.61%
1.43	15.55%	14.54%	15.12%	14.69%
1.44	15.64%	14.61%	15.20%	14.76%
1.45	15.73%	14.68%	15.28%	14.83%
1.46	15.83%	14.75%	15.37%	14.91%
1.47	15.92%	14.82%	15.45%	14.98%
1.48	16.01%	14.89%	15.53%	15.05%
1.49	16.11%	14.96%	15.62%	15.13%
1.50	16.20%	15.03%	15.70%	15.20%

Source: Exhibit RAB-4
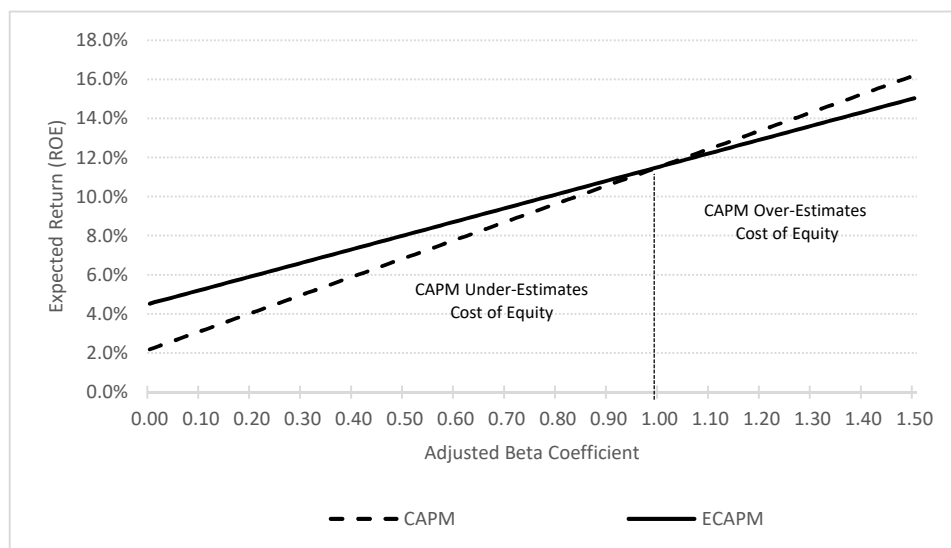
Relative Accuracy of Average Equity Risk Premiums and Predicted Risk Premiums

Rate Case Year	Auth. ROE [1]	Avg 30-Yr Treasury [2]	Average RP [3]	ROE Using Average	Error	LN Inverse Predicted RP [4]	LN Inverse Predicted ROE	Error
2000	11.58%	5.93%	4.68%	10.61%	-0.97%	5.09%	11.03%	-0.55%
2001	11.07%	5.49%	4.68%	10.17%	-0.90%	5.30%	10.79%	-0.28%
2002	11.21%	5.28%	4.68%	9.96%	-1.25%	5.40%	10.69%	-0.52%
2003	10.96%	4.92%	4.68%	9.60%	-1.36%	5.59%	10.51%	-0.45%
2004	10.81%	5.03%	4.68%	9.70%	-1.11%	5.54%	10.56%	-0.25%
2005	10.51%	4.57%	4.68%	9.24%	-1.27%	5.79%	10.36%	-0.15%
2006	10.32%	4.88%	4.68%	9.55%	-0.77%	5.62%	10.49%	0.17%
2007	10.30%	4.84%	4.68%	9.51%	-0.79%	5.64%	10.48%	0.18%
2008	10.41%	4.27%	4.68%	8.94%	-1.47%	5.98%	10.24%	-0.17%
2009	10.52%	4.07%	4.68%	8.75%	-1.77%	6.10%	10.17%	-0.35%
2010	10.37%	4.25%	4.68%	8.92%	-1.45%	5.99%	10.24%	-0.13%
2011	10.29%	3.90%	4.68%	8.58%	-1.71%	6.21%	10.12%	-0.17%
2012	10.17%	2.92%	4.68%	7.59%	-2.58%	6.99%	9.91%	-0.26%
2013	10.03%	3.45%	4.68%	8.12%	-1.91%	6.55%	9.99%	-0.04%
2014	9.91%	3.34%	4.68%	8.01%	-1.90%	6.63%	9.97%	0.06%
2015	9.85%	2.84%	4.68%	7.52%	-2.33%	7.06%	9.91%	0.06%
2016	9.77%	2.60%	4.68%	7.27%	-2.50%	7.30%	9.90%	0.13%
2017	9.74%	2.89%	4.68%	7.57%	-2.17%	7.02%	9.91%	0.17%
2018	9.60%	3.11%	4.68%	7.79%	-1.81%	6.82%	9.93%	0.33%
2019	9.65%	2.58%	4.68%	7.25%	-2.40%	7.32%	9.90%	0.25%
Average:	10.35%	4.06%	4.68%	8.73%	-1.62%	6.20%	10.26%	-0.10%

Stdev: 0.26%
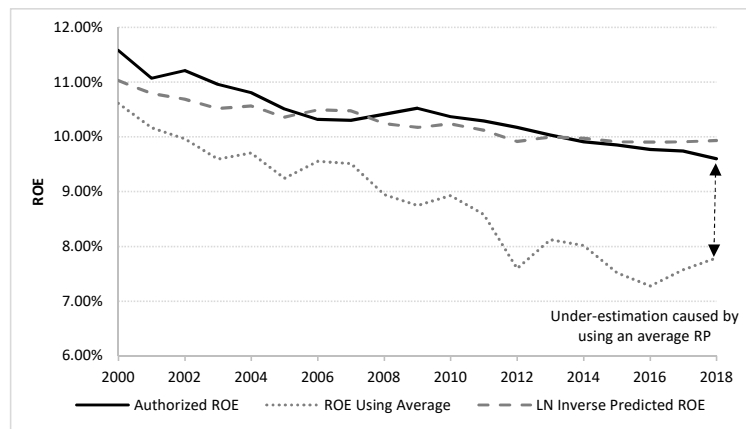
Notes

[1] Source: Regulatory Research Associates: Regulatory Focus, Major Rate Case Decisions January - December 2019, January 31, 2020; all electric rate cases
[2] Source: Bloomberg Professional
[3] Source: Exhibit DWD-5
[4] Source: Exhibit DWD-5 (regression coefficients)

Retention Ratio Regression Analysis - Mr. O'Donnell's Proxy Group

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.33588834
R Square	0.112820977
Adjusted R Square	0.110614064
Standard Error	0.187578324
Observations	404

ANOVA

	df	SS	MS	F	Significance F
Regression	1	1.798746443	1.798746443	51.12162426	4.12617E-12
Residual	402	14.14462237	0.035185628		
Total	403	15.94336882			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.108	0.012	9.201	0.000	0.085	0.131
Retention Ratio	-0.166	0.023	-7.150	0.000	-0.211	-0.120

Source: Value Line

Date	Ticker	Payout Ratio	Retention Ratio	5-year Fwd EPS Growth
2004	ALE	22.22%	77.78%	13.03%
2005	ALE	50.40%	49.60%	-0.53%
2006	ALE	52.35%	47.65%	1.33%
2007	ALE	53.25%	46.75%	-1.44%
2008	ALE	60.99%	39.01%	0.64%
2009	ALE	93.12%	6.88%	9.29%
2010	ALE	80.37%	19.63%	9.42%
2011	ALE	67.17%	32.83%	3.80%
2012	ALE	71.32%	28.68%	4.27%
2013	ALE	72.24%	27.76%	5.48%
1996	LNT	86.78%	13.22%	6.92%
1997	LNT	105.26%	-5.26%	-0.07%
1998	LNT	158.73%	-58.73%	13.28%
1999	LNT	91.32%	8.68%	2.08%
2000	LNT	80.97%	19.03%	3.42%
2001	LNT	82.64%	17.36%	2.46%
2002	LNT	169.49%	-69.49%	18.83%
2003	LNT	63.69%	36.31%	11.10%
2004	LNT	55.14%	44.86%	2.50%
2005	LNT	47.51%	52.49%	7.55%
2006	LNT	55.83%	44.17%	8.91%
2007	LNT	47.21%	52.79%	4.97%
2008	LNT	55.12%	44.88%	7.73%
2009	LNT	78.95%	21.05%	13.86%
2010	LNT	57.45%	42.55%	4.34%
2011	LNT	61.82%	38.18%	3.86%
2012	LNT	59.02%	40.98%	5.80%
2013	LNT	56.97%	43.03%	6.17%

Date	Ticker	Payout Ratio	Retention Ratio	5-year Fwd EPS Growth
1996	AEE	87.76%	12.24%	4.29%
1997	AEE	104.10%	-4.10%	2.83%
1998	AEE	90.07%	9.93%	3.32%
1999	AEE	90.39%	9.61%	1.35%
2000	AEE	76.28%	23.72%	-0.15%
2001	AEE	74.49%	25.51%	-3.63%
2002	AEE	95.49%	4.51%	3.17%
2003	AEE	80.89%	19.11%	-1.11%
2004	AEE	90.07%	9.93%	0.24%
2005	AEE	81.15%	18.85%	-2.03%
2006	AEE	95.49%	4.51%	-1.20%
2007	AEE	85.23%	14.77%	-4.09%
2008	AEE	88.19%	11.81%	-5.99%
2009	AEE	55.40%	44.60%	-2.44%
2010	AEE	55.60%	44.40%	-2.53%
2011	AEE	63.16%	36.84%	2.15%
2012	AEE	66.39%	33.61%	3.31%
2013	AEE	76.19%	23.81%	9.85%
1996	AEP	76.43%	23.57%	27.79%
1997	AEP	73.17%	26.83%	24.39%
1998	AEP	85.41%	14.59%	24.95%
1999	AEP	89.22%	10.78%	26.43%
2000	AEP	230.77%	-130.77%	38.93%
2001	AEP	73.39%	26.61%	-2.29%
2002	AEP	83.92%	16.08%	0.22%
2003	AEP	65.22%	34.78%	3.44%
2004	AEP	53.64%	46.36%	2.67%
2005	AEP	53.79%	46.21%	-0.05%
2006	AEP	52.45%	47.55%	2.36%
2007	AEP	55.24%	44.76%	1.40%
2008	AEP	54.85%	45.15%	1.84%
2009	AEP	55.22%	44.78%	2.98%
2010	AEP	65.77%	34.23%	6.96%
2011	AEP	59.11%	40.89%	6.45%
2012	AEP	63.09%	36.91%	4.53%
2013	AEP	61.32%	38.68%	4.73%
1996	CMS	41.63%	58.37%	-8.29%
1997	CMS	43.68%	56.32%	-76.68%
1998	CMS	56.25%	43.75%	-91.91%
1999	CMS	48.77%	51.23%	-168.39%
2000	CMS	57.71%	42.29%	-156.41%
2001	CMS	114.96%	-14.96%	-154.82%
2007	CMS	31.25%	68.75%	25.07%
2008	CMS	29.27%	70.73%	8.33%
2009	CMS	53.76%	46.24%	14.17%
2010	CMS	49.62%	50.38%	7.30%
2011	CMS	57.93%	42.07%	6.44%
2012	CMS	62.75%	37.25%	7.26%
2013	CMS	61.45%	38.55%	6.94%

Date	Ticker	Payout Ratio	Retention Ratio	5-year Fwd EPS Growth
1997	ED	71.19%	28.81%	1.64%
1998	ED	69.74%	30.26%	-0.88%
1999	ED	68.37%	31.63%	-5.08%
2000	ED	79.56%	20.44%	3.19%
2001	ED	68.54%	31.46%	-0.51%
2002	ED	70.93%	29.07%	3.58%
2003	ED	79.15%	20.85%	4.81%
2004	ED	97.41%	2.59%	7.10%
2005	ED	76.25%	23.75%	3.43%
2006	ED	77.97%	22.03%	4.27%
2007	ED	66.67%	33.33%	2.30%
2008	ED	69.64%	30.36%	3.36%
2009	ED	75.16%	24.84%	3.09%
2010	ED	68.59%	31.41%	3.36%
2011	ED	67.23%	32.77%	2.24%
2012	ED	62.69%	37.31%	1.43%
2013	ED	62.60%	37.40%	3.26%
1997	D	86.00%	14.00%	19.21%
1998	D	150.00%	-50.00%	24.00%
1999	D	86.00%	14.00%	10.86%
2000	D	103.20%	-3.20%	8.27%
2001	D	86.58%	13.42%	16.43%
2002	D	53.53%	46.47%	1.83%
2003	D	65.82%	34.18%	14.11%
2004	D	61.03%	38.97%	9.75%
2005	D	89.33%	10.67%	17.56%
2006	D	57.50%	42.50%	4.66%
2007	D	68.54%	31.46%	6.83%
2008	D	51.97%	48.03%	0.76%
2009	D	66.29%	33.71%	3.14%
2010	D	63.32%	36.68%	2.23%
2011	D	71.38%	28.62%	4.62%
2012	D	76.73%	23.27%	5.22%
2013	D	72.82%	27.18%	1.16%
2007	DUK	71.67%	28.33%	1.45%
2008	DUK	89.11%	10.89%	6.07%
2009	DUK	83.19%	16.81%	4.45%
2010	DUK	72.39%	27.61%	0.58%
2011	DUK	71.74%	28.26%	-1.92%
2012	DUK	81.67%	18.33%	2.91%
2013	DUK	77.64%	22.36%	1.03%
2004	EIX	115.94%	-15.94%	76.47%
2005	EIX	30.54%	69.46%	0.34%
2006	EIX	33.54%	66.46%	-0.02%
2007	EIX	35.54%	64.46%	7.91%
2008	EIX	33.42%	66.58%	2.36%
2009	EIX	38.58%	61.42%	7.66%
2010	EIX	37.91%	62.09%	6.15%
2011	EIX	39.94%	60.06%	5.86%
2012	EIX	28.79%	71.21%	0.58%
2013	EIX	36.24%	63.76%	-21.63%
1997	ETR	80.00%	20.00%	11.04%
1998	ETR	67.57%	32.43%	11.36%
1999	ETR	53.33%	46.67%	12.39%

Date	Ticker	Payout Ratio	Retention Ratio	5-year Fwd EPS Growth
2000	ETR	41.08%	58.92%	8.38%
2001	ETR	41.56%	58.44%	12.01%
2002	ETR	36.41%	63.59%	9.01%
2003	ETR	43.36%	56.64%	11.09%
2004	ETR	48.09%	51.91%	10.12%
2005	ETR	49.09%	50.91%	8.87%
2006	ETR	40.30%	59.70%	7.18%
2007	ETR	46.07%	53.93%	2.23%
2008	ETR	48.39%	51.61%	-3.44%
2009	ETR	47.62%	52.38%	-0.49%
2010	ETR	48.65%	51.35%	-1.50%
2011	ETR	43.97%	56.03%	-0.49%
2012	ETR	55.15%	44.85%	-1.35%
2013	ETR	66.94%	33.06%	4.83%
2001	ES	32.85%	67.15%	-8.32%
2002	ES	49.07%	50.93%	14.69%
2003	ES	46.77%	53.23%	15.13%
2004	ES	69.23%	30.77%	20.99%
2005	ES	69.39%	30.61%	21.44%
2006	ES	89.02%	10.98%	25.85%
2007	ES	49.06%	50.94%	4.09%
2008	ES	44.62%	55.38%	7.05%
2009	ES	49.74%	50.26%	7.23%
2010	ES	49.05%	50.95%	6.64%
2011	ES	49.55%	50.45%	6.94%
2012	ES	69.84%	30.16%	10.93%
2013	ES	59.04%	40.96%	5.48%
1996	HE	93.08%	6.92%	4.99%
1997	HE	88.41%	11.59%	4.01%
1998	HE	83.78%	16.22%	2.06%
1999	HE	85.52%	14.48%	-0.31%
2000	HE	97.64%	2.36%	3.64%
2001	HE	77.50%	22.50%	-3.34%
2002	HE	76.54%	23.46%	-6.90%
2003	HE	78.48%	21.52%	-7.12%
2004	HE	91.18%	8.82%	-7.33%
2005	HE	84.93%	15.07%	-2.21%
2006	HE	93.23%	6.77%	3.38%
2007	HE	111.71%	-11.71%	9.88%
2008	HE	115.89%	-15.89%	10.00%
2009	HE	136.26%	-36.26%	13.24%
2010	HE	102.48%	-2.48%	4.94%
2011	HE	86.11%	13.89%	11.67%
2012	HE	74.25%	25.75%	2.80%
2013	HE	76.54%	23.46%	5.96%
1996	IDA	84.16%	15.84%	9.88%
1997	IDA	80.17%	19.83%	-1.38%

Date	Ticker	Payout Ratio	Retention Ratio	5-year Fwd EPS Growth
1998	IDA	78.48%	21.52%	-10.03%
1999	IDA	76.54%	23.46%	9.04%
2000	IDA	53.14%	46.86%	-1.34%
2001	IDA	55.52%	44.48%	6.37%
2002	IDA	114.11%	-14.11%	12.47%
2003	IDA	177.08%	-77.08%	24.13%
2004	IDA	63.16%	36.84%	8.77%
2005	IDA	68.57%	31.43%	12.70%
2006	IDA	51.06%	48.94%	8.62%
2007	IDA	64.52%	35.48%	12.85%
2008	IDA	55.05%	44.95%	11.01%
2009	IDA	45.45%	54.55%	7.94%
2010	IDA	40.68%	59.32%	5.70%
2011	IDA	35.71%	64.29%	3.28%
2012	IDA	40.65%	59.35%	4.59%
2013	IDA	43.13%	56.87%	4.32%
1998	MGEE	93.48%	6.52%	4.51%
1999	MGEE	87.88%	12.12%	3.69%
2000	MGEE	79.28%	20.72%	-0.94%
2001	MGEE	82.41%	17.59%	5.70%
2002	MGEE	78.76%	21.24%	6.81%
2003	MGEE	78.95%	21.05%	7.70%
2004	MGEE	77.12%	22.88%	5.49%
2005	MGEE	87.62%	12.38%	10.41%
2006	MGEE	67.88%	32.12%	5.39%
2007	MGEE	62.25%	37.75%	4.49%
2008	MGEE	60.38%	39.62%	6.65%
2009	MGEE	65.99%	34.01%	9.64%
2010	MGEE	59.28%	40.72%	4.68%
2011	MGEE	57.39%	42.61%	4.77%
2012	MGEE	55.91%	44.09%	3.81%
2013	MGEE	49.54%	50.46%	2.68%
1996	NEE	55.26%	44.74%	6.82%
1997	NEE	53.63%	46.37%	2.72%
1998	NEE	51.81%	48.19%	5.53%
1999	NEE	50.98%	49.02%	4.48%
2000	NEE	52.17%	47.83%	3.04%
2001	NEE	48.48%	51.52%	8.57%
2002	NEE	57.71%	42.29%	11.41%
2003	NEE	48.98%	51.02%	11.93%
2004	NEE	52.85%	47.15%	11.36%
2005	NEE	61.21%	38.79%	16.37%
2006	NEE	46.44%	53.56%	8.87%
2007	NEE	50.15%	49.85%	7.54%
2008	NEE	43.73%	56.27%	3.83%
2009	NEE	47.61%	52.39%	7.51%
2010	NEE	42.19%	57.81%	5.27%
2011	NEE	45.64%	54.36%	4.01%
2012	NEE	52.63%	47.37%	7.58%
2013	NEE	54.66%	45.34%	6.92%
2005	NWE	58.48%	41.52%	5.90%
2006	NWE	94.66%	5.34%	14.23%

Date	Ticker	Payout Ratio	Retention Ratio	5-year Fwd EPS Growth
2007	NWE	88.89%	11.11%	10.11%
2008	NWE	74.58%	25.42%	7.29%
2009	NWE	66.34%	33.66%	8.78%
2010	NWE	63.55%	36.45%	6.99%
2011	NWE	56.92%	43.08%	6.72%
2012	NWE	65.49%	34.51%	8.56%
2013	NWE	61.79%	38.21%	7.15%
1998	OGE	65.69%	34.31%	-1.39%
1999	OGE	69.07%	30.93%	0.05%
2000	OGE	70.53%	29.47%	1.14%
2001	OGE	103.08%	-3.08%	14.19%
2002	OGE	93.06%	6.94%	13.50%
2003	OGE	77.01%	22.99%	8.28%
2004	OGE	75.28%	24.72%	9.10%
2005	OGE	72.83%	27.17%	10.98%
2006	OGE	54.47%	45.53%	7.31%
2007	OGE	51.52%	48.48%	6.54%
2008	OGE	56.00%	44.00%	9.27%
2009	OGE	53.38%	46.62%	8.41%
2010	OGE	48.67%	51.33%	2.92%
2011	OGE	43.93%	56.07%	-0.15%
2012	OGE	44.69%	55.31%	1.88%
2013	OGE	43.81%	56.19%	2.29%
1996	OTTR	72.58%	27.42%	6.36%
1997	OTTR	72.09%	27.91%	6.86%
1998	OTTR	74.42%	25.58%	3.73%
1999	OTTR	68.28%	31.72%	1.12%
2000	OTTR	63.75%	36.25%	2.78%
2001	OTTR	61.90%	38.10%	0.77%
2002	OTTR	59.22%	40.78%	0.53%
2003	OTTR	71.52%	28.48%	-4.10%
2004	OTTR	73.33%	26.67%	-10.94%
2005	OTTR	62.92%	37.08%	-23.97%
2006	OTTR	68.05%	31.95%	-19.27%
2007	OTTR	65.73%	34.27%	6.33%
2008	OTTR	109.17%	-9.17%	20.18%
2009	OTTR	167.61%	-67.61%	29.78%
2010	OTTR	313.16%	-213.16%	39.20%
2011	OTTR	264.44%	-164.44%	36.03%
2012	OTTR	113.33%	-13.33%	12.61%
2013	OTTR	86.86%	13.14%	8.67%
1996	PNW	41.70%	58.30%	8.36%
1997	PNW	40.94%	59.06%	-0.24%

Date	Ticker	Payout Ratio	Retention Ratio	5-year Fwd EPS Growth
1998	PNW	43.16%	56.84%	-0.97%
1999	PNW	41.82%	58.18%	-2.81%
2000	PNW	42.69%	57.31%	-6.52%
2001	PNW	41.58%	58.42%	-0.18%
2002	PNW	64.43%	35.57%	4.74%
2003	PNW	68.65%	31.35%	-0.86%
2004	PNW	70.93%	29.07%	-0.01%
2005	PNW	86.16%	13.84%	9.88%
2006	PNW	64.04%	35.96%	0.99%
2007	PNW	70.95%	29.05%	5.73%
2008	PNW	99.06%	0.94%	12.32%
2009	PNW	92.92%	7.08%	10.56%
2010	PNW	68.18%	31.82%	5.20%
2011	PNW	70.23%	29.77%	5.94%
2012	PNW	76.29%	23.71%	4.96%
2013	PNW	60.93%	39.07%	4.54%
1996	PNM	20.87%	79.13%	20.65%
1997	PNM	33.60%	66.40%	7.11%
1998	PNM	34.00%	66.00%	4.60%
1999	PNM	41.09%	58.91%	12.27%
2000	PNM	34.19%	65.81%	10.06%
2001	PNM	20.31%	79.69%	-1.57%
2002	PNM	53.27%	46.73%	-0.93%
2003	PNM	53.04%	46.96%	-19.53%
2004	PNM	44.06%	55.94%	61.06%
2005	PNM	50.64%	49.36%	69.24%
2006	PNM	50.00%	50.00%	72.01%
2007	PNM	119.74%	-19.74%	87.44%
2008	PNM	554.55%	-454.55%	106.07%
2009	PNM	86.21%	13.79%	21.18%
2010	PNM	57.47%	42.53%	13.80%
2011	PNM	46.30%	53.70%	9.10%
2012	PNM	44.27%	55.73%	8.11%
2013	PNM	48.23%	51.77%	3.87%
2006	POR	59.65%	40.35%	20.49%
2007	POR	39.91%	60.09%	-1.20%
2008	POR	69.78%	30.22%	5.80%
2009	POR	77.10%	22.90%	11.58%
2010	POR	62.65%	37.35%	4.95%
2011	POR	54.36%	45.64%	2.63%
2012	POR	57.75%	42.25%	4.66%
2013	POR	62.15%	37.85%	6.43%
1997	PEG	89.26%	10.74%	9.36%
1998	PEG	77.14%	22.86%	6.22%
1999	PEG	69.23%	30.77%	0.10%
2000	PEG	60.67%	39.33%	0.83%
2001	PEG	58.38%	41.62%	0.72%
2002	PEG	57.45%	42.55%	8.39%
2003	PEG	57.45%	42.55%	10.79%
2004	PEG	72.37%	27.63%	15.86%
2005	PEG	62.57%	37.43%	12.24%
2006	PEG	61.62%	38.38%	11.83%
2007	PEG	45.17%	54.83%	-0.48%
2008	PEG	44.48%	55.52%	-2.79%

Date	Ticker	Payout Ratio	Retention Ratio	5-year Fwd EPS Growth
2009	PEG	43.18%	56.82%	0.38%
2010	PEG	44.63%	55.37%	2.52%
2011	PEG	44.05%	55.95%	-0.59%
2012	PEG	58.20%	41.80%	3.64%
2013	PEG	58.78%	41.22%	3.14%
1996	SRE	78.79%	21.21%	9.85%
1997	SRE	70.91%	29.09%	9.51%
1998	SRE	125.81%	-25.81%	19.81%
1999	SRE	93.98%	6.02%	19.15%
2000	SRE	48.54%	51.46%	12.24%
2001	SRE	39.22%	60.78%	11.52%
2002	SRE	35.84%	64.16%	9.78%
2003	SRE	33.22%	66.78%	9.00%
2004	SRE	25.45%	74.55%	4.47%
2005	SRE	32.95%	67.05%	3.37%
2006	SRE	28.37%	71.63%	1.58%
2007	SRE	29.11%	70.89%	0.90%
2008	SRE	30.93%	69.07%	-0.50%
2009	SRE	32.64%	67.36%	-0.13%
2010	SRE	38.81%	61.19%	5.64%
2011	SRE	42.95%	57.05%	-0.39%
2012	SRE	55.17%	44.83%	1.99%
2013	SRE	59.72%	40.28%	6.26%
1996	SO	75.00%	25.00%	-0.15%
1997	SO	82.28%	17.72%	4.02%
1998	SO	77.46%	22.54%	3.42%
1999	SO	73.22%	26.78%	3.18%
2000	SO	66.67%	33.33%	1.89%
2001	SO	83.23%	16.77%	5.59%
2002	SO	73.51%	26.49%	4.32%
2003	SO	70.56%	29.44%	2.76%
2004	SO	68.93%	31.07%	2.47%
2005	SO	69.48%	30.52%	2.14%
2006	SO	73.33%	26.67%	4.03%
2007	SO	70.18%	29.82%	3.26%
2008	SO	73.78%	26.22%	3.74%
2009	SO	74.57%	25.43%	3.64%
2010	SO	76.27%	23.73%	3.80%
2011	SO	73.33%	26.67%	2.12%
2012	SO	72.66%	27.34%	3.86%
2013	SO	74.44%	25.56%	2.33%
1996	WEC	75.76%	24.24%	35.15%
1997	WEC	285.19%	-185.19%	54.91%

Date	Ticker	Payout Ratio	Retention Ratio	5-year Fwd EPS Growth
1998	WEC	93.98%	6.02%	12.91%
1999	WEC	82.98%	17.02%	6.72%
2000	WEC	127.78%	-27.78%	22.76%
2001	WEC	43.48%	56.52%	9.31%
2002	WEC	34.48%	65.52%	5.61%
2003	WEC	35.40%	64.60%	7.54%
2004	WEC	45.16%	54.84%	12.13%
2005	WEC	34.38%	65.63%	8.60%
2006	WEC	34.85%	65.15%	10.68%
2007	WEC	35.21%	64.79%	10.73%
2008	WEC	35.53%	64.47%	10.68%
2009	WEC	42.50%	57.50%	10.27%
2010	WEC	41.67%	58.33%	4.34%
2011	WEC	47.71%	52.29%	6.93%
2012	WEC	51.06%	48.94%	6.58%
2013	WEC	57.77%	42.23%	6.50%
1996	XEL	71.73%	28.27%	6.01%
1997	XEL	86.96%	13.04%	-7.15%
1998	XEL	77.72%	22.28%	28.57%
1999	XEL	101.40%	-1.40%	33.67%
2000	XEL	92.50%	7.50%	30.19%
2001	XEL	66.08%	33.92%	24.32%
2002	XEL	269.05%	-169.05%	40.62%
2003	XEL	60.98%	39.02%	3.68%
2004	XEL	63.78%	36.22%	3.44%
2005	XEL	70.83%	29.17%	5.48%
2006	XEL	65.19%	34.81%	5.03%
2007	XEL	67.41%	32.59%	6.54%
2008	XEL	64.38%	35.62%	5.56%
2009	XEL	65.10%	34.90%	6.41%
2010	XEL	64.10%	35.90%	6.16%
2011	XEL	59.88%	40.12%	5.15%
2012	XEL	57.84%	42.16%	4.46%
2013	XEL	58.12%	41.88%	5.29%

Source: Value Line

Retention Ratio Regression Analysis - Mr. O'Donnell's Proxy Group

Company	Ticker		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
ALLETE, Inc.	ALE	Earnings Per Share									1.35	2.48	2.77	3.08	2.82	1.72	2.19	2.65	2.58	2.63	2.9	3.38	3.14	3.13	3.38
Alliant Energy Corporation	LNT	Earnings Per Share	1.14	0.95	0.63	1.10	1.24	1.21	0.58	0.79	0.93	1.11	1.03	1.35	1.27	0.95	1.38	1.38	1.53	1.46	1.74	1.69	1.66	1.99	2.19
Ameren Corporation	AEE	Earnings Per Share	2.86	2.44	2.82	2.81	3.33	3.41	2.66	3.14	2.82	3.13	2.66	2.98	2.88	2.78	2.77	2.47	2.41	2.10	2.40	2.38	2.68	2.77	3.32
American Electric Power Company, Inc.	AEP	Earnings Per Share	3.14	3.28	2.81	2.40	1.04	3.27	2.86	2.53	2.61	2.64	2.86	2.86	2.99	2.97	3.13	2.98	3.18	3.34	3.59	4.23	3.62	3.90
CMS Energy Corporation	CMS	Earnings Per Share	2.45	2.61	2.24	2.85	2.53	1.27	-2.99	-0.29	0.74	1.1	0.64	0.64	1.23	0.93	1.33	1.45	1.53	1.66	1.74	1.89	1.98	2.17	2.32
Consolidated Edison, Inc.	ED	Earnings Per Share		2.95	3.04	3.13	2.74	3.21	3.13	2.83	2.32	2.99	2.94	3.48	3.36	3.14	3.47	3.57	3.86	3.93	3.62	4.05	3.94	4.10	4.55
Dominion Energy Inc	D	Earnings Per Share		1.50	0.86	1.50	1.25	1.49	2.41	1.96	2.13	1.50	2.40	2.13	1.04	2.64	2.89	2.76	2.75	3.09	3.05	3.20	3.44	3.53	3.35
Duke Energy Corporation	DUK	Earnings Per Share												2.76	3.6	3.03	3.39	4.02	4.14	3.71	3.98	4.13	4.1	3.71	4.22
Edison International	EIX	Earnings Per Share	1.64	1.75	1.86	2.03		1.30	1.62	2.38	0.69	3.34	3.28	3.32	3.68	3.24	3.35	3.23	4.55	3.78	4.33	4.15	3.94	4.51	1.26
Entergy Corporation	ETR	Earnings Per Share		2.25	2.22	2.25	2.97	3.08	3.68	3.69	3.93	4.40	5.36	5.60	6.20	6.30	6.66	7.55	6.02	4.98	5.77	5.81	6.88	6.18	5.88
Eversource Energy	ES	Earnings Per Share		-1.05	-0.36	-1.14	-0.20	1.37	1.08	1.24	0.91	0.98	0.82	1.59	1.86	1.91	2.10	2.22	1.89	2.49	2.58	2.76	2.96	3.11	3.25
Hawaiian Electric Industries, Inc.	HE	Earnings Per Share	1.30	1.38	1.48	1.45	1.27	1.60	1.62	1.58	1.36	1.46	1.33	1.11	1.07	0.91	1.21	1.44	1.67	1.62	1.64	1.50	2.29	1.64	1.85
IDACORP, Inc.	IDA	Earnings Per Share	2.21	2.32	2.37	2.43	3.50	3.35	1.63	0.96	1.70	1.20	1.20	1.75	2.35	1.86	2.18	2.64	2.95	3.37	3.64	3.85	3.87	3.94	4.21
MGE Energy, Inc.	MGEE	Earnings Per Share			0.92	0.99	1.11	1.08	1.13	1.14	1.18	1.08	1.37	1.51	1.59	1.47	1.67	1.76	1.86	2.16	2.32	2.06	2.18	2.20	2.43
Nextera Energy Inc.	NEE	Earnings Per Share	1.67	1.79	1.93	2.04	2.34	2.31	2.01	2.04	2.48	2.32	3.23	3.27	4.07	3.97	4.74	4.92	4.58	4.83	5.60	6.06	5.78	6.59	6.67
NorthWestern Corporation	NWE	Earnings Per Share										-14.32	1.71	1.31	1.44	1.77	2.02	2.14	2.53	2.26	2.49	3.38	2.9	3.27	3.4
OGE Energy Corp.	OGE	Earnings Per Share			1.02	0.97	0.95	0.65	0.72	0.87	0.89	0.92	1.23	1.32	1.25	1.33	1.50	1.73	1.79	1.94	1.98	1.69	1.69	1.92	2.12
Otter Tail Corporation	OTTR	Earnings Per Share	1.24	1.29	1.29	1.45	1.60	1.68	1.79	1.51	1.50	1.78	1.69	1.78	1.29	1.19	1.19	1.19	1.19	1.21	1.23	1.25	1.28	1.34
Pinnacle West Capital Corporation	PNW	Earnings Per Share	2.47	2.76	2.85	3.18	3.35	3.68	2.63	2.52	2.58	2.24	3.01	2.10	2.12	2.26	3.58	3.50	3.66	3.66	3.58	3.92	3.95	4.43	4.54
PNM Resources, Inc.	PNM	Earnings Per Share	1.15	1.25	1.50	1.29	1.55	2.61	1.07	1.15	1.43	1.56	1.72	0.76	0.11	0.58	0.87	1.08	1.45	1.64	1.65	1.92	1.66
Portland General Electric Company	POR	Earnings Per Share									1.02	1.19	1.31	1.46	1.82	1.31	1.88	1.94	1.87	1.96	2.18	2.04	2.16	2.25	2.37
Public Service Enterprise Group Incorporated	PEG	Earnings Per Share								1.08	1.08	1.01	1.12	1.41	2.55	1.51	2.45	2.09	2.24	2.45	2.51	2.80	2.90	2.93	2.88
Sempra Energy	SRE	Earnings Per Share	1.98	2.20	1.24	1.66	2.06	2.55	2.79	3.01	3.93	3.52	4.23	4.26	4.43	4.02	4.47	4.40	4.35	4.01	4.63	4.28	2.80	3.22	4.83
Southern Company	SO	Earnings Per Share	1.26	1.28	1.30	1.34	1.34	1.34	1.36	1.39	1.48	1.54	1.60	1.66	1.73	1.80	1.87	1.94	2.01	2.06	1.91	1.93	2.22	2.00	2.38
WEC Energy Group	WEC	Earnings Per Share	0.99	0.77	0.83	0.94	1.04	1.79	1.83	1.89	1.90	2.06	2.17	2.31	2.57	2.74	3.35	3.83	2.35	2.51	2.59	2.96	2.96	3.14	3.34
Xcel Energy Inc.	XEL	Earnings Per Share	1.91	1.60	1.84	1.43	2.27	0.42	1.13	0.75	0.81	0.88	1.09	0.94	0.97	1.03	1.07	1.11	1.20	1.95	2.03	2.21	2.30	2.47

Note: Each company block also includes rows for Dividends Per Share, Payout Ratio, Annual Earnings Growth, Return on Common Equity, and 5yr Avg Fwd EPS Growth across the same year columns.

Retention Growth Estimate Vs. Value Line EPS Growth Estimate

Company	Ticker	[1] Actual/ Projected Earnings per share 2019	[2] Actual/ Projected Dividend per share 2019	[3] Retention Ratio (B)	[4] Projected Book Value per Share 2019	[5] Return on Book Value (R)	[6] B x R	[7] Projected Common Shares Outstanding 2019	[8] Projected Common Shares Outstanding (3-5 Year)	[9] Common Shares Growth Rate	[10] 2019 High Price	[11] 2019 Low Price	[12] 2019 price midpoint	[13] Market/ Book Ratio	[14] "S"	[15] "V"	[16] S x V	[17] BR + SV	2019 Value Line Projected EPS Growth	Sustainable Growth Minus EPS Growth	Actual 2018 EPS
ALLETE, Inc.	ALE	3.33	2.35	29.43%	43.17	7.71%	2.27%	51.70	53.00	0.62%	$ 88.60	$ 72.50	$ 80.55	1.87	1.16%	46.41%	0.54%	2.81%	-1.48%	4.29%	3.38
Alliant Energy Corporation	LNT	2.33	1.42	39.06%	21.24	10.97%	4.28%	245.02	260.00	1.49%	$ 54.60	$ 40.80	$ 47.70	2.25	3.36%	55.47%	1.86%	6.15%	6.39%	-0.25%	2.19
American Electric Power Company, Inc.	AEP	4.08	2.71	33.58%	39.73	10.27%	3.45%	494.17	530.00	1.77%	$ 96.20	$ 72.30	$ 84.25	2.12	3.74%	52.84%	1.98%	5.43%	4.62%	0.81%	3.90
Ameren Corporation	AEE	3.35	1.92	42.69%	32.73	10.24%	4.37%	246.20	275.00	2.80%	$ 80.90	$ 63.10	$ 72.00	2.20	6.17%	54.54%	3.36%	7.73%	0.90%	6.83%	3.32
CMS Energy Corporation	CMS	2.39	1.53	35.98%	17.68	13.52%	4.86%	283.86	300.00	1.39%	$ 65.30	$ 48.00	$ 56.65	3.20	4.46%	68.79%	3.07%	7.93%	3.02%	4.92%	2.32
Consolidated Edison, Inc.	ED	3.95	2.96	25.06%	53.65	7.36%	1.85%	334.00	345.00	0.81%	$ 95.00	$ 73.30	$ 84.15	1.57	1.28%	36.24%	0.46%	2.31%	-13.19%	15.49%	4.55
Dominion Energy Inc	D	2.15	3.67	-70.70%	34.55	6.22%	-4.40%	824.00	865.00	1.22%	$ 83.90	$ 67.40	$ 75.65	2.19	2.67%	54.33%	1.45%	-2.95%	-33.85%	30.90%	3.25
Duke Energy Corporation	DUK	5.05	3.75	25.74%	61.75	8.18%	2.11%	733.00	775.00	1.40%	$ 97.40	$ 82.50	$ 89.95	1.46	2.04%	31.35%	0.64%	2.75%	22.28%	-19.53%	4.13
Edison International	EIX	4.65	2.48	46.67%	37.90	12.27%	5.73%	365.00	385.00	1.34%	$ 76.40	$ 53.40	$ 64.90	1.71	2.30%	41.60%	0.96%	6.68%	NA	NA	-1.26
Entergy Corp.	ETR	6.30	3.66	41.90%	51.34	12.27%	5.14%	199.15	212.00	1.58%	$ 122.10	$ 83.20	$ 102.65	2.00	3.15%	49.99%	1.57%	6.72%	7.14%	-0.43%	5.88
Eversource Energy	ES	3.45	2.14	37.97%	37.70	9.15%	3.47%	324.00	355.00	2.31%	$ 86.60	$ 63.10	$ 74.85	1.99	4.59%	49.63%	2.28%	5.75%	6.15%	-0.40%	3.25
Hawaiian Electric Industries, Inc.	HE	1.90	1.28	32.63%	20.45	9.29%	3.03%	109.00	113.00	0.91%	$ 47.60	$ 35.10	$ 41.35	2.02	1.83%	50.54%	0.92%	3.96%	2.70%	1.25%	1.85
IDACORP Inc.	IDA	4.45	2.56	42.47%	48.85	9.11%	3.87%	50.40	50.40	0.00%	$ 114.00	$ 89.30	$ 101.65	2.08	0.00%	51.94%	0.00%	3.87%	-0.89%	4.76%	4.49
MGE Energy Inc	MGEE	2.51	1.38	45.02%	24.68	10.17%	4.58%	34.67	34.67	0.00%	$ 80.80	$ 56.70	$ 68.75	2.79	0.00%	64.10%	0.00%	4.58%	3.29%	1.29%	2.43
NextEra Energy, Inc.	NEE	7.76	5.00	35.57%	75.65	10.26%	3.65%	489.00	495.00	0.31%	$ 245.00	$ 168.70	$ 206.85	2.73	0.83%	63.43%	0.53%	4.18%	16.34%	-12.16%	6.67
NorthWestern Corporation	NWE	3.55	2.30	35.21%	40.20	8.83%	3.11%	50.50	51.60	0.54%	$ 76.70	$ 57.30	$ 67.00	1.67	0.90%	40.00%	0.36%	3.47%	4.41%	-0.94%	3.40
OGE Energy Corp.	OGE	2.24	1.51	32.59%	20.69	10.83%	3.53%	200.10	200.00	-0.01%	$ 45.80	$ 38.00	$ 41.90	2.03	-0.03%	50.62%	-0.01%	3.52%	5.66%	-2.14%	2.12
Otter Tail Corporation	OTTR	2.17	1.40	35.48%	19.46	11.15%	3.96%	40.16	41.50	0.82%	$ 57.70	$ 45.90	$ 51.80	2.66	2.19%	62.43%	1.37%	5.33%	5.34%	-0.01%	2.06
Pinnacle West Capital Corporation	PNW	4.50	3.04	32.44%	47.70	9.43%	3.06%	113.00	118.00	1.09%	$ 99.80	$ 81.60	$ 90.70	1.90	2.07%	47.41%	0.98%	4.04%	4.92%	-0.88%	4.54
PNM Resources, Inc.	PNM	2.20	1.18	46.36%	20.80	10.58%	4.90%	79.65	90.00	3.10%	$ 53.00	$ 39.70	$ 46.35	2.23	6.91%	55.12%	3.81%	8.71%	32.53%	-23.82%	1.66
Portland General Electric Company	POR	2.40	1.52	36.67%	28.90	8.30%	3.04%	89.40	90.00	0.17%	$ 58.40	$ 44.00	$ 51.20	1.77	0.30%	43.55%	0.13%	3.17%	1.27%	1.91%	2.37
Public Service Enterprie Group, Inc.	PEG	3.70	1.88	49.19%	29.65	12.48%	6.14%	506.00	506.00	0.00%	$ 63.90	$ 50.00	$ 56.95	1.92	0.00%	47.94%	0.00%	6.14%	34.06%	-27.92%	2.76
SEMPRA Energy	SRE	5.85	3.87	33.85%	61.25	9.55%	3.23%	290.00	320.00	2.49%	$ 154.50	$ 106.10	$ 130.30	2.13	5.30%	52.99%	2.81%	6.04%	6.75%	-0.71%	5.48
Southern Company	SO	3.10	2.46	20.65%	26.20	11.83%	2.44%	1050.00	1080.00	0.71%	$ 64.30	$ 43.30	$ 53.80	2.05	1.45%	51.30%	0.74%	3.19%	3.33%	-0.15%	3.00
WEC Energy Group, Inc.	WEC	3.58	2.36	34.08%	32.06	11.17%	3.81%	315.50	315.50	0.00%	$ 98.20	$ 67.20	$ 82.70	2.58	0.00%	61.23%	0.00%	3.81%	7.19%	-3.38%	3.34
Xcel Energy Inc.	XEL	2.60	1.62	37.69%	25.15	10.34%	3.90%	525.00	546.00	0.99%	$ 66.10	$ 47.70	$ 56.90	2.26	2.23%	55.80%	1.24%	5.14%	5.26%	-0.12%	2.47
				Average:	32.20%												Mean:	4.63%	5.13%	-0.58%	
																	Median:	4.38%	4.62%	-0.12%	

Number of underestimates: 14
Number of overestimates: 11

Notes:
[1] Source: Value Line
[2] Source: Value Line
[3] Equals 1 - [2] / [1]
[4] Source: Value Line
[5] Equals [1] / [4]
[6] Equals [3] x [5]
[7] Source: Value Line
[8] Source: Value Line
[9] Equals ([8] / [7]) ^ 0.33 - 1
[10] Source: Value Line
[11] Source: Value Line
[12] Equals Average ([10], [11])
[13] Equals [12] / [13]
[14] Equals [9] x [14]
[15] Equals 1 - (1 / [14])
[16] Equals [15] x [16]
[17] Equals [6] + [17]

Retention Growth Estimate Vs. Value Line EPS Growth Estimate

Company	Ticker	[1] Projected Earnings per share (3-5 Year)	[2] Projected Dividend per share (3-5 Year)	[3] Retention Ratio (B)	[4] Projected Book Value per Share (3-5 Year)	[5] Return on Book Value (R)	[6] B x R	[7] Projected Common Shares Outstanding 2019	[8] Projected Common Shares Outstanding (3-5 Year)	[9] Common Shares Growth Rate	[10] 2019 High Price	[11] 2019 Low Price	[12] 2019 price midpoint	[13] Projected Book Value per Share 2019	[14] Market/ Book Ratio	[15] "S"	[16] "V"	[17] S x V	[18] 2022/2023 BR + SV	[19] 2019 BR + SV	[20] Average 2019/2022-23 BR + SV	2023-2025/ 2022-24 Value Line Projected Annual EPS Growth	Average 2019/ 2022-23 Sustainable Growth Minus EPS Growth
ALLETE, Inc.	ALE	4.25	2.85	32.94%	52.50	8.10%	2.67%	51.70	53.00	0.62%	$88.60	$72.50	$80.55	43.17	1.87	1.16%	46.41%	0.54%	3.21%	2.81%	3.01%	6.29%	-3.28%
Alliant Energy Corporation	LNT	2.80	1.74	37.86%	28.80	9.72%	3.68%	245.02	260.00	1.49%	$54.60	$40.80	$47.70	21.24	2.25	3.36%	55.47%	1.86%	5.54%	6.15%	5.84%	4.70%	1.14%
American Electric Power Company, Inc.	AEP	5.00	3.35	33.00%	50.00	10.00%	3.30%	494.17	530.00	1.77%	$96.20	$72.30	$84.25	39.73	2.12	3.74%	52.84%	1.98%	5.28%	5.43%	5.35%	5.21%	0.14%
Ameren Corporation	AEE	4.25	2.35	44.71%	44.00	9.66%	4.32%	246.20	275.00	2.80%	$80.90	$63.10	$72.00	32.73	2.20	6.17%	54.54%	3.36%	7.68%	7.73%	7.71%	6.13%	1.58%
CMS Energy Corporation	CMS	3.25	2.00	38.46%	25.50	12.75%	4.90%	283.86	300.00	1.39%	$65.30	$48.00	$56.65	17.68	3.20	4.46%	68.79%	3.07%	7.97%	7.93%	7.95%	7.99%	-0.04%
Consolidated Edison, Inc.	ED	5.25	3.50	33.33%	62.50	8.40%	2.80%	334.00	345.00	0.81%	$95.00	$73.30	$84.15	53.65	1.57	1.28%	36.24%	0.46%	3.26%	2.31%	2.79%	7.37%	-4.59%
Dominion Energy Inc	D	5.50	4.15	24.55%	41.00	13.41%	3.29%	824.00	865.00	1.22%	$83.90	$67.40	$75.65	34.55	2.19	2.67%	54.33%	1.45%	4.75%	-2.95%	0.90%	26.47%	-25.57%
Duke Energy Corporation	DUK	6.00	4.10	31.67%	71.75	8.36%	2.65%	733.00	775.00	1.40%	$97.40	$82.50	$89.95	61.75	1.46	2.04%	31.35%	0.64%	3.29%	2.75%	3.02%	4.40%	-1.39%
Edison International	EIX	5.25	2.90	44.76%	47.75	10.99%	4.92%	365.00	385.00	1.34%	$76.40	$53.40	$64.90	37.90	1.71	2.30%	41.60%	0.96%	5.88%	6.68%	6.28%	3.08%	3.20%
Entergy Corp.	ETR	6.75	4.30	36.30%	63.00	10.71%	3.89%	199.15	212.00	1.58%	$122.10	$83.20	$102.65	51.34	2.00	3.15%	49.99%	1.57%	5.46%	6.72%	6.09%	1.74%	4.35%
Eversource Energy	ES	4.50	2.85	36.67%	48.50	9.28%	3.40%	324.00	355.00	2.31%	$86.60	$63.10	$74.85	37.70	1.99	4.59%	49.63%	2.28%	5.68%	5.75%	5.72%	6.87%	-1.15%
Hawaiian Electric Industries, Inc.	HE	2.25	1.50	33.33%	24.00	9.38%	3.13%	109.00	113.00	0.91%	$47.60	$35.10	$41.35	20.45	2.02	1.83%	50.54%	0.92%	4.05%	3.96%	4.00%	4.32%	-0.31%
IDACORP Inc.	IDA	5.25	3.35	36.19%	56.25	9.33%	3.38%	50.40	50.40	0.00%	$114.00	$89.30	$101.65	48.85	2.08	0.00%	51.94%	0.00%	3.38%	3.87%	3.62%	4.22%	-0.60%
MGE Energy Inc	MGEE	3.25	1.70	47.69%	31.25	10.40%	4.96%	34.67	34.67	0.00%	$80.80	$56.70	$68.75	24.68	2.79	0.00%	64.10%	0.00%	4.96%	4.58%	4.77%	6.67%	-1.90%
NextEra Energy, Inc.	NEE	12.50	8.00	36.00%	97.50	12.82%	4.62%	489.00	495.00	0.31%	$245.00	$168.70	$206.85	75.65	2.73	0.83%	63.43%	0.53%	5.14%	4.18%	4.66%	12.66%	-8.00%
NorthWestern Corporation	NWE	3.75	2.70	28.00%	44.50	8.43%	2.36%	50.50	51.60	0.54%	$76.70	$57.30	$67.00	40.20	1.67	0.90%	40.00%	0.36%	2.72%	3.47%	3.09%	1.38%	1.71%
OGE Energy Corp.	OGE	2.75	1.85	32.73%	24.25	11.34%	3.71%	200.10	200.00	-0.01%	$45.80	$38.00	$41.90	20.69	2.03	-0.03%	50.62%	-0.01%	3.70%	3.52%	3.61%	5.26%	-1.65%
Otter Tail Corporation	OTTR	2.50	1.65	34.00%	24.50	10.20%	3.47%	40.16	41.50	0.82%	$57.70	$45.90	$51.80	19.46	2.66	2.19%	62.43%	1.37%	4.84%	5.33%	5.08%	3.60%	1.48%
Pinnacle West Capital Corporation	PNW	5.50	3.80	30.91%	54.75	10.05%	3.11%	113.00	118.00	1.09%	$99.80	$81.60	$90.70	47.70	1.90	2.07%	47.41%	0.98%	4.09%	4.04%	4.06%	5.14%	-1.08%
PNM Resources, Inc.	PNM	2.50	1.50	40.00%	28.00	8.93%	3.57%	79.65	90.00	3.10%	$53.00	$39.70	$46.35	20.80	2.23	6.91%	55.12%	3.81%	7.38%	8.71%	8.05%	3.25%	4.80%
Portland General Electric Company	POR	3.00	1.95	35.00%	32.75	9.16%	3.21%	89.40	90.00	0.17%	$58.40	$44.00	$51.20	28.90	1.77	0.30%	43.55%	0.13%	3.34%	3.17%	3.25%	5.74%	-2.48%
Public Service Enterprie Group, Inc.	PEG	4.25	2.40	43.53%	38.00	11.18%	4.87%	506.00	506.00	0.00%	$63.90	$50.00	$56.95	29.65	1.92	0.00%	47.94%	0.00%	4.87%	6.14%	5.50%	3.53%	1.98%
SEMPRA Energy	SRE	9.00	5.25	41.67%	77.50	11.61%	4.84%	290.00	320.00	2.49%	$154.50	$106.10	$130.30	61.25	2.13	5.30%	52.99%	2.81%	7.65%	6.04%	6.84%	11.37%	-4.53%
Southern Company	SO	4.00	2.86	28.50%	31.50	12.70%	3.62%	1050.00	1080.00	0.71%	$64.30	$43.30	$53.80	26.20	2.05	1.45%	51.30%	0.74%	4.36%	3.19%	3.78%	6.58%	-2.80%
WEC Energy Group, Inc.	WEC	4.50	3.00	33.33%	38.25	11.76%	3.92%	315.50	315.50	0.00%	$98.20	$67.20	$82.70	32.06	2.58	0.00%	61.23%	0.00%	3.92%	3.81%	3.86%	5.88%	-2.02%
Xcel Energy Inc.	XEL	3.25	2.05	36.92%	31.00	10.48%	3.87%	525.00	546.00	0.99%	$66.10	$47.70	$56.90	25.15	2.26	2.23%	55.80%	1.24%	5.11%	5.14%	5.13%	6.37%	-0.61%
			Average:	35.85%		10.35%	0.0371											Mean:	4.90%	4.63%	4.77%	-1.60%	
																		Median:	4.85%	4.38%	4.72%	-0.85%	

Number of underestimates: 17
Number of overestimates: 9

Notes:

[1] Source: Value Line
[2] Source: Value Line
[3] Equals 1 - [2] / [1]
[4] Source: Value Line
[5] Equals [1] / [4]
[6] Equals [3] x [5]
[7] Source: Value Line
[8] Source: Value Line
[9] Equals ([8] / [7]) ^ 0.25 - 1
[10] Source: Value Line
[11] Source: Value Line
[12] Equals Average ([10], [11])
[13] Source: Value Line
[14] Equals [12] / [13]
[15] Equals [9] x [14]
[16] Equals 1 - (1 / [14])
[17] Equals [15] x [16]
[18] Equals [6] + [17]
[19] Source: Rebuttal Exhibit DWD-22 SGR for 2019
[20] Equals Average ([18], [19])

Alternative Bond Yield Plus Risk Premium Analyses

	[1]	[2]	[3]	[4]
	30-Year Treasury Yield	Moody's Utility A Yield	Moody's Utility A Credit Spread	VIX
	1.37%	3.52%	2.15%	55.27

	Risk Premium	Return on Equity
Regression Result - Credit Spread, VIX	9.61%	10.98%

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.830664
R Square	0.690002
Adjusted R Square	0.688757
Standard Error	0.005294
Observations	751

ANOVA

	df	SS	MS	F	Significance F
Regression	3	0.046591617	0.01553054	554.2310236	1.911E-189
Residual	747	0.020932268	2.8022E-05		
Total	750	0.067523885			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-0.025834	0.002148908	-12.021801	1.47195E-30	-0.03005236	-0.021615129
LN(30-Year Treasury)	-0.025051	0.0006218	-40.287632	1.809E-189	-0.02627151	-0.023830149
Moody's Utility A Credit Spread	0.197117	0.086327424	2.28336303	0.022688979	0.027643617	0.366590081
VIX	0.000185	5.44561E-05	3.39616011	0.000719527	7.80364E-05	0.000291847

Notes:
[1] Source: Bloomberg Professional, Rebuttal Exhibit DWD-5
[2] Source: Bloomberg Professional; 30-day average as of April 17, 2020
[3] Equals [2] - [1]
[4] Source: Bloomberg Professional; 30-day average as of April 17, 2020
[5] Source: S&P Global Market Intelligence
[6] Source: S&P Global Market Intelligence
[7] Source: Bloomberg Professional, equals 200-trading day average (i.e. lag period) as of April 17, 2020
[8] Source: Bloomberg Professional, equals 200-trading day average (i.e. lag period) as of April 17, 2020
[9] Equals LN[7]
[10] Equals [8] - [7]
[11] Source: Bloomberg Professional, equals 200-trading day average (i.e. lag period) as of April 17, 2020
[12] Equals [6] - [7]

	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Return on Equity	30 Year Treasury	Moody's Utility A	LN(30-Year	Moody's Utility A Credit		
	Date of Electric Rate Case	(%)	(%)	Yield	Treasury)	Spread	VIX	Risk Premium
	11/2/1993	10.80%	6.60%	7.59%	-2.72	0.99%	12.67	4.20%
	11/12/1993	12.00%	6.56%	7.56%	-2.72	1.00%	12.76	5.44%
	11/26/1993	11.00%	6.52%	7.53%	-2.73	1.01%	12.85	4.48%
	12/14/1993	10.55%	6.48%	7.49%	-2.74	1.01%	12.75	4.07%
	12/16/1993	10.60%	6.48%	7.48%	-2.74	1.01%	12.72	4.12%
	12/21/1993	11.30%	6.47%	7.48%	-2.74	1.01%	12.66	4.83%
	1/4/1994	10.07%	6.44%	7.45%	-2.74	1.01%	12.49	3.63%
	1/13/1994	11.00%	6.42%	7.43%	-2.75	1.01%	12.45	4.58%
	1/21/1994	11.00%	6.40%	7.41%	-2.75	1.01%	12.39	4.60%
	1/28/1994	11.35%	6.39%	7.40%	-2.75	1.01%	12.37	4.96%
	2/3/1994	11.40%	6.38%	7.39%	-2.75	1.01%	12.34	5.02%
	2/17/1994	10.60%	6.36%	7.37%	-2.76	1.02%	12.38	4.24%
	2/25/1994	11.25%	6.35%	7.37%	-2.76	1.02%	12.39	4.90%
	2/25/1994	12.00%	6.35%	7.37%	-2.76	1.02%	12.39	5.65%
	3/1/1994	11.00%	6.35%	7.37%	-2.76	1.02%	12.40	4.65%
	3/4/1994	11.00%	6.34%	7.36%	-2.76	1.02%	12.43	4.66%
	4/25/1994	11.00%	6.40%	7.41%	-2.75	1.01%	13.03	4.60%
	5/10/1994	11.75%	6.44%	7.45%	-2.74	1.01%	13.20	5.31%
	5/13/1994	10.50%	6.46%	7.47%	-2.74	1.01%	13.25	4.04%
	6/3/1994	11.00%	6.54%	7.53%	-2.73	0.99%	13.32	4.46%
	6/27/1994	11.40%	6.65%	7.63%	-2.71	0.98%	13.42	4.75%
	8/5/1994	12.75%	6.88%	7.83%	-2.68	0.95%	13.42	5.87%
	10/31/1994	10.00%	7.33%	8.23%	-2.61	0.89%	13.77	2.67%
	11/9/1994	10.85%	7.40%	8.29%	-2.60	0.89%	13.94	3.45%
	11/9/1994	10.85%	7.40%	8.29%	-2.60	0.89%	13.94	3.45%
	11/18/1994	11.20%	7.46%	8.34%	-2.60	0.88%	14.12	3.74%
	11/22/1994	11.60%	7.47%	8.35%	-2.59	0.88%	14.14	4.13%
	11/28/1994	11.06%	7.50%	8.38%	-2.59	0.88%	14.20	3.56%
	12/8/1994	11.50%	7.55%	8.43%	-2.58	0.88%	14.29	3.95%
	12/8/1994	11.70%	7.55%	8.43%	-2.58	0.88%	14.29	4.15%
	12/14/1994	10.95%	7.57%	8.45%	-2.58	0.89%	14.28	3.38%
	12/15/1994	11.50%	7.57%	8.46%	-2.58	0.89%	14.26	3.93%
	12/19/1994	11.50%	7.58%	8.47%	-2.58	0.89%	14.24	3.92%
	12/28/1994	12.15%	7.61%	8.50%	-2.58	0.88%	14.14	4.54%
	1/9/1995	12.28%	7.64%	8.53%	-2.57	0.89%	14.14	4.64%
	1/31/1995	11.00%	7.69%	8.58%	-2.57	0.89%	13.71	3.31%
	2/10/1995	12.60%	7.70%	8.60%	-2.56	0.89%	13.56	4.90%
	2/17/1995	11.90%	7.70%	8.60%	-2.56	0.90%	13.49	4.20%
	3/9/1995	11.50%	7.72%	8.61%	-2.56	0.90%	13.37	3.78%
	3/20/1995	12.00%	7.72%	8.61%	-2.56	0.89%	13.35	4.28%
	3/23/1995	12.81%	7.72%	8.61%	-2.56	0.89%	13.32	5.09%
	3/29/1995	11.60%	7.72%	8.62%	-2.56	0.90%	13.31	3.88%
	4/6/1995	11.10%	7.72%	8.62%	-2.56	0.90%	13.30	3.38%
	4/7/1995	11.00%	7.71%	8.62%	-2.56	0.90%	13.28	3.29%
	4/19/1995	11.00%	7.70%	8.61%	-2.56	0.91%	13.20	3.30%
	5/12/1995	11.63%	7.68%	8.58%	-2.57	0.90%	13.21	3.95%
	5/25/1995	11.20%	7.65%	8.56%	-2.57	0.91%	13.22	3.55%
	6/9/1995	11.25%	7.60%	8.52%	-2.58	0.92%	13.26	3.65%
	6/21/1995	12.25%	7.56%	8.48%	-2.58	0.93%	13.24	4.69%
	6/30/1995	11.10%	7.51%	8.45%	-2.59	0.94%	13.20	3.59%
	9/11/1995	11.30%	7.20%	8.17%	-2.63	0.97%	12.48	4.10%
	9/27/1995	11.30%	7.12%	8.10%	-2.64	0.98%	12.24	4.18%
	9/27/1995	11.50%	7.12%	8.10%	-2.64	0.98%	12.24	4.38%
	9/27/1995	11.75%	7.12%	8.10%	-2.64	0.98%	12.24	4.63%
	9/29/1995	11.00%	7.11%	8.09%	-2.64	0.98%	12.24	3.89%
	11/9/1995	11.38%	6.89%	7.90%	-2.67	1.01%	12.47	4.49%
	11/9/1995	12.36%	6.89%	7.90%	-2.67	1.01%	12.47	5.47%
	11/17/1995	11.00%	6.85%	7.87%	-2.68	1.02%	12.51	4.15%
	12/4/1995	11.35%	6.78%	7.82%	-2.69	1.04%	12.52	4.57%
	12/11/1995	11.40%	6.74%	7.79%	-2.70	1.05%	12.52	4.66%
	12/20/1995	11.60%	6.69%	7.74%	-2.70	1.05%	12.50	4.91%
	12/27/1995	12.00%	6.66%	7.72%	-2.71	1.06%	12.48	5.34%
	2/5/1996	12.25%	6.48%	7.58%	-2.74	1.11%	12.63	5.77%
	3/29/1996	10.67%	6.42%	7.52%	-2.75	1.11%	13.49	4.25%
	4/8/1996	11.00%	6.42%	7.53%	-2.75	1.11%	13.63	4.58%
	4/11/1996	12.59%	6.43%	7.53%	-2.74	1.11%	13.74	6.16%
	4/11/1996	12.59%	6.43%	7.53%	-2.74	1.11%	13.74	6.16%
	4/24/1996	11.25%	6.43%	7.55%	-2.74	1.12%	13.93	4.82%
	4/30/1996	11.00%	6.43%	7.55%	-2.74	1.12%	13.99	4.57%
	5/13/1996	11.00%	6.44%	7.57%	-2.74	1.13%	14.15	4.56%
	5/23/1996	11.25%	6.43%	7.57%	-2.74	1.14%	14.24	4.82%
	6/25/1996	11.25%	6.48%	7.60%	-2.74	1.12%	14.73	4.77%
	6/27/1996	11.20%	6.48%	7.60%	-2.74	1.12%	14.77	4.72%
	8/12/1996	10.40%	6.57%	7.67%	-2.72	1.10%	15.35	3.83%
	9/27/1996	11.00%	6.71%	7.76%	-2.70	1.05%	15.98	4.29%
	10/16/1996	12.25%	6.76%	7.80%	-2.69	1.03%	16.22	5.49%
	11/5/1996	11.00%	6.81%	7.83%	-2.69	1.02%	16.44	4.19%
	11/26/1996	11.30%	6.83%	7.85%	-2.68	1.01%	16.58	4.47%
	12/18/1996	11.75%	6.84%	7.85%	-2.68	1.02%	16.80	4.91%
	12/31/1996	11.50%	6.83%	7.85%	-2.68	1.02%	16.84	4.67%
	1/3/1997	10.70%	6.83%	7.85%	-2.68	1.02%	16.85	3.87%
	2/13/1997	11.80%	6.82%	7.83%	-2.68	1.01%	17.23	4.98%

	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Return on Equity	30 Year Treasury	Moody's Utility A	LN(30-Year	Moody's Utility A Credit		
	Date of Electric Rate Case	(%)	(%)	Yield	Treasury)	Spread	VIX	Risk Premium
	2/20/1997	11.80%	6.82%	7.82%	-2.69	1.01%	17.29	4.98%
	3/31/1997	10.02%	6.80%	7.80%	-2.69	1.00%	17.83	3.22%
	4/2/1997	11.65%	6.80%	7.80%	-2.69	1.00%	17.86	4.85%
	4/28/1997	11.50%	6.81%	7.80%	-2.69	0.99%	18.20	4.69%
	4/29/1997	11.70%	6.81%	7.80%	-2.69	0.99%	18.20	4.89%
	7/17/1997	12.00%	6.77%	7.75%	-2.69	0.97%	19.04	5.23%
	12/12/1997	11.00%	6.60%	7.60%	-2.72	1.00%	22.58	4.40%
	12/23/1997	11.12%	6.57%	7.54%	-2.72	0.97%	22.85	4.55%
	2/2/1998	12.75%	6.39%	7.47%	-2.75	1.08%	23.45	6.36%
	3/2/1998	11.25%	6.28%	7.39%	-2.77	1.10%	23.41	4.97%
	3/6/1998	10.75%	6.27%	7.38%	-2.77	1.11%	23.39	4.48%
	3/20/1998	10.50%	6.22%	7.34%	-2.78	1.12%	23.36	4.28%
	4/30/1998	12.20%	6.12%	7.26%	-2.79	1.14%	23.68	6.08%
	7/10/1998	11.40%	5.94%	7.16%	-2.82	1.23%	23.14	5.46%
	9/15/1998	11.90%	5.78%	7.09%	-2.85	1.31%	23.80	6.12%
	11/30/1998	12.60%	5.58%	7.05%	-2.89	1.47%	26.06	7.02%
	12/10/1998	12.20%	5.54%	7.05%	-2.89	1.51%	26.34	6.66%
	12/17/1998	12.10%	5.52%	7.04%	-2.90	1.52%	26.58	6.58%
	2/5/1999	10.30%	5.38%	7.01%	-2.92	1.63%	27.54	4.92%
	3/4/1999	10.50%	5.34%	7.01%	-2.93	1.67%	28.19	5.16%
	4/6/1999	10.94%	5.32%	7.03%	-2.93	1.71%	28.47	5.62%
	7/29/1999	10.75%	5.52%	7.25%	-2.90	1.74%	25.77	5.23%
	9/23/1999	10.75%	5.70%	7.43%	-2.86	1.73%	24.95	5.05%
	11/17/1999	11.10%	5.90%	7.63%	-2.83	1.73%	24.31	5.20%
	1/7/2000	11.50%	6.05%	7.80%	-2.81	1.75%	23.49	5.45%
	1/7/2000	11.50%	6.05%	7.80%	-2.81	1.75%	23.49	5.45%
	2/17/2000	10.60%	6.17%	7.95%	-2.78	1.77%	23.35	4.43%
	3/28/2000	11.25%	6.20%	8.04%	-2.78	1.85%	22.96	5.05%
	5/24/2000	11.00%	6.18%	8.19%	-2.78	2.00%	23.84	4.82%
	7/18/2000	12.20%	6.16%	8.27%	-2.79	2.11%	23.36	6.04%
	9/29/2000	11.16%	6.03%	8.31%	-2.81	2.28%	22.44	5.13%
	11/28/2000	12.90%	5.89%	8.28%	-2.83	2.40%	22.97	7.01%
	11/30/2000	12.10%	5.88%	8.28%	-2.83	2.40%	23.03	6.22%
	1/23/2001	11.25%	5.79%	8.20%	-2.85	2.41%	23.49	5.46%
	2/8/2001	11.50%	5.77%	8.18%	-2.85	2.41%	23.15	5.73%
	5/8/2001	10.75%	5.62%	7.97%	-2.88	2.35%	24.39	5.13%
	6/26/2001	11.00%	5.62%	7.93%	-2.88	2.31%	24.93	5.38%
	7/25/2001	11.02%	5.60%	7.89%	-2.88	2.29%	25.07	5.42%
	7/25/2001	11.02%	5.60%	7.89%	-2.88	2.29%	25.07	5.42%
	7/31/2001	11.00%	5.59%	7.88%	-2.88	2.29%	24.96	5.41%
	8/31/2001	10.50%	5.56%	7.82%	-2.89	2.26%	24.49	4.94%
	9/7/2001	10.75%	5.55%	7.80%	-2.89	2.25%	24.53	5.20%
	9/10/2001	11.00%	5.55%	7.80%	-2.89	2.25%	24.55	5.45%
	9/20/2001	10.00%	5.55%	7.79%	-2.89	2.24%	24.84	4.45%
	10/24/2001	10.30%	5.54%	7.77%	-2.89	2.23%	25.69	4.76%
	11/28/2001	10.60%	5.49%	7.75%	-2.90	2.26%	26.17	5.11%
	12/3/2001	12.88%	5.49%	7.75%	-2.90	2.26%	26.22	7.39%
	12/20/2001	12.50%	5.50%	7.76%	-2.90	2.26%	26.14	7.00%
	1/22/2002	10.00%	5.50%	7.76%	-2.90	2.27%	25.49	4.50%
	3/27/2002	10.10%	5.45%	7.69%	-2.91	2.24%	24.65	4.65%
	4/22/2002	11.80%	5.45%	7.67%	-2.91	2.22%	24.49	6.35%
	5/28/2002	10.17%	5.46%	7.64%	-2.91	2.17%	24.29	4.71%
	6/10/2002	12.00%	5.47%	7.63%	-2.91	2.16%	24.33	6.53%
	6/18/2002	11.16%	5.48%	7.62%	-2.90	2.15%	24.42	5.68%
	6/20/2002	11.00%	5.48%	7.62%	-2.90	2.15%	24.46	5.52%
	6/20/2002	12.30%	5.48%	7.62%	-2.90	2.15%	24.46	6.82%
	7/15/2002	11.00%	5.48%	7.60%	-2.90	2.13%	24.08	5.52%
	9/12/2002	12.30%	5.45%	7.51%	-2.91	2.06%	25.15	6.85%
	9/26/2002	10.45%	5.41%	7.48%	-2.92	2.06%	25.82	5.04%
	12/4/2002	11.55%	5.29%	7.36%	-2.94	2.07%	28.03	6.26%
	12/13/2002	11.75%	5.27%	7.34%	-2.94	2.08%	28.29	6.48%
	12/20/2002	11.40%	5.25%	7.33%	-2.95	2.08%	28.48	6.15%
	1/8/2003	11.10%	5.19%	7.29%	-2.96	2.10%	28.93	5.91%
	1/31/2003	12.45%	5.13%	7.24%	-2.97	2.11%	29.66	7.32%
	2/28/2003	12.30%	5.04%	7.18%	-2.99	2.14%	30.74	7.26%
	3/6/2003	10.75%	5.02%	7.17%	-2.99	2.14%	30.99	5.73%
	3/7/2003	9.96%	5.02%	7.16%	-2.99	2.14%	31.04	4.94%
	3/20/2003	12.00%	4.98%	7.13%	-3.00	2.15%	31.54	7.02%
	4/3/2003	12.00%	4.95%	7.10%	-3.00	2.14%	31.74	7.05%
	4/15/2003	11.15%	4.93%	7.07%	-3.01	2.13%	31.70	6.22%
	6/25/2003	10.75%	4.79%	6.85%	-3.04	2.05%	28.27	5.96%
	6/26/2003	10.75%	4.79%	6.84%	-3.04	2.05%	28.19	5.96%
	7/9/2003	9.75%	4.79%	6.82%	-3.04	2.03%	27.44	4.96%
	7/16/2003	9.75%	4.79%	6.80%	-3.04	2.01%	26.97	4.96%
	7/25/2003	9.50%	4.79%	6.79%	-3.04	1.99%	26.27	4.71%
	8/26/2003	10.50%	4.83%	6.73%	-3.03	1.90%	24.78	5.67%
	12/17/2003	9.85%	4.94%	6.51%	-3.01	1.57%	20.47	4.91%
	12/17/2003	10.70%	4.94%	6.51%	-3.01	1.57%	20.47	5.76%
	12/18/2003	11.50%	4.94%	6.50%	-3.01	1.57%	20.40	6.56%
	12/19/2003	12.00%	4.94%	6.50%	-3.01	1.56%	20.31	7.06%
	12/19/2003	12.00%	4.94%	6.50%	-3.01	1.56%	20.31	7.06%
	12/23/2003	10.50%	4.94%	6.50%	-3.01	1.56%	20.15	5.56%

	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Return on Equity	30 Year Treasury	Moody's Utility A	LN(30-Year	Moody's Utility A Credit		
	Date of Electric Rate Case	(%)	(%)	Yield	Treasury)	Spread	VIX	Risk Premium
	1/13/2004	12.00%	4.95%	6.46%	-3.01	1.51%	19.31	7.05%
	3/2/2004	10.75%	4.99%	6.38%	-3.00	1.39%	18.17	5.76%
	3/26/2004	10.25%	5.02%	6.35%	-2.99	1.33%	17.96	5.23%
	4/5/2004	11.25%	5.03%	6.35%	-2.99	1.32%	17.85	6.22%
	5/18/2004	10.50%	5.07%	6.36%	-2.98	1.28%	17.43	5.43%
	5/25/2004	10.25%	5.07%	6.35%	-2.98	1.28%	17.36	5.18%
	5/27/2004	10.25%	5.08%	6.35%	-2.98	1.27%	17.33	5.17%
	6/2/2004	11.22%	5.08%	6.35%	-2.98	1.27%	17.30	6.14%
	6/30/2004	10.50%	5.10%	6.32%	-2.98	1.22%	16.96	5.40%
	6/30/2004	10.50%	5.10%	6.32%	-2.98	1.22%	16.96	5.40%
	7/16/2004	11.60%	5.11%	6.30%	-2.97	1.19%	16.69	6.49%
	8/25/2004	10.25%	5.10%	6.27%	-2.98	1.17%	16.53	5.15%
	9/9/2004	10.40%	5.10%	6.25%	-2.98	1.16%	16.35	5.30%
	11/9/2004	10.50%	5.07%	6.20%	-2.98	1.13%	15.94	5.43%
	11/23/2004	11.00%	5.06%	6.19%	-2.98	1.13%	15.75	5.94%
	12/14/2004	10.97%	5.07%	6.18%	-2.98	1.11%	15.59	5.90%
	12/21/2004	11.25%	5.07%	6.17%	-2.98	1.10%	15.51	6.18%
	12/21/2004	11.50%	5.07%	6.17%	-2.98	1.10%	15.51	6.43%
	12/22/2004	10.70%	5.07%	6.17%	-2.98	1.10%	15.47	5.63%
	12/22/2004	11.50%	5.07%	6.17%	-2.98	1.10%	15.47	6.43%
	12/29/2004	9.85%	5.08%	6.17%	-2.98	1.10%	15.30	4.77%
	1/6/2005	10.70%	5.08%	6.17%	-2.98	1.09%	15.12	5.62%
	2/18/2005	10.30%	4.98%	6.08%	-3.00	1.11%	14.59	5.32%
	2/25/2005	10.50%	4.96%	6.06%	-3.00	1.11%	14.46	5.54%
	3/10/2005	11.00%	4.93%	6.02%	-3.01	1.10%	14.18	6.07%
	3/24/2005	10.30%	4.89%	5.99%	-3.02	1.09%	14.05	5.41%
	4/4/2005	10.00%	4.87%	5.97%	-3.02	1.09%	14.02	5.13%
	4/7/2005	10.25%	4.87%	5.96%	-3.02	1.09%	14.00	5.38%
	5/18/2005	10.25%	4.78%	5.85%	-3.04	1.07%	13.89	5.47%
	5/25/2005	10.75%	4.76%	5.84%	-3.04	1.07%	13.75	5.99%
	5/26/2005	9.75%	4.76%	5.83%	-3.04	1.07%	13.71	4.99%
	6/1/2005	9.75%	4.75%	5.82%	-3.05	1.07%	13.64	5.00%
	7/19/2005	11.50%	4.64%	5.72%	-3.07	1.08%	13.17	6.86%
	8/5/2005	11.75%	4.62%	5.70%	-3.07	1.07%	12.94	7.13%
	8/15/2005	10.13%	4.61%	5.68%	-3.08	1.07%	12.84	5.52%
	9/28/2005	10.00%	4.54%	5.61%	-3.09	1.07%	12.77	5.46%
	10/4/2005	10.75%	4.53%	5.60%	-3.09	1.07%	12.78	6.22%
	12/12/2005	11.00%	4.55%	5.63%	-3.09	1.08%	12.97	6.45%
	12/13/2005	10.75%	4.55%	5.63%	-3.09	1.08%	12.96	6.20%
	12/21/2005	10.29%	4.54%	5.63%	-3.09	1.09%	12.91	5.75%
	12/21/2005	10.40%	4.54%	5.63%	-3.09	1.09%	12.91	5.86%
	12/22/2005	11.00%	4.54%	5.63%	-3.09	1.09%	12.90	6.46%
	12/22/2005	11.15%	4.54%	5.63%	-3.09	1.09%	12.90	6.61%
	12/28/2005	10.00%	4.54%	5.63%	-3.09	1.09%	12.87	5.46%
	12/28/2005	10.00%	4.54%	5.63%	-3.09	1.09%	12.87	5.46%
	1/5/2006	11.00%	4.53%	5.62%	-3.09	1.09%	12.82	6.47%
	1/27/2006	9.75%	4.52%	5.62%	-3.10	1.10%	12.72	5.23%
	3/3/2006	10.39%	4.53%	5.65%	-3.09	1.12%	12.39	5.86%
	4/17/2006	10.20%	4.62%	5.75%	-3.08	1.14%	12.34	5.58%
	4/26/2006	10.60%	4.64%	5.78%	-3.07	1.14%	12.34	5.96%
	5/17/2006	11.60%	4.69%	5.85%	-3.06	1.15%	12.47	6.91%
	6/6/2006	10.00%	4.75%	5.90%	-3.05	1.16%	12.72	5.25%
	6/27/2006	10.75%	4.80%	5.98%	-3.04	1.18%	13.07	5.95%
	7/6/2006	10.20%	4.83%	6.01%	-3.03	1.18%	13.12	5.37%
	7/24/2006	9.60%	4.86%	6.05%	-3.02	1.19%	13.29	4.74%
	7/26/2006	10.50%	4.86%	6.06%	-3.02	1.20%	13.29	5.64%
	7/28/2006	10.05%	4.87%	6.06%	-3.02	1.20%	13.27	5.18%
	8/23/2006	9.55%	4.89%	6.10%	-3.02	1.21%	13.20	4.66%
	9/1/2006	10.54%	4.90%	6.10%	-3.02	1.21%	13.19	5.64%
	9/14/2006	10.00%	4.91%	6.11%	-3.01	1.21%	13.25	5.09%
	10/6/2006	9.67%	4.92%	6.12%	-3.01	1.20%	13.30	4.75%
	11/21/2006	10.08%	4.95%	6.15%	-3.01	1.19%	13.12	5.13%
	11/21/2006	10.08%	4.95%	6.15%	-3.01	1.19%	13.12	5.13%
	11/21/2006	10.12%	4.95%	6.15%	-3.01	1.19%	13.12	5.17%
	12/1/2006	10.25%	4.96%	6.14%	-3.00	1.19%	13.07	5.29%
	12/1/2006	10.50%	4.96%	6.14%	-3.00	1.19%	13.07	5.54%
	12/7/2006	10.75%	4.96%	6.14%	-3.00	1.19%	13.06	5.79%
	12/21/2006	10.90%	4.95%	6.14%	-3.00	1.18%	12.98	5.95%
	12/21/2006	11.25%	4.95%	6.14%	-3.00	1.18%	12.98	6.30%
	12/22/2006	10.25%	4.95%	6.14%	-3.00	1.18%	12.98	5.30%
	1/5/2007	10.00%	4.95%	6.13%	-3.01	1.18%	12.98	5.05%
	1/11/2007	10.10%	4.95%	6.13%	-3.01	1.18%	12.98	5.15%
	1/11/2007	10.10%	4.95%	6.13%	-3.01	1.18%	12.98	5.15%
	1/11/2007	10.90%	4.95%	6.13%	-3.01	1.18%	12.98	5.95%
	1/12/2007	10.10%	4.95%	6.13%	-3.01	1.18%	12.98	5.15%
	1/13/2007	10.40%	4.95%	6.13%	-3.01	1.18%	12.97	5.45%
	1/19/2007	10.80%	4.94%	6.13%	-3.01	1.19%	12.96	5.86%
	3/21/2007	11.35%	4.86%	6.03%	-3.02	1.16%	12.81	6.49%
	3/22/2007	9.75%	4.86%	6.03%	-3.02	1.16%	12.78	4.89%
	5/15/2007	10.00%	4.81%	5.94%	-3.04	1.13%	12.22	5.19%
	5/17/2007	10.25%	4.80%	5.94%	-3.04	1.13%	12.21	5.45%
	5/17/2007	10.25%	4.80%	5.94%	-3.04	1.13%	12.21	5.45%

	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Return on Equity (%)	30 Year Treasury (%)	Moody's Utility A Yield	LN(30-Year Treasury)	Moody's Utility A Credit Spread	VIX	Risk Premium
Date of Electric Rate Case								
5/22/2007		10.20%	4.80%	5.94%	-3.04	1.13%	12.19	5.40%
5/22/2007		10.50%	4.80%	5.94%	-3.04	1.13%	12.19	5.70%
5/23/2007		10.70%	4.80%	5.94%	-3.04	1.13%	12.18	5.90%
5/25/2007		9.67%	4.80%	5.93%	-3.04	1.13%	12.16	4.87%
6/15/2007		9.90%	4.82%	5.94%	-3.03	1.12%	12.27	5.08%
6/21/2007		10.20%	4.83%	5.94%	-3.03	1.12%	12.30	5.37%
6/22/2007		10.50%	4.83%	5.94%	-3.03	1.12%	12.31	5.67%
6/28/2007		10.75%	4.84%	5.95%	-3.03	1.11%	12.38	5.91%
7/12/2007		9.67%	4.86%	5.96%	-3.02	1.11%	12.56	4.81%
7/19/2007		10.00%	4.87%	5.97%	-3.02	1.11%	12.65	5.13%
7/19/2007		10.00%	4.87%	5.97%	-3.02	1.11%	12.65	5.13%
8/15/2007		10.40%	4.88%	5.99%	-3.02	1.12%	13.76	5.52%
10/9/2007		10.00%	4.91%	6.07%	-3.01	1.16%	15.94	5.09%
10/17/2007		9.10%	4.91%	6.08%	-3.01	1.17%	16.15	4.19%
10/31/2007		9.96%	4.90%	6.09%	-3.02	1.18%	16.62	5.06%
11/29/2007		10.90%	4.87%	6.08%	-3.02	1.21%	18.14	6.03%
12/6/2007		10.75%	4.86%	6.09%	-3.02	1.22%	18.45	5.89%
12/13/2007		9.96%	4.86%	6.10%	-3.02	1.24%	18.60	5.10%
12/14/2007		10.70%	4.86%	6.10%	-3.02	1.24%	18.62	5.84%
12/14/2007		10.80%	4.86%	6.10%	-3.02	1.24%	18.62	5.94%
12/19/2007		10.20%	4.86%	6.11%	-3.02	1.25%	18.74	5.34%
12/20/2007		10.20%	4.86%	6.11%	-3.03	1.25%	18.77	5.34%
12/20/2007		11.00%	4.86%	6.11%	-3.03	1.25%	18.77	6.14%
12/28/2007		10.25%	4.85%	6.12%	-3.03	1.27%	18.84	5.40%
12/31/2007		11.25%	4.85%	6.12%	-3.03	1.27%	18.88	6.40%
1/8/2008		10.75%	4.83%	6.12%	-3.03	1.29%	19.16	5.92%
1/17/2008		10.75%	4.81%	6.12%	-3.03	1.31%	19.51	5.94%
1/28/2008		9.40%	4.80%	6.12%	-3.04	1.33%	19.99	4.60%
1/30/2008		10.00%	4.79%	6.12%	-3.04	1.33%	20.14	5.21%
1/31/2008		10.71%	4.79%	6.12%	-3.04	1.34%	20.21	5.92%
2/29/2008		10.25%	4.75%	6.15%	-3.05	1.41%	21.45	5.50%
3/12/2008		10.25%	4.73%	6.16%	-3.05	1.44%	21.99	5.52%
3/25/2008		9.10%	4.68%	6.16%	-3.06	1.48%	22.55	4.42%
4/22/2008		10.25%	4.60%	6.16%	-3.08	1.56%	23.32	5.65%
4/24/2008		10.10%	4.60%	6.16%	-3.08	1.56%	23.35	5.50%
5/1/2008		10.70%	4.58%	6.16%	-3.08	1.57%	23.46	6.12%
5/19/2008		11.00%	4.56%	6.16%	-3.09	1.60%	23.32	6.44%
5/27/2008		10.00%	4.55%	6.16%	-3.09	1.61%	23.18	5.45%
6/10/2008		10.70%	4.54%	6.17%	-3.09	1.62%	22.89	6.16%
6/27/2008		10.50%	4.54%	6.18%	-3.09	1.65%	22.73	5.96%
6/27/2008		11.04%	4.54%	6.18%	-3.09	1.65%	22.73	6.50%
7/10/2008		10.43%	4.52%	6.19%	-3.10	1.66%	22.88	5.91%
7/16/2008		9.40%	4.51%	6.19%	-3.10	1.67%	23.08	4.89%
7/30/2008		10.80%	4.51%	6.20%	-3.10	1.69%	23.33	6.29%
7/31/2008		10.70%	4.51%	6.20%	-3.10	1.70%	23.34	6.19%
8/11/2008		10.25%	4.50%	6.22%	-3.10	1.71%	23.37	5.75%
8/26/2008		10.18%	4.50%	6.24%	-3.10	1.74%	23.23	5.68%
9/10/2008		10.30%	4.50%	6.25%	-3.10	1.75%	23.01	5.80%
9/24/2008		10.65%	4.48%	6.28%	-3.11	1.79%	23.46	6.17%
9/24/2008		10.65%	4.48%	6.28%	-3.11	1.79%	23.46	6.17%
9/24/2008		10.65%	4.48%	6.28%	-3.11	1.79%	23.46	6.17%
9/30/2008		10.20%	4.47%	6.29%	-3.11	1.82%	23.77	5.73%
10/8/2008		10.15%	4.46%	6.31%	-3.11	1.85%	24.61	5.69%
11/13/2008		10.55%	4.45%	6.52%	-3.11	2.08%	29.58	6.10%
11/17/2008		10.20%	4.44%	6.54%	-3.11	2.10%	29.98	5.76%
12/1/2008		10.25%	4.39%	6.59%	-3.12	2.20%	31.79	5.86%
12/23/2008		11.00%	4.27%	6.62%	-3.15	2.35%	34.13	6.73%
12/29/2008		10.00%	4.24%	6.62%	-3.16	2.38%	34.34	5.76%
12/29/2008		10.20%	4.24%	6.62%	-3.16	2.38%	34.34	5.96%
12/31/2008		10.75%	4.22%	6.62%	-3.17	2.40%	34.47	6.53%
1/14/2009		10.50%	4.15%	6.63%	-3.18	2.48%	35.25	6.35%
1/21/2009		10.50%	4.11%	6.63%	-3.19	2.51%	35.81	6.39%
1/21/2009		10.50%	4.11%	6.63%	-3.19	2.51%	35.81	6.39%
1/21/2009		10.50%	4.11%	6.63%	-3.19	2.51%	35.81	6.39%
1/27/2009		10.76%	4.09%	6.63%	-3.20	2.54%	36.26	6.67%
1/30/2009		10.50%	4.07%	6.64%	-3.20	2.56%	36.58	6.43%
2/4/2009		8.75%	4.06%	6.64%	-3.20	2.58%	36.94	4.69%
3/4/2009		10.50%	3.96%	6.64%	-3.23	2.68%	39.59	6.54%
3/12/2009		11.50%	3.93%	6.64%	-3.24	2.71%	40.42	7.57%
4/2/2009		11.10%	3.85%	6.65%	-3.26	2.80%	42.04	7.25%
4/21/2009		10.61%	3.80%	6.66%	-3.27	2.86%	42.91	6.81%
4/24/2009		10.00%	3.78%	6.66%	-3.27	2.87%	43.10	6.22%
4/30/2009		11.25%	3.77%	6.66%	-3.28	2.89%	43.29	7.48%
5/4/2009		10.74%	3.77%	6.67%	-3.28	2.90%	43.40	6.97%
5/20/2009		10.25%	3.74%	6.66%	-3.29	2.92%	43.96	6.51%
5/28/2009		10.50%	3.74%	6.67%	-3.29	2.93%	44.24	6.76%
6/22/2009		10.00%	3.76%	6.66%	-3.28	2.90%	45.01	6.24%
6/24/2009		10.80%	3.76%	6.66%	-3.28	2.90%	45.06	7.04%
7/8/2009		10.63%	3.76%	6.65%	-3.28	2.88%	44.95	6.87%
7/17/2009		10.50%	3.77%	6.62%	-3.28	2.84%	44.55	6.73%
8/31/2009		10.25%	3.82%	6.33%	-3.27	2.51%	38.96	6.43%
10/14/2009		10.70%	4.02%	6.13%	-3.21	2.11%	33.90	6.68%

	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Return on Equity	30 Year Treasury	Moody's Utility A	LN(30-Year	Moody's Utility A Credit		
	Date of Electric Rate Case	(%)	(%)	Yield	Treasury)	Spread	VIX	Risk Premium
	10/23/2009	10.88%	4.06%	6.10%	-3.20	2.04%	33.22	6.82%
	11/2/2009	10.70%	4.10%	6.08%	-3.20	1.99%	32.57	6.60%
	11/3/2009	10.70%	4.10%	6.08%	-3.19	1.98%	32.48	6.60%
	11/24/2009	10.25%	4.16%	6.02%	-3.18	1.87%	30.89	6.09%
	11/25/2009	10.75%	4.16%	6.02%	-3.18	1.86%	30.79	6.59%
	11/30/2009	10.35%	4.17%	6.02%	-3.18	1.85%	30.58	6.18%
	12/3/2009	10.50%	4.18%	6.01%	-3.18	1.83%	30.18	6.32%
	12/7/2009	10.70%	4.19%	6.00%	-3.17	1.81%	29.90	6.51%
	12/16/2009	10.90%	4.22%	5.98%	-3.17	1.76%	28.98	6.68%
	12/16/2009	11.00%	4.22%	5.98%	-3.17	1.76%	28.98	6.78%
	12/18/2009	10.40%	4.22%	5.98%	-3.16	1.75%	28.70	6.18%
	12/18/2009	10.40%	4.22%	5.98%	-3.16	1.75%	28.70	6.18%
	12/22/2009	10.20%	4.23%	5.97%	-3.16	1.74%	28.46	5.97%
	12/22/2009	10.40%	4.23%	5.97%	-3.16	1.74%	28.46	6.17%
	12/22/2009	10.40%	4.23%	5.97%	-3.16	1.74%	28.46	6.17%
	12/30/2009	10.00%	4.26%	5.96%	-3.16	1.69%	27.91	5.74%
	1/4/2010	10.80%	4.28%	5.95%	-3.15	1.67%	27.67	6.52%
	1/11/2010	11.00%	4.31%	5.94%	-3.15	1.63%	27.09	6.69%
	1/26/2010	10.13%	4.35%	5.90%	-3.13	1.55%	26.08	5.78%
	1/27/2010	10.40%	4.36%	5.90%	-3.13	1.54%	26.01	6.04%
	1/27/2010	10.40%	4.36%	5.90%	-3.13	1.54%	26.01	6.04%
	1/27/2010	10.70%	4.36%	5.90%	-3.13	1.54%	26.01	6.34%
	2/9/2010	9.80%	4.38%	5.86%	-3.13	1.48%	25.43	5.42%
	2/18/2010	10.60%	4.40%	5.85%	-3.12	1.45%	25.05	6.20%
	2/24/2010	10.18%	4.41%	5.83%	-3.12	1.43%	24.80	5.77%
	3/2/2010	9.63%	4.41%	5.82%	-3.12	1.41%	24.54	5.22%
	3/4/2010	10.50%	4.41%	5.82%	-3.12	1.40%	24.43	6.09%
	3/5/2010	10.50%	4.41%	5.81%	-3.12	1.40%	24.37	6.09%
	3/11/2010	11.90%	4.42%	5.80%	-3.12	1.39%	24.10	7.48%
	3/17/2010	10.00%	4.41%	5.79%	-3.12	1.37%	23.85	5.59%
	3/25/2010	10.15%	4.42%	5.77%	-3.12	1.35%	23.47	5.73%
	4/2/2010	10.10%	4.43%	5.76%	-3.12	1.33%	22.82	5.67%
	4/27/2010	10.00%	4.46%	5.74%	-3.11	1.29%	22.16	5.54%
	4/29/2010	9.90%	4.46%	5.74%	-3.11	1.28%	22.11	5.44%
	4/29/2010	10.06%	4.46%	5.74%	-3.11	1.28%	22.11	5.60%
	4/29/2010	10.26%	4.46%	5.74%	-3.11	1.28%	22.11	5.80%
	5/12/2010	10.30%	4.45%	5.72%	-3.11	1.26%	22.26	5.85%
	5/12/2010	10.30%	4.45%	5.72%	-3.11	1.26%	22.26	5.85%
	5/28/2010	10.10%	4.44%	5.70%	-3.11	1.25%	22.81	5.66%
	5/28/2010	10.20%	4.44%	5.70%	-3.11	1.25%	22.81	5.76%
	6/7/2010	10.30%	4.44%	5.69%	-3.11	1.25%	23.00	5.86%
	6/16/2010	10.00%	4.44%	5.69%	-3.11	1.25%	23.16	5.56%
	6/28/2010	9.67%	4.43%	5.68%	-3.12	1.25%	23.19	5.24%
	6/28/2010	10.50%	4.43%	5.68%	-3.12	1.25%	23.19	6.07%
	6/30/2010	9.40%	4.43%	5.68%	-3.12	1.25%	23.30	4.97%
	7/1/2010	10.25%	4.43%	5.68%	-3.12	1.25%	23.34	5.82%
	7/15/2010	10.53%	4.43%	5.67%	-3.12	1.24%	23.43	6.10%
	7/15/2010	10.70%	4.43%	5.67%	-3.12	1.24%	23.43	6.27%
	7/30/2010	10.70%	4.41%	5.66%	-3.12	1.24%	23.39	6.29%
	8/4/2010	10.50%	4.41%	5.65%	-3.12	1.24%	23.40	6.09%
	8/6/2010	9.83%	4.41%	5.65%	-3.12	1.24%	23.41	5.42%
	8/25/2010	9.90%	4.37%	5.60%	-3.13	1.23%	23.38	5.53%
	9/3/2010	10.60%	4.35%	5.58%	-3.14	1.23%	23.44	6.25%
	9/14/2010	10.70%	4.33%	5.56%	-3.14	1.23%	23.46	6.37%
	9/16/2010	10.00%	4.32%	5.56%	-3.14	1.23%	23.44	5.68%
	9/16/2010	10.00%	4.32%	5.56%	-3.14	1.23%	23.44	5.68%
	9/30/2010	9.75%	4.28%	5.52%	-3.15	1.23%	23.47	5.47%
	10/14/2010	10.35%	4.24%	5.48%	-3.16	1.24%	23.50	6.11%
	10/28/2010	10.70%	4.21%	5.45%	-3.17	1.24%	23.55	6.49%
	11/2/2010	10.38%	4.20%	5.44%	-3.17	1.24%	23.60	6.18%
	11/4/2010	10.70%	4.19%	5.43%	-3.17	1.24%	23.54	6.51%
	11/19/2010	10.20%	4.17%	5.42%	-3.18	1.24%	23.28	6.03%
	11/22/2010	10.00%	4.17%	5.41%	-3.18	1.24%	23.24	5.83%
	12/1/2010	10.13%	4.16%	5.40%	-3.18	1.24%	23.21	5.97%
	12/6/2010	9.86%	4.15%	5.39%	-3.18	1.24%	23.18	5.71%
	12/9/2010	10.25%	4.15%	5.38%	-3.18	1.24%	23.14	6.10%
	12/13/2010	10.70%	4.15%	5.38%	-3.18	1.24%	23.13	6.55%
	12/14/2010	10.13%	4.15%	5.38%	-3.18	1.24%	23.12	5.98%
	12/15/2010	10.44%	4.15%	5.38%	-3.18	1.24%	23.12	6.29%
	12/17/2010	10.00%	4.14%	5.38%	-3.18	1.23%	23.11	5.86%
	12/20/2010	10.60%	4.14%	5.38%	-3.18	1.23%	23.10	6.46%
	12/21/2010	10.30%	4.14%	5.38%	-3.18	1.23%	23.09	6.16%
	12/27/2010	9.90%	4.14%	5.37%	-3.18	1.23%	23.07	5.76%
	12/29/2010	11.15%	4.14%	5.37%	-3.19	1.23%	23.07	7.01%
	1/5/2011	10.15%	4.13%	5.36%	-3.19	1.23%	23.08	6.02%
	1/12/2011	10.30%	4.12%	5.35%	-3.19	1.23%	23.07	6.18%
	1/13/2011	10.30%	4.12%	5.35%	-3.19	1.23%	23.06	6.18%
	1/18/2011	10.00%	4.12%	5.35%	-3.19	1.23%	23.05	5.88%
	1/20/2011	9.30%	4.12%	5.34%	-3.19	1.23%	23.06	5.18%
	1/20/2011	10.13%	4.12%	5.34%	-3.19	1.23%	23.06	6.01%
	1/31/2011	9.60%	4.11%	5.33%	-3.19	1.22%	23.12	5.49%
	2/3/2011	10.00%	4.11%	5.33%	-3.19	1.22%	23.13	5.89%

	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Return on Equity	30 Year Treasury	Moody's Utility A	LN(30-Year	Moody's Utility A Credit		
	Date of Electric Rate Case	(%)	(%)	Yield	Treasury)	Spread	VIX	Risk Premium
	2/25/2011	10.00%	4.14%	5.34%	-3.18	1.20%	22.58	5.86%
	3/25/2011	9.80%	4.18%	5.34%	-3.18	1.17%	21.29	5.62%
	3/30/2011	10.00%	4.18%	5.35%	-3.17	1.16%	21.16	5.82%
	4/12/2011	10.00%	4.21%	5.35%	-3.17	1.14%	20.69	5.79%
	4/25/2011	10.74%	4.23%	5.37%	-3.16	1.13%	20.17	6.51%
	4/26/2011	9.67%	4.24%	5.37%	-3.16	1.13%	20.13	5.43%
	4/27/2011	10.40%	4.24%	5.37%	-3.16	1.13%	20.08	6.16%
	5/4/2011	10.00%	4.25%	5.37%	-3.16	1.13%	19.84	5.75%
	5/4/2011	10.00%	4.25%	5.37%	-3.16	1.13%	19.84	5.75%
	5/24/2011	10.50%	4.27%	5.38%	-3.15	1.11%	19.44	6.23%
	6/8/2011	10.75%	4.30%	5.39%	-3.15	1.09%	19.02	6.45%
	6/16/2011	9.20%	4.32%	5.40%	-3.14	1.09%	18.83	4.88%
	6/17/2011	9.95%	4.32%	5.40%	-3.14	1.09%	18.83	5.63%
	7/13/2011	10.20%	4.37%	5.43%	-3.13	1.06%	18.48	5.83%
	8/1/2011	9.20%	4.39%	5.44%	-3.13	1.05%	18.46	4.81%
	8/8/2011	10.00%	4.38%	5.43%	-3.13	1.05%	18.77	5.62%
	8/11/2011	10.00%	4.38%	5.42%	-3.13	1.05%	19.05	5.62%
	8/12/2011	10.35%	4.38%	5.42%	-3.13	1.05%	19.13	5.97%
	8/19/2011	10.25%	4.36%	5.41%	-3.13	1.05%	19.53	5.89%
	9/2/2011	12.88%	4.32%	5.37%	-3.14	1.05%	20.31	8.56%
	9/22/2011	10.00%	4.24%	5.31%	-3.16	1.07%	21.34	5.76%
	10/12/2011	10.30%	4.14%	5.23%	-3.19	1.09%	22.82	6.16%
	10/20/2011	10.50%	4.10%	5.20%	-3.19	1.10%	23.27	6.40%
	11/30/2011	10.90%	3.87%	5.02%	-3.25	1.15%	25.28	7.03%
	11/30/2011	10.90%	3.87%	5.02%	-3.25	1.15%	25.28	7.03%
	12/14/2011	10.00%	3.79%	4.96%	-3.27	1.17%	25.67	6.21%
	12/14/2011	10.30%	3.79%	4.96%	-3.27	1.17%	25.67	6.51%
	12/20/2011	10.20%	3.76%	4.93%	-3.28	1.17%	25.76	6.44%
	12/21/2011	10.20%	3.75%	4.93%	-3.28	1.17%	25.76	6.45%
	12/22/2011	9.90%	3.75%	4.92%	-3.28	1.17%	25.77	6.15%
	12/22/2011	10.40%	3.75%	4.92%	-3.28	1.17%	25.77	6.65%
	12/23/2011	10.19%	3.74%	4.92%	-3.29	1.18%	25.76	6.45%
	1/25/2012	10.50%	3.57%	4.79%	-3.33	1.23%	25.89	6.93%
	1/27/2012	10.50%	3.55%	4.78%	-3.34	1.23%	25.91	6.95%
	2/15/2012	10.20%	3.47%	4.70%	-3.36	1.23%	26.12	6.73%
	2/23/2012	9.90%	3.43%	4.68%	-3.37	1.24%	26.14	6.47%
	2/27/2012	10.25%	3.42%	4.67%	-3.37	1.25%	26.15	6.83%
	2/29/2012	10.40%	3.41%	4.66%	-3.38	1.25%	26.16	6.99%
	3/29/2012	10.37%	3.31%	4.57%	-3.41	1.26%	25.99	7.06%
	4/4/2012	10.00%	3.29%	4.56%	-3.41	1.27%	25.89	6.71%
	4/26/2012	10.00%	3.20%	4.48%	-3.44	1.28%	25.91	6.80%
	5/2/2012	10.00%	3.18%	4.47%	-3.45	1.29%	25.85	6.82%
	5/7/2012	9.80%	3.16%	4.45%	-3.45	1.29%	25.85	6.64%
	5/15/2012	10.00%	3.14%	4.42%	-3.46	1.28%	25.79	6.86%
	5/29/2012	10.05%	3.11%	4.40%	-3.47	1.29%	25.23	6.94%
	6/7/2012	10.30%	3.07%	4.38%	-3.48	1.30%	24.77	7.23%
	6/14/2012	9.40%	3.06%	4.36%	-3.49	1.30%	24.45	6.34%
	6/15/2012	10.40%	3.06%	4.36%	-3.49	1.30%	24.40	7.34%
	6/18/2012	9.60%	3.05%	4.36%	-3.49	1.30%	24.33	6.55%
	6/19/2012	9.25%	3.05%	4.35%	-3.49	1.30%	24.25	6.20%
	6/26/2012	10.10%	3.04%	4.34%	-3.49	1.30%	23.82	7.06%
	6/29/2012	10.00%	3.04%	4.34%	-3.49	1.30%	23.58	6.96%
	7/9/2012	10.20%	3.03%	4.32%	-3.50	1.30%	23.14	7.17%
	7/16/2012	9.80%	3.02%	4.31%	-3.50	1.29%	22.59	6.78%
	7/20/2012	9.31%	3.01%	4.30%	-3.50	1.30%	22.07	6.30%
	7/20/2012	9.81%	3.01%	4.30%	-3.50	1.30%	22.07	6.80%
	9/13/2012	9.80%	2.94%	4.22%	-3.53	1.28%	19.11	6.86%
	9/19/2012	9.80%	2.94%	4.22%	-3.53	1.28%	18.84	6.86%
	9/19/2012	10.05%	2.94%	4.22%	-3.53	1.28%	18.84	7.11%
	9/26/2012	9.50%	2.94%	4.21%	-3.53	1.27%	18.51	6.56%
	10/12/2012	9.60%	2.93%	4.19%	-3.53	1.26%	18.04	6.67%
	10/23/2012	9.75%	2.93%	4.17%	-3.53	1.24%	17.84	6.82%
	10/24/2012	10.30%	2.93%	4.17%	-3.53	1.24%	17.83	7.37%
	11/9/2012	10.30%	2.92%	4.14%	-3.53	1.22%	17.75	7.38%
	11/28/2012	10.40%	2.90%	4.11%	-3.54	1.22%	17.60	7.50%
	11/29/2012	9.75%	2.89%	4.11%	-3.54	1.22%	17.58	6.86%
	11/29/2012	9.88%	2.89%	4.11%	-3.54	1.22%	17.58	6.99%
	12/5/2012	9.71%	2.89%	4.10%	-3.54	1.21%	17.53	6.82%
	12/5/2012	10.40%	2.89%	4.10%	-3.54	1.21%	17.53	7.51%
	12/12/2012	9.80%	2.88%	4.09%	-3.55	1.21%	17.48	6.92%
	12/13/2012	9.50%	2.88%	4.09%	-3.55	1.21%	17.47	6.62%
	12/13/2012	10.50%	2.88%	4.09%	-3.55	1.21%	17.47	7.62%
	12/14/2012	10.40%	2.88%	4.09%	-3.55	1.21%	17.47	7.52%
	12/19/2012	9.71%	2.87%	4.09%	-3.55	1.22%	17.44	6.84%
	12/19/2012	10.25%	2.87%	4.09%	-3.55	1.22%	17.44	7.38%
	12/20/2012	9.50%	2.87%	4.09%	-3.55	1.22%	17.43	6.63%
	12/20/2012	9.80%	2.87%	4.09%	-3.55	1.22%	17.43	6.93%
	12/20/2012	10.25%	2.87%	4.09%	-3.55	1.22%	17.43	7.38%
	12/20/2012	10.25%	2.87%	4.09%	-3.55	1.22%	17.43	7.38%
	12/20/2012	10.30%	2.87%	4.09%	-3.55	1.22%	17.43	7.43%
	12/20/2012	10.40%	2.87%	4.09%	-3.55	1.22%	17.43	7.53%
	12/20/2012	10.45%	2.87%	4.09%	-3.55	1.22%	17.43	7.58%

	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Return on Equity	30 Year Treasury	Moody's Utility A	LN(30-Year	Moody's Utility A Credit		
	Date of Electric Rate Case	(%)	(%)	Yield	Treasury)	Spread	VIX	Risk Premium
	12/21/2012	10.20%	2.87%	4.08%	-3.55	1.22%	17.43	7.33%
	12/26/2012	9.80%	2.86%	4.08%	-3.55	1.22%	17.45	6.94%
	1/9/2013	9.70%	2.84%	4.06%	-3.56	1.22%	17.50	6.86%
	1/9/2013	9.70%	2.84%	4.06%	-3.56	1.22%	17.50	6.86%
	1/9/2013	9.70%	2.84%	4.06%	-3.56	1.22%	17.50	6.86%
	1/16/2013	9.60%	2.84%	4.05%	-3.56	1.21%	17.45	6.76%
	1/16/2013	9.60%	2.84%	4.05%	-3.56	1.21%	17.45	6.76%
	2/13/2013	10.20%	2.84%	4.03%	-3.56	1.18%	17.01	7.36%
	2/22/2013	9.75%	2.85%	4.02%	-3.56	1.17%	16.89	6.90%
	2/27/2013	10.00%	2.86%	4.02%	-3.56	1.16%	16.85	7.14%
	3/14/2013	9.30%	2.88%	4.02%	-3.55	1.14%	16.34	6.42%
	3/27/2013	9.80%	2.90%	4.03%	-3.54	1.13%	15.87	6.90%
	5/1/2013	9.84%	2.94%	4.02%	-3.53	1.08%	15.25	6.90%
	5/15/2013	10.30%	2.96%	4.03%	-3.52	1.07%	15.02	7.34%
	5/30/2013	10.20%	2.98%	4.05%	-3.51	1.07%	14.87	7.22%
	5/31/2013	9.00%	2.98%	4.05%	-3.51	1.07%	14.89	6.02%
	6/11/2013	10.00%	3.00%	4.06%	-3.51	1.06%	14.95	7.00%
	6/21/2013	9.75%	3.02%	4.08%	-3.50	1.06%	14.99	6.73%
	6/25/2013	9.80%	3.03%	4.09%	-3.50	1.06%	15.02	6.77%
	7/12/2013	9.36%	3.08%	4.13%	-3.48	1.06%	15.06	6.28%
	8/8/2013	9.83%	3.14%	4.20%	-3.46	1.05%	14.82	6.69%
	8/14/2013	9.15%	3.16%	4.22%	-3.45	1.05%	14.72	5.99%
	9/11/2013	10.20%	3.27%	4.31%	-3.42	1.04%	14.56	6.93%
	9/11/2013	10.25%	3.27%	4.31%	-3.42	1.04%	14.56	6.98%
	9/24/2013	10.20%	3.31%	4.35%	-3.41	1.04%	14.46	6.89%
	10/3/2013	9.65%	3.33%	4.38%	-3.40	1.04%	14.45	6.32%
	11/6/2013	10.20%	3.41%	4.44%	-3.38	1.04%	14.40	6.79%
	11/21/2013	10.00%	3.44%	4.47%	-3.37	1.03%	14.36	6.56%
	11/26/2013	10.00%	3.45%	4.48%	-3.37	1.03%	14.36	6.55%
	12/3/2013	10.25%	3.47%	4.49%	-3.36	1.02%	14.38	6.78%
	12/4/2013	9.50%	3.47%	4.50%	-3.36	1.02%	14.38	6.03%
	12/5/2013	10.20%	3.48%	4.50%	-3.36	1.02%	14.38	6.72%
	12/9/2013	8.72%	3.49%	4.51%	-3.36	1.02%	14.34	5.23%
	12/9/2013	9.75%	3.49%	4.51%	-3.36	1.02%	14.34	6.26%
	12/13/2013	9.75%	3.50%	4.52%	-3.35	1.02%	14.34	6.25%
	12/16/2013	9.95%	3.50%	4.52%	-3.35	1.02%	14.35	6.45%
	12/16/2013	9.95%	3.50%	4.52%	-3.35	1.02%	14.35	6.45%
	12/16/2013	10.12%	3.50%	4.52%	-3.35	1.02%	14.35	6.62%
	12/17/2013	9.50%	3.51%	4.53%	-3.35	1.02%	14.37	5.99%
	12/17/2013	10.95%	3.51%	4.53%	-3.35	1.02%	14.37	7.44%
	12/18/2013	8.72%	3.51%	4.53%	-3.35	1.02%	14.37	5.21%
	12/18/2013	9.80%	3.51%	4.53%	-3.35	1.02%	14.37	6.29%
	12/19/2013	10.15%	3.51%	4.53%	-3.35	1.02%	14.38	6.64%
	12/30/2013	9.50%	3.54%	4.55%	-3.34	1.01%	14.41	5.96%
	2/20/2014	9.20%	3.69%	4.65%	-3.30	0.96%	14.62	5.51%
	2/26/2014	9.75%	3.70%	4.66%	-3.30	0.96%	14.65	6.05%
	3/17/2014	9.55%	3.72%	4.68%	-3.29	0.96%	14.72	5.83%
	3/26/2014	9.40%	3.73%	4.68%	-3.29	0.95%	14.66	5.67%
	3/26/2014	9.96%	3.73%	4.68%	-3.29	0.95%	14.66	6.23%
	4/2/2014	9.70%	3.73%	4.68%	-3.29	0.95%	14.58	5.97%
	5/16/2014	9.80%	3.70%	4.63%	-3.30	0.93%	14.38	6.10%
	5/30/2014	9.70%	3.68%	4.61%	-3.30	0.93%	14.35	6.02%
	6/6/2014	10.40%	3.67%	4.60%	-3.30	0.93%	14.26	6.73%
	6/30/2014	9.55%	3.64%	4.56%	-3.31	0.92%	13.95	5.91%
	7/2/2014	9.62%	3.64%	4.55%	-3.31	0.92%	13.91	5.98%
	7/10/2014	9.95%	3.63%	4.54%	-3.32	0.91%	13.86	6.32%
	7/23/2014	9.75%	3.61%	4.52%	-3.32	0.91%	13.68	6.14%
	7/29/2014	9.45%	3.60%	4.50%	-3.32	0.90%	13.57	5.85%
	7/31/2014	9.90%	3.60%	4.50%	-3.32	0.90%	13.55	6.30%
	8/20/2014	9.75%	3.56%	4.46%	-3.33	0.90%	13.61	6.19%
	8/25/2014	9.60%	3.56%	4.45%	-3.34	0.90%	13.59	6.04%
	8/29/2014	9.80%	3.54%	4.44%	-3.34	0.90%	13.57	6.26%
	9/11/2014	9.60%	3.51%	4.42%	-3.35	0.90%	13.57	6.09%
	9/15/2014	10.25%	3.51%	4.41%	-3.35	0.91%	13.57	6.74%
	10/9/2014	9.80%	3.44%	4.36%	-3.37	0.91%	13.62	6.36%
	11/6/2014	9.56%	3.37%	4.29%	-3.39	0.92%	14.09	6.19%
	11/6/2014	10.20%	3.37%	4.29%	-3.39	0.92%	14.09	6.83%
	11/14/2014	10.20%	3.35%	4.28%	-3.40	0.93%	13.94	6.85%
	11/26/2014	9.70%	3.32%	4.26%	-3.40	0.94%	13.82	6.38%
	11/26/2014	10.20%	3.32%	4.26%	-3.40	0.94%	13.82	6.88%
	12/4/2014	9.68%	3.30%	4.25%	-3.41	0.95%	13.78	6.38%
	12/10/2014	9.25%	3.29%	4.24%	-3.41	0.95%	13.80	5.96%
	12/10/2014	9.25%	3.29%	4.24%	-3.41	0.95%	13.80	5.96%
	12/11/2014	10.07%	3.28%	4.24%	-3.42	0.95%	13.83	6.79%
	12/12/2014	10.20%	3.28%	4.23%	-3.42	0.95%	13.86	6.92%
	12/17/2014	9.17%	3.27%	4.22%	-3.42	0.96%	13.96	5.90%
	12/18/2014	9.83%	3.26%	4.22%	-3.42	0.96%	13.98	6.57%
	1/23/2015	9.50%	3.14%	4.13%	-3.46	0.99%	14.37	6.36%
	2/24/2015	9.83%	3.04%	4.05%	-3.49	1.02%	14.67	6.79%
	3/18/2015	9.75%	2.98%	4.02%	-3.51	1.04%	14.90	6.77%
	3/25/2015	9.50%	2.95%	4.00%	-3.52	1.04%	14.96	6.55%
	3/26/2015	9.72%	2.95%	4.00%	-3.52	1.05%	14.98	6.77%

	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Return on Equity	30 Year Treasury	Moody's Utility A	LN(30-Year	Moody's Utility A Credit		
	Date of Electric Rate Case	(%)	(%)	Yield	Treasury)	Spread	VIX	Risk Premium
	4/23/2015	10.20%	2.87%	3.94%	-3.55	1.07%	15.21	7.33%
	4/29/2015	9.53%	2.86%	3.93%	-3.56	1.07%	15.22	6.67%
	5/1/2015	9.60%	2.85%	3.93%	-3.56	1.08%	15.23	6.75%
	5/26/2015	9.75%	2.83%	3.93%	-3.57	1.10%	15.16	6.92%
	6/17/2015	9.00%	2.82%	3.94%	-3.57	1.13%	15.30	6.18%
	6/17/2015	9.00%	2.82%	3.94%	-3.57	1.13%	15.30	6.18%
	9/2/2015	9.50%	2.79%	4.00%	-3.58	1.21%	15.68	6.71%
	9/10/2015	9.30%	2.79%	4.01%	-3.58	1.22%	15.99	6.51%
	10/15/2015	9.00%	2.81%	4.06%	-3.57	1.24%	16.66	6.19%
	11/19/2015	10.00%	2.88%	4.15%	-3.55	1.27%	16.28	7.12%
	11/19/2015	10.30%	2.88%	4.15%	-3.55	1.27%	16.28	7.42%
	12/3/2015	10.00%	2.90%	4.18%	-3.54	1.28%	16.28	7.10%
	12/9/2015	9.14%	2.90%	4.19%	-3.54	1.29%	16.33	6.24%
	12/9/2015	9.14%	2.90%	4.19%	-3.54	1.29%	16.33	6.24%
	12/11/2015	10.30%	2.90%	4.20%	-3.54	1.30%	16.42	7.40%
	12/15/2015	9.60%	2.91%	4.21%	-3.54	1.30%	16.50	6.69%
	12/17/2015	9.70%	2.91%	4.21%	-3.54	1.30%	16.54	6.79%
	12/18/2015	9.50%	2.91%	4.21%	-3.54	1.30%	16.57	6.59%
	12/30/2015	9.50%	2.93%	4.23%	-3.53	1.31%	16.60	6.57%
	1/6/2016	9.50%	2.94%	4.25%	-3.53	1.31%	16.72	6.56%
	2/23/2016	9.75%	2.94%	4.31%	-3.53	1.38%	18.32	6.81%
	3/16/2016	9.85%	2.91%	4.31%	-3.54	1.40%	18.69	6.94%
	4/29/2016	9.80%	2.83%	4.25%	-3.56	1.42%	18.60	6.97%
	6/3/2016	9.75%	2.80%	4.21%	-3.57	1.40%	18.79	6.95%
	6/8/2016	9.48%	2.80%	4.20%	-3.58	1.40%	18.56	6.68%
	6/15/2016	9.00%	2.78%	4.19%	-3.58	1.40%	18.29	6.22%
	6/15/2016	9.00%	2.78%	4.19%	-3.58	1.40%	18.29	6.22%
	7/18/2016	9.98%	2.71%	4.11%	-3.61	1.40%	17.45	7.27%
	8/9/2016	9.85%	2.66%	4.05%	-3.63	1.39%	17.07	7.19%
	8/18/2016	9.50%	2.63%	4.03%	-3.64	1.40%	16.97	6.87%
	8/24/2016	9.75%	2.61%	4.01%	-3.64	1.39%	16.91	7.14%
	9/1/2016	9.50%	2.59%	3.98%	-3.65	1.39%	16.78	6.91%
	9/8/2016	10.00%	2.57%	3.97%	-3.66	1.39%	16.69	7.43%
	9/28/2016	9.58%	2.53%	3.92%	-3.68	1.39%	16.51	7.05%
	9/30/2016	9.90%	2.53%	3.91%	-3.68	1.38%	16.46	7.37%
	11/9/2016	9.80%	2.48%	3.84%	-3.70	1.36%	15.63	7.32%
	11/10/2016	9.50%	2.48%	3.84%	-3.70	1.36%	15.60	7.02%
	11/15/2016	9.55%	2.49%	3.84%	-3.69	1.35%	15.49	7.06%
	11/18/2016	10.00%	2.50%	3.84%	-3.69	1.35%	15.34	7.50%
	11/29/2016	10.55%	2.51%	3.85%	-3.69	1.34%	14.95	8.04%
	12/1/2016	10.00%	2.51%	3.85%	-3.68	1.34%	14.87	7.49%
	12/6/2016	8.64%	2.52%	3.85%	-3.68	1.33%	14.76	6.12%
	12/6/2016	8.64%	2.52%	3.85%	-3.68	1.33%	14.76	6.12%
	12/7/2016	10.10%	2.52%	3.85%	-3.68	1.33%	14.72	7.58%
	12/12/2016	9.60%	2.53%	3.85%	-3.68	1.33%	14.62	7.07%
	12/14/2016	9.10%	2.53%	3.86%	-3.68	1.32%	14.58	6.57%
	12/19/2016	9.00%	2.54%	3.86%	-3.67	1.32%	14.50	6.46%
	12/19/2016	9.37%	2.54%	3.86%	-3.67	1.32%	14.50	6.83%
	12/22/2016	9.60%	2.55%	3.86%	-3.67	1.31%	14.40	7.05%
	12/22/2016	9.90%	2.55%	3.86%	-3.67	1.31%	14.40	7.35%
	12/28/2016	9.50%	2.55%	3.86%	-3.67	1.31%	14.34	6.95%
	1/18/2017	9.45%	2.58%	3.86%	-3.66	1.27%	14.20	6.87%
	1/24/2017	9.00%	2.59%	3.86%	-3.65	1.27%	14.12	6.41%
	1/31/2017	10.10%	2.60%	3.87%	-3.65	1.27%	14.05	7.50%
	2/15/2017	9.60%	2.62%	3.88%	-3.64	1.25%	13.89	6.98%
	2/22/2017	9.60%	2.64%	3.88%	-3.64	1.25%	13.82	6.96%
	2/24/2017	9.75%	2.64%	3.89%	-3.63	1.25%	13.79	7.11%
	2/28/2017	10.10%	2.64%	3.89%	-3.63	1.25%	13.77	7.46%
	3/2/2017	9.41%	2.65%	3.89%	-3.63	1.24%	13.74	6.76%
	3/20/2017	9.50%	2.68%	3.91%	-3.62	1.23%	13.56	6.82%
	4/4/2017	10.25%	2.72%	3.93%	-3.61	1.22%	13.28	7.53%
	4/12/2017	9.40%	2.74%	3.94%	-3.60	1.20%	13.06	6.66%
	4/20/2017	9.50%	2.76%	3.95%	-3.59	1.19%	13.05	6.74%
	5/3/2017	9.50%	2.79%	3.98%	-3.58	1.19%	12.95	6.71%
	5/11/2017	9.20%	2.81%	4.00%	-3.57	1.18%	12.88	6.39%
	5/18/2017	9.50%	2.83%	4.01%	-3.56	1.18%	12.88	6.67%
	5/23/2017	9.70%	2.84%	4.02%	-3.56	1.18%	12.87	6.86%
	6/16/2017	9.65%	2.89%	4.05%	-3.54	1.16%	12.69	6.76%
	6/22/2017	9.70%	2.90%	4.06%	-3.54	1.16%	12.66	6.80%
	6/22/2017	9.70%	2.90%	4.06%	-3.54	1.16%	12.66	6.80%
	7/24/2017	9.50%	2.95%	4.09%	-3.52	1.14%	12.24	6.55%
	8/15/2017	10.00%	2.97%	4.10%	-3.52	1.13%	11.95	7.03%
	9/22/2017	9.60%	2.93%	4.07%	-3.53	1.14%	11.47	6.67%
	9/28/2017	9.80%	2.92%	4.06%	-3.53	1.14%	11.42	6.88%
	10/20/2017	9.50%	2.91%	4.04%	-3.54	1.13%	11.23	6.59%
	10/26/2017	10.20%	2.91%	4.03%	-3.54	1.13%	11.22	7.29%
	10/26/2017	10.25%	2.91%	4.03%	-3.54	1.13%	11.22	7.34%
	10/26/2017	10.30%	2.91%	4.03%	-3.54	1.13%	11.22	7.39%
	11/6/2017	10.25%	2.90%	4.03%	-3.54	1.12%	11.15	7.35%
	11/15/2017	11.95%	2.89%	4.01%	-3.54	1.12%	11.14	9.06%
	11/30/2017	10.00%	2.88%	4.00%	-3.55	1.12%	11.11	7.12%
	11/30/2017	10.00%	2.88%	4.00%	-3.55	1.12%	11.11	7.12%

	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Return on Equity	30 Year Treasury	Moody's Utility A	LN(30-Year	Moody's Utility A Credit		
	Date of Electric Rate Case	(%)	(%)	Yield	Treasury)	Spread	VIX	Risk Premium
	12/5/2017	9.50%	2.88%	3.99%	-3.55	1.11%	11.10	6.62%
	12/6/2017	8.40%	2.87%	3.99%	-3.55	1.11%	11.10	5.53%
	12/6/2017	8.40%	2.87%	3.99%	-3.55	1.11%	11.10	5.53%
	12/7/2017	9.80%	2.87%	3.99%	-3.55	1.11%	11.09	6.93%
	12/14/2017	9.60%	2.86%	3.98%	-3.55	1.11%	11.04	6.74%
	12/14/2017	9.65%	2.86%	3.98%	-3.55	1.11%	11.04	6.79%
	12/18/2017	9.50%	2.86%	3.97%	-3.56	1.11%	11.02	6.64%
	12/20/2017	9.58%	2.85%	3.97%	-3.56	1.11%	11.00	6.73%
	12/21/2017	9.10%	2.85%	3.97%	-3.56	1.11%	10.99	6.25%
	12/28/2017	9.50%	2.85%	3.96%	-3.56	1.11%	10.96	6.65%
	12/29/2017	9.51%	2.85%	3.95%	-3.56	1.11%	10.96	6.66%
	1/18/2018	9.70%	2.84%	3.93%	-3.56	1.09%	10.84	6.86%
	1/31/2018	9.30%	2.84%	3.92%	-3.56	1.08%	10.75	6.46%
	2/2/2018	9.98%	2.84%	3.92%	-3.56	1.08%	10.76	7.14%
	2/23/2018	9.90%	2.85%	3.92%	-3.56	1.07%	11.72	7.05%
	3/12/2018	9.25%	2.86%	3.92%	-3.55	1.05%	12.08	6.39%
	3/15/2018	9.00%	2.87%	3.92%	-3.55	1.05%	12.18	6.13%
	3/29/2018	10.00%	2.88%	3.92%	-3.55	1.04%	12.69	7.12%
	4/12/2018	9.90%	2.89%	3.93%	-3.54	1.04%	13.15	7.01%
	4/13/2018	9.73%	2.89%	3.94%	-3.54	1.04%	13.18	6.84%
	4/18/2018	9.25%	2.89%	3.94%	-3.54	1.04%	13.25	6.36%
	4/18/2018	10.00%	2.89%	3.94%	-3.54	1.04%	13.25	7.11%
	4/26/2018	9.50%	2.90%	3.95%	-3.54	1.04%	13.42	6.60%
	5/30/2018	9.95%	2.94%	3.98%	-3.53	1.04%	13.84	7.01%
	5/31/2018	9.50%	2.94%	3.98%	-3.53	1.04%	13.86	6.56%
	6/14/2018	8.80%	2.96%	4.01%	-3.52	1.05%	13.86	5.84%
	6/22/2018	9.50%	2.97%	4.02%	-3.52	1.05%	13.91	6.53%
	6/22/2018	9.90%	2.97%	4.02%	-3.52	1.05%	13.91	6.93%
	6/28/2018	9.35%	2.97%	4.03%	-3.52	1.06%	14.03	6.38%
	6/29/2018	9.50%	2.97%	4.03%	-3.52	1.06%	14.06	6.53%
	8/8/2018	9.53%	2.99%	4.08%	-3.51	1.09%	14.46	6.54%
	8/21/2018	9.70%	3.00%	4.10%	-3.51	1.09%	14.58	6.70%
	8/24/2018	9.28%	3.01%	4.10%	-3.50	1.10%	14.62	6.27%
	9/5/2018	9.56%	3.02%	4.12%	-3.50	1.10%	14.67	6.54%
	9/14/2018	10.00%	3.03%	4.14%	-3.50	1.11%	14.79	6.97%
	9/20/2018	9.80%	3.04%	4.15%	-3.49	1.11%	14.81	6.76%
	9/26/2018	9.77%	3.05%	4.16%	-3.49	1.11%	14.86	6.72%
	9/26/2018	10.00%	3.05%	4.16%	-3.49	1.11%	14.86	6.95%
	9/27/2018	9.30%	3.05%	4.16%	-3.49	1.11%	14.87	6.25%
	10/4/2018	9.85%	3.06%	4.18%	-3.49	1.12%	14.93	6.79%
	10/29/2018	9.60%	3.10%	4.23%	-3.47	1.13%	15.84	6.50%
	10/31/2018	9.99%	3.11%	4.24%	-3.47	1.13%	15.94	6.88%
	11/1/2018	8.69%	3.11%	4.24%	-3.47	1.13%	15.98	5.58%
	12/4/2018	8.69%	3.14%	4.29%	-3.46	1.16%	15.93	5.55%
	12/13/2018	9.30%	3.14%	4.30%	-3.46	1.16%	16.03	6.16%
	12/14/2018	9.50%	3.14%	4.30%	-3.46	1.17%	16.04	6.36%
	12/19/2018	9.84%	3.14%	4.31%	-3.46	1.17%	16.14	6.70%
	12/20/2018	9.65%	3.14%	4.31%	-3.46	1.17%	16.20	6.51%
	12/21/2018	9.30%	3.14%	4.31%	-3.46	1.17%	16.28	6.16%
	1/9/2019	10.00%	3.14%	4.32%	-3.46	1.18%	16.66	6.86%
	2/27/2019	9.75%	3.12%	4.34%	-3.47	1.22%	16.53	6.63%
	3/13/2019	9.60%	3.12%	4.33%	-3.47	1.21%	16.60	6.48%
	3/14/2019	9.00%	3.12%	4.33%	-3.47	1.21%	16.59	5.88%
	3/14/2019	9.40%	3.12%	4.33%	-3.47	1.21%	16.59	6.28%
	3/22/2019	9.65%	3.12%	4.33%	-3.47	1.22%	16.60	6.53%
	4/30/2019	9.73%	3.11%	4.31%	-3.47	1.20%	16.53	6.62%
	4/30/2019	9.73%	3.11%	4.31%	-3.47	1.20%	16.53	6.62%
	5/1/2019	9.50%	3.11%	4.30%	-3.47	1.20%	16.54	6.39%
	5/2/2019	10.00%	3.11%	4.30%	-3.47	1.20%	16.55	6.89%
	5/8/2019	9.50%	3.10%	4.30%	-3.47	1.20%	16.63	6.40%
	5/14/2019	8.75%	3.10%	4.29%	-3.48	1.20%	16.75	5.65%
	5/16/2019	9.50%	3.09%	4.29%	-3.48	1.20%	16.78	6.41%
	5/23/2019	9.90%	3.09%	4.28%	-3.48	1.19%	16.88	6.81%
	8/12/2019	9.60%	2.89%	4.11%	-3.54	1.22%	17.13	6.71%
	8/29/2019	9.06%	2.81%	4.03%	-3.57	1.22%	17.01	6.25%
	9/4/2019	10.00%	2.78%	4.01%	-3.58	1.23%	16.98	7.22%
	9/30/2019	9.60%	2.70%	3.91%	-3.61	1.21%	16.53	6.90%
	10/31/2019	10.00%	2.60%	3.80%	-3.65	1.21%	15.55	7.40%
	10/31/2019	10.00%	2.60%	3.80%	-3.65	1.21%	15.55	7.40%
	11/1/2019	9.35%	2.59%	3.80%	-3.65	1.20%	15.52	6.76%
	11/29/2019	9.50%	2.52%	3.72%	-3.68	1.20%	15.10	6.98%
	12/4/2019	8.91%	2.51%	3.71%	-3.69	1.20%	15.11	6.40%
	12/4/2019	9.75%	2.51%	3.71%	-3.69	1.20%	15.11	7.24%
	12/16/2019	8.91%	2.48%	3.67%	-3.70	1.19%	15.10	6.43%
	12/17/2019	9.70%	2.47%	3.67%	-3.70	1.19%	15.08	7.23%
	12/17/2019	10.50%	2.47%	3.67%	-3.70	1.19%	15.08	8.03%
	12/19/2019	10.20%	2.47%	3.66%	-3.70	1.19%	15.04	7.73%
	12/19/2019	10.25%	2.47%	3.66%	-3.70	1.19%	15.04	7.78%
	12/19/2019	10.30%	2.47%	3.66%	-3.70	1.19%	15.04	7.83%
	12/20/2019	9.45%	2.46%	3.65%	-3.70	1.19%	15.03	6.99%
	12/20/2019	9.65%	2.46%	3.65%	-3.70	1.19%	15.03	7.19%
	12/24/2019	9.50%	2.46%	3.65%	-3.71	1.19%	15.02	7.04%

	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Return on Equity (%)	30 Year Treasury (%)	Moody's Utility A Yield	LN(30-Year Treasury)	Moody's Utility A Credit Spread	VIX	Risk Premium
Date of Electric Rate Case								
1/8/2020		10.02%	2.43%	3.61%	-3.72	1.19%	14.99	7.59%
1/16/2020		8.80%	2.41%	3.59%	-3.73	1.18%	14.95	6.39%
1/22/2020		9.50%	2.39%	3.58%	-3.73	1.19%	14.94	7.11%
1/23/2020		9.86%	2.39%	3.58%	-3.73	1.19%	14.93	7.47%
2/6/2020		10.00%	2.34%	3.53%	-3.75	1.18%	15.13	7.66%
2/11/2020		9.30%	2.33%	3.51%	-3.76	1.18%	15.16	6.97%
2/14/2020		9.40%	2.32%	3.50%	-3.76	1.18%	15.16	7.08%
2/19/2020		8.25%	2.31%	3.49%	-3.77	1.18%	15.16	5.94%
2/24/2020		9.75%	2.29%	3.48%	-3.78	1.18%	15.16	7.46%
2/27/2020		9.40%	2.28%	3.46%	-3.78	1.18%	15.36	7.12%
3/11/2020		9.70%	2.23%	3.41%	-3.81	1.19%	16.54	7.47%
3/25/2020		9.40%	2.17%	3.41%	-3.83	1.24%	19.18	7.23%
4/17/2020		9.70%	2.07%	3.39%	-3.88	1.32%	21.82	7.63%

Average: 6.05%

# of Rate Cases: 751

Mr. O'Donnell's Proxy Group Capital Structure - Consolidated

Company	Ticker	2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
						% Common Equity				
ALLETE, Inc.	ALE	57.26%	58.49%	58.29%	59.20%	58.22%	58.12%	58.26%	57.91%	58.22%
Alliant Energy Corporation	LNT	44.45%	43.24%	45.34%	45.45%	44.27%	44.24%	46.28%	46.19%	44.93%
Ameren Corporation	AEE	47.18%	47.55%	47.28%	47.49%	48.09%	46.61%	47.67%	47.52%	47.42%
American Electric Power Co.	AEP	42.00%	41.85%	42.65%	44.60%	45.50%	45.94%	46.27%	46.00%	44.35%
CMS Energy Corporation	CMS	27.24%	28.04%	28.66%	28.93%	30.32%	30.65%	30.71%	30.09%	29.33%
Consolidated Edison, Inc.	ED	46.91%	46.54%	46.68%	47.97%	48.89%	47.87%	49.42%	49.03%	47.91%
Dominion Energy, Inc.	D	41.58%	39.80%	39.97%	36.59%	34.36%	34.00%	33.75%	33.50%	36.69%
Duke Energy Corporation	DUK	42.74%	42.95%	43.23%	44.55%	44.34%	44.64%	44.10%	44.39%	43.87%
Edison International	EIX	41.88%	38.51%	38.65%	41.55%	45.13%	45.13%	45.79%	49.05%	43.21%
Entergy Corporation	ETR	36.10%	35.69%	33.75%	35.33%	33.72%	33.54%	32.09%	34.61%	34.35%
Eversource Energy	ES	44.79%	45.21%	45.82%	45.55%	46.41%	46.38%	46.03%	47.33%	45.94%
Hawaiian Electric Industries	HE	51.16%	50.63%	50.09%	52.91%	53.77%	53.40%	54.66%	54.75%	52.67%
IDACORP, Inc.	IDA	57.30%	56.70%	56.47%	56.37%	56.35%	55.56%	53.48%	56.32%	56.07%
MGE Energy, Inc.	MGEE	62.36%	61.80%	61.65%	62.04%	61.94%	65.38%	65.12%	64.81%	63.14%
NextEra Energy, Inc.	NEE	48.39%	48.80%	51.30%	53.48%	53.56%	52.42%	52.81%	45.88%	50.83%
NorthWestern Corporation	NWE	47.67%	47.94%	48.59%	47.76%	48.24%	48.28%	47.34%	49.74%	48.19%
OGE Energy Corp.	OGE	56.36%	55.28%	57.44%	56.00%	56.15%	56.46%	56.16%	56.22%	56.26%
Otter Tail Corporation	OTTR	55.26%	54.95%	54.78%	55.26%	55.14%	54.77%	54.54%	58.69%	55.42%
Pinnacle West Capital Corp.	PNW	50.18%	49.92%	49.98%	50.41%	51.27%	51.22%	50.74%	50.68%	50.55%
PNM Resources, Inc.	PNM	35.82%	35.57%	35.23%	38.74%	40.39%	39.91%	39.47%	41.02%	38.27%
Portland General Electric Company	POR	49.82%	49.72%	50.27%	50.28%	50.60%	50.40%	50.24%	49.90%	50.15%
Public Service Enterprise Group Incorporated	PEG	48.56%	48.51%	50.72%	49.85%	50.00%	50.17%	51.90%	51.44%	50.14%
Sempra Energy	SRE	41.40%	38.85%	40.20%	39.71%	39.56%	38.70%	38.37%	41.48%	39.78%
Southern Company	SO	36.80%	37.54%	37.15%	36.01%	35.89%	34.58%	34.10%	33.32%	35.67%
WEC Energy Group	WEC	46.35%	48.28%	48.18%	48.59%	50.74%	50.58%	50.24%	49.67%	49.08%
Xcel Energy Inc.	XEL	40.20%	40.11%	40.79%	42.99%	43.09%	41.88%	43.56%	43.34%	42.00%
Mean		46.14%	45.86%	46.27%	46.83%	47.15%	46.96%	47.04%	47.42%	46.71%

Mr. O'Donnell's Proxy Group Capital Structure - Consolidated

Company	Ticker	% Long-Term Debt								
		2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
ALLETE, Inc.	ALE	42.74%	41.51%	41.71%	40.80%	41.78%	41.88%	41.74%	42.09%	41.78%
Alliant Energy Corporation	LNT	55.55%	56.76%	54.66%	54.55%	55.73%	55.76%	53.72%	53.81%	55.07%
Ameren Corporation	AEE	52.82%	52.45%	52.72%	52.51%	51.91%	53.39%	52.33%	52.48%	52.58%
American Electric Power Co.	AEP	58.00%	58.15%	57.35%	55.40%	54.50%	54.06%	53.73%	54.00%	55.65%
CMS Energy Corporation	CMS	72.76%	71.96%	71.34%	71.07%	69.68%	69.35%	69.29%	69.91%	70.67%
Consolidated Edison, Inc.	ED	53.09%	53.46%	53.32%	52.03%	51.11%	52.13%	50.58%	50.97%	52.09%
Dominion Energy, Inc.	D	58.42%	60.20%	60.03%	63.41%	65.64%	66.00%	66.25%	66.50%	63.31%
Duke Energy Corporation	DUK	57.26%	57.05%	56.77%	55.45%	55.66%	55.36%	55.90%	55.61%	56.13%
Edison International	EIX	58.12%	61.49%	61.35%	58.45%	54.87%	54.87%	54.21%	50.95%	56.79%
Entergy Corporation	ETR	63.90%	64.31%	66.25%	64.67%	66.28%	66.46%	67.91%	65.39%	65.65%
Eversource Energy	ES	55.21%	54.79%	54.18%	54.45%	53.59%	53.62%	53.97%	52.67%	54.06%
Hawaiian Electric Industries	HE	48.84%	49.37%	49.91%	47.09%	46.23%	46.60%	45.34%	45.25%	47.33%
IDACORP, Inc.	IDA	42.70%	43.30%	43.53%	43.63%	43.65%	44.44%	46.52%	43.68%	43.93%
MGE Energy, Inc.	MGEE	37.64%	38.20%	38.35%	37.96%	38.06%	34.62%	34.88%	35.19%	36.86%
NextEra Energy, Inc.	NEE	51.61%	51.20%	48.70%	46.52%	46.44%	47.58%	47.19%	54.12%	49.17%
NorthWestern Corporation	NWE	52.33%	52.06%	51.41%	52.24%	51.76%	51.72%	52.66%	50.26%	51.81%
OGE Energy Corp.	OGE	43.64%	44.72%	42.56%	44.00%	43.85%	43.54%	43.84%	43.78%	43.74%
Otter Tail Corporation	OTTR	44.74%	45.05%	45.22%	44.74%	44.86%	45.23%	45.46%	41.31%	44.58%
Pinnacle West Capital Corp.	PNW	49.82%	50.08%	50.02%	49.59%	48.73%	48.78%	49.26%	49.32%	49.45%
PNM Resources, Inc.	PNM	64.18%	64.43%	64.77%	61.26%	59.61%	60.09%	60.53%	58.98%	61.73%
Portland General Electric Company	POR	50.18%	50.28%	49.73%	49.72%	49.40%	49.60%	49.76%	50.10%	49.85%
Public Service Enterprise Group Incorporated	PEG	51.44%	51.49%	49.28%	50.15%	50.00%	49.83%	48.10%	48.56%	49.86%
Sempra Energy	SRE	58.60%	61.15%	59.80%	60.29%	60.44%	61.30%	61.63%	58.52%	60.22%
Southern Company	SO	63.20%	62.46%	62.85%	63.99%	64.11%	65.42%	65.90%	66.68%	64.33%
WEC Energy Group	WEC	53.65%	51.72%	51.82%	51.41%	49.26%	49.42%	49.76%	50.33%	50.92%
Xcel Energy Inc.	XEL	59.80%	59.89%	59.21%	57.01%	56.91%	58.12%	56.44%	56.66%	58.00%
Mean		53.86%	54.14%	53.73%	53.17%	52.85%	53.04%	52.96%	52.58%	53.29%

Mr. O'Donnell's Proxy Group Capital Structure - Operating Company Level

Company	Ticker	2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
						% Common Equity				
ALLETE, Inc.	ALE	58.68%	59.66%	59.53%	59.12%	58.50%	58.84%	63.09%	62.51%	59.99%
Alliant Energy Corporation	LNT	51.73%	50.38%	53.18%	53.11%	51.13%	51.00%	49.74%	49.77%	51.26%
Ameren Corporation	AEE	53.67%	53.03%	52.81%	52.69%	53.22%	52.01%	53.04%	52.65%	52.89%
American Electric Power Co.	AEP	49.91%	48.80%	49.62%	49.40%	48.68%	48.52%	48.60%	48.91%	49.06%
CMS Energy Corporation	CMS	51.70%	53.64%	52.52%	50.27%	53.01%	52.86%	53.13%	52.25%	52.42%
Consolidated Edison, Inc.	ED	49.85%	49.08%	48.75%	47.97%	48.38%	48.73%	49.75%	49.23%	48.97%
Dominion Energy, Inc.	D	53.56%	50.98%	50.47%	48.75%	51.63%	51.12%	50.17%	50.62%	50.91%
Duke Energy Corporation	DUK	52.89%	54.48%	53.14%	54.35%	55.03%	54.94%	54.46%	54.30%	54.20%
Edison International	EIX	50.14%	48.40%	45.15%	46.90%	49.82%	50.05%	50.63%	53.08%	49.27%
Entergy Corporation	ETR	49.10%	48.19%	48.81%	50.11%	49.96%	49.95%	48.60%	48.97%	49.21%
Eversource Energy	ES	49.53%	49.38%	54.22%	53.28%	51.03%	50.14%	54.05%	54.60%	52.03%
Hawaiian Electric Industries	HE	58.43%	58.17%	58.06%	57.98%	56.09%	55.78%	57.44%	57.42%	57.42%
IDACORP, Inc.	IDA	55.20%	54.58%	54.36%	54.25%	54.25%	53.44%	51.37%	54.22%	53.96%
MGE Energy, Inc.	MGEE	59.66%	58.84%	58.46%	57.90%	57.36%	60.66%	60.20%	59.73%	59.10%
NextEra Energy, Inc.	NEE	56.15%	61.22%	61.05%	64.37%	64.78%	60.84%	61.23%	59.93%	61.20%
NorthWestern Corporation	NWE	47.80%	48.07%	48.74%	47.88%	48.36%	48.41%	47.48%	49.89%	48.33%
OGE Energy Corp.	OGE	54.96%	53.47%	55.38%	53.20%	53.05%	54.25%	53.59%	53.36%	53.91%
Otter Tail Corporation	OTTR	55.43%	53.75%	53.90%	53.58%	53.49%	53.11%	52.67%	57.34%	54.16%
Pinnacle West Capital Corp.	PNW	54.25%	54.41%	54.48%	54.36%	53.68%	53.71%	53.18%	53.14%	53.90%
PNM Resources, Inc.	PNM	45.33%	43.86%	43.45%	45.63%	48.01%	46.68%	46.20%	46.06%	45.65%
Portland General Electric Company	POR	51.78%	51.56%	50.60%	50.19%	50.51%	50.29%	50.14%	49.80%	50.61%
Public Service Enterprise Group Incorporated	PEG	54.65%	54.31%	55.14%	54.24%	53.69%	53.93%	54.20%	53.41%	54.20%
Sempra Energy	SRE	56.17%	56.30%	53.82%	53.29%	53.13%	54.39%	54.20%	53.27%	54.32%
Southern Company	SO	52.36%	52.93%	52.80%	54.21%	51.50%	50.31%	49.98%	47.67%	51.47%
WEC Energy Group	WEC	55.79%	56.71%	55.73%	53.46%	58.30%	57.72%	61.62%	54.62%	56.74%
Xcel Energy Inc.	XEL	53.98%	54.70%	54.51%	54.22%	53.37%	53.63%	54.15%	53.95%	54.06%
Mean		53.18%	53.04%	53.03%	52.87%	53.08%	52.90%	53.19%	53.10%	53.05%

Operating Company Capital Structure

Operating Company	Parent	2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
						% Common Equity				
ALLETE (Minnesota Power)	ALE	59.33%	60.94%	60.87%	61.39%	60.43%	60.33%	60.38%	60.04%	60.46%
Superior Water, Light and Power Company	ALE	58.03%	58.38%	58.19%	56.86%	56.58%	57.34%	65.80%	64.99%	59.52%
Interstate Power and Light Company	LNT	50.06%	51.76%	53.33%	53.52%	49.64%	50.47%	49.92%	50.31%	51.13%
Wisconsin Power and Light Company	LNT	53.40%	49.01%	53.03%	52.69%	52.62%	51.52%	49.57%	49.23%	51.38%
Ameren Illinois Company	AEE	54.46%	54.05%	53.65%	52.86%	53.18%	52.74%	54.24%	53.38%	53.57%
Union Electric Company	AEE	52.88%	52.00%	51.96%	52.52%	53.26%	51.28%	51.84%	51.92%	52.21%
AEP Texas Inc.	AEP	46.97%	46.32%	47.54%	45.38%	43.80%	43.20%	46.75%	45.14%	45.64%
Appalachian Power Company	AEP	48.74%	48.19%	47.77%	49.51%	49.30%	48.93%	49.35%	48.72%	48.81%
Indiana Michigan Power Company	AEP	46.51%	45.83%	45.43%	44.62%	44.53%	44.15%	46.64%	46.33%	45.50%
Kentucky Power Company	AEP	46.94%	46.50%	46.42%	45.72%	45.28%	44.89%	44.40%	43.52%	45.46%
Kingsport Power Company	AEP	54.24%	50.18%	51.54%	50.79%	50.71%	47.69%	47.28%	46.53%	49.87%
Ohio Power Company	AEP	53.63%	52.92%	58.86%	57.80%	56.85%	57.11%	52.91%	58.63%	56.09%
Public Service Company of Oklahoma	AEP	49.89%	48.02%	47.19%	49.16%	49.55%	48.59%	48.10%	48.50%	48.62%
Southwestern Electric Power Company	AEP	48.63%	47.45%	47.59%	46.97%	43.43%	47.91%	47.72%	48.52%	47.28%
Wheeling Power Company	AEP	53.66%	53.83%	54.27%	54.62%	54.70%	54.19%	54.27%	54.26%	54.23%
Consumers Energy Company	CMS	51.70%	53.64%	52.52%	50.27%	53.01%	52.86%	53.13%	52.25%	52.42%
Consolidated Edison Company of New York, Inc.	ED	49.29%	48.92%	48.30%	47.52%	48.33%	46.72%	48.66%	48.22%	48.24%
Orange and Rockland Utilities, Inc.	ED	50.40%	49.25%	49.21%	48.41%	48.44%	50.74%	50.83%	50.25%	49.69%
Rockland Electric Company	ED	NA	NA	NA	NA	NA	NA	NA	NA	NA
Virginia Electric and Power Company	D	53.33%	53.30%	52.42%	52.62%	53.64%	52.81%	51.03%	51.71%	52.61%
Dominion Energy South Carolina, Inc.	D	53.80%	48.67%	48.52%	44.88%	49.63%	49.44%	49.30%	49.54%	49.22%
Duke Energy Carolinas, LLC	DUK	51.80%	52.94%	52.32%	51.78%	52.64%	52.10%	51.70%	52.98%	52.28%
Duke Energy Florida, LLC	DUK	52.82%	51.55%	50.56%	50.04%	49.65%	48.79%	49.92%	49.25%	50.32%
Duke Energy Indiana, LLC	DUK	51.52%	54.83%	54.29%	53.26%	52.79%	52.64%	52.54%	51.94%	52.98%
Duke Energy Kentucky, Inc.	DUK	45.44%	53.04%	52.81%	51.95%	56.58%	55.79%	53.72%	53.11%	52.80%
Duke Energy Ohio, Inc.	DUK	64.90%	64.45%	59.29%	68.09%	67.73%	67.10%	66.06%	66.24%	65.48%
Duke Energy Progress, LLC	DUK	50.86%	50.09%	49.60%	51.00%	50.76%	53.22%	52.82%	52.27%	51.33%
Southern California Edison Company	EIX	50.14%	48.40%	45.15%	46.90%	49.82%	50.05%	50.63%	53.08%	49.27%
Entergy Arkansas, LLC	ETR	47.72%	46.49%	47.04%	49.42%	49.38%	48.29%	45.88%	45.95%	47.52%
Entergy Louisiana, LLC	ETR	47.13%	46.32%	45.79%	47.37%	46.77%	46.97%	44.58%	47.43%	46.55%
Entergy Mississippi, LLC	ETR	48.35%	44.93%	49.41%	49.11%	50.10%	49.10%	48.32%	47.85%	48.40%
Entergy New Orleans, LLC	ETR	53.69%	52.40%	51.69%	51.19%	50.93%	54.02%	53.43%	53.16%	52.56%
Entergy Texas, Inc.	ETR	48.63%	50.79%	50.13%	53.46%	52.61%	51.38%	50.79%	50.45%	51.03%
Connecticut Light and Power Company	ES	54.12%	55.38%	58.18%	56.18%	54.49%	53.85%	50.40%	53.82%	54.55%
NSTAR Electric Company	ES	53.81%	52.74%	56.08%	55.74%	55.50%	54.51%	53.83%	53.85%	54.51%
Public Service Company of New Hampshire	ES	40.64%	40.02%	48.38%	47.92%	43.11%	42.06%	57.93%	57.30%	47.17%
Western Massachusetts Electric Company	ES	NA	NA	NA	NA	NA	NA	NA	53.43%	53.43%
Hawaii Electric Light Company, Inc.	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hawaiian Electric Company, Inc.	HE	58.43%	58.17%	58.06%	57.98%	56.09%	55.78%	57.44%	57.42%	57.42%
Maui Electric Company, Limited	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Idaho Power Company	IDA	55.20%	54.58%	54.36%	54.25%	54.25%	53.44%	51.37%	54.22%	53.96%
Madison Gas and Electric Company	MGEE	59.66%	58.84%	58.46%	57.90%	57.36%	60.66%	60.20%	59.73%	59.10%
Florida Power & Light Company	NEE	59.78%	61.30%	64.03%	64.37%	64.78%	60.84%	61.23%	59.93%	62.03%
Gulf Power Company	NEE	52.52%	61.15%	58.06%	NA	NA	NA	NA	NA	57.24%
NorthWestern Corporation	NWE	47.80%	48.07%	48.74%	47.88%	48.36%	48.41%	47.48%	49.89%	48.33%
Oklahoma Gas and Electric Company	OGE	54.96%	53.47%	55.38%	53.20%	53.05%	54.25%	53.59%	53.36%	53.91%
Otter Tail Power Company	OTTR	55.43%	53.75%	53.90%	53.58%	53.49%	53.11%	52.67%	57.34%	54.16%
Arizona Public Service Company	PNW	54.25%	54.41%	54.48%	54.36%	53.68%	53.71%	53.18%	53.14%	53.90%
Public Service Company of New Mexico	PNM	45.33%	43.86%	43.45%	45.63%	48.01%	46.68%	46.20%	46.06%	45.65%
Portland General Electric Company	POR	51.78%	51.56%	50.60%	50.19%	50.51%	50.29%	50.14%	49.80%	50.61%
Public Service Electric and Gas Company	PEG	54.65%	54.31%	55.14%	54.24%	53.69%	53.93%	54.20%	53.41%	54.20%
Oncor Electric Delivery Company LLC	SRE	54.91%	57.43%	59.79%	59.57%	59.29%	62.31%	60.34%	58.86%	59.05%
San Diego Gas & Electric Company	SRE	57.43%	55.17%	56.60%	55.79%	55.17%	54.47%	55.92%	55.09%	55.71%
Sharyland Utilities, LLC	SRE	NA	NA	45.05%	44.62%	44.92%	46.39%	46.34%	45.86%	45.53%
Alabama Power Company	SO	51.45%	52.54%	52.23%	47.77%	48.13%	47.51%	48.86%	47.07%	49.44%
Georgia Power Company	SO	55.38%	56.39%	56.43%	59.02%	57.27%	54.97%	53.81%	50.06%	55.42%
Mississippi Power Company	SO	50.23%	49.87%	49.73%	50.35%	45.28%	43.87%	43.00%	39.34%	46.46%
Gulf Power Company	SO	NA	NA	NA	59.73%	55.34%	54.90%	54.27%	54.19%	55.69%
Upper Michigan Energy Resources Corporation	WEC	56.09%	54.45%	52.54%	47.01%	55.08%	54.53%	70.04%	49.85%	54.95%
Wisconsin Electric Power Company	WEC	56.92%	56.64%	55.78%	54.93%	59.25%	59.09%	56.47%	55.94%	57.01%
Wisconsin Public Service Corporation	WEC	54.37%	59.04%	58.88%	57.33%	60.59%	59.53%	58.35%	58.06%	58.27%
Northern States Power Company - MN	XEL	51.79%	53.66%	53.64%	53.21%	52.64%	52.61%	52.59%	52.38%	52.77%
Northern States Power Company - WI	XEL	53.56%	53.49%	53.59%	53.60%	48.45%	53.85%	53.79%	53.36%	52.96%
Public Service Company of Colorado	XEL	56.35%	57.53%	56.68%	56.31%	56.08%	54.17%	56.67%	56.50%	56.29%
Southwestern Public Service Company	XEL	54.21%	54.14%	54.13%	54.17%	56.29%	53.88%	53.54%	53.55%	54.24%
Mean		52.54%	52.50%	52.65%	52.49%	52.45%	52.27%	52.61%	52.27%	52.52%

Source: S&P Global Market Intelligence

Mr. O'Donnell's Proxy Group Capital Structure - Operating Company Level

Company	Ticker	2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
						% Long-Term Debt				
ALLETE, Inc.	ALE	41.32%	40.34%	40.47%	40.88%	41.50%	41.16%	36.91%	37.49%	40.01%
Alliant Energy Corporation	LNT	48.27%	49.62%	46.82%	46.89%	48.87%	49.00%	50.26%	50.23%	48.74%
Ameren Corporation	AEE	46.33%	46.97%	47.19%	47.31%	46.78%	47.99%	46.96%	47.35%	47.11%
American Electric Power Co.	AEP	50.09%	51.20%	50.38%	50.60%	51.32%	51.48%	51.40%	51.09%	50.94%
CMS Energy Corporation	CMS	48.30%	46.36%	47.48%	49.73%	46.99%	47.14%	46.87%	47.75%	47.58%
Consolidated Edison, Inc.	ED	50.15%	50.92%	51.25%	52.03%	51.62%	51.27%	50.25%	50.77%	51.03%
Dominion Energy, Inc.	D	46.44%	49.02%	49.53%	51.25%	48.37%	48.88%	49.83%	49.38%	49.09%
Duke Energy Corporation	DUK	47.11%	45.52%	46.86%	45.65%	44.97%	45.06%	45.54%	45.70%	45.80%
Edison International	EIX	49.86%	51.60%	54.85%	53.10%	50.18%	49.95%	49.37%	46.92%	50.73%
Entergy Corporation	ETR	50.90%	51.81%	51.19%	49.89%	50.04%	50.05%	51.40%	51.03%	50.79%
Eversource Energy	ES	50.47%	50.62%	45.78%	46.72%	48.97%	49.86%	45.95%	45.40%	47.97%
Hawaiian Electric Industries	HE	41.57%	41.83%	41.94%	42.02%	43.91%	44.22%	42.56%	42.58%	42.58%
IDACORP, Inc.	IDA	44.80%	45.42%	45.64%	45.75%	45.75%	46.56%	48.63%	45.78%	46.04%
MGE Energy, Inc.	MGEE	40.34%	41.16%	41.54%	42.10%	42.64%	39.34%	39.80%	40.27%	40.90%
NextEra Energy, Inc.	NEE	43.85%	38.78%	38.95%	35.63%	35.22%	39.16%	38.77%	40.07%	38.80%
NorthWestern Corporation	NWE	52.20%	51.93%	51.26%	52.12%	51.64%	51.59%	52.52%	50.11%	51.67%
OGE Energy Corp.	OGE	45.04%	46.53%	44.62%	46.80%	46.95%	45.75%	46.41%	46.64%	46.09%
Otter Tail Corporation	OTTR	44.57%	46.25%	46.10%	46.42%	46.51%	46.89%	47.33%	42.66%	45.84%
Pinnacle West Capital Corp.	PNW	45.75%	45.59%	45.52%	45.64%	46.32%	46.29%	46.82%	46.86%	46.10%
PNM Resources, Inc.	PNM	54.67%	56.14%	56.55%	54.37%	51.99%	53.32%	53.80%	53.94%	54.35%
Portland General Electric Company	POR	48.22%	48.44%	49.40%	49.81%	49.49%	49.71%	49.86%	50.20%	49.39%
Public Service Enterprise Group Incorporated	PEG	45.35%	45.69%	44.86%	45.76%	46.31%	46.07%	45.80%	46.59%	45.80%
Sempra Energy	SRE	43.83%	43.70%	46.18%	46.71%	46.87%	45.61%	45.80%	46.73%	45.68%
Southern Company	SO	47.64%	47.07%	47.20%	45.79%	48.50%	49.69%	50.02%	52.33%	48.53%
WEC Energy Group	WEC	44.21%	43.29%	44.27%	46.54%	41.70%	42.28%	38.38%	45.38%	43.26%
Xcel Energy Inc.	XEL	46.02%	45.30%	45.49%	45.78%	46.63%	46.37%	45.85%	46.05%	45.94%
Mean		46.82%	46.96%	46.97%	47.13%	46.92%	47.10%	46.81%	46.90%	46.95%

Operating Company Capital Structure

Operating Company	Parent	2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
						% Long-Term Debt				
ALLETE (Minnesota Power)	ALE	40.67%	39.06%	39.13%	38.61%	39.57%	39.67%	39.62%	39.96%	39.54%
Superior Water, Light and Power Company	ALE	41.97%	41.62%	41.81%	43.14%	43.42%	42.66%	34.20%	35.01%	40.48%
Interstate Power and Light Company	LNT	49.94%	48.24%	46.67%	46.48%	50.36%	49.53%	50.08%	49.69%	48.87%
Wisconsin Power and Light Company	LNT	46.60%	50.99%	46.97%	47.31%	47.38%	48.48%	50.43%	50.77%	48.62%
Ameren Illinois Company	AEE	45.54%	45.95%	46.35%	47.14%	46.82%	47.26%	45.76%	46.62%	46.43%
Union Electric Company	AEE	47.12%	48.00%	48.04%	47.48%	46.74%	48.72%	48.16%	48.08%	47.79%
AEP Texas Inc.	AEP	53.03%	53.68%	52.46%	54.62%	56.20%	56.80%	53.25%	54.86%	54.36%
Appalachian Power Company	AEP	51.26%	51.81%	52.23%	50.49%	50.70%	51.07%	50.65%	51.28%	51.19%
Indiana Michigan Power Company	AEP	53.49%	54.17%	54.57%	55.38%	55.47%	55.85%	53.36%	53.67%	54.50%
Kentucky Power Company	AEP	53.06%	53.50%	53.58%	54.28%	54.72%	55.11%	55.60%	56.48%	54.54%
Kingsport Power Company	AEP	45.76%	49.82%	48.46%	49.21%	49.29%	52.31%	52.72%	53.47%	50.13%
Ohio Power Company	AEP	46.37%	47.08%	41.14%	42.20%	43.15%	42.89%	47.09%	41.37%	43.91%
Public Service Company of Oklahoma	AEP	50.11%	51.98%	52.81%	50.84%	50.45%	51.41%	51.90%	51.50%	51.38%
Southwestern Electric Power Company	AEP	51.37%	52.55%	52.41%	53.03%	56.57%	52.09%	52.28%	51.48%	52.72%
Wheeling Power Company	AEP	46.34%	46.17%	45.73%	45.38%	45.30%	45.81%	45.73%	45.74%	45.77%
Consumers Energy Company	CMS	48.30%	46.36%	47.48%	49.73%	46.99%	47.14%	46.87%	47.75%	47.58%
Consolidated Edison Company of New York, Inc.	ED	50.71%	51.08%	51.70%	52.48%	51.67%	53.28%	51.34%	51.78%	51.76%
Orange and Rockland Utilities, Inc.	ED	49.60%	50.75%	50.79%	51.59%	51.56%	49.26%	49.17%	49.75%	50.31%
Rockland Electric Company	ED	NA	NA	NA	NA	NA	NA	NA	NA	NA
Virginia Electric and Power Company	D	46.67%	46.70%	47.58%	47.38%	46.36%	47.19%	48.97%	48.29%	47.39%
Dominion Energy South Carolina, Inc.	D	46.20%	51.33%	51.48%	55.12%	50.37%	50.56%	50.70%	50.46%	50.78%
Duke Energy Carolinas, LLC	DUK	48.20%	47.06%	47.68%	48.22%	47.36%	47.90%	48.30%	47.02%	47.72%
Duke Energy Florida, LLC	DUK	47.18%	48.45%	49.44%	49.96%	50.35%	51.21%	50.08%	50.75%	49.68%
Duke Energy Indiana, LLC	DUK	48.48%	45.17%	45.71%	46.74%	47.21%	47.36%	47.46%	48.06%	47.02%
Duke Energy Kentucky, Inc.	DUK	54.56%	46.96%	47.19%	48.05%	43.42%	44.21%	46.28%	46.89%	47.20%
Duke Energy Ohio, Inc.	DUK	35.10%	35.55%	40.71%	31.91%	32.27%	32.90%	33.94%	33.76%	34.52%
Duke Energy Progress, LLC	DUK	49.14%	49.91%	50.40%	49.00%	49.24%	46.78%	47.18%	47.73%	48.67%
Southern California Edison Company	EIX	49.86%	51.60%	54.85%	53.10%	50.18%	49.95%	49.37%	46.92%	50.73%
Entergy Arkansas, LLC	ETR	52.28%	53.51%	52.96%	50.58%	50.62%	51.71%	54.12%	54.05%	52.48%
Entergy Louisiana, LLC	ETR	52.87%	53.68%	54.21%	52.63%	53.23%	53.03%	55.42%	52.57%	53.45%
Entergy Mississippi, LLC	ETR	51.65%	55.07%	50.59%	50.89%	49.90%	50.90%	51.68%	52.15%	51.60%
Entergy New Orleans, LLC	ETR	46.31%	47.60%	48.31%	48.81%	49.07%	45.98%	46.57%	46.84%	47.44%
Entergy Texas, Inc.	ETR	51.37%	49.21%	49.87%	46.54%	47.39%	48.62%	49.21%	49.55%	48.97%
Connecticut Light and Power Company	ES	45.88%	44.62%	41.82%	43.82%	45.51%	46.15%	49.60%	46.18%	45.45%
NSTAR Electric Company	ES	46.19%	47.26%	43.92%	44.26%	44.50%	45.49%	46.17%	46.15%	45.49%
Public Service Company of New Hampshire	ES	59.36%	59.98%	51.62%	52.08%	56.89%	57.94%	42.07%	42.70%	52.83%
Western Massachusetts Electric Company	ES	NA	NA	NA	NA	NA	NA	NA	46.57%	46.57%
Hawaii Electric Light Company, Inc.	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hawaiian Electric Company, Inc.	HE	41.57%	41.83%	41.94%	42.02%	43.91%	44.22%	42.56%	42.58%	42.58%
Maui Electric Company, Limited	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Idaho Power Company	IDA	44.80%	45.42%	45.64%	45.75%	45.75%	46.56%	48.63%	45.78%	46.04%
Madison Gas and Electric Company	MGEE	40.34%	41.16%	41.54%	42.10%	42.64%	39.34%	39.80%	40.27%	40.90%
Florida Power & Light Company	NEE	40.22%	38.70%	35.97%	35.63%	35.22%	39.16%	38.77%	40.07%	37.97%
Gulf Power Company	NEE	47.48%	38.85%	41.94%	NA	NA	NA	NA	NA	42.76%
NorthWestern Corporation	NWE	52.20%	51.93%	51.26%	52.12%	51.64%	51.59%	52.52%	50.11%	51.67%
Oklahoma Gas and Electric Company	OGE	45.04%	46.53%	44.62%	46.80%	46.95%	45.75%	46.41%	46.64%	46.09%
Otter Tail Power Company	OTTR	44.57%	46.25%	46.10%	46.42%	46.51%	46.89%	47.33%	42.66%	45.84%
Arizona Public Service Company	PNW	45.75%	45.59%	45.52%	45.64%	46.32%	46.29%	46.82%	46.86%	46.10%
Public Service Company of New Mexico	PNM	54.67%	56.14%	56.55%	54.37%	51.99%	53.32%	53.80%	53.94%	54.35%
Portland General Electric Company	POR	48.22%	48.44%	49.40%	49.81%	49.49%	49.71%	49.86%	50.20%	49.39%
Public Service Electric and Gas Company	PEG	45.35%	45.69%	44.86%	45.76%	46.31%	46.07%	45.80%	46.59%	45.80%
Oncor Electric Delivery Company LLC	SRE	45.09%	42.57%	40.21%	40.53%	40.71%	37.69%	39.66%	41.14%	40.95%
San Diego Gas & Electric Company	SRE	42.57%	44.83%	43.40%	44.21%	44.83%	45.53%	44.08%	44.91%	44.29%
Sharyland Utilities, LLC	SRE	NA	NA	54.95%	55.38%	55.08%	53.61%	53.66%	54.14%	54.47%
Alabama Power Company	SO	48.55%	47.46%	47.77%	52.23%	51.87%	52.49%	51.14%	52.93%	50.56%
Georgia Power Company	SO	44.62%	43.61%	43.57%	40.98%	42.73%	45.03%	46.19%	49.94%	44.58%
Mississippi Power Company	SO	49.77%	50.13%	50.27%	49.65%	54.72%	56.13%	57.00%	60.66%	53.54%
Gulf Power Company	SO	NA	NA	NA	40.27%	44.66%	45.10%	45.73%	45.81%	44.31%
Upper Michigan Energy Resources Corporation	WEC	43.91%	45.55%	47.46%	52.99%	44.92%	45.47%	29.96%	50.15%	45.05%
Wisconsin Electric Power Company	WEC	43.08%	43.36%	44.22%	43.97%	40.75%	40.91%	43.53%	44.06%	42.99%
Wisconsin Public Service Corporation	WEC	45.63%	40.96%	41.12%	42.67%	39.41%	40.47%	41.65%	41.94%	41.73%
Northern States Power Company - MN	XEL	48.21%	46.34%	46.36%	47.19%	47.36%	47.39%	47.41%	47.62%	47.23%
Northern States Power Company - WI	XEL	46.44%	46.51%	46.41%	46.40%	51.55%	46.15%	46.21%	46.64%	47.04%
Public Service Company of Colorado	XEL	43.65%	42.47%	43.32%	43.69%	43.92%	45.83%	43.33%	43.50%	43.71%
Southwestern Public Service Company	XEL	45.79%	45.86%	45.87%	45.83%	43.71%	46.12%	46.46%	46.45%	45.76%
Mean		47.46%	47.50%	47.35%	47.51%	47.55%	47.73%	47.39%	47.73%	47.48%

Recently Authorized ROEs by RRA Ranking

State	Company	Case Identification	Service	Case Type	Date	Return on Equity (%)	RRA Rank	Electric Utilities		
								Top Third (Average/1 and higher)	Middle Third (Average/2)	Bottom Third (Average/3 and lower)
Washington	Avista Corp.	D-UE-150204	Electric	Vertically Integrated	1/6/2016	9.50	Average / 3			9.50
Arkansas	Entergy Arkansas LLC	D-15-015-U	Electric	Vertically Integrated	2/23/2016	9.75	Average / 3			9.75
Indiana	Indianapolis Power & Light Co.	Ca-44576	Electric	Vertically Integrated	3/16/2016	9.85	Above Average / 3	9.85		
New Mexico	El Paso Electric Co.	C-15-00127-UT	Electric	Vertically Integrated	6/8/2016	9.48	Below Average / 1			9.48
Indiana	Northern IN Public Svc Co.	Ca-44688	Electric	Vertically Integrated	7/18/2016	9.98	Above Average / 3	9.98		
Tennessee	Kingsport Power Company	D-16-00001	Electric	Vertically Integrated	8/9/2016	9.85	Average / 1	9.85		
Arizona	UNS Electric Inc.	D-E-04204A-15-0142	Electric	Vertically Integrated	8/18/2016	9.50	Average / 3			9.50
Washington	PacifiCorp	D-UE-152253	Electric	Vertically Integrated	9/1/2016	9.50	Average / 3			9.50
Michigan	Upper Peninsula Power Co.	C-U-17895	Electric	Vertically Integrated	9/8/2016	10.00	Average / 1	10.00		
New Mexico	Public Service Co. of NM	C-15-00261-UT	Electric	Vertically Integrated	9/28/2016	9.58	Below Average / 1			9.58
Wisconsin	Madison Gas and Electric Co.	D-3270-UR-121 (Elec)	Electric	Vertically Integrated	11/9/2016	9.80	Above Average / 2	9.80		
Oklahoma	Public Service Co. of OK	Ca-PUD201500208	Electric	Vertically Integrated	11/10/2016	9.50	Average / 2		9.50	
Wisconsin	Wisconsin Power and Light Co	D-6680-UR-120 (Elec)	Electric	Vertically Integrated	11/18/2016	10.00	Above Average / 2	10.00		
Florida	Florida Power & Light Co.	D-160021-EI	Electric	Vertically Integrated	11/29/2016	10.55	Above Average / 3	10.55		
California	Lbrty Utilities (CalPeco Elect	A-15-05-008	Electric	Vertically Integrated	12/1/2016	10.00	Average / 1	10.00		
South Carolina	Duke Energy Progress LLC	D-2016-227-E	Electric	Vertically Integrated	12/7/2016	10.10	Average / 1	10.10		
Colorado	Black Hills Colorado Electric	D-16AL-0326E	Electric	Vertically Integrated	12/19/2016	9.37	Average / 1	9.37		
Nevada	Sierra Pacific Power Co.	D-16-06006	Electric	Vertically Integrated	12/22/2016	9.60	Average / 2		9.60	
North Carolina	Virginia Electric & Power Co.	D-E-22, Sub 532	Electric	Vertically Integrated	12/22/2016	9.90	Average / 1	9.90		
Idaho	Avista Corp.	C-AVU-E-16-03	Electric	Vertically Integrated	12/28/2016	9.50	Average / 2		9.50	
Wyoming	MDU Resources Group Inc.	D-20004-117-ER-16	Electric	Vertically Integrated	1/18/2017	9.45	Average / 2		9.45	
Michigan	DTE Electric Co.	C-U-18014	Electric	Vertically Integrated	1/31/2017	10.10	Average / 1	10.10		
Arizona	Tucson Electric Power Co.	D-E-01933A-15-0322	Electric	Vertically Integrated	2/24/2017	9.75	Average / 3			9.75
Michigan	Consumers Energy Co.	C-U-17990	Electric	Vertically Integrated	2/28/2017	10.10	Average / 1	10.10		
Minnesota	Otter Tail Power Co.	D-E-017/GR-15-1033	Electric	Vertically Integrated	3/2/2017	9.41	Average / 2		9.41	
Oklahoma	Oklahoma Gas and Electric Co.	Ca-PUD201500273	Electric	Vertically Integrated	3/20/2017	9.50	Average / 2		9.50	
Florida	Gulf Power Co.	D-160186-EI	Electric	Vertically Integrated	4/4/2017	10.25	Above Average / 3	10.25		
Missouri	Kansas City Power & Light	C-ER-2016-0285	Electric	Vertically Integrated	5/3/2017	9.50	Average / 2		9.50	
Minnesota	Northern States Power Co. - MN	D-E-002/GR-15-826	Electric	Vertically Integrated	5/11/2017	9.20	Average / 2		9.20	
Arkansas	Oklahoma Gas and Electric Co.	D-16-052-U	Electric	Vertically Integrated	5/18/2017	9.50	Average / 1	9.50		
North Dakota	MDU Resources Group Inc.	C-PU-16-666	Electric	Vertically Integrated	6/16/2017	9.65	Average / 1	9.65		
Kentucky	Kentucky Utilities Co.	C-2016-00370	Electric	Vertically Integrated	6/22/2017	9.70	Average / 1	9.70		
Kentucky	Louisville Gas & Electric Co.	C-2016-00371 (elec.)	Electric	Vertically Integrated	6/22/2017	9.70	Average / 1	9.70		
Arizona	Arizona Public Service Co.	D-E-01345A-16-0036	Electric	Vertically Integrated	8/15/2017	10.00	Average / 3			10.00
California	San Diego Gas & Electric Co.	Advice No. 3120-E	Electric	Vertically Integrated	10/26/2017	10.20	Above Average / 3	10.20		
California	Pacific Gas and Electric Co.	Advise No. 3887-G/5148-E	Electric	Vertically Integrated	10/26/2017	10.25	Above Average / 3	10.25		
California	Southern California Edison Co.	Advice No. 3665-E	Electric	Vertically Integrated	10/26/2017	10.30	Above Average / 3	10.30		
Florida	Tampa Electric Co.	D-20170210-EI	Electric	Vertically Integrated	11/6/2017	10.25	Above Average / 2	10.25		
Alaska	Alaska Electric Light Power	D-U-16-086	Electric	Vertically Integrated	11/15/2017	11.95	Below Average / 1			11.95
Washington	Puget Sound Energy Inc.	D-UE-170033	Electric	Vertically Integrated	12/5/2017	9.50	Average / 3			9.50
Wisconsin	Northern States Power Co - WI	D-4220-UR-123 (Elec)	Electric	Vertically Integrated	12/7/2017	9.80	Above Average / 2	9.80		
Texas	Southwestern Electric Power Co	D-46449	Electric	Vertically Integrated	12/14/2017	9.60	Average / 3			9.60
Texas	El Paso Electric Co.	D-46831	Electric	Vertically Integrated	12/14/2017	9.65	Average / 3			9.65
Oregon	Portland General Electric Co.	D-UE-319	Electric	Vertically Integrated	12/18/2017	9.50	Average / 2		9.50	
New Mexico	Public Service Co. of NM	C-16-00276-UT	Electric	Vertically Integrated	12/20/2017	9.58	Below Average / 2			9.58
Vermont	Green Mountain Power Corp.	C-17-3112-INV	Electric	Vertically Integrated	12/21/2017	9.10	Average / 2		9.10	
Idaho	Avista Corp.	C-AVU-E-17-01	Electric	Vertically Integrated	12/28/2017	9.50	Average / 2		9.50	
Nevada	Nevada Power Co.	D-17-06003	Electric	Vertically Integrated	12/29/2017	9.51	Average / 2		9.51	

State	Company	Case Identification	Service	Case Type	Date	Return on Equity (%)	RRA Rank	Top Third (Average/1 and higher)	Middle Third (Average/2)	Bottom Third (Average/3 and lower)
Kentucky	Kentucky Power Co.	C-2017-00179	Electric	Vertically Integrated	1/18/2018	9.70	Average / 1	9.70		
Oklahoma	Public Service Co. of OK	Ca-PUD201700151	Electric	Vertically Integrated	1/31/2018	9.30	Average / 3			9.30
Iowa	Interstate Power & Light Co.	D-RPU-2017-0001	Electric	Vertically Integrated	2/2/2018	9.98	Average / 1	9.98		
North Carolina	Duke Energy Progress LLC	D-E-2, Sub 1142	Electric	Vertically Integrated	2/23/2018	9.90	Average / 1	9.90		
Minnesota	ALLETE (Minnesota Power)	D-E-015/GR-16-664	Electric	Vertically Integrated	3/12/2018	9.25	Average / 2		9.25	
Michigan	Consumers Energy Co.	C-U-18322	Electric	Vertically Integrated	3/29/2018	10.00	Above Average / 3	10.00		
Michigan	Indiana Michigan Power Co.	C-U-18370	Electric	Vertically Integrated	4/12/2018	9.90	Above Average / 3	9.90		
Kentucky	Duke Energy Kentucky Inc.	C-2017-00321	Electric	Vertically Integrated	4/13/2018	9.73	Average / 1	9.73		
Michigan	DTE Electric Co.	C-U-18255	Electric	Vertically Integrated	4/18/2018	10.00	Above Average / 3	10.00		
Washington	Avista Corp.	D-UE-170485	Electric	Vertically Integrated	4/26/2018	9.50	Average / 3			9.50
Indiana	Indiana Michigan Power Co.	Ca-44967	Electric	Vertically Integrated	5/30/2018	9.95	Average / 1	9.95		
Hawaii	Hawaiian Electric Co.	D-2016-0328	Electric	Vertically Integrated	6/22/2018	9.50	Average / 2		9.50	
North Carolina	Duke Energy Carolinas LLC	D-E-7, Sub 1146	Electric	Vertically Integrated	6/22/2018	9.90	Average / 1	9.90		
Hawaii	Hawaii Electric Light Co	D-2015-0170	Electric	Vertically Integrated	6/29/2018	9.50	Average / 2		9.50	
New Mexico	Southwestern Public Service Co	C-17-00255-UT	Electric	Vertically Integrated	9/5/2018	9.56	Below Average / 2			9.56
Wisconsin	Wisconsin Power and Light Co	D-6680-UR-121 (Elec)	Electric	Vertically Integrated	9/14/2018	10.00	Above Average / 2	10.00		
Wisconsin	Madison Gas and Electric Co.	D-3270-UR-122 (Elec)	Electric	Vertically Integrated	9/20/2018	9.80	Above Average / 2	9.80		
North Dakota	Otter Tail Power Co.	C-PU-17-398	Electric	Vertically Integrated	9/26/2018	9.77	Average / 1	9.77		
Kansas	Westar Energy Inc.	D-18-WSEE-328-RTS	Electric	Vertically Integrated	9/27/2018	9.30	Below Average / 1			9.30
Indiana	Indianapolis Power & Light Co.	Ca-45029	Electric	Vertically Integrated	10/31/2018	9.99	Average / 1	9.99		
Kansas	Kansas City Power & Light	D-18-KCPE-480-RTS	Electric	Vertically Integrated	12/13/2018	9.30	Below Average / 1			9.30
Oregon	Portland General Electric Co.	D-UE-335	Electric	Vertically Integrated	12/14/2018	9.50	Average / 2		9.50	
Michigan	Consumers Energy Co.	C-U-20134	Electric	Vertically Integrated	1/9/2019	10.00	Above Average / 3	10.00		
West Virginia	Appalachian Power Co.	C-18-0646-E-42T	Electric	Vertically Integrated	2/27/2019	9.75	Below Average / 2			9.75
Oklahoma	Public Service Co. of OK	Ca-PUD201800097	Electric	Vertically Integrated	3/14/2019	9.40	Average / 3			9.40
Kentucky	Kentucky Utilities Co.	C-2018-00294	Electric	Vertically Integrated	4/30/2019	9.73	Average / 1	9.73		
Kentucky	Louisville Gas & Electric Co.	C-2018-00295 (elec.)	Electric	Vertically Integrated	4/30/2019	9.73	Average / 1	9.73		
South Carolina	Duke Energy Carolinas LLC	D-2018-319-E	Electric	Vertically Integrated	5/1/2019	9.50	Average / 3			9.50
Michigan	DTE Electric Co.	C-U-20162	Electric	Vertically Integrated	5/2/2019	10.00	Above Average / 3	10.00		
South Carolina	Duke Energy Progress LLC	D-2018-318-E	Electric	Vertically Integrated	5/8/2019	9.50	Average / 3			9.50
South Dakota	Otter Tail Power Co.	D-EL18-021	Electric	Vertically Integrated	5/14/2019	8.75	Average / 2		8.75	
Hawaii	Maui Electric Company Ltd	D-2017-0150	Electric	Vertically Integrated	5/16/2019	9.50	Average / 2		9.50	
Michigan	Upper Peninsula Power Co.	C-U-20276	Electric	Vertically Integrated	5/23/2019	9.90	Above Average / 3	9.90		
Vermont	Green Mountain Power Corp.	C-19-1932-TF	Electric	Vertically Integrated	8/29/2019	9.06	Average / 3			9.06
Wisconsin	Northern States Power Co - WI	D- 4220-UR-124 (Elec)	Electric	Vertically Integrated	9/4/2019	10.00	Above Average / 2	10.00		
Montana	NorthWestern Corp.	D2018.2.12	Electric	Vertically Integrated	12/20/2019	9.65	Below Average / 1			9.65
Wisconsin	Wisconsin Electric Power Co.	D-05-UR-109 (WEP-Elec)	Electric	Vertically Integrated	10/31/2019	10.00	Above Average / 2	10.00		
Wisconsin	Wisconsin Public Service Corp.	D-6690-UR-126 (Elec)	Electric	Vertically Integrated	10/31/2019	10.00	Above Average / 2	10.00		
Louisiana - NOCC	Entergy New Orleans LLC	D-UD-18-07 (elec.)	Electric	Vertically Integrated	11/7/2019	9.35	Average / 2		9.35	
Idaho	Avista Corp.	C-AVU-E-1904	Electric	Vertically Integrated	11/29/2019	9.50	Average / 2		9.50	
Indiana	Northern IN Public Svc Co.	Ca-45159	Electric	Vertically Integrated	12/4/2019	9.75	Average / 1	9.75		
Georgia	Georgia Power Co.	D-42516	Electric	Vertically Integrated	12/17/2019	10.50	Above Average / 2	10.50		
California	San Diego Gas & Electric Co.	A-19-04-017 (Elec)	Electric	Vertically Integrated	12/19/2019	10.20	Average / 2		10.20	
California	Pacific Gas and Electric Co.	A-19-04-015	Electric	Vertically Integrated	12/19/2019	10.25	Average / 2		10.25	
California	Southern California Edison Co.	A-19-04-014	Electric	Vertically Integrated	12/19/2019	10.30	Average / 2		10.30	
Arkansas	Southwestern Electric Power Co	D-19-008-U	Electric	Vertically Integrated	12/20/2019	9.45	Average / 1	9.45		
Montana	NorthWestern Corp.	D2018.2.12	Electric	Vertically Integrated	12/20/2019	9.65	Below Average / 1			9.65
Nevada	Sierra Pacific Power Co.	D-19-06002	Electric	Vertically Integrated	12/24/2019	9.50	Average / 2		9.50	

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Iowa	Interstate Power & Light Co.	D-RPU-2019-0001	Electric	Vertically Integrated	1/8/2020	10.02	Average / 1	10.02		
Michigan	Indiana Michigan Power Co.	C-U-20359	Electric	Vertically Integrated	1/23/2020	9.86	Above Average / 3	9.86		
California	PacifiCorp	A-18-04-002	Electric	Vertically Integrated	2/6/2020	10.00	Average / 2		10.00	
Colorado	Public Service Co. of CO	D-19AL-0268E	Electric	Vertically Integrated	2/11/2020	9.30	Average / 2		9.30	
North Carolina	Virginia Electric & Power Co.	E-22, Sub 562	Electric	Vertically Integrated	2/24/2020	9.75	Average / 1	9.75		
Indiana	Indiana Michigan Power Co.	Ca-45235	Electric	Vertically Integrated	3/11/2020	9.70	Average / 1	9.70		
Washington	Avista Corp.	D-UE-190334	Electric	Vertically Integrated	3/25/2020	9.40	Average / 3			9.40
					Total Cases	103		49	24	25
					Mean	9.75		9.93	9.53	9.62
					Median	9.73		9.95	9.50	9.50
					Maximum	11.95		10.55	10.30	11.95
					Minimum	8.75		9.37	8.75	9.06
					2019 Mean	9.73				
					2019 Median	9.73				

Source: Regulatory Research Associates

CERTIFICATE OF SERVICE

DOCKET NO. E-2, SUB 1219

      I hereby certify that a copy of the foregoing **AMENDED REBUTTAL TESTIMONY AND EXHIBITS OF DYLAN W. D'ASCENDIS** was served electronically or by depositing a copy in United States Mail, first class postage prepaid, properly addressed to the parties of record.

      This the 7th day of July, 2020.

                               DUKE ENERGY PROGRESS, LLC

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