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I. QUALIFICATIONS AND SUMMARY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Richard A. Baudino. My business address is J. Kennedy and Associates, Inc. (“Kennedy and Associates”), 570 Colonial Park Drive, Suite 305, Roswell, Georgia 30075.

Q. WHAT IS YOUR OCCUPATION AND BY WHOM ARE YOU EMPLOYED?

A. I am a consultant with Kennedy and Associates.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

A. I received my Master of Arts degree with a major in Economics and a minor in Statistics from New Mexico State University in 1982. I also received my Bachelor of Arts Degree with majors in Economics and English from New Mexico State in 1979.

I began my professional career with the New Mexico Public Service Commission Staff in October 1982 and was employed there as a Utility Economist. During my employment with the Staff, my responsibilities included the analysis of a broad range of issues in the ratemaking field. Areas in which I testified included cost of service, rate of return, rate design, revenue requirements, analysis of sale/leasebacks of generating plants, utility finance issues, and generating plant phase-ins.

In October 1989, I joined the utility consulting firm of Kennedy and Associates as a Senior Consultant where my duties and responsibilities covered

1 substantially the same areas as those during my tenure with the New Mexico
2 Public Service Commission Staff. I became Manager in July 1992 and was
3 named Director of Consulting in January 1995. Currently, I am a consultant
4 with Kennedy and Associates.

5 Attachment A summarizes my expert testimony experience.

6 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

7 **A.** I am testifying on behalf of the North Carolina Attorney General’s Office
8 (“AGO”).

9 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS**
10 **PROCEEDING?**

11 **A.** The purpose of my Direct Testimony is to address the allowed return on equity,
12 capital structure, and overall rate of return on rate base for the regulated electric
13 operations of Duke Energy Progress, Inc. (“Duke Progress”, or “Company”). I
14 will also respond to the Direct Testimonies of Mr. Robert Hevert and Mr. Karl
15 Newlin, witnesses for Duke Progress.

16 **Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AND**
17 **RECOMMENDATIONS.**

18 **A.** My conclusions and recommendations are as follows.

19 Based on financial market conditions through February 2020, I
20 recommend that the North Carolina Utilities Commission (“NCUC” or
21 “Commission”) adopt a 9.0% return on equity for Duke Progress in this
22 proceeding. My recommendation is based primarily on the results of a
23 Discounted Cash Flow (“DCF”) model analysis and is conservatively high

1 given the results. My DCF analysis incorporates my standard approach to
2 estimating the investor required return on equity and utilizes the proxy group of
3 19 companies used by Duke Progress witness Hevert.

4 My cost of equity analysis also includes Capital Asset Pricing Model
5 (“CAPM”) analyses for additional information to further inform my
6 recommendation to the Commission. I did not incorporate the results of the
7 CAPM in my recommendation given the low cost of equity results being
8 produced by this model at this time. Nonetheless, the CAPM results confirm
9 the fact that the required ROE for regulated electric utilities continues to be low
10 given the low interest rate environment that has prevailed in the economy for
11 the last 10 or so years.

12 Finally, I also reviewed recent Commission-allowed ROEs presented by
13 Mr. Hevert. Although I do not recommend that the Commission base its allowed
14 ROE on the actions of other regulatory commissions, this review helped inform
15 my recommended ROE of 9.0%.

16 I also recommend that the Commission reject Duke Progress’ requested
17 53% equity ratio. The Company’s requested equity ratio is higher than the
18 average common equity ratio of the proxy group and would result in excessive
19 rates to Duke Progress’ North Carolina customers. Instead, I recommend that
20 the Commission approve a 51.5% common equity ratio for Duke Progress,
21 which matches my recommendation for Duke Energy Carolinas, Inc. in Docket
22 No. E-7, SUB 1214. I also recommend that the Commission accept Duke
23 Progress’ requested cost of debt.

1 In Section IV of my testimony, I review Mr. Hevert’s analysis of
2 economic conditions in North Carolina and address his conclusion that these
3 conditions support his recommended 10.5% ROE in this case. I disagree with
4 Mr. Hevert’s conclusion and explain why economic conditions in the state do
5 not support his 10.5% ROE, but do support my recommended 9.0% ROE and
6 capital structure.

7 In Section V, I respond to the testimony and ROE recommendation of
8 the Company’s witness Mr. Hevert. I will demonstrate that his recommended
9 ROE of 10.5% substantially overstates the current investor required return for
10 a lower risk regulated electric company like Duke Progress. Although Duke
11 Progress seeks an allowed ROE of 10.3%, this slightly lower ROE fails to
12 reflect recent financial market conditions and fails to mitigate rate impacts on
13 ratepayers. Today’s financial environment of low interest rates has been
14 deliberately and methodically supported by Federal Reserve policy actions
15 since 2009. The Fed’s further lowering of short-term interest rates three times
16 in 2019 as well as the Fed’s further lowering of short-term rates in 2020 support
17 future expectations of lower interest rates through 2020. Moreover, Mr. Hevert
18 ignored a significant portion of his ROE analyses from the DCF and CAPM
19 models that showed much lower results than his recommended ROE range of
20 10.0% – 11.0% and his 10.5% recommended ROE.

21 **Q. DO YOU HAVE ANY ADDITIONAL TESTIMONY REGARDING**
22 **CURRENT FINANCIAL MARKET CONDITIONS THAT YOU**
23 **WOULD LIKE TO PRESENT TO THE COMMISSION AT THIS TIME?**

1 A. Yes. Since the beginning of March 2020, financial markets experienced
2 unprecedented volatility, with steep and sharp declines in the stock market,
3 including regulated utilities. The yield on the 30-Year Treasury bond declined
4 from 1.97% in February to 0.99% on March 9, then increased to 1.63% on
5 March 17. Alternatively, the yield on the average public utility bond increased
6 dramatically, rising from 3.14% in February to 4.24% on March 18, according
7 to Moody's Credit Trends. . On April 6, 2020 the average utility bond yield was
8 3.73%. As of the preparation of my Direct Testimony in this proceeding, I have
9 concluded that it would not be prudent for me to estimate the impact of these
10 changed conditions on my ROE recommendation for Duke Progress given that
11 these changes and associated volatility in financial markets have occurred over
12 just the last three to four weeks and are ongoing. However, I also believe it is
13 important for the North Carolina Utilities Commission to have as much updated
14 information as possible on the drastically changed conditions in financial
15 markets subject to the constraints of the current procedural schedule. Therefore,
16 I reserve the right to update my testimony and recommendations to the
17 Commission later in this proceeding and before the scheduled hearing in this
18 docket.

19 **II. FUNDAMENTALS OF SETTING THE ALLOWED RETURN ON EQUITY**

20 **Q. WHAT ARE THE MAIN GUIDELINES TO WHICH YOU ADHERE IN**
21 **ESTIMATING THE COST OF EQUITY FOR A FIRM?**

22 **A.** Generally speaking, the estimated cost of equity should be comparable to the
23 returns of other firms with similar risk structures and should be sufficient for

1 the firm to attract capital. These are the basic standards set out by the United
2 States Supreme Court in *Federal Power Comm'n v. Hope Natural Gas Co.*, 320
3 U.S. 591 (1944) and *Bluefield W.W. & Improv. Co. v. Public Service Comm'n*,
4 262 U.S. 679 (1922).

5 From an economist's perspective, the notion of "opportunity cost" plays
6 a vital role in estimating the return on equity. One measures the opportunity
7 cost of an investment equal to what one would have obtained in the next best
8 alternative. For example, let us suppose that an investor decides to purchase the
9 stock of a publicly traded electric utility. That investor made the decision based
10 on the expectation of dividend payments and perhaps some appreciation in the
11 stock's value over time; however, that investor's opportunity cost is measured
12 by what she or he could have invested in as the next best alternative. That
13 alternative could have been another utility stock, a utility bond, a mutual fund,
14 a money market fund, or any other number of investment vehicles.

15 The key determinant in deciding whether to invest, however, is based
16 on comparative levels of risk. Our hypothetical investor would not invest in a
17 particular electric company stock if it offered a return lower than other
18 investments of similar risk. The opportunity cost simply would not justify such
19 an investment. Thus, the task for the rate of return analyst is to estimate a return
20 that is equal to the return being offered by other risk-comparable firms.

21 **Q. DOES THE LEVEL OF INTEREST RATES AFFECT THE ALLOWED**
22 **COST OF EQUITY, OR ROE, FOR REGULATED UTILITIES?**

1 **A.** Yes. The common stock of regulated utilities is considered to be interest rate
2 sensitive. This means that the cost of equity for regulated utilities tends to rise
3 and fall with changes in interest rates. For example, as interest rates rise, the
4 cost of equity will also rise and vice versa when interest rates fall. This
5 relationship is due in large part to the capital intensive nature of the utility
6 industry, which relies heavily on both debt and equity to finance its regulated
7 investments.

8 **Q. DESCRIBE THE TREND IN INTEREST RATES OVER THE LAST 10**
9 **OR SO YEARS.**

10 **A.** Since 2007 and 2008, the overall trend in interest rates in the U.S. and the world
11 economy has been lower. This trend was precipitated by the 2007 financial
12 crisis and severe recession that followed in December 2007. In response to this
13 economic crisis, the Federal Reserve (“Fed”) undertook an unprecedented
14 series of steps to stabilize the economy, ease credit conditions, and lower
15 unemployment and interest rates. These steps are commonly known as
16 Quantitative Easing (“QE”) and were implemented in three distinct stages:
17 QE1, QE2, and QE3. The Fed's stated purpose of QE was “to support the
18 liquidity of financial institutions and foster improved conditions in financial
19 markets.”¹

20 **Q. MR. BAUDINO, BEFORE YOU CONTINUE, PLEASE PROVIDE A**
21 **BRIEF EXPLANATION OF HOW THE FED USES INTEREST RATES**
22 **TO IMPROVE CONDITIONS IN THE FINANCIAL MARKETS.**

¹ https://www.federalreserve.gov/monetarypolicy/bst_crisisresponse.htm

1 A. Generally, the Fed uses monetary policy to implement certain economic goals.

2 The Fed explained its monetary policy as follows:

3 Monetary policy in the United States comprises the Federal
4 Reserve's actions and communications to promote maximum
5 employment, stable prices, and moderate long-term interest
6 rates--the three economic goals the Congress has instructed the
7 Federal Reserve to pursue.

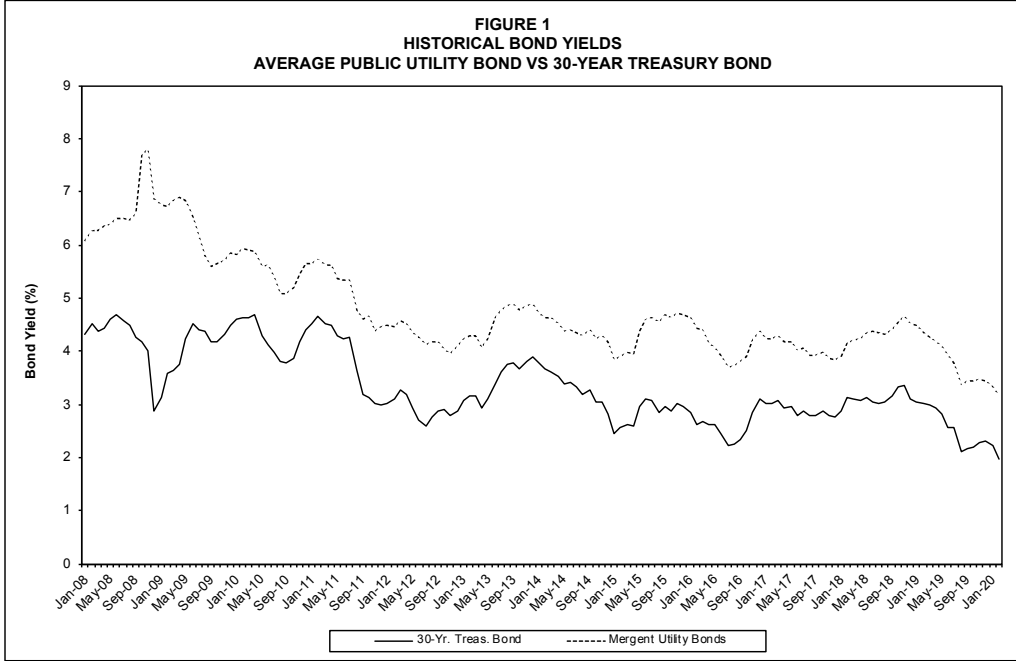
8 The Federal Reserve conducts the nation's monetary policy by
9 managing the level of short-term interest rates and influencing
10 the overall availability and cost of credit in the economy.²

11 One of the Fed's primary tools for conducting monetary policy is setting
12 the federal funds rate. The federal funds rate is the interest rate set by the Fed
13 that banks and credit unions charge each other for overnight loans of reserve
14 balances. Traditionally the federal funds rate directly influences short-term
15 interest rates, such as the Treasury bill rate and interest rates on savings and
16 checking accounts. The federal funds rate has a more indirect effect on long-
17 term interest rates, such as the 30-Year Treasury bond and private and corporate
18 long-term debt. Long-term interest rates are set more by market forces that
19 influence the supply and demand of loanable funds.

20 **Q. WHAT HAS BEEN THE TREND OF LONG-TERM INTEREST RATES**
21 **SINCE THE 2007 FINANCIAL CRISIS?**

22 A. Figure 1 below presents a graph that tracks the 30-Year Treasury Bond yield
23 and the Mergent average utility bond yield. The time period covered is January
24 2008 through January 2020.

² <https://www.federalreserve.gov/monetarypolicy.htm>



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The Fed’s QE program and federal funds rate cuts during this period were effective in lowering the long-term cost of borrowing in the United States. We can see from the graph in Figure 1 that since 2008, the trend in long-term bond yields has been consistently lower. In January 2008, the yield on the 30-Year Treasury Bond was 4.33% and the yield on the average public utility bond was 6.08%. *As of February 2020, the 30-Year Treasury yield was 1.97% and the average utility bond yield was 3.16%.* However, as I mentioned earlier in my testimony, average utility bond yields increased recently in March despite declines in long-term Treasury Bonds. I will continue to monitor changing market conditions and provide updates to the Commission before the evidentiary hearings begin.

Q. PLEASE SUMMARIZE RECENT FED ACTIONS WITH RESPECT TO MONETARY POLICY.

1 A. In December 2015, the Fed began to raise its target range for the federal funds
2 rate, increasing it to 1/4% to 1/2% from 0% to 1/4%. Since that time, the Fed
3 increased the federal funds rate several more times, with the most recent
4 increase announced on December 19, 2018 resulting in a federal funds rate
5 range of 2.25% - 2.50%.

6 In 2019, however, the Fed reversed course and lowered the federal funds
7 rate three times. On March 3 and 15, 2020, the Fed again lowered the federal
8 funds rate in response to mounting concerns associated with the spread of the
9 coronavirus worldwide. On March 15, the Fed issued a press release that stated
10 the following:

11 Consistent with its statutory mandate, the Committee seeks to
12 foster maximum employment and price stability. The effects of the
13 coronavirus will weigh on economic activity in the near term and
14 pose risks to the economic outlook. In light of these developments,
15 the Committee decided to lower the target range for the federal
16 funds rate to 0 to 1/4 percent. The Committee expects to maintain
17 this target range until it is confident that the economy has
18 weathered recent events and is on track to achieve its maximum
19 employment and price stability goals. This action will help support
20 economic activity, strong labor market conditions, and inflation
21 returning to the Committee's symmetric 2 percent objective.

22
23 The Committee will continue to monitor the implications of
24 incoming information for the economic outlook, including
25 information related to public health, as well as global developments
26 and muted inflation pressures, and will use its tools and act as
27 appropriate to support the economy. In determining the timing and
28 size of future adjustments to the stance of monetary policy, the
29 Committee will assess realized and expected economic conditions
30 relative to its maximum employment objective and its symmetric 2
31 percent inflation objective. This assessment will take into account
32 a wide range of information, including measures of labor market
33 conditions, indicators of inflation pressures and inflation
34 expectations, and readings on financial and international
35 developments.

1 The Federal Reserve is prepared to use its full range of tools to
2 support the flow of credit to households and businesses and thereby
3 promote its maximum employment and price stability goals. To
4 support the smooth functioning of markets for Treasury securities
5 and agency mortgage-backed securities that are central to the flow
6 of credit to households and businesses, over coming months the
7 Committee will increase its holdings of Treasury securities by at
8 least \$500 billion and its holdings of agency mortgage-backed
9 securities by at least \$200 billion. The Committee will also reinvest
10 all principal payments from the Federal Reserve's holdings of
11 agency debt and agency mortgage-backed securities in agency
12 mortgage-backed securities. In addition, the Open Market Desk has
13 recently expanded its overnight and term repurchase agreement
14 operations. The Committee will continue to closely monitor market
15 conditions and is prepared to adjust its plans as appropriate.

16 The Federal Reserve also announced expanded actions to support credit
17 and financial markets since this statement was issued. The Board of
18 Governors of the Federal Reserve system established a new resource on
19 its web site that contains the Fed's ongoing response to the Covid-19
20 pandemic: <https://www.federalreserve.gov/covid-19.htm>.

21 **Q. WHY IS IT IMPORTANT TO UNDERSTAND THE FED'S ACTIONS**
22 **SINCE 2008 AND THE EFFECT ON THE CURRENT COST OF**
23 **CAPITAL IN THE ECONOMY GENERALLY AND FOR REGULATED**
24 **UTILITIES SPECIFICALLY?**

25 **A.** The Fed's monetary policy actions since 2008 were deliberately undertaken to
26 lower interest rates and support economic recovery. The U.S. economy is still
27 in a low interest rate environment. This environment has affected the common
28 stocks of regulated utilities, which, as I mentioned earlier, are interest rate
29 sensitive. Lower interest rates support lower required ROEs for regulated
30 utilities.

1 **Q. ARE CURRENT INTEREST RATES INDICATIVE OF INVESTOR**
2 **EXPECTATIONS REGARDING THE FUTURE DIRECTION OF**
3 **INTEREST RATES?**

4 **A.** Yes. Securities markets are efficient and most likely reflect investors'
5 expectations about future interest rates. As Dr. Morin pointed out in *New*
6 *Regulatory Finance*:

7 A considerable body of empirical evidence indicates that U.S.
8 capital markets are efficient with respect to a broad set of
9 information, including historical and publicly available
10 information.³

11 Dr. Morin also noted the following:

12 There is extensive literature concerning the prediction of interest
13 rates. From this evidence, it appears that the no-change model of
14 interest rates frequently provides the most accurate forecasts of
15 future interest rates while at other times, the experts are more
16 accurate. Naïve extrapolations of current interest rates
17 frequently outperform published forecasts. The literature
18 suggests that on balance, the bond market is very efficient in that
19 it is difficult to consistently forecast interest rates with greater
20 accuracy than a no-change model. The latter model provides
21 similar, and in some cases, superior accuracy than professional
22 forecasts.⁴

23 It is important to realize that investor expectations of changes in future
24 interest rates, if any, are likely already embodied in current securities prices,
25 which include debt securities and stock prices. Moreover, the current low
26 interest rate environment still favors lower risk regulated utilities.

27 **Q. YOU MENTIONED THAT THE REQUIRED COST OF EQUITY FOR**
28 **REGULATED UTILITIES TENDS TO FOLLOW THE DIRECTION OF**

³ Morin, Roger A., *New Regulatory Finance*, Public Utilities Reports, Inc. (2006) at 279.

⁴ *Id.* at 172.

1 **INTEREST RATES. COULD YOU ILLUSTRATE THIS**
2 **RELATIONSHIP FOR THE COMMISSION?**

3 **A.** Yes. Table 1 below presents data from Mr. Hevert’s Exhibit RBH-5 and
4 presents the average yearly yield on the 30-year Treasury Bond and the yearly
5 average allowed ROE for electric companies from 2000 through August 12,
6 2019. Table 1 shows that as the long-term Treasury Bond yield has fallen since
7 2000, allowed ROEs for electric utilities followed suit, although the decline in
8 ROEs has been less than that for the 30-year Treasury Bond. The Premium
9 column in Table 1 shows the difference between allowed ROEs and the 30-
10 Year Treasury yield. In 2007, for example, the premium of allowed ROEs over
11 Treasury yields was 5.45%. The premium has grown significantly since 2007,
12 rising to almost 7.0% in 2012 and 2016 and falling to 6.48% through August
13 2019. The purpose of Table 1 is to demonstrate the interest rate sensitivity of
14 regulated utility ROEs to the general level of interest rates, not to recommend
15 that the Commission follow this relationship or rely on the commission-allowed
16 ROEs from other states. I shall demonstrate later in my testimony that current
17 market data shows that the investor required ROEs for regulated electric utilities
18 are lower than recent Commission allowed ROEs.

Table 1
Allowed ROEs and
30-Year Treasury Yields

<u>Year</u>	<u>Allowed ROE</u>	<u>30-Year T-Bond</u>	<u>Premium</u>
2000	11.58%	6.07%	5.51%
2001	11.07%	5.59%	5.48%
2002	11.21%	5.42%	5.79%
2003	10.96%	4.94%	6.03%
2004	10.81%	5.06%	5.75%
2005	10.51%	4.71%	5.81%
2006	10.34%	4.83%	5.52%
2007	10.31%	4.87%	5.45%
2008	10.37%	4.54%	5.83%
2009	10.52%	4.02%	6.50%
2010	10.29%	4.33%	5.96%
2011	10.19%	4.13%	6.06%
2012	10.01%	3.03%	6.98%
2013	9.81%	3.21%	6.60%
2014	9.75%	3.51%	6.24%
2015	9.60%	2.90%	6.70%
2016	9.60%	2.62%	6.97%
2017	9.68%	2.82%	6.86%
2018	9.56%	2.99%	6.57%
2019	9.57%	3.10%	6.48%

Source: Exhibit No. RBH-5

1

2 **Q. HOW DOES THE INVESTMENT COMMUNITY REGARD THE**
3 **REGULATED ELECTRIC UTILITY INDUSTRY AS A WHOLE?**

4 **A.** There are two excerpts from Value Line Investment Survey reports that I would
5 like to share with the Commission regarding the electric utility industry. This
6 initial excerpt comes from Value Line's February 14, 2020 report on the Electric
7 Utility (East) and was published before the recent extreme financial market
8 volatility in March 2020:

9 Most electric utility stocks performed well in 2019.
10 Interest-rate cuts by the Federal Reserve and heightened interest
11 in dividend-paying equities were the key factors. The median
12 total return among a group of 40 stocks compiled by the Edison
13 Electric Institute (a group representing investor-owned utilities)
14 was 25.1%. Southern Company led the way with a whopping
15 51.3% total return. NextEra Energy posted a 42.6% total return.
16 These stocks continued to fare well five weeks into the new year.
17 In 2019, Eversource, FirstEnergy, and PPL Corporation

1 recorded total returns of more than 30%. By contrast, Exelon's
2 total return was just 4.2%; the reasons for this can be read in our
3 report on the stock.
4

5 Following the stellar performance of most utility issues
6 in 2019, the valuation of this group remains high. The average
7 dividend yield is just 3.0%. This is above the median for
8 dividend-paying stocks, but is low by historical standards.

9 The second excerpt comes from Value Line's report on the Electric
10 Utility (Central) industry and is dated March 13, 2020.

11 Electric utility stocks are usually among the most stable
12 of equities (note their high Price Stability Indexes, in most
13 cases), but they have exhibited more volatility than usual this
14 year. Some equities still have high valuations. The recent price
15 of Ameren is above our 2023-2025 Target Price Range, and
16 most recent quotations are well within this range. On the other
17 hand, the price of CenterPoint Energy stock has fallen to the
18 point where the dividend yield is over 5% (roughly two
19 percentage points above the utility average). The average yield
20 for electric utility stocks fell below 3% just before the market
21 decline in late February, but is now 3.25%. Investors should be
22 aware that a high dividend yield usually arises from some
23 drawbacks. These can include subpar dividend growth potential,
24 regulatory risk, or difficult market conditions for nonregulated
25 operations.

26 Despite recent financial market volatility in March, my position
27 regarding the current low interest rate environment is consistent with Value
28 Line's report on the electric utility industry. Lower interest rates will mean
29 lower allowed ROEs and this is a positive development for utility ratepayers.
30 Further, lower interest rates translate into lower debt costs and a lower cost of
31 capital applied to the utility's rate base. Again, this is a positive trend for
32 ratepayers' cost of electricity.

33 **Q. THE EDISON ELECTRIC INSTITUTE ("EEI") PUBLISHES**
34 **QUARTERLY REVIEWS OF THE INVESTOR-OWNED ELECTRIC**

1 **UTILITY INDUSTRY. PLEASE SUMMARIZE EEI’S FINDINGS WITH**
2 **RESPECT TO CREDIT RATINGS, RISKS, AND VALUATIONS FOR**
3 **THE ELECTRIC UTILITY INDUSTRY.**

4 **A.** EEI’s 4th Quarter 2019 summary of the Standard and Poor’s Utility Credit
5 Ratings showed the following:

- 6 • The industry average credit rating was BBB+.
- 7 • 58% of the 45 utilities followed by EEI had credit ratings of
8 BBB/BBB+.
- 9 • 27% had a credit rating of A-.

10 EEI’s analysis showed that the investor-owned electric utility industry
11 had strong and stable credit metrics through the 4th Quarter of 2019.

12 EEI’s *Q4 2019 Financial Update*, pages 5 and 6, noted the following
13 regarding electric utility common stock valuations:

14 “*At year-end, Wall Street analysts generally viewed utility stock*
15 *valuations as high when measured by price/earnings (PE) ratios*
16 *relative to the S&P 500 and to history. One reason for high PEs*
17 *is the very low level of interest rates both in the U.S. and*
18 *overseas. The U.S. 10-year Treasury yield was about 6% in the*
19 *late 1990s, more than triple today’s level, while bond markets in*
20 *Europe and Japan sport widespread negative yields that drive*
21 *global investors into relatively safe positive-yielding*
22 *investments like utilities. Another reason is the strong*
23 *fundamentals that underpin prospects for total returns in excess*
24 *of 8% (5% from earnings growth and 3% from the dividend).*
25 *While PEs seem high, utilities may offer enough value to lift*
26 *multiples higher still if global economic growth turns down and*
27 *interest rates fall to new lows. (italics added)*

28 EEI’s publication also noted the following with respect to interest rates:

29 “*A sharp rise in interest rates is widely seen as the biggest macro*
30 *threat facing utility investors. Although that has been said for*
31 *years and interest rates just seem to fall. Inflation held near 2%*

1 *throughout 2018 even as the economy roared and didn't move*
2 *in 2019 either. The main risk to the very long-lived economic*
3 *expansion seems to be weakness rather than red-hot growth.*

4 A second, less discussed risk is pushback on rate in-
5 creases needed to fund capex programs. Stable fuel costs and
6 low interest rates have kept bill pressures muted. Industry
7 analysts expect that trend will continue. *But if the economy*
8 *enters recession and consumer incomes fall, managing*
9 *regulatory risk and financing needed capex through customer*
10 *rates may become more challenging than it has been in recent*
11 *years.* (emphasis added)
12

13 **Q. WHAT CONCLUSIONS DO YOU DRAW FROM THE EEI REPORT.**

14 **A.** I underscore to the Commission EEI's statements regarding (1) prospects for
15 total returns in excess of 8%, and (2) the stability of the current low interest rate
16 environment despite years of predictions of higher interest rates. These
17 statements tend to support my recommended ROE for Duke Progress of 9.0%
18 and that the Commission should reject Mr. Hevert's excessive recommended
19 ROE of 10.5%. The EEI report also shows that the strong credit ratings for
20 regulated electric companies are fully consistent with lower ROEs and a lower
21 cost of debt. In my view, these points support my recommended cost of equity
22 for Duke Progress of 9.0% as being reasonably consistent with investor
23 expectations and current market conditions. Please note that in Section III of
24 my Direct Testimony, I will have a more detailed discussion of recent stock
25 market volatility and its impact on my ROE recommendation for Duke
26 Progress.

27 **Q. WHAT ARE THE CURRENT CREDIT RATINGS FOR DUKE**
28 **ENERGY PROGRESS?**

1 A. Moody's long-term issuer rating for Duke is A2. Within Moody's A rating
2 category, A1 is the highest rating and A3 is the lowest. Standard and Poor's
3 ("S&P") credit rating is A-, which is the lowest rating in S&P's A category (A+
4 being the highest). The ratings outlook from both Moody's and S&P is stable.
5 On November 20, 2019 S&P affirmed the credit ratings of Duke Energy and its
6 operating utility subsidiaries, including Duke Progress, and revised its ratings
7 outlook to stable from negative.

8 S&P's February 28, 2020 credit report for Duke Progress noted the
9 following key credit strengths for the Company⁵:

- 10 • Lower-risk vertically integrated utility with regulatory diversity in
11 North and South Carolina.
- 12 • The 2019 settlement reached between DEP and the North Carolina
13 Department of Environmental Quality (NCDEQ) reduces legal
14 uncertainty associated with the company's ash pond closure strategy.
- 15 • DEP provides electric service to approximately 1.6 million customers,
16 which supports cash flow stability.
- 17 • DEP has generally managed regulatory risk effectively, primarily in
18 North Carolina which accounts for about 85% of the company's retail
19 rate base.

20 Duke Progress' key credit according to S&P are:

⁵ The S&P report was provided by Duke Progress in response to AGO Data Request 6-1.

- 1 • DEP’s service territory is prone to hurricanes and severe storms, a risk
2 that is partially offset by recent passage of a storm securitization
3 legislation that permits recovery for certain storm recovery costs.
- 4 • There is potential for regulatory lag to delay the timeliness of the
5 company’s cost recovery, and future cost recovery for coal-ash costs per
6 the terms of the NCDEQ settlement has not yet been determined.
- 7 • The revised U.S. tax code is expected to weaken the Company's cash
8 flow metrics beginning in 2020.
- 9 • Environmental and operating risks associated with the Company’s coal-
10 fired and nuclear power generation assets.

11 S&P's report explained that Duke Progress’ business risk is “excellent”
12 based on the Company's “lower-risk electric utility operations that benefit from
13 a generally constructive regulatory framework, track record of reliable electric
14 service, and large customer base.” Financial risk is considered “significant”.

15 **Q. DID DUKE ENERGY, THE HOLDING COMPANY FOR DUKE**
16 **PROGRESS, PROVIDE INFORMATION TO ITS INVESTORS THAT**
17 **IS RELEVANT TO THE COMMISSION’S EVALUATION OF THE**
18 **ALLOWED RATE OF RETURN FOR THE COMPANY?**

19 **A.** Yes. Please refer to Exhibit RAB-1, which contains excerpts from Duke
20 Energy’s *Earnings Review & Business Update, Fourth Quarter 2019* dated
21 February 13, 2020. I obtained this presentation from Duke Energy’s web site.

22 Page 2 of Exhibit RAB-1 states that Duke Energy's “[r]apidly expanding
23 infrastructure needs driven by strong fundamental growth.” Duke Energy

1 showed a 12% increase in its 5-year capital plan fueled by “low-risk
2 investments.”

3 Page 3 of Exhibit RAB-1 contains Duke Energy's analysis of how the
4 \$6 billion increase in its capital plan “drives significant earnings base growth,”
5 which includes a \$4 billion increase in the Carolinas.

6 Page 4 of Exhibit RAB-1 summarizes Duke Energy's presentation of its
7 “balance sheet strength and equity financing plan.” Duke Energy stated that it
8 is committed to “strong credit quality” that includes credit ratings of
9 BBB+/Baa1 with a stable outlook. Duke Energy also mentioned that it was not
10 expected to be a significant taxpayer until the 2027 time frame.

11 Page 5 of Exhibit RAB-1 shows Duke Energy’s presentation of its
12 “attractive risk-adjusted total shareholder return” of 8% – 10%. This total return
13 consists of a dividend yield of 3.9% and a growth rate of 4% – 6%. I note that
14 my recommended ROE for Duke Progress of 9.0% falls in the middle of this
15 range. Mr. Hevert’s recommended ROE of 10.5% is well above the total
16 shareholder return range cited by Duke Energy in this presentation.

17 **Q. WHAT IS YOUR CONCLUSION WITH RESPECT TO THE OVERALL
18 RISKINESS OF DUKE PROGRESS?**

19 **A.** Both Moody’s and S&P’s recent credit rating reports on Duke Progress indicate
20 that although the Company is facing risks associated with the ultimate
21 disposition of coal ash costs as well as elevated construction spending, those
22 risks are tempered by the Company’s low risk regulated business and its low
23 operating risk. Taken together, Duke Progress has credit ratings that are slightly

1 above average compared to the average S&P credit rating of BBB+ for the
2 electric utilities covered by the aforementioned EEI publication.

3 With respect to the return on equity in this case, Duke Progress' credit
4 standing indicates that its allowed ROE should be based on the average results
5 of the proxy group that Mr. Hevert and I use in this case. There is no basis for
6 the Company's allowed ROE to be higher than the proxy group results given
7 the Company's above average credit rating.

8 **III. DETERMINATION OF RETURN ON EQUITY**

9 **Q. PLEASE DESCRIBE THE METHODS YOU EMPLOYED IN**
10 **ESTIMATING YOUR RECOMMENDED RETURN ON EQUITY FOR**
11 **DUKE PROGRESS.**

12 **A.** I employed a Discounted Cash Flow ("DCF") analysis using a proxy group of
13 19 regulated electric utilities as selected by Mr. Hevert. In my opinion, they
14 form a reasonable basis for estimating the investor required return on equity for
15 Duke Progress. I also employed Capital Asset Pricing Model ("CAPM")
16 analyses using both historical and forward-looking data. Although I primarily
17 relied on the DCF results for my recommended 9.0% ROE for the Company,
18 the results from the CAPM tend to support the reasonableness of my
19 recommendation.

20 **Q. DESCRIBE THE PROXY GROUP YOU EMPLOYED TO ESTIMATE**
21 **THE COST OF EQUITY FOR DUKE PROGRESS.**

22 **A.** In this case, I chose to use the same proxy group that Mr. Hevert used in his
23 ROE analyses. Mr. Hevert discussed his approach to developing his

1 recommended proxy group on pages 23 through 24 of his Direct Testimony.
2 Mr. Hevert's selection criteria are generally reasonable and include regulated
3 electric utilities that have investment grade credit ratings from S&P. Using the
4 same proxy group as Mr. Hevert also has the advantage of eliminating a source
5 of disagreement between our respective ROE analyses and furnishes the
6 Commission with a consistent group of companies to compare and evaluate our
7 ROE results and recommendations.

8 **Discounted Cash Flow ("DCF") Model**

9 **Q. PLEASE DESCRIBE THE BASIC DCF APPROACH.**

10 **A.** The basic DCF approach is rooted in valuation theory. It is based on the premise
11 that the value of a financial asset is determined by its ability to generate future
12 net cash flows. In the case of a common stock, those future cash flows generally
13 take the form of dividends and appreciation in stock price. The value of the
14 stock to investors is the discounted present value of future cash flows. The
15 general equation then is:

16
$$V = \frac{R}{(1+r)} + \frac{R}{(1+r)^2} + \frac{R}{(1+r)^3} + \dots + \frac{R}{(1+r)^n}$$

17 *Where: V = asset value*

18 *R = yearly cash flows*

19 *r = discount rate*

20 This is no different from determining the value of any asset from an economic
21 point of view; however, the commonly employed DCF model makes certain
22 simplifying assumptions. One is that the stream of income from the equity share
23 is assumed to be perpetual; that is, there is no salvage or residual value at the

1 end of some maturity date (as is the case with a bond). Another important
2 assumption is that financial markets are reasonably efficient; that is, they
3 correctly evaluate the cash flows relative to the appropriate discount rate, thus
4 rendering the stock price efficient relative to other alternatives. Finally, the
5 model I typically employ also assumes a constant growth rate in dividends. The
6 fundamental relationship employed in the DCF method is described by the
7 formula:

$$k = \frac{D_1}{P_0} + g$$

8
9 Where: *D₁* = the next period dividend
10 *P₀* = current stock price
11 *g* = expected growth rate
12 *k* = investor-required return

13 Embodied in this formula, it is assumed that “k” reflects the investors’ expected
14 return. Use of the DCF method to determine an investor-required return is
15 complicated by the need to express investors’ expectations relative to
16 dividends, earnings, and book value over an infinite time horizon. Financial
17 theory suggests that stockholders purchase common stock on the assumption
18 that there will be some change in the rate of dividend payments over time. We
19 assume that the rate of growth in dividends is constant over the assumed time
20 horizon, but the model could easily handle varying growth rates if we knew
21 what they were. Finally, the relevant time frame is prospective rather than
22 retrospective.

23 **Q. WHAT WAS YOUR FIRST STEP IN DETERMINING THE DCF**
24 **RETURN ON EQUITY FOR THE PROXY GROUP?**

1 **A.** I first determined the current dividend yield, D_1/P_0 , from the basic equation. My
2 general practice is to use six months as the most reasonable period over which
3 to estimate the dividend yield. The six-month period I used covered the months
4 from September 2019 through February 2020. I obtained historical prices and
5 dividends from Yahoo! Finance. The annualized dividend divided by the
6 average monthly price represents the average dividend yield for each month in
7 the period.

8 The resulting average dividend yield for the proxy group is 2.88%.
9 These calculations are shown in Exhibit RAB-2. This exhibit also presents
10 monthly dividend yields for the proxy group on page 4. The monthly yields do
11 not vary significantly, ranging from 2.84% to 2.94%. In my opinion, the six-
12 month yield of 2.88% is a reasonable estimate for the proxy group.

13 **Q.** **HAVING ESTABLISHED THE AVERAGE DIVIDEND YIELD, HOW**
14 **DID YOU DETERMINE THE INVESTORS' EXPECTED GROWTH**
15 **RATE FOR THE PROXY GROUP?**

16 **A.** The investors' expected growth rate, in theory, correctly forecasts the constant
17 rate of growth in dividends. The dividend growth rate is a function of earnings
18 growth and the payout ratio, neither of which is known precisely for the future.
19 We refer to a perpetual growth rate since the DCF model has no cut-off point.
20 We must estimate the investors' expected growth rate because there is no way
21 to know with absolute certainty what investors expect the growth rate to be in
22 the short term, much less in perpetuity.

1 For my analysis in this proceeding, I used three major sources of
2 analysts' forecasts for growth. These sources are The Value Line Investment
3 Survey, Zacks, and Yahoo! Finance.

4 **Q. PLEASE BRIEFLY DESCRIBE VALUE LINE, ZACKS, AND YAHOO!**
5 **FINANCE.**

6 **A.** The Value Line Investment Survey is a widely used and respected source of
7 investor information that covers approximately 1,700 companies in its Standard
8 Edition and several thousand in its Plus Edition. It provides both historical and
9 forecasted information on a number of important data elements. Value Line
10 neither participates in financial markets as a broker nor works for the utility
11 industry in any capacity of which I am aware.

12 Zacks gathers opinions from a variety of analysts on earnings growth
13 forecasts for numerous firms including regulated electric utilities. The estimates
14 of the analysts responding are combined to produce consensus average
15 estimates of earnings growth. I obtained Zacks' earnings growth forecasts from
16 its web site.

17 Like Zacks, Yahoo! Finance also compiles and reports consensus
18 analysts' forecasts of earnings growth. I obtained these forecasts from the
19 Yahoo! Finance web site.

20 **Q. WHY DID YOU RELY ON ANALYSTS' FORECASTS IN YOUR**
21 **ANALYSIS?**

22 **A.** Return on equity analysis is a forward-looking process. Five-year or ten-year
23 historical growth rates may not accurately represent investor expectations for

1 future dividend and earnings growth. Analysts' forecasts for earnings and
2 dividend growth provide better proxies for the expected growth component in
3 the DCF model than historical growth rates. Analysts' forecasts are also widely
4 available to investors and one can reasonably assume that they influence
5 investor expectations.

6 **Q. PLEASE EXPLAIN HOW YOU USED ANALYSTS' DIVIDEND AND**
7 **EARNINGS GROWTH FORECASTS IN YOUR CONSTANT GROWTH**
8 **DCF ANALYSIS.**

9 **A.** Columns (1) through (4) of Exhibit RAB-3 shows the forecasted dividend and
10 earnings growth rates from Value Line and the earnings growth forecasts from
11 Zacks and Yahoo! Finance for the companies in the proxy group. It is important
12 to include dividend growth forecasts in the DCF model since the model calls
13 for forecasted cash flows and Value Line is the only source of which I am aware
14 that forecasts dividend growth.

15 Please note that Zacks' earnings growth forecasts were not available for
16 ALLETE and Otter Tail, so I substituted the Yahoo! Finance earnings growth
17 rates for those two companies. I did this because Yahoo! Finance's growth rates
18 are consensus analysts' forecasts and, as such, form a reasonable proxy for the
19 Zacks analysts' estimates.

20 **Q. HOW DID YOU PROCEED TO DETERMINE THE DCF RETURN ON**
21 **EQUITY FOR THE PROXY GROUP?**

22 **A.** To estimate the expected dividend yield (D_1), the current dividend yield must
23 be moved forward in time to account for dividend increases over the next twelve

1 months. I estimated the expected dividend yield by multiplying the current
2 dividend yield by one plus one-half the expected growth rate.

3 Exhibit RAB-3 presents my standard method of calculating dividend
4 yields, growth rates, and return on equity for the proxy group. The DCF Return
5 on Equity Calculation section shows the application of each of four growth rates
6 I used in my analysis to the current group dividend yield of 2.88% to calculate
7 the expected dividend yield. I then added the expected growth rates to the
8 expected dividend yield. My DCF return on equity was calculated using two
9 different methods. Method 1 uses the Average Growth Rates shown in the upper
10 section of Exhibit RAB-3 and Method 2 utilizes the median growth rates shown
11 in that section.

12 **Q. WHAT ARE THE RESULTS OF YOUR CONSTANT GROWTH DCF**
13 **MODEL?**

14 **A.** The results for Method 1 range from 8.46% to 8.77% and the results for Method
15 2 range from 8.21% to 9.02%. The average results for Methods 1 and 2 are
16 8.60% and 8.67%, respectively, for the proxy group.

17 **Capital Asset Pricing Model**

18 **Q. BRIEFLY SUMMARIZE THE CAPITAL ASSET PRICING MODEL**
19 **(“CAPM”) APPROACH.**

20 **A.** The theory underlying the CAPM approach is that investors, through diversified
21 portfolios, may combine assets to minimize the total risk of the portfolio.
22 Diversification allows investors to diversify away all risks specific to a
23 particular company and be left only with market risk that affects all companies.

1 Thus, the CAPM theory identifies two types of risks for a security: company-
2 specific risk and market risk. Company-specific risk includes such events as
3 strikes, management errors, marketing failures, lawsuits, and other events that
4 are unique to a particular firm. Market risk includes inflation, business cycles,
5 war, variations in interest rates, and changes in consumer confidence. Market
6 risk tends to affect all stocks and cannot be diversified away. The idea behind
7 the CAPM is that diversified investors are rewarded with returns based on
8 market risk.

9 Within the CAPM framework, the expected return on a security is equal
10 to the risk-free rate of return plus a risk premium that is proportional to the
11 security's market, or non-diversifiable, risk. Beta is the factor that reflects the
12 inherent market risk of a security and measures the volatility of a particular
13 security relative to the overall market for securities. For example, a stock with
14 a beta of 1.0 indicates that if the market rises by 15%, that stock will also rise
15 by 15%. This stock moves in tandem with movements in the overall market.
16 Stocks with a beta of 0.5 will only rise or fall 50% as much as the overall
17 market. So with an increase in the market of 15%, this stock will only rise 7.5%.
18 Stocks with betas greater than 1.0 will rise and fall more than the overall market.
19 Thus, beta is the measure of the relative risk of individual securities vis-à-vis
20 the market.

21 Based on the foregoing discussion, the equation for determining the
22 return for a security in the CAPM framework is:

23
$$K = R_f + \beta(MRP)$$

1 Where: K = *Required Return on equity*
2 R_f = *Risk-free rate*
3 MRP = *Market risk premium*
4 β = *Beta*

5 This equation tells us about the risk/return relationship posited by the CAPM.
6 Investors are risk averse and will only accept higher risk if they expect to
7 receive higher returns. These returns can be determined in relation to a stock's
8 beta and the market risk premium. The general level of risk aversion in the
9 economy determines the market risk premium. If the risk-free rate of return is
10 3.0% and the required return on the total market is 15%, then the risk premium
11 is 12%. Any stock's risk premium can be determined by multiplying its beta by
12 the market risk premium. Its total return may then be estimated by adding the
13 risk-free rate to that risk premium. Stocks with betas greater than 1.0 are
14 considered riskier than the overall market and will have higher required returns.
15 Conversely, stocks with betas less than 1.0 will have required returns lower than
16 the market as a whole.

17 **Q. IN GENERAL, ARE THERE CONCERNS REGARDING THE USE OF**
18 **THE CAPM IN ESTIMATING THE RETURN ON EQUITY?**

19 **A.** Yes. There is some controversy surrounding the use of the CAPM and its
20 accuracy regarding expected returns. There is substantial evidence that beta is
21 not the primary factor for determining the risk of a security. For example, Value
22 Line's "Safety Rank" is a measure of total risk, not its calculated beta
23 coefficient. Beta coefficients usually describe only a small amount of total

1 investment risk. Dr. Burton Malkiel, author of *A Random Walk Down Wall*
2 *Street* noted the following in his best-selling book on investing:

3 Second, as Professor Richard Roll of UCLA has argued, we
4 must keep in mind that it is very difficult (indeed probably
5 impossible) to measure beta with any degree of precision. The
6 S&P 500 Index is not “the market.” The Total Stock Market
7 contains many thousands of additional stocks in the United
8 States and thousands more in foreign countries. Moreover, the
9 total market includes bonds, real estate, commodities, and assets
10 of all sorts, including one of the most important assets any of us
11 has - the human capital built up by education, work, and life
12 experience. Depending on exactly how you measure “the
13 market” you can obtain very different beta values.⁶

14 Pratt and Grabowski also stated the following with respect to the CAPM:⁷

15 Even though the capital asset pricing model (CAPM) is the most
16 widely used method of estimating the cost of equity capital, the
17 accuracy and predictive power of beta as the sole measure of risk
18 have increasingly come under attack. As a result, alternative
19 measures of risk have been proposed and tested. That is, despite
20 its wide adoption, academics and practitioners alike have
21 questioned the usefulness of CAPM in accurately estimating the
22 cost of equity capital and the use of beta as a reliable measure of
23 risk.

24 As a practical matter, there is substantial judgment involved in
25 estimating the required market return and market risk premium. In theory, the
26 CAPM requires an estimate of the return on the total market for investments,
27 including stocks, bonds, real estate, etc. It is nearly impossible for the analyst
28 to estimate such a broad-based return. Often in utility cases, a market return is
29 estimated using the S&P 500. However, as Dr. Malkiel pointed out, this is a
30 limited source of information with respect to estimating the investor's required

⁶ *A Random Walk Down Wall Street*, Burton G. Malkiel, page 218, 2019 edition.

⁷ *Cost of Capital*, Shannon Pratt and Roger Grabowski, 5th Edition, page 288, published by Wiley.

1 return for all investments. In practice, the total market return estimate faces
2 significant limitations to its estimation and, ultimately, its usefulness in
3 quantifying the investor required ROE.

4 In the final analysis, a considerable amount of judgment must be
5 employed in determining the market return and expected risk premium elements
6 of the CAPM equation. The analyst's application of judgment can significantly
7 influence the results obtained from the CAPM. My past experience with the
8 CAPM indicates that it is prudent to use a wide variety of data in estimating
9 investor-required returns. Of course, the range of results may also be wide,
10 indicating the difficulty in obtaining a reliable estimate from the CAPM.

11 **Q. HOW DID YOU ESTIMATE THE MARKET RETURN AND MARKET**
12 **RISK PREMIUM OF THE CAPM?**

13 **A.** I used two approaches to estimate the market risk premium portion of the
14 CAPM equation. One approach uses the expected return on the market and is
15 forward-looking. The other approach employs an historical risk premium based
16 on actual stock and bond returns from 1926 through 2018.

17 **Q. PLEASE DESCRIBE YOUR FORWARD-LOOKING APPROACH TO**
18 **ESTIMATING THE MARKET RISK PREMIUM.**

19 **A.** The first source I used was the Value Line Investment Analyzer Plus Edition,
20 for February 25, 2020. This edition covers several thousand stocks. The Value
21 Line Investment Analyzer provides a summary statistical report detailing,
22 among other things, forecasted growth rates for earnings and book value for the
23 companies Value Line follows as well as the projected total annual return over

1 the next 3 to 5 years. I present these growth rates and Value Line's projected
2 annual returns on page 2 of Exhibit RAB-4. I included median earnings and
3 book value growth rates. The estimated market returns using Value Line's
4 market data range from 10.35% to 12.71%. The average of these market returns
5 is 11.53%.

6 **Q. WHY DID YOU USE MEDIAN GROWTH RATE ESTIMATES**
7 **RATHER THAN THE AVERAGE GROWTH RATE ESTIMATES FOR**
8 **THE VALUE LINE COMPANIES?**

9 **A.** Using median growth rates is likely a more accurate approach to estimating the
10 central tendency of Value Line's large data set compared to the average growth
11 rates. Average earnings and book value growth rates may be unduly influenced
12 by very high or very low 3–5-year growth rates that are unsustainable in the
13 long run. For example, Value Line's Statistical Summary shows both the
14 highest and lowest value for earnings and book value growth forecasts. For
15 earnings growth, Value Line showed the highest earnings growth forecast to be
16 92.5% and the lowest growth rate to be -13.5%. With respect to book value, the
17 highest growth rate was 84% and the lowest was a -29.5%. None of these
18 growth rate projections is compatible with long-run growth prospects for the
19 market as a whole. The median growth rate is not influenced by such extremes
20 because it represents the middle value of a very wide range of earnings growth
21 rates.

22 **Q. PLEASE CONTINUE WITH YOUR MARKET RETURN ANALYSIS.**

1 A. I also considered a supplemental check to the Value Line projected market
2 return estimates. Duff and Phelps compiled a study of historical returns on the
3 stock market in its *2019 Valuation Handbook - U.S. Guide to Cost of Capital*,
4 which is now part of its Cost of Capital Navigator subscription service. Some
5 analysts employ this historical data to estimate the market risk premium of
6 stocks over the risk-free rate. The assumption is that a risk premium calculated
7 over a long period of time is reflective of investor expectations going forward.
8 Exhibit RAB-5 presents the calculation of the market returns and market risk
9 premiums using the historical data from Duff and Phelps.

10 **Q. PLEASE EXPLAIN HOW THIS HISTORICAL RISK PREMIUM IS**
11 **CALCULATED.**

12 A. Exhibit RAB-5 shows the arithmetic average of yearly historical stock market
13 returns over the historical period from 1926 – 2018. The average annual income
14 return for 20-year Treasury bond is subtracted from these historical stock
15 returns to obtain the historical market risk premium of stock returns over long-
16 term Treasury bond income returns. The resulting historical market risk
17 premium is 6.9%.

18 **Q. DID YOU ADD AN ADDITIONAL MEASURE OF THE HISTORICAL**
19 **RISK PREMIUM IN THIS CASE?**

20 A. Yes. Duff and Phelps reported the results of a study by Dr. Roger Ibbotson and
21 Dr. Peng Chen indicating that the historical risk premium of stock returns over
22 long-term government bond returns has been significantly influenced upward

1 by substantial growth in the price/earnings (“P/E”) ratio.⁸ Duff and Phelps noted
2 that this growth in the P/E ratio for stocks was subtracted out of the historical
3 risk premium to arrive at an adjusted “supply side” historical arithmetic market
4 risk premium is 6.14%, which I have also included in Exhibit RAB-5.

5 **Q. HOW DID YOU DETERMINE THE RISK FREE RATE?**

6 **A.** I used two different measures for the risk-free rate. The first measure is the
7 average 30-year Treasury Bond yield for the six-month period from September
8 2019 through February 2020. This represents a current measure of the risk-free
9 rate based on actual current Treasury yields, which is 2.19%.

10 The second measure comes from Duff and Phelps’ most recent
11 “normalized” risk-free rate of September 30, 2019.⁹ Duff and Phelps developed
12 this normalized risk-free rate using its measure of the “real risk free rate” and
13 expected inflation. The Duff and Phelps normalized risk-free rate is 3.0%.

14 **Q. PLEASE SUMMARIZE YOUR CALCULATED MARKET RISK**
15 **PREMIUM ESTIMATES WITH THE FORWARD-LOOKING DATA**
16 **FROM VALUE LINE AND THE HISTORICAL DUFF AND PHELPS**
17 **EQUITY RISK PREMIUMS.**

18 **A.** My market risk premiums from Exhibits RAB-4 and RAB-5 are as follows:
19 • Forward-looking risk premiums 8.53% - 9.34%
20 • Historical risk premium 6.14% - 6.90%

⁸ *2019 Cost of Capital: Annual U.S. Guidance and Examples*, Duff and Phelps, Cost of Capital Navigator, Chapter 3, pp. 45 - 47.

⁹ <https://www.duffandphelps.com/insights/publications/valuation/us-normalized-risk-free-effective-september-30-2019>

1 By way of comparison, Duff and Phelps currently recommends an equity risk
2 premium of 5.5%, which resulted in a base U.S. cost of capital estimate of 8.5%.
3 Based on this comparison, my range of equity risk premium estimates are
4 certainly not conservative or understated.

5 **Q. HOW DID YOU DETERMINE THE VALUE FOR BETA?**

6 **A.** I obtained the betas for the companies in the proxy group from most recent
7 Value Line reports. The average of the Value Line betas for the proxy group is
8 0.56.

9 **Q. PLEASE SUMMARIZE THE CAPM RESULTS.**

10 **A.** For my forward-looking CAPM return on equity estimates, the CAPM results
11 are 7.40% – 7.75%. Using historical risk premiums, the CAPM results range
12 from 5.61% – 6.85%.

13 **Q. DO YOU HAVE ANY COMMENTS REGARDING THE RESULTS OF**
14 **THE CAPM AT THIS TIME?**

15 **A.** Yes. The CAPM is currently producing results that are low under a reasonable
16 range of equity risk premium estimates. Even if I had used Value Line’s highest
17 expected market return of 12.71% from Exhibit RAB-4 and the Duff and Phelps
18 normalized risk-free rate, the CAPM result would have been:

19
$$CAPM = 3.0\% + .56 (12.71\% - 3.0\%) = 8.44\%$$

20 This represents the top of the range for the CAPM, which is still substantially
21 below my average DCF estimates. At this point, I cannot recommend that the
22 Commission place substantial weight on the CAPM. Although Mr. Hevert

1 presented CAPM results that are higher, his analysis has problems that I will
2 discuss at length later in my testimony.

3 **ROE Conclusions and Recommendations**

4 **Q. PLEASE SUMMARIZE THE COST OF EQUITY RESULTS FOR**
5 **YOUR DCF AND CAPM ANALYSES.**

6 **A.** Table 2 below summarizes my return on equity results using the DCF and
7 CAPM for the proxy group of companies.

Table 2	
SUMMARY OF ROE ESTIMATES	
<u>DCF Methodology</u>	
Average Growth Rates	
- High	8.77%
- Low	8.46%
- Average	8.60%
Median Growth Rates:	
- High	9.02%
- Low	8.21%
- Average	8.67%
<u>CAPM Methodology</u>	
Forward-lookng Market Return:	
- Current 30-Year Treasury	7.40%
- D&P Normalized Risk-free Rate	7.76%
Historical Risk Premium:	
- Current 30-Year Treasury	5.61% - 6.04%
- D&P Normalized Risk-free Rate	6.43% - 6.85%

8

9 **Q. DID YOU REVIEW RECENTLY ALLOWED EQUITY RETURNS**
10 **FROM REGULATORY COMMISSIONS?**

11 **A.** Yes. My Table 1, which is based on data from Mr. Hevert's Exhibit No. RBH-
12 5, shows that the average commission allowed ROEs and 30-Year Treasury
13 Bond yields for 2016, 2017, 2018, and 2019 were as follows:

- 14
- 2016: ROE - 9.60%, 30-Year Treasury - 2.62%

- 1 • 2017: ROE - 9.68%, 30-Year Treasury - 2.82%
- 2 • 2018: ROE - 9.56%, 30-Year Treasury - 2.99%
- 3 • 2019: ROE - 9.57%, 30-Year Treasury - 3.10%

4 I note that the average 30-year Treasury yields in these years were
5 significantly higher than current long-term Treasury yields. Exhibit RAB-4
6 shows that the most recent six-month average 30-year Treasury Bond yield is
7 only 2.19%, compared to the average yield in 2019 of 3.10%. With long-term
8 Treasury yields so much lower over the last six month and even more so in
9 March, it makes sense that the allowed ROE for regulated electric companies
10 should decline as well.

11 **Q. WHAT IS YOUR RECOMMENDED RETURN ON EQUITY FOR**
12 **DUKE PROGRESS?**

13 **A.** Based on my analysis in this case and the decline in long-term interest rates in
14 the economy generally, I recommend that the Commission adopt a 9.00% return
15 on equity for Duke Progress.

16 **Q. PLEASE EXPLAIN HOW YOU ARRIVED AT YOUR**
17 **RECOMMENDATION.**

18 **A.** I began with the average DCF ROE results in Table 2 and also considered the
19 top end of my DCF range, which is 9.02%. In recommending 9.0%, I recognize
20 that recent Commission allowed returns are higher than my DCF results.
21 However, I do not recommend that the Commission base its allowed ROE on
22 the average allowed ROEs in other states. Such an approach would not be based
23 on the specific evidence and circumstances presented in this case. Nevertheless,

1 my recommendation of 9.0% is reasonably close to recently allowed ROEs and
2 is fully based on the market evidence and analysis I reviewed.

3 I also considered the comments from the Value Line Investment Survey
4 I quoted in Section II of my Direct Testimony, which stated that valuations for
5 utility stocks are already within their forecasted levels for the 2023 – 2025 time
6 period. My recommendation of 9.0% allows for some risk of declines in the
7 stock prices of the companies in the proxy group given the current high
8 valuations mentioned by Value Line.

9 **Q. PLEASE COMMENT ON THE RECENT VOLATILITY IN**
10 **FINANCIAL MARKETS IN MARCH 2020 AND HOW THIS**
11 **VOLATILITY IMPACTS YOUR RECOMMENDED ROE IN THIS**
12 **PROCEEDING.**

13 **A.** In March, the stock market underwent a steep, sharp decline of approximately
14 19% due primarily to the coronavirus pandemic. Utilities have also declined in
15 March, with the Dow Jones utility average declining from 886.52 on March 2
16 to 737.25 on March 18, a decline of about 17% with substantial volatility, or
17 changes to the index's value, within the month. The yield on the 30-Year
18 Treasury bond yield declined substantially as well, falling from 1.97% in
19 February to 1.35% on March 31 with the yield reaching a low of 0.99% on
20 March 9. Corporate bond yields, however, rose sharply in March, reflecting
21 underlying concerns about increasing risk of default due to a possible recession.

22 It is too early to tell what impact this extreme market break would have
23 on my recommendation. Given the ongoing volatility and concomitant

1 uncertainty in March and April, I will continue to evaluate the situation in
2 coming weeks and reserve the right to supplement my analyses and
3 recommendations to the Commission if necessary before evidentiary hearings
4 begin.

5 **Q. WHAT CAPITAL STRUCTURE IS DUKE PROGRESS REQUESTING**
6 **IN THIS CASE?**

7 **A.** Company witness Newlin recommended a capital structure consisting of 53%
8 common equity and 47% long-term debt. Mr. Newlin testified that this capital
9 structure “will help DE Progress maintain its credit quality” and that it is
10 “consistent with the Company's target credit ratings for DE Progress.”¹⁰

11 **Q. DID MR. NEWLIN OR DUKE PROGRESS PERFORM ANY**
12 **ANALYSES THAT SUPPORT THE NEED FOR A 53% COMMON**
13 **EQUITY RATIO TO SUPPORT ITS CREDIT QUALITY AND BOND**
14 **RATINGS OR THAT THIS CAPITAL STRUCTURE MINIMIZES THE**
15 **COMPANY'S COST OF CAPITAL?**

16 **A.** No. Please refer to Exhibit RAB-6, which contains Duke Progress’ response to
17 Data Request No. 24, Item No. 24-4 from the North Carolina Public Staff. This
18 data request sought support from the Company that its requested capital
19 structure minimizes the weighted average cost of capital. The Company
20 responded as follows:

21 “Duke Energy Progress targets stable ‘A’ level credit ratings on
22 an unsecured basis. The Company has not performed the studies
23 requested, but instead considers both quantitative and qualitative
24 factors in its assessment of capital structure. In his testimony,

¹⁰ Direct Testimony of Karl Newlin, page 22, lines 6 through 8.

1 witness Newlin notes the Company "...believes this proposed
2 capital structure is optimal for DE Progress, as it introduces an
3 appropriate amount of risk due to leverage while minimizing the
4 weighted average cost of capital to customers." While reducing
5 the equity component would minimize the WACC on paper, it
6 also increases leverage and risk, reduces cash flow, negatively
7 impacts credit quality, and would increase the cost of debt and
8 equity capital. In order to finance operations at favorable rates
9 through all market conditions, the Company must balance risk
10 due to leverage and cost to customers. In the Company's
11 judgment, the proposed 47/53 capital structure supports those
12 ratings, and impacts the quantitative and qualitative analysis
13 performed by Moody's and S&P. Please refer to the Company's
14 credit rating reports, included in PS DR 22-4, for quantitative
15 analysis performed by the rating
16 agencies."

17 Although the Company referred the Public Staff to quantitative analyses
18 performed by the rating agencies, it did not have any of its own studies to
19 support Mr. Newlin's assertion that the requested 53% common equity ratio
20 minimizes the cost of capital for ratepayers or was necessary to maintain its
21 credit ratings. Instead, this response pointed to unspecified "quantitative and
22 qualitative factors" in the assessment of its capital structure. In my opinion,
23 Duke Progress has not shown that a 53% equity ratio is prudent and necessary,
24 or that it minimizes the cost of capital for the Company and its ratepayers.

25 **Q. DO YOU RECOMMEND THAT THE COMMISSION ACCEPT THE**
26 **COMPANY'S REQUESTED CAPITAL STRUCTURE?**

27 **A.** No. I recommend that the Commission adopt a capital structure weighted with
28 51.5% common equity and 48.5% long-term debt. This recommendation is
29 consistent with my recommendation for Duke Energy Carolinas in E-4, Sub
30 1214.

1 **Q. HOW DOES DUKE PROGRESS' REQUESTED 53% COMMON**
2 **EQUITY RATIO COMPARE TO THE 2018 COMMON EQUITY**
3 **RATIOS OF THE PROXY GROUP USED BY YOU AND MR. HEVERT?**

4 **A.** Table 3 below shows the 2018 common equity ratios for each company in the
5 proxy group as well as the average common equity ratio for the group.

ALLETE, Inc.	60.1%
Alliant Energy Corporation	46.7%
Ameren Corp.	48.8%
American Electric Power Co.	46.8%
Avangrid, Inc.	73.8%
CMS Energy Corporation	30.7%
DTE Energy Company	45.8%
Evergy, Inc.	60.0%
Hawaiian Electric	51.7%
NextEra Energy, Inc.	56.0%
Northwestern Corporation	47.8%
OGE Energy Corp.	58.0%
Otter Tail Corporation	55.3%
Pinnacle West Capital Corp.	53.0%
PNM Resources, Inc.	38.6%
Portland General Electric Company	53.5%
Southern Company	37.6%
WEC Energy Group	49.4%
Xcel Energy Inc.	43.6%
Average	50.4%

Source: Value Line Investment Survey

6
7 The average common equity ratio for the proxy group is 50.4%, lower
8 than Duke Progress' requested 53% equity ratio and lower than my
9 recommended equity ratio of 51.5%. This indicates that my recommended
10 51.5% equity ratio is reasonable compared to the average for the proxy group.

11 **Q. IS YOUR RECOMMENDED EQUITY RATIO OF 51.5% CONSISTENT**
12 **WITH AVERAGE ALLOWED EQUITY RATIOS BY OTHER**
13 **REGULATORY COMMISSIONS?**

1 A. Yes. In his Rebuttal Testimony in Docket No. E-7, Sub 1214 Mr. Hevert
2 testified that the average and median authorized equity ratios for vertically
3 integrated utilities in 2019 was 50.20% and 52%, respectively.¹¹

4 **Q. IS YOUR RECOMMENDED EQUITY RATIO OF 51.5%**
5 **CONSISTENT WITH RECENTLY ALLOWED COMMON EQUITY**
6 **RATIOS BY THE NORTH CAROLINA UTILITIES COMMISSION?**

7 A. Yes. In Mr. Hevert's aforementioned Rebuttal Testimony, he testified that the
8 Commission authorized common equity ratios of 52% for Dominion Energy
9 North Carolina, Duke Progress, Duke Energy Carolinas, and Piedmont Natural
10 Gas.¹²

11 **Q. WHAT IS YOUR RECOMMENDED WEIGHTED COST OF CAPITAL**
12 **FOR DUKE PROGRESS?**

13 A. My recommended weighted cost of capital is presented in Table 4. I used my
14 recommended capital structure, the Company's cost of debt of 4.15%, and my
15 recommended ROE of 9.0%. The weighed cost of capital is 6.65%.

	<u>Capital Ratio</u>	<u>Component Costs</u>	<u>Weighted Avg Cost</u>
Long Term Debt	48.50%	4.15%	2.01%
Common Equity	<u>51.50%</u>	9.00%	<u>4.64%</u>
Total Capital	100.00%		6.65%

16

¹¹ Refer to the Rebuttal Testimony of Robert Hevert, page 180, lines 18 through 21, Docket No. E-7, Sub 1214.

¹² Refer to the Rebuttal Testimony of Robert Hevert, page 105, line 19 through page 106, line 1, Docket No. E-7, Sub 1214.

1 Q. WHAT IS THE REVENUE REQUIREMENT IMPACT ON DUKE
2 PROGRESS' NORTH CAROLINA RATEPAYERS FROM MR.
3 HEVERT'S RECOMMENDED 10.5% ROE AND THE COMPANY'S
4 PROPOSED 53% EQUITY RATIO COMPARED TO YOUR
5 RECOMMENDATION?

6 A. The rate impact on North Carolina customers is substantial. Exhibit RAB-7
7 presents my calculation of the increased revenue requirement from the
8 Company's requested ROE of 10.3% and common equity ratio of 53%
9 compared to my recommended overall cost of capital. My analysis uses the
10 Company's requested rate base and the tax rates, the NCUC fee percentage, and
11 the uncollectible rate from the Company's Smith Exhibit 1. *Duke Progress'*
12 *requested return on rate base would cost North Carolina ratepayers an*
13 *additional \$110.14 million per year in their rates compared to my*
14 *recommendation.* Clearly, Duke Progress' proposed capital structure and
15 requested ROE do not minimize the cost of capital for ratepayers, are
16 unreasonable, and should be rejected by the Commission. I noted that although
17 Duke Progress seeks approval of a 10.3% ROE that is lower than Mr. Hevert's
18 recommendation, this slightly lower ROE is still too high and imposes an undue
19 burden on the Company's ratepayers.

20 In conclusion and based on my analyses through February 2020, a
21 9.00% ROE and an imputed 51.5% common equity ratio is more than adequate
22 to meet *Hope* and *Bluefield* standards with respect to comparable returns,
23 financial integrity and ability to attract capital. It will also satisfy the

1 requirement for the Commission’s consideration of the economic impact on
2 North Carolina ratepayers from the allowed rate of return in this case. As I
3 mentioned earlier in my testimony, I will continue to evaluate financial markets
4 and reserve the right to update and revise my testimony and recommendations
5 prior to the scheduled hearing in this proceeding.

6 **IV. ECONOMIC CONDITIONS IN NORTH CAROLINA**

7 **Q. PLEASE DISCUSS MR. HEVERT’S ANALYSIS OF ECONOMIC**
8 **CONDITIONS IN NORTH CAROLINA.**

9 **A.** Mr. Hevert presented his analysis of North Carolina’s economic conditions
10 beginning on page 53 of his Direct Testimony. As a preliminary matter, Mr.
11 Hevert set forth the Commission's considerations with respect to balancing the
12 interests of investors and ratepayers in setting the allowed ROE for North
13 Carolina utilities.¹³ With respect to his economic analysis, Mr. Hevert reached
14 the following main conclusions:¹⁴

- 15 • North Carolina's unemployment rate has fallen by two-thirds since its
16 peak in 2009-2010 and as of July 2019 the unemployment rate stood at
17 4.20%, which is slightly higher than the national average.
- 18 • The unemployment rate in the counties served by Duke Progress fell
19 considerably since its peak in 2010.
- 20 • North Carolina's Gross Domestic Product (“GDP”) is “highly
21 correlated” with national GDP.

¹³ State of North Carolina Utilities Commission, Docket No. E-7, Sub 989, Order on Remand, October 23, 2013, at 34 - 35; Dominion Remand Order, Docket No. E-22, Sub 479 at 26.

¹⁴ Refer to pages 61 through 63 of Mr. Hevert’s Direct Testimony.

- 1 • Median household income has grown in North Carolina and has grown
2 at a rate consistent with the national average median income. Also, the
3 overall cost of living in North Carolina is below the national average.
4 • North Carolina residential electricity rates have been approximately
5 8.28% below the national average over the last 15 years.

6 Based on his analysis, Mr. Hevert concluded on page 62 of his Direct
7 Testimony that his recommended 10.5% ROE is “fair and reasonable to DE
8 Progress, its shareholders, and its customers in light of the effect of those
9 changing economic conditions.”

10 **Q. PLEASE PRESENT YOUR CONCLUSIONS WITH RESPECT TO THE**
11 **STUDY CONDUCTED BY MR. HEVERT.**

12 **A.** My main conclusions are:

- 13 • Although the growth in median income in North Carolina is correlated
14 with the national average, the median income in North Carolina and the
15 counties served by Duke Progress is significantly lower than the
16 national average.
17 • Duke Progress’ lower than average residential rates and North
18 Carolina’s lower than average cost of living do not justify the
19 Company’s excessive requested ROE and overall cost of capital.

20 **Q. PLEASE ADDRESS YOUR CONCLUSION WITH RESPECT TO**
21 **UNEMPLOYMENT RATES FOR NORTH CAROLINA AND THE**
22 **UNITED STATES AS A WHOLE.**

1 A. As Mr. Hevert pointed out in his Direct Testimony, North Carolina’s
 2 unemployment rate fell as the overall U.S. unemployment rate fell, although
 3 North Carolina’s unemployment rate was 0.50% higher as of July 2019. As of
 4 December 2019, the seasonally adjusted U.S. unemployment rate was 3.50%
 5 and the North Carolina unemployment rates was 3.60%, according to the U.S.
 6 Bureau of Labor Statistics.¹⁵ I also reviewed Mr. Hevert’s data supporting his
 7 unemployment analysis in Chart 4 on page 56 of his Direct Testimony. Table 5
 8 below presents Mr. Hevert’s monthly unemployment rate data from January
 9 2018 through July 2019.

	U.S. Unemployment Rate	N.C. Unemployment Rate	Difference
Jan-2018	4.10	4.20	0.10
Feb-2018	4.10	4.20	0.10
Mar-2018	4.00	4.10	0.10
Apr-2018	3.90	4.00	0.10
May-2018	3.80	4.00	0.20
Jun-2018	4.00	3.90	(0.10)
Jul-2018	3.90	3.80	(0.10)
Aug-2018	3.80	3.70	(0.10)
Sep-2018	3.70	3.70	-
Oct-2018	3.80	3.70	(0.10)
Nov-2018	3.70	3.70	-
Dec-2018	3.90	3.70	(0.20)
Jan-2019	4.00	3.80	(0.20)
Feb-2019	3.80	3.90	0.10
Mar-2019	3.80	4.00	0.20
Apr-19	3.60	4.00	0.40
May-19	3.60	4.10	0.50
Jun-19	3.70	4.20	0.50
Jul-19	3.70	4.20	0.50

Source: Mr. Hevert's work papers

10

11 Note that the “Difference” column presents the difference between the North
 12 Carolina unemployment rate and the U.S. unemployment rate. In January 2018,

¹⁵ The North Carolina unemployment rate was preliminary as of the preparation of my Direct Testimony.

1 for example, the North Carolina unemployment rate was higher than the
 2 national average, resulting in positive 0.10 difference. From July 2018 through
 3 January 2019 North Carolina's unemployment rate was lower than the national
 4 average, then went back above the national average in February 2019. North
 5 Carolina's unemployment rate has declined since Mr. Hevert filed his testimony
 6 in this case and is now roughly equal to the national average.

7 **Q. PLEASE COMMENT ON THE DIFFERENCE IN MEDIAN INCOME**
 8 **BETWEEN THE NATIONAL AVERAGE AND NORTH CAROLINA.**

9 **A.** The data underlying Mr. Hevert's median income comparison shows that North
 10 Carolina's median income has been persistently and significantly below the
 11 U.S. median income during the entire study period. Table 6 below presents U.S.
 12 and North Carolina median income and the percentage difference between
 13 them. This data was taken from Mr. Hevert's work papers.

<u>Year</u>	<u>U.S. Median Income</u>	<u>N.C. Median Income</u>	<u>Difference</u>
2018	63,179	53,369	-15.5%
2017	61,136	49,547	-19.0%
2016	59,039	53,764	-8.9%
2015	56,516	50,797	-10.1%
2014	53,657	46,784	-12.8%
2013	53,585	46,337	-13.5%
2012	51,017	41,553	-18.6%
2011	50,054	45,206	-9.7%
2010	49,276	43,830	-11.1%
2009	49,777	41,906	-15.8%
2008	50,303	42,930	-14.7%
2007	50,233	43,513	-13.4%
2006	48,201	39,797	-17.4%
2005	46,326	42,056	-9.2%

Source: Mr. Hevert's work papers

14

1 Table 6 shows that the difference between the North Carolina and U.S. median
2 income levels has grown from -8.9% in 2016 to -19.0% in 2017 and -15.5% in
3 2018. These differences underscore the importance of setting the allowed ROE
4 and the overall cost of capital as low as possible while still satisfying the legal
5 requirements of *Hope* and *Bluefield* and the North Carolina Supreme Court's
6 finding with respect to return on equity.

7 **Q. DO YOU HAVE ANY CONCLUDING COMMENTS REGARDING THE**
8 **ECONOMIC CONDITIONS IN NORTH CAROLINA AT THIS TIME?**

9 **A.** Yes. Governor Cooper issued executive orders in March that closed all public
10 schools and that ordered bars, restaurants, cafes, etc. to cease all dine-in
11 operations and issued a "shelter-in-place" Order effective on March 30 for the
12 entire state. So-called "social distancing" is becoming the norm both statewide
13 and nationally. North Carolina's and the United States' response to controlling
14 the spread of the novel coronavirus is still ongoing, but these efforts are certain
15 to drastically curtail economic activity in North Carolina and nationwide. The
16 impact on state and national Gross Domestic Product, median income, and
17 unemployment cannot as yet be measured, but it is reasonable to expect that
18 unemployment will increase significantly, with likely decreases in median
19 income for North Carolinians. I will continue to monitor the economic impacts
20 of our state's and nation's attempts to address this growing pandemic and, to the
21 extent possible, update my analyses before the start of the evidentiary hearing.
22 However, now more than ever it is important to consider the impacts of the
23 Company's requested ROE of 10.3% - 10.5% on North Carolina ratepayers.

1 **V. RESPONSE TO DUKE PROGRESS' DIRECT TESTIMONY**

2 **Q. HAVE YOU REVIEWED THE DIRECT TESTIMONY OF MR.**
3 **ROBERT HEVERT?**

4 **A. Yes.**

5 **Q. PLEASE SUMMARIZE MR. HEVERT'S TESTIMONY AND**
6 **APPROACH TO RETURN ON EQUITY.**

7 **A. Mr. Hevert employed three methods to estimate the investor required rate of**
8 return for Duke Progress: (1) the constant growth DCF model, (2) the CAPM
9 and the empirical CAPM ("ECAPM"), and (3) the Bond Yield Plus Risk
10 Premium model ("BYRP"). Mr. Hevert also presented the results of the
11 Expected Return approach based on Value Line's forecasted returns on book
12 equity for the proxy group.

13 For his constant growth DCF approach, Mr. Hevert used Value Line,
14 First Call, and Zacks for the investor expected growth rate. For the proxy group,
15 Mr. Hevert's mean growth rate ROE results ranged from 8.78% to 8.97%.¹⁶

16 With respect to the CAPM, Mr. Hevert utilized a current and near-term
17 projected yield on the 30-Year Treasury Bond for his risk-free rate. Using the
18 current Treasury bond yield of 2.43%, his CAPM results ranged from 8.44% to
19 9.41%. Using the near-term projected Treasury yield of 2.65%, his CAPM
20 results ranged from 8.66% to 9.62%.¹⁷

¹⁶ Refer to Mr. Hevert's Direct Testimony, page 84, Table 7.

¹⁷ *Id.*, page 91, Table 8.

1 Mr. Hevert's ECAPM variation of the CAPM yielded results ranging
2 from 9.95% to 10.93%.¹⁸

3 Finally, Mr. Hevert's formulation of the BYRP approach resulted in a
4 ROE range of 9.91% - 10.06%.¹⁹

5 Based on the results of his analyses and judgment, Mr. Hevert
6 recommended a ROE range for Duke Progress of 10.00% to 11.00%,
7 concluding that the cost of equity is 10.50%.²⁰

8 **Q. BEFORE YOU PROCEED TO THE PARTICULARS OF YOUR**
9 **REVIEW OF MR. HEVERT'S TESTIMONY, WHAT IS YOUR**
10 **OVERALL CONCLUSION WITH RESPECT TO MR. HEVERT'S**
11 **RECOMMENDED ROE RANGE?**

12 **A.** Mr. Hevert's recommended ROE range of 10.00% – 11.00% only partially
13 reflects the full range of results from his analyses. His mean DCF results, which
14 are fairly consistent with mine, were completely excluded from his range of
15 recommendations. Based on the ROE results presented by Mr. Hevert, it
16 appears that he mainly relied on the results of the ECAPM and his BYRP
17 method to establish the bounds of his recommended ROE range.

18 To put this another way, consider the following:

- 19 • Mr. Hevert rejected the mean results from the constant growth DCF in
20 total.

¹⁸ *Id.*, page 96, Table 9.

¹⁹ *Id.*, page 100, Table 10.

²⁰ *Id.*, page 13.

1 • Mr. Hevert also apparently rejected his CAPM results given that the top
2 end of his CAPM range was 9.62%.

3 What we are left with, then, is the BYRP results of 9.91% - 10.06%
4 being consistent with Mr. Hevert's floor recommendation of 10.0%. His
5 ECAPM results also fall within his recommended range. Although Mr. Hevert
6 presented three different approaches to estimating the cost of equity for Duke
7 Progress, he omitted the DCF model and CAPM results and relied almost
8 exclusively on the ECAPM and BYRP.

9 **Q. IS IT APPROPRIATE FOR MR. HEVERT TO REJECT THE MEAN**
10 **RESULTS FROM HIS DCF ANALYSES?**

11 **A.** No. It is inappropriate for Mr. Hevert to exclude the mean results of the constant
12 growth DCF model in his recommended ROE for Duke Progress. The constant
13 growth DCF model utilizes verifiable public information with respect to
14 investor return requirements for electric utilities. Current stock prices are the
15 best indicators we have of investor expectations and analysts' earnings and
16 dividend growth forecasts may reasonably be assumed to influence investors'
17 required ROEs. Discarding this important publicly available information as Mr.
18 Hevert has done serves to significantly overstate his recommended investor
19 required return for a low-risk regulated utility company such as Duke Progress.
20 The DCF model currently shows that investor required returns are considerably
21 lower for utility stocks given their safety and security relative to the stock
22 market as a whole.

1 **Q. IS USING THE HIGH MEAN RESULTS FROM THE DCF MODELS**
2 **APPROPRIATE?**

3 **A.** No. Mr. Hevert's high mean results simply use the highest ROE for each
4 company in the proxy group, which is driven by the highest expected growth
5 rate. There is no basis for assuming that investors are more likely to expect the
6 highest growth rate from the three sources used by Mr. Hevert. The average of
7 the three sources is a far more likely and reasonable assumption. For example,
8 the proxy group high mean using Mr. Hevert's 180-day average stock price is
9 unduly influenced by excessive ROE estimates for Avangrid (13.69%),
10 NextEra Energy (13.24%), and Otter Tail (11.90%).²¹

11 **Q. ON PAGE 84, LINES 9 THROUGH 16 OF HIS DIRECT TESTIMONY,**
12 **MR. HEVERT CRITICIZED THE USE OF THE DCF MODEL ON**
13 **CERTAIN GROUNDS. PLEASE ADDRESS MR. HEVERT'S**
14 **CRITICISMS.**

15 **A.** Mr. Hevert testified that the DCF model is predicated on a number of
16 assumptions, one being a constant price/earnings (P/E) ratio. Since P/E ratios
17 in the utility sector are currently above their long-term average and the market's
18 P/E, Mr. Hevert recommended caution when viewing the DCF results. Mr.
19 Hevert also testified that the DCF model is producing results below the
20 authorized returns for electric utilities.

21 First, before I proceed to a more detailed response to Mr. Hevert's
22 criticisms of the DCF model's assumptions, it is important to realize that none

²¹ See Exhibit RBH-1, page 3 of 3.

1 of the models Mr. Hevert and I use to estimate the investor required ROE
2 strictly adhere to their underlying assumptions 100% of the time in the real
3 world. The DCF, CAPM, and risk premium models all operate with certain
4 simplifying assumptions. In Section III of my testimony I pointed out the
5 limitations of the CAPM that must be considered in assessing its effectiveness
6 relative to the DCF model. One of those limitations is estimating the market
7 required rate of return. Estimating the market required rate of return requires
8 considerable judgment on the part of the analyst, judgment that may result in a
9 wide range of possible returns. In this case, Mr. Hevert and I used very different
10 estimates of the market rate of return that caused our CAPM results to differ
11 considerably. I will address the serious underlying problems with Mr. Hevert's
12 CAPM later in my testimony.

13 I suggest that the Commission recognize that no ROE estimation model
14 strictly adheres to its underlying assumptions all the time.

15 **Q. PLEASE CONTINUE WITH YOUR RESPONSE TO MR. HEVERT'S**
16 **CRITICISM OF THE DCF MODEL'S ASSUMPTIONS.**

17 **A.** With respect to the assumption of a constant P/E ratio, simply because the utility
18 industry's current P/E ratio may be above the long-term average P/E ratio does
19 not mean that the DCF results based on current data are questionable and should
20 be thrown out. As I have stated previously in my testimony, capital markets are
21 efficient and can be assumed to reflect investor preferences in the prices they
22 are willing and able to pay for a regulated utility's common stock. This includes
23 publicly available information to which investors have access, including P/E

1 ratios. What this means is that it is reasonable to assume that current stock prices
2 are reflective of investors' required ROE and that the DCF model can provide
3 valid and valuable information to the Commission in its determination of the
4 allowed ROE for regulated utilities generally and for Duke Energy Progress in
5 this case.

6 **Q. ON PAGE 85, LINES 10 THROUGH 19 OF HIS DIRECT TESTIMONY,**
7 **MR. HEVERT TESTIFIED THAT THE DCF MODEL ASSUMES THAT**
8 **THE RETURN TODAY WILL BE THE SAME RETURN REQUIRED IN**
9 **THE FUTURE, "EVEN THOUGH THE FEDERAL RESERVE ONLY**
10 **RECENTLY HAS COMPLETED THE PRINCIPAL INITIATIVES OF**
11 **ITS MONETARY POLICY NORMALIZATION AND IS CONTINUING**
12 **TO ASSESS REALIZED AND EXPECTED ECONOMIC CONDITIONS**
13 **AS IT DETERMINES FUTURE ADJUSTMENTS, INTRODUCING A**
14 **DEGREE OF UNCERTAINTY REGARDING FUTURE MONETARY**
15 **POLICY ACTIONS." PLEASE COMMENT ON THIS STATEMENT.**

16 **A.** Again, it is highly likely that investors have fully taken this information into
17 account into the prices they are willing to pay for bonds and utility stocks. The
18 Fed lowered the federal funds rate several times in 2019 and long-term Treasury
19 yields have fallen significantly. During 2019, the 30-year Treasury bond yield
20 fell from 3.04% in January to 2.3% December and even further in February
21 2020 to 1.97%. Clearly, the trend in the economy over the last year shows that
22 capital costs are declining, not increasing, and one would expect that investor

1 required ROEs for low-risk regulated electric utilities like Duke Progress would
2 follow that trend.

3 Furthermore, all of the models used to estimate the investor's required
4 ROE must fix a return "today" since no one knows with certainty what will
5 happen in the future, including what investor expected returns will be. Future
6 events and economic conditions will affect the required ROE in ways we cannot
7 predict now.

8 **Q. ON PAGE 86 OF HIS DIRECT TESTIMONY, MR. HEVERT**
9 **TESTIFIED THAT SINCE 1980 ONLY ELEVEN UTILITY RATE**
10 **CASES INCLUDED AN AUTHORIZED ROE OF LESS THAN 9.0%.**
11 **PLEASE RESPOND TO MR. HEVERT'S TESTIMONY ON THIS**
12 **POINT.**

13 **A.** Including rate cases since 1980 is an irrelevant exercise because it places too
14 much emphasis on stale data. In the 1980s and 1990s interest rates and allowed
15 ROEs were far higher than they have been in the last few years. Consider the
16 following information I developed using the data in Mr. Hevert's Exhibit RBH-
17 5:

- 18 • From 1980 through 1989, the average awarded ROE was 14.80% and
19 the average 30-Year Treasury Bond yield was 11.35%.
- 20 • From 1990 through 1999, the average awarded ROE was 11.91% and
21 the average 30-Year Treasury Bond yield was 7.51%.
- 22 • From 2000 through 2009, the average awarded ROE was 10.62% and
23 the average 30-Year Treasury Bond yield was 4.81%.

24 These averages give the Commission a general picture of the interest rate and
25 ROE levels from the 1980s, 1990s, and 2000s and represent 1,218 of the 1,594

1 observations in Mr. Hevert's data set in Exhibit RBH-5. They are in no way
2 indicative of investor required returns today given how much higher 30-Year
3 Treasury yields were during these prior periods.

4 Further consider that Mr. Hevert's recommendation of 10.5% is close
5 to the average ROE from 2000 – 2009 of 10.62%. During that period the
6 average 30-year Treasury Bond yield was 4.81%, which is 284 basis points, or
7 2.94% higher than the February 2020 yield of 1.97%. With Treasury Bond
8 yields so much lower now, Mr. Hevert's ROE recommendation of 10.5% is
9 clearly out of line and unsupportable using current market conditions.

10 **Q. ON PAGE 84, LINES 14 THROUGH 16 OF HIS DIRECT TESTMONY**
11 **MR. HEVERT TESTIFIED THAT THE MEAN CONSTANT GROWTH**
12 **DCF RESULTS ARE BELOW THE AUTHORIZED RETURN FOR**
13 **ELECTRIC UTILITIES. HOW DO MR. HEVERT'S ECAPM RESULTS**
14 **COMPARE WITH RECENT AUTHORIZED RETURNS?**

15 A. Mr. Hevert's ECAPM ROEs are based on the average Value Line beta range
16 from 10.61% to 10.93% and are consistent with the upper end of Mr. Hevert's
17 recommended ROE range. These results are grossly in excess of ROEs allowed
18 in the last several years, a so-called "benchmark" Mr. Hevert used to criticize
19 the DCF model. Based on the authorized ROE data in Exhibit RBH-5, one
20 would have to go back to 2011 to find an authorized ROE near or above 11.0%.
21 Although Mr. Hevert criticized the DCF model results for being below
22 authorized returns, he did not apply the same criterion to test whether his
23 ECAPM results were reasonable.

1 **Q. CONSIDERING THE FOREGOING DISCUSSION, PLEASE**
2 **SUMMARIZE YOUR CONCLUSIONS WITH RESPECT TO MR.**
3 **HEVERT'S RECOMMENDED ROE RANGE AND HIS ROE**
4 **RECOMMENDATION FOR DUKE PROGRESS.**

5 **A.** I conclude that the Commission should reject Mr. Hevert's recommended ROE
6 range and his recommended ROE of 10.50%. Mr. Hevert's 10.50% ROE
7 recommendation is excessive in today's market environment. Mr. Hevert's
8 ROE range omits critically important information from the DCF model and
9 CAPM and, as a result, misstates the investor required ROE for a low-risk utility
10 such as Duke Progress.

11 **CAPM and ECAPM**

12 **Q. BRIEFLY SUMMARIZE THE MAIN ELEMENTS OF MR. HEVERT'S**
13 **CAPM APPROACH.**

14 **A.** On pages 88 and 89 of his Direct Testimony, Mr. Hevert testified that he used
15 two different measures of the risk-free rate: the current 30-day average yield on
16 the 30-year Treasury bond (2.43%) and a near-term projected 30-year Treasury
17 bond yield (2.65%). Mr. Hevert then calculated ex-ante measures of total
18 market returns for the S&P 500 using data from Bloomberg and Value Line.
19 Total market returns from these two sources were 14.48% using Bloomberg
20 data and 14.62% return using Value Line data.²² Subtracting out the risk-free
21 rate, the resulting market risk premiums were 12.04% – 12.19%.

²² Refer to Exhibit RBH-2.

1 Mr. Hevert used two different estimates for beta from Bloomberg
2 (0.499) and Value Line (0.57).²³

3 **Q. IS IT APPROPRIATE TO USE FORECASTED OR PROJECTED BOND**
4 **YIELDS IN THE CAPM?**

5 **A.** No. Current interest rates and bond yields embody all of the relevant market
6 data and expectations of investors, including expectations of changing future
7 interest rates. The forecasted bond yield used by Mr. Hevert is at odds with the
8 trend of declining long-term bond yields in 2019. Current interest rates provide
9 tangible and verifiable market evidence of investor return requirements today
10 and these are the interest rates and bond yields that should be used in both the
11 CAPM and in the bond yield plus risk premium analyses. To the extent that
12 investors give forecasted interest rates any weight at all, they are already
13 incorporated in current securities prices.

14 In this case, however, Mr. Hevert’s forecasted bond yield is not
15 significantly different from his current bond yield. I would also note that current
16 30-year Treasury yields have declined since Mr. Hevert submitted his Direct
17 Testimony, with a February 2020 yield of 1.97%. In comparison, my range for
18 the risk-free rate is 2.19% – 3.00%, with a midpoint of 2.6%, so our estimates
19 for the risk-free rate do not differ significantly in this proceeding.

20 **Q. HOW DO MR. HEVERT’S ESTIMATES OF THE OVERALL MARKET**
21 **RETURN COMPARE TO YOURS?**

22 **A.** My estimates of the market required return are as follows:

²³ Refer to Exhibit RBH-3.

- 1 • Value Line 3-5 Year Total Return: 12.00% – 13.42%
- 2 • Value Line Growth Rates: 10.35%
- 3 • S&P Average Historical Returns: 11.90%

4 Mr. Hevert’s forecasted market returns of 14.48% – 14.62% are
5 extraordinarily high compared to historical norms. Further, his calculation of
6 the market return using Value Line's 3 – 5 year earnings growth estimates
7 greatly exceeds the Value Line 3 – 5 year total annual return numbers I used
8 from the Value Line Investment Analyzer. Moreover, the number of companies
9 the Value Line Investment Analyzer used to develop the total annual return
10 numbers I used was 1,670, a far greater number of companies than the S&P 500
11 used by Mr. Hevert. I recommend that the Commission give Mr. Hevert’s
12 estimated market returns little weight in this proceeding.

13 **Q. ARE THERE SOURCES OF WHICH YOU ARE AWARE THAT**
14 **SUGGEST MR. HEVERT’S MARKET RISK PREMIUM RANGE OF**
15 **12.04% - 12.19% IS UNREASONABLY HIGH?**

16 **A.** Yes. In the authoritative corporate finance textbook by Brealey, Myers, and
17 Allen the authors stated:

18 “Brealey, Myers, and Allen have no official position on the
19 issue, but we believe that a range of 5 to 8 percent is reasonable
20 for the risk premium in the United States.”²⁴

21 As I cited earlier in my Direct Testimony, Duff and Phelps currently
22 recommends a market risk premium of 5.5% and an overall U. S. cost of equity
23 of 8.5%. These sources underscore how much Mr. Hevert’s recommended
24 market risk premiums inflated his CAPM and ECAPM ROE estimates.

²⁴ Richard A. Brealey, Stewart C. Myers, and Paul Allen, *Principles of Corporate Finance*, page 154; McGraw-Hill/Irwin, 8th Edition, 2006.

1 **Q. BEGINNING ON PAGE 92 OF HIS DIRECT TESTIMONY, MR.**
2 **HEVERT EXPLAINED THAT HE ALSO INCLUDED THE ECAPM**
3 **ANALYSIS. PLEASE COMMENT ON MR. HEVERT’S USE OF THE**
4 **ECAPM IN THIS CASE.**

5 **A.** The ECAPM is designed to account for the possibility that the CAPM
6 understates the return on equity for companies with betas less than 1.0. Mr.
7 Hevert explained on page 88 of his Direct Testimony how he applied the
8 adjustment to his CAPM data, which was based on the formula included in *New*
9 *Regulatory Finance* by Dr. Roger Morin.

10 The argument that an adjustment factor is needed to “correct” the
11 CAPM results for companies with betas less than 1.0 is further evidence of the
12 lack of accuracy inherent in the CAPM itself and with beta in particular, as I
13 pointed out earlier in my Direct Testimony. The ECAPM adjustment also
14 suggests that published betas by such sources as Value Line and Bloomberg are
15 incorrect and that investors should not rely on them in formulating their
16 estimates using the CAPM. Finally, although Mr. Hevert cited the source of the
17 ECAPM formula he used, he provided no evidence that investors favor this
18 version of the ECAPM over the standard CAPM.

19 **Q. PLEASE COMMENT ON THE ECAPM RESULTS REPORTED BY MR**
20 **HEVERT ON HIS TABLE 9 ON PAGE 96 OF HIS DIRECT**
21 **TESTIMONY.**

22 **A.** The ECAPM results using the Average Value Line beta Coefficient —10.61%
23 to 10.93%—are excessive and implausible. To provide the Commission with

1 some perspective here, according to the data presented by Mr. Hevert in his
2 Exhibit RBH-5, there was one allowed ROE in 2017 that exceeded 11.0% and
3 before that, the last Commission authorized ROE exceeding 11.00% was
4 September 2, 2011 (12.88%) and that value far exceeded the other Commission
5 allowed ROEs in 2011. I would also point out that the average 30-Year Treasury
6 Bond yield in 2011 was 4.13%, a far higher yield than the recent 1.97% yield
7 for the 30-Year Treasury Bond in February 2020. Mr. Hevert's ECAPM results
8 using the Value Line beta are so excessive that they should be rejected out of
9 hand by the Commission.

10 **Risk Premium**

11 **Q. PLEASE SUMMARIZE MR. HEVERT'S RISK PREMIUM**
12 **APPROACH.**

13 **A.** Mr. Hevert developed an historical risk premium using Commission-allowed
14 returns for regulated electric utility companies and 30-year Treasury Bond
15 yields from January 1980 through August 16, 2019. He used regression analysis
16 to estimate the value of the inverse relationship between interest rates and risk
17 premiums during that period. Applying the regression coefficients to the
18 average risk premium and using the current and projected 30-year Treasury
19 yields I discussed earlier and also employing a long-term projected 30-year
20 Treasury Bond yield of 3.70%, Mr. Hevert's risk premium ROE estimate range
21 is 9.90% – 10.06%.²⁵

22 **Q. PLEASE RESPOND TO MR. HEVERT'S RISK PREMIUM ANALYSIS.**

²⁵ Hevert Direct Testimony, page 100, Table 10.

1 A. There are two major flaws in Mr. Hevert’s analysis. First, it measures the
2 returns allowed by regulatory commissions, not investor required returns
3 reflected in marketplace data; and second, it relies on historical allowed returns
4 dating back to 1980 rather than recent returns. The bond yield plus risk premium
5 approach is imprecise and can only provide very general guidance on the
6 current authorized ROE for a regulated electric utility. Risk premiums can
7 change substantially over time based on investor preferences and market
8 conditions. These changes will not be incorporated into an historical risk
9 premium analysis of the type Mr. Hevert uses that employs historical
10 commission allowed ROEs. As such, this approach is a “blunt instrument,” if
11 you will, for estimating the ROE in regulated proceedings. In my view, a
12 properly formulated DCF model using current stock prices and growth forecasts
13 is far more reliable and accurate than the bond yield plus risk premium
14 approach, which relies on a historical risk premium analysis based on the
15 allowed returns over a certain period of time.

16 **Q. DO MR. HEVERT’S RISK PREMIUM RESULTS ACCURATELY**
17 **TRACK RECENTLY ALLOWED ROES?**

18 A. No. Even assuming the Commission accepts the use of data about allowed
19 ROEs as a substitute for market data, Mr. Hevert’s model does not accurately
20 track *recently* allowed ROE data. To test the accuracy of Mr. Hevert’s BYRP
21 model, I averaged the allowed returns and Treasury bond yields for 2018 as
22 reported in Mr. Hevert’s Exhibit RBH-5. The average allowed ROE for 2018
23 was 9.56% and the average 30-Year Treasury Bond yield was 2.99%. I then

1 plugged in the 2.99% Treasury Bond yield to Mr. Hevert's BYRP formula in
2 Exhibit RBH-5 and the resulting BYRP ROE was 9.92%. Compared to the
3 actual average Commission-allowed 2018 ROE 9.56%, Mr. Hevert's formula
4 overshot the actual ROE by 36 basis points, or 0.36%. Likewise using the
5 December 2018 Treasury Bond yield of 2.30% in Mr. Hevert's BYRP formula
6 results in a ROE of 9.93%, which is nearly identical to the 9.92% ROE result
7 using a 2.99% Treasury Bond yield. It is clear that if the Treasury Bond yield
8 falls, the expected ROE should also fall, but Mr. Hevert's BYRP formula result
9 does not follow logically.

10 In my opinion, these calculations provide evidence to the Commission
11 that using Mr. Hevert's risk premium model in today's economic environment
12 will overstate the investor required ROE for a low-risk utility such as Duke
13 Progress.

14 **Expected Earnings**

15 **Q. BEGINNING ON PAGE 100 OF HIS DIRECT TESTIMONY, MR.**
16 **HEVERT PRESENTED HIS EXPECTED EARNINGS ANALYSIS.**
17 **PLEASE RESPOND TO MR. HEVERT'S ANALYSIS.**

18 **A.** Mr. Hevert relied on Value Line's projected returns on book value equity for
19 the period 2022-2024 for his expected earnings ROE estimate for the proxy
20 group, which ranges from 10.47% – 10.54%.²⁶ He used the expected earnings
21 analysis as a check on his other results.

²⁶ Mr. Hevert Direct Testimony, page 101.

1 The major flaw in the expected earnings approach is that it measures
2 forecasted accounting returns on book value, not investor required returns in
3 the marketplace. A market-based ROE estimation method like the DCF model
4 uses stock market data and earnings growth forecasts to determine a forward-
5 looking ROE estimate that incorporates true opportunity cost measured against
6 the returns available to the investor in alternative investments such as other
7 stocks, bonds, real estate, and so forth. Further, changes in economic variables
8 such as interest rates will affect the required returns of utility stock investments
9 and other investments as well. Such changes will be incorporated into the DCF
10 and CAPM models, which use current market data. These changes will not be
11 reflected in book returns on common equity.

12 Turning to Mr. Hevert’s expected earnings approach, he provided
13 absolutely no support for the assumption that Value Line’s projected accounting
14 returns on book value in the 2022 – 2024 projected time period have any
15 influence whatsoever on required returns in today’s financial marketplace or
16 that they provide a useful benchmark in estimating current required returns. I
17 recommend the Commission reject Mr. Hevert’s expected earnings approach
18 and instead use market-based ROE estimation models to set Duke Progress’
19 allowed ROE in this proceeding.

20 **Use of Multiple Methods to Estimate the Cost of Equity**

21 **Q. DID THE FEDERAL ENERGY REGULATORY COMMISSION**
22 **(“FERC”) RECENTLY ISSUE AN ORDER REGARDING USING**
23 **MULTIPLE MODELS IN ESTIMATING THE ROE?**

1 A. Yes. FERC recently issued its Opinion No. 569 on November 21, 2019, Docket
2 Nos. EL14-12-003 and EL15-45-000 regarding the methods used to estimate a
3 just and reasonable ROE under the Federal Power Act (“FPA”) Section 206. In
4 this Opinion, the FERC rejected using the Risk Premium and Expected
5 Earnings approaches to estimating the ROE. FERC stated:

6 1. On November 15, 2018, the Commission issued an Order
7 Directing Briefs in the above-captioned proceedings. The
8 Briefing Order directed the participants in the above captioned
9 proceedings to submit briefs regarding: (1) a proposed
10 framework for determining whether an existing base return on
11 equity (ROE) is unjust and unreasonable under the first prong of
12 Federal Power Act (FPA) section 206; and (2) a revised
13 methodology for determining just and reasonable base ROEs
14 under the second prong of FPA section 206. As discussed
15 below, we will adopt the proposal in the Briefing Order, with
16 certain revisions. *Principally, we will not adopt the use of the*
17 *expected earnings (Expected Earnings) and risk premium (Risk*
18 *Premium) models in our ROE analyses under the first and*
19 *second prongs of section 206, and instead will use only the*
20 *discounted cash flow (DCF) model and capital-asset pricing*
21 *model (CAPM) in our ROE analyses under both prongs of*
22 *section 206.* (emphasis added)

23 **Flotation Costs**

24 **Q. BEGINNING ON PAGE 34 OF HIS DIRECT TESTIMONY, MR.**
25 **HEVERT PRESENTED HIS POSITION REGARDING THE NEED TO**
26 **RECOGNIZE THE EFFECT OF FLOTATION COSTS IN THE COST**
27 **OF EQUITY. PLEASE ADDRESS MR. HEVERT’S POSITION ON**
28 **FLOTATION COSTS.**

29 **A.** A flotation cost adjustment attempts to recognize and collect the costs of issuing
30 common stock. Such costs typically include legal, accounting, and printing
31 costs as well as broker fees and discounts. In my opinion, it is likely that

1 flotation costs are already accounted for in current stock prices and that adding
2 an adjustment for flotation costs amounts to double counting. A DCF model
3 using current stock prices should already account for investor expectations
4 regarding the collection of flotation costs. Multiplying the dividend yield by a
5 4% flotation cost adjustment, for example, essentially assumes that the current
6 stock price is wrong and that it must be adjusted downward to increase the
7 dividend yield and the resulting cost of equity. This is not an appropriate
8 assumption regarding investor expectations. Current stock prices most likely
9 already account for flotation costs, to the extent that such costs are even
10 accounted for by investors.

11 **Business Risks and Other Considerations**

12 **Q. BEGINNING ON PAGE 37 OF HIS DIRECT TESTIMONY, MR.**
13 **HEVERT PROCEEDED TO DESCRIBE SEVERAL BUSINESS RISKS**
14 **AND OTHER FACTORS THAT HE RECOMMENDED BE TAKEN**
15 **INTO CONSIDERATION “WHEN DETERMINING WHERE DUKE**
16 **PROGRESS’ COST OF EQUITY FALLS WITHIN THE RANGE OF**
17 **RESULTS.” PLEASE RESPOND TO MR. HEVERT’S DISCUSSION OF**
18 **THESE FACTORS AND WHETHER THEY SHOULD INFLUENCE**
19 **THE COMMISSION’S DECISION REGARDING DUKE PROGRESS’**
20 **RETURN ON EQUITY.**

21 **A.** I found Mr. Hevert’s discussion regarding the “additional factors” to be
22 considered by the Commission a biased and one-sided view of the overall
23 riskiness of Duke Progress. Instead, I recommend that the Commission consider

1 my discussion of the Company's credit strengths and challenges in Section II
2 of my testimony as enumerated by Moody's. The credit challenges enumerated
3 by Moody's were supplemented by consideration of the Company's credit
4 strengths, which support its current A2/A- credit rating. This credit rating is
5 above average when compared to the EEI's average S&P credit rating for the
6 electric utilities it follows of BBB+. Duke Progress' A2 credit rating is in the
7 middle of the A rating category for Moody's and, if anything, suggests that the
8 Commission should grant an ROE below the mean results of the proxy group.
9 Overall, I suggest that the Commission look to Duke Progress' strong overall
10 credit ratings as the indicator of the Company's riskiness compared to the proxy
11 group. These credit ratings do not support an above average return on equity for
12 the Company.

13 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

14 **A.** Yes.

RESUME OF RICHARD A. BAUDINO

EDUCATION

New Mexico State University, M.A.

Major in Economics
Minor in Statistics

New Mexico State University, B.A.

Economics
English

Thirty-seven years of experience in utility ratemaking and the application of principles of economics to the regulation of electric, gas, and water utilities. Broad based experience in revenue requirement analysis, cost of capital, rate of return, cost and revenue allocation, and rate design.

REGULATORY TESTIMONY

Preparation and presentation of expert testimony in the areas of:

Cost of Capital for Electric, Gas and Water Companies
Electric, Gas, and Water Utility Cost Allocation and Rate Design
Revenue Requirements
Gas and Electric industry restructuring and competition
Fuel cost auditing
Ratemaking Treatment of Generating Plant Sale/Leasebacks

RESUME OF RICHARD A. BAUDINO

EXPERIENCE

1989 to

Present: Kennedy and Associates: **Director of Consulting, Consultant** - Responsible for consulting assignments in revenue requirements, rate design, cost of capital, economic analysis of generation alternatives, electric and gas industry restructuring/competition and water utility issues.

1982 to

1989: New Mexico Public Service Commission Staff: **Utility Economist** - Responsible for preparation of analysis and expert testimony in the areas of rate of return, cost allocation, rate design, finance, phase-in of electric generating plants, and sale/leaseback transactions.

CLIENTS SERVED

Regulatory Commissions

Louisiana Public Service Commission
Georgia Public Service Commission
New Mexico Public Service Commission

Other Clients and Client Groups

Ad Hoc Committee for a Competitive Electric Supply System	Northwest Arkansas Gas Consumers
Air Products and Chemicals, Inc.	Maryland Energy Group
Arkansas Electric Energy Consumers	Occidental Chemical
Arkansas Gas Consumers	PSI Industrial Group
AK Steel	Large Power Intervenors (Minnesota)
Armco Steel Company, L.P.	Tyson Foods
Aqua Large Users Group	West Virginia Energy Users Group
Assn. of Business Advocating Tariff Equity	The Commercial Group
Atmos Cities Steering Committee	Wisconsin Industrial Energy Group
Canadian Federation of Independent Businesses	South Florida Hospital and Health Care Assn.
CF&I Steel, L.P.	PP&L Industrial Customer Alliance
Cities of Midland, McAllen, and Colorado City	Philadelphia Area Industrial Energy Users Gp.
Cities Served by Texas-New Mexico Power Co.	Philadelphia Large Users Group
Cities Served by AEP Texas	West Penn Power Intervenors
City of New York	Duquesne Industrial Intervenors
Climax Molybdenum Company	Met-Ed Industrial Users Gp.
Connecticut Industrial Energy Consumers	Penelec Industrial Customer Alliance
Crescent City Power Users Group	Penn Power Users Group
Cripple Creek & Victor Gold Mining Co.	Columbia Industrial Intervenors
General Electric Company	U.S. Steel & Univ. of Pittsburg Medical Ctr.
Holcim (U.S.) Inc.	Multiple Intervenors
IBM Corporation	Maine Office of Public Advocate
Industrial Energy Consumers	Missouri Office of Public Counsel
Kentucky Industrial Utility Consumers	University of Massachusetts - Amherst
Kentucky Office of the Attorney General	WCF Hospital Utility Alliance
Lexington-Fayette Urban County Government	West Travis County Public Utility Agency
Large Electric Consumers Organization	Steering Committee of Cities Served by Oncor
Newport Steel	Utah Office of Consumer Services
North Carolina Attorney General's Office	Healthcare Council of the National Capital Area
	Vermont Department of Public Service
	Texas Industrial Energy Consumers

**Expert Testimony Appearances
of
Richard A. Baudino
As of March 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
10/83	1803, 1817	NM	New Mexico Public Service Commission	Southwestern Electric Coop.	Rate design.
11/84	1833	NM	New Mexico Public Service Commission Palo Verde	El Paso Electric Co.	Service contract approval, rate design, performance standards for nuclear generating system
1983	1835	NM	New Mexico Public Service Commission	Public Service Co. of NM	Rate design.
1984	1848	NM	New Mexico Public Service Commission	Sangre de Cristo Water Co.	Rate design.
02/85	1906	NM	New Mexico Public Service Commission	Southwestern Public Service Co.	Rate of return.
09/85	1907	NM	New Mexico Public Service Commission	Jomada Water Co.	Rate of return.
11/85	1957	NM	New Mexico Public Service Commission	Southwestern Public Service Co.	Rate of return.
04/86	2009	NM	New Mexico Public Service Commission	El Paso Electric Co.	Phase-in plan, treatment of sale/leaseback expense.
06/86	2032	NM	New Mexico Public Service Commission	El Paso Electric Co.	Sale/leaseback approval.
09/86	2033	NM	New Mexico Public Service Commission	El Paso Electric Co.	Order to show cause, PVNGS audit.
02/87	2074	NM	New Mexico Public Service Commission	El Paso Electric Co.	Diversification.
05/87	2089	NM	New Mexico Public Service Commission	El Paso Electric Co.	Fuel factor adjustment.
08/87	2092	NM	New Mexico Public Service Commission	El Paso Electric Co.	Rate design.
10/87	2146	NM	New Mexico Public Service Commission	Public Service Co. of New Mexico	Financial effects of restructuring, reorganization.
07/88	2162	NM	New Mexico Public Service Commission	El Paso Electric Co.	Revenue requirements, rate design, rate of return.

**Expert Testimony Appearances
of
Richard A. Baudino
As of March 2020**

Date	Case	Jurisdiction	Party	Utility	Subject
01/89	2194	NM	New Mexico Public Service Commission	Plains Electric G&T Cooperative	Economic development.
1/89	2253	NM	New Mexico Public Service Commission	Plains Electric G&T Cooperative	Financing.
08/89	2259	NM	New Mexico Public Service Commission	Homestead Water Co.	Rate of return, rate design.
10/89	2262	NM	New Mexico Public Service Commission	Public Service Co. of New Mexico	Rate of return.
09/89	2269	NM	New Mexico Public Service Commission	Ruidoso Natural Gas Co.	Rate of return, expense from affiliated interest.
12/89	89-208-TF	AR	Arkansas Electric Energy Consumers	Arkansas Power & Light Co.	Rider M-33.
01/90	U-17282	LA	Louisiana Public Service Commission	Gulf States Utilities	Cost of equity.
09/90	90-158	KY	Kentucky Industrial Utility Consumers	Louisville Gas & Electric Co.	Cost of equity.
09/90	90-004-U	AR	Northwest Arkansas Gas Consumers	Arkansas Western Gas Co.	Cost of equity, transportation rate.
12/90	U-17282 Phase IV	LA	Louisiana Public Service Commission	Gulf States Utilities	Cost of equity.
04/91	91-037-U	AR	Northwest Arkansas Gas Consumers	Arkansas Western Gas Co.	Transportation rates.
12/91	91-410-EL-AIR	OH	Air Products & Chemicals, Inc., Armco Steel Co., General Electric Co., Industrial Energy Consumers	Cincinnati Gas & Electric Co.	Cost of equity.
05/92	910890-EI	FL	Occidental Chemical Corp.	Florida Power Corp.	Cost of equity, rate of return.
09/92	92-032-U	AR	Arkansas Gas Consumers	Arkansas Louisiana Gas Co.	Cost of equity, rate of return, cost-of-service.
09/92	39314	ID	Industrial Consumers for Fair Utility Rates	Indiana Michigan Power Co.	Cost of equity, rate of return.

**Expert Testimony Appearances
of
Richard A. Baudino
As of March 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
09/92	92-009-U	AR	Tyson Foods	General Waterworks	Cost allocation, rate design.
01/93	92-346	KY	Newport Steel Co.	Union Light, Heat & Power Co.	Cost allocation.
01/93	39498	IN	PSI Industrial Group	PSI Energy	Refund allocation.
01/93	U-10105	MI	Association of Businesses Advocating Tariff Equality (ABATE)	Michigan Consolidated Gas Co.	Return on equity.
04/93	92-1464-EL-AIR	OH	Air Products and Chemicals, Inc., Armco Steel Co., Industrial Energy Consumers	Cincinnati Gas & Electric Co.	Return on equity.
09/93	93-189-U	AR	Arkansas Gas Consumers	Arkansas Louisiana Gas Co.	Transportation service terms and conditions.
09/93	93-081-U	AR	Arkansas Gas Consumers	Arkansas Louisiana Gas Co.	Cost-of-service, transportation rates, rate supplements; return on equity; revenue requirements.
12/93	U-17735	LA	Louisiana Public Service Commission Staff	Cajun Electric Power Cooperative	Historical reviews; evaluation of economic studies.
03/94	10320	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric Co.	Trimble County CWIP revenue refund.
4/94	E-015/GR-94-001	MN	Large Power Intervenors	Minnesota Power Co.	Evaluation of the cost of equity, capital structure, and rate of return.
5/94	R-00942993	PA	PG&W Industrial Intervenors	Pennsylvania Gas & Water Co.	Analysis of recovery of transition costs.
5/94	R-00943001	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania charge proposals.	Evaluation of cost allocation, rate design, rate plan, and carrying
7/94	R-00942986	PA	Armco, Inc., West Penn Power Industrial Intervenors	West Penn Power Co.	Return on equity and rate of return.
7/94	94-0035-E-42T	WV	West Virginia Energy Users' Group	Monongahela Power Co.	Return on equity and rate of return.

**Expert Testimony Appearances
of
Richard A. Baudino
As of March 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
8/94	8652	MD	Westvaco Corp. Co.	Potomac Edison	Return on equity and rate of return.
9/94	930357-C	AR	West Central Arkansas Gas Consumers	Arkansas Oklahoma Gas Corp.	Evaluation of transportation service.
9/94	U-19904	LA	Louisiana Public Service Commission	Gulf States Utilities	Return on equity.
9/94	8629	MD	Maryland Industrial Group	Baltimore Gas & Electric Co.	Transition costs.
11/94	94-175-U	AR	Arkansas Gas Consumers	Arkla, Inc.	Cost-of-service, rate design, rate of return.
3/95	RP94-343-000	FERC	Arkansas Gas Consumers	NorAm Gas Transmission	Rate of return.
4/95	R-00943271	PA	PP&L Industrial Customer Alliance	Pennsylvania Power & Light Co.	Return on equity.
6/95	U-10755	MI	Association of Businesses Advocating Tariff Equity	Consumers Power Co.	Revenue requirements.
7/95	8697	MD	Maryland Industrial Group	Baltimore Gas & Electric Co.	Cost allocation and rate design.
8/95	95-254-TF U-2811	AR	Tyson Foods, Inc.	Southwest Arkansas Electric Cooperative	Refund allocation.
10/95	ER95-1042-000	FERC	Louisiana Public Service Commission	Systems Energy Resources, Inc.	Return on Equity.
11/95	I-940032	PA	Industrial Energy Consumers of Pennsylvania	State-wide - all utilities	Investigation into Electric Power Competition.
5/96	96-030-U	AR	Northwest Arkansas Gas Consumers	Arkansas Western Gas Co.	Revenue requirements, rate of return and cost of service.
7/96	8725	MD	Maryland Industrial Group	Baltimore Gas & Electric Co., Potomac Electric Power Co. and Constellation Energy Corp.	Return on Equity.
7/96	U-21496	LA	Louisiana Public Service Commission	Central Louisiana Electric Co.	Return on equity, rate of return.
9/96	U-22092	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity.

**Expert Testimony Appearances
of
Richard A. Baudino
As of March 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
1/97	RP96-199-000	FERC	The Industrial Gas Users Conference	Mississippi River Transmission Corp.	Revenue requirements, rate of return and cost of service.
3/97	96-420-U	AR	West Central Arkansas Gas Corp.	Arkansas Oklahoma Gas Corp.	Revenue requirements, rate of return, cost of service and rate design.
7/97	U-11220	MI	Association of Business Advocating Tariff Equity	Michigan Gas Co. and Southeastern Michigan Gas Co.	Transportation Balancing Provisions.
7/97	R-00973944	PA	Pennsylvania American Water Large Users Group	Pennsylvania-American Water Co.	Rate of return, cost of service, revenue requirements.
3/98	8390-U	GA	Georgia Natural Gas Group and the Georgia Textile Manufacturers Assoc.	Atlanta Gas Light	Rate of return, restructuring issues, unbundling, rate design issues.
7/98	R-00984280	PA	PG Energy, Inc. Intervenors	PGE Industrial	Cost allocation.
8/98	U-17735	LA	Louisiana Public Service Commission	Cajun Electric Power Cooperative	Revenue requirements.
10/98	97-596	ME	Maine Office of the Public Advocate	Bangor Hydro-Electric Co.	Return on equity, rate of return.
10/98	U-23327	LA	Louisiana Public Service Commission	SWEPCO, CSW and AEP	Analysis of proposed merger.
12/98	98-577	ME	Maine Office of the Public Advocate	Maine Public Service Co.	Return on equity, rate of return.
12/98	U-23358	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity, rate of return.
3/99	98-426	KY	Kentucky Industrial Utility Customers, Inc.	Louisville Gas and Electric Co	Return on equity.
3/99	99-082	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Utilities Co.	Return on equity.
4/99	R-984554	PA	T. W. Phillips Users Group	T. W. Phillips Gas and Oil Co.	Allocation of purchased gas costs.
6/99	R-0099462	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Balancing charges.
10/99	U-24182	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Cost of debt.

**Expert Testimony Appearances
of
Richard A. Baudino
As of March 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
10/99	R-00994782	PA	Peoples Industrial Intervenor	Peoples Natural Gas Co.	Restructuring issues.
10/99	R-00994781	PA	Columbia Industrial Intervenor	Columbia Gas of Pennsylvania	Restructuring, balancing charges, rate flexing, alternate fuel.
01/00	R-00994786	PA	UGI Industrial Intervenor	UGI Utilities, Inc.	Universal service costs, balancing, penalty charges, capacity Assignment.
01/00	8829	MD	Maryland Industrial Gr.	Baltimore Gas & Electric Co.	Revenue requirements, cost allocation, rate design.
02/00	R-00994788	PA	Penn Fuel Transportation	PFG Gas, Inc., and	Tariff charges, balancing provisions.
05/00	U-17735	LA	Louisiana Public Service Comm.	Louisiana Electric Cooperative	Rate restructuring.
07/00	2000-080	KY	Kentucky Industrial Utility Consumers	Louisville Gas and Electric Co.	Cost allocation.
07/00	U-21453 U-20925 (SC), U-22092 (SC) (Subdocket E)	LA	Louisiana Public Service Commission	Southwestern Electric Power Co.	Stranded cost analysis.
09/00	R-00005654	PA	Philadelphia Industrial And Commercial Gas Users Group.	Philadelphia Gas Works	Interim relief analysis.
10/00	U-21453 U-20925 (SC), U-22092 (SC) (Subdocket B)	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Restructuring, Business Separation Plan.
11/00	R-00005277 (Rebuttal)	PA	Penn Fuel Transportation Customers	PFG Gas, Inc. and North Penn Gas Co.	Cost allocation issues.
12/00	U-24993	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity.
03/01	U-22092	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Stranded cost analysis.
04/01	U-21453 U-20925 (SC), U-22092 (SC) (Subdocket B) (Addressing Contested Issues)	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Restructuring issues.
04/01	R-00006042	PA	Philadelphia Industrial and Commercial Gas Users Group	Philadelphia Gas Works	Revenue requirements, cost allocation and tariff issues.

**Expert Testimony Appearances
of
Richard A. Baudino
As of March 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
11/01	U-25687	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity.
03/02	14311-U	GA	Georgia Public Service Commission	Atlanta Gas Light	Capital structure.
08/02	2002-00145	KY	Kentucky Industrial Utility Customers	Columbia Gas of Kentucky	Revenue requirements.
09/02	M-00021612	PA	Philadelphia Industrial And Commercial Gas Users Group	Philadelphia Gas Works	Transportation rates, terms, and conditions.
01/03	2002-00169	KY	Kentucky Industrial Utility Customers	Kentucky Power	Return on equity.
02/03	02S-594E	CO	Cripple Creek & Victor Gold Mining Company	Aquila Networks – WPC	Return on equity.
04/03	U-26527	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity.
10/03	CV020495AB	GA	The Landings Assn., Inc.	Utilities Inc. of GA	Revenue requirement & overcharge refund
03/04	2003-00433	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric	Return on equity, Cost allocation & rate design
03/04	2003-00434	KY	Kentucky Industrial Utility Customers	Kentucky Utilities	Return on equity
4/04	04S-035E	CO	Cripple Creek & Victor Gold Mining Company, Goodrich Corp., Holcim (U.S.) Inc., and The Trane Co.	Aquila Networks – WPC	Return on equity.
9/04	U-23327, Subdocket B	LA	Louisiana Public Service Commission	Southwestern Electric Power Company	Fuel cost review
10/04	U-23327 Subdocket A	LA	Louisiana Public Service Commission	Southwestern Electric Power Company	Return on Equity
06/05	050045-EI	FL	South Florida Hospital and HealthCare Assoc.	Florida Power & Light Co.	Return on equity
08/05	9036	MD	Maryland Industrial Group	Baltimore Gas & Electric Co.	Revenue requirement, cost allocation, rate design, Tariff issues.
01/06	2005-0034	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Power Co.	Return on equity.

**Expert Testimony Appearances
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As of March 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
03/06	05-1278-E-PC-PW-42T	WV	West Virginia Energy Users Group	Appalachian Power Company	Return on equity.
04/06	U-25116 Commission	LA	Louisiana Public Service	Entergy Louisiana, LLC	Transmission Issues
07/06	U-23327 Commission	LA	Louisiana Public Service	Southwestern Electric Power Company	Return on equity, Service quality
08/06	ER-2006-0314	MO	Missouri Office of the Public Counsel	Kansas City Power & Light Co.	Return on equity, Weighted cost of capital
08/06	06S-234EG	CO	CF&I Steel, L.P. & Climax Molybdenum	Public Service Company of Colorado	Return on equity, Weighted cost of capital
01/07	06-0960-E-42T Users Group	WV	West Virginia Energy	Monongahela Power & Potomac Edison	Return on Equity
01/07	43112	AK	AK Steel, Inc.	Vectren South, Inc.	Cost allocation, rate design
05/07	2006-661	ME	Maine Office of the Public Advocate	Bangor Hydro-Electric	Return on equity, weighted cost of capital.
09/07	07-07-01	CT	Connecticut Industrial Energy Consumers	Connecticut Light & Power	Return on equity, weighted cost of capital
10/07	05-UR-103	WI	Wisconsin Industrial Energy Group, Inc.	Wisconsin Electric Power Co.	Return on equity
11/07	29797	LA	Louisiana Public Service Commission	Cleco Power :LLC & Southwestern Electric Power	Lignite Pricing, support of settlement
01/08	07-551-EL-AIR	OH	Ohio Energy Group	Ohio Edison, Cleveland Electric, Toledo Edison	Return on equity
03/08	07-0585, 07-0585, 07-0587, 07-0588, 07-0589, 07-0590, (consol.)	IL	The Commercial Group	Ameren	Cost allocation, rate design
04/08	07-0566	IL	The Commercial Group	Commonwealth Edison	Cost allocation, rate design
06/08	R-2008-2011621	PA	Columbia Industrial Intervenors	Columbia Gas of PA	Cost and revenue allocation, Tariff issues
07/08	R-2008-2028394	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy	Cost and revenue allocation, Tariff issues

**Expert Testimony Appearances
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As of March 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
07/08	R-2008-2039634	PA	PPL Gas Large Users Group	PPL Gas	Retainage, LUFG Pct.
08/08	6680-UR-116	WI	Wisconsin Industrial Energy Group	Wisconsin P&L	Cost of Equity
08/08	6690-UR-119	WI	Wisconsin Industrial Energy Group	Wisconsin PS	Cost of Equity
09/08	ER-2008-0318	MO	The Commercial Group	AmerenUE	Cost and revenue allocation
10/08	R-2008-2029325	PA	U.S. Steel & Univ. of Pittsburgh Med. Ctr.	Equitable Gas Co.	Cost and revenue allocation
10/08	08-G-0609	NY	Multiple Intervenors	Niagara Mohawk Power	Cost and Revenue allocation
12/08	27800-U	GA	Georgia Public Service Commission	Georgia Power Company	CWIP/AFUDC issues, Review financial projections
03/09	ER08-1056	FERC	Louisiana Public Service Commission	Entergy Services, Inc.	Capital Structure
04/09	E002/GR-08-1065	MN	The Commercial Group	Northern States Power	Cost and revenue allocation and rate design
05/09	08-0532	IL	The Commercial Group	Commonwealth Edison	Cost and revenue allocation
07/09	080677-EI	FL	South Florida Hospital and Health Care Association	Florida Power & Light	Cost of equity, capital structure, Cost of short-term debt
07/09	U-30975	LA	Louisiana Public Service Commission	Cleco LLC, Southwestern Public Service Co.	Lignite mine purchase
10/09	4220-UR-116	WI	Wisconsin Industrial Energy Group	Northern States Power	Class cost of service, rate design
10/09	M-2009-2123945	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities	Smart Meter Plan cost allocation
10/09	M-2009-2123944	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Company	Smart Meter Plan cost allocation
10/09	M-2009-2123951	PA	West Penn Power Industrial Intervenors	West Penn Power	Smart Meter Plan cost allocation
11/09	M-2009-2123948	PA	Duquesne Industrial Intervenors	Duquesne Light Company	Smart Meter Plan cost allocation
11/09	M-2009-2123950	PA	Met-Ed Industrial Users Group Penelec Industrial Customer Alliance, Penn Power Users Group	Metropolitan Edison, Pennsylvania Electric Co., Pennsylvania Power Co.	Smart Meter Plan cost allocation

**Expert Testimony Appearances
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As of March 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
03/10	09-1352-E-42T	WV	West Virginia Energy Users Group	Monongahela Power	Return on equity, rate of return Potomac Edison
03/10	E015/GR-09-1151	MN	Large Power Intervenors	Minnesota Power	Return on equity, rate of return
04/10	2009-00459	KY	Kentucky Industrial Utility Consumers	Kentucky Power	Return on equity
04/10	2009-00548 2009-00549	KY	Kentucky Industrial Utility Consumers	Louisville Gas and Electric, Kentucky Utilities	Return on equity.
05/10	10-0261-E-GI	WV	West Virginia Energy Users Group	Appalachian Power Co./ Wheeling Power Co.	EE/DR Cost Recovery, Allocation, & Rate Design
05/10	R-2009-2149262	PA	Columbia Industrial Intervenors	Columbia Gas of PA	Class cost of service & cost allocation
06/10	2010-00036	KY	Lexington-Fayette Urban County Government	Kentucky American Water Company	Return on equity, rate of return, revenue requirements
06/10	R-2010-2161694	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities	Rate design, cost allocation
07/10	R-2010-2161575	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Co.	Return on equity
07/10	R-2010-2161592	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Co.	Cost and revenue allocation
07/10	9230	MD	Maryland Energy Group	Baltimore Gas and Electric	Electric and gas cost and revenue allocation; return on equity
09/10	10-70	MA	University of Massachusetts-Amherst	Western Massachusetts Electric Co.	Cost allocation and rate design
10/10	R-2010-2179522	PA	Duquesne Industrial Intervenors	Duquesne Light Company	Cost and revenue allocation, rate design
11/10	P-2010-2158084	PA	West Penn Power Industrial Intervenors	West Penn Power Co.	Transmission rate design
11/10	10-0699-E-42T	WV	West Virginia Energy Users Group	Appalachian Power Co. & Wheeling Power Co.	Return on equity, rate of Return
11/10	10-0467	IL	The Commercial Group	Commonwealth Edison	Cost and revenue allocation and rate design
04/11	R-2010-2214415	PA	Central Pen Gas Large Users Group	UGI Central Penn Gas, Inc.	Tariff issues, revenue allocation
07/11	R-2011-2239263	PA	Philadelphia Area Energy Users Group	PECO Energy	Retainage rate

**Expert Testimony Appearances
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As of March 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
08/11	R-2011-2232243	PA	AK Steel	Pennsylvania-American Water Company	Rate Design
08/11	11AL-151G	CO	Climax Molybdenum	PS of Colorado	Cost allocation
09/11	11-G-0280	NY	Multiple Intervenors	Corning Natural Gas Co.	Cost and revenue allocation
10/11	4220-UR-117	WI	Wisconsin Industrial Energy Group	Northern States Power	Cost and revenue allocation, rate design
02/12	11AL-947E	CO	Climax Molybdenum, CF&I Steel	Public Service Company of Colorado	Return on equity, weighted cost of capital
07/12	120015-EI	FL	South Florida Hospitals and Health Care Association	Florida Power and Light Co.	Return on equity, weighted cost of capital
07/12	12-0613-E-PC	WV	West Virginia Energy Users Group	American Electric Power/APCo	Special rate proposal for Century Aluminum
07/12	R-2012-2290597	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities Corp.	Cost allocation
09/12	05-UR-106	WI	Wisconsin Industrial Energy Group	Wisconsin Electric Power Co.	Class cost of service, cost and revenue allocation, rate design
09/12	2012-00221 2012-00222	KY	Kentucky Industrial Utility Consumers	Louisville Gas and Electric, Kentucky Utilities	Return on equity.
10/12	9299	MD	Maryland Energy Group	Baltimore Gas & Electric	Cost and revenue allocation, rate design Cost of equity, weighted cost of capital
10/12	4220-UR-118	WI	Wisconsin Industrial Energy Group	Northern States Power Company	Class cost of service, cost and revenue allocation, rate design
10/12	473-13-0199	TX	Steering Committee of Cities Served by Oncor	Cross Texas Transmission, LLC	Return on equity, capital structure
01/13	R-2012-2321748 et al.	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Cost and revenue allocation
02/13	12AL-1052E	CO	Cripple Creek & Victor Gold Mining, Holcim (US) Inc.	Black Hills/Colorado Electric Utility Company	Cost and revenue allocations
06/13	8009	VT	IBM Corporation	Vermont Gas Systems	Cost and revenue allocation, rate design
07/13	130040-EI	FL	WCF Hospital Utility Alliance	Tampa Electric Co.	Return on equity, rate of return
08/13	9326	MD	Maryland Energy Group	Baltimore Gas and Electric	Cost and revenue allocation, rate design, special rider

**Expert Testimony Appearances
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As of March 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
08/13	P-2012-2325034	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities, Corp.	Distribution System Improvement Charge
09/13	4220-UR-119	WI	Wisconsin Industrial Energy Group	Northern States Power Co.	Class cost of service, cost and revenue allocation, rate design
11/13	13-1325-E-PC	WV	West Virginia Energy Users Group	American Electric Power/APCo	Special rate proposal, Felman Production
06/14	R-2014-2406274	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Cost and revenue allocation, rate design
08/14	05-UR-107	WI	Wisconsin Industrial Energy Group	Wisconsin Electric Power Co.	Cost and revenue allocation, rate design
10/14	ER13-1508 et al.	FERC	Louisiana Public Service Comm.	Entergy Services, Inc.	Return on equity
11/14	14AL-0660E	CO	Climax Molybdenum Co. and CFI Steel, LP	Public Service Co. of Colorado	Return on equity, weighted cost of capital
11/14	R-2014-2428742	PA	AK Steel	West Penn Power Company	Cost and revenue allocation
12/14	42866	TX	West Travis Co. Public Utility Agency	Travis County Municipal Utility District No. 12	Response to complain of monopoly power
3/15	2014-00371 2014-00372	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric, Kentucky Utilities	Return on equity, cost of debt, weighted cost of capital
3/15	2014-00396	KY	Kentucky Industrial Utility Customers	Kentucky Power Co.	Return on equity, weighted cost of capital
6/15	15-0003-G-42T	WV	West Virginia Energy Users Gp.	Mountaineer Gas Co.	Cost and revenue allocation, Infrastructure Replacement Program
9/15	15-0676-W-42T	WV	West Virginia Energy Users Gp.	West Virginia-American Water Company	Appropriate test year, Historical vs. Future
9/15	15-1256-G-390P	WV	West Virginia Energy Users Gp.	Mountaineer Gas Co.	Rate design for Infrastructure Replacement and Expansion Program
10/15	4220-UR-121	WI	Wisconsin Industrial Energy Gp.	Northern States Power Co.	Class cost of service, cost and revenue allocation, rate design
12/15	15-1600-G-390P	WV	West Virginia Energy Users Gp.	Dominion Hope	Rate design and allocation for Pipeline Replacement & Expansion Prog.
12/15	45188	TX	Steering Committee of Cities Served by Oncor	Oncor Electric Delivery Co.	Ring-fence protections for cost of capital

**Expert Testimony Appearances
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Richard A. Baudino
As of March 2020**

Date	Case	Jurisdct.	Party	Utility	Subject
2/16	9406	MD	Maryland Energy Group	Baltimore Gas & Electric	Cost and revenue allocation, rate design, proposed Rider 5
3/16	39971	GA	GA Public Service Comm. Staff	Southern Company / AGL Resources	Credit quality and service quality issues
04/16	2015-00343	KY	Kentucky Office of the Attorney General	Atmos Energy	Cost of equity, cost of short-term debt, capital structure
05/16	16-G-0058 16-G-0059	NY	City of New York	Brooklyn Union Gas Co., KeySpan Gas East Corp.	Cost and revenue allocation, rate design, service quality issues
06/16	16-0073-E-C	WV	Constellium Rolled Products Ravenswood, LLC	Appalachian Power Co.	Complaint; security deposit
07/16	9418	MD	Healthcare Council of the National Capital Area	Potomac Electric Power Co.	Cost of equity, cost of service, Cost and revenue allocation
07/16	160021-EI	FL	South Florida Hospital and Health Care Association	Florida Power and Light Co.	Return on equity, cost of debt, capital structure
07/16	16-057-01	UT	Utah Office of Consumer Svcs.	Dominion Resources, Questar Gas Co.	Credit quality and service quality issues
08/16	8710	VT	Vermont Dept. of Public Service	Vermont Gas Systems	Return on equity, cost of debt, cost of capital
08/16	R-2016-2537359	PA	AK Steel Corp.	West Penn Power Co.	Cost and revenue allocation
09/16	2016-00162	KY	Kentucky Office of the Attorney General	Columbia Gas of Ky.	Return on equity, cost of short-term debt
09/16	16-0550-W-P	WV	West Va. Energy Users Gp.	West Va. American Water Co.	Infrastructure Replacement Program Surcharge
01/17	46238	TX	Steering Committee of Cities Served by Oncor	Oncor Electric Delivery Co.	Ring fencing and other conditions for acquisition, service quality and reliability
02/17	45414	TX	Cities of Midland, McAllen, and Colorado City	Sharyland Utilities, LP and Sharyland Dist. and Transmission Services, LLC	Return on equity
02/17	2016-00370 2016-00371	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric, Kentucky Utilities	Return on equity, cost of debt, weighted cost of capital
03/17	10580	TX	Atmos Cities Steering Committee	Atmos Pipeline Texas	Return on equity, capital structure, weighted cost of capital
03/17	R-3867-2013	Quebec, Canada	Canadian Federation of Independent Businesses	Gaz Metro	Marginal Cost of Service Study

**Expert Testimony Appearances
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Richard A. Baudino
As of March 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
05/17	R-2017-2586783	PA	Philadelphia Industrial and Commercial Gas Users Gp.	Philadelphia Gas Works	Cost and revenue allocation, rate design, Interruptible tariffs
08/17	R-2017-2595853	PA	AK Steel	Pennsylvania American Water Co.	Cost and revenue allocation, rate design
8/17	17-3112-INV	VT	Vt. Dept. of Pubic Service	Green Mountain Power	Return on equity, cost of debt, weighted cost of capital
9/17	4220-UR-123	WI	Wisconsin Industrial Energy Group	Northern States Power	Cost and revenue allocation, rate design
10/17	2017-00179	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Power Co.	Return on equity, cost of short-term debt
12/17	2017-00321	KY	Office of the Attorney General	Duke Energy Kentucky, Inc.	Return on equity
1/18	2017-00349	KY	Office of the Attorney General	Atmos Energy	Return on equity, cost of debt, weighted cost of capital
5/18	Fiscal Years 2019-2021 Rates	PA	Philadelphia Large Users Group	Philadelphia Water Department	Cost and revenue allocation
8/18	18-0974-TF	VT	Vt. Dept. of Public Service	Green Mountain Power	Return on equity, cost of debt, weighted cost of capital
8/18	48401	TX	Cities Served by Texas-New Mexico Power Company	Texas-New Mexico Power Co.	Return on equity, capital structure
8/18	18-05-16	CT	Connecticut Industrial Energy Consumers	Connecticut Natural Gas Co.	Cost and revenue allocation
9/18	9484	MD	Maryland Energy Group	Baltimore Gas & Electric	Cost and revenue allocation, rate design
9/18	2017-370-E	SC	South Carolina Office of Regulatory Staff	South Carolina Electric & Gas, Dominion Resources, SCANA	Return on equity, service quality standards, credit quality conditions
10/18	18-1115-G-390P	WV	West Va. Energy Users Group	Mountaineer Gas Company	Customer protections for Infrastructure Replacement and Expansion Program
12/18	R-2018-3003558, R-2018-3003561	PA	Aqua Large Users Group	Aqua Pennsylvania, Inc.	Cost and revenue allocation
02/19	UD-18-07	CCNO	Crescent City Power Users' Gp.	Entergy New Orleans, LLC	Return on equity, Reliability Incentive Mechanism, other proposed riders
03/19	2018-00358	KY	Office of the Attorney General	Kentucky American Water Co.	Return on equity, Qualified Infrastructure Program rider
05/19	19-E-0065 19-G-0066	NY	City of New York	Consolidated Edison Co.	Cost and revenue allocation, rate design, tariff issues, fast-charging station incentives

**Expert Testimony Appearances
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Date	Case	Jurisdict.	Party	Utility	Subject
05/2019	19-0513-TF	VT	Vt. Dept. of Public Service	Vermont Gas Systems	Return on equity, capital structure
06/2019	5-TG-100	WI	Wisconsin Industrial Energy Group	WEPCO, Wisconsin Gas, Wisconsin PS	Transportation and balancing issues
07/2019	49494	TX	Cities Served by AEP Texas	AEP Texas, Inc.	Return on equity, capital structure
08/2019	19-G-0309 19-G-0310	NY	City of New York	Brooklyn Union Gas Co., KeySpan Gas East Corp.	Cost and revenue allocation, rate design, tariff issues and modifications
08/2019	19-0316-G-42T	WV	West Virginia Energy Users Gp.	Mountaineer Gas Company	Cost and revenue allocation
8/2019	5-UR-109	WI	Wisconsin Industrial Energy Gp.	Wisconsin Electric Power Co., Wisconsin Gas, LLC	Cost Allocation, Class cost of service study
8/2019	6690-UR-126	WI	Wisconsin Industrial Energy Gp.	Wisconsin Public Service Corp.	Cost Allocation, Class cost of service study
9/2019	9610	MD	Maryland Energy Group	Baltimore Gas and Electric Co.	Cost and revenue allocation, rate design
12/2019	2019-00271	KY	Office of the Attorney General	Duke Energy Kentucky, Inc.	Return on equity
2/2020	49831	TX	Texas Industrial Energy Consumers	Southwestern Public Service Co.	Return on equity, capital structure, rate of return
2/2020	E-7. Sub 1214	NC	NC Attorney General's Office	Duke Energy Carolinas	Return on equity, capital structure, rate of return, economic conditions
2/2020	E-2. Sub 1219	NC	NC Attorney General's Office	Duke Energy Progress	Return on equity, capital structure, rate of return, economic conditions



Earnings Review & Business Update

FOURTH QUARTER 2019

Lynn Good *Chairman / President and CEO*
Steve Young *Executive Vice President and CFO*

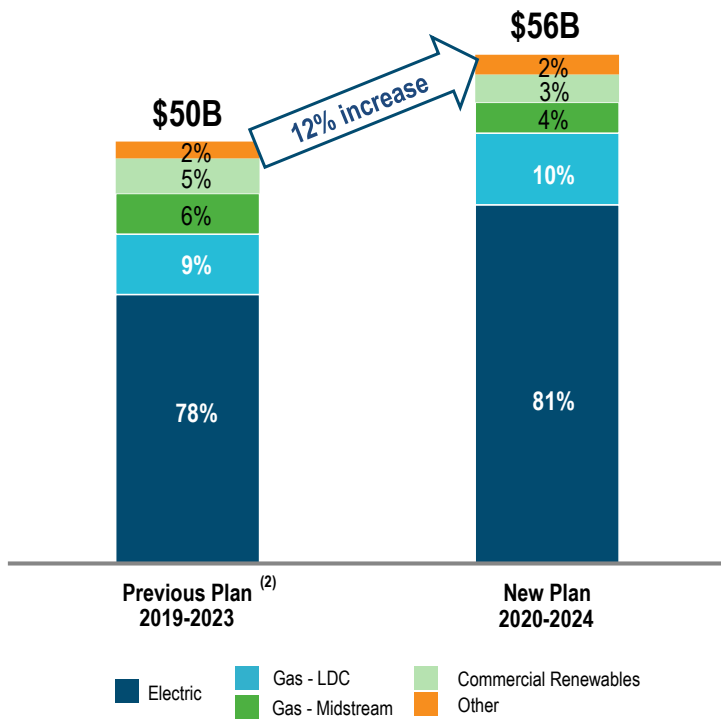
February 13, 2020



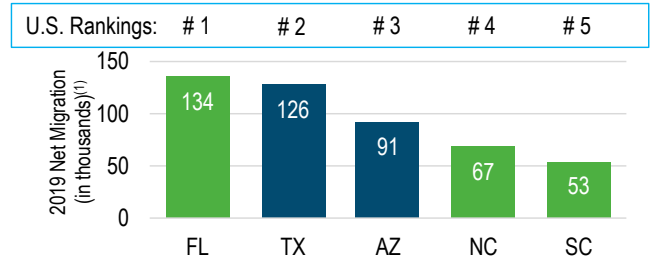
Rapidly expanding infrastructure needs driven by strong fundamental growth



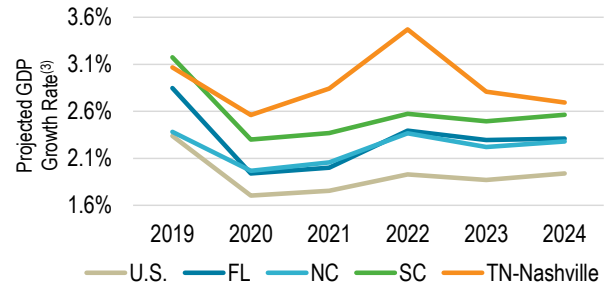
**12% INCREASE IN 5-YEAR CAPITAL PLAN;
 LOW RISK INVESTMENTS**



**SERVING THREE OF THE MOST
 VIBRANT STATES IN THE COUNTRY**



**GDP GROWTH PROJECTIONS ABOVE
 THE NATIONAL AVERAGE**



(1) Source: Wells Fargo Securities; U.S. Department of Commerce
 (2) As disclosed in the Fourth Quarter 2018 Earnings Review and Business Update on Feb. 14, 2019
 (3) Source: U.S. Bureau of Economic Analysis (BEA); Moody's Analytics Forecasted

VITALITY OF COMMUNITIES DRIVES REGULATED FOCUSED GROWTH

\$6B Increase in capital plan drives significant earnings base growth



Florida - \$1.5B increase

- Grid hardening supported by Storm Protection Plan regulations (SB 796)
- Solar investments
- Underpinned by highest net migration in the U.S.⁽¹⁾

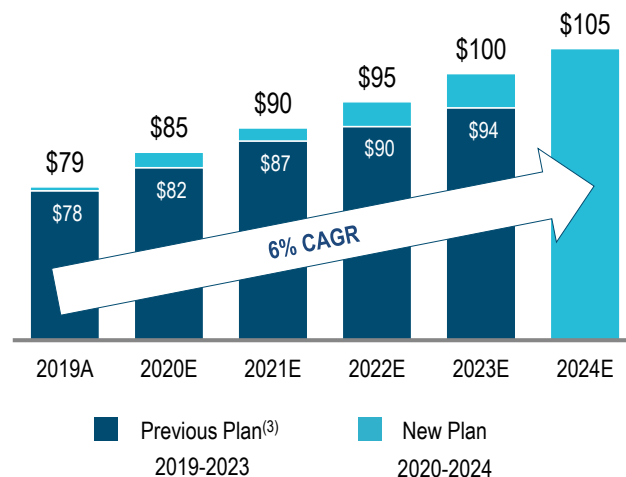
Carolinas - \$4B increase

- T&D grid of DEC and DEP represents one of the largest systems in the country
- T&D investment needs driven by migration that ranks 4th (NC) and 5th (SC) in the U.S.⁽¹⁾ and NC solar penetration that ranks 2nd in the U.S.
- Storm hardening and resiliency

Gas LDCs - \$1B increase

- Integrity management programs
- Infrastructure to support strong customer growth

REGULATED ELECTRIC AND GAS EARNINGS BASE⁽²⁾



(1) Source: Wells Fargo Securities; U.S. Department of Commerce
 (2) In billions. Illustrative earnings base for presentation purposes only and includes retail and wholesale; Amounts as of the end of each year shown; Projected earnings base = prior period earnings base + capex - D&A - deferred taxes
 (3) As disclosed in the Fourth Quarter 2018 Earnings Review and Business Update on Feb. 14, 2019

**STRENGTHENED BALANCE SHEET (BBB+/BAA1 STABLE) UNDERPINS
 ABILITY TO EXECUTE ON \$56B CAPITAL PLAN**

Balance sheet strength and equity financing plan



KEY MESSAGES

- Committed to maintaining strong credit quality, including investment-grade ratings
 - Credit ratings recently affirmed at BBB+/Baa1 (Stable)
 - Credit metrics are consistently solid over the planning horizon
- Settlement of ~\$2.5 billion equity forward to occur in Dec. 2020
- Expected equity issuances of \$500 million per year 2020-2022 via DRIP/ATM programs; will evaluate continuing need for DRIP/ATM programs upon in-service of ACP

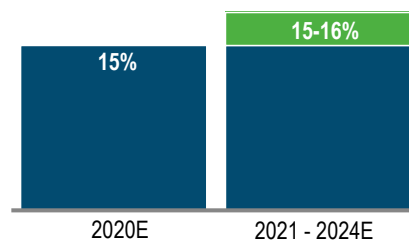
UNIQUE FACTORS CONTRIBUTING TO BALANCE SHEET STRENGTH

- ~\$275 million refundable AMT credits expected in 2020
- Not expected to be a significant taxpayer until 2027 timeframe
- Pension plan 107% funded – no contributions forecasted in five-year plan

PRIMARY CREDIT METRICS

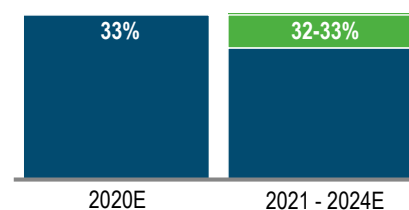
FFO/DEBT

Target: 15 - 16%



HOLDCO DEBT %

Target: Low 30%'s



EQUITY ISSUANCE PLAN REMAINS UNCHANGED FROM 3Q 2019 EARNINGS CALL

Focused on investor value creation 

DUK
LISTED
NYSE

A STRONG LONG-TERM RETURN PROPOSITION

DUK
LISTED
NYSE



CONSTRUCTIVE JURISDICTIONS, LOW-RISK REGULATED INVESTMENTS AND BALANCE SHEET STRENGTH

(1) As of Feb. 11, 2020
(2) Subject to approval by the Board of Directors.
(3) Total shareholder return proposition at a constant P/E ratio
(4) Based on adjusted EPS off the midpoint of the 2019 guidance range (\$5.00)

**DUKE ENERGY PROGRESS PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD**

		Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
ALLETE, Inc.	High Price (\$)	88.600	87.830	86.910	82.160	84.710	84.170
	Low Price (\$)	83.590	85.130	78.880	78.250	79.400	67.990
	Avg. Price (\$)	86.095	86.480	82.895	80.205	82.055	76.080
	Dividend (\$)	0.588	0.588	0.588	0.588	0.588	0.618
	Mo. Avg. Div.	2.73%	2.72%	2.83%	2.93%	2.86%	3.25%
	6 mos. Avg.	2.89%					
Alliant Energy Corp.	High Price (\$)	54.590	54.430	53.670	55.400	59.740	60.280
	Low Price (\$)	50.360	51.580	50.930	52.240	53.320	51.250
	Avg. Price (\$)	52.475	53.005	52.300	53.820	56.530	55.765
	Dividend (\$)	0.355	0.355	0.355	0.355	0.380	0.380
	Mo. Avg. Div.	2.71%	2.68%	2.72%	2.64%	2.69%	2.73%
	6 mos. Avg.	2.69%					
Ameren Corp.	High Price (\$)	80.850	80.050	77.920	77.040	82.410	87.330
	Low Price (\$)	73.310	75.260	73.340	73.510	75.540	77.190
	Avg. Price (\$)	77.080	77.655	75.630	75.275	78.975	82.260
	Dividend (\$)	0.475	0.475	0.475	0.495	0.495	0.495
	Mo. Avg. Div.	2.46%	2.45%	2.51%	2.63%	2.51%	2.41%
	6 mos. Avg.	2.49%					
American Electric Power Co.	High Price (\$)	94.890	96.220	94.980	95.770	104.430	104.970
	Low Price (\$)	90.080	91.350	88.170	90.210	92.940	86.420
	Avg. Price (\$)	92.485	93.785	91.575	92.990	98.685	95.695
	Dividend (\$)	0.670	0.670	0.700	0.700	0.700	0.700
	Mo. Avg. Div.	2.90%	2.86%	3.06%	3.01%	2.84%	2.93%
	6 mos. Avg.	2.93%					
Avangrid, Inc.	High Price (\$)	52.480	52.238	50.280	52.065	53.940	57.240
	Low Price (\$)	49.050	48.250	47.920	48.060	50.210	47.240
	Avg. Price (\$)	50.765	50.244	49.100	50.063	52.075	52.240
	Dividend (\$)	0.440	0.440	0.440	0.440	0.440	0.440
	Mo. Avg. Div.	3.47%	3.50%	3.58%	3.52%	3.38%	3.37%
	6 mos. Avg.	3.47%					
CMS Energy Corp.	High Price (\$)	65.310	65.020	64.140	63.440	68.980	69.170
	Low Price (\$)	60.100	62.320	59.330	60.250	61.570	59.120
	Avg. Price (\$)	62.705	63.670	61.735	61.845	65.275	64.145
	Dividend (\$)	0.383	0.383	0.383	0.383	0.383	0.408
	Mo. Avg. Div.	2.44%	2.40%	2.48%	2.47%	2.34%	2.54%
	6 mos. Avg.	2.45%					

DUKE ENERGY PROGRESS PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
DTE Energy Co.	High Price (\$)	134.370	133.390	127.930	130.700	134.720	135.670
	Low Price (\$)	127.160	123.410	120.080	123.130	127.620	110.200
	Avg. Price (\$)	130.765	128.400	124.005	126.915	131.170	122.935
	Dividend (\$)	0.945	0.945	0.945	1.013	1.013	1.013
	Mo. Avg. Div.	2.89%	2.94%	3.05%	3.19%	3.09%	3.29%
	6 mos. Avg.	3.08%					
Evergy, Inc.	High Price (\$)	67.810	66.540	65.630	65.150	72.620	76.570
	Low Price (\$)	63.350	62.040	62.330	61.970	62.930	63.180
	Avg. Price (\$)	65.580	64.290	63.980	63.560	67.775	69.875
	Dividend (\$)	0.475	0.475	0.505	0.505	0.505	0.505
	Mo. Avg. Div.	2.90%	2.96%	3.16%	3.18%	2.98%	2.89%
	6 mos. Avg.	3.01%					
Hawaiian Electric Ind.	High Price (\$)	45.960	45.780	45.400	47.640	49.630	50.550
	Low Price (\$)	43.240	43.970	42.950	43.330	45.040	42.030
	Avg. Price (\$)	44.600	44.875	44.175	45.485	47.335	46.290
	Dividend (\$)	0.320	0.320	0.320	0.320	0.320	0.330
	Mo. Avg. Div.	2.87%	2.85%	2.90%	2.81%	2.70%	2.85%
	6 mos. Avg.	2.83%					
NextEra Energy, Inc.	High Price (\$)	233.450	239.890	238.890	245.010	270.660	283.350
	Low Price (\$)	216.370	226.580	220.660	231.070	237.950	243.080
	Avg. Price (\$)	224.910	233.235	229.775	238.040	254.305	263.215
	Dividend (\$)	1.250	1.250	1.250	1.250	1.250	1.400
	Mo. Avg. Div.	2.22%	2.14%	2.18%	2.10%	1.97%	2.13%
	6 mos. Avg.	2.12%					
Northwestern Corp.	High Price (\$)	76.720	76.180	73.340	73.080	77.340	80.520
	Low Price (\$)	71.630	70.950	68.030	69.350	69.690	69.490
	Avg. Price (\$)	74.175	73.565	70.685	71.215	73.515	75.005
	Dividend (\$)	0.575	0.575	0.575	0.575	0.575	0.575
	Mo. Avg. Div.	3.10%	3.13%	3.25%	3.23%	3.13%	3.07%
	6 mos. Avg.	3.15%					
OGE Energy Corp.	High Price (\$)	45.770	45.490	43.770	44.550	46.330	46.430
	Low Price (\$)	42.410	42.130	41.790	41.830	43.220	37.160
	Avg. Price (\$)	44.090	43.810	42.780	43.190	44.775	41.795
	Dividend (\$)	0.365	0.388	0.388	0.388	0.388	0.388
	Mo. Avg. Div.	3.31%	3.54%	3.62%	3.59%	3.46%	3.71%
	6 mos. Avg.	3.54%					

DUKE ENERGY PROGRESS PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
Otter Tail Corp.	High Price (\$)	55.100	56.690	57.740	53.160	54.300	56.900
	Low Price (\$)	50.340	52.560	48.170	48.590	50.830	47.560
	Avg. Price (\$)	52.720	54.625	52.955	50.875	52.565	52.230
	Dividend (\$)	0.350	0.350	0.350	0.350	0.350	0.370
	Mo. Avg. Div.	2.66%	2.56%	2.64%	2.75%	2.66%	2.83%
	6 mos. Avg.	2.69%					
Pinnacle West Capital Corp.	High Price (\$)	98.580	97.520	93.880	90.680	98.810	105.510
	Low Price (\$)	91.180	92.060	84.260	84.880	88.100	88.600
	Avg. Price (\$)	94.880	94.790	89.070	87.780	93.455	97.055
	Dividend (\$)	0.738	0.738	0.783	0.783	0.783	0.783
	Mo. Avg. Div.	3.11%	3.11%	3.51%	3.57%	3.35%	3.22%
	6 mos. Avg.	3.31%					
PNM Resources, Inc.	High Price (\$)	52.950	52.980	52.280	51.980	55.240	56.140
	Low Price (\$)	48.710	50.330	47.230	47.850	48.520	45.470
	Avg. Price (\$)	50.830	51.655	49.755	49.915	51.880	50.805
	Dividend (\$)	0.290	0.290	0.290	0.290	0.308	0.308
	Mo. Avg. Div.	2.28%	2.25%	2.33%	2.32%	2.37%	2.42%
	6 mos. Avg.	2.33%					
Portland General Electric Co.	High Price (\$)	58.430	57.520	57.920	57.090	61.710	63.080
	Low Price (\$)	54.780	55.410	54.240	54.360	54.550	53.270
	Avg. Price (\$)	56.605	56.465	56.080	55.725	58.130	58.175
	Dividend (\$)	0.385	0.385	0.385	0.385	0.385	0.385
	Mo. Avg. Div.	2.72%	2.73%	2.75%	2.76%	2.65%	2.65%
	6 mos. Avg.	2.71%					
Southern Company	High Price (\$)	62.360	62.880	63.290	64.260	71.100	70.780
	Low Price (\$)	58.240	60.450	60.380	60.090	62.240	59.070
	Avg. Price (\$)	60.300	61.665	61.835	62.175	66.670	64.925
	Dividend (\$)	0.620	0.620	0.620	0.620	0.620	0.620
	Mo. Avg. Div.	4.11%	4.02%	4.01%	3.99%	3.72%	3.82%
	6 mos. Avg.	3.95%					
WEC Energy Group, Inc.	High Price (\$)	98.190	96.290	94.730	93.430	101.370	103.280
	Low Price (\$)	89.020	91.510	86.500	87.410	90.340	90.160
	Avg. Price (\$)	93.605	93.900	90.615	90.420	95.855	96.720
	Dividend (\$)	0.590	0.590	0.590	0.590	0.590	0.633
	Mo. Avg. Div.	2.52%	2.51%	2.60%	2.61%	2.46%	2.62%
	6 mos. Avg.	2.55%					

**DUKE ENERGY PROGRESS PROXY GROUP
 AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD**

		Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
Xcel Energy	High Price (\$)	66.050	65.140	63.860	64.670	69.620	72.140
	Low Price (\$)	62.190	62.180	59.460	60.850	61.970	61.250
	Avg. Price (\$)	64.120	63.660	61.660	62.760	65.795	66.695
	Dividend (\$)	0.405	0.405	0.405	0.405	0.405	0.405
	Mo. Avg. Div.	2.53%	2.54%	2.63%	2.58%	2.46%	2.43%
	6 mos. Avg.	2.53%					
	Monthly Avg. Dividend Yield	2.84%	2.84%	2.94%	2.94%	2.82%	2.90%
	6-month Avg. Dividend Yield	2.88%					

Source: Yahoo! Finance

**DUKE ENERGY PROGRESS PROXY GROUP
DCF Growth Rate Analysis**

<u>Company</u>	(1) Value Line <u>DPS</u>	(2) Value Line <u>EPS</u>	(3) <u>Zacks</u>	(4) Yahoo! <u>Finance</u>
ALLETE, Inc.	5.00%	5.00%	7.00%	7.00%
Alliant Energy Corporation	5.50%	6.50%	5.70%	5.75%
Ameren Corp.	4.50%	6.50%	6.20%	4.60%
American Electric Power Co.	5.50%	4.00%	5.60%	6.05%
Avangrid, Inc.	3.58%	8.50%	7.40%	6.30%
CMS Energy Corporation	7.00%	7.00%	6.00%	7.50%
DTE Energy Company	7.00%	4.50%	6.00%	6.00%
Evergy, Inc.	NMF	NMF	6.50%	6.50%
Hawaiian Electric	3.00%	2.50%	4.30%	3.30%
NextEra Energy, Inc.	10.50%	10.00%	7.70%	7.99%
Northwestern Corporation	4.50%	2.00%	3.10%	3.49%
OGE Energy Corp.	6.50%	6.50%	4.10%	3.50%
Otter Tail Corporation	4.00%	5.00%	9.00%	9.00%
Pinnacle West Capital Corp.	6.00%	4.00%	4.70%	4.62%
PNM Resources, Inc.	7.00%	7.00%	5.80%	6.30%
Portland General Electric Company	6.50%	4.50%	4.90%	4.70%
Southern Company	3.00%	4.00%	4.50%	2.10%
WEC Energy Group	6.00%	6.00%	6.20%	6.23%
Xcel Energy Inc.	<u>6.00%</u>	<u>5.50%</u>	<u>5.70%</u>	<u>6.10%</u>
Average	5.62%	5.50%	5.81%	5.63%
Median	5.75%	5.25%	5.80%	6.05%

Sources: Value Line Investment Survey, December 13, 2019; January 24 and February 14, 2020
Yahoo! Finance and Zacks growth rates retrieved February 25, 2020
Yahoo! Finance growth rates used for Zacks growth rates for ALLETE, Otter Tail
NMF = No meaningful figure

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**DUKE ENERGY PROGRESS PROXY GROUP
DCF RETURN ON EQUITY**

	(1) Value Line <u>Dividend Gr.</u>	(2) Value Line <u>Earnings Gr.</u>	(3) Zack's <u>Earning Gr.</u>	(4) Yahoo! <u>Earning Gr.</u>	(5) Average of <u>All Gr. Rates</u>
Method 1:					
Dividend Yield	2.88%	2.88%	2.88%	2.88%	2.88%
Average Growth Rate	5.62%	5.50%	5.81%	5.63%	5.64%
Expected Div. Yield	<u>2.96%</u>	<u>2.96%</u>	<u>2.96%</u>	<u>2.96%</u>	<u>2.96%</u>
DCF Return on Equity	8.58%	8.46%	8.77%	8.59%	8.60%
Method 2:					
Dividend Yield	2.88%	2.88%	2.88%	2.88%	2.88%
Median Growth Rate	5.75%	5.25%	5.80%	6.05%	5.71%
Expected Div. Yield	<u>2.96%</u>	<u>2.96%</u>	<u>2.96%</u>	<u>2.97%</u>	<u>2.96%</u>
DCF Return on Equity	8.71%	8.21%	8.76%	9.02%	8.67%

**DUKE ENERGY PROGRESS PROXY GROUP
 Capital Asset Pricing Model Analysis**

30-Year Treasury Bond, Value Line Beta

<u>Line No.</u>		<u>Value Line</u>
1	Market Required Return Estimate	11.53%
2	Risk-free Rate of Return, 30-Year Treasury Bond	
3	Average of Last Six Months	2.19%
4	Risk Premium	
5	(Line 1 minus Line 3)	9.34%
6	Comparison Group Beta	0.56
7	Comparison Group Beta * Risk Premium	
8	(Line 5 * Line 6)	5.22%
9	CAPM Return on Equity	
10	(Line 3 plus Line 8)	7.40%

Duff and Phelps Normalized Risk-free Rate

1	Market Required Return Estimate	11.53%
2	Duff and Phelps Normalized Risk-free Rate	3.00%
3	Risk Premium	
4	(Line 1 minus Line 2)	8.53%
5	Proxy Group Beta	0.56
6	Proxy Group Beta * Risk Premium	
7	(Line 4 * Line 5)	4.76%
8	CAPM Return on Equity	
9	(Line 2 plus Line 7)	7.76%

**DUKE ENERGY PROGRESS PROXY GROUP
 Capital Asset Pricing Model Analysis**

Supporting Data for CAPM Analyses

30 Year Treasury Bond Data

	<u>Avg. Yield</u>
September-19	2.16%
October-19	2.19%
November-19	2.28%
December-19	2.30%
January-20	2.22%
February-20	<u>1.97%</u>
6 month average	2.19%

Source: www.federalreserve.gov

<u>Value Line Market Return Data:</u>		<u>Comparison Group Betas:</u>	<u>Value Line</u>
Forecasted Data:		ALLETE, Inc.	0.65
		Alliant Energy Corporation	0.60
Value Line Median Growth Rates:		Ameren Corp.	0.55
Earnings	10.50%	American Electric Power Co.	0.55
Book Value	<u>8.00%</u>	Avangrid, Inc.	0.40
Average	9.25%	CMS Energy Corporation	0.50
Average Dividend Yield	<u>1.05%</u>	DTE Energy Company	0.55
Estimated Market Return	10.35%	Evergy, Inc.	NMF
		Hawaiian Electric	0.55
Value Line Projected 3-5 Yr.		NextEra Energy, Inc.	0.50
Median Annual Total Return	12.00%	Northwestern Corporation	0.60
Average Annual Total Return	<u>13.42%</u>	OGE Energy Corp.	0.75
Average	12.71%	Otter Tail Corporation	0.70
		Pinnacle West Capital Corp.	0.50
		PNM Resources, Inc.	0.60
Average of Projected Mkt.		Portland General Electric Company	0.55
Returns	11.53%	Southern Company	0.50
		WEC Energy Group	0.50
Source: Value Line Investment Analyzer, February 25, 2020		Xcel Energy Inc.	<u>0.50</u>
		Average	0.56
		Source: Value Line Investment Survey	

**DUKE ENERGY PROGRESS PROXY GROUP
 Capital Asset Pricing Model Analysis
 Historic Market Premium**

	<u>Arithmetic Mean</u>	<u>Adjusted Arithmetic Mean</u>
CAPM with Current 30-Year Treasury Yield		
Long-Term Annual Return on Stocks	11.90%	
Long-Term Annual Income Return on Long-Term Treas. Bonds	<u>5.00%</u>	
Historical Market Risk Premium	6.90%	6.14%
Proxy Group Beta, Value Line	<u>0.56</u>	<u>0.56</u>
Beta * Market Premium	3.85%	3.43%
Current 30-Year Treasury Bond Yield	<u>2.19%</u>	<u>2.19%</u>
CAPM Cost of Equity, Value Line Beta	<u>6.04%</u>	<u>5.61%</u>
CAPM with D&P Normalized Risk-Free Rate		
Historical Market Risk Premium	6.90%	6.14%
Proxy Group Beta, Value Line	0.56	0.56
Beta * Market Premium	3.85%	3.43%
D&P Normalized Risk-Free Rate	3.00%	3.00%
CAPM Cost of Equity, Normalized Risk-Free Rate	<u>6.85%</u>	<u>6.43%</u>

Source: Duff and Phelps Cost of Capital Navigator
 2019 Cost of Capital: Annual U.S. Guidance and Examples, Chapter 2, Exhibit 2.3,
 Chapter 3, pages 45-47

North Carolina Public Staff
Data Request No. 24
DEP Docket No. E-2, Sub 1219
Item No. 24-4
Page 1 of 1

Request:

4. With reference to page 22, lines 12-15 of Mr. Newlin’s testimony, please provide: (1) copies of all studies performed by the Company and or investment bankers that suggests a capital structure of 47% long-term debt and 53% common equity minimizes the weighted average cost of capital; and (2) all source documents, data, and work sheets used in the studies in (1).

Response:

Duke Energy Progress targets stable ‘A’ level credit ratings on an unsecured basis. The Company has not performed the studies requested, but instead considers both quantitative and qualitative factors in its assessment of capital structure. In his testimony, witness Newlin notes the Company “...believes this proposed capital structure is optimal for DE Progress, as it introduces an appropriate amount of risk due to leverage while minimizing the weighted average cost of capital to customers.” While reducing the equity component would minimize the WACC on paper, it also increases leverage and risk, reduces cash flow, negatively impacts credit quality, and would increase the cost of debt and equity capital. In order to finance operations at favorable rates through all market conditions, the Company must balance risk due to leverage and cost to customers. In the Company’s judgment, the proposed 47/53 capital structure supports those ratings, and impacts the quantitative and qualitative analysis performed by Moody’s and S&P. Please refer to the Company’s credit rating reports, included in PS DR 22-4, for quantitative analysis performed by the rating agencies.

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1214

Proposed final 2/12/2020

In the Matter of)

Application of Duke Energy Carolinas, LLC)
For Adjustment of Rates and Charges Applicable)
to Electric Service in North Carolina)

**DIRECT TESTIMONY OF
RICHARD A. BAUDINO
ON BEHALF OF
ATTORNEY GENERAL'S
OFFICE**

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I. QUALIFICATIONS AND SUMMARY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Richard A. Baudino. My business address is J. Kennedy and Associates, Inc. (“Kennedy and Associates”), 570 Colonial Park Drive, Suite 305, Roswell, Georgia 30075.

Q. WHAT IS YOUR OCCUPATION AND BY WHOM ARE YOU EMPLOYED?

A. I am a consultant with Kennedy and Associates.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

A. I received my Master of Arts degree with a major in Economics and a minor in Statistics from New Mexico State University in 1982. I also received my Bachelor of Arts Degree with majors in Economics and English from New Mexico State in 1979.

I began my professional career with the New Mexico Public Service Commission Staff in October 1982 and was employed there as a Utility Economist. During my employment with the Staff, my responsibilities included the analysis of a broad range of issues in the ratemaking field. Areas in which I testified included cost of service, rate of return, rate design, revenue requirements, analysis of sale/leasebacks of generating plants, utility finance issues, and generating plant phase-ins.

In October 1989, I joined the utility consulting firm of Kennedy and Associates as a Senior Consultant where my duties and responsibilities covered

1 substantially the same areas as those during my tenure with the New Mexico
2 Public Service Commission Staff. I became Manager in July 1992 and was
3 named Director of Consulting in January 1995. Currently, I am a consultant
4 with Kennedy and Associates.

5 Attachment A summarizes my expert testimony experience.

6 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

7 A. I am testifying on behalf of the North Carolina Attorney General's Office
8 ("AGO").

9 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS**
10 **PROCEEDING?**

11 A. The purpose of my Direct Testimony is to address the allowed return on equity,
12 capital structure, and overall rate of return on rate base for the regulated electric
13 operations of Duke Energy Carolinas, Inc. ("Duke Carolinas", or "Company").
14 I will also respond to the Direct Testimonies of Mr. Robert Hevert and Mr. Karl
15 Newlin, witnesses for Duke Carolinas.

16 **Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AND**
17 **RECOMMENDATIONS.**

18 A. My conclusions and recommendations are as follows.

19 Based on current financial market conditions, I recommend that the
20 North Carolina Utilities Commission ("NCUC" or "Commission") adopt a
21 9.0% return on equity for Duke Carolinas in this proceeding. My
22 recommendation is based primarily on the results of a Discounted Cash Flow
23 ("DCF") model analysis and is conservatively high given the results. My DCF

1 analysis incorporates my standard approach to estimating the investor required
2 return on equity and utilizes the proxy group of 19 companies used by Duke
3 Carolinas witness Hevert.

4 My cost of equity analysis also includes Capital Asset Pricing Model
5 (“CAPM”) analyses for additional information to further inform my
6 recommendation to the Commission. I did not incorporate the results of the
7 CAPM in my recommendation given the low cost of equity results being
8 produced by this model at this time. Nonetheless, the CAPM results confirm
9 the fact that the required ROE for regulated electric utilities continues to be low
10 given the low interest rate environment that has prevailed in the economy for
11 the last 10 or so years.

12 Finally, I also reviewed recent Commission-allowed ROEs presented by
13 Mr. Hevert. Although I do not recommend that the Commission base its allowed
14 ROE on the actions of other regulatory commissions, this review helped inform
15 my recommended ROE of 9.0%.

16 I also recommend that the Commission reject Duke Carolinas’
17 requested 53% equity ratio. The Company’s requested equity ratio is higher
18 than the average common equity ratio of the proxy group and would result in
19 excessive rates to Duke Carolinas’ North Carolina customers. Instead, I
20 recommend the Commission approve the Company’s December 2018 capital
21 structure, which includes a common equity ratio of 51.5%. I also recommend
22 that the Commission accept Duke Carolinas’ requested cost of debt.

1 States Supreme Court in *Federal Power Comm'n v. Hope Natural Gas Co.*, 320
2 U.S. 591 (1944) and *Bluefield W.W. & Improv. Co. v. Public Service Comm'n*,
3 262 U.S. 679 (1922).

4 From an economist's perspective, the notion of "opportunity cost" plays
5 a vital role in estimating the return on equity. One measures the opportunity
6 cost of an investment equal to what one would have obtained in the next best
7 alternative. For example, let us suppose that an investor decides to purchase the
8 stock of a publicly traded electric utility. That investor made the decision based
9 on the expectation of dividend payments and perhaps some appreciation in the
10 stock's value over time; however, that investor's opportunity cost is measured
11 by what she or he could have invested in as the next best alternative. That
12 alternative could have been another utility stock, a utility bond, a mutual fund,
13 a money market fund, or any other number of investment vehicles.

14 The key determinant in deciding whether to invest, however, is based
15 on comparative levels of risk. Our hypothetical investor would not invest in a
16 particular electric company stock if it offered a return lower than other
17 investments of similar risk. The opportunity cost simply would not justify such
18 an investment. Thus, the task for the rate of return analyst is to estimate a return
19 that is equal to the return being offered by other risk-comparable firms.

20 **Q. DOES THE LEVEL OF INTEREST RATES AFFECT THE ALLOWED**
21 **COST OF EQUITY, OR ROE, FOR REGULATED UTILITIES?**

22 A. Yes. The common stock of regulated utilities is considered to be interest rate
23 sensitive. This means that the cost of equity for regulated utilities tends to rise

1 and fall with changes in interest rates. For example, as interest rates rise, the
2 cost equity will also rise and vice versa when interest rates fall. This relationship
3 is due in large part to the capital intensive nature of the utility industry, which
4 relies heavily on both debt and equity to finance its regulated investments.

5 **Q. DESCRIBE THE TREND IN INTEREST RATES OVER THE LAST 10**
6 **OR SO YEARS.**

7 A. Since 2007 and 2008, the overall trend in interest rates in the U.S. and the world
8 economy has been lower. This trend was precipitated by the 2007 financial
9 crisis and severe recession that followed in December 2007. In response to this
10 economic crisis, the Federal Reserve (“Fed”) undertook an unprecedented
11 series of steps to stabilize the economy, ease credit conditions, and lower
12 unemployment and interest rates. These steps are commonly known as
13 Quantitative Easing (“QE”) and were implemented in three distinct stages:
14 QE1, QE2, and QE3. The Fed's stated purpose of QE was “to support the
15 liquidity of financial institutions and foster improved conditions in financial
16 markets.”¹

17 **Q. MR. BAUDINO, BEFORE YOU CONTINUE, PLEASE PROVIDE A**
18 **BRIEF EXPLANATION OF HOW THE FED USES INTEREST RATES**
19 **TO IMPROVE CONDITIONS IN THE FINANCIAL MARKETS.**

20 A. Generally, the Fed uses monetary policy to implement certain economic goals.
21 The Fed explained its monetary policy as follows:

¹ https://www.federalreserve.gov/monetarypolicy/bst_crisisresponse.htm

1 Monetary policy in the United States comprises the Federal
2 Reserve's actions and communications to promote maximum
3 employment, stable prices, and moderate long-term interest
4 rates--the three economic goals the Congress has instructed the
5 Federal Reserve to pursue.

6 The Federal Reserve conducts the nation's monetary policy by
7 managing the level of short-term interest rates and influencing
8 the overall availability and cost of credit in the economy.²

9 One of the Fed's primary tools for conducting monetary policy is setting
10 the federal funds rate. The federal funds rate is the interest rate set by the Fed
11 that banks and credit unions charge each other for overnight loans of reserve
12 balances. Traditionally the federal funds rate directly influences short-term
13 interest rates, such as the Treasury bill rate and interest rates on savings and
14 checking accounts. The federal funds rate has a more indirect effect on long-
15 term interest rates, such as the 30-Year Treasury bond and private and corporate
16 long-term debt. Long-term interest rates are set more by market forces that
17 influence the supply and demand of loanable funds.

18 **Q. PLEASE CONTINUE WITH YOUR DISCUSSION OF THE FED'S**
19 **QUANTITATIVE EASING PROGRAMS.**

20 A. QE1 was implemented from November 2008 through approximately March
21 2010. During this time, the Fed cut its key Federal Funds Rate to nearly 0% and
22 purchased \$1.25 trillion of mortgage-backed securities and \$175 billion of
23 agency debt purchases. QE2 was implemented in November 2010 with the Fed
24 announcing that it would purchase an additional \$600 billion of Treasury

² <https://www.federalreserve.gov/monetarypolicy.htm>

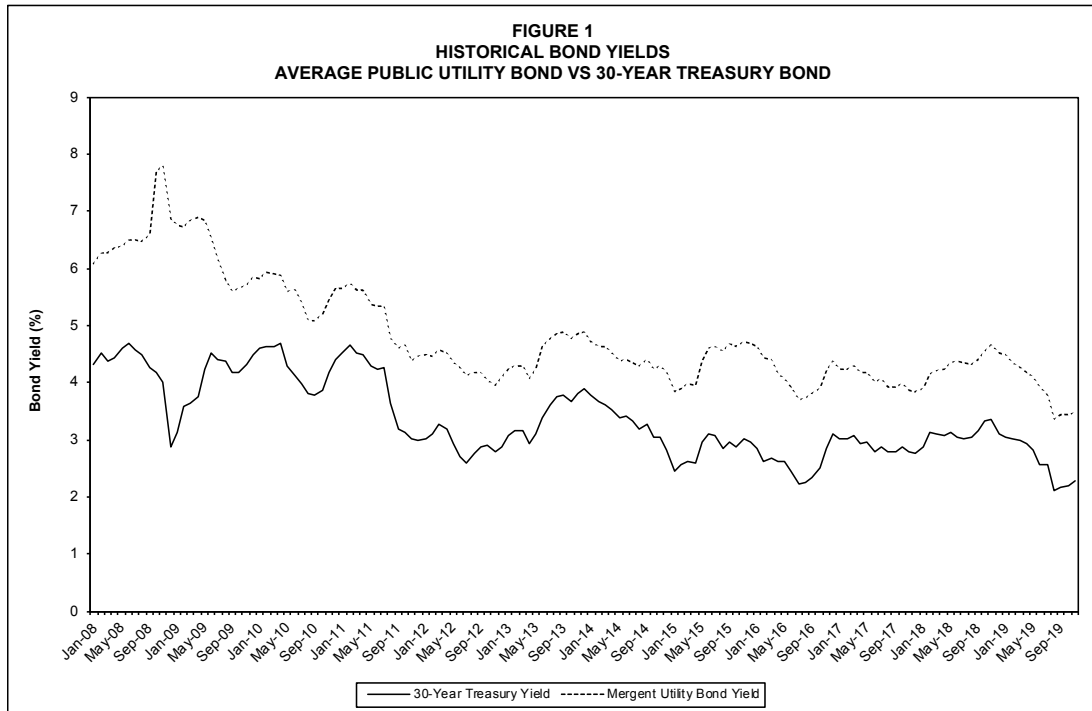
1 securities by the second quarter of 2011.³ Beginning in September 2011, the
2 Fed initiated a “maturity extension program” in which it sold or redeemed \$667
3 billion of shorter-term Treasury securities and used the proceeds to buy longer-
4 term Treasury securities. This program, also known as “Operation Twist,” was
5 designed by the Fed to lower long-term interest rates and support the economic
6 recovery. Finally, QE3 began in September 2012 with the Fed announcing an
7 additional bond purchasing program of \$40 billion per month of agency
8 mortgage backed securities.

9 The Fed began to pare back its purchases of securities in the last few
10 years. On January 29, 2014 the Fed stated that beginning in February 2014 it
11 would reduce its purchases of long-term Treasury securities to \$35 billion per
12 month. The Fed continued to reduce these purchases throughout the year and
13 in a press release issued October 29, 2014 announced that it decided to close
14 this asset purchase program in October.⁴

15 Figure 1 below presents a graph that tracks the 30-Year Treasury Bond
16 yield and the Mergent average utility bond yield. The time period covered is
17 January 2008 through December 2019.

³ <https://www.federalreserve.gov/newsevents/pressreleases/monetary20101103a.htm>

⁴ <https://www.federalreserve.gov/newsevents/pressreleases/monetary20141029a.htm>



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10 **Q. PLEASE SUMMARIZE RECENT FED ACTIONS WITH RESPECT TO**
 11 **MONETARY POLICY.**

12 **A.** In December 2015, the Fed began to raise its target range for the federal funds
 13 rate, increasing it to 1/4% to 1/2% from 0% to 1/4%. Since that time, the Fed

1 increased the federal funds rate several more times, with the most recent
2 increase announced on December 19, 2018 resulting in a federal funds rate
3 range of 2.25% - 2.50%.

4 In 2019, however, the Fed reversed course and lowered the federal funds
5 rate three times, with the rate now standing at 1.5% - 1.75%. In its press release
6 dated January 29, 2020 the Fed stated the following:⁵

7 Information received since the Federal Open Market Committee
8 met in December indicates that the labor market remains strong
9 and that economic activity has been rising at a moderate rate.
10 Job gains have been solid, on average, in recent months, and the
11 unemployment rate has remained low. Although household
12 spending has been rising at a moderate pace, business fixed
13 investment and exports remain weak. On a 12-month basis,
14 overall inflation and inflation for items other than food and
15 energy are running below 2 percent. Market-based measures of
16 inflation compensation remain low; survey-based measures of
17 longer-term inflation expectations are little changed.

18 Consistent with its statutory mandate, the Committee seeks to
19 foster maximum employment and price stability. The
20 Committee decided to maintain the target range for the federal
21 funds rate at 1-1/2 to 1-3/4 percent. The Committee judges that
22 the current stance of monetary policy is appropriate to support
23 sustained expansion of economic activity, strong labor market
24 conditions, and inflation returning to the Committee's
25 symmetric 2 percent objective. The Committee will continue to
26 monitor the implications of incoming information for the
27 economic outlook, including global developments and muted
28 inflation pressures, as it assesses the appropriate path of the
29 target range for the federal funds rate.⁶

30 **Q. WHAT ARE THE FED'S MOST RECENT ECONOMIC**
31 **PROJECTIONS WITH RESPECT TO THE FEDERAL FUNDS RATE**
32 **AND INFLATION?**

⁵ <https://www.federalreserve.gov/monetarypolicy/files/monetary20191211a1.pdf>

⁶ <https://www.federalreserve.gov/newsevents/pressreleases/monetary20200129a.htm>

1 A. The Fed provided certain economic projections that accompanied its December
2 11, 2019 press release showing the following:

- 3 • Projected federal funds rate of 1.6% for 2019 and 2020, 1.9% for 2021,
4 and 2.1% for the longer run.
- 5 • Inflation running at 1.5% for 2019, 1.9% for 2020, and 2.0% for 2021
6 and 2022.⁷
- 7 • Real GDP growth of 1.9% for the longer run.

8 **Q. WHY IS IT IMPORTANT TO UNDERSTAND THE FED'S ACTIONS**
9 **SINCE 2008 AND THE EFFECT ON THE CURRENT COST OF**
10 **CAPITAL IN THE ECONOMY GENERALLY AND FOR REGULATED**
11 **UTILITIES SPECIFICALLY?**

12 A. The Fed's monetary policy actions since 2008 were deliberately undertaken to
13 lower interest rates and support economic recovery. The U.S. economy is still
14 in a low interest rate environment. This environment has affected the common
15 stocks of regulated utilities, which, as I mentioned earlier, are interest rate
16 sensitive. Lower interest rates support lower required ROEs for regulated
17 utilities.

18 **Q. ARE CURRENT INTEREST RATES INDICATIVE OF INVESTOR**
19 **EXPECTATIONS REGARDING THE FUTURE DIRECTION OF**
20 **INTEREST RATES?**

⁷ <https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20191211.pdf>

1 A. Yes. Securities markets are efficient and most likely reflect investors’
2 expectations about future interest rates. As Dr. Morin pointed out in *New*

3 *Regulatory Finance*:

4 A considerable body of empirical evidence indicates that U.S.
5 capital markets are efficient with respect to a broad set of
6 information, including historical and publicly available
7 information.⁸

8 Dr. Morin also noted the following:

9 There is extensive literature concerning the prediction of interest
10 rates. From this evidence, it appears that the no-change model of
11 interest rates frequently provides the most accurate forecasts of
12 future interest rates while at other times, the experts are more
13 accurate. Naïve extrapolations of current interest rates
14 frequently outperform published forecasts. The literature
15 suggests that on balance, the bond market is very efficient in that
16 it is difficult to consistently forecast interest rates with greater
17 accuracy than a no-change model. The latter model provides
18 similar, and in some cases, superior accuracy than professional
19 forecasts.⁹

20 It is important to realize that investor expectations of changes in future
21 interest rates, if any, are likely already embodied in current securities prices,
22 which include debt securities and stock prices. Moreover, the current low
23 interest rate environment still favors lower risk regulated utilities.

24 **Q. YOU MENTIONED THAT THE REQUIRED COST OF EQUITY FOR**
25 **REGULATED UTILITIES TENDS TO FOLLOW THE DIRECTION OF**
26 **INTEREST RATES. COULD YOU ILLUSTRATE THIS**
27 **RELATIONSHIP FOR THE COMMISSION?**

⁸ Morin, Roger A., *New Regulatory Finance*, Public Utilities Reports, Inc. (2006) at 279.

⁹ *Id.* at 172.

1 A. Yes. Table 1 below presents data from Mr. Hevert's Exhibit RBH-5 and
2 presents the average yearly yield on the 30-year Treasury Bond and the yearly
3 average allowed ROE for electric companies from 2000 through August 12,
4 2019. Table 1 shows that as the long-term Treasury Bond yield has fallen since
5 2000, allowed ROEs for electric utilities followed suit, although the decline in
6 ROEs has been less than that for the 30-year Treasury Bond. The Premium
7 column in Table 1 shows the difference between allowed ROEs and the 30-
8 Year Treasury yield. In 2007, for example, the premium of allowed ROEs over
9 Treasury yields was 5.45%. The premium has grown significantly since 2007,
10 rising to almost 7.0% in 2012 and 2016 and falling to 6.48% through August
11 2019. The purpose of Table 1 is to demonstrate the interest rate sensitivity of
12 regulated utility ROEs to the general level of interest rates, not to recommend
13 that the Commission follow this relationship or rely on the commission-allowed
14 ROEs from other states. I shall demonstrate later in my testimony that current
15 market data shows that the investor required ROEs for regulated electric utilities
16 are lower than recent Commission allowed ROEs.

Table 1
Allowed ROEs and
30-Year Treasury Yields

<u>Year</u>	<u>Allowed ROE</u>	<u>30-Year T-Bond</u>	<u>Premium</u>
2000	11.58%	6.07%	5.51%
2001	11.07%	5.59%	5.48%
2002	11.21%	5.42%	5.79%
2003	10.96%	4.94%	6.03%
2004	10.81%	5.06%	5.75%
2005	10.51%	4.71%	5.81%
2006	10.34%	4.83%	5.52%
2007	10.31%	4.87%	5.45%
2008	10.37%	4.54%	5.83%
2009	10.52%	4.02%	6.50%
2010	10.29%	4.33%	5.96%
2011	10.19%	4.13%	6.06%
2012	10.01%	3.03%	6.98%
2013	9.81%	3.21%	6.60%
2014	9.75%	3.51%	6.24%
2015	9.60%	2.90%	6.70%
2016	9.60%	2.62%	6.97%
2017	9.68%	2.82%	6.86%
2018	9.56%	2.99%	6.56%
2019	9.57%	3.10%	6.48%

1

2 **Q. HOW DOES THE INVESTMENT COMMUNITY REGARD THE**
3 **REGULATED ELECTRIC UTILITY INDUSTRY AS A WHOLE?**

4 A. The Value Line Investment Survey noted the following in its review of the
5 Electric Utility (West) Industry dated January 24, 2020:

6 “The year that just ended was excellent for most stocks in the
7 Electric Utility Industry. According to data provided by the
8 Edison Electric Institute (a group representing investor-owned
9 utilities), in 2019 the median total return of 40 electric stocks
10 was 25.1%. Although this fell short of the 33.1% total return of
11 the S&P 500 Index, this was still a respectable showing,
12 particularly on a risk-adjusted basis. Most of the equities in this
13 group produced a total return that exceeded 10%.

14

* * *

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17

Why did most utility stocks fare well? Interest rates had something to do with this. As 2019 began, there was concern among utility investors that the Federal Reserve might continue

1 raising interest rates after doing so three times in 2018. This did
2 not happen; in fact, the Fed reversed its course and cut rates three
3 times last year. With the interest rates on fixed-income
4 investments falling from an already-low level, this made the
5 dividend yields of electric utility equities relatively more
6 attractive. By reaching for yield, investors drove up the prices of
7 most utility issues.

8 * * *

9 Following the stellar showing of most stocks in this group in
10 2019, the group is valued expensively (even after the
11 aforementioned dip in early 2020). Most of these equities have
12 a relative price-earnings ratio above 1.00, and not by just a slight
13 amount. The dividend yield of this group is just 3.1%. Although
14 this figure is roughly one percentage point above the median for
15 dividend paying stocks covered in The Value Line Investment
16 Survey, it is low, by historical standards. For most equities in the
17 Electric Utility Industry, the recent price is well within the 3- to
18 5-year Target Price Range. This is another example of the
19 group's lofty valuation. Of course, having a high valuation does
20 not mean this cannot become even higher—the performance of
21 most of these stocks in 2019 illustrates this—but we think
22 investors should not count on a repeat in 2020.”

23 My position regarding the current low interest rate environment is
24 consistent with Value Line's report on the electric utility industry. Lower
25 interest rates will mean lower allowed ROEs and this is a positive development
26 for utility ratepayers. Further, lower interest rates translate into lower debt costs
27 and a lower cost of capital applied to the utility's rate base. Again, this is a
28 positive trend for ratepayers' cost of electricity.

29 **Q. THE EDISON ELECTRIC INSTITUTE (“EEI”) PUBLISHES**
30 **QUARTERLY REVIEWS OF THE INVESTOR-OWNED ELECTRIC**
31 **UTILITY INDUSTRY. PLEASE SUMMARIZE EEI’S FINDINGS WITH**
32 **RESPECT TO CREDIT RATINGS, RISKS, AND VALUATIONS FOR**
33 **THE ELECTRIC UTILITY INDUSTRY.**

1 A. EEI's recent 3rd Quarter 2019 summary of the Standard and Poor's Utility
2 Credit Ratings showed the following:

- 3 • The industry average credit rating was BBB+.
- 4 • 58% of the 45 utilities followed by EEI had credit ratings of
5 BBB/BBB+.
- 6 • 27% had a credit rating of A-.

7 EEI's analysis shows that the investor-owned electric utility industry
8 had strong and stable credit metric through the 3rd Quarter of 2019.

9 EEI's *Q3 2019 Financial Update*, page 5, noted the following regarding
10 whether electric utility valuations could rise further from their present levels:

11 "Wall Street analysts generally view utility stock valuations as
12 high when measured by price/earnings (PE) ratios relative to the
13 S&P 500 and to history. One reason for this is the very low level
14 of interest rates both in the U.S. and overseas. The U.S. 10-year
15 Treasury yield was about 6% in the late 1990s, more than triple
16 today's level, while bond markets in Europe and Japan sport
17 widespread negative yields. *Another reason is the strong
18 fundamentals that underpin prospects for total returns in excess
19 of 8% (5% from earnings growth and 3% from the dividend).
20 Given this outlook, the view seems to be that utilities offer
21 enough value to lift multiples higher still, particularly if global
22 economic growth turns down and interest rates fall to new
23 lows.*" (emphasis added)

24 EEI's publication also noted the following with respect to interest rates:

25 "A sharp rise in interest rates is widely seen as the biggest macro
26 threat facing utility investors. *Although that has been said for
27 years and interest rates just seem to fall.* Inflation held near 2%
28 throughout 2018 even as the economy roared and hasn't moved
29 this year either. The main risk to the very long-lived economic
30 expansion seems to be weakness rather than red-hot growth.

31 Analysts note that the impact of rising rates would be on
32 stock prices rather than earnings. Higher rates can translate into
33 higher allowed ROEs and improved pension funding. Many
34 companies have embedded low-cost debt from years of low

1 rates, and interest rates could rise while remaining very low by
2 historical standards.” (emphasis added)

3 I underscore to the Commission EEI’s statements regarding (1)
4 prospects for total returns in excess of 8%, and (2) the stability of the current
5 low interest rate environment despite years of predictions of higher interest
6 rates. It also shows that the strong credit ratings for regulated electric companies
7 are fully consistent with lower ROEs and lower cost of debt. In my view, these
8 points support my recommended cost of equity for Duke Carolinas of 9.0% as
9 being consistent with investor expectations and current market conditions.

10 **Q. WHAT ARE THE CURRENT CREDIT RATINGS FOR DUKE**
11 **ENERGY CAROLINAS?**

12 A. Moody’s long-term issuer rating for Duke Carolinas is A1. Within Moody’s A
13 rating category, A1 is the highest rating (A3 being the lowest). Standard and
14 Poor’s (“S&P”) credit rating is A-, which is the lowest rating in S&P’s A
15 category (A+ being the highest). The ratings outlook from both Moody’s and
16 S&P is stable. On November 20, 2019 S&P affirmed the credit ratings of Duke
17 Energy and its operating utility subsidiaries, including Duke Carolinas, and
18 revised its ratings outlook to stable from negative.

19 Moody’s October 19, 2019 Credit Opinion for Duke Carolinas noted the
20 following:¹⁰

21 “Our view of Duke Energy Carolinas’ (Duke Carolinas) credit
22 reflects its low business and operating risk profile and
23 historically supportive regulatory environments in both North
24 and South Carolina. Our view is tempered by the utility’s weaker

¹⁰ Moody’s Credit Opinion was provided in response to the North Carolina Public Staff Data Request No. 38, Item No. 38-5.

1 financial credit metrics, but also considers the company's
2 position as the largest subsidiary within the Duke Energy
3 Corporation family, making up about a third of its rate base. Our
4 view recognizes the benefits of scale and the potential for
5 operational efficiencies that are enabled by joint management
6 with affiliate Duke Energy Progress."

7 Duke Carolina's credit strengths enumerated by Moody's are:

- 8 • Credit supportive regulatory environments
- 9 • Approved recovery for the majority of coal ash related expenditures
- 10 • Growing service territories
- 11 • Position as part of Duke Energy utility system

12 Duke Carolinas' credit challenges according to Moody's are:

- 13 • High capital expenditures
- 14 • Increasing regulatory uncertainty surrounding coal ash remediation
15 spending
- 16 • Financial metrics are under pressure

17 **Q. DID DUKE ENERGY, THE HOLDING COMPANY FOR DUKE**
18 **ENERGY CAROLINAS, PROVIDE INFORMATION TO ITS**
19 **INVESTORS THAT IS RELEVANT TO THE COMMISSION'S**
20 **EVALUATION OF THE ALLOWED RATE OF RETURN FOR DUKE**
21 **CAROLINAS?**

22 A. Yes. Please refer to Exhibit RAB-1, which contains excerpts from Duke
23 Energy's presentation entitled *Duke Energy Winter Update January 2020*. I
24 obtained this presentation from Duke Energy's web site.

1 Page 2 of Exhibit RAB-1 provides Duke Energy’s explanation of the
2 recent settlement agreement regarding coal ash costs, which was entered into
3 with the North Carolina Department of Environmental Quality and other parties
4 represented by the Southern Environmental Law Center on December 31, 2019.
5 Duke noted that the settlement provided “clarity on closure method and costs.”

6 Page 3 of Exhibit RAB-1 shows Duke Energy’s presentation of its
7 “attractive risk-adjusted total shareholder return” of 8% – 10%. This total return
8 consists of a dividend yield of 4.2% and a growth rate of 4% – 6%. I note that
9 my recommended ROE for Duke Carolinas of 9.0% falls in the middle of this
10 range. Mr. Hevert’s recommended ROE of 10.5% is well above the total
11 shareholder return range cited by Duke Energy.

12 **Q. WHAT IS YOUR CONCLUSION WITH RESPECT TO THE OVERALL**
13 **RISKINESS OF DUKE CAROLINAS?**

14 A. Both Moody’s and S&P’s recent credit rating reports on Duke Carolinas
15 indicate that although the Company is facing risks associated with the ultimate
16 disposition of coal ash costs as well as elevated construction spending, those
17 risks are tempered by the Company’s low risk regulated business and its low
18 operating risk. Taken together, Duke Carolinas has credit ratings that are
19 slightly above average compared to the average S&P credit rating of BBB+ for
20 the electric utilities covered by the aforementioned EEI publication.

21 With respect to the return on equity in this case, Duke Carolinas’ credit
22 standing indicates that its allowed ROE should be based on the average results

1 of the proxy group that Mr. Hevert and I use in this case. There is no basis for
2 the Company's allowed ROE to be higher than the proxy group results.

3 **III. DETERMINATION OF RETURN ON EQUITY**

4 **Q. PLEASE DESCRIBE THE METHODS YOU EMPLOYED IN**
5 **ESTIMATING YOUR RECOMMENDED RETURN ON EQUITY FOR**
6 **DUKE CAROLINAS.**

7 A. I employed a Discounted Cash Flow ("DCF") analysis using a proxy group of
8 19 regulated electric utilities as selected by Mr. Hevert. In my opinion, they
9 form a reasonable basis for estimating the investor required return on equity for
10 Duke Carolinas. I also employed Capital Asset Pricing Model ("CAPM")
11 analyses using both historical and forward-looking data. Although I primarily
12 relied on the DCF results for my recommended 9.0% ROE for the Company,
13 the results from the CAPM tend to support the reasonableness of my
14 recommendation.

15 **Q. DESCRIBE THE PROXY GROUP YOU EMPLOYED TO ESTIMATE**
16 **THE COST OF EQUITY FOR DUKE CAROLINAS.**

17 A. In this case, I chose to use the same proxy group that Mr. Hevert used in his
18 ROE analyses. Mr. Hevert discussed his approach to developing his
19 recommended proxy group on pages 23 through 24 of his Direct Testimony.
20 Mr. Hevert's selection criteria are generally reasonable and include regulated
21 electric utilities that have investment grade credit ratings from S&P. Using the
22 same proxy group as Mr. Hevert also has the advantage of eliminating a source
23 of disagreement between our respective ROE analyses and furnishes the

1 Commission with a consistent group of companies to compare and evaluate our
2 ROE results and recommendations.

3 **Discounted Cash Flow (“DCF”) Model**

4 **Q. PLEASE DESCRIBE THE BASIC DCF APPROACH.**

5 A. The basic DCF approach is rooted in valuation theory. It is based on the premise
6 that the value of a financial asset is determined by its ability to generate future
7 net cash flows. In the case of a common stock, those future cash flows generally
8 take the form of dividends and appreciation in stock price. The value of the
9 stock to investors is the discounted present value of future cash flows. The
10 general equation then is:

11
$$V = \frac{R}{(1+r)} + \frac{R}{(1+r)^2} + \frac{R}{(1+r)^3} + \dots + \frac{R}{(1+r)^n}$$

12 *Where: V = asset value*

13 *R = yearly cash flows*

14 *r = discount rate*

15 This is no different from determining the value of any asset from an economic
16 point of view; however, the commonly employed DCF model makes certain
17 simplifying assumptions. One is that the stream of income from the equity share
18 is assumed to be perpetual; that is, there is no salvage or residual value at the
19 end of some maturity date (as is the case with a bond). Another important
20 assumption is that financial markets are reasonably efficient; that is, they
21 correctly evaluate the cash flows relative to the appropriate discount rate, thus
22 rendering the stock price efficient relative to other alternatives. Finally, the
23 model I typically employ also assumes a constant growth rate in dividends. The

1 fundamental relationship employed in the DCF method is described by the
2 formula:

$$k = \frac{D_1}{P_0} + g$$

3
4 *Where:* $D_1 = \text{the next period dividend}$
5 $P_0 = \text{current stock price}$
6 $g = \text{expected growth rate}$
7 $k = \text{investor-required return}$

8 Embodied in this formula, it is assumed that “k” reflects the investors’ expected
9 return. Use of the DCF method to determine an investor-required return is
10 complicated by the need to express investors’ expectations relative to
11 dividends, earnings, and book value over an infinite time horizon. Financial
12 theory suggests that stockholders purchase common stock on the assumption
13 that there will be some change in the rate of dividend payments over time. We
14 assume that the rate of growth in dividends is constant over the assumed time
15 horizon, but the model could easily handle varying growth rates if we knew
16 what they were. Finally, the relevant time frame is prospective rather than
17 retrospective.

18 **Q. WHAT WAS YOUR FIRST STEP IN DETERMINING THE DCF**
19 **RETURN ON EQUITY FOR THE PROXY GROUP?**

20 A. I first determined the current dividend yield, D_1/P_0 , from the basic equation. My
21 general practice is to use six months as the most reasonable period over which
22 to estimate the dividend yield. The six-month period I used covered the months
23 from August 2019 through January 2020. I obtained historical prices and
24 dividends from Yahoo! Finance. The annualized dividend divided by the

1 average monthly price represents the average dividend yield for each month in
2 the period.

3 The resulting average dividend yield for the proxy group is 2.88%.
4 These calculations are shown in Exhibit RAB-2.

5 **Q. HAVING ESTABLISHED THE AVERAGE DIVIDEND YIELD, HOW**
6 **DID YOU DETERMINE THE INVESTORS' EXPECTED GROWTH**
7 **RATE FOR THE PROXY GROUP?**

8 A. The investors' expected growth rate, in theory, correctly forecasts the constant
9 rate of growth in dividends. The dividend growth rate is a function of earnings
10 growth and the payout ratio, neither of which is known precisely for the future.
11 We refer to a perpetual growth rate since the DCF model has no cut-off point.
12 We must estimate the investors' expected growth rate because there is no way
13 to know with absolute certainty what investors expect the growth rate to be in
14 the short term, much less in perpetuity.

15 For my analysis in this proceeding, I used three major sources of
16 analysts' forecasts for growth. These sources are The Value Line Investment
17 Survey, Zacks, and Yahoo! Finance.

18 **Q. PLEASE BRIEFLY DESCRIBE VALUE LINE, ZACKS, AND YAHOO!**
19 **FINANCE.**

20 A. The Value Line Investment Survey is a widely used and respected source of
21 investor information that covers approximately 1,700 companies in its Standard
22 Edition and several thousand in its Plus Edition. It provides both historical and
23 forecasted information on a number of important data elements. Value Line

1 neither participates in financial markets as a broker nor works for the utility
2 industry in any capacity of which I am aware.

3 Zacks gathers opinions from a variety of analysts on earnings growth
4 forecasts for numerous firms including regulated electric utilities. The estimates
5 of the analysts responding are combined to produce consensus average
6 estimates of earnings growth. I obtained Zacks' earnings growth forecasts from
7 its web site.

8 Like Zacks, Yahoo! Finance also compiles and reports consensus
9 analysts' forecasts of earnings growth. I obtained these forecasts from the
10 Yahoo! Finance web site.

11 **Q. WHY DID YOU RELY ON ANALYSTS' FORECASTS IN YOUR**
12 **ANALYSIS?**

13 A. Return on equity analysis is a forward-looking process. Five-year or ten-year
14 historical growth rates may not accurately represent investor expectations for
15 future dividend growth. Analysts' forecasts for earnings and dividend growth
16 provide better proxies for the expected growth component in the DCF model
17 than historical growth rates. Analysts' forecasts are also widely available to
18 investors and one can reasonably assume that they influence investor
19 expectations.

20 **Q. PLEASE EXPLAIN HOW YOU USED ANALYSTS' DIVIDEND AND**
21 **EARNINGS GROWTH FORECASTS IN YOUR CONSTANT GROWTH**
22 **DCF ANALYSIS.**

1 A. Columns (1) through (4) of Exhibit RAB-3 shows the forecasted dividend and
2 earnings growth rates from Value Line and the earnings growth forecasts from
3 Zacks and Yahoo! Finance for the companies in the proxy group. It is important
4 to include dividend growth forecasts in the DCF model since the model calls
5 for forecasted cash flows and Value Line is the only source of which I am aware
6 that forecasts dividend growth.

7 **Q. HOW DID YOU PROCEED TO DETERMINE THE DCF RETURN OF**
8 **EQUITY FOR THE PROXY GROUP?**

9 A. To estimate the expected dividend yield (D_1), the current dividend yield must
10 be moved forward in time to account for dividend increases over the next twelve
11 months. I estimated the expected dividend yield by multiplying the current
12 dividend yield by one plus one-half the expected growth rate.

13 Exhibit RAB-3 presents my standard method of calculating dividend
14 yields, growth rates, and return on equity for the proxy group. The DCF Return
15 on Equity Calculation section shows the application of each of four growth rates
16 I used in my analysis to the current group dividend yield of 2.88% to calculate
17 the expected dividend yield. I then added the expected growth rates to the
18 expected dividend yield. My DCF return on equity was calculated using two
19 different methods. Method 1 uses the Average Growth Rates shown in the upper
20 section of Exhibit RAB-3 and Method 2 utilizes the median growth rates shown
21 in that section.

22 **Q. WHAT ARE THE RESULTS OF YOUR CONSTANT GROWTH DCF**
23 **MODEL?**

1 A. The results for Method 1 range from 8.46% to 8.73% and the results for Method
2 2 range from 8.21% to 9.02%. The average results for Methods 1 and 2 are
3 8.54% and 8.67%, respectively, for the proxy group.

4 **Capital Asset Pricing Model**

5 **Q. BRIEFLY SUMMARIZE THE CAPITAL ASSET PRICING MODEL**
6 **(“CAPM”) APPROACH.**

7 A. The theory underlying the CAPM approach is that investors, through diversified
8 portfolios, may combine assets to minimize the total risk of the portfolio.
9 Diversification allows investors to diversify away all risks specific to a
10 particular company and be left only with market risk that affects all companies.
11 Thus, the CAPM theory identifies two types of risks for a security: company-
12 specific risk and market risk. Company-specific risk includes such events as
13 strikes, management errors, marketing failures, lawsuits, and other events that
14 are unique to a particular firm. Market risk includes inflation, business cycles,
15 war, variations in interest rates, and changes in consumer confidence. Market
16 risk tends to affect all stocks and cannot be diversified away. The idea behind
17 the CAPM is that diversified investors are rewarded with returns based on
18 market risk.

19 Within the CAPM framework, the expected return on a security is equal
20 to the risk-free rate of return plus a risk premium that is proportional to the
21 security’s market, or non-diversifiable, risk. Beta is the factor that reflects the
22 inherent market risk of a security and measures the volatility of a particular
23 security relative to the overall market for securities. For example, a stock with

1 a beta of 1.0 indicates that if the market rises by 15%, that stock will also rise
2 by 15%. This stock moves in tandem with movements in the overall market.
3 Stocks with a beta of 0.5 will only rise or fall 50% as much as the overall
4 market. So with an increase in the market of 15%, this stock will only rise 7.5%.
5 Stocks with betas greater than 1.0 will rise and fall more than the overall market.
6 Thus, beta is the measure of the relative risk of individual securities vis-à-vis
7 the market.

8 Based on the foregoing discussion, the equation for determining the
9 return for a security in the CAPM framework is:

$$10 \qquad \qquad \qquad K = Rf + \beta(MRP)$$

11 *Where: K = Required Return on equity*

12 *Rf = Risk-free rate*

13 *MRP = Market risk premium*

14 *β = Beta*

15 This equation tells us about the risk/return relationship posited by the CAPM.
16 Investors are risk averse and will only accept higher risk if they expect to
17 receive higher returns. These returns can be determined in relation to a stock's
18 beta and the market risk premium. The general level of risk aversion in the
19 economy determines the market risk premium. If the risk-free rate of return is
20 3.0% and the required return on the total market is 15%, then the risk premium
21 is 12%. Any stock's risk premium can be determined by multiplying its beta by
22 the market risk premium. Its total return may then be estimated by adding the
23 risk-free rate to that risk premium. Stocks with betas greater than 1.0 are
24 considered riskier than the overall market and will have higher required returns.

1 Conversely, stocks with betas less than 1.0 will have required returns lower than
2 the market as a whole.

3 **Q. IN GENERAL, ARE THERE CONCERNS REGARDING THE USE OF**
4 **THE CAPM IN ESTIMATING THE RETURN ON EQUITY?**

5 A. Yes. There is some controversy surrounding the use of the CAPM and its
6 accuracy regarding expected returns. There is substantial evidence that beta is
7 not the primary factor for determining the risk of a security. For example, Value
8 Line’s “Safety Rank” is a measure of total risk, not its calculated beta
9 coefficient. Beta coefficients usually describe only a small amount of total
10 investment risk. Dr. Burton Malkiel, author of *A Random Walk Down Wall*
11 *Street* noted the following in his best-selling book on investing:

12 Second, as Professor Richard Roll of UCLA has argued, we
13 must keep in mind that it is very difficult (indeed probably
14 impossible) to measure beta with any degree of precision. The
15 S&P 500 Index is not “the market.” The Total Stock Market
16 contains many thousands of additional stocks in the United
17 States and thousands more in foreign countries. Moreover, the
18 total market includes bonds, real estate, commodities, and assets
19 of all sorts, including one of the most important assets any of us
20 has - the human capital built up by education, work, and life
21 experience. Depending on exactly how you measure “the
22 market” you can obtain very different beta values.¹¹

23 Pratt and Grabowski also stated the following with respect to the CAPM:¹²

24 Even though the capital asset pricing model (CAPM) is the most
25 widely used method of estimating the cost of equity capital, the
26 accuracy and predictive power of beta as the sole measure of risk
27 have increasingly come under attack. As a result, alternative
28 measures of risk have been proposed and tested. That is, despite

¹¹ *A Random Walk Down Wall Street*, Burton G. Malkiel, page 218, 2019 edition.

¹² *Cost of Capital*, Shannon Pratt and Roger Grabowski, 5th Edition, page 288, published by Wiley.

1 its wide adoption, academics and practitioners alike have
2 questioned the usefulness of CAPM in accurately estimating the
3 cost of equity capital and the use of beta as a reliable measure of
4 risk.

5 As a practical matter, there is substantial judgment involved in
6 estimating the required market return and market risk premium. In theory, the
7 CAPM requires an estimate of the return on the total market for investments,
8 including stocks, bonds, real estate, etc. It is nearly impossible for the analyst
9 to estimate such a broad-based return. Often in utility cases, a market return is
10 estimated using the S&P 500. However, as Dr. Malkiel pointed out, this is a
11 limited source of information with respect to estimating the investor's required
12 return for all investments. In practice, the total market return estimate faces
13 significant limitations to its estimation and, ultimately, its usefulness in
14 quantifying the investor required ROE.

15 In the final analysis, a considerable amount of judgment must be
16 employed in determining the market return and expected risk premium elements
17 of the CAPM equation. The analyst's application of judgment can significantly
18 influence the results obtained from the CAPM. My past experience with the
19 CAPM indicates that it is prudent to use a wide variety of data in estimating
20 investor-required returns. Of course, the range of results may also be wide,
21 indicating the difficulty in obtaining a reliable estimate from the CAPM.

22 **Q. HOW DID YOU ESTIMATE THE MARKET RETURN AND MARKET**
23 **RISK PREMIUM OF THE CAPM?**

24 A. I used two approaches to estimate the market risk premium portion of the
25 CAPM equation. One approach uses the expected return on the market and is

1 forward-looking. The other approach employs an historical risk premium based
2 on actual stock and bond returns from 1926 through 2018.

3 **Q. PLEASE DESCRIBE YOUR FORWARD-LOOKING APPROACH TO**
4 **ESTIMATING THE MARKET RISK PREMIUM.**

5 A. The first source I used was the Value Line Investment Analyzer Plus Edition,
6 for January 10, 2020. This edition covers several thousand stocks. The Value
7 Line Investment Analyzer provides a summary statistical report detailing,
8 among other things, forecasted growth rates for earnings and book value for the
9 companies Value Line follows as well as the projected total annual return over
10 the next 3 to 5 years. I present these growth rates and Value Line's projected
11 annual returns on page 2 of Exhibit RAB-4. I included median earnings and
12 book value growth rates. The estimated market returns using Value Line's
13 market data range from 10.61% to 11.61%. The average of these market returns
14 is 11.11%.

15 **Q. WHY DID YOU USE MEDIAN GROWTH RATE ESTIMATES**
16 **RATHER THAN THE AVERAGE GROWTH RATE ESTIMATES FOR**
17 **THE VALUE LINE COMPANIES?**

18 A. Using median growth rates is likely a more accurate approach to estimating the
19 central tendency of Value Line's large data set compared to the average growth
20 rates. Average earnings and book value growth rates may be unduly influenced
21 by very high or very low 3–5-year growth rates that are unsustainable in the
22 long run. For example, Value Line's Statistical Summary shows both the
23 highest and lowest value for earnings and book value growth forecasts. For

1 earnings growth, Value Line showed the highest earnings growth forecast to be
2 92.5% and the lowest growth rate to be -13.5%. With respect to book value, the
3 highest growth rate was 84% and the lowest was a -27.5%. None of these
4 growth rate projections is compatible with long-run growth prospects for the
5 market as a whole. The median growth rate is not influenced by such extremes
6 because it represents the middle value of a very wide range of earnings growth
7 rates.

8 **Q. PLEASE CONTINUE WITH YOUR MARKET RETURN ANALYSIS.**

9 A. I also considered a supplemental check to the Value Line projected market
10 return estimates. Duff and Phelps compiled a study of historical returns on the
11 stock market in its *2019 Valuation Handbook - U.S. Guide to Cost of Capital*,
12 which is now part of its Cost of Capital Navigator subscription service. Some
13 analysts employ this historical data to estimate the market risk premium of
14 stocks over the risk-free rate. The assumption is that a risk premium calculated
15 over a long period of time is reflective of investor expectations going forward.
16 Exhibit RAB-5 presents the calculation of the market returns and market risk
17 premiums using the historical data from Duff and Phelps.

18 **Q. PLEASE EXPLAIN HOW THIS HISTORICAL RISK PREMIUM IS**
19 **CALCULATED.**

20 A. Exhibit RAB-5 shows the arithmetic average of yearly historical stock market
21 returns over the historical period from 1926 – 2018. The average annual income
22 return for 20-year Treasury bond is subtracted from these historical stock
23 returns to obtain the historical market risk premium of stock returns over long-

1 term Treasury bond income returns. The resulting historical market risk
2 premium is 6.9%.

3 **Q. DID YOU ADD AN ADDITIONAL MEASURE OF THE HISTORICAL**
4 **RISK PREMIUM IN THIS CASE?**

5 A. Yes. Duff and Phelps reported the results of a study by Dr. Roger Ibbotson and
6 Dr. Peng Chen indicating that the historical risk premium of stock returns over
7 long-term government bond returns has been significantly influenced upward
8 by substantial growth in the price/earnings (“P/E”) ratio.¹³ Duff and Phelps
9 noted that this growth in the P/E ratio for stocks was subtracted out of the
10 historical risk premium to arrive at an adjusted “supply side” historical
11 arithmetic market risk premium is 6.14%, which I have also included in Exhibit
12 RAB-5.

13 **Q. HOW DID YOU DETERMINE THE RISK FREE RATE?**

14 A. I used two different measures for the risk-free rate. The first measure is the
15 average 30-year Treasury Bond yield for the six-month period from August
16 2019 through January 2020. This represents a current measure of the risk-free
17 rate based on actual current Treasury yields, which is 2.21%.

18 The second measure comes from Duff and Phelps’ most recent
19 “normalized” risk-free rate of September 30, 2019.¹⁴ Duff and Phelps
20 developed this normalized risk-free rate using its measure of the “real risk free

¹³ *2019 Cost of Capital: Annual U.S. Guidance and Examples*, Duff and Phelps, Cost of Capital Navigator, Chapter 3, pp. 45 - 47.

¹⁴ <https://www.duffandphelps.com/insights/publications/valuation/us-normalized-risk-free-effective-september-30-2019>

1 rate” and expected inflation. The Duff and Phelps normalized risk-free rate is
2 3.0%.

3 **Q. PLEASE SUMMARIZE YOUR CALCULATED MARKET RISK**
4 **PREMIUM ESTIMATES WITH THE FORWARD-LOOKING DATA**
5 **FROM VALUE LINE AND THE HISTORICAL DUFF AND PHELPS**
6 **EQUITY RISK PREMIUMS.**

7 A. My market risk premiums from Exhibits RAB-4 and RAB-5 are as follows:

- 8 • Forward-looking risk premiums 8.11% - 8.90%
- 9 • Historical risk premium 6.14% - 6.90%

10 By way of comparison, Duff and Phelps currently recommends an equity risk
11 premium of 5.5%, which resulted in a base U.S. cost of capital estimate of 8.5%.
12 Based on this comparison, my range of equity risk premium estimates are
13 certainly not conservative or understated.

14 **Q. HOW DID YOU DETERMINE THE VALUE FOR BETA?**

15 A. I obtained the betas for the companies in the proxy group from most recent
16 Value Line reports. The average of the Value Line betas for the proxy group is
17 0.56.

18 **Q. PLEASE SUMMARIZE THE CAPM RESULTS.**

19 A. For my forward-looking CAPM return on equity estimates, the CAPM results
20 are 7.20% – 7.55%. Using historical risk premiums, the CAPM results range
21 from 5.66% - 6.87%.

22 **Q. DO YOU HAVE ANY COMMENTS REGARDING THE RESULTS OF**
23 **THE CAPM AT THIS TIME?**

1 A. Yes. The CAPM is currently producing results that are low under a reasonable
2 range of equity risk premium estimates. Even if I had used Value Line's highest
3 expected market return of 12.21% from Exhibit RAB-4 and the Duff and Phelps
4 normalized risk-free rate, the CAPM result would have been:

$$CAPM = 3.0\% + .57 (12.21\% - 3.0\%) = 8.25\%$$

6
7 This represents the top of the range for the CAPM, which is still substantially
8 below my average DCF estimates. At this point, I cannot recommend that the
9 Commission place substantial weight on the CAPM. Although Mr. Hevert
10 presented CAPM results that are higher, his analysis is fraught with problems
11 that I will discuss at length later in my testimony.

12 **ROE Conclusions and Recommendations**

13 **Q. PLEASE SUMMARIZE THE COST OF EQUITY RESULTS FOR**
14 **YOUR DCF AND CAPM ANALYSES.**

15 A. Table 2 below summarizes my return on equity results using the DCF and
16 CAPM for the proxy group of companies.

Table 2
SUMMARY OF ROE ESTIMATES

<u>DCF Methodology</u>	
Average Growth Rates	
- High	8.73%
- Low	8.46%
- Average	8.54%
Median Growth Rates:	
- High	9.02%
- Low	8.21%
- Average	8.67%
<u>CAPM Methodology</u>	
Forward-lookng Market Return:	
- Current 30-Year Treasury	7.20%
- D&P Normalized Risk-free Rate	7.55%
Historical Risk Premium:	
- Current 30-Year Treasury	5.66% - 6.08%
- D&P Normalized Risk-free Rate	6.45% - 6.87%

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2 **Q. DID YOU REVIEW RECENTLY ALLOWED EQUITY RETURNS**
3 **FROM REGULATORY COMMISSIONS?**

4 A. Yes. My Table 1 shows that the average commission allowed ROEs and 30-
5 Year Treasury Bond yields for 2016, 2017, 2018, and 2019 were as follows:

- 6 • 2016: ROE - 9.60%, 30-Year Treasury - 2.62%
- 7 • 2017: ROE - 9.68%, 30-Year Treasury - 2.82%
- 8 • 2018: ROE - 9.56%, 30-Year Treasury - 2.99%
- 9 • 2019: ROE - 9.57%, 30-Year Treasury - 3.10%

10 I note that the average 30-year Treasury yields in these years were significantly
11 higher than current long-term Treasury yields. Exhibit RAB-4 shows that the
12 most recent six-month average 30-year Treasury Bond yield is only 2.21%,
13 compared to the average yield in 2019 of 3.10%. With long-term Treasury

1 yields so much lower now, it makes sense that the allowed ROE for regulated
2 electric companies should decline as well.

3 **Q. WHAT IS YOUR RECOMMENDED RETURN ON EQUITY FOR DUKE**
4 **CAROLINAS?**

5 A. Based on my analysis in this case and the decline in long-term interest rates in
6 the economy generally, I recommend that the Commission adopt a 9.00% return
7 on equity for Duke Carolinas.

8 **Q. PLEASE EXPLAIN HOW YOU ARRIVED AT YOUR**
9 **RECOMMENDATION.**

10 A. I began with the average DCF ROE results in Table 2 and also considered the
11 top end of my DCF range, which is 9.02%. In recommending 9.0%, I recognize
12 that recent Commission allowed returns are higher than my DCF results.
13 However, I do not recommend that the Commission base its allowed ROE on
14 the average allowed ROEs in other states. Such an approach would not be based
15 on the specific evidence and circumstances presented in this case. Nevertheless,
16 my recommendation of 9.0% is reasonably close to recently allowed ROEs and
17 is fully based on the market evidence and analysis I reviewed.

18 I also considered the comments from the Value Line Investment Survey
19 I quoted in Section II of my Direct Testimony, which stated that valuations for
20 utility stocks are already within their forecasted levels for the 2022 – 2024 time
21 period. My recommendation of 9.0% allows for some risk of declines in the
22 stock prices of the companies in the proxy group given the current high
23 valuations and the “reach for yield” by investors mentioned by Value Line.

1 **Q. DID YOU ACCEPT THE COMPANY'S REQUESTED CAPITAL**
2 **STRUCTURE?**

3 A. No. Duke Carolinas requested that the Commission grant a 53% common equity
4 ratio in this proceeding. However, the Company's December 31, 2018 equity
5 ratio is 51.5% with a long-term debt ratio of 48.5%. The 51.5% actual equity
6 ratio is fully consistent with and supportive of the Company's current credit
7 ratings. Company witness Newlin, who submitted testimony on capital
8 structure, did not provide any analysis showing that a 53% equity was necessary
9 or prudent to support the Company's credit ratings or that a 51.5% equity would
10 harm the Company's credit profile.

11 **Q. HOW DOES DUKE CAROLINAS' 2018 COMMON EQUITY RATIO**
12 **COMPARE WITH THE COMMON EQUITY RATIOS OF THE PROXY**
13 **GROUP?**

14 A. Table 3 below shows the 2018 common equity ratios for each company in the
15 proxy group as well as the average common equity ratio for the group.

Table 3
Proxy Group 2018 Common Equity Ratios

ALLETE, Inc.	60.1%
Alliant Energy Corporation	46.7%
Ameren Corp.	48.8%
American Electric Power Co.	46.8%
Avangrid, Inc.	73.8%
CMS Energy Corporation	30.7%
DTE Energy Company	45.8%
Evergy, Inc.	60.0%
Hawaiian Electric	51.7%
NextEra Energy, Inc.	56.0%
Northwestern Corporation	47.8%
OGE Energy Corp.	58.0%
Otter Tail Corporation	55.3%
Pinnacle West Capital Corp.	53.0%
PNM Resources, Inc.	38.6%
Portland General Electric Company	53.5%
Southern Company	37.6%
WEC Energy Group	49.4%
Xcel Energy Inc.	43.6%
Average	50.4%
Source: Value Line Investment Survey	

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The average common equity ratio for the proxy group is 50.4%, lower than Duke Carolinas' 2018 equity ratio. This indicates that the Company has slightly less financial risk from debt in its capital structure than the proxy group. It also demonstrates the reasonableness of using Duke Carolinas' 2018 capital structure for ratemaking purposes in this docket.

Q. WHAT IS YOUR RECOMMENDED WEIGHTED COST OF CAPITAL FOR DUKE CAROLINAS?

A. My recommended weighted cost of capital is presented in Table 4. I used the Company's 2018 capital structure, its 2018 cost of debt of 4.51%, and my recommended ROE of 9.0%. The weighed cost of capital is 6.82%.

	<u>Capital Ratio</u>	<u>Component Costs</u>	<u>Weighted Avg Cost</u>
Long Term Debt	48.50%	4.51%	2.19%
Common Equity	<u>51.50%</u>	9.00%	<u>4.64%</u>
Total Capital	100.00%		6.82%

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IV. ECONOMIC CONDITIONS IN NORTH CAROLINA

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**Q. PLEASE DISCUSS MR. HEVERT’S ANALYSIS OF ECONOMIC
CONDITIONS IN NORTH CAROLINA.**

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A. Mr. Hevert presented his analysis of North Carolinas’ economic conditions beginning on page 53 of his Direct Testimony. As a preliminary matter, Mr. Hevert set forth the Commission's considerations with respect to balancing the interests of investors and ratepayers in setting the allowed ROE for North Carolina utilities.¹⁵ With respect to his economic analysis, Mr. Hevert reached the following main conclusions:¹⁶

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- North Carolinas’ unemployment rate has fallen by two-thirds since its peak in 2009-2010 and as of June 2019 the unemployment rate stood at 4.20%, which is higher than the national average of 3.70%.

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- The unemployment rate in the counties served by Duke Carolinas is “approximately” equal to the North Carolina average unemployment rate.

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¹⁵ State of North Carolina Utilities Commission, Docket No. E-7, Sub 989, Order on Remand, October 23, 2013, at 34 - 35; Dominion Remand Order, Docket No. E-22, Sub 479 at 26.

¹⁶ Refer to pages 61 through 63 of Mr. Hevert’s Direct Testimony.

- 1 • North Carolinas’ Gross Domestic Product (“GDP”) is “highly
2 correlated” with national GDP.
- 3 • Median household income has grown in North Carolina and has grown
4 at a rate consistent with the national average median income. Also, the
5 overall cost of living in North Carolina is below the national average.
- 6 • Residential electricity rates have been approximately 8.28% below the
7 national average over the last 15 years.
- 8 • Based on his analysis, Mr. Hevert opined that his recommended 10.5%
9 ROE is “fair and reasonable to DE Carolinas, its shareholders, and its
10 customers in light of the effect of those changing economic conditions.”

11 **Q. PLEASE PRESENT YOUR CONCLUSIONS WITH RESPECT TO THE**
12 **STUDY CONDUCTED BY MR. HEVERT.**

13 A. My conclusions are:

- 14 • Although the decline in unemployment rates for North Carolina and the
15 counties that Duke Carolinas serves are correlated with the national
16 average, they are higher than the national average.
- 17 • Although the growth in median income in North Carolina is correlated
18 with the national average, the median income in North Carolina and the
19 counties served by Duke Carolinas is significantly lower than the
20 national average.
- 21 • Duke Carolinas’ lower than average residential rates and North
22 Carolinas’ lower than average cost of living do not justify the
23 Company’s excessive requested ROE and overall cost of capital.

1 **Q. PLEASE ADDRESS YOUR CONCLUSION WITH RESPECT TO**
2 **UNEMPLOYMENT RATES FOR NORTH CAROLINA AND THE**
3 **UNITED STATES AS A WHOLE.**

4 A. As Mr. Hevert pointed out in his Direct Testimony, North Carolinas'
5 unemployment rate fell as the overall U.S. unemployment rate fell, although
6 North Carolinas' unemployment rate was 0.50% higher as of June 2019. As of
7 December 2019, the U.S. unemployment rate was 3.50% and the North Carolina
8 unemployment rates was 3.70%, according to the U.S. Bureau of Labor
9 Statistics.¹⁷ I also reviewed Mr. Hevert's data supporting his unemployment
10 analysis in Chart 4 on page 56 of his Direct Testimony. Table 5 below presents
11 Mr. Hevert's monthly unemployment rate data from January 2018 through June
12 2019.

¹⁷ The North Carolina unemployment rate was preliminary as of the preparation of my Direct Testimony.

	U.S. Unemployment <u>Rate</u>	N.C. Unemployment <u>Rate</u>	<u>Difference</u>
Jan-2018	4.10	4.20	0.10
Feb-2018	4.10	4.20	0.10
Mar-2018	4.00	4.10	0.10
Apr-2018	3.90	4.00	0.10
May-2018	3.80	4.00	0.20
Jun-2018	4.00	3.90	(0.10)
Jul-2018	3.90	3.80	(0.10)
Aug-2018	3.80	3.70	(0.10)
Sep-2018	3.70	3.70	-
Oct-2018	3.80	3.70	(0.10)
Nov-2018	3.70	3.70	-
Dec-2018	3.90	3.70	(0.20)
Jan-2019	4.00	3.80	(0.20)
Feb-2019	3.80	3.90	0.10
Mar-2019	3.80	4.00	0.20
Apr-19	3.60	4.00	0.40
May-19	3.60	4.10	0.50
Jun-19	3.70	4.20	0.50

Source: Mr. Hevert's work papers

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10 **Q. PLEASE COMMENT ON THE DIFFERENCE IN MEDIAN INCOME**
 11 **BETWEEN THE NATIONAL AVERAGE AND NORTH CAROLINA.**

12 A. The data underlying Mr. Hevert's median income comparison shows that North
 13 Carolina's median income has been persistently and significantly below the

1 U.S. median income during the entire study period. Table 6 below presents U.S.
2 and North Carolina median income and the percentage difference between
3 them. This data was taken from Mr. Hevert's work papers.

<u>Year</u>	<u>U.S. Median Income</u>	<u>N.C. Median Income</u>	<u>Difference</u>
2018	63,179	53,369	-15.5%
2017	61,136	49,547	-19.0%
2016	59,039	53,764	-8.9%
2015	56,516	50,797	-10.1%
2014	53,657	46,784	-12.8%
2013	53,585	46,337	-13.5%
2012	51,017	41,553	-18.6%
2011	50,054	45,206	-9.7%
2010	49,276	43,830	-11.1%
2009	49,777	41,906	-15.8%
2008	50,303	42,930	-14.7%
2007	50,233	43,513	-13.4%
2006	48,201	39,797	-17.4%
2005	46,326	42,056	-9.2%

Source: Mr. Hevert's work papers

4
5 Table 6 shows that the difference between the North Carolina and U.S. median
6 income levels has grown from -8.9% in 2016 to -19.0% in 2017 and -15.5% in
7 2018. These differences underscore the importance of setting the allowed ROE
8 and the overall cost of capital as low as possible while still satisfying the legal
9 requirements of *Hope* and *Bluefield* and the North Carolina Supreme Court's
10 finding with respect to return on equity.

11 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT ON DUKE**
12 **CAROLINAS NORTH CAROLINA RATEPAYERS FROM MR.**
13 **HEVERT'S RECOMMENDED 10.5% ROE AND THE COMPANY'S**

1 **PROPOSED 53% EQUITY RATIO COMPARED TO YOUR**
2 **RECOMMENDATION?**

3 A. The rate impact on North Carolina customers is substantial. Exhibit RAB-6
4 presents my calculation of the increased revenue requirement from the
5 Company's requested ROE of 10.3% and common equity ratio of 53%
6 compared to my recommended overall cost of capital. My analysis uses the
7 Company's requested rate base and the tax rates, the NCUC fee percentage, and
8 the uncollectible rate from the Company's Exhibit C. *Duke Carolinas'*
9 *requested return on rate base would cost North Carolina ratepayers an*
10 *additional \$157.1 million per year in their rates compared to my*
11 *recommendation.*

12 In conclusion, a 9.00% ROE and an actual 51.5% common equity ratio
13 is more than adequate to meet *Hope* and *Bluefield* standards with respect to
14 comparable returns, financial integrity and ability to attract capital. It will also
15 satisfy the requirement for the Commission's consideration of the economic
16 impact on North Carolina ratepayers from the allowed rate of return in this case.

17 **V. RESPONSE TO DUKE CAROLINAS' DIRECT TESTIMONY**

18 **Q. HAVE YOU REVIEWED THE DIRECT TESTIMONY OF MR.**
19 **ROBERT HEVERT?**

20 A. Yes.

21 **Q. PLEASE SUMMARIZE MR. HEVERT'S TESTIMONY AND**
22 **APPROACH TO RETURN ON EQUITY.**

1 A. Mr. Hevert employed three methods to estimate the investor required rate of
2 return for Duke Carolinas: (1) the constant growth DCF model, (2) the CAPM
3 and the empirical CAPM (“ECAPM”), and (3) the Bond Yield Plus Risk
4 Premium model (“BYRP”). Mr. Hevert also presented the results of the
5 Expected Return approach based on Value Line’s forecasted returns on book
6 equity for the proxy group.

7 For his constant growth DCF approach, Mr. Hevert used Value Line,
8 First Call, and Zacks for the investor expected growth rate. For the proxy group,
9 Mr. Hevert’s mean growth rate ROE results ranged from 8.86% to 9.09%.¹⁸

10 With respect to the CAPM, Mr. Hevert utilized a current and near-term
11 projected yield on the 30-Year Treasury Bond for his risk-free rate. Using the
12 current Treasury bond yield of 2.63%, his CAPM results ranged from 8.68% to
13 9.74%. Using the near-term projected Treasury yield of 2.70%, his CAPM
14 results ranged from 8.75% to 9.81%.¹⁹

15 Mr. Hevert’s ECAPM variation of the CAPM yielded results ranging
16 from 10.21% to 11.10%.²⁰

17 Finally, Mr. Hevert’s formulation of the BYRP approach resulted in a
18 ROE range of 9.90% - 10.06%.²¹

¹⁸ Refer to Mr. Hevert’s Direct Testimony, page 80, Table 6.

¹⁹ *Id.*, page 87, Table 7.

²⁰ *Id.*, page 92, Table 8.

²¹ *Id.*, page 96, Table 9.

1 Based on the results of his analyses and judgment, Mr. Hevert
2 recommended a ROE range for Duke Carolinas of 10.00% to 11.00%,
3 concluding that the cost of equity is 10.50%.²²

4 **Q. BEFORE YOU PROCEED TO THE PARTICULARS OF YOUR**
5 **REVIEW OF MR. HEVERT’S TESTIMONY, WHAT IS YOUR**
6 **OVERALL CONCLUSION WITH RESPECT TO MR. HEVERT’S**
7 **RECOMMENDED ROE RANGE?**

8 A. Mr. Hevert’s recommended ROE range of 10.00% – 11.00% fails to reflect the
9 full range of results from his analyses. His mean DCF results, which are fairly
10 consistent with mine, were completely excluded from his range of
11 recommendations. Based on the ROE results presented by Mr. Hevert, it
12 appears that he mainly relied on the upper range of his CAPM and ECAPM and
13 his BYRP method for the lower end of his recommended range.

14 To put this another way, consider the following:

- 15 • Mr. Hevert rejected the mean results from the constant growth DCF in
16 total.
- 17 • Mr. Hevert also apparently rejected his CAPM results given that the top
18 end of his CAPM range was 9.81%.

19 What we are left with, then, is the BYRP results of 9.90% - 10.06% being
20 consistent with Mr. Hevert’s floor recommendation of 10.0%. His ECAPM
21 results also fall within his recommended range. Although Mr. Hevert presented

²² *Id.*, page 13.

1 three different approaches to estimating the cost of equity for Duke Carolinas,
2 he rejected the DCF model and CAPM results and relied almost exclusively on
3 the ECAPM and BYRP.

4 **Q. IS IT APPROPRIATE FOR MR. HEVERT TO REJECT THE MEAN**
5 **RESULTS FROM HIS DCF ANALYSES?**

6 A. No. It is inappropriate for Mr. Hevert to exclude the mean results of the constant
7 growth DCF model in his recommended ROE for Duke Carolinas. The constant
8 growth DCF model utilizes verifiable public information with respect to
9 investor return requirements for electric utilities. Current stock prices are the
10 best indicators we have of investor expectations and analysts' earnings and
11 dividend growth forecasts may reasonably be assumed to influence investors'
12 required ROEs. Discarding this important publicly available information as Mr.
13 Hevert has done serves to significantly overstate his recommended investor
14 required return for a low-risk regulated utility company such as Duke Carolinas.
15 The DCF model currently shows that investor required returns are considerably
16 lower for utility stocks given their safety and security relative to the stock
17 market as a whole.

18 **Q. IS USING THE HIGH MEAN RESULTS FROM THE DCF MODELS**
19 **APPROPRIATE?**

20 A. No. Mr. Hevert's high mean results simply use the highest ROE for each
21 company in the proxy group, which is driven by the highest expected growth
22 rate. There is no basis for assuming that investors are more likely to expect the
23 highest growth rate from the three sources used by Mr. Hevert. The average of

1 the three sources is a far more likely and reasonable assumption. For example,
2 the proxy group high mean using Mr. Hevert's 180-day average stock price is
3 unduly influenced by excessive ROE estimates for Avangrid (13.71%),
4 NextEra Energy (12.83%), Otter Tail (11.97%), and PNM Resources
5 (11.23%).²³

6 **Q. ON PAGE 80, LINES 9 THROUGH 16 OF HIS DIRECT TESTIMONY,**
7 **MR. HEVERT CRITICIZED THE USE OF THE DCF MODEL ON**
8 **CERTAIN GROUNDS. PLEASE ADDRESS MR. HEVERT'S**
9 **CRITICISMS.**

10 A. Mr. Hevert testified that the DCF model is predicated on a number of
11 assumptions, one being a constant price/earnings (P/E) ratio. Since P/E ratios
12 in the utility sector are currently above their long-term average and the market's
13 P/E, Mr. Hevert recommended caution when viewing the DCF results. Mr.
14 Hevert also testified that the DCF model is producing results below the
15 authorized returns for electric utilities.

16 First, before I proceed to a more detailed response to Mr. Hevert's
17 criticisms of the DCF model's assumptions, it is important to realize that none
18 of the models Mr. Hevert and I use to estimate the investor required ROE
19 strictly adhere to their underlying assumptions 100% of the time in the real
20 world. The DCF, CAPM, and risk premium models all operate with certain
21 simplifying assumptions. In Section III of my testimony I pointed out the
22 limitations of the CAPM that must be considered in assessing its effectiveness

²³ See Exhibit RBH-1, page 3 of 3.

1 relative to the DCF model. One of those limitations is estimating the market
2 required rate of return. Estimating the market required rate of return requires
3 considerable judgment on the part of the analyst, judgment that may result in a
4 wide range of possible returns. In this case, Mr. Hevert and I used very different
5 estimates of the market rate of return that caused our CAPM results to differ
6 considerably. I will address the serious underlying problems with Mr. Hevert's
7 CAPM later in my testimony.

8 I suggest that the Commission recognize that no ROE estimation model
9 strictly adheres to its underlying assumptions all the time.

10 **Q. PLEASE CONTINUE WITH YOUR RESPONSE TO MR. HEVERT'S**
11 **CRITICISM OF THE DCF MODEL'S ASSUMPTIONS.**

12 A. With respect to the assumption of a constant P/E ratio, simply because the utility
13 industry's current P/E ratio may be above the long-term average P/E ratio does
14 not mean that the DCF results based on current data are questionable and should
15 be thrown out. As I have stated previously in my testimony, capital markets are
16 efficient and can be assumed to reflect investor preferences in the prices they
17 are willing and able to pay for a regulated utility's common stock. This includes
18 publicly available information to which investors have access, including P/E
19 ratios. What this means is that it is reasonable to assume that current stock prices
20 are reflective of investors' required ROE and that the DCF model can provide
21 valid and valuable information to the Commission in its determination of the
22 allowed ROE for regulated utilities generally and for Duke Energy Carolinas in
23 this case.

1 **Q. ON PAGE 81, LINES 10 THROUGH 19 OF HIS DIRECT TESTIMONY,**
2 **MR. HEVERT TESTIFIED THAT THE DCF MODEL ASSUMES THAT**
3 **THE RETURN TODAY WILL BE THE SAME RETURN REQUIRED IN**
4 **THE FUTURE, “EVEN THOUGH THE FEDERAL RESERVE ONLY**
5 **RECENTLY HAS COMPLETED THE PRINCIPAL INITIATIVES OF**
6 **ITS MONETARY POLICY NORMALIZATION AND IS CONTINUING**
7 **TO ASSESS REALIZED AND EXPECTED ECONOMIC CONDITIONS**
8 **AS IT DETERMINES FUTURE ADJUSTMENTS, INTRODUCING A**
9 **DEGREE OF UNCERTAINTY REGARDING FUTURE MONETARY**
10 **POLICY ACTIONS.” PLEASE COMMENT ON THIS STATEMENT.**

11 **A.** Again, it is highly likely that investors have fully taken this information into
12 account into the prices they are willing to pay for bonds and utility stocks. The
13 Fed lowered the federal funds rate several times in 2019 and long-term Treasury
14 yields have fallen significantly. During 2019, the 30-year Treasury bond yield
15 fell from 3.04% in January to 2.3% December. Clearly, the trend in the
16 economy over the last year shows that capital costs are declining, not
17 increasing, and one would expect that investor required ROEs for low-risk
18 regulated electric utilities like Duke Carolinas would follow that trend.

19 Furthermore, all of the models used to estimate the investor’s required
20 ROE must fix a return “today” since no one knows with certainty what will
21 happen in the future, including what investor expected returns will be. Future
22 events and economic conditions will affect the required ROE in ways we cannot
23 predict now.

1 **Q. ON PAGE 82 OF HIS DIRECT TESTIMONY, MR. HEVERT**
2 **TESTIFIED THAT SINCE 1980 ONLY ELEVEN UTILITY RATE**
3 **CASES INCLUDED AN AUTHORIZED ROE OF LESS THAN 9.0%.**
4 **PLEASE RESPOND TO MR. HEVERT’S TESTIMONY ON THIS**
5 **POINT.**

6 A. Including rate cases since 1980 is an irrelevant exercise because it places too
7 much emphasis on stale data. In the 1980s and 1990s interest rates and allowed
8 ROEs were far higher than they have been in the last few years. Consider the
9 following information I developed using the data in Mr. Hevert’s Exhibit RBH-
10 5:

- 11 • From 1980 through 1989, the average awarded ROE was 14.80% and
12 the average 30-Year Treasury Bond yield was 11.35%.
- 13 • From 1990 through 1999, the average awarded ROE was 11.91% and
14 the average 30-Year Treasury Bond yield was 7.51%.
- 15 • From 2000 through 2009, the average awarded ROE was 10.62% and
16 the average 30-Year Treasury Bond yield was 4.81%.

17 These averages give the Commission a general picture of the interest rate and
18 ROE levels from the 1980s, 1990s, and 2000s and represent 1,218 of the 1,594
19 observations in Mr. Hevert’s data set in Exhibit RBH-5. They are in no way
20 indicative of investor required returns today given how much higher interest
21 rates were during these prior periods.

22 Further consider that Mr. Hevert’s recommendation of 10.5% is close
23 to the average ROE from 2000 – 2009 of 10.62%. During that period the
24 average 30-year Treasury Bond yield was 4.81%, which is almost 250 basis
25 points higher than the December 2019 yield of 2.3%. With Treasury Bond

1 yields so much lower now, Mr. Hevert's ROE recommendation of 10.5% is
2 clearly out of line.

3 **Q. ON PAGE 80, LINES 14 THROUGH 16 OF HIS DIRECT TESTMONY**
4 **MR. HEVERT TESTIFIED THAT THE MEAN CONSTANT GROWTH**
5 **DCF RESULTS ARE BELOW THE AUTHORIZED RETURN FOR**
6 **ELECTRIC UTILITIES. HOW DO MR. HEVERT'S ECAPM RESULTS**
7 **COMPARE WITH RECENT AUTHORIZED RETURNS?**

8 A. Mr. Hevert's ECAPM ROEs based on the average Value Line beta range from
9 10.96% to 11.10% and are consistent with the upper end of Mr. Hevert's
10 recommended ROE range. These results are grossly in excess of current market-
11 based returns as well as ROEs allowed in the last several years. Based on the
12 authorized ROE data in Exhibit RBH-5, one would have to go back to 2011 to
13 find an authorized ROE near or above 11.0%. Although Mr. Hevert criticized
14 the DCF model results for being below authorized returns, he did not apply the
15 same criterion to test whether his ECAPM results were reasonable.

16 **Q. CONSIDERING THE FOREGOING DISCUSSION, PLEASE**
17 **SUMMARIZE YOUR CONCLUSIONS WITH RESPECT TO MR.**
18 **HEVERT'S RECOMMENDED ROE RANGE AND HIS ROE**
19 **RECOMMENDATION FOR DUKE CAROLINAS.**

20 A. I conclude that the Commission should reject Mr. Hevert's recommended ROE
21 range and his recommended ROE of 10.50%. Mr. Hevert's 10.50% ROE
22 recommendation is excessive in today's market environment. Mr. Hevert's
23 ROE range omits critically important information from the DCF model and, as

1 a result, misstates the investor required ROE for a low-risk utility such as Duke
2 Carolinas.

3 **CAPM and ECAPM**

4 **Q. BRIEFLY SUMMARIZE THE MAIN ELEMENTS OF MR. HEVERT'S**
5 **CAPM APPROACH.**

6 A. On pages 84 and 85 of his Direct Testimony, Mr. Hevert testified that he used
7 two different measures of the risk-free rate: the current 30-day average yield on
8 the 30-year Treasury bond (2.63%) and a near-term projected 30-year Treasury
9 bond yield (2.70%). Mr. Hevert then calculated ex-ante measures of total
10 market returns for the S&P 500 using data from Bloomberg and Value Line.
11 Total market returns from these two sources were 14.46% using Bloomberg
12 data and 14.62% return using Value Line data.²⁴ Subtracting out the risk-free
13 rate, the resulting market risk premiums were 12.04% – 12.19%.

14 Mr. Hevert used two different estimates for beta from Bloomberg
15 (0.498) and Value Line (0.58).²⁵

16 **Q. IS IT APPROPRIATE TO USE FORECASTED OR PROJECTED BOND**
17 **YIELDS IN THE CAPM?**

18 A. No. Current interest rates and bond yields embody all of the relevant market
19 data and expectations of investors, including expectations of changing future
20 interest rates. The forecasted bond yield used by Mr. Hevert is at odds with the
21 trend of declining long-term bond yields in 2019. Current interest rates provide

²⁴ Refer to Exhibit RBH-2.

²⁵ Refer to Exhibit RBH-3.

1 tangible and verifiable market evidence of investor return requirements today
2 and these are the interest rates and bond yields that should be used in both the
3 CAPM and in the bond yield plus risk premium analyses. To the extent that
4 investors give forecasted interest rates any weight at all, they are already
5 incorporated in current securities prices.

6 In this case, however, Mr. Hevert's forecasted bond yield is not
7 significantly different from his current bond yield. I would also note that current
8 30-year Treasury yields have declined since Mr. Hevert submitted his Direct
9 Testimony, with a January 2020 yield of 2.22%. In comparison, my range for
10 the risk-free rate is 2.21% – 3.00%, with a midpoint of 2.6%, so our estimates
11 for the risk-free rate do not differ significantly in this proceeding.

12 **Q. HOW DO MR. HEVERT'S ESTIMATES OF THE OVERALL MARKET**
13 **RETURN COMPARE TO YOURS?**

14 A. My estimates of the market required return are as follows:

- 15 • Value Line 3-5 Year Total Return: 11.0% – 12.21%
- 16 • Value Line Growth Rates: 10.61%
- 17 • S&P Average Historical Returns: 11.90%

18 Mr. Hevert's forecasted market returns of 14.48% – 14.62% are
19 extraordinarily high compared to historical norms. Further, his calculation of
20 the market return using Value Line's 3 – 5 year earnings growth estimates
21 greatly exceeds the Value Line 3 – 5 year total annual return numbers I used
22 from the Value Line Investment Analyzer. Moreover, the number of companies
23 the Value Line Investment Analyzer used to develop the total annual return
24 numbers I used was 1,682, a far greater number of companies than the S&P 500
25 used by Mr. Hevert. I recommend that the Commission give Mr. Hevert's
26 estimated market returns little weight in this proceeding.

1 **Q. ARE THERE SOURCES OF WHICH YOU ARE AWARE THAT**
2 **SUGGEST MR. HEVERT’S MARKET RISK PREMIUM RANGE OF**
3 **12.04% - 12.19% IS UNREASONABLY HIGH?**

4 A. Yes. In the authoritative corporate finance textbook by Brealey, Myers, and
5 Allen the authors stated:

6 “Brealey, Myers, and Allen have no official position on the
7 issue, but we believe that a range of 5 to 8 percent is reasonable
8 for the risk premium in the United States.”²⁶

9 As I cited earlier in my Direct Testimony, Duff and Phelps currently
10 recommends a market risk premium of 5.5% and an overall U. S. cost of equity
11 of 8.5%. These sources underscore how much Mr. Hevert's recommended
12 market risk premiums inflated his CAPM and ECAPM ROE estimates.

13 **Q. BEGINNING ON PAGE 88 OF HIS DIRECT TESTIMONY, MR.**
14 **HEVERT EXPLAINED THAT HE ALSO INCLUDED THE ECAPM**
15 **ANALYSIS. PLEASE COMMENT ON MR. HEVERT’S USE OF THE**
16 **ECAPM IN THIS CASE.**

17 A. The ECAPM is designed to account for the possibility that the CAPM
18 understates the return on equity for companies with betas less than 1.0. Mr.
19 Hevert explained on page 88 of his Direct Testimony how he applied the
20 adjustment to his CAPM data, which was based on the formula included in *New*
21 *Regulatory Finance* by Dr. Roger Morin.

²⁶ Richard A. Brealey, Stewart C. Myers, and Paul Allen, *Principles of Corporate Finance*, page 154; McGraw-Hill/Irwin, 8th Edition, 2006.

1 The argument that an adjustment factor is needed to “correct” the
2 CAPM results for companies with betas less than 1.0 is further evidence of the
3 lack of accuracy inherent in the CAPM itself and with beta in particular, as I
4 pointed out earlier in my Direct Testimony. The ECAPM adjustment also
5 suggests that published betas by such sources as Value Line and Bloomberg are
6 incorrect and that investors should not rely on them in formulating their
7 estimates using the CAPM. Finally, although Mr. Hevert cited the source of the
8 ECAPM formula he used, he provided no evidence that investors favor this
9 version of the ECAPM over the standard CAPM.

10 **Q. PLEASE COMMENT ON THE ECAPM RESULTS REPORTED BY MR**
11 **HEVERT ON HIS TABLE 8 ON PAGE 92 OF HIS DIRECT**
12 **TESTIMONY.**

13 A. The ECAPM results using the Average Value Line beta Coefficient —10.96%
14 to 11.10%—are excessive and implausible. To provide the Commission with
15 some perspective here, according to the data presented by Mr. Hevert in his
16 Exhibit RBH-5, the last Commission authorized ROE exceeding 11.00% was
17 September 2, 2011 (12.88%) and that value far exceeded the other Commission
18 allowed ROEs in 2011. I would also point out that the average 30-Year Treasury
19 Bond yield in 2011 was 4.13%, a far higher yield than the recent 2.30% yield
20 for the 30-Year Treasury Bond. Mr. Hevert’s ECAPM results using the Value
21 Line beta are so disproportionately high that they should be rejected out of hand
22 by the Commission.

23 **Risk Premium**

1 **Q. PLEASE SUMMARIZE MR. HEVERT’S RISK PREMIUM**
2 **APPROACH.**

3 A. Mr. Hevert developed an historical risk premium using Commission-allowed
4 returns for regulated electric utility companies and 30-year Treasury Bond
5 yields from January 1980 through May 23, 2019. He used regression analysis
6 to estimate the value of the inverse relationship between interest rates and risk
7 premiums during that period. Applying the regression coefficients to the
8 average risk premium and using the current and projected 30-year Treasury
9 yields I discussed earlier and also employing a long-term projected 30-year
10 Treasury Bond yield of 3.70%, Mr. Hevert’s risk premium ROE estimate range
11 is 9.90% – 10.06%.²⁷

12 **Q. PLEASE RESPOND TO MR. HEVERT’S RISK PREMIUM ANALYSIS.**

13 A. There are two major flaws in Mr. Hevert’s analysis. First, it measures the
14 returns allowed by regulatory commissions, not investor required returns
15 reflected in marketplace data; and second, it relies on historical allowed returns
16 dating back to 1980 rather than recent returns. The bond yield plus risk premium
17 approach is imprecise and can only provide very general guidance on the
18 current authorized ROE for a regulated electric utility. Risk premiums can
19 change substantially over time based on investor preferences and market
20 conditions. These changes will not be incorporated into an historical risk
21 premium analysis of the type Mr. Hevert uses that employs historical
22 commission allowed ROEs. As such, this approach is a “blunt instrument,” if

²⁷ Hevert Direct Testimony, page 96, Table 9.

1 you will, for estimating the ROE in regulated proceedings. In my view, a
2 properly formulated DCF model using current stock prices and growth forecasts
3 is far more reliable and accurate than the bond yield plus risk premium
4 approach, which relies on a historical risk premium analysis based on the
5 allowed returns over a certain period of time.

6 **Q. DO MR. HEVERT’S RISK PREMIUM RESULTS ACCURATELY**
7 **TRACK RECENTLY ALLOWED ROES?**

8 A. No. Even assuming the Commission accepts the use of data about allowed
9 ROEs as a substitute for market data, Mr. Hevert’s model does not accurately
10 track *recently* allowed ROE data. To test the accuracy of Mr. Hevert’s BYRP
11 model, I averaged the allowed returns and Treasury bond yields for 2018 as
12 reported in Mr. Hevert’s Exhibit RBH-5. The average allowed ROE for 2018
13 was 9.56% and the average 30-Year Treasury Bond yield was 2.99%. I then
14 plugged in the 2.99% Treasury Bond yield to Mr. Hevert’s BYRP formula in
15 Exhibit RBH-5 and the resulting BYRP ROE was 9.92%. Compared to the
16 actual average Commission-allowed 2018 ROE 9.56%, Mr. Hevert’s formula
17 overshot the actual ROE by 36 basis points, or 0.36%. Likewise using the
18 December 2018 Treasury Bond yield of 2.30% in Mr. Hevert’s BYRP formula
19 results in a ROE of 9.93%, which is nearly identical to the 9.92% ROE result
20 using a 2.99% Treasury Bond yield. It is clear that if the Treasury Bond yield
21 falls, the expected ROE should also fall, but Mr. Hevert’s BYRP formula result
22 does not follow logically.

1 In my opinion, these calculations provide evidence to the Commission
2 that using Mr. Hevert’s risk premium model in today’s economic environment
3 will overstate the investor required ROE for a low-risk utility such as Duke
4 Carolinas.

5 **Expected Earnings**

6 **Q. BEGINNING ON PAGE 96 OF HIS DIRECT TESTIMONY, MR.**
7 **HEVERT PRESENTED HIS EXPECTED EARNINGS ANALYSIS.**
8 **PLEASE RESPOND TO MR. HEVERT’S ANALYSIS.**

9 A. Mr. Hevert relied on Value Line’s projected returns on book value equity for
10 the period 2022-2024 for his expected earnings ROE estimate for the proxy
11 group, which ranges from 10.44% – 10.54%.²⁸ He used the expected earnings
12 analysis as a check on his other results.

13 The major flaw in the expected earnings approach is that it measures
14 accounting returns on book value, not investor required returns in the
15 marketplace. A market-based ROE estimation method like the DCF model uses
16 stock market data and earnings growth forecasts to determine a forward-looking
17 ROE estimate that incorporates true opportunity cost measured against the
18 returns available to the investor in alternative investments such as other stocks,
19 bonds, real estate, and so forth. Further, changes in economic variables such as
20 interest rates will affect the required returns of utility stock investments and
21 other investments as well. Such changes will be incorporated into the DCF and

²⁸ Mr. Hevert Direct Testimony, page 97.

1 CAPM models, which use current market data. These changes will not be
2 reflected in book returns on common equity.

3 Turning to Mr. Hevert’s expected earnings approach, he provided
4 absolutely no support for the assumption that Value Line’s projected accounting
5 returns on book value in the 2022 – 2024 projected time period have any
6 influence whatsoever on required returns in today’s financial marketplace or
7 that they provide a useful benchmark in estimating current required returns. I
8 recommend the Commission reject Mr. Hevert’s expected earnings approach
9 and instead use market-based ROE estimation models to set Duke Carolinas’
10 allowed ROE in this proceeding.

11 **Use of Multiple Methods to Estimate the Cost of Equity**

12 **Q. DID THE FEDERAL ENERGY REGULATORY COMMISSION**
13 **(“FERC”) RECENTLY ISSUE AN ORDER REGARDING USING**
14 **MULTIPLE MODELS IN ESTIMATING THE ROE?**

15 **A.** Yes. FERC recently issued its Opinion No. 569 on November 21, 2019, Docket
16 Nos. EL14-12-003 and EL15-45-000 regarding the methods used to estimate a
17 just and reasonable ROE under the Federal Power Act (“FPA”) section 206. In
18 this Opinion, the FERC rejected using the Risk Premium and Expected
19 Earnings approaches to estimating the ROE. FERC stated:

20 1. On November 15, 2018, the Commission issued an Order
21 Directing Briefs in the above-captioned proceedings. The
22 Briefing Order directed the participants in the above captioned
23 proceedings to submit briefs regarding: (1) a proposed
24 framework for determining whether an existing base return on
25 equity (ROE) is unjust and unreasonable under the first prong of
26 Federal Power Act (FPA) section 206; and (2) a revised
27 methodology for determining just and reasonable base ROEs

1 under the second prong of FPA section 206. As discussed
2 below, we will adopt the proposal in the Briefing Order, with
3 certain revisions. *Principally, we will not adopt the use of the*
4 *expected earnings (Expected Earnings) and risk premium (Risk*
5 *Premium) models in our ROE analyses under the first and*
6 *second prongs of section 206, and instead will use only the*
7 *discounted cash flow (DCF) model and capital-asset pricing*
8 *model (CAPM) in our ROE analyses under both prongs of*
9 *section 206.* (emphasis added)

10 **Flotation Costs**

11 **Q. BEGINNING ON PAGE 34 OF HIS DIRECT TESTIMONY, MR.**
12 **HEVERT PRESENTED HIS POSITION REGARDING THE NEED TO**
13 **RECOGNIZE THE EFFECT OF FLOTATION COSTS IN THE COST**
14 **OF EQUITY. PLEASE ADDRESS MR. HEVERT'S POSITION ON**
15 **FLOTATION COSTS.**

16 **A.** A flotation cost adjustment attempts to recognize and collect the costs of issuing
17 common stock. Such costs typically include legal, accounting, and printing
18 costs as well as broker fees and discounts. In my opinion, it is likely that
19 flotation costs are already accounted for in current stock prices and that adding
20 an adjustment for flotation costs amounts to double counting. A DCF model
21 using current stock prices should already account for investor expectations
22 regarding the collection of flotation costs. Multiplying the dividend yield by a
23 4% flotation cost adjustment, for example, essentially assumes that the current
24 stock price is wrong and that it must be adjusted downward to increase the
25 dividend yield and the resulting cost of equity. This is not an appropriate
26 assumption regarding investor expectations. Current stock prices most likely

1 already account for flotation costs, to the extent that such costs are even
2 accounted for by investors.

3 **Business Risks and Other Considerations**

4 **Q. BEGINNING ON PAGE 37 OF HIS DIRECT TESTIMONY, MR.**
5 **HEVERT PROCEEDED TO DESCRIBE SEVERAL BUSINESS RISKS**
6 **AND OTHER FACTORS THAT HE RECOMMENDED BE TAKEN**
7 **INTO CONSIDERATION “WHEN DETERMINING WHERE DUKE**
8 **CAROLINAS’ COST OF EQUITY FALLS WITHIN THE RANGE OF**
9 **RESULTS.” PLEASE RESPOND TO MR. HEVERT’S DISCUSSION OF**
10 **THESE FACTORS AND WHETHER THEY SHOULD INFLUENCE**
11 **THE COMMISSION’S DECISION REGARDING DUKE CAROLINAS’**
12 **RETURN ON EQUITY.**

13 A. I found Mr. Hevert’s discussion regarding the “additional factors” to be
14 considered by the Commission a one-sided view of the overall riskiness of Duke
15 Carolinas. Instead, I recommend that the Commission instead consider my
16 discussion of the Company’s credit strengths and challenges in Section II of my
17 testimony as enumerated by Moody’s. The credit challenges enumerated by
18 Moody’s were supplemented by consideration of the Company’s credit
19 strengths, which support an A1 credit rating. This credit rating is above average
20 when compared to the EEI’s average S&P credit rating for the electric utilities
21 it follows of BBB+. Duke Carolinas’ A1 credit rating is at the top of the A rating
22 category for Moody’s and, if anything, suggests that the Commission should
23 grant an ROE below the mean results. Overall, I suggest that the Commission

1 look to Duke Carolinas' strong overall credit ratings as the indicator of the
2 Company's riskiness compared to the proxy group. These credit ratings do not
3 support an above average return on equity for the Company.

4 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

5 A. Yes.

RESUME OF RICHARD A. BAUDINO

EDUCATION

New Mexico State University, M.A.

Major in Economics
Minor in Statistics

New Mexico State University, B.A.

Economics
English

Thirty-seven years of experience in utility ratemaking and the application of principles of economics to the regulation of electric, gas, and water utilities. Broad based experience in revenue requirement analysis, cost of capital, rate of return, cost and revenue allocation, and rate design.

REGULATORY TESTIMONY

Preparation and presentation of expert testimony in the areas of:

Cost of Capital for Electric, Gas and Water Companies
Electric, Gas, and Water Utility Cost Allocation and Rate Design
Revenue Requirements
Gas and Electric industry restructuring and competition
Fuel cost auditing
Ratemaking Treatment of Generating Plant Sale/Leasebacks

RESUME OF RICHARD A. BAUDINO

EXPERIENCE

1989 to

Present: Kennedy and Associates: **Director of Consulting, Consultant** - Responsible for consulting assignments in revenue requirements, rate design, cost of capital, economic analysis of generation alternatives, electric and gas industry restructuring/competition and water utility issues.

1982 to

1989: New Mexico Public Service Commission Staff: **Utility Economist** - Responsible for preparation of analysis and expert testimony in the areas of rate of return, cost allocation, rate design, finance, phase-in of electric generating plants, and sale/leaseback transactions.

CLIENTS SERVED

Regulatory Commissions

Louisiana Public Service Commission
Georgia Public Service Commission
New Mexico Public Service Commission

Other Clients and Client Groups

Ad Hoc Committee for a Competitive Electric Supply System	Northwest Arkansas Gas Consumers
Air Products and Chemicals, Inc.	Maryland Energy Group
Arkansas Electric Energy Consumers	Occidental Chemical
Arkansas Gas Consumers	PSI Industrial Group
AK Steel	Large Power Intervenors (Minnesota)
Armco Steel Company, L.P.	Tyson Foods
Aqua Large Users Group	West Virginia Energy Users Group
Assn. of Business Advocating Tariff Equity	The Commercial Group
Atmos Cities Steering Committee	Wisconsin Industrial Energy Group
Canadian Federation of Independent Businesses	South Florida Hospital and Health Care Assn.
CF&I Steel, L.P.	PP&L Industrial Customer Alliance
Cities of Midland, McAllen, and Colorado City	Philadelphia Area Industrial Energy Users Gp.
Cities Served by Texas-New Mexico Power Co.	Philadelphia Large Users Group
Cities Served by AEP Texas	West Penn Power Intervenors
City of New York	Duquesne Industrial Intervenors
Climax Molybdenum Company	Met-Ed Industrial Users Gp.
Connecticut Industrial Energy Consumers	Penelec Industrial Customer Alliance
Crescent City Power Users Group	Penn Power Users Group
Cripple Creek & Victor Gold Mining Co.	Columbia Industrial Intervenors
General Electric Company	U.S. Steel & Univ. of Pittsburg Medical Ctr.
Holcim (U.S.) Inc.	Multiple Intervenors
IBM Corporation	Maine Office of Public Advocate
Industrial Energy Consumers	Missouri Office of Public Counsel
Kentucky Industrial Utility Consumers	University of Massachusetts - Amherst
Kentucky Office of the Attorney General	WCF Hospital Utility Alliance
Lexington-Fayette Urban County Government	West Travis County Public Utility Agency
Large Electric Consumers Organization	Steering Committee of Cities Served by Oncor
Newport Steel	Utah Office of Consumer Services
North Carolina Attorney General's Office	Healthcare Council of the National Capital Area
	Vermont Department of Public Service
	Texas Industrial Energy Consumers

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Date	Case	Jurisdict.	Party	Utility	Subject
10/83	1803, 1817	NM	New Mexico Public Service Commission	Southwestern Electric Coop.	Rate design.
11/84	1833	NM	New Mexico Public Service Commission Palo Verde	El Paso Electric Co.	Service contract approval, rate design, performance standards for nuclear generating system
1983	1835	NM	New Mexico Public Service Commission	Public Service Co. of NM	Rate design.
1984	1848	NM	New Mexico Public Service Commission	Sangre de Cristo Water Co.	Rate design.
02/85	1906	NM	New Mexico Public Service Commission	Southwestern Public Service Co.	Rate of return.
09/85	1907	NM	New Mexico Public Service Commission	Jomada Water Co.	Rate of return.
11/85	1957	NM	New Mexico Public Service Commission	Southwestern Public Service Co.	Rate of return.
04/86	2009	NM	New Mexico Public Service Commission	El Paso Electric Co.	Phase-in plan, treatment of sale/leaseback expense.
06/86	2032	NM	New Mexico Public Service Commission	El Paso Electric Co.	Sale/leaseback approval.
09/86	2033	NM	New Mexico Public Service Commission	El Paso Electric Co.	Order to show cause, PVNGS audit.
02/87	2074	NM	New Mexico Public Service Commission	El Paso Electric Co.	Diversification.
05/87	2089	NM	New Mexico Public Service Commission	El Paso Electric Co.	Fuel factor adjustment.
08/87	2092	NM	New Mexico Public Service Commission	El Paso Electric Co.	Rate design.
10/87	2146	NM	New Mexico Public Service Commission	Public Service Co. of New Mexico	Financial effects of restructuring, reorganization.
07/88	2162	NM	New Mexico Public Service Commission	El Paso Electric Co.	Revenue requirements, rate design, rate of return.

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01/89	2194	NM	New Mexico Public Service Commission	Plains Electric G&T Cooperative	Economic development.
1/89	2253	NM	New Mexico Public Service Commission	Plains Electric G&T Cooperative	Financing.
08/89	2259	NM	New Mexico Public Service Commission	Homestead Water Co.	Rate of return, rate design.
10/89	2262	NM	New Mexico Public Service Commission	Public Service Co. of New Mexico	Rate of return.
09/89	2269	NM	New Mexico Public Service Commission	Ruidoso Natural Gas Co.	Rate of return, expense from affiliated interest.
12/89	89-208-TF	AR	Arkansas Electric Energy Consumers	Arkansas Power & Light Co.	Rider M-33.
01/90	U-17282	LA	Louisiana Public Service Commission	Gulf States Utilities	Cost of equity.
09/90	90-158	KY	Kentucky Industrial Utility Consumers	Louisville Gas & Electric Co.	Cost of equity.
09/90	90-004-U	AR	Northwest Arkansas Gas Consumers	Arkansas Western Gas Co.	Cost of equity, transportation rate.
12/90	U-17282 Phase IV	LA	Louisiana Public Service Commission	Gulf States Utilities	Cost of equity.
04/91	91-037-U	AR	Northwest Arkansas Gas Consumers	Arkansas Western Gas Co.	Transportation rates.
12/91	91-410-EL-AIR	OH	Air Products & Chemicals, Inc., Armco Steel Co., General Electric Co., Industrial Energy Consumers	Cincinnati Gas & Electric Co.	Cost of equity.
05/92	910890-EI	FL	Occidental Chemical Corp.	Florida Power Corp.	Cost of equity, rate of return.
09/92	92-032-U	AR	Arkansas Gas Consumers	Arkansas Louisiana Gas Co.	Cost of equity, rate of return, cost-of-service.
09/92	39314	ID	Industrial Consumers for Fair Utility Rates	Indiana Michigan Power Co.	Cost of equity, rate of return.

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09/92	92-009-U	AR	Tyson Foods	General Waterworks	Cost allocation, rate design.
01/93	92-346	KY	Newport Steel Co.	Union Light, Heat & Power Co.	Cost allocation.
01/93	39498	IN	PSI Industrial Group	PSI Energy	Refund allocation.
01/93	U-10105	MI	Association of Businesses Advocating Tariff Equality (ABATE)	Michigan Consolidated Gas Co.	Return on equity.
04/93	92-1464-EL-AIR	OH	Air Products and Chemicals, Inc., Armco Steel Co., Industrial Energy Consumers	Cincinnati Gas & Electric Co.	Return on equity.
09/93	93-189-U	AR	Arkansas Gas Consumers	Arkansas Louisiana Gas Co.	Transportation service terms and conditions.
09/93	93-081-U	AR	Arkansas Gas Consumers	Arkansas Louisiana Gas Co.	Cost-of-service, transportation rates, rate supplements; return on equity; revenue requirements.
12/93	U-17735	LA	Louisiana Public Service Commission Staff	Cajun Electric Power Cooperative	Historical reviews; evaluation of economic studies.
03/94	10320	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric Co.	Trimble County CWIP revenue refund.
4/94	E-015/GR-94-001	MN	Large Power Intervenors	Minnesota Power Co.	Evaluation of the cost of equity, capital structure, and rate of return.
5/94	R-00942993	PA	PG&W Industrial Intervenors	Pennsylvania Gas & Water Co.	Analysis of recovery of transition costs.
5/94	R-00943001	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania charge proposals.	Evaluation of cost allocation, rate design, rate plan, and carrying
7/94	R-00942986	PA	Armco, Inc., West Penn Power Industrial Intervenors	West Penn Power Co.	Return on equity and rate of return.
7/94	94-0035-E-42T	WV	West Virginia Energy Users' Group	Monongahela Power Co.	Return on equity and rate of return.

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8/94	8652	MD	Westvaco Corp. Co.	Potomac Edison	Return on equity and rate of return.
9/94	930357-C	AR	West Central Arkansas Gas Consumers	Arkansas Oklahoma Gas Corp.	Evaluation of transportation service.
9/94	U-19904	LA	Louisiana Public Service Commission	Gulf States Utilities	Return on equity.
9/94	8629	MD	Maryland Industrial Group	Baltimore Gas & Electric Co.	Transition costs.
11/94	94-175-U	AR	Arkansas Gas Consumers	Arkla, Inc.	Cost-of-service, rate design, rate of return.
3/95	RP94-343- 000	FERC	Arkansas Gas Consumers	NorAm Gas Transmission	Rate of return.
4/95	R-00943271	PA	PP&L Industrial Customer Alliance	Pennsylvania Power & Light Co.	Return on equity.
6/95	U-10755	MI	Association of Businesses Advocating Tariff Equity	Consumers Power Co.	Revenue requirements.
7/95	8697	MD	Maryland Industrial Group	Baltimore Gas & Electric Co.	Cost allocation and rate design.
8/95	95-254-TF U-2811	AR	Tyson Foods, Inc.	Southwest Arkansas Electric Cooperative	Refund allocation.
10/95	ER95-1042 -000	FERC	Louisiana Public Service Commission	Systems Energy Resources, Inc.	Return on Equity.
11/95	I-940032	PA	Industrial Energy Consumers of Pennsylvania	State-wide - all utilities	Investigation into Electric Power Competition.
5/96	96-030-U	AR	Northwest Arkansas Gas Consumers	Arkansas Western Gas Co.	Revenue requirements, rate of return and cost of service.
7/96	8725	MD	Maryland Industrial Group	Baltimore Gas & Electric Co., Potomac Electric Power Co. and Constellation Energy Corp.	Return on Equity.
7/96	U-21496	LA	Louisiana Public Service Commission	Central Louisiana Electric Co.	Return on equity, rate of return.
9/96	U-22092	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity.

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Date	Case	Jurisdict.	Party	Utility	Subject
1/97	RP96-199-000	FERC	The Industrial Gas Users Conference	Mississippi River Transmission Corp.	Revenue requirements, rate of return and cost of service.
3/97	96-420-U	AR	West Central Arkansas Gas Corp.	Arkansas Oklahoma Gas Corp.	Revenue requirements, rate of return, cost of service and rate design.
7/97	U-11220	MI	Association of Business Advocating Tariff Equity	Michigan Gas Co. and Southeastern Michigan Gas Co.	Transportation Balancing Provisions.
7/97	R-00973944	PA	Pennsylvania American Water Large Users Group	Pennsylvania-American Water Co.	Rate of return, cost of service, revenue requirements.
3/98	8390-U	GA	Georgia Natural Gas Group and the Georgia Textile Manufacturers Assoc.	Atlanta Gas Light	Rate of return, restructuring issues, unbundling, rate design issues.
7/98	R-00984280	PA	PG Energy, Inc. Intervenors	PGE Industrial	Cost allocation.
8/98	U-17735	LA	Louisiana Public Service Commission	Cajun Electric Power Cooperative	Revenue requirements.
10/98	97-596	ME	Maine Office of the Public Advocate	Bangor Hydro-Electric Co.	Return on equity, rate of return.
10/98	U-23327	LA	Louisiana Public Service Commission	SWEPSCO, CSW and AEP	Analysis of proposed merger.
12/98	98-577	ME	Maine Office of the Public Advocate	Maine Public Service Co.	Return on equity, rate of return.
12/98	U-23358	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity, rate of return.
3/99	98-426	KY	Kentucky Industrial Utility Customers, Inc.	Louisville Gas and Electric Co	Return on equity.
3/99	99-082	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Utilities Co.	Return on equity.
4/99	R-984554	PA	T. W. Phillips Users Group	T. W. Phillips Gas and Oil Co.	Allocation of purchased gas costs.
6/99	R-0099462	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Balancing charges.
10/99	U-24182	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Cost of debt.

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10/99	R-00994782	PA	Peoples Industrial Intervenor	Peoples Natural Gas Co.	Restructuring issues.
10/99	R-00994781	PA	Columbia Industrial Intervenor	Columbia Gas of Pennsylvania	Restructuring, balancing charges, rate flexing, alternate fuel.
01/00	R-00994786	PA	UGI Industrial Intervenor	UGI Utilities, Inc.	Universal service costs, balancing, penalty charges, capacity Assignment.
01/00	8829	MD	Maryland Industrial Gr.	Baltimore Gas & Electric Co.	Revenue requirements, cost allocation, rate design.
02/00	R-00994788	PA	Penn Fuel Transportation	PFG Gas, Inc., and	Tariff charges, balancing provisions.
05/00	U-17735	LA	Louisiana Public Service Comm.	Louisiana Electric Cooperative	Rate restructuring.
07/00	2000-080	KY	Kentucky Industrial Utility Consumers	Louisville Gas and Electric Co.	Cost allocation.
07/00	U-21453 U-20925 (SC), U-22092 (SC) (Subdocket E)	LA	Louisiana Public Service Commission	Southwestern Electric Power Co.	Stranded cost analysis.
09/00	R-00005654	PA	Philadelphia Industrial And Commercial Gas Users Group.	Philadelphia Gas Works	Interim relief analysis.
10/00	U-21453 U-20925 (SC), U-22092 (SC) (Subdocket B)	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Restructuring, Business Separation Plan.
11/00	R-00005277 (Rebuttal)	PA	Penn Fuel Transportation Customers	PFG Gas, Inc. and North Penn Gas Co.	Cost allocation issues.
12/00	U-24993	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity.
03/01	U-22092	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Stranded cost analysis.
04/01	U-21453 U-20925 (SC), U-22092 (SC) (Subdocket B) (Addressing Contested Issues)	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Restructuring issues.
04/01	R-00006042	PA	Philadelphia Industrial and Commercial Gas Users Group	Philadelphia Gas Works	Revenue requirements, cost allocation and tariff issues.

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11/01	U-25687	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity.
03/02	14311-U	GA	Georgia Public Service Commission	Atlanta Gas Light	Capital structure.
08/02	2002-00145	KY	Kentucky Industrial Utility Customers	Columbia Gas of Kentucky	Revenue requirements.
09/02	M-00021612	PA	Philadelphia Industrial And Commercial Gas Users Group	Philadelphia Gas Works	Transportation rates, terms, and conditions.
01/03	2002-00169	KY	Kentucky Industrial Utility Customers	Kentucky Power	Return on equity.
02/03	02S-594E	CO	Cripple Creek & Victor Gold Mining Company	Aquila Networks – WPC	Return on equity.
04/03	U-26527	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity.
10/03	CV020495AB	GA	The Landings Assn., Inc.	Utilities Inc. of GA	Revenue requirement & overcharge refund
03/04	2003-00433	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric	Return on equity, Cost allocation & rate design
03/04	2003-00434	KY	Kentucky Industrial Utility Customers	Kentucky Utilities	Return on equity
4/04	04S-035E	CO	Cripple Creek & Victor Gold Mining Company, Goodrich Corp., Holcim (U.S.) Inc., and The Trane Co.	Aquila Networks – WPC	Return on equity.
9/04	U-23327, Subdocket B	LA	Louisiana Public Service Commission	Southwestern Electric Power Company	Fuel cost review
10/04	U-23327 Subdocket A	LA	Louisiana Public Service Commission	Southwestern Electric Power Company	Return on Equity
06/05	050045-EI	FL	South Florida Hospital and HealthCare Assoc.	Florida Power & Light Co.	Return on equity
08/05	9036	MD	Maryland Industrial Group	Baltimore Gas & Electric Co.	Revenue requirement, cost allocation, rate design, Tariff issues.
01/06	2005-0034	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Power Co.	Return on equity.

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03/06	05-1278-E-PC-PW-42T	WV	West Virginia Energy Users Group	Appalachian Power Company	Return on equity.
04/06	U-25116 Commission	LA	Louisiana Public Service	Entergy Louisiana, LLC	Transmission Issues
07/06	U-23327 Commission	LA	Louisiana Public Service	Southwestern Electric Power Company	Return on equity, Service quality
08/06	ER-2006-0314	MO	Missouri Office of the Public Counsel	Kansas City Power & Light Co.	Return on equity, Weighted cost of capital
08/06	06S-234EG	CO	CF&I Steel, L.P. & Climax Molybdenum	Public Service Company of Colorado	Return on equity, Weighted cost of capital
01/07	06-0960-E-42T Users Group	WV	West Virginia Energy	Monongahela Power & Potomac Edison	Return on Equity
01/07	43112	AK	AK Steel, Inc.	Vectren South, Inc.	Cost allocation, rate design
05/07	2006-661	ME	Maine Office of the Public Advocate	Bangor Hydro-Electric	Return on equity, weighted cost of capital.
09/07	07-07-01	CT	Connecticut Industrial Energy Consumers	Connecticut Light & Power	Return on equity, weighted cost of capital
10/07	05-UR-103	WI	Wisconsin Industrial Energy Group, Inc.	Wisconsin Electric Power Co.	Return on equity
11/07	29797	LA	Louisiana Public Service Commission	Cleco Power :LLC & Southwestern Electric Power	Lignite Pricing, support of settlement
01/08	07-551-EL-AIR	OH	Ohio Energy Group	Ohio Edison, Cleveland Electric, Toledo Edison	Return on equity
03/08	07-0585, 07-0585, 07-0587, 07-0588, 07-0589, 07-0590, (consol.)	IL	The Commercial Group	Ameren	Cost allocation, rate design
04/08	07-0566	IL	The Commercial Group	Commonwealth Edison	Cost allocation, rate design
06/08	R-2008-2011621	PA	Columbia Industrial Intervenors	Columbia Gas of PA	Cost and revenue allocation, Tariff issues
07/08	R-2008-2028394	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy	Cost and revenue allocation, Tariff issues

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07/08	R-2008-2039634	PA	PPL Gas Large Users Group	PPL Gas	Retainage, LUFG Pct.
08/08	6680-UR-116	WI	Wisconsin Industrial Energy Group	Wisconsin P&L	Cost of Equity
08/08	6690-UR-119	WI	Wisconsin Industrial Energy Group	Wisconsin PS	Cost of Equity
09/08	ER-2008-0318	MO	The Commercial Group	AmerenUE	Cost and revenue allocation
10/08	R-2008-2029325	PA	U.S. Steel & Univ. of Pittsburgh Med. Ctr.	Equitable Gas Co.	Cost and revenue allocation
10/08	08-G-0609	NY	Multiple Intervenors	Niagara Mohawk Power	Cost and Revenue allocation
12/08	27800-U	GA	Georgia Public Service Commission	Georgia Power Company	CWIP/AFUDC issues, Review financial projections
03/09	ER08-1056	FERC	Louisiana Public Service Commission	Entergy Services, Inc.	Capital Structure
04/09	E002/GR-08-1065	MN	The Commercial Group	Northern States Power	Cost and revenue allocation and rate design
05/09	08-0532	IL	The Commercial Group	Commonwealth Edison	Cost and revenue allocation
07/09	080677-EI	FL	South Florida Hospital and Health Care Association	Florida Power & Light	Cost of equity, capital structure, Cost of short-term debt
07/09	U-30975	LA	Louisiana Public Service Commission	Cleco LLC, Southwestern Public Service Co.	Lignite mine purchase
10/09	4220-UR-116	WI	Wisconsin Industrial Energy Group	Northern States Power	Class cost of service, rate design
10/09	M-2009-2123945	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities	Smart Meter Plan cost allocation
10/09	M-2009-2123944	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Company	Smart Meter Plan cost allocation
10/09	M-2009-2123951	PA	West Penn Power Industrial Intervenors	West Penn Power	Smart Meter Plan cost allocation
11/09	M-2009-2123948	PA	Duquesne Industrial Intervenors	Duquesne Light Company	Smart Meter Plan cost allocation
11/09	M-2009-2123950	PA	Met-Ed Industrial Users Group Penelec Industrial Customer Alliance, Penn Power Users Group	Metropolitan Edison, Pennsylvania Electric Co., Pennsylvania Power Co.	Smart Meter Plan cost allocation

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03/10	09-1352-E-42T	WV	West Virginia Energy Users Group	Monongahela Power	Return on equity, rate of return Potomac Edison
03/10	E015/GR-09-1151	MN	Large Power Intervenors	Minnesota Power	Return on equity, rate of return
04/10	2009-00459	KY	Kentucky Industrial Utility Consumers	Kentucky Power	Return on equity
04/10	2009-00548 2009-00549	KY	Kentucky Industrial Utility Consumers	Louisville Gas and Electric, Kentucky Utilities	Return on equity.
05/10	10-0261-E-GI	WV	West Virginia Energy Users Group	Appalachian Power Co./ Wheeling Power Co.	EE/DR Cost Recovery, Allocation, & Rate Design
05/10	R-2009-2149262	PA	Columbia Industrial Intervenors	Columbia Gas of PA	Class cost of service & cost allocation
06/10	2010-00036	KY	Lexington-Fayette Urban County Government	Kentucky American Water Company	Return on equity, rate of return, revenue requirements
06/10	R-2010-2161694	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities	Rate design, cost allocation
07/10	R-2010-2161575	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Co.	Return on equity
07/10	R-2010-2161592	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Co.	Cost and revenue allocation
07/10	9230	MD	Maryland Energy Group	Baltimore Gas and Electric	Electric and gas cost and revenue allocation; return on equity
09/10	10-70	MA	University of Massachusetts-Amherst	Western Massachusetts Electric Co.	Cost allocation and rate design
10/10	R-2010-2179522	PA	Duquesne Industrial Intervenors	Duquesne Light Company	Cost and revenue allocation, rate design
11/10	P-2010-2158084	PA	West Penn Power Industrial Intervenors	West Penn Power Co.	Transmission rate design
11/10	10-0699-E-42T	WV	West Virginia Energy Users Group	Appalachian Power Co. & Wheeling Power Co.	Return on equity, rate of Return
11/10	10-0467	IL	The Commercial Group	Commonwealth Edison	Cost and revenue allocation and rate design
04/11	R-2010-2214415	PA	Central Pen Gas Large Users Group	UGI Central Penn Gas, Inc.	Tariff issues, revenue allocation
07/11	R-2011-2239263	PA	Philadelphia Area Energy Users Group	PECO Energy	Retainage rate

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08/11	R-2011-2232243	PA	AK Steel	Pennsylvania-American Water Company	Rate Design
08/11	11AL-151G	CO	Climax Molybdenum	PS of Colorado	Cost allocation
09/11	11-G-0280	NY	Multiple Intervenors	Corning Natural Gas Co.	Cost and revenue allocation
10/11	4220-UR-117	WI	Wisconsin Industrial Energy Group	Northern States Power	Cost and revenue allocation, rate design
02/12	11AL-947E	CO	Climax Molybdenum, CF&I Steel	Public Service Company of Colorado	Return on equity, weighted cost of capital
07/12	120015-EI	FL	South Florida Hospitals and Health Care Association	Florida Power and Light Co.	Return on equity, weighted cost of capital
07/12	12-0613-E-PC	WV	West Virginia Energy Users Group	American Electric Power/APCo	Special rate proposal for Century Aluminum
07/12	R-2012-2290597	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities Corp.	Cost allocation
09/12	05-UR-106	WI	Wisconsin Industrial Energy Group	Wisconsin Electric Power Co.	Class cost of service, cost and revenue allocation, rate design
09/12	2012-00221 2012-00222	KY	Kentucky Industrial Utility Consumers	Louisville Gas and Electric, Kentucky Utilities	Return on equity.
10/12	9299	MD	Maryland Energy Group	Baltimore Gas & Electric	Cost and revenue allocation, rate design Cost of equity, weighted cost of capital
10/12	4220-UR-118	WI	Wisconsin Industrial Energy Group	Northern States Power Company	Class cost of service, cost and revenue allocation, rate design
10/12	473-13-0199	TX	Steering Committee of Cities Served by Oncor	Cross Texas Transmission, LLC	Return on equity, capital structure
01/13	R-2012-2321748 et al.	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Cost and revenue allocation
02/13	12AL-1052E	CO	Cripple Creek & Victor Gold Mining, Holcim (US) Inc.	Black Hills/Colorado Electric Utility Company	Cost and revenue allocations
06/13	8009	VT	IBM Corporation	Vermont Gas Systems	Cost and revenue allocation, rate design
07/13	130040-EI	FL	WCF Hospital Utility Alliance	Tampa Electric Co.	Return on equity, rate of return
08/13	9326	MD	Maryland Energy Group	Baltimore Gas and Electric	Cost and revenue allocation, rate design, special rider

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08/13	P-2012-2325034	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities, Corp.	Distribution System Improvement Charge
09/13	4220-UR-119	WI	Wisconsin Industrial Energy Group	Northern States Power Co.	Class cost of service, cost and revenue allocation, rate design
11/13	13-1325-E-PC	WV	West Virginia Energy Users Group	American Electric Power/APCo	Special rate proposal, Felman Production
06/14	R-2014-2406274	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Cost and revenue allocation, rate design
08/14	05-UR-107	WI	Wisconsin Industrial Energy Group	Wisconsin Electric Power Co.	Cost and revenue allocation, rate design
10/14	ER13-1508 et al.	FERC	Louisiana Public Service Comm.	Entergy Services, Inc.	Return on equity
11/14	14AL-0660E	CO	Climax Molybdenum Co. and CFI Steel, LP	Public Service Co. of Colorado	Return on equity, weighted cost of capital
11/14	R-2014-2428742	PA	AK Steel	West Penn Power Company	Cost and revenue allocation
12/14	42866	TX	West Travis Co. Public Utility Agency	Travis County Municipal Utility District No. 12	Response to complain of monopoly power
3/15	2014-00371 2014-00372	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric, Kentucky Utilities	Return on equity, cost of debt, weighted cost of capital
3/15	2014-00396	KY	Kentucky Industrial Utility Customers	Kentucky Power Co.	Return on equity, weighted cost of capital
6/15	15-0003-G-42T	WV	West Virginia Energy Users Gp.	Mountaineer Gas Co.	Cost and revenue allocation, Infrastructure Replacement Program
9/15	15-0676-W-42T	WV	West Virginia Energy Users Gp.	West Virginia-American Water Company	Appropriate test year, Historical vs. Future
9/15	15-1256-G-390P	WV	West Virginia Energy Users Gp.	Mountaineer Gas Co.	Rate design for Infrastructure Replacement and Expansion Program
10/15	4220-UR-121	WI	Wisconsin Industrial Energy Gp.	Northern States Power Co.	Class cost of service, cost and revenue allocation, rate design
12/15	15-1600-G-390P	WV	West Virginia Energy Users Gp.	Dominion Hope	Rate design and allocation for Pipeline Replacement & Expansion Prog.
12/15	45188	TX	Steering Committee of Cities Served by Oncor	Oncor Electric Delivery Co.	Ring-fence protections for cost of capital

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2/16	9406	MD	Maryland Energy Group	Baltimore Gas & Electric	Cost and revenue allocation, rate design, proposed Rider 5
3/16	39971	GA	GA Public Service Comm. Staff	Southern Company / AGL Resources	Credit quality and service quality issues
04/16	2015-00343	KY	Kentucky Office of the Attorney General	Atmos Energy	Cost of equity, cost of short-term debt, capital structure
05/16	16-G-0058 16-G-0059	NY	City of New York	Brooklyn Union Gas Co., KeySpan Gas East Corp.	Cost and revenue allocation, rate design, service quality issues
06/16	16-0073-E-C	WV	Constellium Rolled Products Ravenswood, LLC	Appalachian Power Co.	Complaint; security deposit
07/16	9418	MD	Healthcare Council of the National Capital Area	Potomac Electric Power Co.	Cost of equity, cost of service, Cost and revenue allocation
07/16	160021-EI	FL	South Florida Hospital and Health Care Association	Florida Power and Light Co.	Return on equity, cost of debt, capital structure
07/16	16-057-01	UT	Utah Office of Consumer Svcs.	Dominion Resources, Questar Gas Co.	Credit quality and service quality issues
08/16	8710	VT	Vermont Dept. of Public Service	Vermont Gas Systems	Return on equity, cost of debt, cost of capital
08/16	R-2016-2537359	PA	AK Steel Corp.	West Penn Power Co.	Cost and revenue allocation
09/16	2016-00162	KY	Kentucky Office of the Attorney General	Columbia Gas of Ky.	Return on equity, cost of short-term debt
09/16	16-0550-W-P	WV	West Va. Energy Users Gp.	West Va. American Water Co.	Infrastructure Replacement Program Surcharge
01/17	46238	TX	Steering Committee of Cities Served by Oncor	Oncor Electric Delivery Co.	Ring fencing and other conditions for acquisition, service quality and reliability
02/17	45414	TX	Cities of Midland, McAllen, and Colorado City	Sharyland Utilities, LP and Sharyland Dist. and Transmission Services, LLC	Return on equity
02/17	2016-00370 2016-00371	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric, Kentucky Utilities	Return on equity, cost of debt, weighted cost of capital
03/17	10580	TX	Atmos Cities Steering Committee	Atmos Pipeline Texas	Return on equity, capital structure, weighted cost of capital
03/17	R-3867-2013	Quebec, Canada	Canadian Federation of Independent Businesses	Gaz Metro	Marginal Cost of Service Study

**Expert Testimony Appearances
of
Richard A. Baudino
As of February 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
05/17	R-2017-2586783	PA	Philadelphia Industrial and Commercial Gas Users Gp.	Philadelphia Gas Works	Cost and revenue allocation, rate design, Interruptible tariffs
08/17	R-2017-2595853	PA	AK Steel	Pennsylvania American Water Co.	Cost and revenue allocation, rate design
8/17	17-3112-INV	VT	Vt. Dept. of Pubic Service	Green Mountain Power	Return on equity, cost of debt, weighted cost of capital
9/17	4220-UR-123	WI	Wisconsin Industrial Energy Group	Northern States Power	Cost and revenue allocation, rate design
10/17	2017-00179	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Power Co.	Return on equity, cost of short-term debt
12/17	2017-00321	KY	Office of the Attorney General	Duke Energy Kentucky, Inc.	Return on equity
1/18	2017-00349	KY	Office of the Attorney General	Atmos Energy	Return on equity, cost of debt, weighted cost of capital
5/18	Fiscal Years 2019-2021 Rates	PA	Philadelphia Large Users Group	Philadelphia Water Department	Cost and revenue allocation
8/18	18-0974-TF	VT	Vt. Dept. of Public Service	Green Mountain Power	Return on equity, cost of debt, weighted cost of capital
8/18	48401	TX	Cities Served by Texas-New Mexico Power Company	Texas-New Mexico Power Co.	Return on equity, capital structure
8/18	18-05-16	CT	Connecticut Industrial Energy Consumers	Connecticut Natural Gas Co.	Cost and revenue allocation
9/18	9484	MD	Maryland Energy Group	Baltimore Gas & Electric	Cost and revenue allocation, rate design
9/18	2017-370-E	SC	South Carolina Office of Regulatory Staff	South Carolina Electric & Gas, Dominion Resources, SCANA	Return on equity, service quality standards, credit quality conditions
10/18	18-1115-G-390P	WV	West Va. Energy Users Group	Mountaineer Gas Company	Customer protections for Infrastructure Replacement and Expansion Program
12/18	R-2018-3003558, R-2018-3003561	PA	Aqua Large Users Group	Aqua Pennsylvania, Inc.	Cost and revenue allocation
02/19	UD-18-07	CCNO	Crescent City Power Users' Gp.	Entergy New Orleans, LLC	Return on equity, Reliability Incentive Mechanism, other proposed riders
03/19	2018-00358	KY	Office of the Attorney General	Kentucky American Water Co.	Return on equity, Qualified Infrastructure Program rider
05/19	19-E-0065 19-G-0066	NY	City of New York	Consolidated Edison Co.	Cost and revenue allocation, rate design, tariff issues, fast-charging station incentives

**Expert Testimony Appearances
of
Richard A. Baudino
As of February 2020**

Date	Case	Jurisdict.	Party	Utility	Subject
05/2019	19-0513-TF	VT	Vt. Dept. of Public Service	Vermont Gas Systems	Return on equity, capital structure
06/2019	5-TG-100	WI	Wisconsin Industrial Energy Group	WEPCO, Wisconsin Gas, Wisconsin PS	Transportation and balancing issues
07/2019	49494	TX	Cities Served by AEP Texas	AEP Texas, Inc.	Return on equity, capital structure
08/2019	19-G-0309 19-G-0310	NY	City of New York	Brooklyn Union Gas Co., KeySpan Gas East Corp.	Cost and revenue allocation, rate design, tariff issues and modifications
08/2019	19-0316-G-42T	WV	West Virginia Energy Users Gp.	Mountaineer Gas Company	Cost and revenue allocation
8/2019	5-UR-109	WI	Wisconsin Industrial Energy Gp.	Wisconsin Electric Power Co., Wisconsin Gas, LLC	Cost Allocation, Class cost of service study
8/2019	6690-UR-126	WI	Wisconsin Industrial Energy Gp.	Wisconsin Public Service Corp.	Cost Allocation, Class cost of service study
9/2019	9610	MD	Maryland Energy Group	Baltimore Gas and Electric Co.	Cost and revenue allocation, rate design
12/2019	2019-00271	KY	Office of the Attorney General	Duke Energy Kentucky, Inc.	Return on equity
2/2020	49831	TX	Texas Industrial Energy Consumers	Southwestern Public Service Co.	Return on equity, capital structure, rate of return
2/2020	E-7. Sub 1214	NC	NC Attorney General's Office	Duke Energy Carolinas	Return on equity, capital structure, rate of return, economic conditions

Coal ash settlement provides clarity on closure method and costs

NC COAL ASH SETTLEMENT AGREEMENT

- NC DEQ issued order April 1 requiring low priority sites be fully excavated
- Settlement Agreement reached with NC DEQ and other parties represented by the Southern Environmental Law Center on Dec. 31
 - Seven of the nine basins to be excavated, with ash moved to on-site lined landfills
 - Parties agree to settle and dismiss pending litigation; DEQ and SELC will not challenge the reasonableness, prudence, public interest or legal requirement of Settlement obligations
 - DEQ will expeditiously review and act on all applications by Duke Energy for necessary permits, and cooperate with Duke Energy's efforts to extend deadlines imposed by the Federal CCR rule, as necessary
- Reduces incremental closure costs by \$1.5 billion from April 1 order
 - Now estimate total closure costs of \$8 to \$9 billion in the Carolinas
 - \$2.4 billion spent through 2019
 - Majority of remaining expenditures to occur over next 15-20 years
- DEC and DEP revenues forecasted to approximate or exceed annual expenditures, upon finalization of pending rate cases



Our investor value proposition



DUK
LISTED
NYSE

A SOLID LONG-TERM HOLDING



CONSTRUCTIVE JURISDICTIONS, LOW-RISK REGULATED INVESTMENTS AND BALANCE SHEET STRENGTH

- (1) As of January 7, 2020
- (2) Subject to approval by the Board of Directors
- (3) Total shareholder return proposition at a constant P/E ratio
- (4) Based on adjusted diluted EPS off the midpoint of the original 2019 guidance range, or \$5.00 as most recently affirmed in the Third Quarter 2019 Earnings Review and Business Update on November 8, 2019.

DUKE ENERGY CAROLINAS PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20
ALLETE, Inc.	High Price (\$)	88.380	88.600	87.830	86.910	82.160	84.710
	Low Price (\$)	83.280	83.590	85.130	78.880	78.250	79.400
	Avg. Price (\$)	85.830	86.095	86.480	82.895	80.205	82.055
	Dividend (\$)	0.588	0.588	0.588	0.588	0.588	0.588
	Mo. Avg. Div.	2.74%	2.73%	2.72%	2.83%	2.93%	2.86%
	6 mos. Avg.	2.80%					
Alliant Energy Corp.	High Price (\$)	53.000	54.590	54.430	53.670	55.400	59.740
	Low Price (\$)	48.770	50.360	51.580	50.930	52.240	53.320
	Avg. Price (\$)	50.885	52.475	53.005	52.300	53.820	56.530
	Dividend (\$)	0.355	0.355	0.355	0.355	0.355	0.380
	Mo. Avg. Div.	2.79%	2.71%	2.68%	2.72%	2.64%	2.69%
	6 mos. Avg.	2.70%					
Ameren Corp.	High Price (\$)	77.520	80.850	80.050	77.920	77.040	82.410
	Low Price (\$)	73.670	73.310	75.260	73.340	73.510	75.540
	Avg. Price (\$)	75.595	77.080	77.655	75.630	75.275	78.975
	Dividend (\$)	0.475	0.475	0.475	0.475	0.495	0.495
	Mo. Avg. Div.	2.51%	2.46%	2.45%	2.51%	2.63%	2.51%
	6 mos. Avg.	2.51%					
American Electric Power Co.	High Price (\$)	91.500	94.890	96.220	94.980	95.770	104.430
	Low Price (\$)	87.040	90.080	91.350	88.170	90.210	92.940
	Avg. Price (\$)	89.270	92.485	93.785	91.575	92.990	98.685
	Dividend (\$)	0.670	0.670	0.670	0.700	0.700	0.700
	Mo. Avg. Div.	3.00%	2.90%	2.86%	3.06%	3.01%	2.84%
	6 mos. Avg.	2.94%					
Avangrid, Inc.	High Price (\$)	51.390	52.480	52.238	50.280	52.065	53.940
	Low Price (\$)	48.315	49.050	48.250	47.920	48.060	50.210
	Avg. Price (\$)	49.852	50.765	50.244	49.100	50.063	52.075
	Dividend (\$)	0.440	0.440	0.440	0.440	0.440	0.440
	Mo. Avg. Div.	3.53%	3.47%	3.50%	3.58%	3.52%	3.38%
	6 mos. Avg.	3.50%					
CMS Energy Corp.	High Price (\$)	63.310	65.310	65.020	64.140	63.440	68.980
	Low Price (\$)	57.430	60.100	62.320	59.330	60.250	61.570
	Avg. Price (\$)	60.370	62.705	63.670	61.735	61.845	65.275
	Dividend (\$)	0.383	0.383	0.383	0.383	0.383	0.383
	Mo. Avg. Div.	2.53%	2.44%	2.40%	2.48%	2.47%	2.34%
	6 mos. Avg.	2.45%					

DUKE ENERGY CAROLINAS PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20
DTE Energy Co.	High Price (\$)	131.730	134.370	133.390	127.930	130.700	134.720
	Low Price (\$)	124.930	127.160	123.410	120.080	123.130	127.620
	Avg. Price (\$)	128.330	130.765	128.400	124.005	126.915	131.170
	Dividend (\$)	0.945	0.945	0.945	0.945	1.013	1.013
	Mo. Avg. Div.	2.95%	2.89%	2.94%	3.05%	3.19%	3.09%
	6 mos. Avg.	3.02%					
Evergy, Inc.	High Price (\$)	66.000	67.810	66.540	65.630	65.150	72.620
	Low Price (\$)	59.600	63.350	62.040	62.330	61.970	62.930
	Avg. Price (\$)	62.800	65.580	64.290	63.980	63.560	67.775
	Dividend (\$)	0.475	0.475	0.475	0.505	0.505	0.505
	Mo. Avg. Div.	3.03%	2.90%	2.96%	3.16%	3.18%	2.98%
	6 mos. Avg.	3.03%					
Hawaiian Electric Ind.	High Price (\$)	45.140	45.960	45.780	45.400	47.640	49.630
	Low Price (\$)	42.720	43.240	43.970	42.950	43.330	45.040
	Avg. Price (\$)	43.930	44.600	44.875	44.175	45.485	47.335
	Dividend (\$)	0.320	0.320	0.320	0.320	0.320	0.320
	Mo. Avg. Div.	2.91%	2.87%	2.85%	2.90%	2.81%	2.70%
	6 mos. Avg.	2.84%					
NextEra Energy, Inc.	High Price (\$)	225.570	233.450	239.890	238.890	245.010	270.660
	Low Price (\$)	205.780	216.370	226.580	220.660	231.070	237.950
	Avg. Price (\$)	215.675	224.910	233.235	229.775	238.040	254.305
	Dividend (\$)	1.250	1.250	1.250	1.250	1.250	1.250
	Mo. Avg. Div.	2.32%	2.22%	2.14%	2.18%	2.10%	1.97%
	6 mos. Avg.	2.15%					
Northwestern Corp.	High Price (\$)	72.660	76.720	76.180	73.340	73.080	77.340
	Low Price (\$)	67.360	71.630	70.950	68.030	69.350	69.690
	Avg. Price (\$)	70.010	74.175	73.565	70.685	71.215	73.515
	Dividend (\$)	0.575	0.575	0.575	0.575	0.575	0.575
	Mo. Avg. Div.	3.29%	3.10%	3.13%	3.25%	3.23%	3.13%
	6 mos. Avg.	3.19%					
OGE Energy Corp.	High Price (\$)	43.530	45.770	45.490	43.770	44.550	46.330
	Low Price (\$)	41.390	42.410	42.130	41.790	41.830	43.220
	Avg. Price (\$)	42.460	44.090	43.810	42.780	43.190	44.775
	Dividend (\$)	0.365	0.365	0.388	0.388	0.388	0.388
	Mo. Avg. Div.	3.44%	3.31%	3.54%	3.62%	3.59%	3.46%
	6 mos. Avg.	3.49%					

DUKE ENERGY CAROLINAS PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20
Otter Tail Corp.	High Price (\$)	54.260	55.100	56.690	57.740	53.160	54.300
	Low Price (\$)	48.090	50.340	52.560	48.170	48.590	50.830
	Avg. Price (\$)	51.175	52.720	54.625	52.955	50.875	52.565
	Dividend (\$)	0.350	0.350	0.350	0.350	0.350	0.350
	Mo. Avg. Div.	2.74%	2.66%	2.56%	2.64%	2.75%	2.66%
	6 mos. Avg.	2.67%					
Pinnacle West Capital Corp.	High Price (\$)	95.790	98.580	97.520	93.880	90.680	98.810
	Low Price (\$)	90.480	91.180	92.060	84.260	84.880	88.100
	Avg. Price (\$)	93.135	94.880	94.790	89.070	87.780	93.455
	Dividend (\$)	0.738	0.738	0.738	0.783	0.783	0.783
	Mo. Avg. Div.	3.17%	3.11%	3.11%	3.51%	3.57%	3.35%
	6 mos. Avg.	3.30%					
PNM Resources, Inc.	High Price (\$)	51.470	52.950	52.980	52.280	51.980	55.240
	Low Price (\$)	47.590	48.710	50.330	47.230	47.850	48.520
	Avg. Price (\$)	49.530	50.830	51.655	49.755	49.915	51.880
	Dividend (\$)	0.290	0.290	0.290	0.290	0.290	0.308
	Mo. Avg. Div.	2.34%	2.28%	2.25%	2.33%	2.32%	2.37%
	6 mos. Avg.	2.32%					
Portland General Electric Co.	High Price (\$)	57.270	58.430	57.520	57.920	57.090	61.710
	Low Price (\$)	53.470	54.780	55.410	54.240	54.360	54.550
	Avg. Price (\$)	55.370	56.605	56.465	56.080	55.725	58.130
	Dividend (\$)	0.385	0.385	0.385	0.385	0.385	0.385
	Mo. Avg. Div.	2.78%	2.72%	2.73%	2.75%	2.76%	2.65%
	6 mos. Avg.	2.73%					
Southern Company	High Price (\$)	58.840	62.360	62.880	63.290	64.260	71.100
	Low Price (\$)	55.380	58.240	60.450	60.380	60.090	62.240
	Avg. Price (\$)	57.110	60.300	61.665	61.835	62.175	66.670
	Dividend (\$)	0.620	0.620	0.620	0.620	0.620	0.620
	Mo. Avg. Div.	4.34%	4.11%	4.02%	4.01%	3.99%	3.72%
	6 mos. Avg.	4.03%					
WEC Energy Group, Inc.	High Price (\$)	96.460	98.190	96.290	94.730	93.430	101.370
	Low Price (\$)	85.160	89.020	91.510	86.500	87.410	90.340
	Avg. Price (\$)	90.810	93.605	93.900	90.615	90.420	95.855
	Dividend (\$)	0.590	0.590	0.590	0.590	0.590	0.590
	Mo. Avg. Div.	2.60%	2.52%	2.51%	2.60%	2.61%	2.46%
	6 mos. Avg.	2.55%					

**DUKE ENERGY CAROLINAS PROXY GROUP
 AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD**

		Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20
Xcel Energy	High Price (\$)	64.910	66.050	65.140	63.860	64.670	69.620
	Low Price (\$)	58.740	62.190	62.180	59.460	60.850	61.970
	Avg. Price (\$)	61.825	64.120	63.660	61.660	62.760	65.795
	Dividend (\$)	0.405	0.405	0.405	0.405	0.405	0.405
	Mo. Avg. Div.	2.62%	2.53%	2.54%	2.63%	2.58%	2.46%
	6 mos. Avg.	2.56%					
	Monthly Avg. Dividend Yield	2.93%	2.84%	2.84%	2.94%	2.94%	2.82%
	6-month Avg. Dividend Yield	2.88%					

Source: Yahoo! Finance

DUKE ENERGY CAROLINAS PROXY GROUP
DCF Growth Rate Analysis

<u>Company</u>	(1) Value Line <u>DPS</u>	(2) Value Line <u>EPS</u>	(3) <u>Zacks</u>	(4) Yahoo! <u>Finance</u>
ALLETE, Inc.	5.00%	5.00%	7.20%	7.00%
Alliant Energy Corporation	5.50%	6.50%	5.49%	5.40%
Ameren Corp.	4.50%	6.50%	6.24%	4.60%
American Electric Power Co.	5.50%	4.00%	5.65%	6.05%
Avangrid, Inc.	3.00%	8.50%	7.46%	6.40%
CMS Energy Corporation	7.00%	7.00%	6.14%	7.50%
DTE Energy Company	7.00%	4.50%	6.00%	4.83%
Evergy, Inc.	NMF	NMF	6.57%	6.50%
Hawaiian Electric	3.00%	2.50%	4.22%	3.40%
NextEra Energy, Inc.	10.00%	10.50%	7.98%	7.99%
Northwestern Corporation	4.50%	2.00%	3.53%	3.23%
OGE Energy Corp.	6.50%	6.50%	4.26%	3.50%
Otter Tail Corporation	4.00%	5.00%	7.00%	9.00%
Pinnacle West Capital Corp.	6.00%	4.00%	4.71%	4.41%
PNM Resources, Inc.	7.00%	7.00%	5.73%	6.35%
Portland General Electric Company	6.50%	4.50%	4.91%	4.80%
Southern Company	3.00%	3.50%	4.50%	1.53%
WEC Energy Group	6.00%	6.00%	6.14%	6.05%
Xcel Energy Inc.	<u>6.00%</u>	<u>5.50%</u>	<u>5.70%</u>	<u>6.10%</u>
Average	5.56%	5.50%	5.76%	5.51%
Median	5.75%	5.25%	5.73%	6.05%

Sources: Value Line Investment Survey, November 15, 2019, December 13, 2019, and January 24, 2020
Yahoo! Finance and Zacks growth rates retrieved January 14, 2020
NMF = No meaningful figure

**DUKE ENERGY CAROLINAS PROXY GROUP
DCF RETURN ON EQUITY**

	(1) Value Line <u>Dividend Gr.</u>	(2) Value Line <u>Earnings Gr.</u>	(3) Zack's <u>Earning Gr.</u>	(4) Yahoo! <u>Earning Gr.</u>	(5) Average of <u>All Gr. Rates</u>
Method 1:					
Dividend Yield	2.88%	2.88%	2.88%	2.88%	2.88%
Average Growth Rate	5.56%	5.50%	5.76%	5.51%	5.58%
Expected Div. Yield	<u>2.96%</u>	<u>2.96%</u>	<u>2.97%</u>	<u>2.96%</u>	<u>2.96%</u>
DCF Return on Equity	8.52%	8.46%	8.73%	8.47%	8.54%
Method 2:					
Dividend Yield	2.88%	2.88%	2.88%	2.88%	2.88%
Median Growth Rate	5.75%	5.25%	5.73%	6.05%	5.70%
Expected Div. Yield	<u>2.97%</u>	<u>2.96%</u>	<u>2.97%</u>	<u>2.97%</u>	<u>2.97%</u>
DCF Return on Equity	8.72%	8.21%	8.70%	9.02%	8.67%

**DUKE ENERGY CAROLINAS PROXY GROUP
 Capital Asset Pricing Model Analysis**

30-Year Treasury Bond, Value Line Beta

<u>Line No.</u>		<u>Value Line</u>
1	Market Required Return Estimate	11.11%
2	Risk-free Rate of Return, 30-Year Treasury Bond	
3	Average of Last Six Months	2.21%
4	Risk Premium	
5	(Line 1 minus Line 3)	8.90%
6	Comparison Group Beta	0.56
7	Comparison Group Beta * Risk Premium	
8	(Line 5 * Line 6)	4.99%
9	CAPM Return on Equity	
10	(Line 3 plus Line 8)	7.20%

Duff and Phelps Normalized Risk-free Rate

1	Market Required Return Estimate	11.11%
2	Duff and Phelps Normalized Risk-free Rate	3.00%
3	Risk Premium	
4	(Line 1 minus Line 2)	8.11%
5	Proxy Group Beta	0.56
6	Proxy Group Beta * Risk Premium	
7	(Line 4 * Line 5)	4.55%
8	CAPM Return on Equity	
9	(Line 2 plus Line 7)	7.55%

DUKE ENERGY CAROLINAS PROXY GROUP
Capital Asset Pricing Model Analysis

Supporting Data for CAPM Analyses

30 Year Treasury Bond Data

	<u>Avg. Yield</u>
August-19	2.12%
September-19	2.16%
October-19	2.19%
November-19	2.28%
December-19	2.30%
January-20	<u>2.22%</u>
6 month average	2.21%

Source: www.federalreserve.gov

Value Line Market Return Data:

Comparison Group Betas:

Value
Line

Forecasted Data:		ALLETE, Inc.	0.65
		Alliant Energy Corporation	0.60
Value Line Median Growth Rates:		Ameren Corp.	0.55
Earnings	11.00%	American Electric Power Co.	0.55
Book Value	<u>8.00%</u>	Avangrid, Inc.	0.40
Average	9.50%	CMS Energy Corporation	0.50
Average Dividend Yield	<u>1.06%</u>	DTE Energy Company	0.55
Estimated Market Return	10.61%	Evergy, Inc.	NMF
		Hawaiian Electric	0.55
Value Line Projected 3-5 Yr.		NextEra Energy, Inc.	0.55
Median Annual Total Return	11.00%	Northwestern Corporation	0.60
Average Annual Total Return	<u>12.21%</u>	OGE Energy Corp.	0.75
Average	11.61%	Otter Tail Corporation	0.70
		Pinnacle West Capital Corp.	0.50
		PNM Resources, Inc.	0.60
Average of Projected Mkt.		Portland General Electric Company	0.55
Returns	11.11%	Southern Company	0.50
		WEC Energy Group	0.50
Source: Value Line Investment Survey		Xcel Energy Inc.	<u>0.50</u>
for Windows, Jan. 10, 2020			
		Average	0.56
		Source: Value Line Investment Survey	

DUKE ENERGY CAROLINAS PROXY GROUP
Capital Asset Pricing Model Analysis
Historic Market Premium

	<u>Arithmetic Mean</u>	<u>Adjusted Arithmetic Mean</u>
CAPM with Current 30-Year Treasury Yield		
Long-Term Annual Return on Stocks	11.90%	
Long-Term Annual Income Return on Long-Term Treas. Bonds	<u>5.00%</u>	
Historical Market Risk Premium	6.90%	6.14%
Proxy Group Beta, Value Line	<u>0.56</u>	<u>0.56</u>
Beta * Market Premium	3.87%	3.45%
Current 30-Year Treasury Bond Yield	<u>2.21%</u>	<u>2.21%</u>
CAPM Cost of Equity, Value Line Beta	<u>6.08%</u>	<u>5.66%</u>
CAPM with D&P Normalized Risk-Free Rate		
Historical Market Risk Premium	6.90%	6.14%
Proxy Group Beta, Value Line	0.56	0.56
Beta * Market Premium	3.87%	3.45%
D&P Normalized Risk-Free Rate	3.00%	3.00%
CAPM Cost of Equity, Normalized Risk-Free Rate	<u>6.87%</u>	<u>6.45%</u>

