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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	)	

1 I. INTRODUCTION AND PURPOSE

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

4 A. My name is Dylan W. D’Ascendis. I am a Director at ScottMadden, Inc. My
5 business address is 3000 Atrium Way, Suite 241, Mount Laurel, New Jersey
6 08054.

7 Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

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

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

14 A. Yes, I am.

15 Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

16 A. The purpose of my Rebuttal Testimony is to respond to the direct testimony of
17 the following Intervenor witnesses with respect to the Return on Equity
18 (“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.

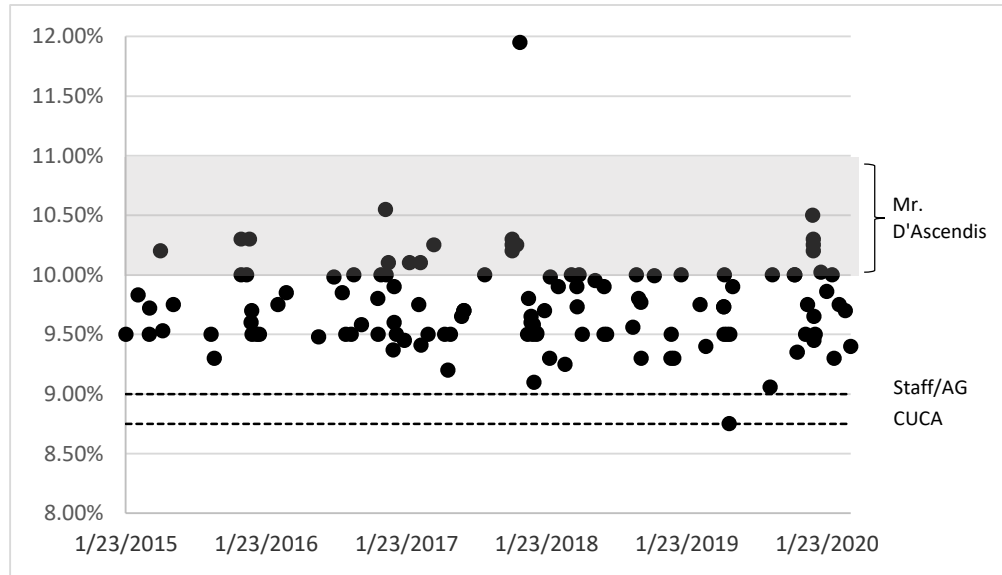
1 **Q. PLEASE NOW PROVIDE AN OVERVIEW OF YOUR RESPONSE TO**
2 **THE ROE RECOMMENDATIONS MADE BY THE OPPOSING**
3 **WITNESSES.**

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

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.

1
2

**Chart 1: Vertically Integrated Electric Utility Authorized ROEs
(2015 – 2020) and Witness Recommendations³**



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.

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 yields⁹ and “historically low” utility bond yields¹⁰,
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

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"

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

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 standard²³, 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

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).

³¹ U.S. Department of Labor News Release, April 16, 2020.

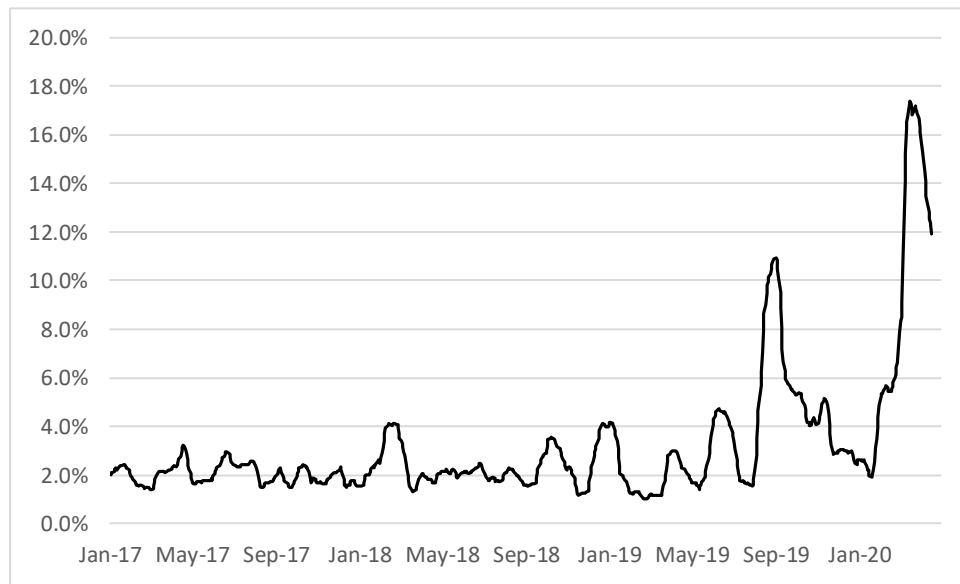
³² U.S. Department of Labor News Release, April 23, 2020

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 Yields³⁵



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Investor reactions to the market instability also are reflected in the “yield

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

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

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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,

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

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“normal” conditions, dividend yields tend to be directionally related to Treasury

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

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

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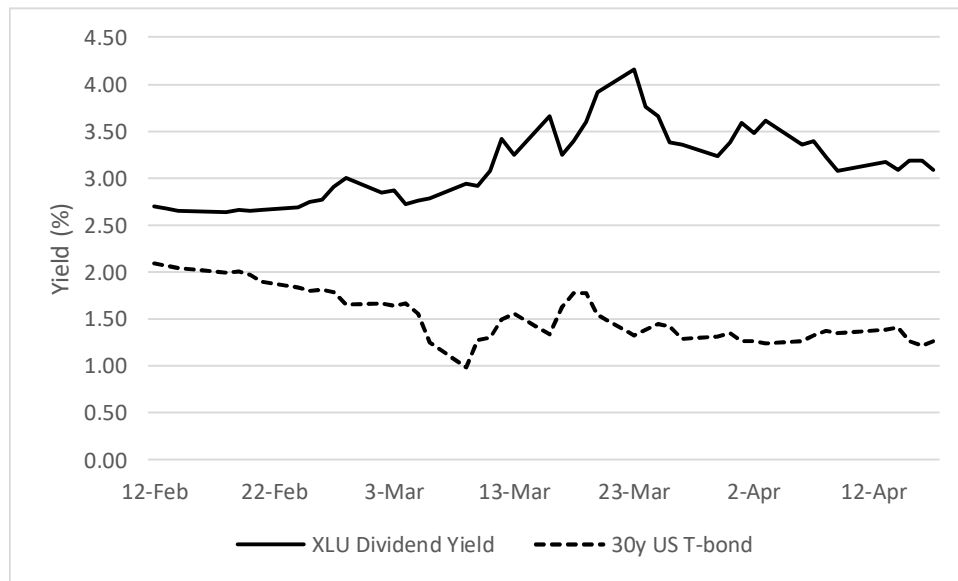
interest rates fall; the widening yield spread demonstrates as much.

³⁵

Source: S&P Global Market Intelligence.

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Chart 3: Utility Dividend Yields vs. 30-Year Treasury Yields³⁶



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From a slightly different perspective, from January 1 to February 11, 2020, the correlation between the S&P 500 dividend yield and the utility sector dividend yield was about 14.00 percent. From February 12 through April 17, 2020 it increased to 95.00 percent (see Chart 4, below). That increasing correlation is not surprising. As Morningstar recently explained, during volatile markets there often is little distinction in returns across assets or portfolios. That is, “correlations go to 1.”³⁷ When that happens, utility stocks lose their “defensive” quality.

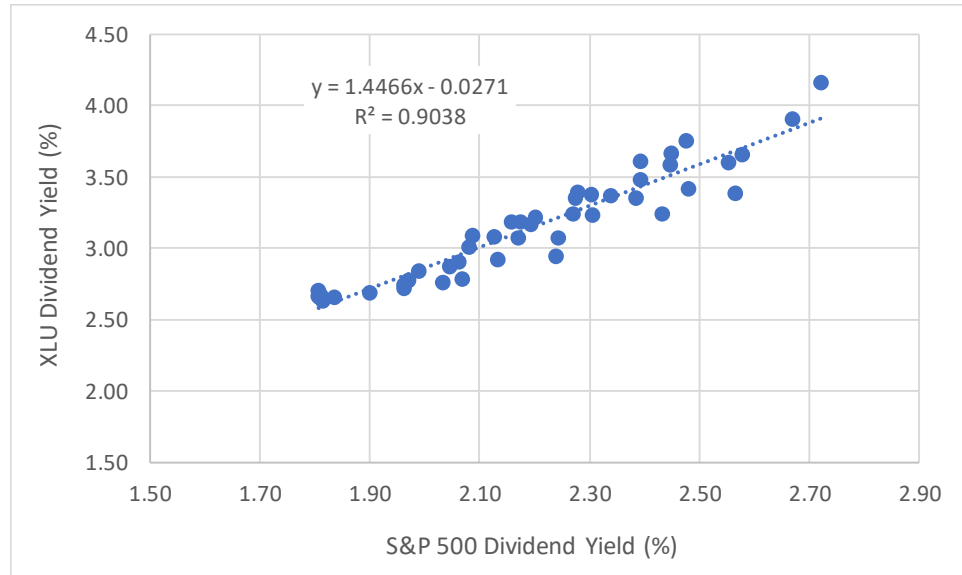
³⁶

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.

Chart 4: Utility Sector Dividend Yield vs. S&P 500 Dividend Yield
(2/12/2020 – 4/17/2020)³⁸



A direct consequence of stronger correlations is higher Beta coefficients.³⁹ That effect is demonstrated in Rebuttal Exhibit DWD-3, where Beta coefficients provided by Bloomberg have nearly doubled (from 0.499 to 0.995) since I filed my Direct Testimony (*see* Exhibit DWD-3). Under the CAPM, those higher Beta coefficients indicate a substantial increase in the Cost of Equity.

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 factors⁴² – 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

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

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.

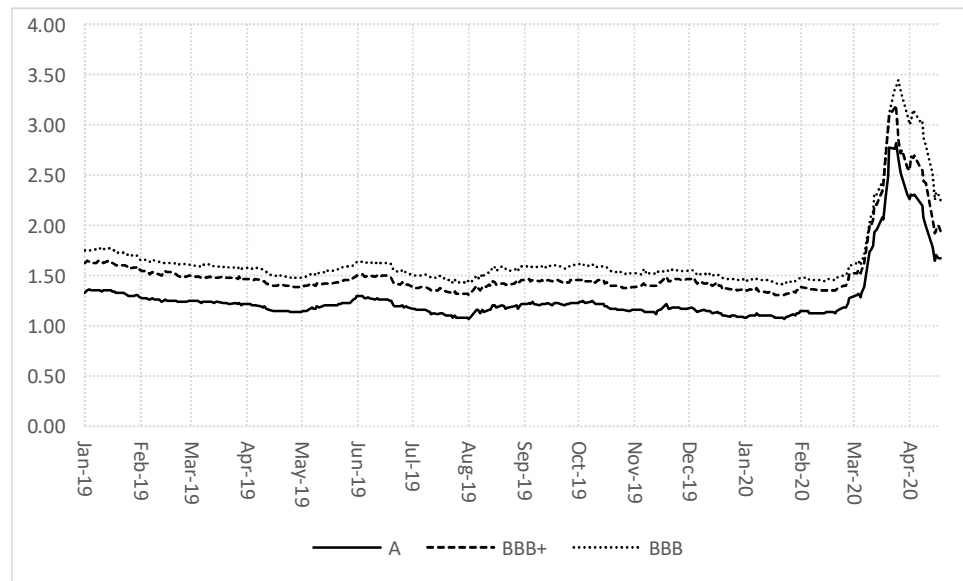
⁴⁹ S&P Global Ratings, *COVID-19: The Outlook For North American Regulated Utilities Turns Negative*, April 2, 2020, at 7.

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

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

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.

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

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. WOOLDRIDGE**

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. WOOLDRIDGE’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

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

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

⁷¹ Testimony of J. Randall Woolridge, at B-7 – B-9, B-11.

⁷² Testimony of J. Randall Woolridge, at B-7.

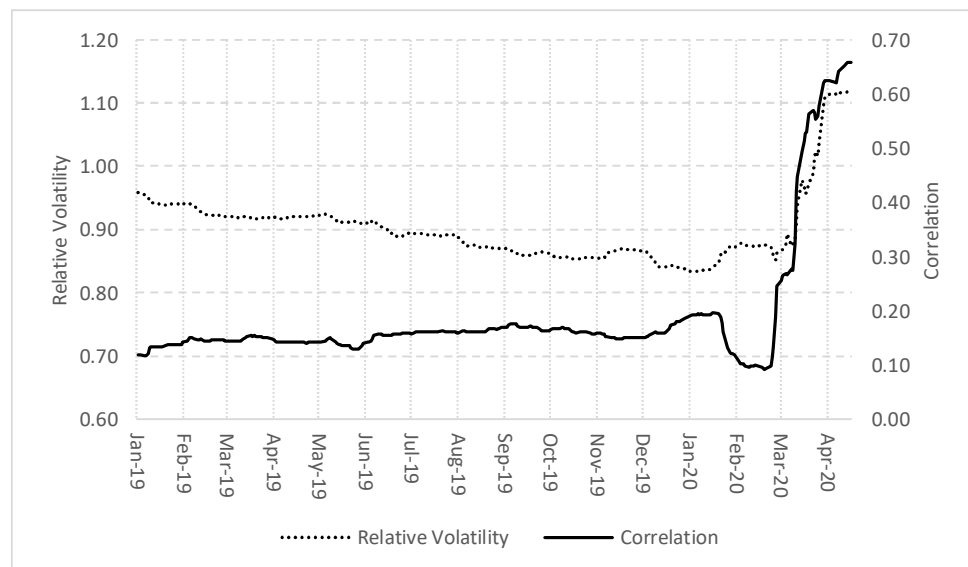
⁷³ Testimony of J. Randall Woolridge, at B-8.

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.

As explained in my Direct Testimony, Beta coefficients are a function of two parameters: (1) relative volatility (the standard deviation of the subject company's returns relative to the standard deviation of the market return; and (2) the correlation between the subject company's returns and the market return.⁷⁶ Applying Bloomberg's two-year calculation convention, the increase in correlations, and in relative volatility, since mid-February 2020 is apparent (see Chart 6, below).

Chart 6: Components of Proxy Group (Two-Year) Beta Coefficients⁷⁷



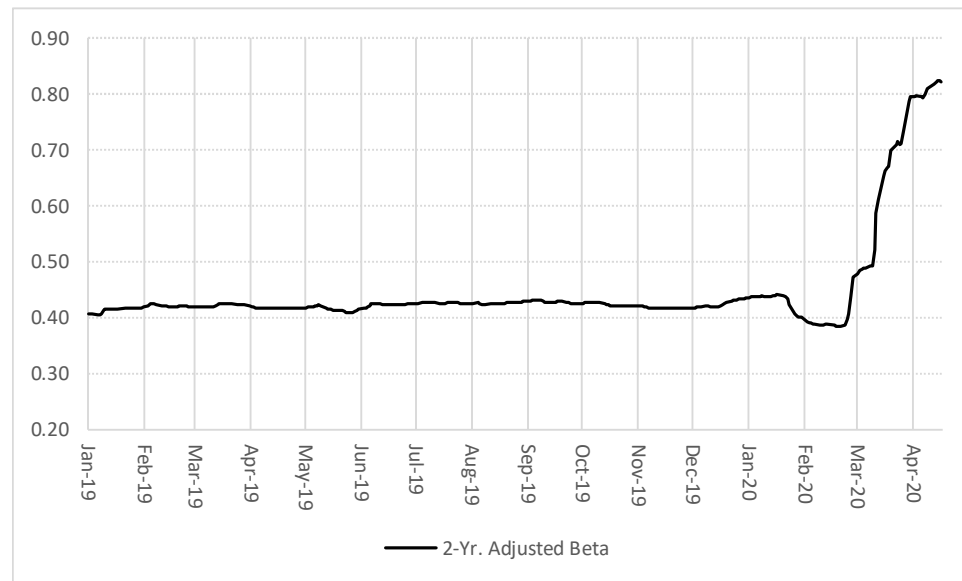
Not surprisingly, the increased correlation and relative volatility combine to produce significantly increased (adjusted) Beta coefficients.

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 Time⁷⁸



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

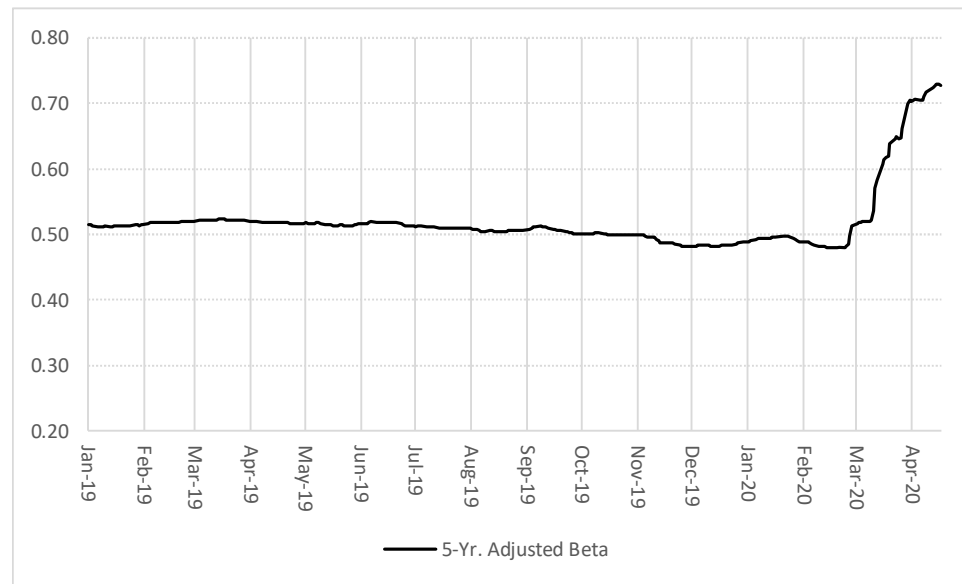
February 2020 levels (see Chart 8, below).

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 Time⁷⁹



2

I understand Beta coefficients are one component of the CAPM. Nonetheless, as Dr. Woolridge notes, long-term Treasury yields remain highly variable. Even if we hold constant the risk-free rate, and assume (for the sake of discussion) the Market Risk Premium also remains constant, the increase in systematic risk manifested in elevated Beta coefficients is another observable indicator that directionally, the Cost of Equity has increased during the recent market dislocation.

3

4

5

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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

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 CONDITIONS⁸⁴?**

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 Results⁸⁵**

	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.

Exhibit DWD-9). That finding is consistent with the fundamental theory that the Cost of Equity increases with uncertainty (that is, volatility). Back-testing the model demonstrates that from 2008 through 2019, the average annual difference between the authorized and projected ROE was four basis points. In 2008, during the peak of the financial crisis, the difference was nine basis points.

As Dr. Woolridge explains, during his review period the VIX increased from 15 to over 50, “a level which has not been seen since the financial crisis in 2008.”⁸⁶ Assuming the VIX level of 50.00 Dr. Woolridge noted, the Cost of Equity increases by about 80 basis points (see, Table 3, below).

Table 3: Bond Yield Plus Risk Premium Results, Including VIX⁸⁷

	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%

Q. WHAT DO YOU CONCLUDE FROM THOSE ANALYSES?

A. The Bond Yield Plus Risk Premium approach is well-suited to estimate the ROE, even during volatile markets. Including the VIX as an explanatory variable indicates that (at a VIX of 50) the ROE would be as high as 11.10 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

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.

**Table 4: Dr. Woolridge’s Reported Average Authorized ROE
for Electric Utilities⁹³**

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

Moreover, Dr. Woolridge’s data includes returns authorized for distribution-only electric utilities, in addition to vertically integrated electric utilities. Looking to the average and median ROE authorized for vertically integrated electric utilities only, the trend over the past five years also has been relatively stable (see Table 5, below). In either case, Tables 4 and 5 demonstrate that there has not been a downward trend in authorized ROEs, and the unreasonableness of Dr. Woolridge’s recommendation.

**Table 5: Average and Median Authorized ROE
for Vertically Integrated Electric Utilities⁹⁴**

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%

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 “detering 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

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.

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

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 Financial Analysts
2 Journal 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*

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

¹⁰⁴ 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.

1 *companies' market data.*¹⁰⁵

In a similar fashion, Professor Eugene Brigham, a widely respected scholar and finance academician, recommends the CAPM, DCF, and Bond Yield Plus Risk Premium approaches:

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

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

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

21 ***

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

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/EBITDA¹⁰⁸ 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:

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

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

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

2 Using the DCF model as the principal method¹⁰⁹ 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 Journal of Applied
14 Finance. 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

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.

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

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

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

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;

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

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

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

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

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

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.

¹³⁸ Testimony of J. Randall Woolridge, at 72.

¹³⁹ Testimony of J. Randall Woolridge, at 72.

¹⁴⁰ Testimony of J. Randall Woolridge, at 70.

**Table 7: Analysts' Earnings Growth Projections
Relative to Management Presentations¹⁴¹**

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%

Q. DO YOU AGREE WITH DR. WOOLRIDGE THAT HISTORICAL GROWTH RATES ARE APPROPRIATE MEASURES OF EXPECTED GROWTH FOR THE CONSTANT GROWTH DCF MODEL?¹⁴²

A. No, I do not. As Dr. Woolridge notes, the growth component of the Constant Growth DCF model is a forward-looking measure of investors' expectations.¹⁴³ To the extent historical growth influences expectations of future growth, it already will be reflected in analysts' consensus earnings growth estimates. Carlton and Vander Weide found "overwhelming evidence that consensus 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 growth¹⁴⁹ 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

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
$$\left(\frac{m}{b} - 1\right) \times \text{Common shares growth rate} \quad [2]$$

13 where:

14
$$\left(\frac{m}{b}\right) = \text{the Market – to – Book ratio.}$$

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

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

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).

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 Estimates¹⁶²**

	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 percent¹⁶⁴
9 expected MRP estimate based on the Duke CFO Survey should be given little
10 weight.

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

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

¹⁶⁸ Morningstar, Inc., 2013 Ibbotson SBBI Valuation Yearbook, at 56.

¹⁶⁹ Direct Testimony of Dylan W. D'Ascendis, at 87.

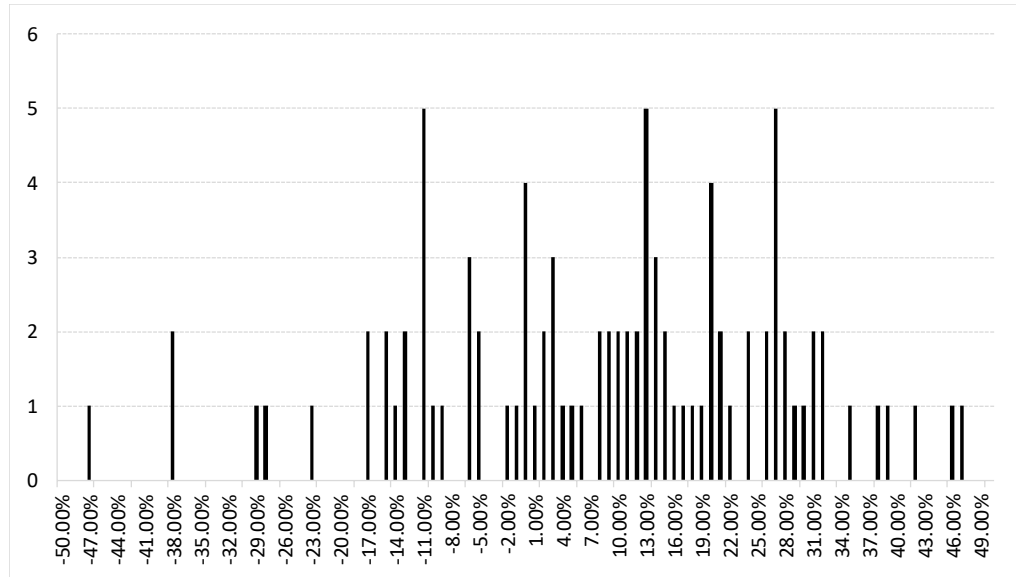
1 **Q. TURNING TO DR. WOOLRIDGE’S POSITION THAT THE EPS**
2 **GROWTH RATES USED TO DEVELOP YOUR ESTIMATED MARKET**
3 **RETURN ARE TOO HIGH,¹⁷⁰ DID YOU CONSIDER WHERE YOUR**
4 **ESTIMATE FALLS WITHIN THE RANGE OF HISTORICAL**
5 **OBSERVATIONS?**

6 **A.** Yes. I gathered the annual capital appreciation¹⁷¹ 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,
1926-2019¹⁷²**



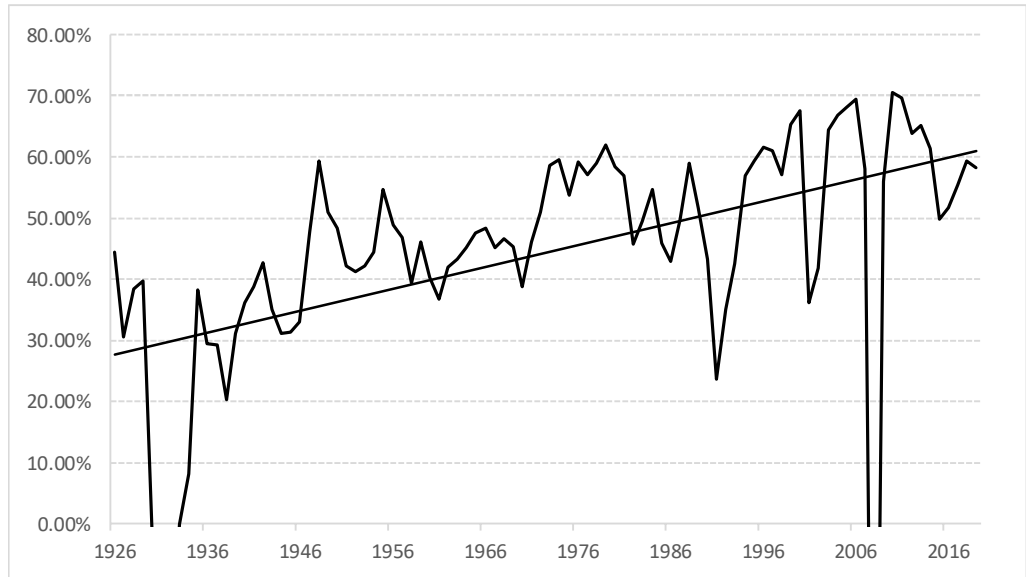
Regarding Dr. Woolridge’s analysis of the S&P 500 EPS and GDP growth rates (in his Table 9), his conclusion that net income of the S&P 500 would grow to represent approximately 75.78 of GDP¹⁷³ is substantially driven by his unduly low GDP growth rate. Under the Sustainable Growth model, if the retention ratio is higher now than it historically has been, there would be reason to believe that expected growth rates would be higher than historical growth rates. To determine whether that has been the case, I calculated the annual retention ratio from 1926 to 2019 using earnings and dividends data published by Dr. Robert J. Shiller. As shown in Chart 10 (below), that data indicates the S&P 500 earnings retention has trended upward over time and is currently well above its

¹⁷² Duff & Phelps, 2020 SBBI Yearbook, at A-3.

¹⁷³ Testimony of J. Randall Woolridge, at 127.

historical average. Consequently, the Sustainable Growth model included in Dr. Woolridge's DCF analysis suggests that the future growth of the S&P 500 could outpace its historical growth.

Chart 10: S&P 500 Annual Earnings Retention Ratio, 1926 – 2019¹⁷⁴



Q. HAVE ANY REGULATORY COMMISSIONS CONSIDERED THE SUSTAINABILITY OF GROWTH RATES IN THE MARKET RISK PREMIUM?

A. The Federal Energy Regulatory Commission ("FERC") has found the DCF-based growth rates used to calculate the Market Risk Premium in the CAPM need not meet a sustainability threshold because, although an individual 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):

4 The rationale for incorporating a long-term growth rate estimate
5 in conducting a two-step DCF analysis of a specific group of
6 utilities does not necessarily apply when conducting a DCF
7 study of the companies in the S&P 500. That is because the S&P
8 500 is regularly updated to include only companies with high
9 market capitalization. While an individual company cannot be
10 expected to sustain high short-term growth rates in perpetuity,
11 the same cannot be said for a stock index like the S&P 500 that
12 is regularly updated to contain only companies with high market
13 capitalization, and the record in this proceeding does not indicate
14 that the growth rate of the S&P 500 stock index is
15 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 MRPESTIMATE AS IT RELATES TO HISTORICAL NOMINAL**
20 **GDP GROWTH RATES?**

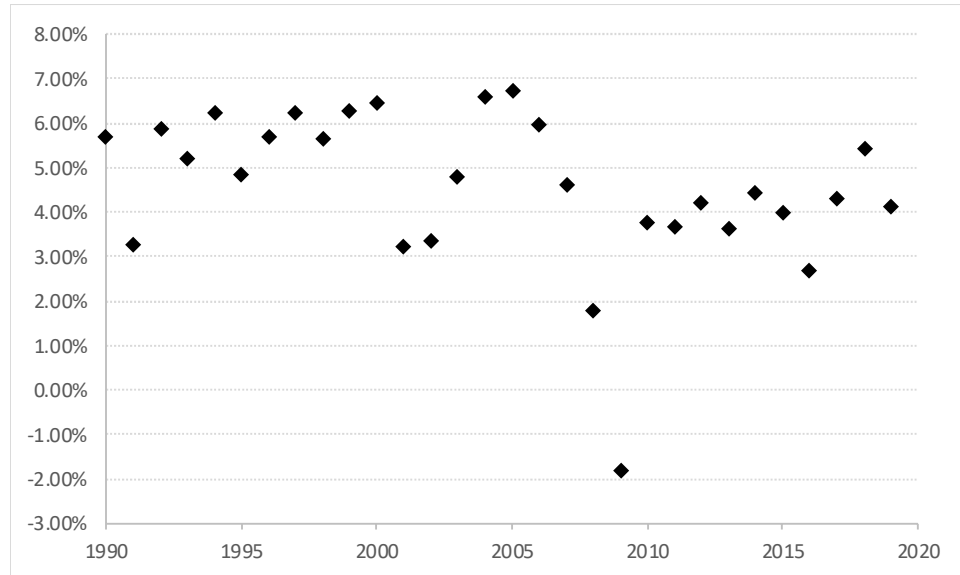
21 A. Dr. Woolridge argues “nominal GDP growth in recent decades has slowed and
22 that a figure in the range of 4.0% to 5.0% is more appropriate today for the U.S.
23 economy.”¹⁷⁶ To support his position, Dr. Woolridge reviews average nominal
24 GDP growth over periods of ten to 50 years. As shown on Chart 11 (below),
25 however, since 1990 (*i.e.*, in “recent decades”) the annual nominal growth rate

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.

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.

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

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?**

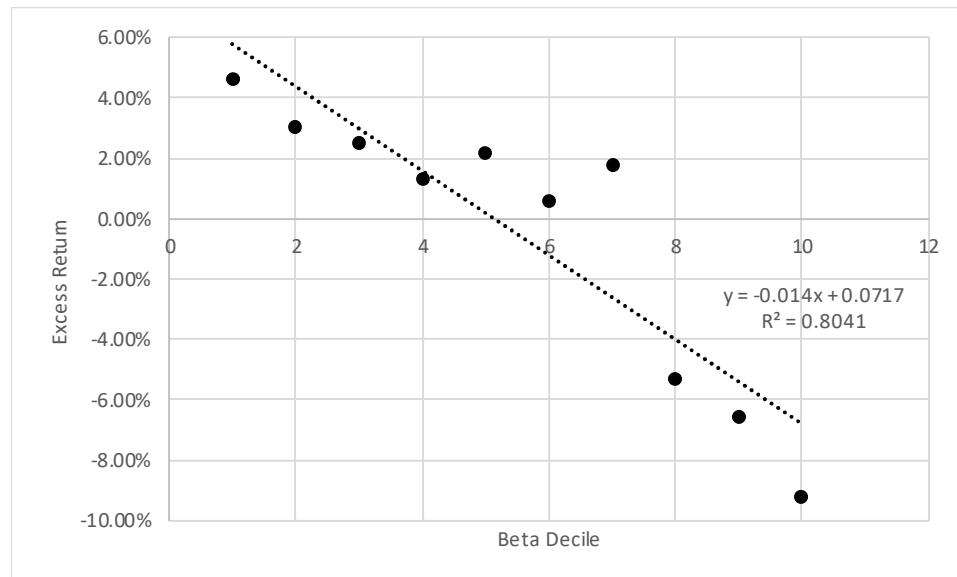
10 A. Yes, I performed an analysis of excess returns produced by the CAPM, by Beta
11 coefficient decile, over the eleven years ended 2019. The analysis compared
12 the observed returns of the companies in the S&P 500 Index to expected returns
13 based on the CAPM. Observed returns were calculated as 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, *Proceeding 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.

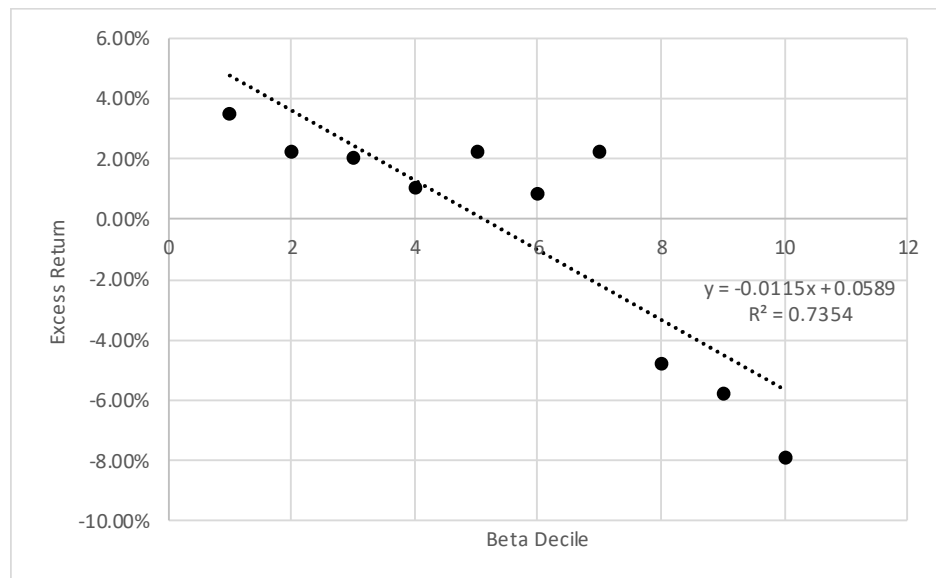
12 **Chart 12: Excess Returns Under CAPM¹⁹⁷**



¹⁹⁷ Source: Bloomberg Professional Services.

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 ECAPM¹⁹⁸**



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

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

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

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,

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.

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.

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.

2 ***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

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 practices²¹⁸ and related value-
3 based-management systems²¹⁹ 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

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, *The Quest for Value*, HarperCollins Publishers, Inc., 1990.

²¹⁹ See, Institute of Management Accountants, *Measuring and Managing Shareholder Value Creation*, 1997.

²²⁰ Roger A. Morin, *New Regulatory Finance*, 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

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 one²²⁴ 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

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

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

²³² See, Roger A. Morin, New Regulatory Finance, 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 ratio²³⁵ as
18 follows:

19
$$\frac{M}{B} = \frac{ROE - g}{k - g} \quad [3]$$

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
$$P = \frac{D}{k - g} \quad [4]$$

24 and the Constant Growth DCF model:

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).

1
$$P = \frac{D}{P} + g \quad [5]$$

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

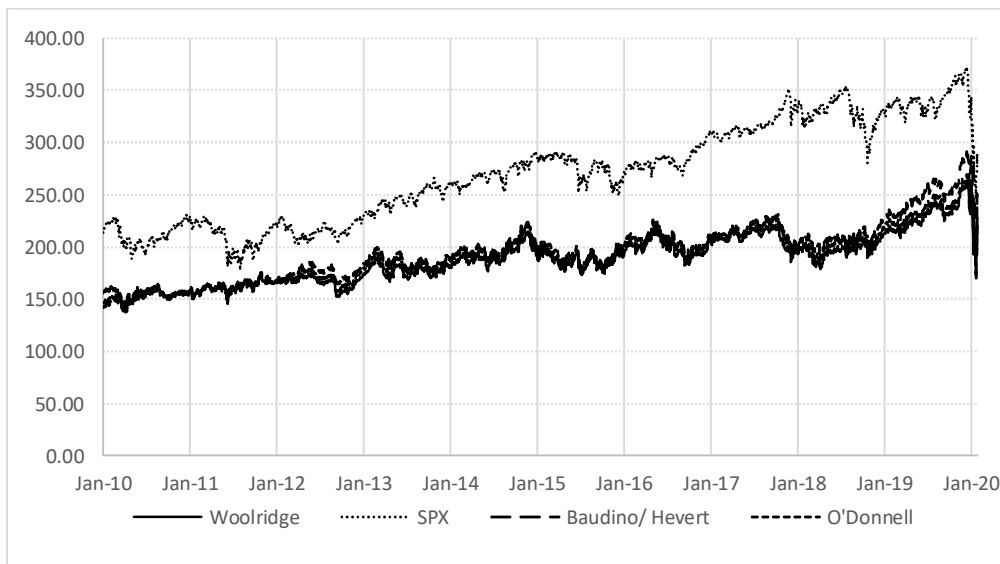
²³⁶ Based on Dr. Woolridge's proxy group average M/B ratio of 237.00. $(237.00 - 100.00) / 237.00 = 57.81$ percent. Exhibit JRW-2, page 1.

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.

**Chart 14: Comparison Groups, S&P 500 Market/Book Ratios
(2010 – 2020)²³⁷**



Lastly, although the broad market represents a cross section of market sectors, of which the utility sector is just one, the observed variation in market-level M/B ratios speaks to the time-varying influence of general macroeconomic factors, not to any failure of regulation. The relationship between the Opposing Witnesses' proxy group M/B ratios and the S&P 500 M/B ratio is positive and statistically significant. That is the case even when we control for serial correlation.²³⁸ We therefore reasonably can conclude that broad macroeconomic and capital market factors affect both utilities and non-regulated entities.

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 Time²³⁹**



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

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

²⁴⁰ Charles F. Phillips, The Regulation of Public Utilities – Theory and Practice (Public Utility Reports, Inc., 1993) at 395.

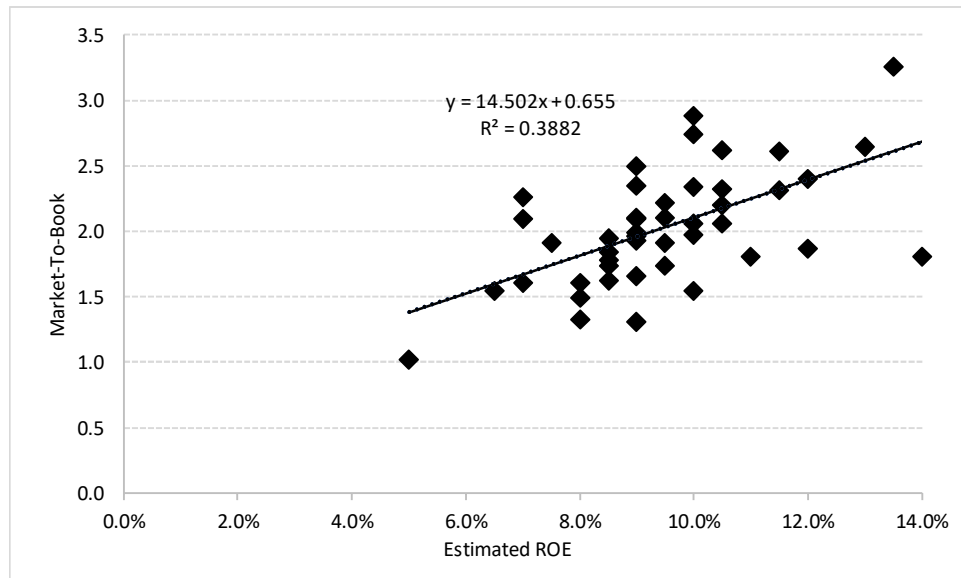
²⁴¹ James C. Bonbright, Albert L. Danielsen and David R. Kamerschen, Principles of Public Utility Rates (Public Utilities Reports, Inc., 1988), at 334.

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. Woolridge²⁴³ (see
5 Chart 16, below).

6 **Chart 16: Update of Exhibit JRW-4, With Regression Coefficients²⁴⁴**



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

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

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

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

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

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

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,

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.

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.

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.

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

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 arbitrated 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

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:

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;

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, Vol. 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

²⁸⁸ Alan C. Shapiro, Modern Corporate Finance, 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

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

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

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-

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 (*see*
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

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.

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.

3 ***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

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.

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

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.

yields only 47.00 percent of the time; from 2017 through March 2020, in only 15 of 39 months (about 44.00 percent of the time). That is, from 2017 through March 2020, the “no-change” approach under-forecast Treasury yields in 22 of 39 months.

Table 9: “No-Change” Forecast Error Observations³¹⁸

	Feb. 2007 – Oct. 2015	Nov. 2015 – March 2020	Jan. 2017 – March 2020
	<i>Number of Observations</i>		
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%

If Mr. Baudino wishes to consider current Treasury yields as measures of future rates, we can view the market’s expectations based on the current yield curve. Those expected rates, often referred to as “forward yields” are derived from the “Expectations” theory, which states that (for example) the current 30-year Treasury yield equals the combination of the current five-year Treasury yield, and the 25-year Treasury yield expected in five years. That is, an investor would be indifferent to (1) holding a 30-year Treasury bond to maturity, or (2) holding a five-year Treasury note to maturity, then a 25-year Treasury bond, 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

1 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 Yields³²⁰**

	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

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

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

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?**

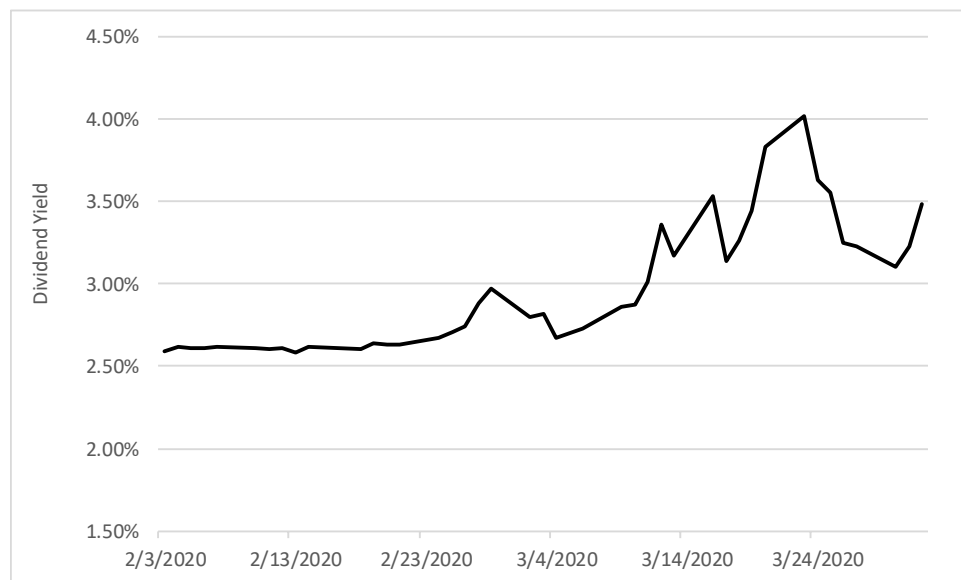
13 A. As explained in my response to Dr. Woolridge, the DCF model will not produce
14 accurate estimates of the market-required ROE if the market price diverges
15 from intrinsic value as defined by the present value formula. As also discussed
16 in my response to Dr. Woolridge, recently elevated utility 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

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 – 4/1/2020³³⁰**



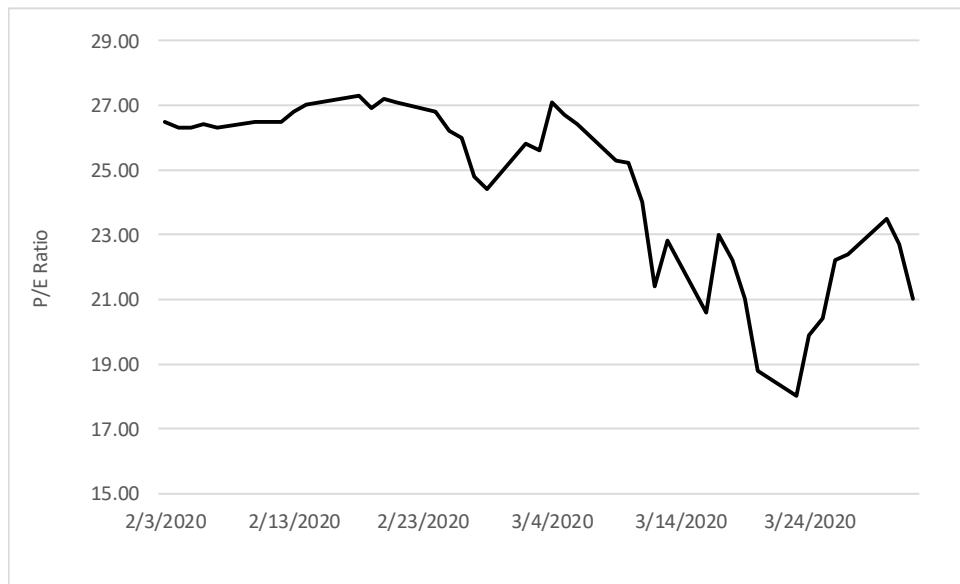
11 Over the same time period, the P/E ratio of Mr. Baudino's proxy group
12 fell significantly (see Chart 18 below).

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 2020³³¹



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

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 percent³³³ 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

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 $[(1.05\% \times (1 + (0.5 \times 10.50\%))) + 10.50\% + 12.71\%] / 2 = 12.16\%.$ $((12.16\% - 2.19\%) - (11.53\% - 2.19\%)) = 0.63\%$

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

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
$$K = R_F + 0.25 (R_M - R_F) + 0.75 \beta (R_M - R_F) \quad (6-6)$$

28 Over reasonable values of the risk-free rate and the market risk

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:

6
$$K = R_F + x \beta(R_M - R_F) + (1-x) \beta(R_M - R_F)$$

7 where x is a fraction to be determined empirically. The value of
8 x that best explains the observed relationship $\text{Return} = 0.0829 +$
9 0.0520β is between 0.25 and 0.30. If $x = 0.25$, the equation
10 becomes:

11
$$K = R_F + 0.25(R_M - R_F) + 0.75 \beta(R_M - R_F)$$

12
13 Dianna R. Harrington summarizes studies on the predicted results of the
14 CAPM versus the actual returns in her text Modern Portfolio Theory & the
15 Capital Asset Pricing Model:

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 $R_m Y$, R_z is sold short and proceeds are invested in
18 R_m . On segment $R_z R_m$, 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.

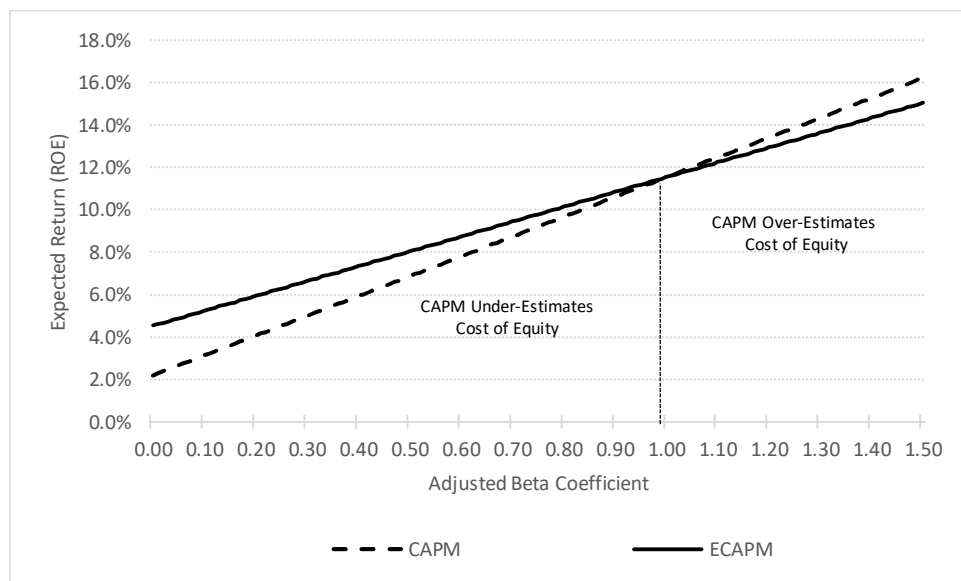
29 Black's adaptation is intriguing. The result of using this model
30 is a capital market line that has a less steep slope and a higher
31 intercept than those of the simple CAPM. If Black's model is
32 more correct in its description of investor behavior in the
33 marketplace, then the use of the simple 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 stocks 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 Returns³⁵²**



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

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 future values, 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, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 191
[emphasis added].

³⁵⁴ Marshall E. Blume, *On the Assessment of Risk*, The Journal of Finance, 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
$$\beta_{adjusted} = 0.35 + (0.67 \times \beta_{raw}) \quad [6]$$

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 percent³⁶² "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.

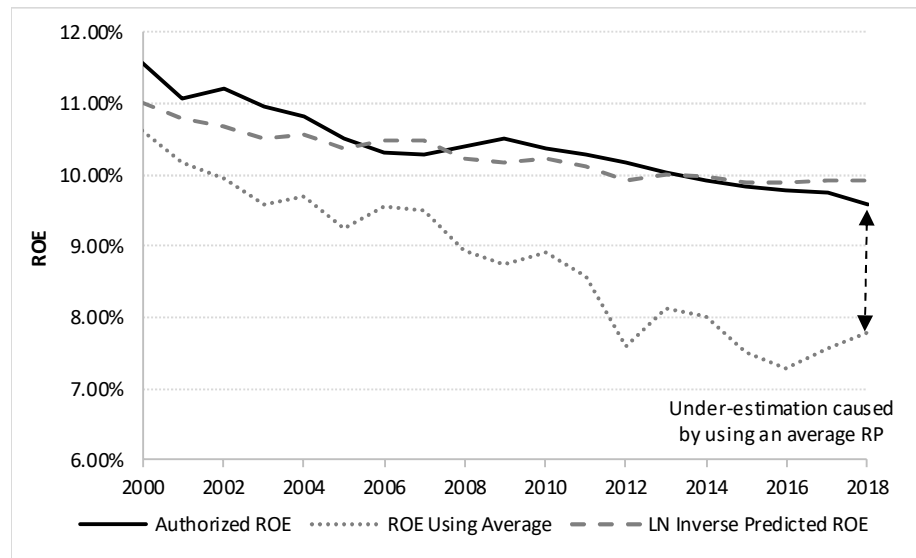
³⁶² The average Equity Risk Premium over the 1980 – 2019 time period calculated in Exhibit DWD-5.

1 average ROE. I then calculated the ROE predicted in each year using my
2 methodology, which accounts for the log normal³⁶³ 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 Hawaii³⁶⁵ 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.

1 ***H. Flotation Costs***

2 **Q. MR. BAUDINO ARGUES THAT FLOTATION COSTS SHOULD NOT**
3 **BE CONSIDERED BECAUSE, IN HIS OPINION, “IT IS LIKELY THAT**
4 **FLOTATION COSTS ARE ALREADY ACCOUNTED FOR IN**
5 **CURRENT STOCK PRICES”.**³⁶⁸ **WHAT IS YOUR RESPONSE TO MR.**
6 **BAUDINO ON THAT POINT?**

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. RESPONSE TO CUCA WITNESS MR. O'DONNELL**

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 percent³⁸⁰ 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

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.

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.

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 capital³⁹⁰ 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

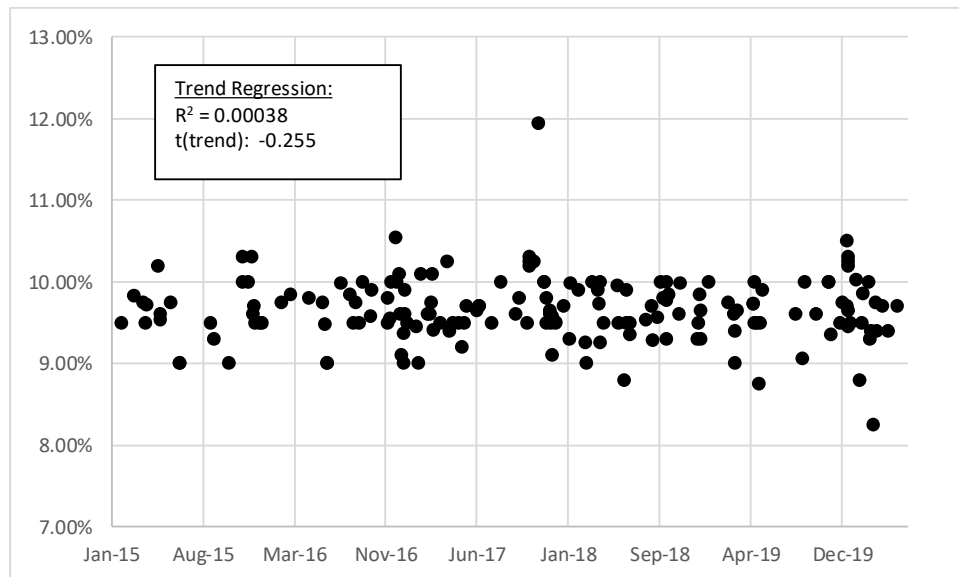
³⁹⁰ Direct Testimony of Kevin W. O'Donnell, CFA, at 68.

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.

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

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.

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.

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 $\frac{1}{k - g}$ [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
$$d_m = \frac{d}{1 + k} \quad [8]$$

7 The percent change in stock prices (P) brought about by a change in the Cost of
8 Equity is calculated as:

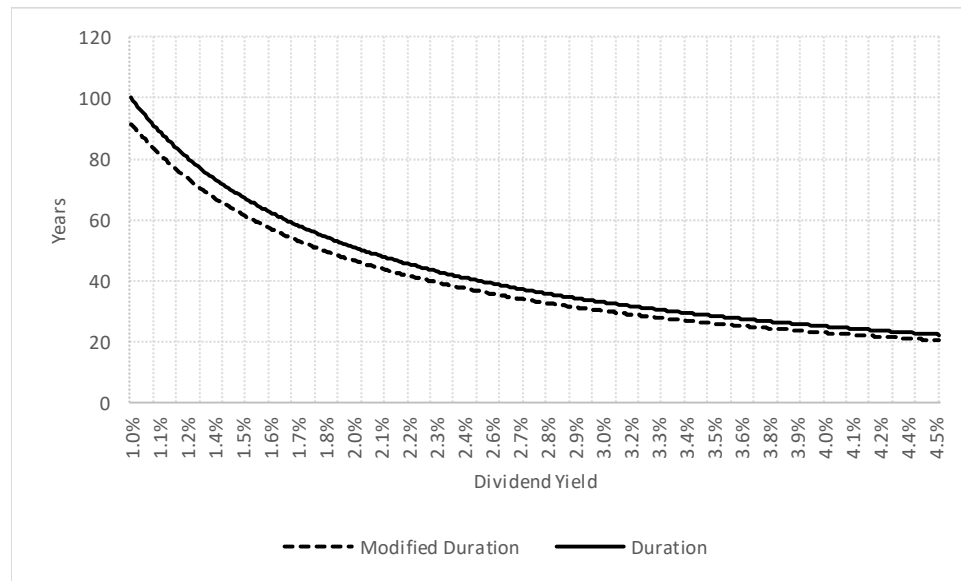
9
$$\frac{\Delta P}{P} = -d_m \times \Delta k \quad [9]$$

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).

⁴⁰² James L. Farrell, Jr., *The Dividend Discount Model: A Primer*, Financial Analysts Journal, 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

⁴⁰³ Exhibit KWO-1.

⁴⁰⁴ $\frac{1}{.035} = 28.57$

⁴⁰⁵ $\frac{28.57}{1.0875} = 26.27$

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

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.

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 INACCURATE⁴¹¹?**

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

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 Testimony⁴¹³ 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

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 Growth⁴¹⁴**

	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 Financial Analysts Journal
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,

⁴¹⁴ Rebuttal Exhibit DWD-21.

⁴¹⁵ See, Ping Zhou, William Ruland, *Dividend Payout and Future Earnings Growth*, Financial Analysts Journal, 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*, Financial Analysts Journal, Vol. 62, No. 7, 2006.

⁴¹⁶ See, Robert Arnott, Clifford Asness, *Surprise: Higher Dividends = Higher Earnings Growth*, Financial Analysts Journal, 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

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.

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

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

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

⁴³⁰ See, Enrique R. Arzac, *Do Your Business Units Create Shareholder Value?*, Harvard Business Review, 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

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.

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

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
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 **References⁴⁴²**

INSTITUTION	MARKET RETURN FORECAST
BlackRock Investment Institute	6.1% nominal (not inflation adjusted) return for US large caps over the next decade

⁴⁴⁰ Roger A. Morin, New Regulatory Finance, 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

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

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.

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

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

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 perspectives⁴⁵⁷ 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,

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

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.

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

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 [we] recognize that a utility may consider a range of factors
10 beyond simple capital cost minimization in developing their
11 capital structures. Such considerations include, but are not
12 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

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

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.

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 ratio⁴⁷² 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).

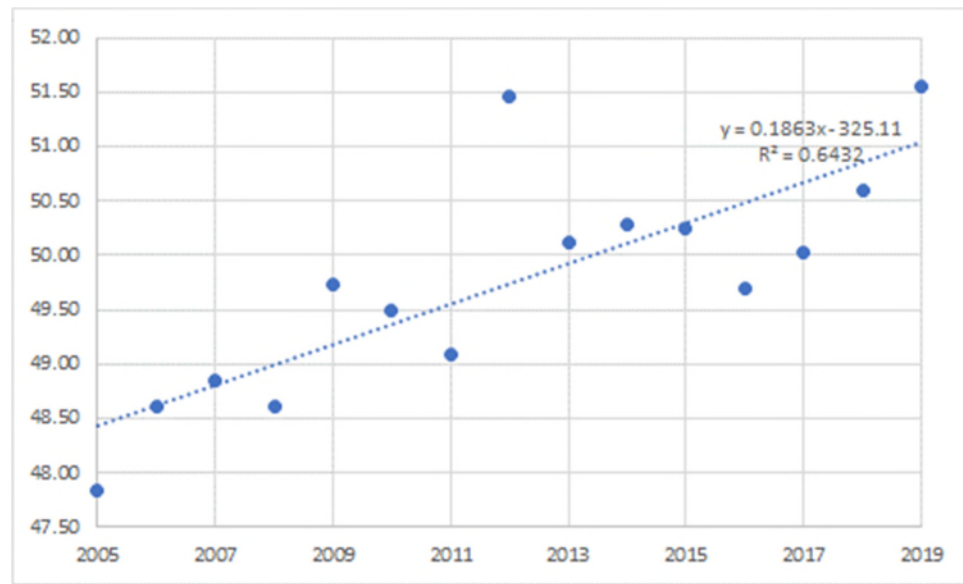
12 **Q. HAVE AUTHORIZED EQUITY RATIOS CHANGED OVER TIME?**

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).

⁴⁷² Direct Testimony of Kevin W. O'Donnell, CFA, at 113.

1

Chart 23: Average Authorized Equity for Electric Utilities⁴⁷³



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.

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

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

5 **Table 14: Average Authorized ROE Presented in Chriss Exhibit 3**
6 **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

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

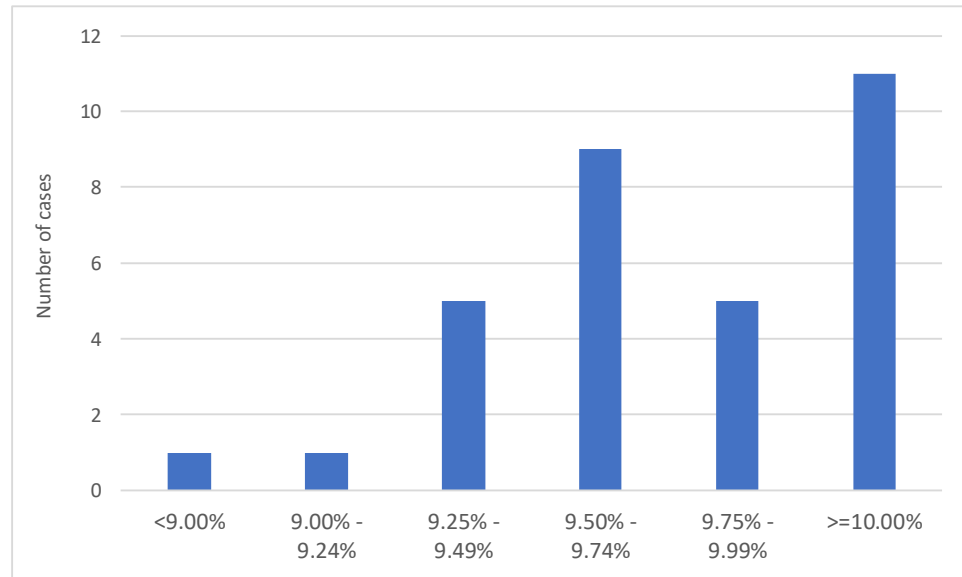
⁴⁸² Direct Testimony and Exhibits of Nicholas Phillips, Jr., at 26.

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 2019-2020⁴⁸⁵**



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).

⁴⁸⁵

Source: Regulatory Research Associates. *See*, Rebuttal Exhibit DWD-8.

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

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

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:

⁴⁹³ 29 CFR 2509.908-1, Interpretive bulletin relating to the fiduciary standard under ERISA in
consider economically targeted investments, October 17, 2008.

1 ...there are aspects of witness O'Donnell's pre-filed testimony
2 which lead the Commission to doubt its overall conclusions. For
3 example, O'Donnell relies in part upon the assumed equity rate
4 of return for the Company's pension expense, which he indicates
5 is 8.5%. Tr. vol. 6, pp. 21-22. The Commission finds this
6 reliance to be misplaced. In particular, the testimony ignores the
7 crucial distinction between expected returns, which underlie
8 pension expense, and required returns, which underlie the
9 appropriate rate of return on equity.⁴⁹⁴

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
<i>Average Bloomberg Beta Coefficient</i>			
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%
<i>Average Value Line Beta Coefficient</i>			
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
<i>Average Bloomberg Beta Coefficient</i>			
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%
<i>Average Value Line Beta Coefficient</i>			
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

1
2 **Q. EARLIER, YOU REFERRED TO THE FINANCIAL COMMUNITY’S**
3 **REACTION TO THE PUCT’S DELIBERATIONS REGARDING**
4 **CEHE’S⁴⁹⁵ 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,

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

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

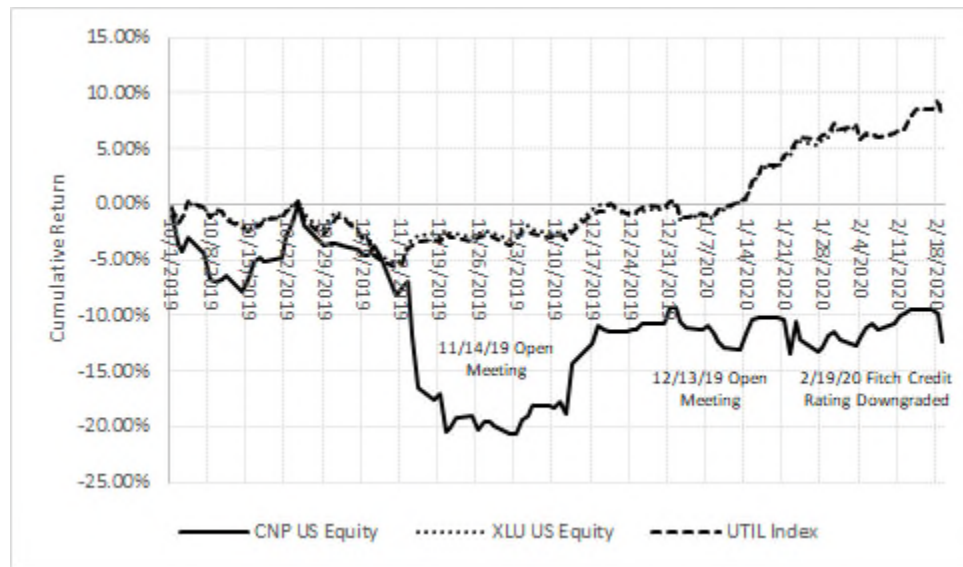
⁵⁰⁷ FitchRatings, *Fitch Downgrades CenterPoint Energy Houston Electric to 'BBB+'; Affirms CNP; Outlooks Negative*, February 19, 2020.

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 CNP⁵⁰⁹ 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.

1

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

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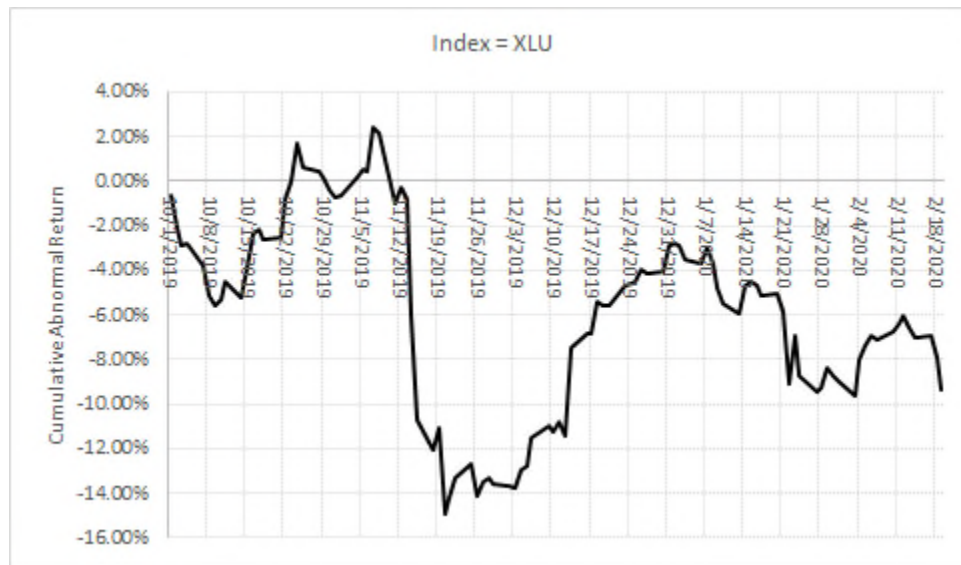
13

14

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.

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]
		Annualized	Average	Dividend	Expected	Zacks	First Call	Value Line	Average			
Company	Ticker	Dividend	Stock Price	Yield	Dividend Yield	Earnings Growth	Earnings Growth	Earnings Growth	Earnings Growth	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.47	\$74.17	3.33%	3.43%	NA	7.00%	5.50%	6.25%	8.92%	9.68%	10.45%
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]

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[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

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Annualized	Average	Dividend	Expected	Zacks	First Call	Value Line	Average			
Company	Ticker	Dividend	Stock Price	Yield	Dividend Yield	Earnings Growth	Earnings Growth	Earnings Growth	Earnings Growth	Low ROE	Mean ROE	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])

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[6] Source: Yahoo! Finance

[7] Source: Value Line

[8] Equals Average([5], [6], [7])

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[10] Equals [4] + [8]

[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	Current 30-Year				
		Est. Required	Treasury (30-day	Implied Market			
		Market Return	average)	Risk Premium			
		12.93%	1.37%	11.56%			
		[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
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%
Albermarle 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	APTIV	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	23,976.97	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	BMJ	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%

Company	Ticker	[4]	[5]	[6]	[7]	[8]	[9]
		Market Capitalization (\$ mil)	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
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%
Choe 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	24,988.93	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	21,242.89	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	DGXI	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]	[5]	[6]	[7]	[8]	[9]
		Market Capitalization (\$ mil)	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Evergy Inc	EVERG	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	105,744.68	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	GP	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	GW	15,040.27	0.06%	2.14%	11.50%	13.76%	0.0084%
Haliburton 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	27,163.07	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	61,041.18	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%

Company	Ticker	[4]	[5]	[6]	[7]	[8]	[9]
		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	27,318.88	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%
Metric 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	6,937.09	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	MONST	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	3,438.32	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	3,371.03	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%

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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	11,834.47	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	131,187.87	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	35,324.27	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	17,334.03	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	17,033.69	0.29%	1.22%	8.90%	10.17%	0.0292%
Sysco Corp	SY	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%

		[4]	[5]	[6]	[7]	[8]	[9]
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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%
Ultra 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%
Unipac 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	12,244.36	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	21,933.27	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	Current 30-Year				
		Est. Required	Treasury (30-day	Implied Market			
		Market Return	average)	Risk Premium			
		14.82%	1.37%	13.45%			
		[4]	[5]	[6]	[7]	[8]	[9]
		Market					
Company	Ticker	Capitalization (\$ mil)	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	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	3,584.22	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	14,229.87	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	APTIV	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	BMJ	94,905.85	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%

Company	Ticker	[4]	[5]	[6]	[7]	[8]	[9]
		Market Capitalization (\$ mil)	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
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%
Choe 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	38,708.09	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	18,751.37	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%

Company	Ticker	[4]	[5]	[6]	[7]	[8]	[9]
		Market Capitalization (\$ mil)	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Evergy Inc	EVERG	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	36,575.07	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%
Flowerserve 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	15,733.23	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	GP	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	3,330.45	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	25,457.35	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%
IDEX 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%
Illuma 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	4,298.38	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]	[5]	[6]	[7]	[8]	[9]
		Market Capitalization (\$ mil)	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	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%
Kinco 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%
Lidos 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	26,979.06	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	MONST	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	MP	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	3,163.95	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	18,046.07	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	51,674.59	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	9,097.56	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%

Company	Ticker	[4]	[5]	[6]	[7]	[8]	[9]
		Market Capitalization (\$ mil)	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted 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	7,842.57	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	9,253.21	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	SYI	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%

Company	Ticker	[4]	[5]	[6]	[7]	[8]	[9]
		Market Capitalization (\$ mil)	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
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%
Ultra 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	84,722.30	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]	[2]
		Bloomberg	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	EVERG	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]

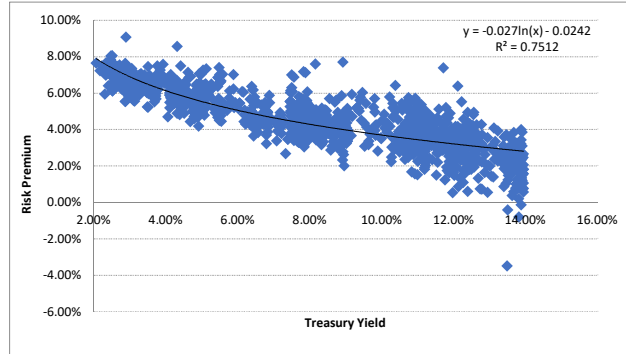
[9] Source: Bloomberg Professional

[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]	[4]	[5]
	Constant	Slope	30-Year Treasury Yield	Risk Premium	Return on Equity
	-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] + $\ln([3]) \times [2]$
- [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]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	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%
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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%
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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

Company	Ticker	[1] Expected ROE	[2]	[3]	[4]	[5]	[6]
		2022-2024/ 2023-2025	2020	2022-2024/ 2023-2025	Shares Outstanding % Increase	Adjustment Factor	Adjusted 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
[2] Source: Value Line

[3] Source: Value Line
[4] Equals $=(\frac{[3]}{[2]})^{(1/4)}-1$; $(\frac{[3]}{[2]})^{(1/5)}-1$

[5] Equals $(2 \times (1 + [4])) / (2 + [4])$
[6] Equals [1] x [5]

Proxy Group Capital Structure

[illegible]

Operating Company Capital Structure										
Operating Company	Parent	% Common Equity								Average
		2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	
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%	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%	47.72%	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%
Source: S&P Global Market Intelligence										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.	EVERG	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	% Long-Term Debt							
		2019Q3	2019Q2	2019Q1	2018Q4	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%
Superior Water, Light and Power Company	ALE	41.97%	41.62%	41.81%	43.14%	43.42%	42.66%	34.20%	35.01%
Interstate Power and Light Company	LNT	49.94%	48.24%	46.67%	46.48%	50.36%	49.53%	50.08%	49.69%
Wisconsin Power and Light Company	LNT	46.60%	50.99%	46.97%	47.31%	47.38%	48.48%	50.43%	50.77%
Ameren Illinois Company	AEE	45.54%	45.95%	46.35%	47.14%	46.82%	47.26%	45.76%	46.62%
Union Electric Company	AEE	47.12%	48.00%	48.04%	47.48%	46.74%	48.72%	48.16%	48.08%
AEP Texas Inc.	AEP	53.03%	53.68%	52.46%	54.62%	56.20%	56.80%	53.25%	54.86%
Appalachian Power Company	AEP	51.26%	51.81%	52.23%	50.49%	50.70%	51.07%	50.65%	51.28%
Indiana Michigan Power Company	AEP	53.49%	54.17%	54.57%	55.38%	55.47%	55.85%	53.36%	53.67%
Kentucky Power Company	AEP	53.06%	53.50%	53.58%	54.28%	54.72%	55.11%	55.60%	56.48%
Kingsport Power Company	AEP	45.76%	49.82%	48.46%	49.21%	49.29%	52.31%	52.72%	53.47%
Ohio Power Company	AEP	46.37%	47.08%	41.14%	42.20%	43.15%	42.89%	47.09%	41.37%
Public Service Company of Oklahoma	AEP	50.11%	51.98%	52.81%	50.84%	50.45%	51.41%	51.90%	51.50%
Southwestern Electric Power Company	AEP	51.37%	52.55%	52.41%	53.03%	56.57%	52.09%	52.28%	51.48%
Wheeling Power Company	AEP	46.34%	46.17%	45.73%	45.38%	45.30%	45.81%	45.73%	45.74%
Central Maine Power Company	AGR	37.81%	38.04%	36.49%	36.79%	35.83%	36.47%	35.82%	36.18%
New York State Electric & Gas Corporation	AGR	51.21%	44.16%	44.07%	45.70%	46.05%	49.01%	45.49%	46.70%
Rochester Gas and Electric Corporation	AGR	49.50%	49.75%	50.04%	51.11%	51.84%	52.23%	49.20%	50.37%
United Illuminating Company	AGR	43.95%	42.74%	43.35%	43.54%	41.77%	42.57%	43.30%	44.00%
Alaska Electric Light and Power Company	AVA	38.72%	38.76%	38.98%	39.71%	38.06%	38.22%	38.47%	39.23%
Avista Corporation	AVA	49.67%	48.60%	48.82%	50.11%	50.45%	50.26%	48.84%	49.25%
Consumers Energy Company	CMS	48.30%	46.36%	47.48%	49.73%	46.99%	47.14%	46.87%	47.75%
DTE Electric Company	DTE	50.60%	51.24%	51.31%	49.04%	50.03%	50.77%	48.88%	48.98%
Evergy Kansas South, Inc.	EVRG	18.16%	18.51%	24.87%	25.03%	25.09%	25.55%	25.71%	25.82%
Evergy Metro, Inc.	EVRG	49.57%	50.38%	53.96%	50.51%	50.50%	51.12%	50.75%	50.85%
Evergy Missouri West, Inc.	EVRG	48.82%	48.26%	47.32%	45.29%	44.30%	47.97%	47.37%	47.60%
Westar Energy (KPL)	EVRG	42.34%	40.82%	41.20%	40.92%	40.66%	41.32%	41.25%	41.26%
Hawaii Electric Light Company, Inc.	HE	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%
Maui Electric Company, Limited	HE	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%
Gulf Power Company	NEE	47.48%	38.85%	41.94%	NA	NA	NA	NA	NA
NorthWestern Corporation	NWE	52.20%	51.93%	51.26%	52.12%	51.64%	51.59%	52.52%	50.11%
Oklahoma Gas and Electric Company	OGE	45.04%	46.53%	44.62%	46.80%	46.95%	45.75%	46.41%	46.64%
Otter Tail Power Company	OTTR	44.57%	46.25%	46.10%	46.42%	46.51%	46.89%	47.33%	42.66%
Arizona Public Service Company	PNW	45.75%	45.59%	45.52%	45.64%	46.32%	46.29%	46.82%	46.86%
Public Service Company of New Mexico	PNM	54.67%	56.14%	56.55%	54.37%	51.99%	53.32%	53.80%	53.94%
Portland General Electric Company	POR	48.22%	48.44%	49.40%	49.81%	49.49%	49.71%	49.86%	50.20%
Alabama Power Company	SO	48.55%	47.46%	47.77%	52.23%	51.87%	52.49%	51.14%	52.93%
Georgia Power Company	SO	44.62%	43.61%	43.57%	40.98%	42.73%	45.03%	46.19%	49.94%
Gulf Power Company	SO	NA	NA	NA	40.27%	44.66%	45.10%	45.73%	45.81%
Mississippi Power Company	SO	49.77%	50.13%	50.27%	49.65%	54.72%	56.13%	57.00%	60.66%
Upper Michigan Energy Resources Corporation	WEC	43.91%	45.55%	47.46%	52.99%	44.92%	45.47%	29.96%	50.15%
Wisconsin Electric Power Company	WEC	43.08%	43.36%	44.22%	43.97%	40.75%	40.91%	43.53%	44.06%
Wisconsin Public Service Corporation	WEC	45.63%	40.96%	41.12%	42.67%	39.41%	40.47%	41.65%	41.94%
Northern States Power Company - MN	XEL	48.21%	46.34%	46.36%	47.19%	47.36%	47.39%	47.41%	47.62%
Northern States Power Company - WI	XEL	46.44%	46.51%	46.41%	46.40%	51.55%	46.15%	46.21%	46.64%
Public Service Company of Colorado	XEL	43.65%	42.47%	43.32%	43.69%	43.92%	45.83%	43.33%	43.50%
Southwestern Public Service Company	XEL	45.79%	45.86%	45.87%	45.83%	43.71%	46.12%	46.46%	46.45%
Mean		46.32%	46.06%	46.08%	46.34%	46.42%	46.96%	46.29%	46.97%

2015-2020 Authorized Returns on Equity, Vertically Integrated Electric Utility 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	Advice 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] Constant	[2] LN(30-Year Treasury)	[3] 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]	[9]	[10]	[11]	[12]	[13]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	LN(30-Year Treasury)	VIX	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]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	LN(30-Year 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]	[9]	[10]	[11]	[12]	[13]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	LN(30-Year Treasury)	VIX	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]	[9]	[10]	[11]	[12]	[13]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	LN(30-Year Treasury)	VIX	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]	[9]	[10]	[11]	[12]	[13]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	LN(30-Year Treasury)	VIX	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]	[9]	[10]	[11]	[12]	[13]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	LN(30-Year Treasury)	VIX	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]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	LN(30-Year 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]	[9]	[10]	[11]	[12]	[13]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	LN(30-Year Treasury)	VIX	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]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	LN(30-Year 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]	[9]	[10]	[11]	[12]	[13]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	LN(30-Year Treasury)	VIX	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]	[10]	[11]	[12]	[13]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	LN(30-Year Treasury)	VIX	Risk Premium
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: $[1] + ([1] \times [11]) + ([2] \times [12]) + [10]$

[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 $g = \text{Allowed ROE} - \text{Div. Yield}$	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%	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%	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%	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%	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

[illegible]

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%
Eversource Energy	ES	17.00	8.00%	9.50%	6.50%	7.00%	8.00%	5.00%	5.50%	6.00%	5.00%	3.61%
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]	[4]	[5]
	Constant	Slope	30-Year Treasury Yield	Risk Premium	Return on Equity
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]	[4]	[5]
	Constant	Slope	30-Year Treasury Yield	Risk Premium	Return on Equity
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.	EVERG	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

<i>Regression Statistics</i>	
Multiple R	0.419390367
R Square	0.17588828
Adjusted R Square	0.157158468
Standard Error	48.54620381
Observations	46

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	22131.66238	22131.66238	9.39081936	0.003716974
Residual	44	103696.2918	2356.733905		
Total	45	125827.9542			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
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

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		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		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]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		Dividend Yield	Expected	Yahoo	Zacks	Average	Mean	S&P	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	0.11111409
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

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		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
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+
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								Average
		2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	
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%
Energy, Inc.	EVERG	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%
MOE Energy, Inc.	MOEE	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	% Long-Term Debt								Average
		2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	
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%	55.55%
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%
Energy, 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%	54.08%
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%	36.88%
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

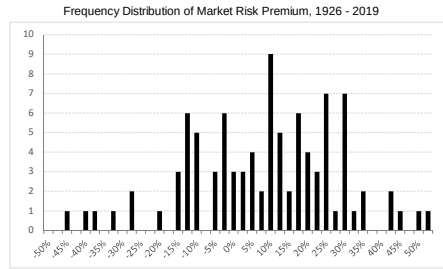
Company	Ticker	2019Q3	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	Average
ALLETE, Inc.	ALE	58.68%	59.66%	59.53%	59.12%	58.50%	58.84%	63.09%	62.51%	59.99%
Alliant Energy Corporation	LNT	51.73%	50.38%	53.18%	53.11%	51.13%	51.00%	49.74%	49.77%	51.26%
Ameren Corporation	AEE	53.67%	53.03%	52.81%	52.69%	53.22%	52.01%	53.04%	52.65%	52.89%
American Electric Power Co.	AEP	49.01%	48.80%	49.62%	49.40%	48.88%	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	53.55%	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%
Energy, 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%	54.00%	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%
MOE Energy, Inc.	MOEE	59.66%	58.84%	58.46%	57.90%	57.36%	60.66%	60.20%	59.73%	58.10%
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.	PW	54.25%	54.41%	54.49%	54.36%	53.71%	53.18%	52.67%	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%	51.50%	50.31%	49.98%	47.67%	51.47%	52.03%
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
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%	51.71%	52.33%	52.69%	50.44%	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%	48.13%	47.77%	49.13%	48.33%	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%	46.53%	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%	49.02%	47.19%	47.52%	48.59%	48.10%	48.59%	48.62%	48.30%
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%	50.28%	49.96%	48.80%	48.16%	50.77%	50.80%	49.50%	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%	61.23%	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%	48.72%	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%	51.68%	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%	51.09%	50.76%	53.22%	52.82%	52.77%	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%	51.69%	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%
Eversource Energy	EVRG	61.84%	61.49%	75.13%	74.97%	74.91%	74.45%	74.29%	74.18%	76.41%
Eversource Energy	EVRG	50.43%	49.62%	46.04%	49.49%	49.50%	48.88%	49.25%	49.15%	49.05%
Eversource Energy	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%	58.20%	59.08%	59.34%	58.68%	58.75%	58.78%	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	NA	NA
Atlantic City Electric Company	EXC	49.38%	49.47%	49.30%	49.38%	49.14%	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%	50.21%	50.13%	50.24%	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%
Kentucky Utilities Company	FE	49.98%	49.07%	49.05%	48.87%	50.71%	51.53%	50.57%	49.15%	48.87%
Monongahela Power Company	FE	59.16%	71.42%	70.82%	69.33%	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%
Hawaiian Electric Company, Inc.	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mau Electric Company, Limited	HE	58.43%	58.17%	58.06%	57.98%	56.09%	55.78%	57.44%	57.42%	57.42%
Idaho Power Company	IDA	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	MOEE	59.66%	58.84%	58.46%	57.90%	57.36%	60.66%	60.20%	59.73%	58.10%
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%	54.49%	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%	

Dr. Woolridge's Proxy Group Capital Structure - Operating Company Level

Company	Ticker	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 Co.	AEP	50.09%	51.20%	50.38%	50.80%	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%
Domination Energy, Inc.	D	46.44%	49.02%	48.53%	51.25%	48.37%	48.88%	49.83%	49.38%	48.08%
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%
Energy, 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.	MGE	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%	45.20%	45.43%	45.43%	46.29%	46.86%	46.10%	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	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%	46.70%	46.49%	50.36%	49.53%	50.08%	49.69%	48.73%
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%	54.38%
Appalachian Power Company	AEP	51.26%	51.81%	52.20%	50.49%	51.07%	50.65%	51.28%	51.11%	51.28%
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%	51.38%	49.31%	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%	50.49%	49.11%	51.33%	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%	52.49%	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%	47.68%	47.36%	47.93%	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%	49.31%	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%	50.30%	51.68%	52.15%	51.60%
Entergy New Orleans, LLC	ETR	46.31%	47.60%	47.31%	49.81%	49.07%	45.38%	46.57%	47.44%	47.44%
Entergy Texas, Inc.	ETR	51.37%	49.21%	49.87%	46.54%	47.39%	48.62%	49.21%	49.55%	48.97%
EVRG	EVRG	18.16%	18.51%	24.87%	25.03%	25.09%	25.55%	25.71%	25.82%	23.59%
Energy Metro, Inc.	EVRG	49.57%	50.38%	53.96%	50.51%	50.50%	51.12%	50.75%	50.85%	50.95%
Energy 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%	50.84%	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%	49.58%	49.99%	49.76%	49.92%	50.06%	50.11%	49.81%
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%	52.22%	46.79%	45.75%	46.90%	47.82%	47.67%	48.62%	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%	47.01%	48.91%	47.18%	48.24%
Hawaiian Electric Light Company, Inc.	HE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mau Electric Company, Limited	HE	41.57%	41.83%	41.94%	42.02%	43.91%	44.22%	42.56%	42.58%	42.58%
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	MGE	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%	44.59%	45.15%					



Large Company Stocks		Long-Term Government		MRP			
Total Returns		Bond Income Returns					
Year	Jan-Dec*	Jan-Dec*	Jan-Dec*	Jan-Dec*	MRP		
1926	0.1162	0.0373	0.0789		Bin	Frequency	Cumulative %
1927	0.3749	0.0341	0.3408		-50.00%	0	0.0%
1928	0.4361	0.0322	0.4039		-47.50%	0	0.0%
1929	-0.0842	0.0347	-0.1189		-45.00%	1	1.1%
1930	-0.2490	0.0332	-0.2822		-42.50%	0	1.1%
1931	-0.4334	0.0333	-0.4667		-40.00%	1	2.1%
1932	-0.0819	0.0369	-0.1188		-37.50%	1	3.2%
1933	0.5399	0.0312	0.5087		-35.00%	0	3.2%
1934	-0.0144	0.0318	-0.0462		-32.50%	1	4.3%
1935	0.4767	0.0281	0.4486		-30.00%	0	4.3%
1936	0.3392	0.0277	0.3115		-27.50%	2	6.4%
1937	-0.3503	0.0266	-0.3769		-25.00%	0	6.4%
1938	0.3112	0.0264	0.2848		-22.50%	0	6.4%
1939	-0.0041	0.0240	-0.0281		-20.00%	1	7.4%
1940	-0.0978	0.0223	-0.1201		-17.50%	0	7.4%
1941	-0.1159	0.0194	-0.1353		-15.00%	3	10.6%
1942	0.2034	0.0246	0.1788		-12.50%	6	17.0%
1943	0.2590	0.0244	0.2346		-10.00%	5	22.3%
1944	0.1975	0.0246	0.1729		-7.50%	0	22.3%
1945	0.3644	0.0234	0.3410		-5.00%	3	25.5%
1946	-0.0807	0.0204	-0.1011		-2.50%	6	31.9%
1947	0.0571	0.0213	0.0358		0.00%	3	35.1%
1948	0.0550	0.0240	0.0310		2.50%	3	38.3%
1949	0.1879	0.0225	0.1654		5.00%	4	42.6%
1950	0.3171	0.0212	0.2959		7.50%	2	44.7%
1951	0.2402	0.0238	0.2164		10.00%	9	54.3%
1952	0.1837	0.0266	0.1571		12.50%	5	59.6%
1953	-0.0099	0.0284	-0.0383		15.00%	2	61.7%
1954	0.5262	0.0279	0.4983		17.50%	6	68.1%
1955	0.3156	0.0275	0.2881		20.00%	4	72.3%
1956	0.0656	0.0299	0.0357		22.50%	3	75.5%
1957	-0.1078	0.0344	-0.1422		25.00%	7	83.0%
1958	0.4336	0.0327	0.4009		27.50%	1	84.0%
1959	0.1196	0.0401	0.0795		30.00%	7	91.5%
1960	0.0047	0.0426	-0.0379		32.50%	1	92.6%
1961	0.2689	0.0383	0.2306		35.00%	2	94.7%
1962	-0.0873	0.0400	-0.1273		37.50%	0	94.7%
1963	0.2280	0.0389	0.1891		40.00%	0	94.7%
1964	0.1648	0.0415	0.1233		42.50%	2	96.8%
1965	0.1245	0.0419	0.0826		45.00%	1	97.9%
1966	-0.1006	0.0449	-0.1455		47.50%	0	97.9%
1967	0.2398	0.0459	0.1939		50.00%	1	98.9%
1968	0.1106	0.0550	0.0556		51.00%	1	100.0%
1969	-0.0850	0.0595	-0.1445				
1970	0.0386	0.0674	-0.0288				
1971	0.1430	0.0632	0.0798		Count:	94	
1972	0.1899	0.0587	0.1312		Highest MRP from Direct	Rank	
1973	-0.1469	0.0651	-0.2120		12.19%	57.90%	42.10%
1974	-0.2647	0.0727	-0.3374				
1975	0.3723	0.0799	0.2924				
1976	0.2393	0.0789	0.1604		Historical Market Return from Direct		
1977	-0.0716	0.0714	-0.1430		D'Ascendis	% Rank	Occurrence
1978	0.0657	0.0790	-0.0133		14.48%	50.70%	46
1979	0.1861	0.0886	0.0975		14.62%	50.90%	46
1980	0.3250	0.0997	0.2253				94
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				

Source: Duff & Phelps, 2020 SBBI Yearbook, Appendix A-1, A-7

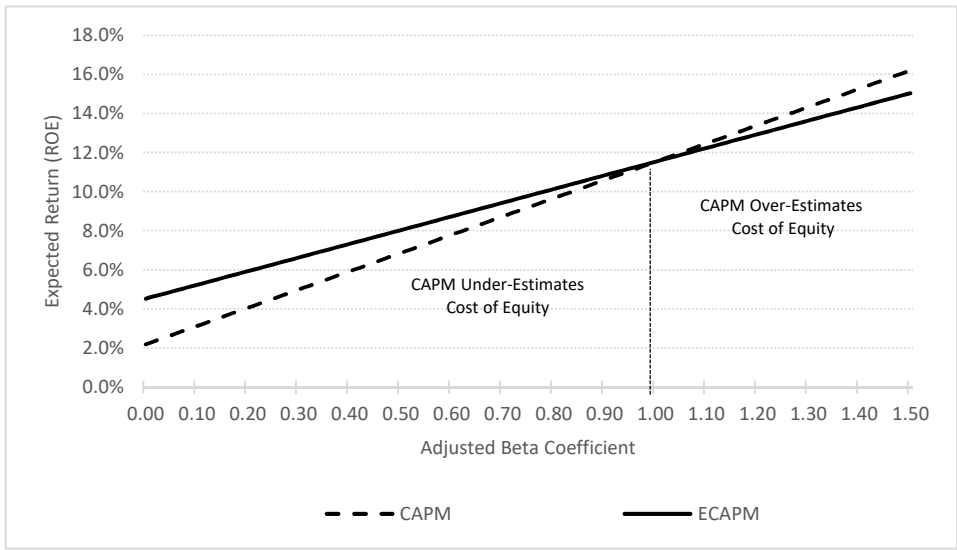
CAPM vs. ECAPM Security Market Line
 Using Mr. Baudino's Inputs

	Risk-Free Rate	2.19%		ECAPM	0.25
	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%

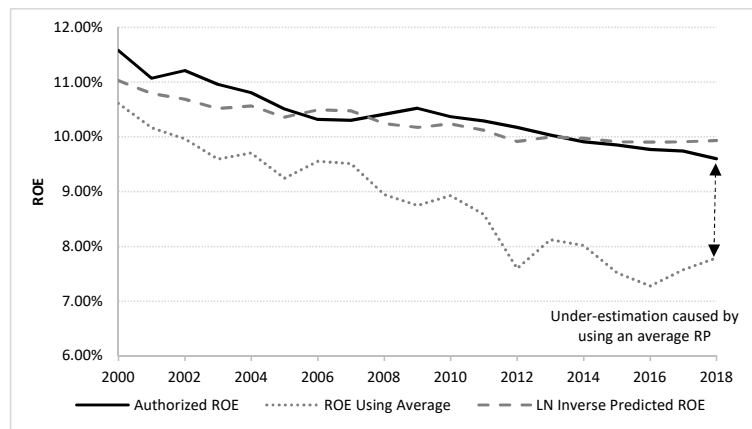
Source: Exhibit RAB-4



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%

Stddev: 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

<i>Regression Statistics</i>	
Multiple R	0.33588834
R Square	0.112820977
Adjusted R Square	0.110614064
Standard Error	0.187578324
Observations	404

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	1.798746443	1.798746443	51.12162426	4.12617E-12
Residual	402	14.14462237	0.035185628		
Total	403	15.94336882			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.35	2.48	2.77	3.08	2.82	1.89	2.19	2.65	2.58	2.63	2.9	3.38	3.14	3.13	3.38
		Dividends Per Share	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.30	1.25	1.45	1.62	1.72	1.78	1.78	1.78	1.78	1.84	1.9	2.02	2.08	2.14	2.24
		Payoff Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22.22%	50.40%	52.35%	53.29%	60.99%	93.12%	80.37%	67.17%	71.32%	72.24%	67.59%	58.76%	66.24%	68.37%	66.27%
		Annual Earnings Growth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.40%	52.35%	53.29%	60.99%	93.12%	80.37%	67.17%	71.32%	72.24%	67.59%	58.76%	66.24%	68.37%	66.27%	
		Sr. Avg. Pwd. EPS Growth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13.02%	0.53%	1.35%	1.44%	0.44%	9.29%	9.42%	3.90%	4.21%	1.38%	1.10%	N/A	N/A	N/A	N/A
Altiant Energy Corporation	ENY	Earnings Per Share	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.51	0.53	0.58	0.64	0.77	0.75	0.79	0.85	0.90	0.94	1.02	1.10	1.18	1.26	1.34
		Dividends Per Share	86.78%	105.26%	154.73%	91.32%	80.87%	82.64%	169.49%	63.69%	55.14%	47.51%	58.83%	47.21%	58.12%	78.95%	57.42%	61.82%	58.02%	58.97%	58.62%	65.09%	71.52%	63.26%
		Payoff Ratio	N/A	17.30%	31.68%	73.81%	12.76%	2.30%	51.24%	31.01%	38.46%	37.99%	38.56%	5.08%	25.20%	44.14%	0.00%	10.93%	8.49%	2.87%	2.37%	20.61%	10.61%	
		Annual Earnings Growth	8.62%	-0.07%	11.29%	-2.09%	-3.42%	-2.40%	18.82%	11.32%	-7.50%	-7.50%	-6.93%	-4.97%	-7.72%	13.80%	4.34%	3.80%	3.80%	6.17%	N/A	N/A	N/A	N/A
		Sr. Avg. Pwd. EPS Growth	2.36%	2.44%	2.42%	2.50%	2.52%	2.52%	2.52%	2.52%	2.52%	2.52%	2.52%	2.52%	2.52%	2.52%	2.52%	2.52%	2.52%	2.52%	2.52%	2.52%	2.52%	2.52%
Amgen Corporation	AEE	Earnings Per Share	2.51	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54
		Dividends Per Share	87.76%	104.10%	90.07%	90.39%	76.29%	74.49%	95.49%	80.89%	90.07%	81.15%	95.49%	85.29%	88.19%	95.40%	95.60%	63.10%	66.39%	76.19%	67.08%	69.79%	64.18%	64.20%
		Payoff Ratio	N/A	14.68%	15.57%	0.26%	18.51%	2.40%	21.99%	18.00%	10.39%	-10.02%	12.03%	-3.36%	3.47%	0.38%	-10.89%	-2.43%	32.86%	14.29%	-0.83%	12.63%	3.36%	19.86%
		Annual Earnings Growth	4.29%	-2.89%	-3.32%	-3.35%	-0.15%	-3.93%	3.17%	-1.11%	0.20%	-1.05%	-1.05%	-0.29%	-0.29%	-2.44%	-2.93%	2.53%	2.31%	3.89%	N/A	N/A	N/A	N/A
		Sr. Avg. Pwd. EPS Growth	3.14	3.35	3.31	3.26	3.04	3.07	3.06	3.05	3.01	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94
American Electric Power Company, Inc.	AEP	Earnings Per Share	2.40	2.40	2.40	2.40	2.40	2.40	2.40	1.65	1.40	1.42	1.50	1.58	1.64	1.64	1.71	1.85	1.88	1.96	2.03	2.15	2.27	2.39
		Dividends Per Share	74.42%	72.17%	85.41%	89.22%	230.77%	73.39%	83.54%	65.22%	53.79%	52.45%	55.24%	54.89%	55.22%	65.11%	63.01%	63.22%	60.79%	59.89%	53.69%	66.42%	64.74%	64.74%
		Payoff Ratio	N/A	4.46%	-14.38%	-4.27%	-61.34%	214.42%	12.54%	-11.54%	3.16%	1.11%	1.35%	0.00%	4.50%	-0.67%	12.42%	20.38%	-4.79%	1.03%	-7.49%	17.63%	-14.42%	7.73%
		Annual Earnings Growth	27.75%	24.39%	24.95%	26.49%	38.93%	-2.29%	0.22%	3.44%	2.67%	0.02%	2.36%	2.40%	1.84%	2.38%	6.56%	6.84%	4.53%	4.73%	N/A	N/A	N/A	N/A
		Sr. Avg. Pwd. EPS Growth	1.02	1.14	1.26	1.39	1.46	1.46	1.09	N/A	N/A	N/A	N/A	0.2	0.36	0.5	0.66	0.84	0.96	1.02	1.08	1.16	1.24	1.33
		Payoff Ratio	41.63%	42.69%	54.29%	48.77%	57.71%	114.96%	N/A	N/A	N/A	N/A	21.29%	29.27%	53.70%	49.62%	57.90%	62.70%	62.40%	62.07%	61.39%	62.63%	61.29%	61.64%
		Annual Earnings Growth	N/A	6.53%	-14.18%	27.23%	-11.23%	-49.80%	-335.43%	90.30%	-355.11%	48.65%	-41.82%	0.00%	52.19%	-34.39%	43.01%	9.02%	5.52%	8.50%	4.82%	8.62%	4.76%	9.60%
		Sr. Avg. Pwd. EPS Growth	-3.25%	-25.69%	-34.93%	-168.39%	-168.43%	-164.92%	-87.72%	-31.22%	-24.95%	-23.80%	-23.80%	-23.80%	-23.80%	-23.80%	-23.80%	-23.80%	-23.80%	-23.80%	-23.80%	-23.80%	-23.80%	-23.80%
Consolidated Edison, Inc.	ED	Earnings Per Share	2.10	2.12	2.14	2.18	2.20	2.22	2.24	2.26	2.28	2.30	2.32	2.34	2.36	2.38	2.40	2.42	2.44	2.46	2.48	2.50	2.52	2.54
		Dividends Per Share	N/A	71.19%	69.74%	68.37%	70.96%	68.48%	70.83%	73.15%	75.25%	77.07%	66.07%	66.64%	73.18%	68.09%	67.62%	62.66%	62.66%	69.61%	64.20%	68.02%	67.26%	67.26%
		Payoff Ratio	N/A	3.05%	2.96%	12.46%	17.15%	-2.49%	-5.98%	-18.02%	28.88%	-1.34%	17.97%	-3.49%	-6.59%	10.51%	2.88%	1.81%	-7.89%	11.88%	-72.07%	4.06%	10.98%	10.98%
		Annual Earnings Growth	N/A	1.54%	-2.89%	-0.98%	2.19%	0.12%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%
		Sr. Avg. Pwd. EPS Growth	N/A	1.54%	-2.89%	-0.98%	2.19%	0.12%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%
Continuum Energy Inc.	ENY	Earnings Per Share	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.34	1.38	1.46	1.58	1.75	1.83	1.97	2.11	2.25	2.40	2.59	2.80	3.04	3.28	3.52
		Dividends Per Share	N/A	86.00%	156.00%	156.00%	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%
		Payoff Ratio	N/A	-42.67%	74.42%	-16.67%	19.20%	61.74%	-18.67%	8.67%	-29.58%	60.00%	-11.29%	42.72%	-13.16%	9.47%	-4.50%	-0.36%	12.36%	-1.29%	4.92%	7.50%	2.62%	-7.93%
		Annual Earnings Growth	N/A	13.86%	74.40%	-16.67%	19.20%	61.74%	-18.67%	8.67%	-29.58%	60.00%	-11.29%	42.72%	-13.16%	9.47%	-4.50%	-0.36%	12.36%	-1.29%	4.92%	7.50%	2.62%	-7.93%
		Sr. Avg. Pwd. EPS Growth	N/A	13.86%	74.40%	-16.67%	19.20%	61.74%	-18.67%	8.67%	-29.58%	60.00%	-11.29%	42.72%	-13.16%	9.47%	-4.50%	-0.36%	12.36%	-1.29%	4.92%	7.50%	2.62%	-7.93%
Duke Energy Corporation	DUK	Earnings Per Share	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.78	3.1	3.03	3.28	3.42	3.56	3.70	3.84	3.98	4.12	4.26	4.40	4.54	4.68
		Dividends Per Share	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Payoff Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Annual Earnings Growth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Sr. Avg. Pwd. EPS Growth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Edison International	EX	Earnings Per Share	1.64	1.70	1.80	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80
		Dividends Per Share	60.98%	57.14%	55.91%	53.03%	N/A	N/A	N/A	115.94%	104.54%	104.54%	104.54%	104.54%	104.54%	104.54%	104.54%	104.54%	104.54%	104.54%	104.54%	104.54%	104.54%	104.54%
		Payoff Ratio	N/A	8.29%	8.14%	8.14%	N/A	N/A	N/A	40.26%	35.54%	35.54%	35.54%	35.54%	35.54%	35.54%	35.54%	35.54%	35.54%	35.54%	35.54%	35.54%	35.54%	35.54%
		Annual Earnings Growth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	76.40%	68.65%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%
		Sr. Avg. Pwd. EPS Growth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	76.40%	68.65%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%	64.66%
Energy Corporation	ETR	Earnings Per Share	2.25	2.22	2.25	2.27	2.30	2.32	2.34	2.36	2.38	2.40	2.42	2.44	2.46	2.48	2.50	2.52	2.54	2.56	2.58	2.60	2.62	2.64
		Dividends Per Share	N/A	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
		Payoff Ratio	N/A	80.00%	67.57%	53.33%	41.08%	41.56%	36.41%	43.30%	48.00%	48.00%	48.00%	48.00%	48.00%	48.00%	48.00%	48.00%	48.00%	48.00%	48.00%	48.00%	48.00%	48.00%
		Annual Earnings Growth	N/A	73.12%	5.20%	5.20%	1.47%	11.59%	62.00%	21.99%	0.41%	5.69%	12.26%	2.66%	24.49%	1.62%	18.46%	13.40%	13.40%	13.40%	13.40%	13.40%	13.40%	13.40%
		Sr. Avg. Pwd. EPS Growth	N/A	11.04%	61.75%	12.39%	6.38%	12.03%	6.01%	11.09%	10.12%	8.87%	7.18%	2.27%	-3.44%	-0.99%	-1.50%	-0.49%	-3.39%	-3.83%	N/A	N/A	N/A	N/A
Eversource Energy	ES	Earnings Per Share	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Dividends Per Share	N/A	0.25	N/A	0.10	0.40	0.40	0.40	0.58	0.68	0.73	0.83	0.95	1.03	1.10	1.22	1.47	1.57	1.67	1.78	1.90	2.02	2.14
		Payoff Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Annual Earnings Growth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Sr. Avg. Pwd. EPS Growth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Navistar International	FE	Earnings Per Share	N/A	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47
		Dividends Per Share	N/A	1.21	1.22	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
		Payoff Ratio	N/A	81.20%	85.02%	83.20%	85.02%	83.20%	85.02%	83.20%	85.02%	83.20%	85.02%	83.20%	85.02%	83.20%	85.02%	83.20%	85.02%	83.20%	85.02%	83.20%	85.02%	83.20%
		Annual Earnings Growth	N/A	6.15%	7.25%	-2.03%																		

Retention Growth Estimate Vs. Value Line EPS Growth Estimate

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	2019 Value Line Projected EPS Growth	Sustainable Growth Minus EPS Growth	Actual 2018 EPS
		Actual/ Projected Earnings per share 2019	Actual/ Projected Dividend per share 2019	Retention Ratio (B)	Projected Book Value per Share 2019	Return on Book Value (R)	B x R	Projected Common Shares Outstanding 2019	Projected Common Shares Outstanding (3-5 Year)	Common Shares Growth Rate	2019 High Price	2019 Low Price	2019 price midpoint	Market/ Book Ratio	"S"	"V"	S x V	BR + SV			
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	-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%	-0.88%	4.92%	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%	-23.62%	1.66
Portland General Electric Company	POR	2.40	1.52	36.67%	29.80	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 Enterprise 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%	-0.58%	
																		Median:	4.38%	-0.12%	

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]

Number of underestimates: 14
Number of overestimates: 11

Retention Growth Estimate Vs. Value Line EPS Growth Estimate																							
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]		
Company	Ticker	Projected Earnings per share (3-5 Year)	Projected Dividend per share (3-5 Year)	Retention Ratio (B)	Projected Book Value per Share (3-5 Year)	Return on Book Value (R)	B x R	Projected Common Shares Outstanding 2019	Projected Common Shares Outstanding (3-5 Year)	Common Shares Growth Rate	2019 High Price	2019 Low Price	2019 price midpoint	Projected Book Value per Share 2019	Market/ Book Ratio	"S"	"V"	S x V	2022/2023 BR + SV	2019 BR + SV	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%	0.08%
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%	5.52%	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	3.19%	\$ 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%	3.94%	3.17%	3.25%	5.74%	-2.48%
Public Service Enterprise 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%	5.74%	-0.61%
Average:				35.85%		10.35%	0.0371										Mean:		4.90%	4.63%	4.77%	6.37%	-1.60%
																	Median:		4.85%	4.38%	4.72%	5.50%	-0.85%

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])

Number of underestimates: 17
Number of overestimates: 9

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]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	Moody's Utility A Yield	LN(30-Year Treasury)	Moody's Utility A Credit 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]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	Moody's Utility A Yield	LN(30-Year Treasury)	Moody's Utility A Credit 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]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	Moody's Utility A Yield	LN(30-Year Treasury)	Moody's Utility A Credit 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]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	Moody's Utility A Yield	LN(30-Year Treasury)	Moody's Utility A Credit Spread	VIX	Risk Premium
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%
9/30/2008	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]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	Moody's Utility A Yield	LN(30-Year Treasury)	Moody's Utility A Credit 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]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	Moody's Utility A Yield	LN(30-Year Treasury)	Moody's Utility A Credit 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]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	Moody's Utility A Yield	LN(30-Year Treasury)	Moody's Utility A Credit 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]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	Moody's Utility A Yield	LN(30-Year Treasury)	Moody's Utility A Credit 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]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	Moody's Utility A Yield	LN(30-Year Treasury)	Moody's Utility A Credit 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]
Date of Electric Rate Case	Return on Equity (%)	30 Year Treasury (%)	Moody's Utility A Yield	LN(30-Year Treasury)	Moody's Utility A Credit Spread	VIX	Risk Premium
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	% Common Equity		2018Q1	2017Q4	Average
						2018Q3	2018Q2			
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	2019Q3	2019Q2	2019Q1	2018Q4	% Long-Term Debt		2018Q1	2017Q4	Average
						2018Q3	2018Q2			
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	% Common Equity		2018Q3	2018Q2	2018Q1	2017Q4	Average
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%	53.16%		
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	% Common Equity		2018Q3	2018Q2	2018Q1	2017Q4	Average
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%	48.93%	48.93%	48.75%	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	NA	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%	59.47%	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%	52.38%	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	% Long-Term Debt		2018Q1	2017Q4	Average
						2018Q3	2018Q2			
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%	45.95%	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	% Long-Term Debt		2018Q1	2017Q4	Average
						2018Q3	2018Q2			
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	NA	NA
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	Liberty 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.	Advice 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)			Bottom Third (Average/3 and lower)		
								Middle Third (Average/2)					
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				

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)
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.

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