

Before the South Dakota Public Utilities Commission  
State of South Dakota

In the Matter of the Application of Otter Tail Power Company  
For Authority to Increase Rates for Electric Utility  
Service in South Dakota

Case No. PU-18-021  
Exhibit\_\_\_(RBH-2)

**RETURN ON EQUITY**

**REBUTTAL TESTIMONY AND SCHEDULES OF  
ROBERT B. HEVERT**

March 15, 2019

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## I. WITNESS IDENTIFICATION AND PURPOSE OF TESTIMONY

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

2 A. My name is Robert B. Hevert. I am a Partner of ScottMadden, Inc. (“ScottMadden”). My  
3 business address is 1900 West Park Drive, Suite 250, Westborough, MA 01581.

4 Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS REBUTTAL TESTIMONY?

5 A. I am submitting this rebuttal testimony (“Rebuttal Testimony”) before the South Dakota  
6 Public Utilities Commission (“Commission”) on behalf of Otter Tail Power Company  
7 (“OTP” or the “Company”), a wholly owned subsidiary of Otter Tail Corporation  
8 (“OTTR”).

9 Q. HAVE YOU PREVIOUSLY FILED DIRECT TESTIMONY IN THIS PROCEEDING?

10 A. Yes, I have.

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

12 A. The purpose of my Rebuttal Testimony is to:

- 13 1. Respond to the Direct Testimony of Basil L. Copeland Jr. on behalf of the Staff of  
14 the South Dakota Public Utilities Commission, regarding the appropriate Return on  
15 Equity (“ROE”) for OTP<sup>1</sup>; and
- 16 2. Present updated calculations and analytical results regarding OTP’s Cost of Equity,  
17 and my 10.30 percent ROE recommendation.

18 Q. HOW IS THE BALANCE OF YOUR TESTIMONY ORGANIZED?

19 A. The balance of my Rebuttal Testimony is organized as follows:

- 20 • Section II – Contains a summary of my Rebuttal Testimony;
- 21 • Section III – Contains my response to Mr. Copeland; and

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<sup>1</sup> Please note that a lack on response to Mr. Copeland on a given issue should not necessarily be interpreted as an acceptance of his position.

- 1           • Section IV – Summarizes my updated analyses, conclusions, and recommendations.

## II. SUMMARY OF TESTIMONY

2 Q. PLEASE PROVIDE A SUMMARY OF YOUR REBUTTAL TESTIMONY.

3 A. My Rebuttal Testimony discusses several issues relating to OTP’s Cost of Equity. The  
4 following provides a summary of the principal points:

5  
6 *Mr. Copeland’s ROE Recommendation:* My Rebuttal Testimony explains that Mr.  
7 Copeland’s 8.25 percent recommendation and 8.00 percent to 8.50 percent ROE range are  
8 far outside the range of returns available to other vertically integrated electric utilities, and  
9 far below any reasonable measure of OTP’s Cost of Equity. Mr. Copeland’s ROE results  
10 reflect the combination of: (1) his position that Market-to-Book (“M/B”) ratios above 1.00  
11 indicate that authorized returns exceed investors’ return requirements; (2) his focus on a  
12 single method (the Discounted Cash Flow model) in developing his ROE recommendation;  
13 and (3) his views regarding what investors *should do*, rather than what investors *actually*  
14 *do*. Mr. Copeland’s position is that, for decades, regulatory commissions have authorized  
15 returns far greater than the actual Cost of Equity, which he now judges to be about 7.00  
16 percent.

17  
18 Regardless of how Mr. Copeland arrives at or supports his recommendation, it is so far  
19 below the ROEs authorized for other utilities nationally and in South Dakota that it cannot  
20 be reconciled by the reasonable application of methods, or by reference to market,  
21 economic, or industry data. Simply, Mr. Copeland’s testimony provides no reasonable  
22 basis to conclude equity investors see OTP as so less risky than its peers that they would  
23 accept an ROE 275 basis points below those available to other electric utilities.<sup>2</sup> Those  
24 issues aside, Mr. Copeland’s 8.25 percent ROE recommendation does not meet the long-

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<sup>2</sup> Based on the median result in Chart 1, below.

1 standing regulatory standard under which the authorized ROE should be comparable to  
2 returns investors expect to earn on other investments of similar risk.<sup>3</sup>

3  
4 *Mr. Copeland's Position that Regulatory Commissions and Investors Have Been*  
5 *Consistently and Significantly Wrong:* Although there are many methodological points on  
6 which I disagree with Mr. Copeland, a fundamental point of departure between us is how  
7 we each see the purpose of our testimony. I have developed my analyses to understand  
8 how investors make decisions, and to estimate the Cost of Equity based on investor  
9 behavior. Mr. Copeland's approach is distinctly different. His arguments and analyses  
10 center around not what he believes *investors actually do*, but what he believes they *should*  
11 *do*.

12  
13 Mr. Copeland's belief that investors should not place a market value of utility equity greater  
14 than the book value of utility equity leads him to the conclusion that "utility regulation is  
15 not doing a very good job in balancing consumer and investor interests."<sup>4</sup> Again, Mr.  
16 Copeland is relying on his own judgement regarding how investors should act, rather than  
17 estimating the Cost of Equity based on the methods used and factors considered by  
18 investors.<sup>5</sup> Mr. Copeland recognizes that market values have long exceeded book values,  
19 and regulators continue to authorize ROEs far above his 7.00 percent estimate of the true  
20 Cost of Equity, and his 8.25 percent recommendation. But in his view, it is the many  
21 regulatory commissions that have reviewed market data and models, and the investors that  
22 have committed their capital to utility stocks that have been consistently and significantly  
23 wrong.

24  
25 *Market-to-Book Ratios as Indicators of Excess Returns:* Mr. Copeland's argument that  
26 Market/Book ratios measure "excess returns" to investors, and his suggestion that the

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<sup>3</sup> Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591 (1944) ("Hope"). Bluefield Water Works and Improvement Co. v. Public Service Comm'n. 262 U.S. 679, 692 (1923) ("Bluefield").

<sup>4</sup> Testimony of Basil L. Copeland, Jr., at 23.

<sup>5</sup> As noted on pages 11-12 of my Direct Testimony, "The key consideration in determining the ROE is to ensure that the overall analysis reasonably reflects investors' view of the financial markets in general, and the subject company (in the context of the proxy companies) in particular."

1 Commission can and should manage market prices toward his view of the optimal  
2 Market/Book ratio are misplaced and at odds with the regulatory requirement of a  
3 comparable return. Although regulatory decisions may influence market prices, they  
4 cannot control them, as Mr. Copeland's construct incorrectly assumes. As a practical  
5 matter, market prices are affected by multiple variables and relationships, many of which  
6 cannot be precisely quantified in a single model, as Mr. Copeland's approach requires.  
7 Simply, Mr. Copeland suggests the Commission should adopt an objective it cannot  
8 achieve, based on a method other regulatory commissions have found to have provided  
9 unreliable results.

10  
11 *Update of Data and Use of Multiple Analytical Methods:* In my Direct Testimony, I  
12 concluded a ROE of 10.30 percent represents the Cost of Equity for OTP, within a range  
13 of 10.00 percent to 10.60 percent.<sup>6</sup> My recommendation considered a variety of factors,  
14 including capital market conditions and Company-specific risks, and is based on the  
15 reasonable application of multiple methods. I have updated many of the analyses contained  
16 in my Direct Testimony, and I have provided several new analyses in response to issues  
17 raised by Mr. Copeland; those analyses continue to support my ROE range of 10.00 percent  
18 to 10.60 percent and my recommended ROE of 10.30 percent. Those analyses are provided  
19 in Exhibit \_\_ (RBH-2), Schedules 1 through 6.

20  
21 *Selection of Otter Tail Power's ROE Within the Reasonable Range of Results:* As explained  
22 in my Direct Testimony, several factors demonstrate that OTP's ROE should be set at the  
23 upper end of the range of reasonable results. As discussed later in my Rebuttal Testimony,  
24 there are many reasons why I disagree with Mr. Copeland's analyses and conclusions  
25 regarding OTP's relative risk. Although Mr. Copeland has not raised the issue, the "Phase-  
26 In Recovery of Capital Projects" contained in the February 13, 2019 Settlement Stipulation  
27 requires the ROE on phased-in projects to remain constant at the level determined by the  
28 Commission in this proceeding. My Rebuttal Testimony explains that the fixed ROE

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<sup>6</sup> Direct Testimony of Robert B. Hevert, at 68-69.

1 represents a risk and a cost to investors. In my view, a reasonable premium to compensate  
2 for that additional risk would be up to 50 basis points.

3  
4 Lastly, I appreciate that the Commission has the difficult task of setting just and reasonable  
5 rates. Doing so requires balancing the interests of ratepayers, who seek safe and reliable  
6 utility service at reasonable rates, with those of investors, who seek a return comparable to  
7 investments of corresponding risk. Setting just and reasonable rates, however, does not  
8 mean the Commission should, or even can, set utility stock prices. It also is true that we  
9 cannot separate just and reasonable rates from the public's interest in a financially healthy  
10 utility. Mr. Copeland's recommendation to set the ROE at 8.25 percent, and his views that  
11 the range for OTP's ROE is 8.00 percent to 8.50 percent and the Cost of Equity is closer to  
12 7.00 percent, do not satisfy that interest.

13 Q. PLEASE EXPLAIN HOW MR. COPELAND'S RECOMMENDED ROE COMPARES  
14 TO ROES AUTHORIZED FOR VERTICALLY INTEGRATED ELECTRIC UTILITIES  
15 IN OTHER JURISDICTIONS.

16 A. Mr. Copeland's 8.25 percent ROE recommendation falls far below every ROE authorized  
17 for vertically integrated electric utilities since at least 1980.<sup>7</sup> From the beginning of 2014  
18 through mid-February 2019, none of the 107 ROEs authorized for vertically integrated  
19 electric utilities were nearly as low as 8.25 percent.<sup>8</sup> His current estimate of OTP's ROE  
20 is 125 basis points lower still. The median authorized ROE over the 2014-2019 period,  
21 9.75 percent, is 125 basis points above the high end of Mr. Copeland's range (8.50 percent),  
22 150 basis points above his recommendation (8.25 percent), and 275 basis points above 7.00  
23 percent, Mr. Copeland's estimate of OTP's true Cost of Equity.<sup>9</sup> My recommended range  
24 (10.00 percent to 10.60 percent), on the other hand, is well within the range of ROEs  
25 authorized for other vertically integrated electric utilities (*see* Chart 1, below).

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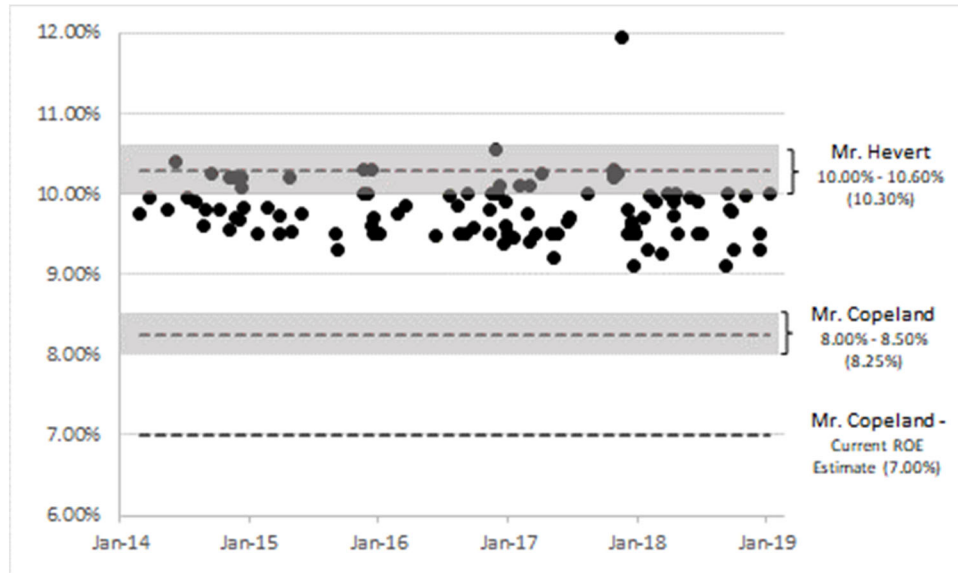
<sup>7</sup> Mr. Copeland's 8.25 percent recommendation is also below all authorized ROEs for natural gas utilities since at least 1980.

<sup>8</sup> Source: Regulatory Research Associates.

<sup>9</sup> Direct Testimony of Basil L. Copland, Jr., at 43.



1 **Chart 1: ROE Witnesses' Recommendation vs.**  
 2 **Vertically Integrated Electric Utility Authorized ROEs (2014-2019)<sup>10</sup>**



3

4 Q. DO INVESTORS CONSIDER AUTHORIZED ROES IN MAKING THEIR  
 5 INVESTMENT DECISIONS?

6 A. Yes, they do. In my experience, authorized ROEs reflect the same type of market-based  
 7 data at issue in this proceeding. Further, because authorized ROEs are publicly available,<sup>11</sup>  
 8 it is difficult to imagine they are not reflected, at least to some degree, in investors' return  
 9 expectations and requirements. It therefore is reasonable to assume that over time,  
 10 authorized ROEs are a relevant measure of investor-required returns.

11 Q. WHAT ARE THE PRACTICAL IMPLICATIONS FOR OTP OF AN ROE THAT IS FAR  
 12 BELOW THOSE AUTHORIZED FOR OTHER UTILITIES?

13 A. The significant difference between Mr. Copeland's recommendation and ROEs authorized  
 14 for other utilities raises very practical concerns. First, OTP must compete with other  
 15 companies, including utilities, for the long-term capital needed to provide utility service.  
 16 Given the choice between two similarly situated utilities, one with an authorized ROE that

<sup>10</sup> Source: Regulatory Research Associates. Excludes Limited Issue rate proceedings.  
<sup>11</sup> See e.g., ALLETE, Inc., SEC Form 10-K for the year ended December 31, 2018, at 16.

1 falls far below industry levels, and another whose authorized ROE more closely aligns with  
2 those available to other utilities, investors will choose the latter.

3  
4 Second, because authorized ROEs are relevant to them, investors would react very  
5 negatively if Mr. Copeland's 8.25 percent recommendation (not to mention his 7.00 percent  
6 estimate) were to be adopted by the Commission. Such a decision likely would be viewed  
7 by investors as a significant departure from the Commission's prior decisions and practice,  
8 increasing their views of OTP's regulatory risk. In that case, a likely outcome would be  
9 increasing reluctance on the part of investors to provide capital to OTP, thereby decreasing  
10 the availability, and increasing the cost, of that capital.

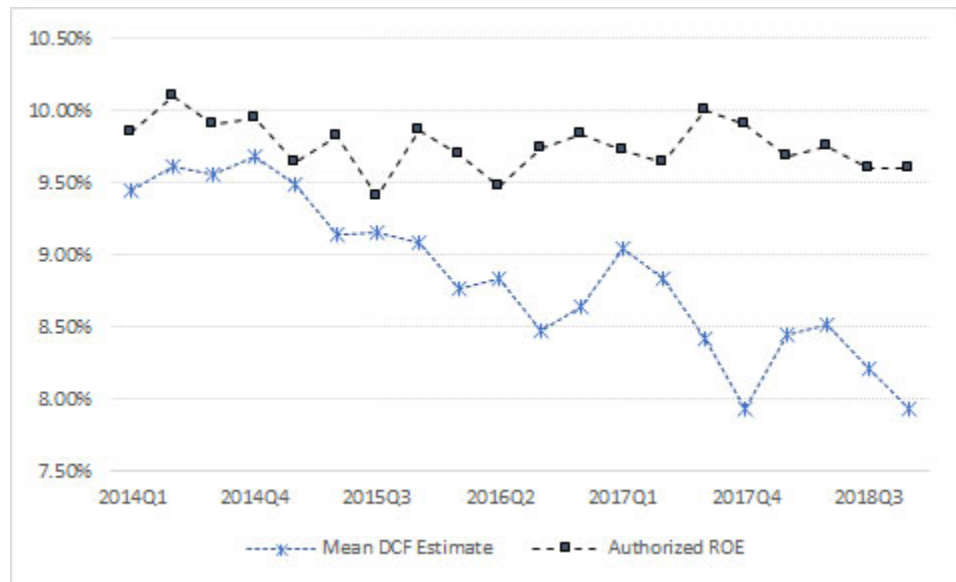
11 Q. ARE YOU RECOMMENDING THAT THE COMMISSION DETERMINE THE  
12 COMPANY'S ROE BASED SOLELY ON DECISIONS IN OTHER JURISDICTIONS?

13 A. No, nor am I aware of any regulatory commission that does so. Nonetheless, authorized  
14 ROEs do provide observable and verifiable benchmarks against which recommendations  
15 may be assessed. In my experience, regulatory commissions generally consider the same  
16 type of market, methodological, and risk factors at issue in this proceeding. They recognize  
17 that financial models are important tools in determining returns, but appreciate that because  
18 all models are subject to assumptions, no one method is most reliable at all times, and under  
19 all conditions. That holds true in this case. Even if we focus on a single method, it remains  
20 critically important to apply reasoned judgment to determine where the Cost of Equity falls  
21 within that method's range of results. Just as investors consider multiple analytical  
22 methods, and both company-specific and general market risk factors, we should do the  
23 same. Those considerations, and that judgment, tell us that Mr. Copeland's 7.00 percent  
24 estimate of OTP's true Cost of Equity is far afield from any practical measure, and his  
25 recommended 8.25 percent ROE would create considerable adverse consequences for  
26 investors and ratepayers.

27 Q. DO YOU CONTINUE TO RECOMMEND THE COMMISSION CONSIDER  
28 MULTIPLE METHODS IN SETTING THE ROE?

1 A. Yes. As Chart 2 (below) demonstrates, since 2014 the Constant Growth DCF model has  
 2 produced ROE estimates considerably below the ROEs authorized by regulatory  
 3 commissions. The difference between the two widened from 2016 – 2018, when (on  
 4 average) DCF results fell 121 basis points below authorized ROEs. That data suggests  
 5 state regulatory commissions have recognized the DCF model’s results are not necessarily  
 6 reliable estimates of the Cost of Equity, and that other methods should be given meaningful  
 7 weight.

8 **Chart 2: Authorized ROEs vs. DCF Estimates<sup>12</sup>**



9  
 10 Q. HAVE OTHER REGULATORY COMMISSIONS EXPLAINED WHY IT IS  
 11 NECESSARY TO CONSIDER MORE THAN ONE MODEL?

12 A. Yes. For example, in Baltimore Gas and Electric Company’s 2016 rate case, the Maryland  
 13 Public Service Commission discussed the importance of considering multiple analytical  
 14 methods, given the complexity of determining the investor-required ROE:

15 The ROE witnesses used various analyses to estimate the appropriate return

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<sup>12</sup> DCF results based on quarterly average stock prices, Earnings Per Share growth rates from Value Line, Zacks, and First Call; assumes a group of seven vertically integrated electric utilities. Authorized ROEs are quarterly averages for vertically integrated electric utilities; source: S&P Global Market Intelligence. Please note that Q3 2015 included only two ROE decisions.

1 on equity [...] including the DCF model, the IRR/DCF, the traditional  
2 CAPM, the ECAPM, and risk premium methodologies. Although the  
3 witnesses argued strongly over the correctness of their competing analyses,  
4 we are not willing to rule that there can be only one correct method for  
5 calculating an ROE. Neither will we eliminate any particular methodology  
6 as unworthy of basing a decision. The subject is far too complex to reduce  
7 to a single mathematical formula. That conclusion is made apparent, in  
8 practice, by the fact that the expert witnesses used discretion to eliminate  
9 outlier returns that they testified were too high or too low to be considered  
10 reasonable, even when using their own preferred methodologies.<sup>13</sup>

11  
12 Similarly, the Federal Energy Regulatory Commission (“FERC”) recently addressed its  
13 longstanding focus on the DCF method. In its November 15, 2018 *Order Directing Briefs*,  
14 FERC found that “in light of current investor behavior and capital market conditions,  
15 relying on the DCF methodology alone will not produce a just and reasonable ROE.”<sup>14</sup> In  
16 its October 16, 2018 *Order Directing Briefs*, FERC found that although it “previously  
17 relied solely on the DCF model to produce the evidentiary zone of reasonableness...”, it is  
18 “...concerned that relying on that methodology alone will not produce just and reasonable  
19 results.”<sup>15</sup> As FERC explained, it is important to understand “how investors analyze and  
20 compare their investment opportunities.”<sup>16</sup> FERC also explained that, although certain  
21 investors may give some weight to the DCF approach, other investors “place greater weight  
22 on one or more of the other methods...”<sup>17</sup> Those methods include the CAPM and the Risk  
23 Premium method, which I have applied in this proceeding.

24  
25 Since the FERC issued these orders, the South Carolina Public Service Commission came  
26 to a similar finding, explaining that “it is appropriate and reasonable to consider a range of  
27 estimates under various methodologies in order to more accurately estimate [South

---

<sup>13</sup> *In the matter of the application of Baltimore Gas and Electric Company for adjustments to its electric and gas base rates, Public Service Commission of Maryland, Case No. 9406, Order No. 87591, at 153. Citations omitted. [Emphasis added]*

<sup>14</sup> Docket Nos. EL14-12-003 and EL15-45-000, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018) at para. 34.

<sup>15</sup> Docket No. EL11-66-001, *et al., Order Directing Briefs* 165 FERC ¶ 61,030 (October 16, 2018) at para. 30.

<sup>16</sup> *Ibid.*, at para. 33.

<sup>17</sup> *Ibid.*, at para. 35.

1 Carolina Electric & Gas’s] cost of equity”, and that relying on a single analytical method  
2 is “inconsistent with decisions reached by regulatory commissions over the past several  
3 years and departs from the normal practice of estimating the Cost of Equity for utilities.”<sup>18</sup>  
4

5 The North Carolina Utilities Commission also noted it “carefully evaluated the DCF  
6 analysis recommendations” of the ROE witnesses (which ranged from 8.45 percent to 8.80  
7 percent) and determined that “all of these DCF analyses in the current market produce  
8 unrealistically low results.”<sup>19</sup>

9 Q. ARE THERE ASPECTS OF THE CONSTANT GROWTH DCF MODEL THAT MAY  
10 EXPLAIN WHY REGULATORY COMMISSIONS CURRENTLY DO NOT RELY  
11 PRINCIPALLY ON IT WHEN DETERMINING THE COST OF EQUITY?

12 A. Yes. Quite simply, the DCF model’s underlying structure and assumptions are not  
13 compatible with the recent capital market and economic environment. That can most easily  
14 be seen by recognizing that the DCF model’s fundamental structure requires the  
15 assumption of constancy in perpetuity. It assumes there will be no change in growth rates,  
16 dividend payout ratios, Price/Earnings ratios, M/B ratios, or in the economic and market  
17 conditions that support those variables. Equally important, the model assumes the Cost of  
18 Equity estimated today will remain unchanged, also in perpetuity. That is, the model  
19 requires that the Cost of Equity estimate produced today will be the same forward-looking  
20 return equity investors will require every day in the future, in perpetuity.  
21

22 A concern, of course, is that federal monetary policy has had a significant, intentional effect  
23 on capital markets, depressing interest rates and dampening volatility. At issue is whether

---

<sup>18</sup> Public Service Commission of South Carolina, Docket Nos. 2017-207-E, 2017-305-E, and 2017-370-E, Order No. 2018-804, Order Addressing South Carolina Electric & Gas Nuclear Dockets, at 88-89. [clarification added]

<sup>19</sup> State of North Carolina Utilities Commission, Docket No. E-7, Sub 1146, *In the Matter of Application of Duke Energy Carolinas, LLC, for Adjustment of Rates and Charges Applicable to Electric Utility Service in North Carolina*, Order Accepting Stipulation, Deciding Contested Issues, and Requiring Revenue Reduction, July 25, 2017.

1 we reasonably can assume the market conditions created by those policies will stay in place  
2 over the long run. As discussed in more detail in Section III.2, we know the Federal  
3 Reserve has begun to “normalize” its monetary policy, even though the pace and structure  
4 of that normalization process is not yet fully defined.<sup>20</sup> Regardless of its eventual  
5 disposition, neither the Federal Reserve’s unconventional monetary policy initiatives, nor  
6 the capital market conditions they supported will remain in place in perpetuity, as the  
7 Constant Growth DCF model requires. On that basis alone we should be cautious about  
8 the weight given the DCF method.

9  
10 The DCF model also assumes investors use its fundamental structure to find the “intrinsic”  
11 value of stock, that is, the price they are willing to pay. In practice, investors also consider  
12 relative valuation multiples – Price/Earnings, M/B, Enterprise Value/EBITDA<sup>21</sup> – in their  
13 buying and selling decisions. They do so because no single financial model produces the  
14 most accurate measure of fundamental value, or the most reliable estimate of the Cost of  
15 Equity, at all times.

16 Q. IS THE USE OF MULTIPLE METHODS CONSISTENT WITH FINANCIAL THEORY  
17 AND PRACTICE?

18 A. Yes, it is. It is important to keep in mind that financial models are approximations of  
19 investor behavior, not precise descriptions of it. Financial theory therefore recognizes that  
20 informed judgment is needed in the use of any model, and that no single model is  
21 appropriate under all market conditions. As Dr. Roger A. Morin notes:

22 Each methodology requires the exercise of considerable judgment on the

---

<sup>20</sup> As the Federal Reserve explains: “The global financial crisis that began in 2007 had profound effects on the U.S. economy and other economies around the world. To support a return to the Federal Reserve’s statutory goals of maximum employment and price stability, the Federal Open Market Committee (“FOMC”) reduced short-term interest rates to nearly zero and held them at that exceptionally low level for seven years. The FOMC also undertook large-scale open-market purchases of longer-term U.S. Treasury securities and mortgage-backed securities to put downward pressure on longer-term interest rates. The term “normalization of monetary policy” refers to plans for returning both short-term interest rates and the Federal Reserve’s securities holdings to more normal levels.” See <https://www.federalreserve.gov/faqs/what-does-federal-reserve-mean-when-it-talks-about-normalization-of-monetary-policy.htm>.

<sup>21</sup> Earnings Before Interest, Taxes, Depreciation, and Amortization.

1 reasonably of the assumptions underlying the methodology and on the  
2 reasonableness of the proxies used to validate the theory. The inability of  
3 the DCF model to account for changes in relative market valuation,  
4 discussed below, is a vivid example of the potential shortcomings of the  
5 DCF model when applied to a given company. Similarly, the inability of  
6 the CAPM to account for variables that affect security returns other than  
7 beta tarnishes its use.

8  
9 No one individual method provides the necessary level of precision for  
10 determining a fair return, but each method provides useful evidence to  
11 facilitate the exercise of an informed judgment. Reliance on any single  
12 method or preset formula is inappropriate when dealing with investor  
13 expectations because of possible measurement difficulties and vagaries in  
14 individual companies' market data.<sup>22</sup>

15 Professor Eugene Brigham, a widely respected finance scholar, recommends the CAPM,  
16 DCF, and Bond Yield Plus Risk Premium approaches:

17 Three methods typically are used: (1) the Capital Asset Pricing Model  
18 (CAPM), (2) the discounted cash flow (DCF) method, and (3) the bond-  
19 yield-plus-risk-premium approach. These methods are not mutually  
20 exclusive – no method dominates the others, and all are subject to error  
21 when used in practice. Therefore, when faced with the task of estimating a  
22 company's cost of equity, we generally use all three methods and then  
23 choose among them on the basis of our confidence in the data used for each  
24 in the specific case at hand.<sup>23</sup>

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

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

32 \*\*\*

33 While it is certainly appropriate to use the DCF methodology to estimate  
34 the cost of equity, there is no proof that the DCF produces a more accurate  
35 estimate of the cost of equity than other methodologies. Sole reliance on  
36 the DCF model ignores the capital market evidence and financial theory

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<sup>22</sup> Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 428. [Emphasis added]

<sup>23</sup> *Ibid.*, at 430-431, citing Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed., 1994, at 341. [Emphasis added]

1 formalized in the CAPM and other risk premium methods. The DCF model  
2 is one of many tools to be employed in conjunction with other methods to  
3 estimate the cost of equity. It is not a superior methodology that supplants  
4 other financial theory and market evidence. The broad usage of the DCF  
5 methodology in regulatory proceedings in contrast to its virtual  
6 disappearance in academic textbooks does not make it superior to other  
7 methods. The same is true of the Risk Premium and CAPM  
8 methodologies.<sup>24</sup>

9 The point simply is that the use of multiple methods is consistent with finance theory and  
10 regulatory practice. Mr. Copeland's approach of relying only on the DCF method, on the  
11 other hand, is atypical among investors and in my experience, among regulatory  
12 commissions.<sup>25</sup>

13 Q. PLEASE SUMMARIZE YOUR POSITION REGARDING OTP'S COST OF EQUITY.

14 A. I continue to believe OTP's Cost of Equity falls in the range of 10.00 percent to 10.60  
15 percent, with 10.30 percent as a reasonable point estimate. My position is based on the full  
16 range of DCF and CAPM estimates, and considers other model results and data available  
17 to investors updated through February 15, 2019.

### III. RESPONSE TO MR. COPELAND

18 Q. PLEASE PROVIDE A SUMMARY OF MR. COPELAND'S DIRECT TESTIMONY  
19 AND RECOMMENDATIONS.

20 A. Mr. Copeland recommends an ROE of 8.25 percent (although he notes that his application  
21 of the models suggests an ROE of 7.00 percent) based on his applications of the Constant  
22 and Non-Constant forms of the DCF model, his "Excess Returns" approach, and his  
23 adjustments to my CAPM and Bond Yield Plus Risk Premium approaches, all of which he  
24 applied to the Proxy Group presented in my Direct Testimony.<sup>26</sup>

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<sup>24</sup> Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 430-431.

<sup>25</sup> As discussed earlier, the Federal Energy Regulatory Commission recently has found that relying on multiple methods, including those I have applied in this proceeding, is consistent with investor practice.

<sup>26</sup> Direct Testimony of Basil L. Copeland, Jr., at 4.



1 Q. PLEASE SUMMARIZE THE PRINCIPAL AREAS IN WHICH YOU DISAGREE WITH  
2 MR. COPELAND’S ANALYSES AND CONCLUSIONS.

3 A. The principal areas in which I disagree with Mr. Copeland’s analyses and conclusions  
4 relate to: (1) the reasonableness of his ROE estimate and recommendation; (2) Mr.  
5 Copeland’s interpretation of current capital market conditions and their effect on OTP’s  
6 Cost of Equity; (3) his assessment of business risks and other factors; (4) the relevance of  
7 M/B ratios in estimating the Cost of Equity; (5) the application of the Constant Growth  
8 DCF model; (6) Mr. Copeland’s application of the “Non-Constant Growth DCF” model;  
9 (7) the CAPM approach; and (8) the relevance of the Bond Yield Plus Risk Premium  
10 approach.

11 Q. AS A PRELIMINARY MATTER, DO YOU HAVE ANY CONCERNS WITH THE  
12 DATA SUPPORTING THE CHARTS IN MR. COPELAND’S DIRECT TESTIMONY?

13 A. Yes, I do. Certain of the data underlying the charts presented on pages 20, 21, 26, 72, and  
14 76 of Mr. Copeland’s Direct Testimony are derived from Value Line for the period 1999  
15 through 2018, which Mr. Copeland provided as a workpaper. Those charts include: (1)  
16 electric utility M/B ratios; (2) electric utility “excess returns”; (3) electric utility Cost of  
17 Equity; and (4) electric utility Cost of Equity – Baa spread. There are certain  
18 inconsistencies in the data and assumptions Mr. Copeland presents.

19  
20 First, companies that were acquired or merged in the past five years were excluded from  
21 the last five years of data, regardless of when the acquisition or merger occurred. For  
22 example, TECO Energy, Inc. (“TECO”) was acquired by Emera Incorporated on July 1,  
23 2016. The referenced charts include data from TECO for the years 1999 through 2013, but  
24 did not include any data from 2014 or 2015, prior to the company’s acquisition. The same  
25 approach was used for seven companies in Mr. Copeland’s dataset. It is unclear why Mr.  
26 Copeland chose to remove such data from his analysis.

27

1 In addition, one of the seven companies removed by Mr. Copeland in the last five years  
2 was UIL Holdings Corporation (“UIL”), which was acquired by Iberdrola USA, Inc. on  
3 December 16, 2015, becoming Avangrid, Inc. (“Avangrid”). Although Mr. Copeland  
4 removed UIL in his last five years of data, he did not include Avangrid in his analysis, even  
5 though it is part of Value Line’s electric universe.  
6

7 Lastly, Mr. Copeland’s analysis is based on Value Line data that appears to be from  
8 February, March, and April 2018. It is unclear why he did not update his analysis to reflect  
9 more recent data. Although he provided 2018 values in the referenced charts, those values  
10 are forecasted based on data from early in the year. Further, because he did not update his  
11 analysis, he included Great Plains Energy Incorporated and Westar Energy, Inc. in his most  
12 recent data, which would have been excluded from the past five years, because they merged  
13 on June 4, 2018.

14 ***1. Unreasonableness of Mr. Copeland’s ROE Results and Recommendation***

15 Q. AS A GENERAL MATTER, DO MR. COPELAND’S ROE ANALYSES PROVIDE A  
16 REASONABLE ESTIMATE OF OTP’S COST OF EQUITY?

17 A. No, they do not. Mr. Copeland’s ROE analyses cannot be corroborated by, or reconciled  
18 with observable, relevant, and verifiable data. Quite visibly (as shown in Chart 1, above),  
19 Mr. Copeland’s ROE range and recommendation are far below the prevailing ROEs  
20 authorized by this Commission and all other regulatory commissions.

21 Q. HAVE YOU COMPARED MR. COPELAND’S ROE ANALYSES AND  
22 RECOMMENDATIONS TO DECISIONS OF REGULATORY COMMISSIONS

23 A. Yes, I have compared Mr. Copeland’s ROE analysis and recommendations to decisions of  
24 other regulatory commissions that are considered comparable to the Commission. To do  
25 so, I used information provided by Regulatory Research Associates (“RRA”). RRA  
26 provides an assessment of the extent to which regulatory jurisdictions are constructive, or

1 not from an investor perspective.<sup>27</sup> I applied RRA’s rankings to the jurisdictions reported  
2 in Exhibit\_\_\_(RBH-2), Schedule 7 for all vertically integrated electric utility rate cases  
3 reported since 2016. The median ROE for companies operating in jurisdictions that are  
4 considered “Above Average,” was 10.00 percent; the upper end of the range for those  
5 ROEs was 10.55 percent.<sup>28</sup> The median ROE for companies operating in jurisdictions that  
6 are considered “Average,” was 9.60 percent and the median authorized ROE for companies  
7 considered “Below Average” was 9.48 percent.

8 Q. HOW DO MR. COPELAND'S ROE RECOMMENDATION, ROE RANGE, AND  
9 ESTIMATED COST OF EQUITY COMPARE TO RESULTS FROM AVERAGE  
10 REGULATORY JURISDICTIONS?

11 A. By comparison to regulatory jurisdictions considered “average” by RRA:

- 12 • Mr. Copeland’s 8.25 percent ROE recommendation is nearly 135 basis points  
13 below the median authorized ROE;
- 14 • Mr. Copeland’s 7.00 percent estimate of OTP’s ROE is 260 basis points below the  
15 median authorized ROE; and
- 16 • The top of Mr. Copeland’s range (8.50 percent) is 110 basis points below the  
17 median authorized ROE.

---

<sup>27</sup> As RRA explains, less constructive environments are associated with higher levels of risk:  
RRA maintains three principal rating categories, Above Average, Average, and Below  
Average, with Above Average indicating a relatively more constructive, lower-risk  
regulatory environment from an investor viewpoint, and Below Average indicating a less  
constructive, higher-risk regulatory climate. Within the three principal rating categories,  
the numbers 1, 2, and 3 indicate relative position. The designation 1 indicates a stronger or  
more constructive rating from an investor viewpoint; 2, a mid-range rating; and, 3, a less  
constructive rating within each higher-level category. Hence, if you were to assign numeric  
values to each of the nine resulting categories, with a “1” being the most constructive from  
an investor viewpoint and a “9” being the least constructive from an investor viewpoint,  
then Above Average/1 would be a “1” and Below Average/3 would be a “9.”

<sup>28</sup> Of the 21 authorized ROEs in jurisdictions considered “Above Average,” 16 were 10.00 percent or higher.

1 Q. HOW DO MR. COPELAND'S ROE RECOMMENDATION, ROE RANGE, AND  
2 ESTIMATED COST OF EQUITY COMPARE TO RESULTS FROM BELOW  
3 AVERAGE REGULATORY JURISDICTIONS?

4 A. All are far below the returns authorized by jurisdictions RRA considers "below average":  
5 • Mr. Copeland's 8.25 percent ROE recommendation is nearly 125 basis points  
6 below the median authorized ROE;  
7 • Mr. Copeland's 7.00 percent estimate of OTP's ROE is 250 basis points below the  
8 median authorized ROE; and  
9 • The top of Mr. Copeland's ROE range (8.50 percent) is 100 basis points below the  
10 median authorized ROE.

11 Q. DID MR. COPELAND PROVIDE AN EXPLANATION OF THOSE SIGNIFICANT  
12 DIFFERENCES?

13 A. No, Mr. Copeland has not explained why investors should, or would make investments  
14 limited to returns far below those available in other jurisdictions.

15 Q. IS THERE ANY REASON TO BELIEVE THAT AN INVESTMENT IN OTP, OR AN  
16 INVESTMENT IN SOUTH DAKOTA, HAS LESS BUSINESS OR FINANCIAL RISK  
17 THAN AN INVESTMENT IN ANY OTHER UTILITY OR JURISDICTION?

18 A. No. Mr. Copeland provides no explanation of why OTP has so much less business or  
19 financial risk than its peers that investors would require a return so far below those  
20 available to other utility companies or why an investment in South Dakota has so much  
21 less business or financial risk that investors would require a return so far below those  
22 available to other utility companies. A simple comparison of Otter Tail Corporation's Beta  
23 coefficient (an objective measure of risk) relative to the proxy companies demonstrates  
24 OTP is riskier than its peers.<sup>29</sup>

---

<sup>29</sup> As of February 15, 2019, Value Line reports a Beta coefficient for Otter Tail Corporation of 0.75 relative to the Proxy Group average of about 0.66.

1 Q. DO YOU HAVE ANY OTHER CONCERNS WITH MR. COPELAND'S  
2 RECOMMENDATION?

3 A. Yes, I do. As noted in my Direct Testimony, the United States Supreme Court (the  
4 "Court") established guiding principles for establishing a fair return on capital in the *Hope*  
5 and *Bluefield* cases. In *Hope*, the Court stated that "the return to the equity owner should  
6 be commensurate with returns on investments in other enterprises having corresponding  
7 risks."<sup>30</sup> Mr. Copeland's ROE 7.00 percent ROE estimate, and his 8.25 percent ROE  
8 recommendation fail to meet that standard.

9 **2. Capital Market Conditions**

10 Q. PLEASE SUMMARIZE MR. COPELAND'S POSITION WITH RESPECT TO THE  
11 EFFECT OF CAPITAL MARKET CONDITIONS ON OTP'S COST OF EQUITY.

12 A. Mr. Copeland notes that the last adjudicated Return on Equity in South Dakota was the  
13 9.25 percent Return on Equity allowed in Docket EL11-019, in an order issued July 2,  
14 2012. Mr. Copeland believes capital market conditions since then indicate that Cost of  
15 Equity has declined. He observes that the Chicago Board of Options Exchange ("Cboe")  
16 Volatility Index ("VIX") has generally declined since 2012, which matches the general  
17 trend in the Moody's Corporate Baa bond yield. Lastly, citing data from [www.market-](http://www.market-risk-premia.com)  
18 [risk-premia.com](http://www.market-risk-premia.com) he argues that the market required return has declined.

19 Q. WHAT IS YOUR RESPONSE TO MR. COPELAND'S ARGUMENT THAT  
20 CORPORATE INTEREST RATES AND COST OF CAPITAL HAVE DECLINED  
21 SINCE THE COMMISSION'S DECISION IN DOCKET NO. EL11-019?

22 A. Mr. Copeland states "the trend in Moody's Seasoned Corporate Baa Bond Yield generally  
23 matches the pattern of decline in VIX since 2011, with upward ticks in yields in 2014,  
24 2016, and early 2018, but with the overall trend remaining downward."<sup>31</sup> It is not  
25 surprising that the Moody's Corporate Baa Bond Yield has declined since 2011. As I

---

<sup>30</sup> *Hope*, 320 U.S. at 603.

<sup>31</sup> *See* Testimony of Basil L. Copeland Jr., at 8-9.

1 described above, the Federal Reserve’s adopted several policy initiatives to lower interest  
2 rates and market volatility after the 2008/2009 financial crisis.

3 Mr. Copeland also fails to acknowledge utility valuation levels after the financial crisis  
4 were related to the low interest rates, and the resulting “reach for yield” on the part of some  
5 investors. During those periods, when interest rates were intentionally subdued, some  
6 investors may turn to dividend-paying sectors such as utilities as an alternative source of  
7 income (that is, for the dividend yield).<sup>32</sup>

8 Mr. Copeland’s position also fails to acknowledge that the low interest rate environment  
9 was the intended result of the Federal Reserve’s Quantitative Easing policy. That policy  
10 now is being unwound, as the Federal Reserve begins its process of policy normalization  
11 as described above. Because the unconventional monetary policy that led investors to seek  
12 income from dividend-paying sectors (such as utilities) now is in the process of being  
13 normalized, we cannot say the same type of yield-seeking behavior observed over the  
14 recent past will persist in the future. In that regard, it is telling that recently authorized  
15 ROEs in other jurisdictions are well above the results indicated by the DCF methods on  
16 which Mr. Copeland’s recommendation relies.<sup>33</sup>

17  
18 In addition, over time credit spreads, which are a component of bond yields, tend to be  
19 inversely related to Treasury yields. To test that relationship, I performed a regression  
20 analysis between the 30-year Treasury yield and Moody’s Baa Utility bond yield. Based  
21 on that analysis, credit spreads were negatively and significantly related to Treasury yields.

---

<sup>32</sup> The relationship between utility prices and utility dividend yields is given in Equation [2], page 16 of my Direct Testimony.

<sup>33</sup> *See, for example*, Chart 1, above.

1 **Table 1: Regression Statistics<sup>34</sup>**

R Squared	0.24	
F Stat	530.75	T Stat
Intercept	3.16	50.62
Treasury Yield	-0.47	-23.04

2  
3 For example, in the second half of 2012,<sup>35</sup> the average Treasury yield and credit spreads  
4 were 2.80 percent and 1.90 percent, respectively. By 2018, the average Treasury yield  
5 increased to 3.11 percent, and the credit spread fell to 1.56 percent. In January 2018 the  
6 average Treasury yield and credit spread was 2.88 percent and 1.30 percent, respectively,  
7 increasing to 3.04 percent and 1.88 percent, respectively, in January 2019. Simply based  
8 on the movement of Treasury yields and credit spreads since 2016, there is no reason to  
9 conclude utility bond yields indicate a lower Cost of Equity. If anything, we may conclude  
10 that because both Treasury yields and credit spreads increased during 2018, investors'  
11 perceptions of utility risk also have increased.

12 Q. ARE THERE OTHER IMPLICATIONS OF EXPECTED INCREASES IN INTEREST  
13 RATES FOR THE COST OF EQUITY?

14 A. Yes, there are. As discussed in my Direct Testimony, the Cost of Equity is a forward-  
15 looking concept,<sup>36</sup> and it is important that inputs used in Cost of Equity models reflect  
16 market expectations. As the Federal Reserve increased the Federal Funds target rate eight  
17 times between December 2016 and December 19, 2018 to 2.25 percent - 2.50 percent,  
18 short-term and long-term interest rates also increased (see Chart 3 below).

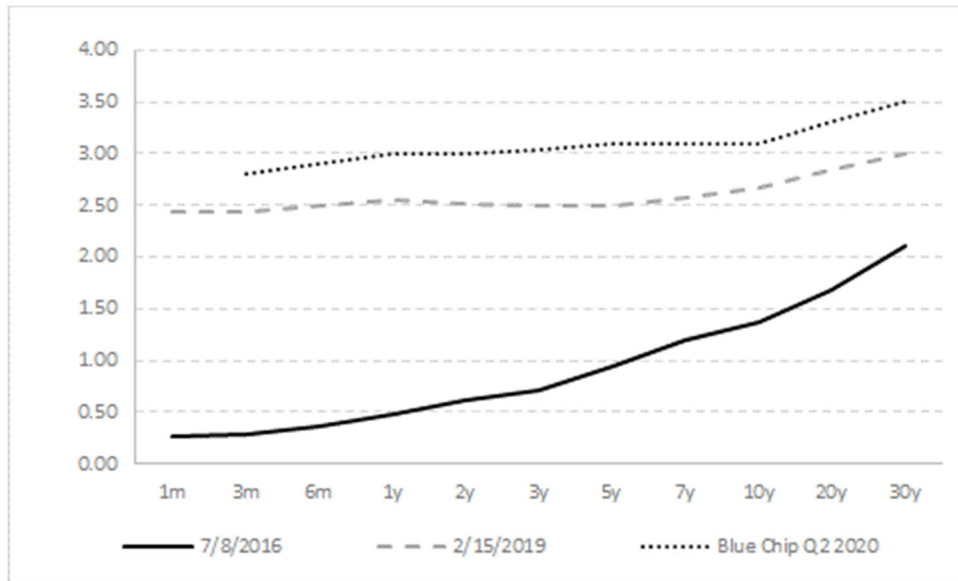
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<sup>34</sup> Source: Bloomberg Professional, using daily data between June 20, 2012 and February 15, 2019. The final order in Docket No. EL11-019 was issued on June 19, 2012. The relationship is negative and statistically significant even when we control for serial correlation using the Prais-Winsten routine.

<sup>35</sup> After June 19, 2012.

<sup>36</sup> Direct Testimony of Robert B. Hevert, at 52.

1 **Chart 3: Treasury Yield Curve: 7/8/2016, 2/15/2019 and Projected Q2 2020<sup>37</sup>**



2  
3 Currently, consensus near-term forecasts of the 30-year Treasury yield reported by Blue  
4 Chip Financial Forecast indicate the market expects long-term rates to reach 3.50 percent  
5 by the second quarter of 2020.<sup>38</sup> Importantly, the potential for rising rates represents risk  
6 for utility investors.

7 Q. WHAT IS YOUR RESPONSE TO MR. COPELAND’S ARGUMENT THAT THE  
8 DECLINE IN THE VIX INDICATES THAT MARKET PERCEPTIONS OF EQUITY  
9 RISK ARE BELOW THE LEVELS THAT EXISTED DURING DOCKET EL11-019.

10 A. Overall, Mr. Copeland’s assessment of the VIX does not consider the underlying Federal  
11 Reserve monetary policy, which has dampened market volatility. As the Federal Reserve  
12 continues its normalization policy, market volatility should continue to increase. Mr.  
13 Copeland also fails to take into consideration the market expectation of increases in the  
14 VIX.

15

<sup>37</sup> Federal Reserve Board Schedule H.15; Blue Chip Financial Forecast, Vol. 38, No. 2, February 1, 2019, at 2. Three-year, Seven-year and 20-year projected Treasury yields interpolated.

<sup>38</sup> Blue Chip Financial Forecast, Vol. 38, No. 2, February 1, 2019, at 2.



1 By way of background, the VIX is a visible and widely reported measure of expected  
2 volatility. As the Cboe explains, the VIX “is a calculation designed to produce a measure  
3 of constant, 30-day expected volatility of the U.S. stock market, derived from real-time,  
4 mid-quote prices of S&P 500® Index call and put options.”<sup>39</sup> Because volatility is a  
5 measure of risk, increases in the VIX, or in its volatility, are a broad indicator of expected  
6 near-term increases in market risk. In his assessment that the VIX has declined since 2012,  
7 Mr. Copeland fails to acknowledge market intervention by the Federal Reserve.

8  
9 Since the Federal Reserve began the process of rate normalization in December 2015<sup>40</sup>, it  
10 has increased the Federal Funds target rate eight times between December 2016 and  
11 December 2018. Aside from increases in the Federal Funds rate, in October 2017, the  
12 Federal Reserve initiated its balance sheet normalization program that includes gradual  
13 reductions to its security holdings by decreasing its reinvestment activities.<sup>41</sup> In its  
14 January 2019 meeting, the Federal Reserve decided to continue with the balance sheet  
15 wind-down.<sup>42</sup>

16  
17 The VIX has gradually increased in connection with the Federal Reserve’s tightening  
18 monetary policy. As Chart 4 (below) demonstrates, in 2017 market volatility was well  
19 below its long-term average and moved within a somewhat narrow range; the VIX  
20 averaged about 11.09, with a standard deviation of 1.36. Throughout 2018 and into 2019,  
21 the VIX average increased to 16.82 with a standard deviation of 4.89. That is, from 2017  
22 to 2018 both the level and the volatility of market volatility increased.

---

<sup>39</sup> Source: <http://www.cboe.com/vix>.

<sup>40</sup> Federal Reserve Press Release dated December 16, 2015.

<sup>41</sup> See: <https://www.federalreserve.gov/monetarypolicy/policy-normalization.htm> and Federal Open Market Committee (“FOMC”) Press Release, June 14, 2017. In its January 30, 2019 press release the FOMC noted that although it continues to view changes in the federal funds target rate as the “primary means of adjusting monetary policy”, it also would adjust the details of its balance sheet normalization based on economic and financial developments.

<sup>42</sup> *Federal Reserve Press Release* dated January 30, 2019.

Chart 4: VIX Since January 2017<sup>43</sup>

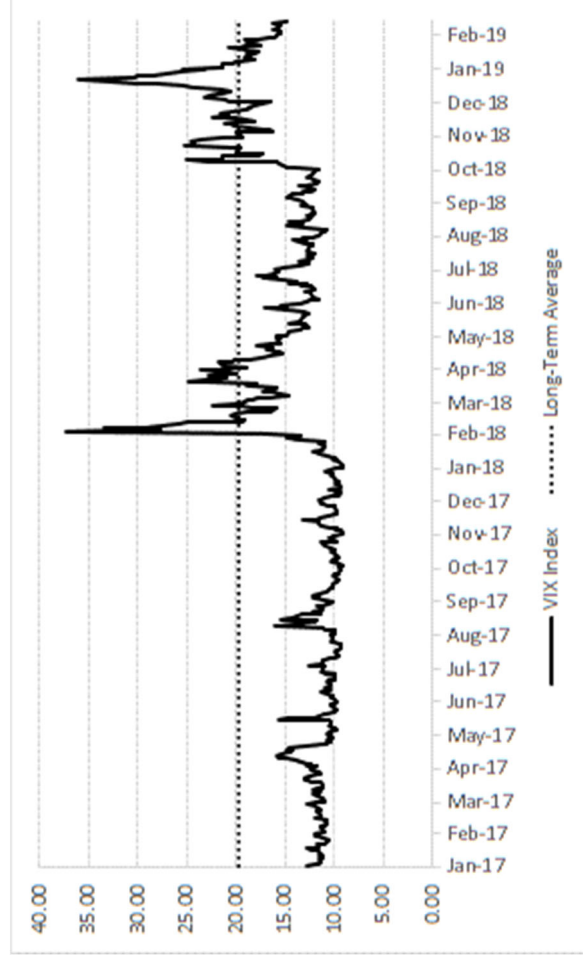


Table 2 (below) further demonstrates the increase in market uncertainty from 2017 to 2019. As that table notes, the standard deviation (that is, the volatility of volatility) in 2018-2019 is about 3.60 times higher than its 2017 level (1.36).

Table 2: VIX Levels and Volatility<sup>44</sup>

LONG-TERM AVERAGE	19.69
2018-2019 Average	16.82
2018-2019 Maximum	37.32
2018-2019 Minimum	9.15
2018-2019 Standard Deviation	4.89
2017 Average	11.09
2017 Maximum	16.04
2017 Minimum	9.14
2017 Standard Deviation	1.36

The increase in volatility is not surprising as market participants reassess investment alternatives in light of the Federal Reserve’s shift toward tightening monetary policy.

<sup>43</sup> Source: Bloomberg Professional. Data through February 15, 2019.  
<sup>44</sup> Source: Bloomberg Professional. Data through February 15, 2019.

1 Q. IS MARKET VOLATILITY EXPECTED TO INCREASE FROM ITS CURRENT  
2 LEVELS?

3 A. Yes, it is. One means of assessing market expectations regarding the future level of  
4 volatility is to review Cboe’s “Term Structure of Volatility.” As Cboe points out:

5 The implied volatility term structure observed in SPX options markets is  
6 analogous to the term structure of interest rates observed in fixed income  
7 markets. Similar to the calculation of forward rates of interest, it is possible  
8 to observe the option market's expectation of future market volatility  
9 through use of the SPX implied volatility term structure.<sup>45</sup>

10 Cboe’s term structure data is upward sloping, indicating market expectations of increasing  
11 volatility. The expected VIX value in December 2020 is 19.75, suggesting investors see a  
12 reversion toward the long-term average volatility over the coming months.<sup>46</sup> That increase  
13 in expected volatility makes intuitive sense, given the Federal Reserve’s movement toward  
14 normalizing monetary policy. That policy change includes reducing the liquidity provided  
15 to the financial markets during the Federal Reserve’s Quantitative Easing initiatives.  
16 Because that liquidity had the effect of dampening volatility as it was added to the markets,  
17 it stands to reason that volatility will increase as liquidity is diminished.

18 Q. DO YOU AGREE WITH MR. COPELAND’S ASSERTION THAT THE MARKET  
19 REQUIRED COST OF EQUITY HAS DECLINED FROM 8.83 PERCENT IN  
20 OCTOBER 2011 TO 6.79 PERCENT IN JULY 2018?<sup>47</sup>

21 A. No. Mr. Copeland presents a chart from [www.market-risk-premia.com](http://www.market-risk-premia.com), including risk free  
22 rate, implied Market Risk Premium, and implied market return estimates (as of July 2018)  
23 of 2.96 percent, 3.83 percent and 6.79 percent, respectively.<sup>48</sup> Putting aside the rather low

---

<sup>45</sup> Source: <http://www.cboe.com/trading-tools/strategy-planning-tools/term-structure-data>.

<sup>46</sup> Source: <http://www.cboe.com/trading-tools/strategy-planning-tools/term-structure-data>, accessed February 15, 2019.

<sup>47</sup> See Direct Testimony of Basil L. Copeland Jr., at 9-10 citing data from [www.market-risk-premia.com](http://www.market-risk-premia.com).

<sup>48</sup> See *Ibid.*, at 9.

1 expected market return, I cannot verify the website's underlying assumptions and inputs,  
2 and am reluctant to rely on it as Mr. Copeland has.

3 Q. WHAT ARE YOUR CONCERNS WITH MR. COPELAND'S RELIANCE ON THAT  
4 INFORMATION?

5 A. I reviewed the website's model assumptions and parameters for its estimated market return  
6 for the United States. The website calculates an implied market return of 7.40 percent as  
7 of December 31, 2018<sup>49</sup> based on a risk-free rate of 2.70 percent, and Market Risk Premium  
8 of 4.70 percent. However, the website does not provide verifiable sources for its forecasted  
9 information. On the other hand, I calculate clearly my estimated Market Risk Premia based  
10 on data from Bloomberg and Value Line, both of which (in my experience) are widely  
11 referenced. In any case, a Market Risk Premium of 4.70 percent renders implausibly low  
12 estimates of the Cost of Equity.<sup>50</sup>

13  
14 Perhaps more important is the difficulty of reconciling Mr. Copeland's reference to an  
15 expected market return slightly less than 7.00 percent with his position that the Cost of  
16 Equity for an electric utility such as Otter Tail Power is about 7.00 percent. As Mr.  
17 Copeland points out at page 54 of his testimony, utilities generally have Beta coefficients  
18 less than non-regulated firms. Because the utility sector is only about 3.00 percent of the  
19 S&P 500 index, it follows that utilities will have Beta coefficients less than the market Beta  
20 coefficient (i.e., 1.00). That is, utilities are less risky than the overall market. If Mr.  
21 Copeland believes 7.00 percent is a reasonable estimate of the market return, the Cost of  
22 Equity for utilities must be lower, still.

---

<sup>49</sup> Accessed <http://www.market-risk-premia.com/us.html> on March 4, 2019. At the time of my review, the website only allowed access to model parameters as of October, November and December 2018, so I selected December 31, 2018 for this analysis. Certain sections of the website were "under construction" at the time I accessed it.

<sup>50</sup> Assuming Mr. Copeland's "de-adjusted" Beta coefficient of .52, the CAPM estimate based on those parameters would be:  $2.70\% + (.52 \times 4.70\%) = 5.14\%$ . At page 71 of his testimony, Mr. Copeland suggests 5.94% may seem an implausibly low estimate of the Cost of Equity.

1 Q. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING MR. COPELAND'S  
2 ASSESSMENT OF CAPITAL MARKET CONDITIONS.

3 A. Mr. Copeland describes declines in the VIX and bond yields since Docket EL11-019 and  
4 suggests those changes support his rather low ROE recommendation. However, Mr.  
5 Copeland fails to consider the unique monetary policies adopted by the Federal Reserve as  
6 a result of the 2008 financial crisis that had the intended effect of lower interest rates, and  
7 dampened volatility. Forward-look estimates of the VIX and interest call for increases in  
8 both, supporting my recommended Return on Equity.

9 Q. PLEASE BRIEFLY SUMMARIZE MR. COPELAND'S POSITION REGARDING THE  
10 TAX CUTS AND JOBS ACT'S ("TCJA") EFFECT ON OTP'S COST OF EQUITY.

11 A. Mr. Copeland raises two arguments. First, he suggests that if the TCJA had an effect on  
12 the market, it "has since shrugged off a concern about the TCJA."<sup>51</sup> He also believes that  
13 the outperformance of the proxy companies relative to the market between February 1,  
14 2018 and September 21, 2018 is evidence that the TCJA did not have an effect on utilities.

15 Q. WHAT IS YOUR RESPONSE TO MR. COPELAND ON THOSE POINTS?

16 A. As to Mr. Copeland's first argument, it is important to recall that all models produce ranges  
17 of results.<sup>52</sup> The important analytical consideration is whether there are factors that may  
18 help determine where the Cost of Equity likely falls within those ranges. As discussed  
19 below, the TCJA is one such factor. As to Mr. Copeland's second argument, the TCJA has  
20 had a strong negative effect on the proxy group; that effect continued over time.

---

<sup>51</sup> Direct Testimony of Basil L. Copeland, at 80.

<sup>52</sup> For example, Mr. Copeland's Constant Growth DCF results produce a range of 6.88 percent to 8.48 percent. *See*, Exhibit\_\_\_(BLC-1), Schedule 1.

1 Q. ARE THERE EMPIRICAL METHODS THAT CAN BE USED TO ASSESS THE  
2 EFFECT OF AN EVENT SUCH AS THE TCJA ON UTILITY STOCK  
3 PERFORMANCE?

4 A. Yes, a method frequently used is an “event study”, or a “cumulative abnormal return”  
5 analysis.<sup>53</sup> To understand whether a specific event affected stock prices, it is important to  
6 control for factors beyond the event under consideration. The portion of the stock’s return  
7 that is not attributable to those other factors is considered the “abnormal” or “excess”  
8 return; the sum of those excess returns is the “cumulative” abnormal return. To apply that  
9 approach, I defined the abnormal return on a given day as:

10 
$$A_t = R_{i,t} - R_{m,t} \quad \text{Equation [1]}$$

11 where  $A_t$  is the Abnormal Return on day  $t$ ,  $R_{i,t}$  is the actual return for the proxy group<sup>54</sup> on  
12 day  $t$ , and  $R_{m,t}$  is the expected return for the proxy group defined in Equation [2] below.

13 
$$R_{m,t} = \alpha_t + \beta_{m,t} \quad \text{Equation [2]}$$

14 The expected return,  $R_{m,t}$ , (sometimes referred to as the “market-adjusted return”) is based  
15 on a regression equation in which Mr. Copeland’s proxy group’s daily returns<sup>55</sup> are the  
16 dependent variable, and the market’s daily return (measured by the Dow Jones Industrial  
17 Average) is the explanatory variable. Because it relies on market-adjusted returns, the  
18 approach controls for factors that, like the TCJA, affect companies across market sectors.  
19 Consistent with Value Line’s approach for calculating Beta coefficients, I applied the  
20 regression (*i.e.*, Equation [2]) over five years, using daily (rather than weekly) returns. The  
21 equation and slope coefficient both were statistically significant (*see* Table 3, below).

---

<sup>53</sup> See, for example, Robert Schweitzer, *How Do Stock Returns React to Special Events?* Federal Reserve Bank of Philadelphia, Business Review, July/August 1989.

<sup>54</sup> Calculated as an index. Source: S&P Global Market Intelligence.

<sup>55</sup> Calculated as an index. Source: S&P Global Market Intelligence.

1

**Table 3: Market Model Regression Statistics**

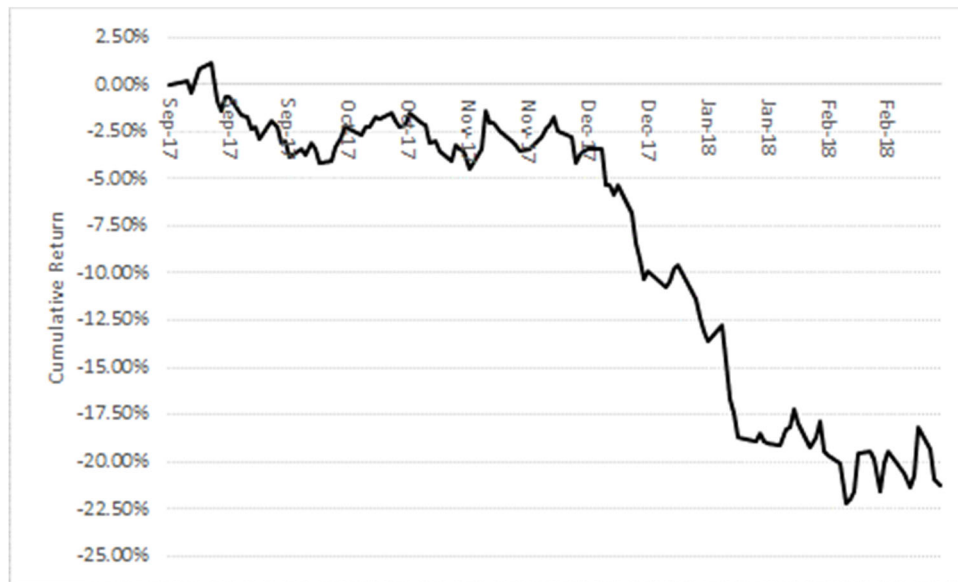
	<b>SLOPE</b>	<b>INTERCEPT</b>
Coefficient	0.4656	0.0002
Std. Err.	0.0301	0.0003
R-Square	0.1595	
F-Stat	238.9944	
t-Stat	15.4594	0.7030

2

3 To determine whether the TCJA likely affected the proxy companies' stock valuations, I  
 4 considered the "event date" to be December 1, 2017. Because it pre-dates the TCJA's  
 5 enactment, the event date provides for the likelihood that equity investors were aware of,  
 6 and began to consider how the TCJA may affect utility risks before the TCJA became law.  
 7 I then calculated the cumulative abnormal return for each day over a window that spanned  
 8 from September 1, 2017 to March 1, 2018 (that is, approximately three months before and  
 9 after December 1, 2017). Chart 5 (below) provides the cumulative abnormal return over  
 10 that period (*i.e.*, negative 21.27 percent).

11

**Chart 5: S&P 500 Average Cumulative Abnormal Return<sup>56</sup>**



12

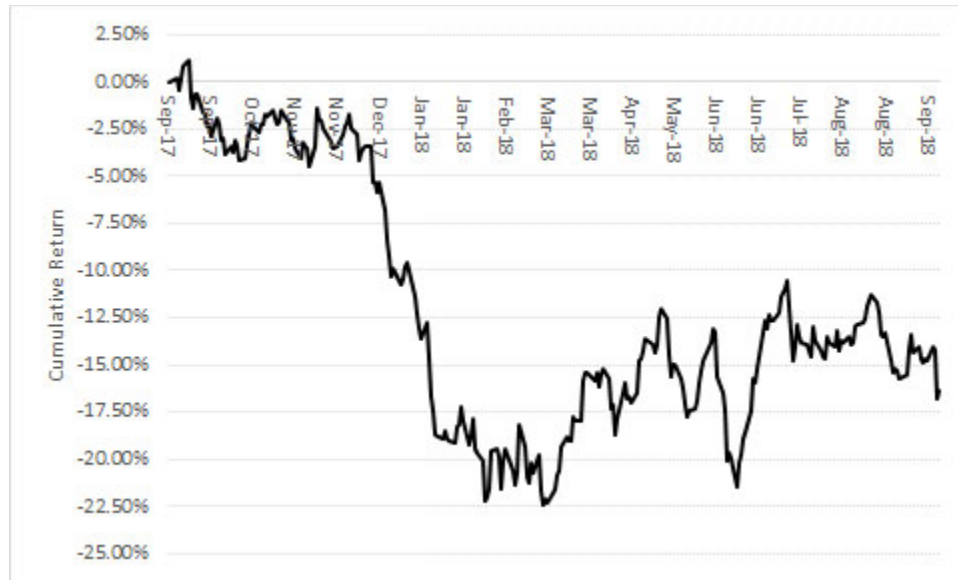
13

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<sup>56</sup> Source: S&P Global Market Intelligence. Based on a t-test, the cumulative abnormal returns are significant.

1 To consider Mr. Copeland’s view that the TCJA’s effect over time is minimal, I extended  
2 the post-event window to September 21, 2018, consistent with Mr. Copeland’s analysis.  
3 Even in those cases, with the effect of intervening events, the abnormal return remained  
4 well below zero (*see* Chart 6, below).

5 **Chart 6: Cumulative Abnormal Return Extended<sup>57</sup>**



6  
7  
8 Q. WHAT CONCLUSIONS DO YOU DRAW FROM THOSE ANALYSES?

9 A. Controlling for market-wide events, the TCJA has had a strong negative effect on the proxy  
10 group; that effect has continued over time. We therefore reasonably can conclude that  
11 aside from actions taken by rating agencies, the TCJA meaningfully – and negatively –  
12 affected utility stock prices, and should be considered in determining OTP’s ROE.

13 Q. HAVE RATING AGENCIES RAISED ANY FURTHER CONCERNS RELATED TO  
14 THE TCJA’S EFFECT ON THE UTILITY SECTOR SINCE THE FILING OF YOUR  
15 DIRECT TESTIMONY?

<sup>57</sup> Source: S&P Global Market Intelligence. Based on a t-test, the cumulative abnormal returns are significant.



1 A. Yes. On June 18, 2018 Moody’s changed its outlook on the U.S. regulated utility sector to  
2 “negative” from “stable”. Moody’s explained that its change in outlook “...primarily  
3 reflects a degradation in key financial credit ratios, specifically the ratio of cash flow from  
4 operations to debt, funds from operations (FFO) to debt and retained cash flow to debt, as  
5 well as certain book leverage ratios.”<sup>58</sup> The sector’s outlook could remain “negative” if  
6 cash flow-based metrics continue to decline, or if there emerge signs of a more  
7 “contentious” regulatory environment (which, Moody’s notes, is not fully reflected in  
8 lower authorized returns). Those factors, and their uncertainty, weigh against utility stock  
9 valuations, even if we cannot precisely measure the incremental effect of each.

10 Q. LASTLY, IS IT IMPORTANT TO APPLY JUDGMENT IN CONSIDERING THE  
11 EFFECTS OF EVENTS SUCH AS THE TCJA?

12 A. Yes, it is. As with the Constant Growth DCF model, it is important to understand the  
13 CAPM’s inputs, assumptions, and results in the context of observable market data. As  
14 explained in my Direct Testimony at page 31 (including Equation [4]) Beta coefficients  
15 reflect two aspects of stock price movements: (1) the variability of the subject company’s  
16 returns relative to the market; and (2) the correlation of the subject company’s returns to  
17 the market’s returns. Both are important factors. Charts 5 and 6, above, illustrate the  
18 TCJA’s effect on utility stock prices relative to the overall market. When utility stock  
19 prices fall relative to the overall market, the correlation will fall. When that happens (all  
20 else remaining equal), Beta coefficients also will fall. That is especially the case when they  
21 are calculated over relatively short periods, as Bloomberg does.<sup>59</sup> The question then  
22 becomes whether those Beta coefficients are likely to reflect investors’ views of utility risk  
23 going forward. Here again, a certain amount of judgment must be applied.

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<sup>58</sup> Moody’s Investors Service, *Announcement: Moody’s changes the US regulated utility sector outlook to negative from stable*, June 18, 2018.

<sup>59</sup> An alternative CAPM approach is the Empirical CAPM (“ECAPM”) approach. The ECAPM adjusts for the CAPM’s tendency to under-estimate returns for companies that (like utilities) have Beta coefficients less than one, and over-estimate returns for relatively high-Beta coefficient stocks. Although I have not included the Empirical ECAPM in my updated analyses, it is my view that its application under the current circumstances is reasonable.

1       **3. Business Risks and Other Considerations**

2       Q.     WHAT IS YOUR RESPONSE TO MR. COPELAND’S CRITICISMS REGARDING  
3             YOUR SMALL SIZE ANALYSIS?

4       A.     Mr. Copeland argues the existence of a small size premium is questionable and does not  
5             believe it applies to utilities.<sup>60</sup> In my Direct Testimony, I cited to long-standing research  
6             supporting both the small size premium in general, and as it applies to public utilities.<sup>61</sup>  
7             Mr. Copeland’s arguments do little to refute that research. Based on the analysis described  
8             in my Direct Testimony, as well as the academic and financial research, I continue to  
9             believe it is reasonable to consider OTP’s relatively small size in determining the  
10            appropriate ROE for OTP.

11      Q.     DOES MR. COPELAND HAVE ANY CONCERNS WITH YOUR FLOTATION COST  
12             ADJUSTMENT?

13      A.     Mr. Copeland believes that a flotation cost adjustment is reasonable. However, he develops  
14             an alternative calculation based on the compound annual growth rate in the number of  
15             shares of OTTR. Based on his alternative formula, Mr. Copeland suggests that a flotation  
16             cost adjustment of seven to nine basis points is reasonable. Mr. Copeland does not  
17             incorporate this adjustment into his analysis or recommendation, because he believes his  
18             recommended ROE is “substantially greater than the cost of equity.”<sup>62</sup>

19      Q.     WHAT IS YOUR RESPONSE TO MR. COPELAND ON THOSE POINTS?

20      A.     I continue to believe my calculation of the flotation cost adjustment and the result are  
21             reasonable, appropriate, and consistent with the methods used in practice. The flotation  
22             cost adjustment provided in Exhibit\_\_\_(RBH-1), Schedule 2 is consistent with the  
23             approach presented by Dr. Roger Morin, which he describes as “The conventional

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<sup>60</sup> Direct Testimony of Basil L. Copeland, at 76-79.

<sup>61</sup> Direct Testimony of Robert B. Hevert, at 40, 42.

<sup>62</sup> Direct Testimony of Basil L. Copeland, at 80.

1 approach to flotation cost adjustment...”<sup>63</sup> Dr. Morin further notes that approach’s “use in  
2 regulatory proceedings by cost of capital witnesses is widespread. The formula is  
3 discussed in several college-level corporate finance textbooks, such as Brigham and  
4 Ehrhardt (2005).”<sup>64</sup>

5  
6 Consequently, I disagree with Mr. Copeland’s alternative method, and continue to believe  
7 my estimate of the flotation cost adjustment is reasonable. That said, the difference in our  
8 approaches does not have a material effect on the difference between our  
9 recommendations, as Mr. Copeland’s 7.00 percent estimate of OTP’s ROE is significantly  
10 below my analytical results and other reasonable benchmarks, such as authorized returns.  
11

12 *Implications of the Stipulation*

13 Q. DO THE RATE CASE MORATORIUM AND PHASE-IN INCLUDED IN THE  
14 FEBRUARY 15, 2019 SETTLEMENT STIPULATION (THE “STIPULATION”)  
15 AFFECT OTP’S COST OF EQUITY?

16 A. Yes, they do. I understand that under the Stipulation, OTP will not file a rate case before  
17 April 1, 2022 if the Merricourt Wind Project and Astoria Station are in service by  
18 December 31, 2020. OTP also is allowed to file for approval of a Phase-In Plan, which  
19 would provide cost recovery for certain capital projects during the rate case moratorium.  
20 Among the Phase-In Plan’s provisions is an agreement that the ROE set in this proceeding  
21 would apply to the projects during their construction, and once they are put in service, until  
22 OTP files its next base rate case, which would not occur until on or after April 1, 2022.  
23 Other parameters of the overall Rate of Return, including the cost of debt and capital  
24 structure, would be set at year-end levels during construction, and at the time the projects  
25 are place in service.

---

<sup>63</sup> Morin, Roger A., New Regulatory Finance, Public Utilities Report, Inc., 2006, at 328.

<sup>64</sup> *Ibid.*, at 329.

1 Q. WHAT ARE YOUR INITIAL THOUGHTS REGARDING THESE ASPECTS OF THE  
2 STIPULATION?

3 A. It is important to consider the potential effect increases in the general level of interest rates  
4 would have on OTP's Cost of Equity. As a general proposition, electric utility companies  
5 are long duration investments whose valuations are highly sensitive to changes in the  
6 required rate of return. Consequently, the interest rate risk to which equity holders are  
7 exposed relate to the long end of the yield curve, *i.e.*, the 30-year Treasury yield. To the  
8 extent long-term rates are more likely to increase than decrease over the moratorium  
9 period, investors are at risk.  
10

11 Q. ARE YOU AWARE OF ANY REGULATORY COMMISSION THAT HAS APPLIED  
12 A PREMIUM TO THE ROE IN SIMILAR CIRCUMSTANCES?

13 A. Yes. In proceedings involving a three-year stay-out period, Staff of the New York Public  
14 Utilities Commission ("NY PUC") calculated a "stay-out premium" by taking one-half of  
15 the difference between the five-year average yields on three and one-year Treasury Notes.  
16 Staff noted that such a calculation is meant to give guidance to the Commission in arriving  
17 at an appropriate premium.<sup>65</sup>  
18

19 Q. WHAT ARE YOUR THOUGHTS REGARDING THAT APPROACH?

20 A. Although I appreciate that New York Staff has recognized the applicability of a stay-out  
21 premium, the method used appears to not fully reflect the underlying risks it is intended to  
22 mitigate. As noted above, utility stocks are relatively long duration investments, whose  
23 market valuations tend to be sensitive to changes in long-term interest rates. Second, the  
24 shape and slope of the yield curve is not constant over time, such that a relatively flat slope  
25 at the short-end of the curve may produce an inadequate premium relative to that which  
26 would be derived from the long-end of the curve. Lastly, it is unclear how the 50.00 percent

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<sup>65</sup> See, Case 09-E-0428, Prepared Testimony of Staff Finance Panel, at 106-107.

1 adjustment factor relates to the mitigation of company-specific risks over the term of the  
2 stay-out period.

3  
4 For much the same reason that the Market Risk Premium component of the CAPM is a  
5 forward-looking (*ex-ante*) measure, the stay-out premium also should at least consider  
6 forward-looking data. Moreover, if the risk associated with the Phase-in Plan is that OTP's  
7 Cost of Equity will increase as a result of changes in the level of interest rates, the relevant  
8 security is the 30-year Treasury security. And, the risk of increasing rates over the life of  
9 assets in the Phase-In Plan may be particularly high, given the expected "normalization"  
10 of Federal monetary policy.

11  
12 Q. THOSE CONCERNS ASIDE, DID YOU CALCULATE THE STAY-OUT PREMIUM  
13 USING THE NEW YORK STAFF'S APPROACH?

14 A. Yes, I did. Over the five-year period ended February 2019, the average yield on the three-  
15 year Treasury Note was 1.50 percent, and the average yield on the one-year Treasury Note  
16 was 1.01 percent.<sup>66</sup> The difference between those two average yields is 0.49 percent; one-  
17 half of that amount equals approximately 0.25 percent, or 25 basis points. Although not  
18 used by New York Staff, the difference between the seven and one-year Treasury yields  
19 was 113 basis points, one-half of which is approximately 56 basis points.

20  
21 Q. DID YOU ALSO CALCULATE THE STAY-OUT PREMIUM BASED ON THE  
22 DIFFERENCE IN CURRENT AND PROJECTED LONG-TERM TREASURY YIELDS?

23 A. Yes, I analyzed the difference between current and projected yields on 30-year Treasury  
24 bonds. As shown in Exhibit\_\_(RBH-2), Schedule 6, the current yield on the 30-year  
25 Treasury bond is about 3.03 percent, the projected long-term yield is 4.05 percent. The

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<sup>66</sup> Source: Federal Reserve Schedule H.15.

1 difference between the current and projected yields is 82 basis points. One-half of 85 basis  
2 points is about 41 basis points.<sup>67</sup> Based on the Bond Yield Plus Risk Premium approach,  
3 the difference in the implied ROE is about 24 basis points.  
4

5 Q. DO YOU HAVE ANY ADDITIONAL THOUGHTS ON THIS ISSUE?

6 A. Yes, I do. Aside from the effect of changes in long-term interest rates, equity valuations  
7 remain at risk to: (1) increases in broad market instability; (2) rotation out of the utility  
8 sector on the part of institutional investors; (3) unexpected credit contractions; and (4) other  
9 factors that affect both fundamental equity valuations and investor trading patterns. If OTP  
10 is foreclosed from adjusting the market-required ROE during a period of higher price  
11 instability, investors necessarily will incorporate a larger risk premium than in periods of  
12 greater equity stability. To the extent that, on balance, those factors represent greater  
13 downside risk during the moratorium period, the stay-out premium should recognize that  
14 uncertainty. In that regard, because OTP forgoes the ability to recover the costs associated  
15 with increases in the Cost of Equity during the moratorium period, the premium may be  
16 considered the cost associated with insuring against such adverse market movements.

17 Q. IN YOUR VIEW, EVEN WITHOUT A MORATORIUM, IS THE PHASE-IN LIKELY  
18 TO REDUCE OTP'S COST OF EQUITY?

19 A. No, I do not believe so for two reasons. First, the Phase-In Plan is more likely to have the  
20 effect of simply preventing dilution of future cash flow rather than improving current cash  
21 flow. The Phase-In Plan is more likely to mitigate the negative cash flow implications the  
22 capital projects otherwise would create in the future rather than improving current cash  
23 flow. That is, the Phase-In Plan would not reduce OTP's cash flow risk, it would simply  
24 mitigate incremental risks. That is the typical effect of plans such as this.  
25

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67

1 In addition, there is no indication that OTP has more risk-mitigating recovery mechanisms  
2 (with or without the Phase-In Plan) than the proxy group companies. In other words, even  
3 if the Phase-In Plan reduced OTP's current level of risk (which it does not), the question is  
4 whether OTP has more total risk-mitigating recover mechanisms than the proxy group  
5 companies. There is no indication that OTP has more risk-reducing mechanisms than the  
6 proxy group companies and thus not indication that the Phase-In Plan reduces OTP's cost  
7 of equity.  
8

9 Q. WHAT IS YOUR RECOMMENDATION REGARDING AN APPROPRIATE  
10 PREMIUM IN CONNECTION WITH THE PHASE-IN PLAN?

11 A. As noted earlier, the approach taken by Staff in New York is meant to provide guidance to  
12 the NY PUC. In my view, changes along the yield curve may not be the best measure of  
13 the incremental cost to investors. Nonetheless, based on the New York method, and  
14 considering the Bond Yield Plus Risk Premium method discussed above, I believe a  
15 reasonable premium is in the range of 25 to 50 basis points. Because interest rates are more  
16 likely to increase than decrease during the Phase-In Plan, the premium is more likely to be  
17 toward the upper end of that range.  
18

#### 19 ***4. Relevance of Market-to-Book Ratios***

20 Q. PLEASE SUMMARIZE MR. COPELAND'S TESTIMONY AS IT RELATES TO  
21 UTILITY EARNINGS WHEN M/B RATIOS ARE ABOVE 1.00.

22 A. Mr. Copeland argues a M/B ratio above 1.00 demonstrates the expected ROE exceeds the  
23 Cost of Equity. In the context of rate regulation, his argument is that because utility M/B  
24 ratios have long exceeded 1.00, utility commissions have consistently authorized ROEs  
25 well above the returns investors actually require.<sup>68</sup> In Mr. Copeland's view, regulators

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<sup>68</sup> Direct Testimony of Basil L. Copeland Jr., at 34, 75.

1 have long provided investors “excess returns”, which he defines as the difference between  
2 the dividend-to-book ratio and the dividend yield.<sup>69</sup> Mr. Copeland applies his estimate of  
3 “excess returns” to his estimate of the expected Return on Common Equity, which suggests  
4 an ROE of 7.03 percent when the M/B ratio equals 1.00.<sup>70</sup>

5 Q. WHAT IS YOUR GENERAL RESPONSE TO MR. COPELAND'S 7.03 PERCENT ROE  
6 ESTIMATE?

7 A. Putting aside the issues discussed below, Mr. Copeland’s position is far out of step with  
8 virtually every utility commission in the United States, and leads to results that are similarly  
9 removed from every utility commission and with the returns that are available to investors  
10 in any other utility.

11 Q. PLEASE PROVIDE A BRIEF DEFINITION OF THE M/B RATIO.

12 A. The M/B ratio equals the market value (or stock price) per share, divided by the total  
13 common equity (or the book equity) per share. Book value per share is an accounting  
14 construct reflecting historical costs. In contrast, market value per share (i.e., the stock  
15 price) is forward-looking, and is a function of many variables, including (but not limited  
16 to) expected earnings and cash flow growth, expected payout ratios, measures of “earnings  
17 quality,” the regulatory climate, the equity ratio, expected capital expenditures, and the  
18 expected return on book equity.<sup>71</sup> It follows, therefore, that the M/B ratio likewise is a  
19 function of numerous variables.

20 Q. ARE YOU AWARE OF ANY PUBLISHED RESEARCH THAT ADDRESSES M/B  
21 RATIOS IN THE CONTEXT OF THE CONSTANT GROWTH DCF MODEL?

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<sup>69</sup> *Ibid.*, at 19.

<sup>70</sup> *Ibid.*, at 29.

<sup>71</sup> *See, e.g.*, Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006 at 366. Dr. Morin cites several academic articles that address the various factors that affect the Market-to-Book ratio for utilities.



1 A. Yes. As noted below, if we accept all the assumptions that underlie the Constant Growth  
2 DCF model, if M/B exceeds 1.00, then ROE exceeds  $k$ . Branch *et al.* point out that M/B  
3 is generally greater than or equal to one because the value of the firm as a going concern  
4 (price per share) generally exceeds the liquidation value (book value per share) and  
5 “...firms having going concern values greater than their liquidation values (most firms)  
6 and firms having finite prices (all firms) should have  $ROE > R > G$ .”<sup>72</sup> Taken from that  
7 perspective, M/B ratios greater than 1.00 should not be surprising: if the liquidation value  
8 exceeds the market value, the company would be liquidated. Further, as explained below,  
9 both M/B ratios for the broad equity market and for utilities exceed 1.00.

10 Q. HAVE M/B VALUES GENERALLY EXCEEDED 1.00 FOR THE BROAD EQUITY  
11 MARKET?

12 A. Yes, they have. As Chart 7 (below) demonstrates, since 1990 the average M/B ratio for  
13 the S&P 500 Index has been 2.87; it has never reached 1.00.

14 **Chart 7: S&P 500 Market/Book Ratio Over Time<sup>73</sup>**



15

<sup>72</sup> Branch et al. (2014), at 78 (clarifications added). Here,  $R$  = the Cost of Equity, and  $G$  = growth.  
<sup>73</sup> Source: Bloomberg Professional.

1 If investors, over many years and across many companies, felt that the returns they  
2 expected had so significantly exceeded the returns they required, they would adjust their  
3 requirements. Under Mr. Copeland's construct, the disequilibrium between expected and  
4 required returns should dissipate, and take with it the difference between market and book  
5 values. But that has not occurred.

6  
7 That finding also is consistent with the position that M/B ratios greater than 1.00 simply  
8 mean that firms are worth more as a going concern than the book value of their assets. This  
9 is consistent with U.S. Generally Accepted Accounting Principles ("GAAP") and  
10 International Financial Reporting Standards, which require firms to carry the value of  
11 assets on their books at the historical cost of those assets; only under specific circumstances  
12 may the value of certain financial investments be carried at market value.<sup>74</sup> As a result:

13 ...given market efficiency, the [M/B] ratio is intrinsically an accounting  
14 phenomenon; that is, on first order, [M/B] is determined by how  
15 accountants measure book value... If all assets and liabilities were  
16 accounted for using unbiased mark-to-market or "fair value" accounting,  
17 [M/B] would be equal to unity for all levels of risk....A good example is a  
18 pure investment fund where "net asset value" typically equals market value,  
19 since accountants apply mark-to-market accounting to these funds....For  
20 most other firms, accountants do not mark the net assets involved with  
21 operations to market. The application of historical cost accounting,  
22 exacerbated by the application of conservative accounting, introduces a  
23 difference between price and book value.<sup>75</sup>

24 Q. ARE YOU AWARE OF RESEARCH THAT HAS FOCUSED ON THE M/B RATIOS  
25 OF REGULATED UTILITIES?

26 A. Yes, I am. Research focusing on utilities has long concluded that regulation may not  
27 necessarily result in M/B ratios approaching 1.00. As noted by Phillips in 1993:

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<sup>74</sup> Financial Accounting Standards Board Rule 157.

<sup>75</sup> S. H. Penman, S.A. Richardson, and I. Tuna, "The Book-to-Price Effect in Stock Returns: Accounting for Leverage", *Journal of Accounting Research*, 45:2, May 2007. The authors use the reciprocal of the M/B and different notation. In the quote above, I have replaced B/P (where P denotes price per share) with M/B for ease of exposition.

1 Many question the assumption that market price should equal book value,  
2 believing that ‘the earnings of utilities should be sufficiently high to achieve  
3 market-to-book ratios which are consistent with those prevailing for stocks  
4 of unregulated companies.’<sup>76</sup>

5 In 1988 Bonbright stated:

6 In the first place, commissions cannot forecast, except within wide limits,  
7 the effect their rate orders will have on the market prices of the stocks of  
8 the companies they regulate. In the second place, whatever the initial  
9 market prices may be, they are sure to change not only with the changing  
10 prospects for earnings, but with the changing outlook of an inherently  
11 volatile stock market. In short, market prices are beyond the control, though  
12 not beyond the influence, of rate regulation. Moreover, even if a  
13 commission did possess the power of control, any attempt to exercise it ...  
14 would result in harmful, uneconomic shifts in public utility rate levels.<sup>77</sup>

15 And, in 1972 Stewart Myers came to the following conclusion:

16 In short, a straightforward application of the cost of capital to a book value  
17 rate base does not automatically imply that the market and book values will  
18 be equal. This is an obvious but important point. If straightforward  
19 approaches did imply equality of market and book values, then there would  
20 be no need to estimate the cost of capital. It would suffice to lower (raise)  
21 allowed earnings whenever markets were above (below) book.<sup>78</sup>

22 The point is that for many years, published authors have questioned the notion that any  
23 deviation of market prices from book value is dispositive of a deviation between earned  
24 and required returns.

25 Q. HAVE UTILITY M/B RATIOS GENERALLY EXCEEDED 1.00?

26 A. Yes, they have. Chart 8 (below) demonstrates that since 2010, Mr. Copeland’s comparison  
27 group’s M/B ratio has exceeded 1.00, and generally has moved with the S&P 500 M/B  
28 ratio. The same is true for the Dow Jones Utility Index, which has been highly correlated

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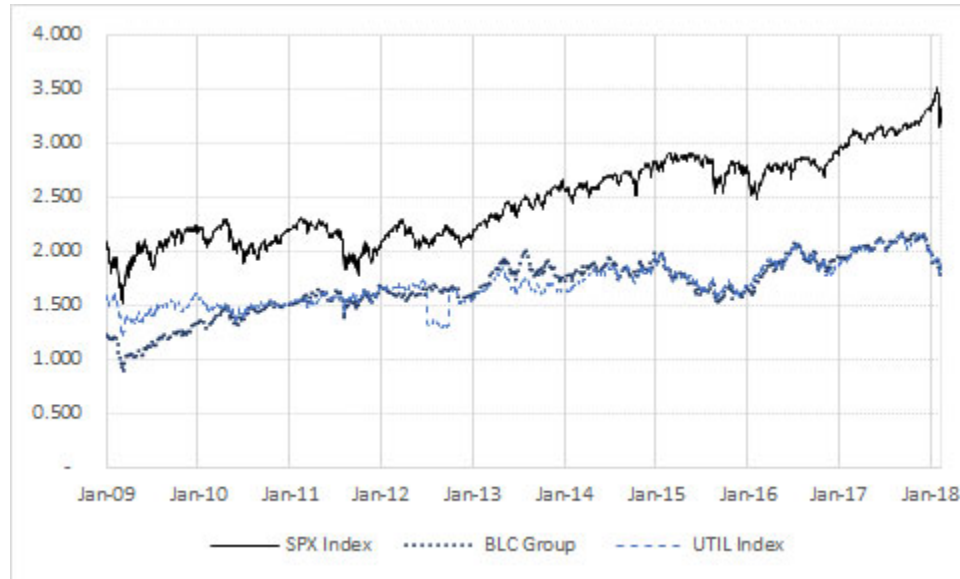
<sup>76</sup> Charles F. Phillips, The Regulation of Public Utilities – Theory and Practice (Public Utility Reports, Inc., 1993) at 395.

<sup>77</sup> James C. Bonbright, Albert L. Danielsen and David R. Kamerschen, Principles of Public Utility Rates (Public Utilities Reports, Inc., 1988), at 334.

<sup>78</sup> Stewart C. Myers, *The Application of Finance Theory to Public Utility Rate Cases*, The Bell Journal of Economics and Management Science, Vol. 3, No. 1 (Spring 1972), at 58-97.

1 with the comparison group. Although the broad market represents a cross section of risk  
2 and return profiles, of which the utility sector is just one, the observed variation in market-  
3 level M/B ratios speaks to the time-varying influence of general macroeconomic factors,  
4 not to any failure of regulation.

5 **Chart 8: Comparison Groups, S&P 500 Market/Book Ratios**  
6 **(2010 – 2019)<sup>79</sup>**



7  
8 An interesting observation is that the relationship between the comparison group M/B ratio  
9 and the S&P 500 M/B ratio is positive and statistically significant. That is the case even  
10 when we control for serial correlation.<sup>80</sup> We therefore reasonably can conclude that broad  
11 macroeconomic and capital market factors affect both utilities and non-regulated entities.  
12 Those factors, which extend beyond the expected Return on Common Equity that is central  
13 to Mr. Copeland's thesis, also extend beyond the control of utility regulatory commissions.

14 Q. IS IT MR. COPELAND'S POSITION THAT THE MARKET/BOOK RATIO SHOULD  
15 BE FORCED TO 1.00?

<sup>79</sup> Source: S&P Global Market Intelligence, Bloomberg Professional.  
<sup>80</sup> Using the Prais-Winsten routine.

1 A. Not to 1.00. He does believe, however that a “market-to-book ratio of 1.25 should be a  
2 stated goal to strive for *at the present time*.”<sup>81</sup> In his view, that would be “more than fair to  
3 investors.”<sup>82</sup> Mr. Copeland’s long-term view seems to be that a ratio of 1.10 is better, inasmuch  
4 as it would provide “an ample cushion for recovery of flotation costs and to prevent stock  
5 prices from falling below book value per share from “market pressure” when new shares are  
6 issued.”<sup>83</sup>

7  
8 It is true that, all else remaining equal, when shares trade at a higher price, fewer shares  
9 need to be issued to accomplish funding objectives, and ownership dilution is lessened.  
10 The important point, however, is the absolute market value of the shares, not their market  
11 value relative to book value. In that respect, there is no basis to target a specific  
12 Market/Book ratio to lessen dilution, or for any other reason.

13  
14 As to the proposition that a Market/Book ratio of 1.25 is “more than fair”, I again observe  
15 that: (1) as a practical matter, the Market/Book ratio is not solely a function of the  
16 relationship between earned and authorized returns; (2) there are many macroeconomic  
17 and capital market-related variables that affect the Market/Book ratio, for regulated and  
18 non-regulated enterprises alike; and (3) the Market/Book ratio reflects the value of the firm  
19 as a going concern (market price) relative to the value of its assets at historical costs (Book  
20 Value).<sup>84</sup> So, even if Mr. Copeland deems it proper for utility commissions to target  
21 specific Market/Book ratios, they cannot manage utility stock prices to do so; the price  
22 formation process is far too complex and involves far too many variables.

23 Q. THOSE POINTS ASIDE, WHAT WOULD BE THE RESULT IF REGULATORY  
24 COMMISSIONS DID FORCE M/B RATIOS TOWARD 1.00?

---

<sup>81</sup> Direct Testimony of Basil L. Copeland, Jr., at 42. [emphasis in original]  
<sup>82</sup> *Ibid.*  
<sup>83</sup> *Ibid.* See, also, footnote 18.  
<sup>84</sup> Branch et al. (2014).

1 A. Looking at Mr. Copeland's comparison group, the capital loss for equity investors would  
2 be approximately 45.95 percent.<sup>85</sup> A Market/Book ratio of 1.25 would result in a loss of  
3 32.43 percent.<sup>86</sup> Therefore, if investors believed the extent to which M/B ratios exceed  
4 1.00 is a measure of the difference between their expected and required returns, and  
5 regulatory commissions would authorize returns that would set the market value equal to  
6 the book value of utility stocks, there would be a significant loss of value.

7  
8 Mr. Copeland rationalizes that loss of value by arguing that investors have been earning  
9 more than they require, so a significant loss of value is fair to adequately compensate  
10 customers.<sup>87</sup> Utilities, however, are generally viewed as lower risk investments (utility  
11 Beta coefficients tend to be below 1.00) and have a high level of institutional ownership,  
12 including pension funds. Mr. Copeland does not explain why relatively conservative,  
13 highly informed utility investors knowingly willing would take the risk of such a material  
14 loss.

15  
16 From the perspective of institutional investors, such as pension asset managers, investment  
17 decisions are made based on expected risks and returns for various asset classes, and are  
18 subject to investment objectives and guidelines, and to the expected timing and nature of  
19 the liabilities being funded by those investments. In doing so, they must consider: (1) the  
20 diversification of the portfolio; (2) the liquidity and current return of the portfolio relative  
21 to the expected cash flow requirements under the plan; (3) the portfolio's projected return  
22 relative to the plan's funding objective; and (4) the return expected on alternative  
23 investments with similar risks.<sup>88</sup> Putting aside the obvious and negative implications for  
24 benefit plan beneficiaries, such a significant capital loss, or even the prospect of it, would

---

<sup>85</sup> Mr. Copeland's reports a M/B ratio of 1.85 for his proxy group. *See*, Exhibit \_\_ (BLC-1), Schedule 5.  
 $45.95\% = 1.00 / 1.85 - 1$ .

<sup>86</sup> Mr. Copeland's reports a M/B ratio of 1.85 percent for his proxy group. *See*, Exhibit \_\_ (BLC-1), Schedule  
5.  $32.43\% = 1.25 / 1.85 - 1$ .

<sup>87</sup> Direct Testimony of Basil L. Copeland Jr., at 41.

<sup>88</sup> 29 CFR 2509.908-1, *Interpretive bulletin relating to the fiduciary standard under ERISA in consider  
economically targeted investments*, October 17, 2008.

1 cause institutional investors (and other risk averse investors) to reevaluate their investment  
2 decisions and positions, including their allocations to the utility sector.

3  
4 That loss would not just affect investors, it also would substantially diminish the ability of  
5 utilities to attract external capital. Moreover, such a significant departure from regulatory  
6 practice would introduce a degree of regulatory risk that would pressure credit ratings; that  
7 pressure would be exacerbated by the diluted cash flow resulting from the significantly  
8 lower authorized equity return. Because they are so dependent on external capital to fund  
9 the long-term investments needed to provide safe and reliable service, utilities' diminished  
10 access and increased cost would be to the detriment of customers, as well as investors.  
11 Simply put, if regulatory commissions were to set rates with the explicit objective of  
12 moving the M/B ratio toward 1.00, that practice certainly would impede utilities' ability to  
13 attract the capital required to support safe and reliable operations.<sup>89</sup>

14 Q. DOES MR. COPELAND ADDRESS THE POTENTIAL EFFECT ON INVESTORS IF  
15 HIS POLICY WAS ADOPTED, AND IF MARKETS REACTED IN ACCORDANCE  
16 WITH HIS MODEL?

17 A. Yes, he puts the issue in terms of the repayment of "an interest free loan", reasoning that  
18 engineering a reduction in the M/B ratio for that purpose is altogether proper:

19 At the most, it merely offsets the excess returns that were earned from prices  
20 rising to such a high market-to-book ratio leaving investors *as a class*  
21 having still earned an adequate rate of return on balance. The "as a class"  
22 qualifier simply acknowledges that it is impossible to determine how such  
23 a change would impact any given individual investor. In any case, any  
24 profit from excess returns investors earned in the past came with no  
25 guarantee. So, the mere existence of capital losses for investors does not  
26 impact the balancing of competing interests calculus at all. But for investors  
27 as a class, losses as market-to-book ratios get pushed back down to where

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<sup>89</sup> That would be especially the case in markets during which the M/B ratio for the overall market is significantly greater than 1.00; utilities would have to issue relatively more shares for the same amount of equity, diluting existing shareholders. The possibility of future dilution would raise concerns among potential investors, potentially causing them to consider other industry sectors.

1           they ought to be are simply a “refund” of the excess returns which they  
2           should not have received in the first place. And unless this “refund” is  
3           accompanied with interest, investors still come out ahead on a net present  
4           value basis. We should consider the excess returns that utility shares have  
5           earned as an interest free loan that it is now time to repay.<sup>90</sup>

6           Here, Mr. Copeland once again substitutes his judgment for that of the market.  
7           Notwithstanding the broad-based and longstanding experience of investors transacting at  
8           prices above book value (see Chart 8, above), Mr. Copeland would have regulatory  
9           commissions set rates with the explicit objective of manipulating market prices toward  
10          book value. As noted above, not only have published authors questioned whether it is  
11          possible to do so, they have warned against such positions.

12  
13          It also is notable that nowhere does Mr. Copeland consider the very practical implications  
14          of his intended policy for utilities’ ability to maintain their credit profiles, or to efficiently  
15          raise long- and short-term capital. In my experience, equity investors consider the types of  
16          business risks discussed in my Direct Testimony.<sup>91</sup> Also in my experience, debt and equity  
17          investors look to the consistency and predictability of regulatory practice in allocating their  
18          finite capital.<sup>92</sup> If that were not the case, it is hard to imagine how utilities would be able  
19          to finance the large, long-lived, essentially irreversible investments that provide utility  
20          service, and that often are recovered over decades. Mr. Copeland’s view that regulatory  
21          commissions can and should manipulate market prices with the explicit objective of  
22          reducing market value to book value undoubtedly would constrain utilities’ ability to  
23          efficiently raise the capital needed to fund those assets.

24    Q.     WHAT IS YOUR RESPONSE TO MR. COPELAND’S VIEW THAT THE MARKET-  
25            TO-BOOK RATIO IS AN INDICATION OF EARNED RETURNS IN EXCESS OF  
26            REQUIRED RETURNS?

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<sup>90</sup> Direct Testimony of Basil L. Copeland Jr., at 41.

<sup>91</sup> See Direct Testimony Robert B. Hevert, at 36 – 60.

<sup>92</sup> By way of example, over 50.00 percent of the factors Moody’s considers in their credit rating determinations rate to the nature of regulation. See, Moody’s Investors Service, *Rating Methodology, Regulated Electric and Gas Utilities*, June 23, 2017, at 4.



1 A. The position that the M/B ratio can be used as a measure of excess earnings or an “Excess  
2 ROE” runs counter to the use of the M/B ratio in practice. Like the Price/Earnings (“P/E”)   
3 ratio, the M/B ratio is used by investors as a measure of relative, not absolute valuation.  
4 That is, it typically is used by investors to assess the value of an asset or enterprise relative  
5 to the prevailing M/B ratios of comparable assets or enterprises. Investors would be more  
6 likely to assess the M/B ratio of an electric utility relative to the Updated Proxy Group  
7 median of 1.87 rather than, for example, an M/B of 1.00. That is the case because, as noted  
8 earlier, no single model provides the best approximation of investor behavior at all times,  
9 and under all market conditions.

10  
11 In the context of rate setting, the M/B ratio sometimes is discussed relative to the Constant  
12 Growth DCF model. As discussed in more detail below, Mr. Copeland’s assumed  
13 relationship between the accounting Return on Common Equity and the Cost of Equity  
14 simply falls from the Constant Growth DCF model, itself; one cannot be assumed without  
15 the other. Taken together, those assumptions are quite restrictive, and call into question  
16 the definitive linkage between M/B, Return on Common Equity, and the Cost of Equity  
17 that Mr. Copeland assumes.

18 Q. WHAT IS YOUR RESPONSE TO MR. COPELAND’S CLAIM THAT IN A NEW  
19 HAMPSHIRE RATE PROCEEDING YOU “LAUNCHED AN ALL-OUT ASSAULT”  
20 ON THE CONSTANT GROWTH DCF MODEL?<sup>93</sup>

21 A. It is not my practice to “launch assaults”, “all-out” or otherwise. Rather, it is my practice  
22 to respond to arguments and positions with which I may disagree, with evidence I find  
23 relevant to the issue at hand. My testimony in that proceeding is a good case-in-point, and  
24 as Mr. Copeland supposed, is relevant to his position here. At issue in the New  
25 Hampshire proceeding was the opposing witnesses’ position that M/B ratios greater than  
26 1.00 indicate the earned Return on Equity exceeds the investor-required Cost of Equity.

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<sup>93</sup> Direct Testimony of Basil L. Copeland Jr., at 33.

1 That also is the essence of Mr. Copeland’s thesis, and the foundation of his conclusion that  
2 the Cost of Equity is about 7.00 percent.

3  
4 In my New Hampshire testimony, I observed that under the Constant Growth DCF model’s  
5 construction and assumptions, the relationship among the M/B ratio, the earned Return on  
6 Common Equity, the investor-required Cost of Equity, and “sustainable” growth is given  
7 as follows:

$$\frac{M}{B} = \frac{ROE - g}{k - g} \text{ Equation [3]}$$

8  
9 The opposing witnesses in the New Hampshire proceeding argued that under Equation [3],  
10 the M/B ratio would exceed 1.00 only when the earned Return on Common Equity (ROE)  
11 was greater than the Cost of Equity ( $k$ ).

12  
13 Although he uses a slightly different expression of the Constant Growth DCF model, Mr.  
14 Copeland’s position is the same. As Mr. Copeland points out, under the DCF model,  
15 growth ( $g$ ) is the “retention growth rate”, or “ $br$ ”, where “ $b$ ” is the retention rate (the  
16 percentage of earnings not paid in dividends), and “ $r$ ” is the earned Return on Common  
17 Equity. Mr. Copeland’s Exhibit \_\_ (BLC-1), Schedule 3 begins with the “basic Gordon  
18 model” (substituting “ $br$ ” for “ $g$ ”)<sup>94</sup>:

$$M = \frac{(1 - b)rB}{k - br} \text{ Equation [4]}$$

19  
20 Rearranging Equation [4] we come to the form presented by the opposing witnesses in the  
21 New Hampshire proceeding:

$$\frac{M}{B} = \frac{(1 - b)r}{k - br} \text{ Equation [5]}$$

22  
23 which simplifies to:

$$\frac{M}{B} = \frac{r - br}{k - br} \text{ Equation [6]}$$

24  
25 Mr. Copeland’s position here is the same as the opposing witnesses in New Hampshire:  
26 Under the Constant Growth DCF model, any excess of the M/B ratio over 1.00 indicates  
27 investors are earning more than their required return. As Mr. Copeland puts it, “...at a

---

<sup>94</sup> Exhibit \_\_ (BLC-1), Schedule 3.

1 glance we can tell from the market-to-book ratio whether a firm is earning (or is expected  
2 to earn) a return on book equity above, below, or equal to its cost of equity.”<sup>95</sup>

3  
4 Mr. Copeland extends that position, arguing that the relationship between M/B ratios, the  
5 expected return on book value, and the Cost of Equity is strictly governed by the Constant  
6 Growth DCF model, so much so that “[i]t is also possible to precisely quantify the level of  
7 excess return (or deficit) investors are expecting when the market-to-book ratio is above  
8 (or below) 1.0.”<sup>96</sup> As in my New Hampshire testimony, I do not believe we can do so.

9 Q. MR. COPELAND SUGGESTS THAT BY “REBUTTING” THE CONSTANT GROWTH  
10 DCF MODEL, YOU HOPED TO “DENY ANY MEANINGFUL IMPLICATIONS  
11 REGARDING MARKET-TO-BOOK RATIOS.”<sup>97</sup> IS HE CORRECT?

12 A. No, he is not. I do not disagree that expected earned returns are a factor considered by  
13 investors in determining market prices, but they are not the only factor. As I explained in  
14 my New Hampshire testimony:

15 In very general terms, the M/B ratio equals the market value (or stock price)  
16 per share, divided by the total common equity (or the book equity) per share.  
17 Book value is an accounting construct, which reflects historical costs. In  
18 contrast, market value per share, *i.e.*, the stock price, is forward-looking,  
19 and is a function of many variables, including (but not limited to) expected  
20 earnings and cash flow growth, expected payout ratios, measures of  
21 “earnings quality,” the regulatory climate, the equity ratio, expected capital  
22 expenditures, *and the expected return on book equity*. It follows, therefore,  
23 that the M/B ratio likewise is a function of numerous variables in addition  
24 to the historical or expected Return on Common Equity.<sup>98</sup>

25 The point simply is that although the expected Return on Common Equity matters, so do  
26 other variables. And while the Constant Growth DCF model is one method of estimating  
27 the Cost of Equity, it is not the only one. As discussed elsewhere in my Rebuttal  
28 Testimony, other approaches commonly are used in practice, and in regulatory

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<sup>95</sup> Direct Testimony of Basil L. Copeland, Jr., at 19.

<sup>96</sup> *Ibid.* Mr. Copeland makes a related argument at pages 84 – 85 of his Direct Testimony.

<sup>97</sup> *Ibid.*, at 33.

<sup>98</sup> Docket No. DG17-048, Rebuttal Testimony of Robert B. Hevert, at 28. [emphasis added]

1 proceedings. Simply, I do not believe we can distill the many factors investors weigh in  
2 determining market prices to the few variables and strict relationships assumed by the  
3 Constant Growth DCF model for a single firm.

4 Q. IN YOUR PRACTICAL EXPERIENCE, ARE MARKET PRICES SET BY PRECISE  
5 AND FULLY QUANTIFIABLE MATHEMATICAL FORMULAE?

6 A. Having raised hundreds of millions of dollars in capital for a publicly traded utility, and  
7 having advised multiple clients on transactions worth billions of dollars, I can say that is  
8 not the case. Rather, practitioners recognize that models are approximations of investor  
9 behavior, not precise descriptions of it. The market prices applied in Mr. Copeland's DCF  
10 analyses are set by the buying and selling behavior of numerous market participants, whose  
11 investing decisions are motivated by any number of factors. Those factors may be related  
12 to broad market conditions, investor-specific liquidity positions, asset/liability matching  
13 strategies, or near-term trading strategies, and may change over time and across market  
14 conditions. No single model can precisely quantify all those factors, all the time, for all  
15 investors.

16  
17 That is why, in my practical experience, investors use multiple methods to determine return  
18 requirements. That also is why relative valuation multiples – such as the Market/Book  
19 ratio – are used in practice to value assets and securities. No one method can “precisely  
20 quantify” return expectations, or the relationship between those expectations and the  
21 Market/Book ratio.

22 Q. DOES MR. COPELAND BELIEVE THE FACTORS AND RELATIONSHIPS THAT  
23 DETERMINE UTILITY STOCK PRICES AND INVESTOR RETURN  
24 EXPECTATIONS MAY BE PRECISELY QUANTIFIED?

25 A. Yes, that appears to be the case. As Mr. Copeland states at page 19 of his testimony:

26 It is also possible to precisely quantify the level of excess return (or deficit)  
27 investors are expecting when the market-to-book ratio is above (or below)

1 1.0. It can be demonstrated mathematically (as shown in Exhibit \_\_\_\_ (BLC-  
2 1), Schedule 3) that the excess return – which I designate “XROE” – is equal  
3 to the difference between the dividend-to-book ratio and the dividend-to-  
4 price ratio (i.e., “dividend yield”).

5 And at page 42, in considering what might be the proper Market/Book ratio objective given  
6 investor return expectations, Mr. Copeland suggests:

7 A target of 1.25 provides for that and even more. But I recognize that it is a  
8 road too far to travel all at once. A return on equity of 8.25 percent would  
9 imply a reduction in market-to-book ratio from 1.85 to 1.37, bringing it  
10 closer to where it should be (which would give fuller effect to the consumer  
11 interest) but still giving greater weight to the investor interest by leaving  
12 the market-to-book ratio higher than investors really have any right to  
13 expect.

14 Taken together, Mr. Copeland’s points appear to be that we can precisely quantify “excess  
15 returns” by reference to Market/Book ratios, and we use that precise quantification to move  
16 Market/Book ratios from 1.85 to 1.37, higher than where Mr. Copeland believes they  
17 should be, but closer to what he deems appropriate.

18 Q. DOES MR. COPELAND’S “EXCESS ROE” METHOD ALSO DEPEND DIRECTLY  
19 ON THE CONSTANT GROWTH DCF MODEL’S ASSUMPTIONS?

20 A. Yes, it does. In his Exhibit \_\_ (BLC-1), Schedule 3, Mr. Copeland provides the derivation  
21 of his Equation [3], which expresses the difference between the expected earned return on  
22 book value (common equity) and the Cost of Equity as:

$$23 \quad r - k = \frac{D}{B} - \frac{D}{M} \text{ Equation [7]}$$

24 As Mr. Copeland explains, the “Excess ROE” ( $r - k$ ) is the difference between the “book  
25 yield” and the dividend yield. Although Mr. Copeland did not present the relationship, the  
26 “book yield” may be expressed as the product of the dividend yield and the M/B ratio:

$$27 \quad \frac{D}{B} = \frac{D}{M} \times \frac{M}{B} \text{ Equation [8]}$$

28 Substituting Equation [8] in Equation [7], we get:

$$29 \quad r - k = \left( \frac{D}{M} \times \frac{M}{B} \right) - \frac{D}{M} \text{ Equation [9]}$$

1 which simplifies to:

$$2 \quad r - k = \frac{D}{M} \times \left( \frac{M}{B} - 1 \right) \text{ Equation [10]}$$

3 Equation [10] is the heart of the matter; it assumes if the M/B ratio equals 1.00, the Excess  
4 ROE ( $r - k$ ) is zero.<sup>99</sup> That Equation, however, is simply a restatement of Mr. Copeland's  
5 original premise. Any deviation from 1.00 assumes excess or deficient returns, which is  
6 his premise.<sup>100</sup> It is this construct Mr. Copeland believes can be used to "precisely  
7 quantify" the return (excess or deficit) investors are expecting, and that forms the basis of  
8 his view that "electric regulation is not doing a very good job in balancing consumer and  
9 investor interests."<sup>101</sup>

10 Q. WHAT CONCLUSIONS CAN BE DRAWN FROM THAT DISCUSSION?

11 A. The conclusion is straightforward. Mr. Copeland's position that M/B ratios in excess of  
12 1.00 are dispositive of excess earnings fully depends on the complete acceptance of the  
13 Constant Growth DCF model -- and its underlying assumptions -- as the only method used  
14 by investors to set the market price of equity. To be clear, that conclusion is not an assault  
15 on the model. My concern is not with the model itself, but with Mr. Copeland's reliance  
16 on it in concluding that the relationship between authorized returns and M/B ratios can be  
17 precisely quantified, and that the ROE should be set on that basis.

18 Q. DO YOU HAVE ANY OBSERVATIONS REGARDING MR. COPELAND'S "LEAST  
19 ABSOLUTE DEVIATION" ("LAD") ANALYSIS AND THE CONCLUSIONS HE  
20 DRAWS FROM IT?

21 A. Yes, I do. As Mr. Copeland explains, his LAD model is a means of quantifying the  
22 relationship between the Excess ROE and M/B ratios. Referring again to my New

---

<sup>99</sup> That can be seen as follows. If  $\frac{M}{B} = 1$ , the quantity  $\left(\frac{M}{B} - 1\right)$  will equal 0. The product of  $\left(\frac{M}{M} \times 0\right) = 0$ .  
<sup>100</sup> Mr. Copeland further commits to that position in footnote 1 to his Exhibit\_\_(BLC-1), Schedule 3, in which  
he explains that the "sv" term to the retention growth model, which is meant to capture growth from sales of  
stock above book value is inapplicable for utilities where "there should not be any expectation of excess  
returns".

<sup>101</sup> Direct Testimony of Basil L. Copeland, Jr., at 23.

1 Hampshire testimony, Mr. Copeland argues that neither Dr. Woolridge, Dr.  
2 Chattopadhyay, nor I “really understood what [we] were doing” when we examined the  
3 relationship between earned returns on common equity and M/B ratios.<sup>102</sup> He believes the  
4 proper specification considers M/B ratios as a function of the Excess ROE<sup>103</sup> and applies  
5 the LAD approach to quantify that relationship. As explained below, however, Mr.  
6 Copeland’s model results tell us little beyond what we readily can observe, i.e., that utilities  
7 tend to have M/B ratios greater than 1.00. Mr. Copeland’s approach simply is a different  
8 representation of his thesis that M/B ratios should not exceed 1.00; it provides no  
9 “corroboration” of his position.

10 Q. WHY DO YOU SAY THE LEAST ABSOLUTE DEVIATION ANALYSIS PROVIDES  
11 NO FURTHER CORROBORATION OF MR. COPELAND’S POSITION?

12 A. My position goes back to Equation [10], discussed earlier:

$$r - k = \frac{D}{M} \times \left( \frac{M}{B} - 1 \right)$$

13  
14 Mr. Copeland’s analysis simply shows that as the M/B ratio increases, his “Excess Return”  
15 also will increase. Any variation in the data causing a less-than-perfect statistical fit goes  
16 to the variation in Dividend Yields, which did not change much across the companies  
17 included in Mr. Copeland’s analyses.<sup>104</sup> As Exhibit \_\_\_(RBH-2), Schedule 8 demonstrates,  
18 if we assume constant dividend yields, there is a perfect statistical fit, even using Ordinary  
19 Least Squares regression.<sup>105</sup>

20 Q. DOES THE “LAD” APPROACH PRODUCE MEANINGFULLY DIFFERENT  
21 RESULTS THAN ORDINARY LEAST SQUARES REGRESSION?

22 A. No, it does not. Chart 9 (below) is a simple linear regression based on data included in Mr.  
23 Copeland’s workpapers. Here, I calculated the “Excess ROE” consistent with Equation

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<sup>102</sup> *Ibid.*, at 31.

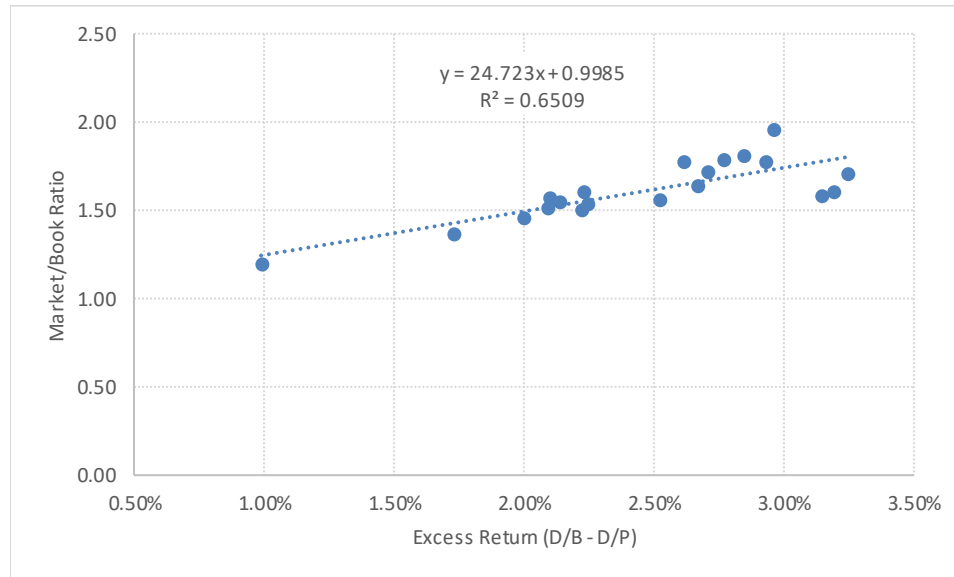
<sup>103</sup> I discuss the Least Absolute Deviation approach later in my Rebuttal Testimony.

<sup>104</sup> *See*, Exhibit \_\_\_(BLC-1), Schedule 1.

<sup>105</sup> And if we assume that constant dividend yield is 3.55 percent, we get the same slope coefficient.

1 [7]. As Chart 9 demonstrates, the intercept term is 0.9985, and the slope coefficient is  
2 24.73 (Mr. Copeland's LAD coefficients are 1.00 and 28.17, respectively).

3 **Chart 9: OLS Regression of Mr. Copeland's M/B and XROE Data**<sup>106</sup>



4  
5 Q. WHAT DO YOU CONCLUDE FROM THOSE ANALYSES?

6 A. My conclusions are threefold. First, Mr. Copeland's construction of the "Excess ROE",  
7 by definition, will equal zero when the M/B ratio equals 1.00. The fact that his (and my)  
8 analyses confirm that finding tells us nothing beyond what we already know: Utility stocks  
9 tend to trade at M/B ratios greater than 1.00.

10  
11 Second, Mr. Copeland's construction of the "Excess Return" requires the full acceptance  
12 of the Constant Growth DCF method. That acceptance goes beyond the assumptions on  
13 which that model relies; it requires us to assume it is the only model investors use to price  
14 assets, or to develop their return requirements. As discussed throughout my Rebuttal  
15 Testimony, that assumption is incorrect.

16  
17 Third, Mr. Copeland's view of the "LAD" approach's methodological benefits is  
18 overstated. Because utilities tend to have M/B ratios no less than 1.00, the intercept term

<sup>106</sup> Source: Market to Book, XROE.2018UPDATE



1 will approach 1.00 when the “Excess Return” is defined as Mr. Copeland has defined it.  
2 The statistical relationship Mr. Copeland wishes to estimate therefore will tend toward the  
3 intercept at 1.00, under either the “LAD” or Ordinary Least Squares methods.  
4

5 The analysis therefore boils down to the simple observation that utilities generally have,  
6 and have had M/B ratios greater than 1.00. I understand Mr. Copeland finds that market-  
7 based result unacceptable, but his LAD analysis does little to support his position that it is  
8 improper.

9 **5. Constant Growth DCF Model**

10 Q. PLEASE BRIEFLY SUMMARIZE MR. COPELAND’S APPLICATION OF THE  
11 CONSTANT GROWTH DCF MODEL.

12 A. Although we use the same general DCF approach, there are important differences in our  
13 applications. Specifically, Mr. Copeland averages the Yahoo! Financial and Zacks  
14 consensus estimates of projected earnings per share growth with Value Line estimates of  
15 dividend per share growth, book value per share growth, and the “percent retained to  
16 common equity” rate (sometimes referred to as the “sustainable growth rate”) to arrive at  
17 his growth rate for each proxy company. My approach relies on projected Earnings Per  
18 Share growth rates from Zacks, First Call,<sup>107</sup> and Value Line.

19 Q. ARE DIVIDEND AND BOOK VALUE GROWTH RATES APPROPRIATE  
20 MEASURES OF EXPECTED GROWTH IN THE CONSTANT GROWTH DCF  
21 MODEL?

22 A. No, both may be altered by decisions that do not reflect the earnings of the company, and  
23 only earnings growth rates are statistically related to stock prices. Earnings are the  
24 fundamental driver of both book value and dividend growth. Book value increases with  
25 the amount of earnings not distributed as dividends (that is, retained earnings), and the

---

<sup>107</sup> As noted in my Direct Testimony, Zacks and First Call provide consensus forecasts.

1 price at which new equity is issued is a function of the Earnings Per Share and the then-  
2 current Price/Earnings ratio.<sup>108</sup> Similarly, the ability to pay dividends depends  
3 fundamentally on expected earnings. Because dividend policy contemplates additional  
4 factors, including the disproportionately negative effect on prices resulting from dividend  
5 cuts, as opposed to dividend increases,<sup>109</sup> in the short-run dividend growth may be  
6 disconnected from earnings growth. In the long-run, however, dividends cannot be  
7 increased without earnings growth. Lastly, because investors often assess stock values  
8 based on Price/Earnings ratios, it is important to consider whether the growth rates used in  
9 the DCF model are related to those valuations measures.

10 Q. DO BOOK VALUE, DIVIDEND, OR SUSTAINABLE GROWTH RATES EXPLAIN  
11 UTILITY P/E RATIOS BETTER THAN EARNINGS GROWTH RATES?

12 A. No, they do not. To assess that question, I performed regression analyses of growth rates  
13 and utility P/E ratios and found projected earnings growth to be the only growth rate with  
14 a statistically strong and theoretically sound ability to explain changes in utility stock  
15 valuations.

16 Q. PLEASE DESCRIBE YOUR ANALYSES AND RESULTS.

17 A. My analyses are based on the approach developed by Professors Carleton and Vander  
18 Weide, who performed a comparison of the predictive capability of historical growth  
19 estimates and analysts' consensus forecasts of five-year earnings growth for the stock  
20 prices of sixty-five utility companies.<sup>110</sup> I structured the analysis to determine whether  
21 investors use earnings, dividend, book value, or sustainable growth rate when valuing  
22 utility stocks. My analyses examined the statistical relationship between the P/E ratios of  
23 the universe of Value Line utility companies, and the projected EPS, dividend per share,

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<sup>108</sup> Mr. Copeland apparently does not believe stock should be issued at prices meaningfully above Book Value.  
<sup>109</sup> See Servaes and Tufano, *Corporate Dividend Policy: The Theory and Practice of Corporate Dividend and Share Repurchase Policy*. Deutsche Bank, February 2006.

<sup>110</sup> Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of Portfolio Management, Spring 1988 at 81. Please note that while the original study was published in 1988, it was updated in 2004 under the direction of Dr. Vander Weide. The results of this updated study are consistent with Vander Weide and Carlton's original conclusions.

1 book value per share reported by Value Line, and  $br + sv$  sustainable growth rate calculated  
2 using Value Line data. To determine which, if any, of those growth rates are statistically  
3 related to utility stock valuations, I performed a series of regression analyses in which the  
4 projected growth rates were explanatory variables and the P/E ratio was the dependent  
5 variable. The results of those analyses are presented in Exhibit \_\_ (RBH-2), Schedule 9.

6  
7 In the first set of analyses I considered each growth rate separately (*i.e.*, I performed four  
8 separate regressions with P/E as the dependent variable and projected EPS, DPS, BVPS,  
9 and sustainable growth, respectively, as the independent variable). To ensure those  
10 individual analyses did not bias my results, I also performed a single regression analysis  
11 that included all four variables as potential explanatory variables. I then reviewed the T  
12 and F-Statistics to determine whether the variables and equations were statistically  
13 significant.<sup>111</sup>

14 Q. WHAT DID YOUR ANALYSES REVEAL?

15 A. As shown in Exhibit \_\_ (RBH-2), Schedule 9, the results demonstrate that the only positive,  
16 statistically significant growth rate was projected EPS growth. That is, none of DPS,  
17 BVPS, or sustainable growth rates were meaningfully related to valuation levels.  
18 Consequently, projected EPS growth rates are the appropriate measure of growth for the  
19 purpose of the DCF models.

20 Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE USE OF BOOK VALUE,  
21 DIVIDEND, AND SUSTAINABLE GROWTH RATES IN THE CONSTANT GROWTH  
22 DCF MODEL?

23 A. My analyses demonstrate that Mr. Copeland's position is not supported by data from Value  
24 Line, a source on which he relies in this proceeding. Because projected EPS growth is the  
25 only variable that has meaningful explanatory value, projected earnings growth should be

---

<sup>111</sup> In general, a T-Statistic of 2.00 or greater indicates that the variable is likely to be different than zero, or "statistically significant" (at the 95.00% confidence level, *i.e.*, a p-value less than 0.05). The F-Statistic is used to determine whether the model as a whole has statistically significant predictive capability.

1 the only variable used in the DCF analyses. That said, the use of the additional growth  
2 rates in this instance does not have a material effect on the difference between our DCF  
3 results. As discussed in Section II and in my Direct Testimony, the results of the DCF  
4 model should be viewed with caution and are not necessarily reliable estimates under  
5 current market conditions. As such, meaningful weight should be given to other methods  
6 in determining the appropriate ROE for OTP.

7 **6. *Non-Constant Growth DCF Model***

8 Q. SHOULD MR. COPELAND’S APPLICATION OF THE NON-CONSTANT GROWTH  
9 DIVIDEND DISCOUNT MODEL (“DDM”) BE RELIED ON TO DETERMINE THE  
10 ROE IN THIS PROCEEDING?

11 A. No. As explained below, I do not believe Mr. Copeland’s application of the Non-Constant  
12 DDM provides a reliable basis for determining the ROE in this proceeding.

13 Q. PLEASE DESCRIBE MR. COPELAND’S NON-CONSTANT GROWTH DDM.

14 A. Mr. Copeland’s model assumes non-constant growth rates to develop projected the  
15 projected EPS, along with projected dividend payout ratios (based on projected earnings  
16 retention rates) to calculate annual Dividends Per Share. For the period 2018 - 2022, Mr.  
17 Copeland applies the average analyst forecast earnings growth rate estimates from Yahoo!  
18 Finance and Zacks; for 2023 – 2037, he assumes a long-term earnings growth rate of 3.50  
19 percent, which is the median Value Line earnings retention rate from his proxy group. Mr.  
20 Copeland calculates the expected annual dividend for 2018 and 2022 based on Value Line  
21 retention rate estimates, and for 2037 based on the median retention rate from his proxy  
22 group in 2022. Mr. Copeland calculates a terminal value, and the Internal Rate of Return  
23 (“IRR”), which sets the current average stock price for the Proxy Group equal to the present  
24 value of projected dividends and the terminal value. With those assumptions, Mr.  
25 Copeland derives a median proxy group result of 7.05 percent.<sup>112</sup>

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<sup>112</sup> Testimony of Basil L. Copeland Jr., at 16 – 17.

1 Q. DO YOU HAVE CONCERNS WITH MR. COPELAND'S APPLICATION OF THE  
2 NON-CONSTANT GROWTH DDM?

3 A. Yes. Putting aside the unreasonably low estimate his analysis produces, I view Mr.  
4 Copeland's use of average analyst growth estimates (for the period 2018 – 2022) as a  
5 narrow approach. Whereas Mr. Copeland's approach produces a single point estimate, my  
6 method provides the range of DCF results reflecting low, mean and high analyst growth  
7 rates. In addition, Mr. Copeland's terminal value assumes a growth factor of 0.50x for the  
8 projected dividend in the following year, although the Gordon Growth model assumes a  
9 full year of annual dividend growth.<sup>113</sup> Mr. Copeland's DDM also assumes end-of-year  
10 discounting because of the use of his IRR Excel function which further emphasizes that the  
11 use of a 0.50x growth factor for the final year of dividends is incorrect.

12  
13 I also believe Mr. Copeland's 3.50 percent terminal growth rate is understated. Adjusting  
14 the actual real GDP growth rate of 3.21 percent from 1929 through 2017<sup>114</sup> from Mr.  
15 Copeland's long-term growth rate would leave an estimate for inflation of only 28 basis  
16 points. Even if we assume a long-term inflation rate of 2.00 percent, the implied perpetual  
17 real growth rate is about 1.47 percent.<sup>115</sup> In my experience, it is not reasonable to assume  
18 investors would accept equity risk, in perpetuity, for a 1.47 percent real growth rate. Given  
19 the volatility associated with equity investments, an investor may be better served buying  
20 and holding utility debt to maturity.<sup>116</sup>

21 Q. DO YOU HAVE ANY OTHER CONCERNS WITH THE USE OF RETENTION RATE  
22 AS THE MEASURE OF LONG-TERM GROWTH?

23 A. Yes. The retention rate assumes increasing retention ratios necessarily are associated with  
24 increasing future growth. The underlying premise is that future earnings will increase as

---

<sup>113</sup>  $Terminal\ Value = \frac{Dividend\ in\ the\ Following\ Year}{ROE - Growth\ Rate}$

<sup>114</sup> Direct Testimony of Robert B. Hevert at 28.

<sup>115</sup>  $1.47\% = \frac{1.035}{1.020} - 1$

<sup>116</sup> Even increasing the terminal growth rate to 5.45% does not produce a reliable ROE estimate.

1 the retention ratio increases. That is, if future growth is modeled as “b x r” (where “b” is  
2 the retention ratio and “r” is the earned return on book equity), growth will increase as “b”  
3 increases. There are several reasons, however, why that may not be the case.  
4 Consequently, it is appropriate to determine whether the data supports the assumption that  
5 higher earnings retention ratios necessarily are associated with higher future earnings  
6 growth rates.

7 Q. DID YOU PERFORM ANY ANALYSES TO TEST THAT ASSUMPTION?

8 A. Yes, I did. Using EPS and DPS data from Value Line, I calculated the historical dividend  
9 payout ratio, retention ratio, and subsequent five-year average earnings growth rate for  
10 each company used in Mr. Copeland’s proxy group. I then performed a regression analysis  
11 in which the dependent variable was the five-year earnings growth rate, and the explanatory  
12 variable was the earnings retention ratio. The purpose of that analysis was to determine  
13 whether the data empirically supports the assumption that higher retention ratios  
14 necessarily produce higher earnings growth rates.

15 Q. WHAT DID THAT ANALYSIS REVEAL?

16 A. As shown in Table 4 below, there was a statistically significant negative relationship  
17 between the five-year average earnings growth rate and the earnings retention ratio. That  
18 is, based on Value Line data, earnings growth actually decreased as the retention ratio  
19 increased. Those findings clearly call into question Mr. Copeland’s use of the retention  
20 ratio as a proxy for the long-term growth rate in his analysis.

21 **Table 4: Regression Results – Retention Ratio / Earnings Growth<sup>117</sup>**

	<b>Coefficient</b>	<b>Standard Error</b>	<b>t-Statistic</b>
Intercept	0.233	0.039	5.969
Retention Ratio	-0.253	0.046	-5.470

22 Q. DO THOSE RESULTS MAKE PRACTICAL SENSE?

---

<sup>117</sup> See Exhibit \_\_\_(RBH-2), Schedule 10.

1 A. Yes, they do. As a practical matter, dividend-paying companies (such as utilities) are  
2 reluctant to reduce dividends, given the often-disproportionate stock price reaction.  
3 Consequently, a higher than expected dividend increase may signal management's  
4 confidence in higher future earnings and cash flow. That is, a near-term reduction in the  
5 retention ratio supporting a higher dividend increase may provide information or  
6 "signaling" content regarding future growth prospects.<sup>118</sup> The principle that relatively high  
7 near-term dividend payout ratios (i.e., relatively low retention ratios) may be seen by  
8 investors as having important information content is consistent with my experience  
9 advising Boards of Directors regarding dividend policy.

10 Q. LASTLY, HAVE YOU CONSIDERED HOW REDUCED VALUATION MULTIPLES  
11 WOULD AFFECT MR. COPELAND'S DIVIDEND DISCOUNT MODEL RESULTS?

12 A. Generally, yes. If market prices are to be managed downward (toward book value, as Mr.  
13 Copeland recommends), those lower prices would produce DDM estimates even lower  
14 than the approximately 7.00 percent estimate Mr. Copeland presents, and on which he  
15 relies for his view regarding the Company's true Cost of Equity.

16  
17 As Mr. Copeland explains, his analysis allows the determination of a terminal value, or the  
18 price at which the subject company's stock would be sold in the year 2037<sup>119</sup> (which I refer  
19 to below as the "terminal year"). Mr. Copeland's Exhibit\_\_(BLC-1), Schedule 2 also  
20 provides data that provides a measure of the Price/Earnings ratio both initially, and in the  
21 terminal year. Although Mr. Copeland calculates the terminal value by applying the  
22 "Gordon" model, it also can be calculated as the product of the terminal year's Earnings  
23 Per Share and an assumed Price/Earnings ratio.

24

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<sup>118</sup> See Eugene F. Brigham, Louis C. Gapenski, Financial Management, Theory and Practice, Seventh Ed., 1994, at 618.

<sup>119</sup> Testimony of Basil L. Copeland Jr., at 17.

1 Based on Mr. Copeland's data, the initial and terminal Price/Earnings ratio is about 19.00  
2 (mean and median). If we assume the P/E ratio falls in proportion to the change in  
3 Market/Book ratios Mr. Copeland recommends (that is, from about 1.85 to 1.25, then to  
4 1.10), we can calculate a revised terminal P/E ratio corresponding to those changes.<sup>120</sup>  
5 Using that adjusted P/E ratio, we then can calculate the changed terminal value, and the  
6 adjusted DDM results.

7  
8 As shown in Exhibit \_\_ (RBH-2), Schedule 11, the reduced terminal value has a significant  
9 effect on the DDM results; reducing the M/B ratio to 1.25 and 1.10 indicate ROEs of about  
10 5.60 percent and 5.20 percent, respectively. Relative to the 4.80 percent BAA bond yields  
11 Mr. Copeland discusses at page 73 of his testimony, those results suggest equity premia of  
12 about 80 and 40 basis points, well below the 214 basis points he finds reasonable, and  
13 somewhat below the 5.94 percent return he suggests (at page 71) may seem "implausibly  
14 low".

15 Q. WHAT CONCLUSIONS DO YOU HAVE REGARDING MR. COPELAND'S DDM  
16 ANALYSIS?

17 A. Although I do not agree with many of the assumptions underlying Mr. Copeland's analysis,  
18 those differences do not reconcile our recommendations. Perhaps more important, if we  
19 carry Mr. Copeland's recommendation to reduce Market/Book ratios to his DDM analysis,  
20 the ROE estimate (leaving all else unchanged) would be considerably lower than the  
21 approximately 7.00 percent estimate he reports.

## 22 7. *Capital Asset Pricing Model*

23 Q. PLEASE DESCRIBE MR. COPELAND'S CAPM ANALYSIS.

24 A. Mr. Copeland presents a "back of the napkin" CAPM analysis,<sup>121</sup> which results in a 6.74  
25 percent estimate, as support for his ROE estimate of 7.00 percent. Mr. Copeland assumes

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<sup>120</sup> I appreciate that the change in the P/E ratio will not necessarily equal the change in the M/B ratio.

<sup>121</sup> Direct Testimony of Basil L. Copeland Jr., at 62.



1 a risk-free rate of 3.00 percent, a Beta coefficient of 0.52 based on “de-adjusted” Value  
2 Line Beta coefficients, and a Market Risk Premium of 7.20 percent.<sup>122</sup>

3 Q. DO YOU HAVE SPECIFIC CONCERNS WITH MR. COPELAND’S CAPM  
4 ANALYSIS?

5 A. Yes, I do. Mr. Copeland appears to give some weight to his CAPM analysis, as he presents  
6 it as one of the five analyses on page 4 of his Direct Testimony suggesting that “the cost  
7 of equity is presently about 7 percent...” His 6.74 percent result, however, is based on his  
8 assumption regarding the expected market return, and his use of “de-adjusted”, or “raw”  
9 Beta coefficients.

10 Q. DID MR. COPELAND REJECT ANY OF HIS CAPM RESULTS?

11 A. It appears he does. Although it is unclear what Mr. Copeland may believe is too low to  
12 merit consideration, he reasons that “[i]f 5.94 percent seems implausibly low for a cost of  
13 equity estimate for electric utilities at the present time, 6.74 percent certainly is not.”<sup>123</sup>

14 Q. AS A PRELIMINARY MATTER, DO YOU HAVE ANY CORRECTIONS TO MR.  
15 COPELAND’S CAPM ANALYSIS?

16 A. Yes. Mr. Copeland relies on a Market Risk Premium (“MRP”) of 7.20 percent to calculate  
17 his CAPM results. However, Mr. Copeland states that his CAPM result of 6.74 percent is  
18 based on the “back of the napkin” analysis presented on page 62 of his Direct Testimony,  
19 which relies on an MRP of 7.00 percent.<sup>124</sup> Correcting the MRP would further lower his  
20 CAPM result to 6.64 percent.

21 Q. WHAT ARE YOUR CONCERNS WITH MR. COPELAND’S MRP ESTIMATE?

22 A. In my view, Mr. Copeland’s 7.00 percent MRP essentially is arbitrary. The 7.00 percent  
23 estimate is based on a market return of 10.00 percent and a risk-free rate of 3.00 percent.

---

<sup>122</sup> *Ibid.*

<sup>123</sup> *Ibid.*, at 71.

<sup>124</sup> *Ibid.*

1 Mr. Copeland's basis for his 10.00 percent market return appears to be his position that,  
2 "[s]uppose we accept the upper limit of what 1,200 analysts think and presume that the  
3 expected total market return is 10.0 percent."<sup>125</sup> That is, Mr. Copeland reviewed the results  
4 of the Fernandez survey and assumed the appropriate market return is 10.00 percent. Mr.  
5 Copeland does not provide any support for why that is an appropriate estimate. He could  
6 have selected the mean result of 8.20 percent, which would have produced an ROE estimate  
7 of 5.70 percent.<sup>126</sup> That result is below the 5.94 percent result Mr. Copeland appears to  
8 believe is "implausibly low", and only 90 basis points above the 4.80 percent corporate  
9 Baa yield presented by Mr. Copeland on page 73 of his testimony.

10 Q. HAVE YOU UPDATED MR. COPELAND'S ANALYSIS BASED ON MORE RECENT  
11 DATA?

12 A. Yes, I did. I reviewed the Value Line Beta coefficients for the proxy companies presented  
13 in Exhibit\_\_(BLC-1), Schedule 7 as of February 15, 2019 and calculated the "de-  
14 adjusted" Beta coefficients. The proxy group average based on current data is 0.45.  
15 Replacing the Beta coefficient in Mr. Copeland's CAPM analysis with 0.45 results in an  
16 estimate of 6.15 percent.<sup>127</sup> Updating the Beta coefficients and using the average MRP  
17 noted above results in a CAPM estimate of 5.34 percent.<sup>128</sup> Those results are even lower  
18 than Mr. Copeland's estimate, and only somewhat above the corporate Baa yield.

19 Q. WHAT ARE YOUR CONCLUSIONS RELATED TO MR. COPELAND'S CAPM  
20 ANALYSIS?

21 A. Mr. Copeland's "back of the napkin" CAPM leads to results that are unrealistically low.  
22 Consequently, I do not agree with Mr. Copeland that the analysis provides support for his  
23 view that the Company's Cost of Equity currently is 7.00 percent.

---

<sup>125</sup> *Ibid.*, at 62.

<sup>126</sup>  $5.70\% = 3.00\% + 0.52 (8.20\% - 3.00\%)$

<sup>127</sup>  $6.15\% = 3.00\% + 0.45 (10.00\% - 3.00\%)$

<sup>128</sup>  $5.34\% = 3.00\% + 0.45 (8.20\% - 3.00\%)$

1 Q. PLEASE BRIEFLY SUMMARIZE MR. COPELAND’S CONCERNS REGARDING  
2 YOUR USE OF EXPECTED MARKET RETURNS.

3 A. Mr. Copeland states that the result “overestimate[s] what could be considered a *reasonable*  
4 estimate.”<sup>129</sup> To support his position, Mr. Copeland cites various surveys including the  
5 Duke Chief Financial Officers (“CFO”) survey and the Philadelphia Federal Reserve  
6 Survey of Professional Forecasters.<sup>130</sup>

7 Q. WHAT IS YOUR RESPONSE TO MR. COPELAND ON THOSE POINTS?

8 A. By referring to the survey by the Federal Reserve Bank of Philadelphia, Mr. Copeland  
9 suggests my estimated market return is inconsistent with those used by professional  
10 forecasters.<sup>131</sup> On reviewing that survey, I note fewer than half of the survey participants  
11 (16 of 36) responded to the question regarding the expected return for the S&P 500 over  
12 the next ten years.<sup>132</sup> Similarly, 21 of 36 responded to the question regarding expected  
13 return on ten-year Treasury bonds. Because a considerable portion of the survey  
14 respondents did not answer those questions, we cannot confidently say the estimates  
15 represent the market’s expected total return.

16

17 As for the Duke CFO survey, over time the survey results have rather significantly  
18 underestimated actual market performance (*see*, Table 5, below).

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<sup>129</sup> Direct Testimony of Basil L. Copeland Jr, at 58. [emphasis in original]

<sup>130</sup> *Ibid.*, at 66, 68.

<sup>131</sup> *Ibid.*, at 68.

<sup>132</sup> See, Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters, First Quarter of 2018 at 19.

1

**Table 5: S&P 500 Market Return: Accuracy of Survey Estimates<sup>133</sup>**

	<b>Actual</b>	<b>Survey Estimate</b>
2017	21.83%	5.00%
2016	11.96%	4.32%
2015	1.38%	6.07%
2014	13.69%	5.00%
2013	32.39%	3.40%
2012	16.00%	4.00%
2011	2.11%	5.30%
2010	15.06%	6.28%
Average	13.23%	4.92%

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The Duke CFO Survey authors also have noted a distinction between the expected market return on one hand, and the “hurdle rate” on the other. In the Third Quarter 2017, survey, the authors reported an average hurdle rate, which is the return required for capital investments, of 13.50 percent. The authors further reported that the average Weighted Average Cost of Capital (“WACC”), which includes the cost of debt, was 9.20 percent even though the expected market return was 6.50 percent.<sup>134</sup> Those points aside, the 6.50 percent expected market return is lower than Mr. Copeland’s 7.00 percent estimate of the Company’s Cost of Equity,<sup>135</sup> a condition that cannot hold if utilities are less risky than the overall market.

12

Q. WHAT ARE YOUR OBSERVATIONS RELATED TO THE MARKET RISK PREMIA PRESENTED ON PAGES 49 AND 59 OF MR. COPELAND’S DIRECT TESTIMONY?

13

14

15

16

17

18

A. Using Mr. Copeland’s market risk premia lead to estimates of the Cost of Equity that are comparable to the 4.80 percent corporate Baa yield, an implausibly low result. Market Risk Premia presented in the chart provided at page 59 of Mr. Copeland’s testimony range from 4.00 percent to 5.50 percent. As Mr. Copeland notes, assuming his 3.00 percent risk-free rate, the return for the market as a whole would be in the 7.00 percent to 8.50 percent

<sup>133</sup> Source: Duff and Phelps, 2018 SBBI Yearbook Appendix A-1; <http://www.cfosurvey.org> (1-year return estimates as of fourth quarter of the previous year).

<sup>134</sup> Duke/CFO Magazine Global Business Outlook survey – U.S., Third Quarter 2017.

<sup>135</sup> Because utilities generally are considered less risky than the overall market, based on the Duke CFO survey, the Company’s authorized ROE should be less than 6.50 percent, a highly impractical conclusion.

1 range. He also notes, utilities are generally “below average market risk,” evidenced by  
2 Beta coefficients lower than 1.00. Again, Mr. Copeland suggests that the use of a raw Beta  
3 coefficient of 0.52 is reasonable (0.45 based on current data). Assuming Mr. Copeland’s  
4 risk-free rate, Beta coefficient and Market Risk Premia between 4.00 and 5.50 percent  
5 suggests a CAPM result of 5.08 percent to 5.86 percent (or 4.80 percent to 5.48 percent  
6 based on current data). As noted above, those results are at, or only somewhat above, the  
7 4.80 percent corporate Baa yield Mr. Copeland presents at page 73. That implausibly low  
8 result calls into question the analysis’ usefulness.

9 Q. DO ANY OF THE AUTHORS CITED IN MR. COPELAND’S EQUITY RISK  
10 PREMIUM SURVEY PROVIDE SUPPORT FOR YOUR APPROACH TO  
11 ESTIMATING THE MRP?

12 A. Yes. Mr. Copeland cites to a 2018 survey by Pablo Fernandez, *et al.* The study by Pablo  
13 Fernandez published in 2018 discusses how the required Equity Risk Premium is  
14 commonly calculated using the Constant Growth DCF approach. That study states:

15 [t]he [implied equity premium] is the implicit [required equity premium]  
16 used in the valuation of a stock (or market index) that matches the current  
17 market price. The most widely used model to calculate the [implied equity  
18 premium] is the dividend discount model: the current price per share ( $P_0$ ) is  
19 the present value of expected dividends discounted at the required rate of  
20 return ( $K_e$ ). If  $d_1$  is the dividend per share expected to be received in year  
21 1, and  $g$  the expected long term growth rate in dividends per share:

22  $P_0 = d_1 / (K_e - g)$ , which implies:

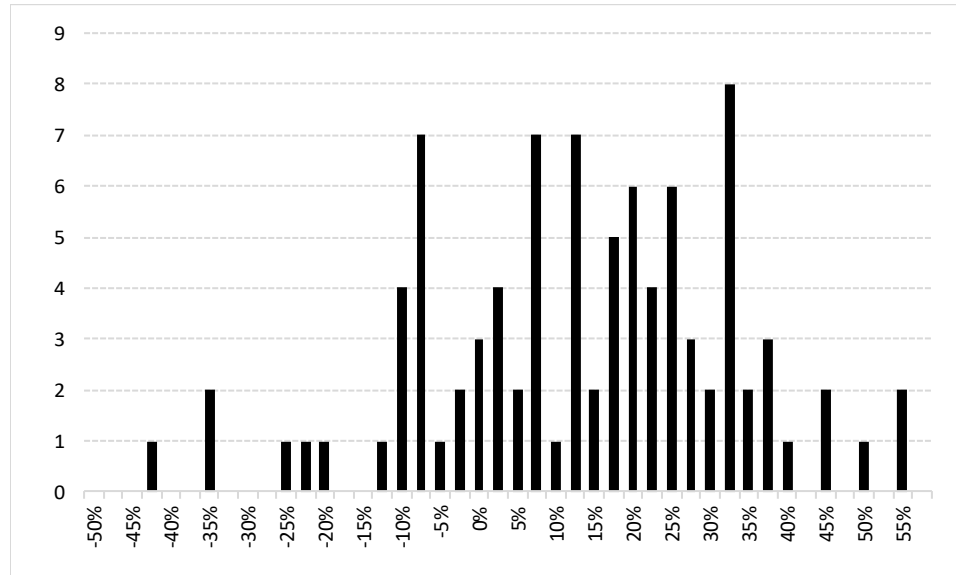
23 [implied equity premium] =  $d_1/P_0 + g - R_f$

24 As discussed in my Direct Testimony, I calculated the ex-ante MRP in a similar manner,  
25 using a market capitalization weighted Constant Growth DCF calculation on the individual  
26 companies in the S&P 500 Index.

27 Q. HAVE YOU CONSIDERED HOW YOUR MARKET RETURN AND MARKET RISK  
28 PREMIUM ESTIMATES COMPARE TO HISTORICAL OBSERVATIONS?

1 A. Yes, I have. I compared my DCF-based market return results to actual observed returns  
 2 from 1926 to 2017 and found that the 14.84 percent and 15.54 percent estimates presented  
 3 in my Direct Testimony, which Mr. Copeland asserts are “out of the norm”, represent  
 4 approximately the 52<sup>nd</sup> percentile of the actual returns. In other words, of the 92 annual  
 5 observations, 44 were 15.54 percent or higher (see Chart 10, below). By that measure, my  
 6 estimate is not too high; it is entirely consistent with the historical experience. Moreover,  
 7 given the historical volatility in market returns (as noted by Duff & Phelps, the long-term  
 8 standard deviation of returns is 19.80 percent<sup>136</sup>), my total return estimates of 14.84 percent  
 9 and 15.54 percent are not unreasonable.<sup>137</sup>

10 **Chart 10: Frequency Distribution of Observed Market Returns,**  
 11 **1926 - 2017<sup>138</sup>**



12  
 13  
 14 Mr. Copeland also asserts the Market Risk Premia estimated from my projected market  
 15 returns are overstated.<sup>139</sup> I therefore gathered the annual Market Risk Premia reported by

<sup>136</sup> The standard deviation on the rate of return on an investment is a measure of the volatility of the investment. For large company stocks, the average variation in the annual market return around the long-term average return of 12.06 percent is 19.80 percent, indicating a high level of volatility.

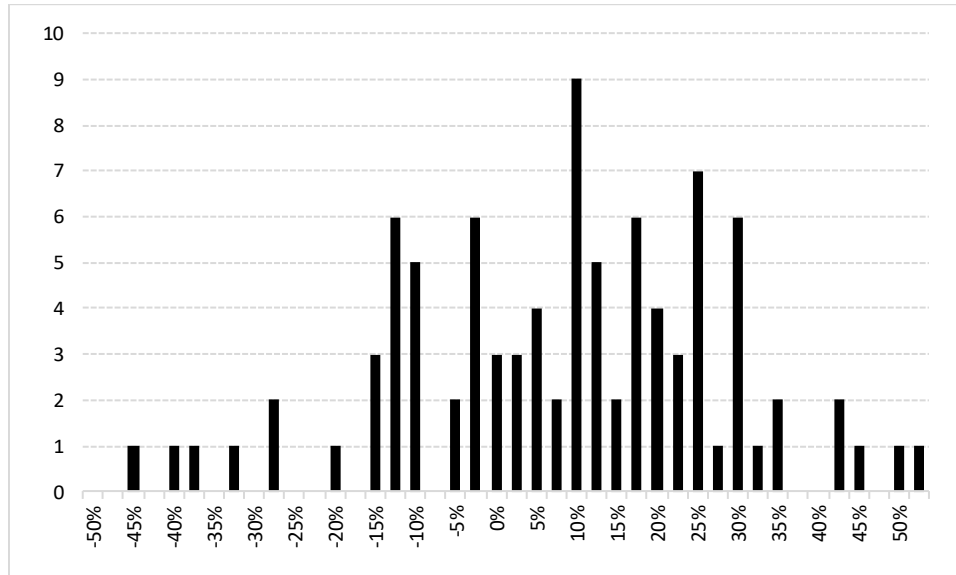
<sup>137</sup> See Duff & Phelps, 2018 SBBI Yearbook at Appendix A-1, A-7, Exhibit \_\_ (RBH-2), Schedule 11.

<sup>138</sup> See Duff & Phelps, 2018 SBBI Yearbook at Appendix A-1, Exhibit \_\_ (RBH-2), Schedule 11.

<sup>139</sup> Direct Testimony of Basil L. Copeland, at 58.

1 Duff and Phelps and produced a histogram of the observations. The results of that analysis,  
2 which are presented in Chart 11, demonstrate MRPs of at least 12.49 percent (the high end  
3 of the range of the MRP estimates in my Direct Testimony) occur approximately half of  
4 the time.

5 **Chart 11: Frequency Distribution of Observed Market Risk Premia,**  
6 **1926 - 2017<sup>140</sup>**



7  
8 Q. DO YOU AGREE WITH MR. COPELAND'S USE OF "DE-ADJUSTED" BETA  
9 COEFFICIENTS?

10 A. No, I do not. Beta coefficients are measured using an Ordinary Least Squares regression,  
11 in which the dependent variable is the return of the subject security, and the independent  
12 variable is the return on the market as measured by a given index (Value Line, for example,  
13 uses the New York Stock Exchange Index). The Beta coefficient is represented by the  
14 slope term of the regression estimates (*see*, Equation [4] on page 31 of my Direct  
15 Testimony). Intuitively, the Beta coefficient measures the change in the subject company's  
16 returns relative to the change in the market return.

17  

---

<sup>140</sup> Exhibit \_\_ (RBH-2), Schedule 11.

1 The resulting Beta coefficient is considered “raw”, or unadjusted. Blume studied the  
2 stability of Beta coefficients over time, and found that “[n]o economic variable including  
3 the beta coefficient is constant over time.”<sup>141</sup> Consistent with that finding, Blume observed  
4 a tendency of raw Beta coefficients to change gradually over time. Blume further stated:

5 ...there is obviously some tendency for the estimated values of the risk  
6 parameter [beta] to change gradually over time. This tendency is most  
7 pronounced in the lowest risk portfolios, for which the estimated risk in the  
8 second period is invariably higher than that estimated in the first period.  
9 There is some tendency for the high risk portfolios to have lower estimated  
10 risk coefficients in the second period than in those estimated in the first.  
11 Therefore, the estimated values of the risk coefficients in one period are  
12 biased assessments of the future values, and furthermore the values of the  
13 risk coefficients as measured by the estimates of  $\beta_1$  tend to regress towards  
14 the means with this tendency stronger for the lower risk portfolios than the  
15 higher risk portfolios. (emphasis added)

16 Blume proposed a correction for this tendency, also known as “regression bias”, which is  
17 inherent in the calculation of all Beta coefficients. He stated:

18 In so far as the rate of regression towards the mean is stationary over time,  
19 one can in principle correct for this tendency in forming one’s assessments.

20 \* \* \*

21 For individual securities as well as portfolios of two or more securities, the  
22 assessments adjusted for the historical rate of regression are more accurate  
23 than the unadjusted or naïve assessments. Thus, an improvement in the  
24 accuracy of one’s assessments of risk can be obtained by adjusting for the  
25 historical rate of regression even though the rate of regression over time is  
26 not strictly stationary.<sup>142</sup>

27  
28 Based on Blume’s results, the typical adjustment is calculated based upon an approximate  
29 of the following formula:

$$\beta_{\text{adjusted}} = 0.35 + 0.67 \times \beta_{\text{raw (unadjusted)}} \quad \text{Equation [12]}$$

31  
32 As noted by Dr. Morin:<sup>143</sup>

---

<sup>141</sup> Marshal E. Blume, *On the Assessment of Risk*, The Journal of Finance, Vol. XXVI, No. 1, March 1971.

<sup>142</sup> *Ibid.*

<sup>143</sup> Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at 73.



1 Several authors have investigated the regression tendency of beta and  
2 generally reached similar conclusions [as Blume]. High-beta portfolios  
3 have tended to decline over time toward unity, while low-beta portfolios  
4 have tended to increase over time toward unity...He demonstrates that the  
5 Value Line adjustment procedure anticipates differences between past and  
6 future betas.

7 Dr. Morin further notes:<sup>144</sup>

8 A comprehensive study of beta measurement methodology by Kryzanowski  
9 and Jalilvand (1983) concludes that raw unadjusted beta (OLS beta) is one  
10 of the poorest beta predictors, and is outperformed by the Merrill Lynch-  
11 style Bayesian beta approach. Gombola and Kahl (1990) examine the time-  
12 series properties of utility betas and find strong support for the application  
13 of adjustment procedures such as the Value Line and Merrill Lynch  
14 procedures.

15 Because of this observed regressive tendency, a company's raw unadjusted  
16 beta is not the appropriate measure of market risk to use. Current stock  
17 prices reflect expected risk, that is, expected beta, rather than historical risk  
18 or historical beta. Historical betas, whether raw or adjusted, are only  
19 surrogates for expected beta. The best of the two surrogates is adjusted beta

20 Dr. Morin also provides economic and statistical justification for using adjusted betas to  
21 estimate the Cost of Equity for utilities. Relative to economic justification, he states:<sup>145</sup>

22 Adjusted betas compensate for the tendency of regulated utilities to be extra  
23 interest-sensitive relative to industrials.<sup>(footnote omitted)</sup> In the same way that  
24 bondholders get compensated for inflation through an inflation premium in  
25 the interest rate, utility shareholders receive compensation for inflation  
26 through an inflation premium in the allowed rate of return. Thus, utility  
27 company returns are sensitive to fluctuations in interest rates. Conventional  
28 betas do not capture this extra sensitivity to interest rates. This is because  
29 the market index typically used in estimating betas is a stock-only index,  
30 such as the S&P 500. A focus on stocks alone distorts the betas of regulated  
31 companies. The true risk of regulated utilities relative to other companies  
32 is understated because when interest rates change, the stocks of regulated  
33 companies react in the same way as bonds do. A nominal interest rate on  
34 the face value of a bond offers the same pattern of future cash flows as a  
35 nominal return applied on a book value rate base. Empirical studies of  
36 utility returns confirm that betas are higher when calculated in a way that  
37 captures interest rate sensitivity. *The use of adjusted betas compensates for*

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<sup>144</sup> *Ibid.*

<sup>145</sup> *Ibid.*, at 73-74.

1 *the interest sensitivity of regulated companies. (italics added for emphasis)*

2 Relative to statistical justification, Dr. Morin states:<sup>146</sup>

3 Statistically, betas are estimated with error. High-estimated betas will tend  
4 to have positive error (overestimated) and low-estimated betas will tend to  
5 have negative error (underestimated). Therefore, it is necessary to squash  
6 the estimated betas in toward 1.00. One way to accomplish this is by  
7 measuring the extent to which estimated betas tend to regress toward the  
8 mean over time. As a result of this beta drift, several commercial beta  
9 producers adjust their forecasted betas toward 1.00 in an effort to improve  
10 their forecasts. This adjustment, which is commonly performed by  
11 investment services such as Value Line, Bloomberg, and Merrill Lynch,  
12 uses the formula:

$$13 \quad \beta_{\text{adjusted}} = 1.0 + a (\beta_{\text{raw}} - 1.0) \quad (3-4)$$

14 where “a” is an estimate of the extent to which estimated betas regress  
15 toward the mean based on past data. Value Line, Bloomberg, and Merrill  
16 Lynch betas are adjusted for their long-term tendency to regress toward 1.0  
17 by giving approximately 66% weight to the measured beta and  
18 approximately 34% weight to the prior value of 1.0 for each stock, that is, a  
19 = 0.66 in the above equation:

$$20 \quad \beta_{\text{adjusted}} = 1.0 + 0.66 (\beta_{\text{raw}} - 1.0) \\ 21 \quad \quad \quad = 0.33 + 0.66 \beta_{\text{raw}} \quad (3-5)$$

22  
23 Based on Blume’s results, Value Line adjusts its “raw” Beta coefficients according to the  
24 following formula:  $\beta_{\text{adjusted}} = 0.35 + (0.67 \times \beta_{\text{raw}})$ . Bloomberg’s adjustment is similar:  
25  $\beta_{\text{adjusted}} = 0.33333 + (0.66666 \times \beta_{\text{raw}})$ . Because we are determining the investor-required  
26 Cost of Equity in this proceeding, it is appropriate to rely on methods used by investors.  
27 Given the commercial use and acceptance of adjusted Beta coefficients, it is my view that  
28 they are the proper measure of systematic risk in the CAPM.

29 Q. DO YOU AGREE WITH MR. COPELAND’S USE OF UNADJUSTED BETAS BASED  
30 ON A CITATION TO A DISSERTATION RELATED TO THE EMPIRICAL CAPITAL  
31 ASSET PRICING MODEL’S ABILITY TO ESTIMATE THE ROE FOR UTILITIES?

---

<sup>146</sup> *Ibid.*, at 74.

1 A. No, I do not. As explained below, because the ECAPM and adjusted Beta coefficients  
2 address different aspects of security pricing, their combined use is not redundant. The  
3 Empirical CAPM reflects published research finding companies with lower Beta  
4 coefficient tend to have higher returns than those predicted by the CAPM, and higher Beta  
5 coefficient companies tend to have lower returns than expected.<sup>147</sup> Beta coefficient  
6 adjustments, on the other hand, address the tendency of “raw” Beta coefficients to regress  
7 toward the market mean of 1.00 over time. The two are different issues and are  
8 appropriately addressed with different methods.

9  
10 Although Mr. Copeland cites to a single doctoral dissertation from 1998 regarding the  
11 relationship between the ECAPM and Beta coefficients,<sup>148</sup> Fama and French described the  
12 empirical issue addressed by the ECAPM when they noted that “[t]he returns on the low  
13 beta portfolios are too high, and the returns on the high beta portfolios are too low.”<sup>149</sup>  
14 Similarly, Dr. Morin observed that “[w]ith few exceptions, the empirical studies agree that  
15 ... low-beta securities earn returns somewhat higher than the CAPM would predict, and  
16 high-beta securities earn less than predicted.”<sup>150</sup> As Dr. Morin also explained, the ECAPM  
17 “makes use” of those findings, and estimates the Cost of Equity based on the following  
18 equation:<sup>151</sup>

$$k_e = R_f + \alpha + \beta(MRP - \alpha) \quad \text{Equation [13]}$$

19  
20 where  $\alpha$ , or “alpha”, is an adjustment to the risk/return line, and “MRP” is the Market Risk  
21 Premium (defined above). Summarizing empirical evidence regarding the range of  
22 estimates for alpha, Dr. Morin explained that the model “reduces to the following more  
23 pragmatic form”<sup>152</sup>:

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<sup>147</sup> Direct Testimony of Robert B. Hevert, at 32. See, also, Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at 175-176.

<sup>148</sup> See Direct Testimony of Basil L. Copeland, Jr., at 69.

<sup>149</sup> Eugene F. Fama and Kenneth R. French, *The Capital Asset Pricing Model: Theory and Evidence*, Journal of Economic Perspectives, Vol. 18, No. 3, Summer 2004, at 33.

<sup>150</sup> Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at 175.

<sup>151</sup> *Ibid.*, at 189.

<sup>152</sup> *Ibid.*, at 190. Equations [13] and [14] tend to produce similar results when “alpha” is in the range of 1.00 percent to 2.00 percent. As Dr. Morin explains, alpha coefficients in that range are highly consistent with those identified in prior published research.

1 
$$k_e = R_f + 0.25(R_m - R_f) + 0.75\beta(R_m - R_f) \quad \text{Equation [14]}$$

2 where:

3  $k_e$  = the investor-required ROE;

4  $R_f$  = the risk-free rate of return;

5  $\beta$  = Adjusted Beta coefficient of an individual security; and

6  $R_m$  = the required return on the market.

7

8 Further, as Dr. Morin observed:

9 Fundamentally, the ECAPM is not an adjustment, increase or decrease, in  
10 beta. This is obvious from the fact that the expected return on high beta  
11 securities is actually lower than that produced by the CAPM estimate. The  
12 ECAPM is a formal recognition that the observed risk-return tradeoff is  
13 flatter than predicted by the CAPM based on myriad empirical evidence.  
14 *The ECAPM and the use of adjusted betas comprised two separate features*  
15 *of asset pricing...Both adjustments are necessary.*<sup>153</sup>

16 **8. Bond Yield Plus Risk Premium Approach**

17 Q. PLEASE SUMMARIZE MR. COPELAND'S CONCERNS WITH YOUR BOND YIELD  
18 PLUS RISK PREMIUM APPROACH.

19 A. Mr. Copeland does not believe authorized returns are an appropriate benchmark for the  
20 purposes of the Bond Yield Plus Risk Premium approach. In this view, authorized returns  
21 consistently overstate the Cost of Equity:

22 First and most important is the proxy that Mr. Hevert uses for the risk  
23 premium: allowed returns on equity. This lands us squarely back with the  
24 issue already discussed at length about the abundant evidence of excess  
25 returns from historical earned rates of return on equity reflected in market-  
26 to-book ratios... Now we have Mr. Hevert using allowed rates of return to  
27 calculate an implied risk premium. *That just makes matters worse.*<sup>154</sup>

28 Q. WHAT IS YOUR RESPONSE TO MR. COPELAND ON THOSE POINTS?

29 A. As noted in Section III.1 and in my Direct Testimony, the *Hope* and *Bluefield* guidelines  
30 establish that the fair rate of return on equity should be comparable to returns investors

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<sup>153</sup> Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at 191.

<sup>154</sup> Direct Testimony of Basil L. Copeland Jr., at 75. [emphasis in original]

1 expect to earn on other investments of similar risk. In my experience, regulatory  
2 commissions fully weigh the results of various models, analyses and expert testimony  
3 presented before them, and use that information to determine a fair ROE that meets the  
4 *Hope* and *Bluefield* standards. Further, and as noted earlier, because utilities often disclose  
5 authorized returns it is difficult to imagine they are not considered by investors in selecting  
6 among investment alternatives.

7  
8 Moreover, and as explained in Section III.2, the M/B ratio is affected by numerous factors  
9 other than the authorized ROE, and as such, the fact that market-to-book ratios exceed 1.00  
10 does not provide conclusive evidence that authorized returns are overstated. If that were  
11 the case, all regulatory commissions with jurisdiction over the operating companies owned  
12 by Mr. Copeland's proxy companies (including the Commission, which has jurisdiction  
13 over OTP) would have consistently and systematically overstated ROEs. That is, they all  
14 would have been consistently and significantly wrong for decades. As such, I continue to  
15 believe that my Bond Yield Plus Risk Premium approach is reasonable and appropriate  
16 estimate of OTP's ROE.

17 Q. WHAT IS YOUR RESPONSE TO MR. COPELAND'S EXCESS ALLOWED ROE  
18 ANALYSIS?<sup>155</sup>

19 A. I disagree with his approach and conclusions. As to his approach, Mr. Copeland calculates  
20 the median required rate of return by reference to his "Excess ROE" analysis for each  
21 company in the Value Line electric universe. Mr. Copeland then calculates the average  
22 authorized return for electric utilities in the prior year. His estimate of the excess allowed  
23 ROE is the difference between those two numbers, on average about 2.20 percent.<sup>156</sup> Mr.  
24 Copeland subtracts that 2.20 percent "spread" from the average 6.20 percent Equity Risk  
25 Premium contained in my Bond Yield Plus Risk Premium analysis (since 1999), and  
26 reasons the implied Equity Risk Premium is 400 basis points.

---

<sup>155</sup> Direct Testimony of Basil L. Copeland, at 76.

<sup>156</sup> See *Ibid.*, Mr. Copeland's workpapers, Market to Book, XROE.2018UPDATE.xlsx, at rows 668 – 681.

1 My first concern with Mr. Copeland’s approach is his calculation of the required return,  
2 which I address in Section III.2. Because that approach produces unduly low estimates of  
3 the required return, his “Excess Allowed Return” analysis will produce unduly low results.  
4 Beyond that, Mr. Copeland’s analysis compares the required return at the parent company  
5 level to authorized returns which are at the operating company level. In addition, Mr.  
6 Copeland does not compare the authorized ROE of a specific company to its required  
7 return. He simply considers the difference between the median required return in one year  
8 and the average authorized return in the year prior, with no consideration of the companies  
9 which were authorized return in any given year. For example, in 2000 there were only 14  
10 electric rate cases for which an authorized ROE was disclosed. Mr. Copeland includes 28  
11 parent companies in his calculation of the required return in 2001.

12  
13 Lastly, Mr. Copeland’s approach assumes the spread is static and does not vary with the  
14 level of interest rates. His own data, however, indicates that is not that case - the two are  
15 strongly negatively correlated (the correlation between the BAA yield and his “spread” is  
16 negative 74.48 percent). In that respect, his “spread” parameter shares a common trait with  
17 the Equity Risk Premium; it is inversely related to changes in interest rates.

#### IV. SUMMARY OF UPDATED RESULTS AND CONCLUSIONS

18 Q. HAVE THERE BEEN ANY CHANGES TO YOUR PROXY GROUP SINCE YOU  
19 FILED YOUR DIRECT TESTIMONY?

20 A. Yes. Based on current information I have removed two proxy companies (Alliant Energy  
21 Corporation and IDACORP, Inc.) and added one proxy company (Pinnacle West Capital  
22 Corporation). Alliant Energy Corporation currently has a market capitalization above \$10  
23 billion, and as such, no longer meets the screening criteria described on pages 13 through  
24 14 of my Direct Testimony. The July 27, 2018 Value Line report for IDACORP, Inc. states  
25 its recent high stock price reflects takeover speculation. Consequently, I have removed  
26 IDACORP from my proxy group. Lastly, based on updated data Pinnacle West Capital  
27 Corporation now meets all my screening criteria. As such, I have added it to my proxy  
28 group. Table 6 summarizes the companies in my “Updated Proxy Group”.

1

**Table 6: Updated Proxy Group**

<b>Company</b>	<b>Ticker</b>
ALLETE, Inc.	ALE
Black Hills Corporation	BKH
El Paso Electric Company	EE
Hawaiian Electric Industries, Inc.	HE
NorthWestern Corporation	NWE
OGE Energy Corp.	OGE
Pinnacle West Capital Corporation	PNW
PNM Resources, Inc.	PNM

2

3 Q. PLEASE SUMMARIZE THE ANALYTICAL UPDATES CONTAINED IN YOUR  
4 REBUTTAL TESTIMONY.

5 A. Tables 7a and 7b (below) summarizes my updated analytical results (*see also*  
6 Exhibit\_\_(RBH-2), Schedules 1 through 6). As discussed in my Direct Testimony, all  
7 models used to estimate the Cost of Equity are subject to limiting assumptions or other  
8 constraints. As also noted in my Direct Testimony, because adherence to any single  
9 approach, or the results of any one approach, can result in misleading conclusions, a  
10 reasonable ROE estimate weighs the individual and collective results of multiple methods.  
11 Because the capital markets have become increasingly unsettled, with several measures  
12 indicating increasing capital costs, it is especially important to consider the breadth of  
13 quantitative and qualitative information contained in my Rebuttal Testimony.

**Table 7a: Summary of Updated DCF Results<sup>157</sup>**

	Mean Low	Mean	Mean High
<i>Constant Growth DCF – Including Flotation Costs<sup>158</sup></i>			
30-Day Constant Growth DCF	7.75%	8.90%	10.26%
90-Day Constant Growth DCF	7.79%	8.94%	10.31%
180-Day Constant Growth DCF	7.92%	9.07%	10.44%
<i>Multi-Stage DCF – Including Flotation Costs</i>			
30-Day Multi-Stage DCF	8.67%	8.92%	9.22%
90-Day Multi-Stage DCF	8.68%	8.93%	9.22%
180-Day Multi-Stage DCF	8.76%	9.01%	9.31%

**Table 7b: Summary of Risk Premium Results<sup>159</sup>**

	Bloomberg Derived Market Risk Premium	Value Line Derived Market Risk Premium
<i>Average Bloomberg Beta Coefficient</i>		
Current 30-Year Treasury (3.03%)	8.40%	10.09%
Near Term Projected 30-Year Treasury (3.33%)	8.70%	10.39%
<i>Average Value Line Beta Coefficient</i>		
Current 30-Year Treasury (3.03%)	10.07%	12.29%
Near Term Projected 30-Year Treasury (3.33%)	10.37%	12.59%
<i>Bond Yield Plus Risk Premium Approach</i>		
Current 30-Year Treasury (3.03%)	9.93%	
Near Term Projected 30-Year Treasury (3.33%)	9.98%	
Long Term Projected 30-Year Treasury (4.05%)	10.17%	

1           Developing and establishing a Cost of Equity recommendation requires an element of  
2           judgment. That judgment should consider the reasonableness of model results and the  
3           economic environment in which the analyses were undertaken.<sup>160</sup> As discussed earlier in  
4           my Rebuttal Testimony, recent trends in the Constant Growth DCF results are difficult to

<sup>157</sup> See also Exhibit \_\_ (RBH-2), Schedules 1 and 2.

<sup>158</sup> Constant Growth DCF results exclude ALLETE, Inc., El Paso Electric Company, Northwestern Corporation.

<sup>159</sup> See also Exhibit \_\_ (RBH-2), Schedule 5 and Schedule 6.

<sup>160</sup> See Direct Testimony of Robert B. Hevert, at 8.



1 reconcile with other measures of market conditions, included ROEs authorized by other  
2 regulatory commissions. In addition, as discussed in my Direct Testimony, there are  
3 certain additional factors which should be considered when determining a  
4 recommendation, such as OTP's relatively high level of capital expenditures, the relatively  
5 small size of OTP, OTTR's relatively low level of institutional ownership, low trading  
6 volume, and low liquidity, and OTTR's relative Beta coefficient. OTP also achieved  
7 substantial customer savings, while maintaining the highest levels of customer service and  
8 satisfaction.

9  
10 My recommendations therefore take into consideration the results of my Cost of Equity  
11 analyses in the context of current and expected capital market conditions, the factors noted  
12 above, and the need for utilities such as OTP to maintain the financial integrity required to  
13 access capital at reasonable costs even in constrained capital markets. It is further supported  
14 by the premium required to compensate investors for the risks associated with a constant  
15 ROE for "Phase-In" capital projects. With such considerations in mind, the analyses and  
16 data discussed throughout my Rebuttal Testimony continue to support my recommended  
17 Cost of Equity of 10.30 percent, within a range of 10.00 percent to 10.60 percent.

18 Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

19 A. Yes, it does.

Constant Growth Discounted Cash Flow Model  
30 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.35	\$75.79	3.10%	3.17%	NA	6.00%	3.50%	4.75%	6.66%	7.92%	9.19%
Black Hills Corporation	BKH	\$2.02	\$66.05	3.06%	3.14%	4.70%	4.46%	6.50%	5.22%	7.59%	8.36%	9.66%
El Paso Electric Company	EE	\$1.44	\$51.25	2.81%	2.87%	4.40%	5.10%	3.00%	4.17%	5.85%	7.04%	7.98%
Hawaiian Electric Industries, Inc.	HE	\$1.28	\$36.69	3.49%	3.59%	6.40%	7.80%	3.50%	5.90%	7.05%	9.49%	11.42%
Northwestern Corporation	NWE	\$2.30	\$62.50	3.68%	3.73%	2.60%	2.59%	2.50%	2.56%	6.23%	6.29%	6.33%
OGE Energy Corp.	OGE	\$1.46	\$40.48	3.61%	3.71%	5.20%	NA	6.00%	5.60%	8.90%	9.31%	9.71%
PNM Resources, Inc.	PNM	\$1.16	\$41.99	2.76%	2.84%	4.70%	4.10%	7.50%	5.43%	6.92%	8.27%	10.37%
Pinnacle West Capital Corporation	PNW	\$2.95	\$86.95	3.39%	3.48%	4.60%	4.16%	6.00%	4.92%	7.62%	8.40%	9.49%
Proxy Group Mean				3.24%	3.32%	4.66%	4.89%	4.81%	4.82%	7.10%	8.13%	9.27%
Proxy Group Median				3.25%	3.33%	4.70%	4.46%	4.75%	5.07%	6.98%	8.31%	9.58%
Proxy Group Mean - Including Flotation Costs										7.23%	8.26%	9.40%
Proxy Group Median - Including Flotation Costs										7.11%	8.45%	9.71%
Proxy Group Mean Excl. ALE, EE, NWE				3.26%	3.35%	5.12%	5.13%	5.90%	5.41%	7.62%	8.76%	10.13%
Proxy Group Median Excl. ALE, EE, NWE				3.39%	3.48%	4.70%	4.31%	6.00%	5.43%	7.59%	8.40%	9.71%
Proxy Group Mean Excl. ALE, EE, NWE - Including Flotation Costs										7.75%	8.90%	10.26%
Proxy Group Median Excl. ALE, EE, NWE - Including Flotation Costs										7.72%	8.53%	9.85%
Flotation Costs										0.13%	0.13%	0.13%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals indicated number of trading day average as of February 15, 2019

[3] Equals [1] / [2]

[4] Equals [3] x (1 + 0.5 x [8])

[5] Source: Zacks

[6] Source: Yahoo! Finance

[7] Source: Value Line

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

[9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])

Constant Growth Discounted Cash Flow Model  
 90 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.35	\$76.90	3.06%	3.13%	NA	6.00%	3.50%	4.75%	6.61%	7.88%	9.15%
Black Hills Corporation	BKH	\$2.02	\$64.12	3.15%	3.23%	4.70%	4.46%	6.50%	5.22%	7.68%	8.45%	9.75%
El Paso Electric Company	EE	\$1.44	\$54.34	2.65%	2.71%	4.40%	5.10%	3.00%	4.17%	5.69%	6.87%	7.82%
Hawaiian Electric Industries, Inc.	HE	\$1.28	\$37.01	3.46%	3.56%	6.40%	7.80%	3.50%	5.90%	7.02%	9.46%	11.39%
Northwestern Corporation	NWE	\$2.30	\$61.78	3.72%	3.77%	2.60%	2.59%	2.50%	2.56%	6.27%	6.33%	6.37%
OGE Energy Corp.	OGE	\$1.46	\$39.18	3.73%	3.83%	5.20%	NA	6.00%	5.60%	9.02%	9.43%	9.84%
PNM Resources, Inc.	PNM	\$1.16	\$41.40	2.80%	2.88%	4.70%	4.10%	7.50%	5.43%	6.96%	8.31%	10.41%
Pinnacle West Capital Corporation	PNW	\$2.95	\$86.69	3.40%	3.49%	4.60%	4.16%	6.00%	4.92%	7.63%	8.41%	9.50%
Proxy Group Mean				3.25%	3.32%	4.66%	4.89%	4.81%	4.82%	7.11%	8.14%	9.28%
Proxy Group Median				3.28%	3.36%	4.70%	4.46%	4.75%	5.07%	6.99%	8.36%	9.63%
Proxy Group Mean - Including Flotation Costs										7.24%	8.27%	9.41%
Proxy Group Median - Including Flotation Costs										7.12%	8.49%	9.76%
Proxy Group Mean Excl. ALE, EE, NWE				3.31%	3.40%	5.12%	5.13%	5.90%	5.41%	7.66%	8.81%	10.18%
Proxy Group Median Excl. ALE, EE, NWE				3.40%	3.49%	4.70%	4.31%	6.00%	5.43%	7.63%	8.45%	9.84%
Proxy Group Mean Excl. ALE, EE, NWE - Including Flotation Costs										7.79%	8.94%	10.31%
Proxy Group Median Excl. ALE, EE, NWE - Including Flotation Costs										7.76%	8.58%	9.97%
Flotation Costs										0.13%	0.13%	0.13%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals indicated number of trading day average as of February 15, 2019

[3] Equals [1] / [2]

[4] Equals [3] x (1 + 0.5 x [8])

[5] Source: Zacks

[6] Source: Yahoo! Finance

[7] Source: Value Line

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

[9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])

Constant Growth Discounted Cash Flow Model  
 180 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.35	\$76.55	3.07%	3.14%	NA	6.00%	3.50%	4.75%	6.62%	7.89%	9.16%
Black Hills Corporation	BKH	\$2.02	\$61.83	3.27%	3.35%	4.70%	4.46%	6.50%	5.22%	7.80%	8.57%	9.87%
El Paso Electric Company	EE	\$1.44	\$57.24	2.52%	2.57%	4.40%	5.10%	3.00%	4.17%	5.55%	6.73%	7.68%
Hawaiian Electric Industries, Inc.	HE	\$1.28	\$35.90	3.57%	3.67%	6.40%	7.80%	3.50%	5.90%	7.13%	9.57%	11.50%
Northwestern Corporation	NWE	\$2.30	\$59.97	3.84%	3.88%	2.60%	2.59%	2.50%	2.56%	6.38%	6.45%	6.49%
OGE Energy Corp.	OGE	\$1.46	\$37.55	3.89%	4.00%	5.20%	NA	6.00%	5.60%	9.19%	9.60%	10.00%
PNM Resources, Inc.	PNM	\$1.16	\$40.10	2.89%	2.97%	4.70%	4.10%	7.50%	5.43%	7.05%	8.40%	10.50%
Pinnacle West Capital Corporation	PNW	\$2.95	\$83.10	3.55%	3.64%	4.60%	4.16%	6.00%	4.92%	7.78%	8.56%	9.66%
Proxy Group Mean				3.32%	3.40%	4.66%	4.89%	4.81%	4.82%	7.19%	8.22%	9.36%
Proxy Group Median				3.41%	3.49%	4.70%	4.46%	4.75%	5.07%	7.09%	8.48%	9.76%
Proxy Group Mean - Including Flotation Costs										7.32%	8.35%	9.49%
Proxy Group Median - Including Flotation Costs										7.22%	8.61%	9.90%
Proxy Group Mean Excl. ALE, EE, NWE				3.43%	3.53%	5.12%	5.13%	5.90%	5.41%	7.79%	8.94%	10.31%
Proxy Group Median Excl. ALE, EE, NWE				3.55%	3.64%	4.70%	4.31%	6.00%	5.43%	7.78%	8.57%	10.00%
Proxy Group Mean Excl. ALE, EE, NWE - Including Flotation Costs										7.92%	9.07%	10.44%
Proxy Group Median Excl. ALE, EE, NWE - Including Flotation Costs										7.91%	8.70%	10.14%
Flotation Costs										0.13%	0.13%	0.13%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals indicated number of trading day average as of February 15, 2019

[3] Equals [1] / [2]

[4] Equals [3] x (1 + 0.5 x [8])

[5] Source: Zacks

[6] Source: Yahoo! Finance

[7] Source: Value Line

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

[9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])

Multi-Stage Growth Discounted Cash Flow Model  
 30 Day Average Stock Price  
 Average EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]							
Company	Ticker	Stock Price	EPS Growth Rate Estimates				Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio							
			Zacks	First Call	Line	Average		2019	2022	2029	Proof	IRR									
ALLETE, Inc.	ALE	\$75.79	NA	6.00%	3.50%	4.75%	5.32%	66.00%	66.00%	65.57%	\$0.00	8.33%	22.91	4.31							
Black Hills Corporation	BKH	\$66.05	4.70%	4.46%	6.50%	5.22%	5.32%	59.00%	57.00%	65.57%	\$0.00	9.09%	18.28	3.44							
El Paso Electric Company	EE	\$51.25	4.40%	5.10%	3.00%	4.17%	5.32%	61.00%	65.00%	65.57%	\$0.00	8.60%	21.04	3.96							
Hawaiian Electric Industries, Inc.	HE	\$36.89	6.40%	7.80%	3.50%	5.90%	5.32%	61.00%	62.00%	65.57%	\$0.00	8.83%	19.86	3.70							
Northwestern Corporation	NWE	\$62.50	2.80%	2.59%	2.50%	2.56%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.65%	20.74	3.90							
OGE Energy Corp.	OGE	\$40.48	5.20%	NA	6.00%	5.60%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.07%	18.38	3.46							
PNM Resources, Inc.	PNM	\$41.99	4.70%	4.10%	7.50%	5.43%	5.32%	50.00%	50.00%	65.57%	\$0.00	8.67%	20.59	3.87							
Pinnacle West Capital Corporation	PNW	\$86.95	4.60%	4.16%	6.00%	4.92%	5.32%	62.00%	62.00%	65.57%	\$0.00	9.05%	18.51	3.48	Including Flotation Costs						
												Mean	8.79%	20.02							8.92%
												Max	9.09%								9.23%
												Min	8.33%								8.46%
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]			
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033			
ALLETE, Inc.	ALE	\$3.13	\$3.28	\$3.43	\$3.60	\$3.77	\$3.95	\$4.13	\$4.34	\$4.55	\$4.78	\$5.02	\$5.29	\$5.57	\$5.86	\$6.17	\$6.50	\$6.85			
Black Hills Corporation	BKH	\$3.38	\$3.56	\$3.74	\$3.94	\$4.14	\$4.36	\$4.59	\$4.83	\$5.08	\$5.35	\$5.63	\$5.93	\$6.24	\$6.58	\$6.93	\$7.29	\$7.68			
El Paso Electric Company	EE	\$2.42	\$2.52	\$2.63	\$2.74	\$2.85	\$2.97	\$3.09	\$3.23	\$3.37	\$3.53	\$3.71	\$3.90	\$4.10	\$4.32	\$4.55	\$4.80	\$5.05			
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.74	\$1.84	\$1.95	\$2.06	\$2.18	\$2.31	\$2.45	\$2.59	\$2.73	\$2.88	\$3.04	\$3.20	\$3.37	\$3.55	\$3.74	\$3.94			
Northwestern Corporation	NWE	\$3.34	\$3.43	\$3.51	\$3.60	\$3.70	\$3.79	\$3.89	\$4.01	\$4.14	\$4.31	\$4.50	\$4.72	\$4.97	\$5.23	\$5.51	\$5.80	\$6.11			
OGE Energy Corp.	OGE	\$1.92	\$2.03	\$2.14	\$2.26	\$2.39	\$2.52	\$2.66	\$2.81	\$2.97	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$4.06	\$4.27	\$4.50			
PNM Resources, Inc.	PNM	\$1.92	\$2.02	\$2.13	\$2.25	\$2.37	\$2.50	\$2.64	\$2.78	\$2.93	\$3.09	\$3.25	\$3.43	\$3.61	\$3.80	\$4.00	\$4.22	\$4.44			
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.65	\$4.88	\$5.12	\$5.37	\$5.63	\$5.91	\$6.20	\$6.52	\$6.85	\$7.21	\$7.59	\$7.99	\$8.41	\$8.86	\$9.33	\$9.83			
Projected Annual Dividend Payout Ratio		[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]					
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033					
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
Projected Annual Cash Flows		[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	Terminal Value			
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value				
ALLETE, Inc.	ALE	\$2.27	\$2.37	\$2.49	\$2.61	\$2.73	\$2.86	\$2.99	\$3.14	\$3.30	\$3.47	\$3.65	\$3.84	\$4.05	\$4.26	\$4.49	\$156.93				
Black Hills Corporation	BKH	\$2.21	\$2.30	\$2.39	\$2.48	\$2.67	\$2.87	\$3.08	\$3.31	\$3.55	\$3.82	\$4.09	\$4.31	\$4.54	\$4.78	\$5.04	\$140.48				
El Paso Electric Company	EE	\$1.60	\$1.70	\$1.81	\$1.93	\$2.01	\$2.10	\$2.20	\$2.31	\$2.42	\$2.55	\$2.69	\$2.83	\$2.99	\$3.14	\$3.31	\$106.27				
Hawaiian Electric Industries, Inc.	HE	\$1.12	\$1.19	\$1.27	\$1.35	\$1.45	\$1.54	\$1.64	\$1.75	\$1.86	\$1.98	\$2.10	\$2.21	\$2.33	\$2.45	\$2.58	\$77.41				
Northwestern Corporation	NWE	\$2.28	\$2.38	\$2.48	\$2.58	\$2.63	\$2.70	\$2.78	\$2.87	\$2.98	\$3.11	\$3.26	\$3.43	\$3.61	\$3.80	\$4.01	\$126.76				
OGE Energy Corp.	OGE	\$1.52	\$1.61	\$1.70	\$1.79	\$1.87	\$1.95	\$2.04	\$2.12	\$2.21	\$2.30	\$2.40	\$2.53	\$2.66	\$2.80	\$2.95	\$82.72				
PNM Resources, Inc.	PNM	\$1.07	\$1.13	\$1.19	\$1.25	\$1.38	\$1.51	\$1.66	\$1.82	\$1.99	\$2.17	\$2.37	\$2.49	\$2.62	\$2.76	\$2.91	\$91.44				
Pinnacle West Capital Corporation	PNW	\$3.02	\$3.17	\$3.33	\$3.49	\$3.69	\$3.91	\$4.14	\$4.39	\$4.65	\$4.93	\$5.24	\$5.52	\$5.81	\$6.12	\$6.44	\$181.94				
Projected Annual Data Investor Cash Flows		[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]			
Company	Ticker	Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33			
ALLETE, Inc.	ALE	(\$75.79)	\$0.00	\$1.98	\$2.32	\$2.49	\$2.61	\$2.73	\$2.86	\$2.99	\$3.14	\$3.30	\$3.47	\$3.65	\$3.84	\$4.05	\$4.26	\$161.42			
Black Hills Corporation	BKH	(\$66.04)	\$0.00	\$1.93	\$2.27	\$2.39	\$2.48	\$2.67	\$2.87	\$3.08	\$3.31	\$3.55	\$3.82	\$4.09	\$4.31	\$4.54	\$4.78	\$145.51			
El Paso Electric Company	EE	(\$51.24)	\$0.00	\$1.40	\$1.64	\$1.81	\$1.93	\$2.01	\$2.10	\$2.20	\$2.31	\$2.42	\$2.55	\$2.69	\$2.83	\$2.99	\$3.14	\$109.58			
Hawaiian Electric Industries, Inc.	HE	(\$36.69)	\$0.00	\$0.98	\$1.16	\$1.27	\$1.35	\$1.45	\$1.54	\$1.64	\$1.75	\$1.86	\$1.98	\$2.10	\$2.21	\$2.33	\$2.45	\$79.99			
Northwestern Corporation	NWE	(\$62.50)	\$0.00	\$2.00	\$2.31	\$2.48	\$2.58	\$2.63	\$2.70	\$2.78	\$2.87	\$2.98	\$3.11	\$3.26	\$3.43	\$3.61	\$3.80	\$130.77			
OGE Energy Corp.	OGE	(\$40.48)	\$0.00	\$1.33	\$1.56	\$1.70	\$1.79	\$1.87	\$1.95	\$2.04	\$2.12	\$2.21	\$2.30	\$2.40	\$2.53	\$2.66	\$2.80	\$85.67			
PNM Resources, Inc.	PNM	(\$41.99)	\$0.00	\$0.93	\$1.10	\$1.19	\$1.25	\$1.38	\$1.51	\$1.66	\$1.82	\$1.99	\$2.17	\$2.37	\$2.49	\$2.62	\$2.76	\$94.35			
Pinnacle West Capital Corporation	PNW	(\$86.95)	\$0.00	\$2.64	\$3.10	\$3.33	\$3.49	\$3.69	\$3.91	\$4.14	\$4.39	\$4.65	\$4.93	\$5.24	\$5.52	\$5.81	\$6.12	\$188.38			

Multi-Stage Growth Discounted Cash Flow Model  
 30 Day Average Stock Price  
 High EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]				
Company	Ticker	Stock Price	EPS Growth Rate Estimates			Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio					
			Zacks	First Call	Line		High Growth	2019	2022	2029	Proof			IRR				
ALLETE, Inc.	ALE	\$75.79	NA	6.00%	3.50%	6.00%	5.32%	66.00%	66.00%	65.57%	\$0.00	8.63%	20.86	3.92				
Black Hills Corporation	BKH	\$66.05	4.70%	4.46%	6.50%	6.50%	5.32%	59.00%	57.00%	65.57%	\$0.00	9.46%	16.67	3.13				
El Paso Electric Company	EE	\$51.25	4.40%	5.10%	3.00%	5.10%	5.32%	61.00%	65.00%	65.57%	\$0.00	8.84%	19.62	3.69				
Hawaiian Electric Industries, Inc.	HE	\$36.89	6.40%	7.80%	3.50%	7.80%	5.32%	61.00%	62.00%	65.57%	\$0.00	9.35%	17.13	3.22				
Northwestern Corporation	NWE	\$62.50	2.80%	2.59%	2.50%	2.60%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.66%	20.88	3.89				
OGE Energy Corp.	OGE	\$40.48	5.20%	NA	6.00%	6.00%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.19%	17.85	3.36				
PNM Resources, Inc.	PNM	\$41.99	4.70%	4.10%	7.50%	7.50%	5.32%	50.00%	50.00%	65.57%	\$0.00	9.21%	17.76	3.34				
Pinnacle West Capital Corporation	PNW	\$86.95	4.60%	4.16%	6.00%	6.00%	5.32%	62.00%	62.00%	65.57%	\$0.00	9.36%	17.10	3.22				
												Including Flotation Costs						
												Mean	9.09%	18.46	9.22%			
												Max	9.46%		9.59%			
												Min	8.63%		8.76%			
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
ALLETE, Inc.	ALE	\$3.13	\$3.32	\$3.52	\$3.73	\$3.95	\$4.19	\$4.44	\$4.70	\$4.97	\$5.25	\$5.55	\$5.85	\$6.16	\$6.49	\$6.83	\$7.19	\$7.58
Black Hills Corporation	BKH	\$3.38	\$3.60	\$3.83	\$4.08	\$4.35	\$4.63	\$4.93	\$5.24	\$5.56	\$5.89	\$6.23	\$6.57	\$6.92	\$7.29	\$7.68	\$8.08	\$8.51
El Paso Electric Company	EE	\$2.42	\$2.54	\$2.67	\$2.81	\$2.95	\$3.10	\$3.26	\$3.43	\$3.61	\$3.79	\$3.99	\$4.20	\$4.43	\$4.66	\$4.91	\$5.17	\$5.45
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.77	\$1.91	\$2.05	\$2.21	\$2.39	\$2.57	\$2.76	\$2.96	\$3.15	\$3.34	\$3.54	\$3.72	\$3.92	\$4.13	\$4.35	\$4.58
Northwestern Corporation	NWE	\$3.34	\$3.43	\$3.52	\$3.61	\$3.70	\$3.80	\$3.90	\$4.02	\$4.16	\$4.32	\$4.51	\$4.73	\$4.98	\$5.25	\$5.53	\$5.82	\$6.13
OGE Energy Corp.	OGE	\$1.92	\$2.04	\$2.16	\$2.29	\$2.42	\$2.57	\$2.72	\$2.88	\$3.05	\$3.22	\$3.40	\$3.59	\$3.78	\$3.98	\$4.19	\$4.41	\$4.65
PNM Resources, Inc.	PNM	\$1.92	\$2.06	\$2.22	\$2.39	\$2.56	\$2.76	\$2.96	\$3.17	\$3.39	\$3.61	\$3.82	\$4.04	\$4.26	\$4.48	\$4.72	\$4.97	\$5.24
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.70	\$4.98	\$5.28	\$5.59	\$5.93	\$6.28	\$6.65	\$7.04	\$7.44	\$7.85	\$8.27	\$8.72	\$9.18	\$9.67	\$10.18	\$10.72
Projected Annual Dividend Payout Ratio		[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]		
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%		
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%		
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%		
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Projected Annual Cash Flows		[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value	
ALLETE, Inc.	ALE	\$2.32	\$2.46	\$2.61	\$2.76	\$2.93	\$3.10	\$3.27	\$3.45	\$3.64	\$3.84	\$4.04	\$4.25	\$4.48	\$4.72	\$4.97	\$158.03	
Black Hills Corporation	BKH	\$2.26	\$2.38	\$2.51	\$2.64	\$2.87	\$3.12	\$3.38	\$3.65	\$3.93	\$4.23	\$4.54	\$4.78	\$5.03	\$5.30	\$5.58	\$141.93	
El Paso Electric Company	EE	\$1.63	\$1.75	\$1.88	\$2.02	\$2.12	\$2.23	\$2.35	\$2.48	\$2.61	\$2.75	\$2.90	\$3.06	\$3.22	\$3.39	\$3.57	\$106.87	
Hawaiian Electric Industries, Inc.	HE	\$1.16	\$1.26	\$1.37	\$1.48	\$1.61	\$1.74	\$1.88	\$2.02	\$2.16	\$2.30	\$2.44	\$2.57	\$2.71	\$2.85	\$3.00	\$78.49	
Northwestern Corporation	NWE	\$2.29	\$2.38	\$2.48	\$2.58	\$2.64	\$2.70	\$2.78	\$2.88	\$2.99	\$3.12	\$3.27	\$3.44	\$3.62	\$3.82	\$4.02	\$126.78	
OGE Energy Corp.	OGE	\$1.53	\$1.62	\$1.72	\$1.82	\$1.91	\$2.00	\$2.09	\$2.19	\$2.28	\$2.38	\$2.48	\$2.61	\$2.75	\$2.89	\$3.05	\$82.93	
PNM Resources, Inc.	PNM	\$1.11	\$1.19	\$1.28	\$1.38	\$1.55	\$1.73	\$1.92	\$2.12	\$2.34	\$2.56	\$2.79	\$2.94	\$3.10	\$3.26	\$3.43	\$93.03	
Pinnacle West Capital Corporation	PNW	\$3.09	\$3.27	\$3.47	\$3.68	\$3.93	\$4.19	\$4.47	\$4.76	\$5.07	\$5.38	\$5.71	\$6.02	\$6.34	\$6.68	\$7.03	\$183.37	
Projected Annual Data Investor Cash Flows		[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]
Company	Ticker	Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33
ALLETE, Inc.	ALE	(\$75.79)	\$0.00	\$2.03	\$2.39	\$2.61	\$2.76	\$2.93	\$3.10	\$3.27	\$3.45	\$3.64	\$3.84	\$4.04	\$4.25	\$4.48	\$4.72	\$163.00
Black Hills Corporation	BKH	(\$66.04)	\$0.00	\$1.98	\$2.34	\$2.51	\$2.64	\$2.87	\$3.12	\$3.38	\$3.65	\$3.93	\$4.23	\$4.54	\$4.78	\$5.03	\$5.30	\$147.51
El Paso Electric Company	EE	(\$51.24)	\$0.00	\$1.43	\$1.67	\$1.88	\$2.02	\$2.12	\$2.23	\$2.35	\$2.48	\$2.61	\$2.75	\$2.90	\$3.06	\$3.22	\$3.39	\$110.44
Hawaiian Electric Industries, Inc.	HE	(\$36.69)	\$0.00	\$1.02	\$1.21	\$1.37	\$1.48	\$1.61	\$1.74	\$1.88	\$2.02	\$2.16	\$2.30	\$2.44	\$2.57	\$2.71	\$2.85	\$81.50
Northwestern Corporation	NWE	(\$62.50)	\$0.00	\$2.00	\$2.32	\$2.48	\$2.58	\$2.64	\$2.70	\$2.78	\$2.88	\$2.99	\$3.12	\$3.27	\$3.44	\$3.62	\$3.82	\$130.80
OGE Energy Corp.	OGE	(\$40.48)	\$0.00	\$1.34	\$1.58	\$1.72	\$1.82	\$1.91	\$2.00	\$2.09	\$2.19	\$2.28	\$2.38	\$2.48	\$2.61	\$2.75	\$2.89	\$85.97
PNM Resources, Inc.	PNM	(\$41.98)	\$0.00	\$0.97	\$1.15	\$1.28	\$1.38	\$1.55	\$1.73	\$1.92	\$2.12	\$2.34	\$2.56	\$2.79	\$2.94	\$3.10	\$3.26	\$96.46
Pinnacle West Capital Corporation	PNW	(\$86.95)	\$0.00	\$2.70	\$3.18	\$3.47	\$3.68	\$3.93	\$4.19	\$4.47	\$4.76	\$5.07	\$5.38	\$5.71	\$6.02	\$6.34	\$6.68	\$190.40

Multi-Stage Growth Discounted Cash Flow Model  
 30 Day Average Stock Price  
 Low EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]				
Company	Ticker	Stock Price	Zacks	EPS Growth Rate Estimates			Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio				
				First Call	Line	Low Growth		2019	2022	2029	Proof	IRR						
ALLETE, Inc.	ALE	\$75.79	NA	6.00%	3.50%	3.50%	5.32%	66.00%	66.00%	65.57%	\$0.00	8.06%	25.22	4.74				
Black Hills Corporation	BKH	\$66.05	4.70%	4.46%	6.50%	4.46%	5.32%	59.00%	57.00%	65.57%	\$0.00	8.89%	19.34	3.64				
El Paso Electric Company	EE	\$51.25	4.40%	5.10%	3.00%	3.00%	5.32%	61.00%	65.00%	65.57%	\$0.00	8.32%	23.01	4.33				
Hawaiian Electric Industries, Inc.	HE	\$36.89	6.40%	7.80%	3.50%	3.50%	5.32%	61.00%	62.00%	65.57%	\$0.00	8.25%	23.54	4.43				
Northwestern Corporation	NWE	\$62.50	2.80%	2.59%	2.50%	2.50%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.63%	20.85	3.92				
OGE Energy Corp.	OGE	\$40.48	5.20%	NA	6.00%	5.20%	5.32%	71.00%	71.00%	65.57%	\$0.00	8.96%	18.94	3.56				
PNM Resources, Inc.	PNM	\$41.99	4.70%	4.10%	7.50%	4.10%	5.32%	50.00%	50.00%	65.57%	\$0.00	8.36%	22.72	4.27				
Pinnacle West Capital Corporation	PNW	\$86.95	4.60%	4.16%	6.00%	4.16%	5.32%	62.00%	62.00%	65.57%	\$0.00	8.84%	19.59	3.68				
												Including Flotation Costs						
												Mean	8.54%	21.65	8.67%			
												Max	8.96%		9.09%			
												Min	8.06%		8.19%			
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
ALLETE, Inc.	ALE	\$3.13	\$3.24	\$3.35	\$3.47	\$3.59	\$3.72	\$3.85	\$3.99	\$4.16	\$4.34	\$4.55	\$4.77	\$5.03	\$5.29	\$5.58	\$5.87	\$6.19
Black Hills Corporation	BKH	\$3.38	\$3.53	\$3.69	\$3.85	\$4.02	\$4.20	\$4.39	\$4.59	\$4.81	\$5.05	\$5.30	\$5.58	\$5.87	\$6.18	\$6.51	\$6.86	\$7.22
El Paso Electric Company	EE	\$2.42	\$2.49	\$2.57	\$2.64	\$2.72	\$2.81	\$2.89	\$2.99	\$3.10	\$3.23	\$3.38	\$3.54	\$3.73	\$3.93	\$4.14	\$4.36	\$4.59
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.70	\$1.76	\$1.82	\$1.88	\$1.95	\$2.02	\$2.09	\$2.18	\$2.27	\$2.38	\$2.50	\$2.63	\$2.77	\$2.92	\$3.08	\$3.24
Northwestern Corporation	NWE	\$3.34	\$3.42	\$3.51	\$3.60	\$3.69	\$3.78	\$3.87	\$3.99	\$4.13	\$4.29	\$4.47	\$4.69	\$4.94	\$5.20	\$5.48	\$5.77	\$6.08
OGE Energy Corp.	OGE	\$1.92	\$2.02	\$2.12	\$2.24	\$2.35	\$2.47	\$2.60	\$2.74	\$2.88	\$3.03	\$3.19	\$3.36	\$3.54	\$3.73	\$3.93	\$4.14	\$4.36
PNM Resources, Inc.	PNM	\$1.92	\$2.00	\$2.08	\$2.17	\$2.25	\$2.35	\$2.44	\$2.55	\$2.66	\$2.79	\$2.93	\$3.08	\$3.24	\$3.41	\$3.59	\$3.78	\$3.98
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.61	\$4.81	\$5.01	\$5.21	\$5.43	\$5.66	\$5.90	\$6.17	\$6.46	\$6.78	\$7.13	\$7.51	\$7.91	\$8.33	\$8.77	\$9.24
Projected Annual Dividend Payout Ratio			[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%		
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%		
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%		
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Projected Annual Cash Flows			[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value	
ALLETE, Inc.	ALE	\$2.21	\$2.29	\$2.37	\$2.45	\$2.54	\$2.63	\$2.74	\$2.85	\$2.99	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$4.06	\$155.97	
Black Hills Corporation	BKH	\$2.18	\$2.25	\$2.32	\$2.40	\$2.56	\$2.73	\$2.92	\$3.12	\$3.35	\$3.59	\$3.85	\$4.05	\$4.27	\$4.50	\$4.74	\$139.69	
El Paso Electric Company	EE	\$1.57	\$1.65	\$1.73	\$1.82	\$1.88	\$1.95	\$2.02	\$2.11	\$2.21	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$3.01	\$105.60	
Hawaiian Electric Industries, Inc.	HE	\$1.07	\$1.12	\$1.16	\$1.21	\$1.26	\$1.32	\$1.38	\$1.46	\$1.54	\$1.63	\$1.73	\$1.82	\$1.92	\$2.02	\$2.13	\$76.30	
Northwestern Corporation	NWE	\$2.28	\$2.37	\$2.47	\$2.57	\$2.62	\$2.68	\$2.76	\$2.86	\$2.97	\$3.09	\$3.24	\$3.41	\$3.59	\$3.78	\$3.99	\$126.72	
OGE Energy Corp.	OGE	\$1.51	\$1.59	\$1.67	\$1.76	\$1.83	\$1.90	\$1.98	\$2.06	\$2.14	\$2.23	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$82.53	
PNM Resources, Inc.	PNM	\$1.04	\$1.08	\$1.13	\$1.17	\$1.28	\$1.39	\$1.51	\$1.64	\$1.79	\$1.95	\$2.12	\$2.24	\$2.36	\$2.48	\$2.61	\$90.55	
Pinnacle West Capital Corporation	PNW	\$2.98	\$3.10	\$3.23	\$3.37	\$3.54	\$3.72	\$3.92	\$4.14	\$4.38	\$4.64	\$4.92	\$5.19	\$5.46	\$5.75	\$6.06	\$181.02	
Projected Annual Data Investor Cash Flows		[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]
Company	Ticker	Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33
ALLETE, Inc.	ALE	(\$75.79)	\$0.00	\$1.93	\$2.25	\$2.37	\$2.45	\$2.54	\$2.63	\$2.74	\$2.85	\$2.99	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$160.03
Black Hills Corporation	BKH	(\$66.04)	\$0.00	\$1.90	\$2.22	\$2.32	\$2.40	\$2.56	\$2.73	\$2.92	\$3.12	\$3.35	\$3.59	\$3.85	\$4.05	\$4.27	\$4.50	\$144.43
El Paso Electric Company	EE	(\$51.24)	\$0.00	\$1.37	\$1.59	\$1.73	\$1.82	\$1.88	\$1.95	\$2.02	\$2.11	\$2.21	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$108.61
Hawaiian Electric Industries, Inc.	HE	(\$36.69)	\$0.00	\$0.94	\$1.09	\$1.16	\$1.21	\$1.26	\$1.32	\$1.38	\$1.46	\$1.54	\$1.63	\$1.73	\$1.82	\$1.92	\$2.02	\$78.43
Northwestern Corporation	NWE	(\$62.50)	\$0.00	\$1.99	\$2.31	\$2.47	\$2.57	\$2.62	\$2.68	\$2.76	\$2.86	\$2.97	\$3.09	\$3.24	\$3.41	\$3.59	\$3.78	\$130.70
OGE Energy Corp.	OGE	(\$40.48)	\$0.00	\$1.32	\$1.55	\$1.67	\$1.76	\$1.83	\$1.90	\$1.98	\$2.06	\$2.14	\$2.23	\$2.32	\$2.45	\$2.58	\$2.71	\$85.39
PNM Resources, Inc.	PNM	(\$41.99)	\$0.00	\$0.91	\$1.06	\$1.13	\$1.17	\$1.28	\$1.39	\$1.51	\$1.64	\$1.79	\$1.95	\$2.12	\$2.24	\$2.36	\$2.48	\$93.16
Pinnacle West Capital Corporation	PNW	(\$86.95)	\$0.00	\$2.60	\$3.04	\$3.23	\$3.37	\$3.54	\$3.72	\$3.92	\$4.14	\$4.38	\$4.64	\$4.92	\$5.19	\$5.46	\$5.75	\$187.08

Multi-Stage Growth Discounted Cash Flow Model  
 90 Day Average Stock Price  
 Average EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]				
Company	Ticker	Stock Price	EPS Growth Rate Estimates			Long-Term Value	Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio				
			Zacks	First Call	Line			Average	2019	2022	2029	Proof			IRR			
ALLETE, Inc.	ALE	\$76.90	NA	6.00%	3.50%	4.75%	5.32%	66.00%	66.00%	65.57%	\$0.00	8.29%	23.25	4.37				
Black Hills Corporation	BKH	\$64.12	4.70%	4.46%	6.50%	5.22%	5.32%	59.00%	57.00%	65.57%	\$0.00	9.21%	17.76	3.34				
El Paso Electric Company	EE	\$54.34	4.40%	5.10%	3.00%	4.17%	5.32%	61.00%	65.00%	65.57%	\$0.00	8.41%	22.33	4.20				
Hawaiian Electric Industries, Inc.	HE	\$37.01	6.40%	7.80%	3.50%	5.90%	5.32%	61.00%	62.00%	65.57%	\$0.00	8.80%	19.83	3.73				
Northwestern Corporation	NWE	\$61.78	2.80%	2.59%	2.50%	2.56%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.69%	20.49	3.85				
OGE Energy Corp.	OGE	\$39.18	5.20%	NA	6.00%	5.60%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.20%	17.78	3.34				
PNM Resources, Inc.	PNM	\$41.40	4.70%	4.10%	7.50%	5.43%	5.32%	50.00%	50.00%	65.57%	\$0.00	8.72%	20.32	3.82				
Pinnacle West Capital Corporation	PNW	\$86.69	4.60%	4.16%	6.00%	4.92%	5.32%	62.00%	62.00%	65.57%	\$0.00	9.06%	18.46	3.47				
											Mean	8.80%	20.03	8.93%				
											Max	9.21%		9.34%				
											Min	8.29%		8.42%				
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
ALLETE, Inc.	ALE	\$3.13	\$3.28	\$3.43	\$3.60	\$3.77	\$3.95	\$4.13	\$4.34	\$4.55	\$4.78	\$5.02	\$5.29	\$5.57	\$5.86	\$6.17	\$6.50	\$6.85
Black Hills Corporation	BKH	\$3.38	\$3.56	\$3.74	\$3.94	\$4.14	\$4.36	\$4.59	\$4.83	\$5.08	\$5.35	\$5.63	\$5.93	\$6.24	\$6.58	\$6.93	\$7.29	\$7.68
El Paso Electric Company	EE	\$2.42	\$2.52	\$2.63	\$2.74	\$2.85	\$2.97	\$3.09	\$3.23	\$3.37	\$3.53	\$3.71	\$3.90	\$4.10	\$4.32	\$4.55	\$4.80	\$5.05
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.74	\$1.84	\$1.95	\$2.06	\$2.18	\$2.31	\$2.45	\$2.59	\$2.73	\$2.88	\$3.04	\$3.20	\$3.37	\$3.55	\$3.74	\$3.94
Northwestern Corporation	NWE	\$3.34	\$3.43	\$3.51	\$3.60	\$3.70	\$3.79	\$3.89	\$4.01	\$4.14	\$4.31	\$4.50	\$4.72	\$4.97	\$5.23	\$5.51	\$5.80	\$6.11
OGE Energy Corp.	OGE	\$1.92	\$2.03	\$2.14	\$2.26	\$2.39	\$2.52	\$2.66	\$2.81	\$2.97	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$4.06	\$4.27	\$4.50
PNM Resources, Inc.	PNM	\$1.92	\$2.02	\$2.13	\$2.25	\$2.37	\$2.50	\$2.64	\$2.78	\$2.93	\$3.09	\$3.25	\$3.43	\$3.61	\$3.80	\$4.00	\$4.22	\$4.44
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.65	\$4.88	\$5.12	\$5.37	\$5.63	\$5.91	\$6.20	\$6.52	\$6.85	\$7.21	\$7.59	\$7.99	\$8.41	\$8.86	\$9.33	\$9.83
Projected Annual Dividend Payout Ratio			[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%		
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%		
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%		
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Projected Annual Cash Flows			[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value	
ALLETE, Inc.	ALE	\$2.27	\$2.37	\$2.49	\$2.61	\$2.73	\$2.86	\$2.99	\$3.14	\$3.30	\$3.47	\$3.65	\$3.84	\$4.05	\$4.26	\$4.49	\$159.27	
Black Hills Corporation	BKH	\$2.21	\$2.30	\$2.39	\$2.48	\$2.67	\$2.87	\$3.08	\$3.31	\$3.55	\$3.82	\$4.09	\$4.31	\$4.54	\$4.78	\$5.04	\$136.41	
El Paso Electric Company	EE	\$1.60	\$1.70	\$1.81	\$1.93	\$2.01	\$2.10	\$2.20	\$2.31	\$2.42	\$2.55	\$2.69	\$2.83	\$2.99	\$3.14	\$3.31	\$112.78	
Hawaiian Electric Industries, Inc.	HE	\$1.12	\$1.19	\$1.27	\$1.35	\$1.45	\$1.54	\$1.64	\$1.75	\$1.86	\$1.98	\$2.10	\$2.21	\$2.33	\$2.45	\$2.58	\$78.08	
Northwestern Corporation	NWE	\$2.28	\$2.38	\$2.48	\$2.58	\$2.63	\$2.70	\$2.78	\$2.87	\$2.98	\$3.11	\$3.26	\$3.43	\$3.61	\$3.80	\$4.01	\$125.24	
OGE Energy Corp.	OGE	\$1.52	\$1.61	\$1.70	\$1.79	\$1.87	\$1.95	\$2.04	\$2.12	\$2.21	\$2.30	\$2.40	\$2.53	\$2.66	\$2.80	\$2.95	\$80.00	
PNM Resources, Inc.	PNM	\$1.07	\$1.13	\$1.19	\$1.25	\$1.38	\$1.51	\$1.66	\$1.82	\$1.99	\$2.17	\$2.37	\$2.49	\$2.62	\$2.76	\$2.91	\$90.20	
Pinnacle West Capital Corporation	PNW	\$3.02	\$3.17	\$3.33	\$3.49	\$3.69	\$3.91	\$4.14	\$4.39	\$4.65	\$4.93	\$5.24	\$5.52	\$5.81	\$6.12	\$6.44	\$181.40	
Projected Annual Data Investor Cash Flows		[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]
Company	Ticker	Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33
ALLETE, Inc.	ALE	(\$76.90)	\$0.00	\$1.98	\$2.32	\$2.49	\$2.61	\$2.73	\$2.86	\$2.99	\$3.14	\$3.30	\$3.47	\$3.65	\$3.84	\$4.05	\$4.26	\$163.76
Black Hills Corporation	BKH	(\$64.12)	\$0.00	\$1.93	\$2.27	\$2.39	\$2.48	\$2.67	\$2.87	\$3.08	\$3.31	\$3.55	\$3.82	\$4.09	\$4.31	\$4.54	\$4.78	\$141.45
El Paso Electric Company	EE	(\$54.34)	\$0.00	\$1.40	\$1.64	\$1.81	\$1.93	\$2.01	\$2.10	\$2.20	\$2.31	\$2.42	\$2.55	\$2.69	\$2.83	\$2.99	\$3.14	\$116.10
Hawaiian Electric Industries, Inc.	HE	(\$37.01)	\$0.00	\$0.98	\$1.16	\$1.27	\$1.35	\$1.45	\$1.54	\$1.64	\$1.75	\$1.86	\$1.98	\$2.10	\$2.21	\$2.33	\$2.45	\$80.66
Northwestern Corporation	NWE	(\$61.78)	\$0.00	\$2.00	\$2.31	\$2.48	\$2.58	\$2.63	\$2.70	\$2.78	\$2.87	\$2.98	\$3.11	\$3.26	\$3.43	\$3.61	\$3.80	\$129.24
OGE Energy Corp.	OGE	(\$39.18)	\$0.00	\$1.33	\$1.56	\$1.70	\$1.79	\$1.87	\$1.95	\$2.04	\$2.12	\$2.21	\$2.30	\$2.40	\$2.53	\$2.66	\$2.80	\$82.95
PNM Resources, Inc.	PNM	(\$41.40)	\$0.00	\$0.93	\$1.10	\$1.19	\$1.25	\$1.38	\$1.51	\$1.66	\$1.82	\$1.99	\$2.17	\$2.37	\$2.49	\$2.62	\$2.76	\$93.11
Pinnacle West Capital Corporation	PNW	(\$86.69)	\$0.00	\$2.64	\$3.10	\$3.33	\$3.49	\$3.69	\$3.91	\$4.14	\$4.39	\$4.65	\$4.93	\$5.24	\$5.52	\$5.81	\$6.12	\$187.85



Multi-Stage Growth Discounted Cash Flow Model  
 90 Day Average Stock Price  
 High EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]				
Company	Ticker	Stock Price	EPS Growth Rate Estimates			Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio					
			Zacks	First Call	Line		High Growth	2019	2022	2029	Proof			IRR				
ALLETE, Inc.	ALE	\$76.90	NA	6.00%	3.50%	6.00%	5.32%	66.00%	66.00%	65.57%	\$0.00	8.58%	21.17	3.98				
Black Hills Corporation	BKH	\$64.12	4.70%	4.46%	6.50%	6.50%	5.32%	59.00%	57.00%	65.57%	\$0.00	9.58%	16.19	3.04				
El Paso Electric Company	EE	\$54.34	4.40%	5.10%	3.00%	5.10%	5.32%	61.00%	65.00%	65.57%	\$0.00	8.64%	20.81	3.91				
Hawaiian Electric Industries, Inc.	HE	\$37.01	6.40%	7.80%	3.50%	7.80%	5.32%	61.00%	62.00%	65.57%	\$0.00	9.31%	17.28	3.25				
Northwestern Corporation	NWE	\$61.78	2.80%	2.59%	2.50%	2.60%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.70%	20.44	3.84				
OGE Energy Corp.	OGE	\$39.18	5.20%	NA	6.00%	6.00%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.32%	17.26	3.25				
PNM Resources, Inc.	PNM	\$41.40	4.70%	4.10%	7.50%	7.50%	5.32%	50.00%	50.00%	65.57%	\$0.00	9.26%	17.52	3.30				
Pinnacle West Capital Corporation	PNW	\$86.69	4.60%	4.16%	6.00%	6.00%	5.32%	62.00%	62.00%	65.57%	\$0.00	9.37%	17.05	3.21				
													Including Flotation Costs					
													Mean	9.09%	18.47	9.22%		
													Max	9.58%		9.71%		
													Min	8.58%		8.71%		
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
ALLETE, Inc.	ALE	\$3.13	\$3.32	\$3.52	\$3.73	\$3.95	\$4.19	\$4.44	\$4.70	\$4.97	\$5.25	\$5.55	\$5.85	\$6.16	\$6.49	\$6.83	\$7.19	\$7.58
Black Hills Corporation	BKH	\$3.38	\$3.60	\$3.83	\$4.08	\$4.35	\$4.63	\$4.93	\$5.24	\$5.56	\$5.89	\$6.23	\$6.57	\$6.92	\$7.29	\$7.68	\$8.08	\$8.51
El Paso Electric Company	EE	\$2.42	\$2.54	\$2.67	\$2.81	\$2.95	\$3.10	\$3.26	\$3.43	\$3.61	\$3.79	\$3.99	\$4.20	\$4.43	\$4.66	\$4.91	\$5.17	\$5.45
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.77	\$1.91	\$2.05	\$2.21	\$2.39	\$2.57	\$2.76	\$2.96	\$3.15	\$3.34	\$3.54	\$3.72	\$3.92	\$4.13	\$4.35	\$4.58
Northwestern Corporation	NWE	\$3.34	\$3.43	\$3.52	\$3.61	\$3.70	\$3.80	\$3.90	\$4.02	\$4.16	\$4.32	\$4.51	\$4.73	\$4.98	\$5.25	\$5.53	\$5.82	\$6.13
OGE Energy Corp.	OGE	\$1.92	\$2.04	\$2.16	\$2.29	\$2.42	\$2.57	\$2.72	\$2.88	\$3.05	\$3.22	\$3.40	\$3.59	\$3.78	\$3.98	\$4.19	\$4.41	\$4.65
PNM Resources, Inc.	PNM	\$1.92	\$2.06	\$2.22	\$2.39	\$2.56	\$2.76	\$2.96	\$3.17	\$3.39	\$3.61	\$3.82	\$4.04	\$4.26	\$4.48	\$4.72	\$4.97	\$5.24
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.70	\$4.98	\$5.28	\$5.59	\$5.93	\$6.28	\$6.65	\$7.04	\$7.44	\$7.85	\$8.27	\$8.72	\$9.18	\$9.67	\$10.18	\$10.72
Projected Annual Dividend Payout Ratio		[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]		
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%		
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%		
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%		
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Projected Annual Cash Flows		[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value	
ALLETE, Inc.	ALE	\$2.32	\$2.46	\$2.61	\$2.76	\$2.93	\$3.10	\$3.27	\$3.45	\$3.64	\$3.84	\$4.04	\$4.25	\$4.48	\$4.72	\$4.97	\$160.37	
Black Hills Corporation	BKH	\$2.26	\$2.38	\$2.51	\$2.64	\$2.87	\$3.12	\$3.38	\$3.65	\$3.93	\$4.23	\$4.54	\$4.78	\$5.03	\$5.30	\$5.58	\$137.85	
El Paso Electric Company	EE	\$1.63	\$1.75	\$1.88	\$2.02	\$2.12	\$2.23	\$2.35	\$2.48	\$2.61	\$2.75	\$2.90	\$3.06	\$3.22	\$3.39	\$3.57	\$113.39	
Hawaiian Electric Industries, Inc.	HE	\$1.16	\$1.26	\$1.37	\$1.48	\$1.61	\$1.74	\$1.88	\$2.02	\$2.16	\$2.30	\$2.44	\$2.57	\$2.71	\$2.85	\$3.00	\$79.16	
Northwestern Corporation	NWE	\$2.29	\$2.38	\$2.48	\$2.58	\$2.64	\$2.70	\$2.78	\$2.88	\$2.99	\$3.12	\$3.27	\$3.44	\$3.62	\$3.82	\$4.02	\$125.26	
OGE Energy Corp.	OGE	\$1.53	\$1.62	\$1.72	\$1.82	\$1.91	\$2.00	\$2.09	\$2.19	\$2.28	\$2.38	\$2.48	\$2.61	\$2.75	\$2.89	\$3.05	\$80.20	
PNM Resources, Inc.	PNM	\$1.11	\$1.19	\$1.28	\$1.38	\$1.55	\$1.73	\$1.92	\$2.12	\$2.34	\$2.56	\$2.79	\$2.94	\$3.10	\$3.26	\$3.43	\$91.78	
Pinnacle West Capital Corporation	PNW	\$3.09	\$3.27	\$3.47	\$3.68	\$3.93	\$4.19	\$4.47	\$4.76	\$5.07	\$5.38	\$5.71	\$6.02	\$6.34	\$6.68	\$7.03	\$182.83	
Projected Annual Data Investor Cash Flows		[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]
Company	Ticker	Initial	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33
ALLETE, Inc.	ALE	(\$76.90)	\$0.00	\$2.03	\$2.39	\$2.61	\$2.76	\$2.93	\$3.10	\$3.27	\$3.45	\$3.64	\$3.84	\$4.04	\$4.25	\$4.48	\$4.72	\$165.34
Black Hills Corporation	BKH	(\$64.12)	\$0.00	\$1.98	\$2.34	\$2.51	\$2.64	\$2.87	\$3.12	\$3.38	\$3.65	\$3.93	\$4.23	\$4.54	\$4.78	\$5.03	\$5.30	\$143.44
El Paso Electric Company	EE	(\$54.34)	\$0.00	\$1.43	\$1.67	\$1.88	\$2.02	\$2.12	\$2.23	\$2.35	\$2.48	\$2.61	\$2.75	\$2.90	\$3.06	\$3.22	\$3.39	\$116.96
Hawaiian Electric Industries, Inc.	HE	(\$37.01)	\$0.00	\$1.02	\$1.21	\$1.37	\$1.48	\$1.61	\$1.74	\$1.88	\$2.02	\$2.16	\$2.30	\$2.44	\$2.57	\$2.71	\$2.85	\$82.17
Northwestern Corporation	NWE	(\$61.78)	\$0.00	\$2.00	\$2.32	\$2.48	\$2.58	\$2.64	\$2.70	\$2.78	\$2.88	\$2.99	\$3.12	\$3.27	\$3.44	\$3.62	\$3.82	\$129.28
OGE Energy Corp.	OGE	(\$39.18)	\$0.00	\$1.34	\$1.58	\$1.72	\$1.82	\$1.91	\$2.00	\$2.09	\$2.19	\$2.28	\$2.38	\$2.48	\$2.61	\$2.75	\$2.89	\$83.25
PNM Resources, Inc.	PNM	(\$41.40)	\$0.00	\$0.97	\$1.15	\$1.28	\$1.38	\$1.55	\$1.73	\$1.92	\$2.12	\$2.34	\$2.56	\$2.79	\$2.94	\$3.10	\$3.26	\$95.22
Pinnacle West Capital Corporation	PNW	(\$86.69)	\$0.00	\$2.70	\$3.18	\$3.47	\$3.68	\$3.93	\$4.19	\$4.47	\$4.76	\$5.07	\$5.38	\$5.71	\$6.02	\$6.34	\$6.68	\$189.86

Multi-Stage Growth Discounted Cash Flow Model  
 90 Day Average Stock Price  
 Low EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]				
Company	Ticker	Stock Price	EPS Growth Rate Estimates			Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio					
			Zacks	First Call	Line		Low Growth	2019	2022	2029	Proof			IRR				
ALLETE, Inc.	ALE	\$76.90	NA	6.00%	3.50%	3.50%	5.32%	66.00%	66.00%	65.57%	\$0.00	8.02%	25.59	4.81				
Black Hills Corporation	BKH	\$64.12	4.70%	4.46%	6.50%	4.46%	5.32%	59.00%	57.00%	65.57%	\$0.00	9.00%	18.78	3.53				
El Paso Electric Company	EE	\$54.34	4.40%	5.10%	3.00%	3.00%	5.32%	61.00%	65.00%	65.57%	\$0.00	8.15%	24.43	4.59				
Hawaiian Electric Industries, Inc.	HE	\$37.01	6.40%	7.80%	3.50%	3.50%	5.32%	61.00%	62.00%	65.57%	\$0.00	8.23%	23.75	4.47				
Northwestern Corporation	NWE	\$61.78	2.80%	2.59%	2.50%	2.50%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.67%	20.80	3.87				
OGE Energy Corp.	OGE	\$39.18	5.20%	NA	6.00%	5.20%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.09%	18.32	3.44				
PNM Resources, Inc.	PNM	\$41.40	4.70%	4.10%	7.50%	4.10%	5.32%	50.00%	50.00%	65.57%	\$0.00	8.40%	22.41	4.21				
Pinnacle West Capital Corporation	PNW	\$86.69	4.60%	4.16%	6.00%	4.16%	5.32%	62.00%	62.00%	65.57%	\$0.00	8.85%	19.53	3.67				
												Including Flotation Costs						
												Mean	8.55%	21.68	8.68%			
												Max	9.09%		9.22%			
												Min	8.02%		8.15%			
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
ALLETE, Inc.	ALE	\$3.13	\$3.24	\$3.35	\$3.47	\$3.59	\$3.72	\$3.85	\$3.99	\$4.16	\$4.34	\$4.55	\$4.77	\$5.03	\$5.29	\$5.58	\$5.87	\$6.19
Black Hills Corporation	BKH	\$3.38	\$3.53	\$3.69	\$3.85	\$4.02	\$4.20	\$4.39	\$4.59	\$4.81	\$5.05	\$5.30	\$5.58	\$5.87	\$6.18	\$6.51	\$6.86	\$7.22
El Paso Electric Company	EE	\$2.42	\$2.49	\$2.57	\$2.64	\$2.72	\$2.81	\$2.89	\$2.99	\$3.10	\$3.23	\$3.38	\$3.54	\$3.73	\$3.93	\$4.14	\$4.36	\$4.59
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.70	\$1.76	\$1.82	\$1.88	\$1.95	\$2.02	\$2.09	\$2.18	\$2.27	\$2.38	\$2.50	\$2.63	\$2.77	\$2.92	\$3.08	\$3.24
Northwestern Corporation	NWE	\$3.34	\$3.42	\$3.51	\$3.60	\$3.69	\$3.78	\$3.87	\$3.99	\$4.13	\$4.29	\$4.47	\$4.69	\$4.94	\$5.20	\$5.48	\$5.77	\$6.08
OGE Energy Corp.	OGE	\$1.92	\$2.02	\$2.12	\$2.24	\$2.35	\$2.47	\$2.60	\$2.74	\$2.88	\$3.03	\$3.19	\$3.36	\$3.54	\$3.73	\$3.93	\$4.14	\$4.36
PNM Resources, Inc.	PNM	\$1.92	\$2.00	\$2.08	\$2.17	\$2.25	\$2.35	\$2.44	\$2.55	\$2.66	\$2.79	\$2.93	\$3.08	\$3.24	\$3.41	\$3.59	\$3.78	\$3.98
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.61	\$4.81	\$5.01	\$5.21	\$5.43	\$5.66	\$5.90	\$6.17	\$6.46	\$6.78	\$7.13	\$7.51	\$7.91	\$8.33	\$8.77	\$9.24
Projected Annual Dividend Payout Ratio		[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]		
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%		
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%		
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%		
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Projected Annual Cash Flows		[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value	
ALLETE, Inc.	ALE	\$2.21	\$2.29	\$2.37	\$2.45	\$2.54	\$2.63	\$2.74	\$2.85	\$2.99	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$4.06	\$158.31	
Black Hills Corporation	BKH	\$2.18	\$2.25	\$2.32	\$2.40	\$2.56	\$2.73	\$2.92	\$3.12	\$3.35	\$3.59	\$3.85	\$4.05	\$4.27	\$4.50	\$4.74	\$135.63	
El Paso Electric Company	EE	\$1.57	\$1.65	\$1.73	\$1.82	\$1.88	\$1.95	\$2.02	\$2.11	\$2.21	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$3.01	\$112.11	
Hawaiian Electric Industries, Inc.	HE	\$1.07	\$1.12	\$1.16	\$1.21	\$1.26	\$1.32	\$1.38	\$1.46	\$1.54	\$1.63	\$1.73	\$1.82	\$1.92	\$2.02	\$2.13	\$76.97	
Northwestern Corporation	NWE	\$2.28	\$2.37	\$2.47	\$2.57	\$2.62	\$2.68	\$2.76	\$2.86	\$2.97	\$3.09	\$3.24	\$3.41	\$3.59	\$3.78	\$3.99	\$125.19	
OGE Energy Corp.	OGE	\$1.51	\$1.59	\$1.67	\$1.76	\$1.83	\$1.90	\$1.98	\$2.06	\$2.14	\$2.23	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$79.81	
PNM Resources, Inc.	PNM	\$1.04	\$1.08	\$1.13	\$1.17	\$1.28	\$1.39	\$1.51	\$1.64	\$1.79	\$1.95	\$2.12	\$2.24	\$2.36	\$2.48	\$2.61	\$89.31	
Pinnacle West Capital Corporation	PNW	\$2.98	\$3.10	\$3.23	\$3.37	\$3.54	\$3.72	\$3.92	\$4.14	\$4.38	\$4.64	\$4.92	\$5.19	\$5.46	\$5.75	\$6.06	\$180.48	
Projected Annual Data Investor Cash Flows		[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]
Company	Ticker	Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33
ALLETE, Inc.	ALE	(\$76.90)	\$0.00	\$1.93	\$2.25	\$2.37	\$2.45	\$2.54	\$2.63	\$2.74	\$2.85	\$2.99	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$162.36
Black Hills Corporation	BKH	(\$64.12)	\$0.00	\$1.90	\$2.22	\$2.32	\$2.40	\$2.56	\$2.73	\$2.92	\$3.12	\$3.35	\$3.59	\$3.85	\$4.05	\$4.27	\$4.50	\$140.37
El Paso Electric Company	EE	(\$54.34)	\$0.00	\$1.37	\$1.59	\$1.73	\$1.82	\$1.88	\$1.95	\$2.02	\$2.11	\$2.21	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$115.12
Hawaiian Electric Industries, Inc.	HE	(\$37.01)	\$0.00	\$0.94	\$1.09	\$1.16	\$1.21	\$1.26	\$1.32	\$1.38	\$1.46	\$1.54	\$1.63	\$1.73	\$1.82	\$1.92	\$2.02	\$79.09
Northwestern Corporation	NWE	(\$61.78)	\$0.00	\$1.99	\$2.31	\$2.47	\$2.57	\$2.62	\$2.68	\$2.76	\$2.86	\$2.97	\$3.09	\$3.24	\$3.41	\$3.59	\$3.78	\$129.18
OGE Energy Corp.	OGE	(\$39.18)	\$0.00	\$1.32	\$1.55	\$1.67	\$1.76	\$1.83	\$1.90	\$1.98	\$2.06	\$2.14	\$2.23	\$2.32	\$2.45	\$2.58	\$2.71	\$82.66
PNM Resources, Inc.	PNM	(\$41.40)	\$0.00	\$0.91	\$1.06	\$1.13	\$1.17	\$1.28	\$1.39	\$1.51	\$1.64	\$1.79	\$1.95	\$2.12	\$2.24	\$2.36	\$2.48	\$91.93
Pinnacle West Capital Corporation	PNW	(\$86.69)	\$0.00	\$2.60	\$3.04	\$3.23	\$3.37	\$3.54	\$3.72	\$3.92	\$4.14	\$4.38	\$4.64	\$4.92	\$5.19	\$5.46	\$5.75	\$186.54

Multi-Stage Growth Discounted Cash Flow Model  
 180 Day Average Stock Price  
 Average EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]							
Company	Ticker	Stock Price	EPS Growth Rate Estimates				Long-Term Value Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio							
			Zacks	First Call	Line	Average		2019	2022	2029	Proof	IRR									
ALLETE, Inc.	ALE	\$76.55	NA	6.00%	3.50%	4.75%	5.32%	66.00%	66.00%	65.57%	\$0.00	8.30%	23.15	4.35							
Black Hills Corporation	BKH	\$61.83	4.70%	4.46%	6.50%	5.22%	5.32%	59.00%	57.00%	65.57%	\$0.00	9.35%	17.12	3.22							
El Paso Electric Company	EE	\$57.24	4.40%	5.10%	3.00%	4.17%	5.32%	61.00%	65.00%	65.57%	\$0.00	8.25%	23.54	4.43							
Hawaiian Electric Industries, Inc.	HE	\$35.90	6.40%	7.80%	3.50%	5.90%	5.32%	61.00%	62.00%	65.57%	\$0.00	8.91%	19.24	3.62							
Northwestern Corporation	NWE	\$59.97	2.80%	2.59%	2.50%	2.56%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.79%	19.87	3.74							
OGE Energy Corp.	OGE	\$37.55	5.20%	NA	6.00%	5.60%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.38%	17.02	3.20							
PNM Resources, Inc.	PNM	\$40.10	4.70%	4.10%	7.50%	5.43%	5.32%	50.00%	50.00%	65.57%	\$0.00	8.82%	19.69	3.70							
Pinnacle West Capital Corporation	PNW	\$83.10	4.60%	4.16%	6.00%	4.92%	5.32%	62.00%	62.00%	65.57%	\$0.00	9.22%	17.69	3.33	Including Flotation Costs						
												Mean	8.88%	19.66							9.01%
												Max	9.38%								9.51%
												Min	8.25%								8.38%
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]			
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033			
ALLETE, Inc.	ALE	\$3.13	\$3.28	\$3.43	\$3.60	\$3.77	\$3.95	\$4.13	\$4.34	\$4.55	\$4.78	\$5.02	\$5.29	\$5.57	\$5.86	\$6.17	\$6.50	\$6.85			
Black Hills Corporation	BKH	\$3.38	\$3.56	\$3.74	\$3.94	\$4.14	\$4.36	\$4.59	\$4.83	\$5.08	\$5.35	\$5.63	\$5.93	\$6.24	\$6.58	\$6.93	\$7.29	\$7.68			
El Paso Electric Company	EE	\$2.42	\$2.52	\$2.63	\$2.74	\$2.85	\$2.97	\$3.09	\$3.23	\$3.37	\$3.53	\$3.71	\$3.90	\$4.10	\$4.32	\$4.55	\$4.80	\$5.05			
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.74	\$1.84	\$1.95	\$2.06	\$2.18	\$2.31	\$2.45	\$2.59	\$2.73	\$2.88	\$3.04	\$3.20	\$3.37	\$3.55	\$3.74	\$3.94			
Northwestern Corporation	NWE	\$3.34	\$3.43	\$3.51	\$3.60	\$3.70	\$3.79	\$3.89	\$4.01	\$4.14	\$4.31	\$4.50	\$4.72	\$4.97	\$5.23	\$5.51	\$5.80	\$6.11			
OGE Energy Corp.	OGE	\$1.92	\$2.03	\$2.14	\$2.26	\$2.39	\$2.52	\$2.66	\$2.81	\$2.97	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$4.06	\$4.27	\$4.50			
PNM Resources, Inc.	PNM	\$1.92	\$2.02	\$2.13	\$2.25	\$2.37	\$2.50	\$2.64	\$2.78	\$2.93	\$3.09	\$3.25	\$3.43	\$3.61	\$3.80	\$4.00	\$4.22	\$4.44			
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.65	\$4.88	\$5.12	\$5.37	\$5.63	\$5.91	\$6.20	\$6.52	\$6.85	\$7.21	\$7.59	\$7.99	\$8.41	\$8.86	\$9.33	\$9.83			
Projected Annual Dividend Payout Ratio		[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]					
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033					
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%			
Projected Annual Cash Flows		[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	Terminal Value			
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value				
ALLETE, Inc.	ALE	\$2.27	\$2.37	\$2.49	\$2.61	\$2.73	\$2.86	\$2.99	\$3.14	\$3.30	\$3.47	\$3.65	\$3.84	\$4.05	\$4.26	\$4.49	\$158.54				
Black Hills Corporation	BKH	\$2.21	\$2.30	\$2.39	\$2.48	\$2.67	\$2.87	\$3.08	\$3.31	\$3.55	\$3.82	\$4.09	\$4.31	\$4.54	\$4.78	\$5.04	\$131.56				
El Paso Electric Company	EE	\$1.60	\$1.70	\$1.81	\$1.93	\$2.01	\$2.10	\$2.20	\$2.31	\$2.42	\$2.55	\$2.69	\$2.83	\$2.99	\$3.14	\$3.31	\$118.89				
Hawaiian Electric Industries, Inc.	HE	\$1.12	\$1.19	\$1.27	\$1.35	\$1.45	\$1.54	\$1.64	\$1.75	\$1.86	\$1.98	\$2.10	\$2.21	\$2.33	\$2.45	\$2.58	\$75.75				
Northwestern Corporation	NWE	\$2.28	\$2.38	\$2.48	\$2.58	\$2.63	\$2.70	\$2.78	\$2.87	\$2.98	\$3.11	\$3.26	\$3.43	\$3.61	\$3.80	\$4.01	\$121.43				
OGE Energy Corp.	OGE	\$1.52	\$1.61	\$1.70	\$1.79	\$1.87	\$1.95	\$2.04	\$2.12	\$2.21	\$2.30	\$2.40	\$2.53	\$2.66	\$2.80	\$2.95	\$76.57				
PNM Resources, Inc.	PNM	\$1.07	\$1.13	\$1.19	\$1.25	\$1.38	\$1.51	\$1.66	\$1.82	\$1.99	\$2.17	\$2.37	\$2.49	\$2.62	\$2.76	\$2.91	\$87.44				
Pinnacle West Capital Corporation	PNW	\$3.02	\$3.17	\$3.33	\$3.49	\$3.69	\$3.91	\$4.14	\$4.39	\$4.65	\$4.93	\$5.24	\$5.52	\$5.81	\$6.12	\$6.44	\$173.82				
Projected Annual Data Investor Cash Flows		[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]			
Company	Ticker	Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33			
ALLETE, Inc.	ALE	(\$76.55)	\$0.00	\$1.98	\$2.32	\$2.49	\$2.61	\$2.73	\$2.86	\$2.99	\$3.14	\$3.30	\$3.47	\$3.65	\$3.84	\$4.05	\$4.26	\$163.03			
Black Hills Corporation	BKH	(\$61.83)	\$0.00	\$1.93	\$2.27	\$2.39	\$2.48	\$2.67	\$2.87	\$3.08	\$3.31	\$3.55	\$3.82	\$4.09	\$4.31	\$4.54	\$4.78	\$136.60			
El Paso Electric Company	EE	(\$57.24)	\$0.00	\$1.40	\$1.64	\$1.81	\$1.93	\$2.01	\$2.10	\$2.20	\$2.31	\$2.42	\$2.55	\$2.69	\$2.83	\$2.99	\$3.14	\$122.20			
Hawaiian Electric Industries, Inc.	HE	(\$35.90)	\$0.00	\$0.98	\$1.16	\$1.27	\$1.35	\$1.45	\$1.54	\$1.64	\$1.75	\$1.86	\$1.98	\$2.10	\$2.21	\$2.33	\$2.45	\$78.33			
Northwestern Corporation	NWE	(\$59.97)	\$0.00	\$2.00	\$2.31	\$2.48	\$2.58	\$2.63	\$2.70	\$2.78	\$2.87	\$2.98	\$3.11	\$3.26	\$3.43	\$3.61	\$3.80	\$125.44			
OGE Energy Corp.	OGE	(\$37.55)	\$0.00	\$1.33	\$1.56	\$1.70	\$1.79	\$1.87	\$1.95	\$2.04	\$2.12	\$2.21	\$2.30	\$2.40	\$2.53	\$2.66	\$2.80	\$79.52			
PNM Resources, Inc.	PNM	(\$40.10)	\$0.00	\$0.93	\$1.10	\$1.19	\$1.25	\$1.38	\$1.51	\$1.66	\$1.82	\$1.99	\$2.17	\$2.37	\$2.49	\$2.62	\$2.76	\$90.36			
Pinnacle West Capital Corporation	PNW	(\$83.10)	\$0.00	\$2.64	\$3.10	\$3.33	\$3.49	\$3.69	\$3.91	\$4.14	\$4.39	\$4.65	\$4.93	\$5.24	\$5.52	\$5.81	\$6.12	\$180.26			

Multi-Stage Growth Discounted Cash Flow Model  
 180 Day Average Stock Price  
 High EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]				
Company	Ticker	Stock Price	Zacks	EPS Growth Rate Estimates			Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio				
				First Call	Line	High Growth		2019	2022	2029	Proof	IRR						
ALLETE, Inc.	ALE	\$76.55	NA	6.00%	3.50%	6.00%	5.32%	66.00%	66.00%	65.57%	\$0.00	8.59%	21.07	3.96				
Black Hills Corporation	BKH	\$61.83	4.70%	4.46%	6.50%	6.50%	5.32%	59.00%	57.00%	65.57%	\$0.00	9.74%	15.62	2.94				
El Paso Electric Company	EE	\$57.24	4.40%	5.10%	3.00%	5.10%	5.32%	61.00%	65.00%	65.57%	\$0.00	8.47%	21.94	4.12				
Hawaiian Electric Industries, Inc.	HE	\$35.90	6.40%	7.80%	3.50%	7.80%	5.32%	61.00%	62.00%	65.57%	\$0.00	9.44%	16.77	3.15				
Northwestern Corporation	NWE	\$59.97	2.80%	2.59%	2.50%	2.60%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.80%	19.82	3.73				
OGE Energy Corp.	OGE	\$37.55	5.20%	NA	6.00%	6.00%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.50%	16.52	3.11				
PNM Resources, Inc.	PNM	\$40.10	4.70%	4.10%	7.50%	7.50%	5.32%	50.00%	50.00%	65.57%	\$0.00	9.38%	17.00	3.20				
Pinnacle West Capital Corporation	PNW	\$83.10	4.60%	4.16%	6.00%	6.00%	5.32%	62.00%	62.00%	65.57%	\$0.00	9.54%	16.34	3.07				
												Mean	9.18%	18.13	9.31%			
												Max	9.74%		9.87%			
												Min	8.47%		8.60%			
Projected Annual Earnings per Share																		
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
ALLETE, Inc.	ALE	\$3.13	\$3.32	\$3.52	\$3.73	\$3.95	\$4.19	\$4.44	\$4.70	\$4.97	\$5.25	\$5.55	\$5.85	\$6.16	\$6.49	\$6.83	\$7.19	\$7.58
Black Hills Corporation	BKH	\$3.38	\$3.60	\$3.83	\$4.08	\$4.35	\$4.63	\$4.93	\$5.24	\$5.56	\$5.89	\$6.23	\$6.57	\$6.92	\$7.29	\$7.68	\$8.08	\$8.51
El Paso Electric Company	EE	\$2.42	\$2.54	\$2.67	\$2.81	\$2.95	\$3.10	\$3.26	\$3.43	\$3.61	\$3.79	\$3.99	\$4.20	\$4.43	\$4.66	\$4.91	\$5.17	\$5.45
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.77	\$1.91	\$2.05	\$2.21	\$2.39	\$2.57	\$2.76	\$2.96	\$3.15	\$3.34	\$3.54	\$3.72	\$3.92	\$4.13	\$4.35	\$4.58
Northwestern Corporation	NWE	\$3.34	\$3.43	\$3.52	\$3.61	\$3.70	\$3.80	\$3.90	\$4.02	\$4.16	\$4.32	\$4.51	\$4.73	\$4.98	\$5.25	\$5.53	\$5.82	\$6.13
OGE Energy Corp.	OGE	\$1.92	\$2.04	\$2.16	\$2.29	\$2.42	\$2.57	\$2.72	\$2.88	\$3.05	\$3.22	\$3.40	\$3.59	\$3.78	\$3.98	\$4.19	\$4.41	\$4.65
PNM Resources, Inc.	PNM	\$1.92	\$2.06	\$2.22	\$2.39	\$2.56	\$2.76	\$2.96	\$3.17	\$3.39	\$3.61	\$3.82	\$4.04	\$4.26	\$4.48	\$4.72	\$4.97	\$5.24
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.70	\$4.98	\$5.28	\$5.59	\$5.93	\$6.28	\$6.65	\$7.04	\$7.44	\$7.85	\$8.27	\$8.72	\$9.18	\$9.67	\$10.18	\$10.72
Projected Annual Dividend Payout Ratio																		
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%		
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%		
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%		
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Projected Annual Cash Flows																		
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value	
ALLETE, Inc.	ALE	\$2.32	\$2.46	\$2.61	\$2.76	\$2.93	\$3.10	\$3.27	\$3.45	\$3.64	\$3.84	\$4.04	\$4.25	\$4.48	\$4.72	\$4.97	\$159.64	
Black Hills Corporation	BKH	\$2.26	\$2.38	\$2.51	\$2.64	\$2.87	\$3.12	\$3.38	\$3.65	\$3.93	\$4.23	\$4.54	\$4.78	\$5.03	\$5.30	\$5.58	\$133.00	
El Paso Electric Company	EE	\$1.63	\$1.75	\$1.88	\$2.02	\$2.12	\$2.23	\$2.35	\$2.48	\$2.61	\$2.75	\$2.90	\$3.06	\$3.22	\$3.39	\$3.57	\$119.49	
Hawaiian Electric Industries, Inc.	HE	\$1.16	\$1.26	\$1.37	\$1.48	\$1.61	\$1.74	\$1.88	\$2.02	\$2.16	\$2.30	\$2.44	\$2.57	\$2.71	\$2.85	\$3.00	\$76.83	
Northwestern Corporation	NWE	\$2.29	\$2.38	\$2.48	\$2.58	\$2.64	\$2.70	\$2.78	\$2.88	\$2.99	\$3.12	\$3.27	\$3.44	\$3.62	\$3.82	\$4.02	\$121.45	
OGE Energy Corp.	OGE	\$1.53	\$1.62	\$1.72	\$1.82	\$1.91	\$2.00	\$2.09	\$2.19	\$2.28	\$2.38	\$2.48	\$2.61	\$2.75	\$2.89	\$3.05	\$76.77	
PNM Resources, Inc.	PNM	\$1.11	\$1.19	\$1.28	\$1.38	\$1.55	\$1.73	\$1.92	\$2.12	\$2.34	\$2.56	\$2.79	\$2.94	\$3.10	\$3.26	\$3.43	\$89.02	
Pinnacle West Capital Corporation	PNW	\$3.09	\$3.27	\$3.47	\$3.68	\$3.93	\$4.19	\$4.47	\$4.76	\$5.07	\$5.38	\$5.71	\$6.02	\$6.34	\$6.68	\$7.03	\$175.24	
Projected Annual Data Investor Cash Flows																		
Company	Ticker	Initial	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33
ALLETE, Inc.	ALE	(\$76.55)	\$0.00	\$2.03	\$2.39	\$2.61	\$2.76	\$2.93	\$3.10	\$3.27	\$3.45	\$3.64	\$3.84	\$4.04	\$4.25	\$4.48	\$4.72	\$164.61
Black Hills Corporation	BKH	(\$61.83)	\$0.00	\$1.98	\$2.34	\$2.51	\$2.64	\$2.87	\$3.12	\$3.38	\$3.65	\$3.93	\$4.23	\$4.54	\$4.78	\$5.03	\$5.30	\$138.58
El Paso Electric Company	EE	(\$57.24)	\$0.00	\$1.43	\$1.67	\$1.88	\$2.02	\$2.12	\$2.23	\$2.35	\$2.48	\$2.61	\$2.75	\$2.90	\$3.06	\$3.22	\$3.39	\$123.07
Hawaiian Electric Industries, Inc.	HE	(\$35.90)	\$0.00	\$1.02	\$1.21	\$1.37	\$1.48	\$1.61	\$1.74	\$1.88	\$2.02	\$2.16	\$2.30	\$2.44	\$2.57	\$2.71	\$2.85	\$79.83
Northwestern Corporation	NWE	(\$59.97)	\$0.00	\$2.00	\$2.32	\$2.48	\$2.58	\$2.64	\$2.70	\$2.78	\$2.88	\$2.99	\$3.12	\$3.27	\$3.44	\$3.62	\$3.82	\$125.47
OGE Energy Corp.	OGE	(\$37.55)	\$0.00	\$1.34	\$1.58	\$1.72	\$1.82	\$1.91	\$2.00	\$2.09	\$2.19	\$2.28	\$2.38	\$2.48	\$2.61	\$2.75	\$2.89	\$79.82
PNM Resources, Inc.	PNM	(\$40.10)	\$0.00	\$0.97	\$1.15	\$1.28	\$1.38	\$1.55	\$1.73	\$1.92	\$2.12	\$2.34	\$2.56	\$2.79	\$2.94	\$3.10	\$3.26	\$92.46
Pinnacle West Capital Corporation	PNW	(\$83.10)	\$0.00	\$2.70	\$3.18	\$3.47	\$3.68	\$3.93	\$4.19	\$4.47	\$4.76	\$5.07	\$5.38	\$5.71	\$6.02	\$6.34	\$6.68	\$182.27

Multi-Stage Growth Discounted Cash Flow Model  
 180 Day Average Stock Price  
 Low EPS Growth Rate Estimate in First Stage

Inputs	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]							
Company	Ticker	Stock Price	EPS Growth Rate Estimates			Long-Term Growth	Payout Ratio			Iterative Solution Proof	IRR	Terminal P/E Ratio	Terminal PEG Ratio							
			Zacks	First Call	Line		Low Growth	2019	2022					2029						
ALLETE, Inc.	ALE	\$76.55	NA	6.00%	3.50%	3.50%	5.32%	66.00%	66.00%	65.57%	\$0.00	8.03%	25.48	4.79						
Black Hills Corporation	BKH	\$61.83	4.70%	4.46%	6.50%	4.46%	5.32%	59.00%	57.00%	65.57%	\$0.00	9.13%	18.10	3.40						
El Paso Electric Company	EE	\$57.24	4.40%	5.10%	3.00%	3.00%	5.32%	61.00%	65.00%	65.57%	\$0.00	8.00%	25.75	4.84						
Hawaiian Electric Industries, Inc.	HE	\$35.90	6.40%	7.80%	3.50%	3.50%	5.32%	61.00%	62.00%	65.57%	\$0.00	8.32%	23.03	4.33						
Northwestern Corporation	NWE	\$59.97	2.80%	2.59%	2.50%	2.50%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.78%	19.97	3.76						
OGE Energy Corp.	OGE	\$37.55	5.20%	NA	6.00%	5.20%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.26%	17.53	3.30						
PNM Resources, Inc.	PNM	\$40.10	4.70%	4.10%	7.50%	4.10%	5.32%	50.00%	50.00%	65.57%	\$0.00	8.50%	21.72	4.08						
Pinnacle West Capital Corporation	PNW	\$83.10	4.60%	4.16%	6.00%	4.16%	5.32%	62.00%	62.00%	65.57%	\$0.00	9.01%	18.71	3.52						
										Mean	8.63%	21.29		8.76%						
										Max	9.26%			9.39%						
										Min	8.00%			8.13%						
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]		
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE	\$3.13	\$3.24	\$3.35	\$3.47	\$3.59	\$3.72	\$3.85	\$3.99	\$4.16	\$4.34	\$4.55	\$4.77	\$5.03	\$5.29	\$5.58	\$5.87	\$6.19		
Black Hills Corporation	BKH	\$3.38	\$3.53	\$3.69	\$3.85	\$4.02	\$4.20	\$4.39	\$4.59	\$4.81	\$5.05	\$5.30	\$5.58	\$5.87	\$6.18	\$6.51	\$6.86	\$7.22		
El Paso Electric Company	EE	\$2.42	\$2.49	\$2.57	\$2.64	\$2.72	\$2.81	\$2.89	\$2.99	\$3.10	\$3.23	\$3.38	\$3.54	\$3.73	\$3.93	\$4.14	\$4.36	\$4.59		
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.70	\$1.76	\$1.82	\$1.88	\$1.95	\$2.02	\$2.09	\$2.18	\$2.27	\$2.38	\$2.50	\$2.63	\$2.77	\$2.92	\$3.08	\$3.24		
Northwestern Corporation	NWE	\$3.34	\$3.42	\$3.51	\$3.60	\$3.69	\$3.78	\$3.87	\$3.99	\$4.13	\$4.29	\$4.47	\$4.69	\$4.94	\$5.20	\$5.48	\$5.77	\$6.08		
OGE Energy Corp.	OGE	\$1.92	\$2.02	\$2.12	\$2.24	\$2.35	\$2.47	\$2.60	\$2.74	\$2.88	\$3.03	\$3.19	\$3.36	\$3.54	\$3.73	\$3.93	\$4.14	\$4.36		
PNM Resources, Inc.	PNM	\$1.92	\$2.00	\$2.08	\$2.17	\$2.25	\$2.35	\$2.44	\$2.55	\$2.66	\$2.79	\$2.93	\$3.08	\$3.24	\$3.41	\$3.59	\$3.78	\$3.98		
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.61	\$4.81	\$5.01	\$5.21	\$5.43	\$5.66	\$5.90	\$6.17	\$6.46	\$6.78	\$7.13	\$7.51	\$7.91	\$8.33	\$8.77	\$9.24		
Projected Annual Dividend Payout Ratio				[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]		
Company	Ticker			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE			66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%		
Black Hills Corporation	BKH			59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
El Paso Electric Company	EE			61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%		
Hawaiian Electric Industries, Inc.	HE			61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Northwestern Corporation	NWE			65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%		
OGE Energy Corp.	OGE			71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
PNM Resources, Inc.	PNM			50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
Pinnacle West Capital Corporation	PNW			62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Projected Annual Cash Flows				[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	
Company	Ticker			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value	
ALLETE, Inc.	ALE			\$2.21	\$2.29	\$2.37	\$2.45	\$2.54	\$2.63	\$2.74	\$2.85	\$2.99	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$4.06	\$157.58	
Black Hills Corporation	BKH			\$2.18	\$2.25	\$2.32	\$2.40	\$2.56	\$2.73	\$2.92	\$3.12	\$3.35	\$3.59	\$3.85	\$4.05	\$4.27	\$4.50	\$4.74	\$130.79	
El Paso Electric Company	EE			\$1.57	\$1.65	\$1.73	\$1.82	\$1.88	\$1.95	\$2.02	\$2.11	\$2.21	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$3.01	\$118.21	
Hawaiian Electric Industries, Inc.	HE			\$1.07	\$1.12	\$1.16	\$1.21	\$1.26	\$1.32	\$1.38	\$1.46	\$1.54	\$1.63	\$1.73	\$1.82	\$1.92	\$2.02	\$2.13	\$74.64	
Northwestern Corporation	NWE			\$2.28	\$2.37	\$2.47	\$2.57	\$2.62	\$2.68	\$2.76	\$2.86	\$2.97	\$3.09	\$3.24	\$3.41	\$3.59	\$3.78	\$3.99	\$121.39	
OGE Energy Corp.	OGE			\$1.51	\$1.59	\$1.67	\$1.76	\$1.83	\$1.90	\$1.98	\$2.06	\$2.14	\$2.23	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$76.38	
PNM Resources, Inc.	PNM			\$1.04	\$1.08	\$1.13	\$1.17	\$1.28	\$1.39	\$1.51	\$1.64	\$1.79	\$1.95	\$2.12	\$2.24	\$2.36	\$2.48	\$2.61	\$86.56	
Pinnacle West Capital Corporation	PNW			\$2.98	\$3.10	\$3.23	\$3.37	\$3.54	\$3.72	\$3.92	\$4.14	\$4.38	\$4.64	\$4.92	\$5.19	\$5.46	\$5.75	\$6.06	\$172.90	
Projected Annual Data Investor Cash Flows				[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]
Company	Ticker			Initial	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33
ALLETE, Inc.	ALE			(\$76.55)	\$0.00	\$1.93	\$2.25	\$2.37	\$2.45	\$2.54	\$2.63	\$2.74	\$2.85	\$2.99	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$161.64
Black Hills Corporation	BKH			(\$61.83)	\$0.00	\$1.90	\$2.22	\$2.32	\$2.40	\$2.56	\$2.73	\$2.92	\$3.12	\$3.35	\$3.59	\$3.85	\$4.05	\$4.27	\$4.50	\$135.52
El Paso Electric Company	EE			(\$57.24)	\$0.00	\$1.37	\$1.59	\$1.73	\$1.82	\$1.88	\$1.95	\$2.02	\$2.11	\$2.21	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$121.22
Hawaiian Electric Industries, Inc.	HE			(\$35.90)	\$0.00	\$0.94	\$1.09	\$1.16	\$1.21	\$1.26	\$1.32	\$1.38	\$1.46	\$1.54	\$1.63	\$1.73	\$1.82	\$1.92	\$2.02	\$76.76
Northwestern Corporation	NWE			(\$59.97)	\$0.00	\$1.99	\$2.31	\$2.47	\$2.57	\$2.62	\$2.68	\$2.76	\$2.86	\$2.97	\$3.09	\$3.24	\$3.41	\$3.59	\$3.78	\$125.38
OGE Energy Corp.	OGE			(\$37.55)	\$0.00	\$1.32	\$1.55	\$1.67	\$1.76	\$1.83	\$1.90	\$1.98	\$2.06	\$2.14	\$2.23	\$2.32	\$2.45	\$2.58	\$2.71	\$79.23
PNM Resources, Inc.	PNM			(\$40.10)	\$0.00	\$0.91	\$1.06	\$1.13	\$1.17	\$1.28	\$1.39	\$1.51	\$1.64	\$1.79	\$1.95	\$2.12	\$2.24	\$2.36	\$2.48	\$89.18
Pinnacle West Capital Corporation	PNW			(\$83.10)	\$0.00	\$2.60	\$3.04	\$3.23	\$3.37	\$3.54	\$3.72	\$3.92	\$4.14	\$4.38	\$4.64	\$4.92	\$5.19	\$5.46	\$5.75	\$178.96

Multi-Stage Growth Discounted Cash Flow Model - Terminal P/E Ratio Equals 19.82  
 30 Day Average Stock Price  
 Average EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]				
Company	Ticker	Stock Price	EPS Growth Rate Estimates				Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio				
			Zacks	First Call	Line	Average		2019	2022	2029	Proof	IRR						
ALLETE, Inc.	ALE	\$75.79	NA	6.00%	3.50%	4.75%	5.32%	66.00%	66.00%	65.57%	\$0.00	7.47%	19.82	3.73				
Black Hills Corporation	BKH	\$66.05	4.70%	4.46%	6.50%	5.22%	5.32%	59.00%	57.00%	65.57%	\$0.00	9.56%	19.82	3.73				
El Paso Electric Company	EE	\$51.25	4.40%	5.10%	3.00%	4.17%	5.32%	61.00%	65.00%	65.57%	\$0.00	8.25%	19.82	3.73				
Hawaiian Electric Industries, Inc.	HE	\$36.89	6.40%	7.80%	3.50%	5.90%	5.32%	61.00%	62.00%	65.57%	\$0.00	8.88%	19.82	3.73				
Northwestern Corporation	NWE	\$62.50	2.80%	2.59%	2.50%	2.56%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.38%	19.82	3.73				
OGE Energy Corp.	OGE	\$40.48	5.20%	NA	6.00%	5.60%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.51%	19.82	3.73				
PNM Resources, Inc.	PNM	\$41.99	4.70%	4.10%	7.50%	5.43%	5.32%	50.00%	50.00%	65.57%	\$0.00	8.44%	19.82	3.73				
Pinnacle West Capital Corporation	PNW	\$86.95	4.60%	4.16%	6.00%	4.92%	5.32%	62.00%	62.00%	65.57%	\$0.00	9.44%	19.82	3.73				
												Mean	8.74%	19.82	8.87%			
												Max	9.56%		9.69%			
												Min	7.47%		7.60%			
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
ALLETE, Inc.	ALE	\$3.13	\$3.28	\$3.43	\$3.60	\$3.77	\$3.95	\$4.13	\$4.34	\$4.55	\$4.78	\$5.02	\$5.29	\$5.57	\$5.86	\$6.17	\$6.50	\$6.85
Black Hills Corporation	BKH	\$3.38	\$3.56	\$3.74	\$3.94	\$4.14	\$4.36	\$4.59	\$4.83	\$5.08	\$5.35	\$5.63	\$5.93	\$6.24	\$6.58	\$6.93	\$7.29	\$7.68
El Paso Electric Company	EE	\$2.42	\$2.52	\$2.63	\$2.74	\$2.85	\$2.97	\$3.09	\$3.23	\$3.37	\$3.53	\$3.71	\$3.90	\$4.10	\$4.32	\$4.55	\$4.80	\$5.05
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.74	\$1.84	\$1.95	\$2.06	\$2.18	\$2.31	\$2.45	\$2.59	\$2.73	\$2.88	\$3.04	\$3.20	\$3.37	\$3.55	\$3.74	\$3.94
Northwestern Corporation	NWE	\$3.34	\$3.43	\$3.51	\$3.60	\$3.70	\$3.79	\$3.89	\$4.01	\$4.14	\$4.31	\$4.50	\$4.72	\$4.97	\$5.23	\$5.51	\$5.80	\$6.11
OGE Energy Corp.	OGE	\$1.92	\$2.03	\$2.14	\$2.26	\$2.39	\$2.52	\$2.66	\$2.81	\$2.97	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$4.06	\$4.27	\$4.50
PNM Resources, Inc.	PNM	\$1.92	\$2.02	\$2.13	\$2.25	\$2.37	\$2.50	\$2.64	\$2.78	\$2.93	\$3.09	\$3.25	\$3.43	\$3.61	\$3.80	\$4.00	\$4.22	\$4.44
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.65	\$4.88	\$5.12	\$5.37	\$5.63	\$5.91	\$6.20	\$6.52	\$6.85	\$7.21	\$7.59	\$7.99	\$8.41	\$8.86	\$9.33	\$9.83
Projected Annual Dividend Payout Ratio			[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%		
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%		
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%		
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Projected Annual Cash Flows			[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value	
ALLETE, Inc.	ALE	\$2.27	\$2.37	\$2.49	\$2.61	\$2.73	\$2.86	\$2.99	\$3.14	\$3.30	\$3.47	\$3.65	\$3.84	\$4.05	\$4.26	\$4.49	\$135.75	
Black Hills Corporation	BKH	\$2.21	\$2.30	\$2.39	\$2.48	\$2.67	\$2.87	\$3.08	\$3.31	\$3.55	\$3.82	\$4.09	\$4.31	\$4.54	\$4.78	\$5.04	\$152.27	
El Paso Electric Company	EE	\$1.60	\$1.70	\$1.81	\$1.93	\$2.01	\$2.10	\$2.20	\$2.31	\$2.42	\$2.55	\$2.69	\$2.83	\$2.99	\$3.14	\$3.31	\$100.09	
Hawaiian Electric Industries, Inc.	HE	\$1.12	\$1.19	\$1.27	\$1.35	\$1.45	\$1.54	\$1.64	\$1.75	\$1.86	\$1.98	\$2.10	\$2.21	\$2.33	\$2.45	\$2.58	\$78.04	
Northwestern Corporation	NWE	\$2.28	\$2.38	\$2.48	\$2.58	\$2.63	\$2.70	\$2.78	\$2.87	\$2.98	\$3.11	\$3.26	\$3.43	\$3.61	\$3.80	\$4.01	\$121.11	
OGE Energy Corp.	OGE	\$1.52	\$1.61	\$1.70	\$1.79	\$1.87	\$1.95	\$2.04	\$2.12	\$2.21	\$2.30	\$2.40	\$2.53	\$2.66	\$2.80	\$2.95	\$89.19	
PNM Resources, Inc.	PNM	\$1.07	\$1.13	\$1.19	\$1.25	\$1.38	\$1.51	\$1.66	\$1.82	\$1.99	\$2.17	\$2.37	\$2.49	\$2.62	\$2.76	\$2.91	\$88.00	
Pinnacle West Capital Corporation	PNW	\$3.02	\$3.17	\$3.33	\$3.49	\$3.69	\$3.91	\$4.14	\$4.39	\$4.65	\$4.93	\$5.24	\$5.52	\$5.81	\$6.12	\$6.44	\$194.79	
Projected Annual Data Investor Cash Flows		[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]
Company	Ticker	Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33
ALLETE, Inc.	ALE	(\$75.79)	\$0.00	\$1.98	\$2.32	\$2.49	\$2.61	\$2.73	\$2.86	\$2.99	\$3.14	\$3.30	\$3.47	\$3.65	\$3.84	\$4.05	\$4.26	\$140.24
Black Hills Corporation	BKH	(\$66.04)	\$0.00	\$1.93	\$2.27	\$2.39	\$2.48	\$2.67	\$2.87	\$3.08	\$3.31	\$3.55	\$3.82	\$4.09	\$4.31	\$4.54	\$4.78	\$157.31
El Paso Electric Company	EE	(\$51.24)	\$0.00	\$1.40	\$1.64	\$1.81	\$1.93	\$2.01	\$2.10	\$2.20	\$2.31	\$2.42	\$2.55	\$2.69	\$2.83	\$2.99	\$3.14	\$103.40
Hawaiian Electric Industries, Inc.	HE	(\$36.69)	\$0.00	\$0.98	\$1.16	\$1.27	\$1.35	\$1.45	\$1.54	\$1.64	\$1.75	\$1.86	\$1.98	\$2.10	\$2.21	\$2.33	\$2.45	\$80.63
Northwestern Corporation	NWE	(\$62.50)	\$0.00	\$2.00	\$2.31	\$2.48	\$2.58	\$2.63	\$2.70	\$2.78	\$2.87	\$2.98	\$3.11	\$3.26	\$3.43	\$3.61	\$3.80	\$125.12
OGE Energy Corp.	OGE	(\$40.48)	\$0.00	\$1.33	\$1.56	\$1.70	\$1.79	\$1.87	\$1.95	\$2.04	\$2.12	\$2.21	\$2.30	\$2.40	\$2.53	\$2.66	\$2.80	\$92.14
PNM Resources, Inc.	PNM	(\$41.99)	\$0.00	\$0.93	\$1.10	\$1.19	\$1.25	\$1.38	\$1.51	\$1.66	\$1.82	\$1.99	\$2.17	\$2.37	\$2.49	\$2.62	\$2.76	\$90.91
Pinnacle West Capital Corporation	PNW	(\$86.95)	\$0.00	\$2.64	\$3.10	\$3.33	\$3.49	\$3.69	\$3.91	\$4.14	\$4.39	\$4.65	\$4.93	\$5.24	\$5.52	\$5.81	\$6.12	\$201.24

Multi-Stage Growth Discounted Cash Flow Model - Terminal P/E Ratio Equals 19.82  
 30 Day Average Stock Price  
 High EPS Growth Rate Estimate in First Stage

Inputs	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]					
Company	Ticker	Stock Price	EPS Growth Rate Estimates			Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio					
			Zacks	First Call	Line		High Growth	2019	2022	2029	Proof			IRR				
ALLETE, Inc.	ALE	\$75.79	NA	6.00%	3.50%	6.00%	5.32%	66.00%	66.00%	65.57%	\$0.00	8.33%	19.82	3.73				
Black Hills Corporation	BKH	\$66.05	4.70%	4.46%	6.50%	6.50%	5.32%	59.00%	57.00%	65.57%	\$0.00	10.46%	19.82	3.73				
El Paso Electric Company	EE	\$51.25	4.40%	5.10%	3.00%	5.10%	5.32%	61.00%	65.00%	65.57%	\$0.00	8.90%	19.82	3.73				
Hawaiian Electric Industries, Inc.	HE	\$36.89	6.40%	7.80%	3.50%	7.80%	5.32%	61.00%	62.00%	65.57%	\$0.00	10.19%	19.82	3.73				
Northwestern Corporation	NWE	\$62.50	2.80%	2.59%	2.50%	2.60%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.41%	19.82	3.73				
OGE Energy Corp.	OGE	\$40.48	5.20%	NA	6.00%	6.00%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.79%	19.82	3.73				
PNM Resources, Inc.	PNM	\$41.99	4.70%	4.10%	7.50%	7.50%	5.32%	50.00%	50.00%	65.57%	\$0.00	9.85%	19.82	3.73				
Pinnacle West Capital Corporation	PNW	\$86.95	4.60%	4.16%	6.00%	6.00%	5.32%	62.00%	62.00%	65.57%	\$0.00	10.20%	19.82	3.73				
											Mean	9.52%	19.82	9.65%				
											Max	10.46%		10.59%				
											Min	8.33%		8.46%				
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
ALLETE, Inc.	ALE	\$3.13	\$3.32	\$3.52	\$3.73	\$3.95	\$4.19	\$4.44	\$4.70	\$4.97	\$5.25	\$5.55	\$5.85	\$6.16	\$6.49	\$6.83	\$7.19	\$7.58
Black Hills Corporation	BKH	\$3.38	\$3.60	\$3.83	\$4.08	\$4.35	\$4.63	\$4.93	\$5.24	\$5.56	\$5.89	\$6.23	\$6.57	\$6.92	\$7.29	\$7.68	\$8.08	\$8.51
El Paso Electric Company	EE	\$2.42	\$2.54	\$2.67	\$2.81	\$2.95	\$3.10	\$3.26	\$3.43	\$3.61	\$3.79	\$3.99	\$4.20	\$4.43	\$4.66	\$4.91	\$5.17	\$5.45
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.77	\$1.91	\$2.05	\$2.21	\$2.39	\$2.57	\$2.76	\$2.96	\$3.15	\$3.34	\$3.54	\$3.72	\$3.92	\$4.13	\$4.35	\$4.58
Northwestern Corporation	NWE	\$3.34	\$3.43	\$3.52	\$3.61	\$3.70	\$3.80	\$3.90	\$4.02	\$4.16	\$4.32	\$4.51	\$4.73	\$4.98	\$5.25	\$5.53	\$5.82	\$6.13
OGE Energy Corp.	OGE	\$1.92	\$2.04	\$2.16	\$2.29	\$2.42	\$2.57	\$2.72	\$2.88	\$3.05	\$3.22	\$3.40	\$3.59	\$3.78	\$3.98	\$4.19	\$4.41	\$4.65
PNM Resources, Inc.	PNM	\$1.92	\$2.06	\$2.22	\$2.39	\$2.56	\$2.76	\$2.96	\$3.17	\$3.39	\$3.61	\$3.82	\$4.04	\$4.26	\$4.48	\$4.72	\$4.97	\$5.24
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.70	\$4.98	\$5.28	\$5.59	\$5.93	\$6.28	\$6.65	\$7.04	\$7.44	\$7.85	\$8.27	\$8.72	\$9.18	\$9.67	\$10.18	\$10.72
Projected Annual Dividend Payout Ratio			[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%		
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%		
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%		
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Projected Annual Cash Flows			[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value	
ALLETE, Inc.	ALE	\$2.32	\$2.46	\$2.61	\$2.76	\$2.93	\$3.10	\$3.27	\$3.45	\$3.64	\$3.84	\$4.04	\$4.25	\$4.48	\$4.72	\$4.97	\$150.15	
Black Hills Corporation	BKH	\$2.26	\$2.38	\$2.51	\$2.64	\$2.87	\$3.12	\$3.38	\$3.65	\$3.93	\$4.23	\$4.54	\$4.78	\$5.03	\$5.30	\$5.58	\$168.77	
El Paso Electric Company	EE	\$1.63	\$1.75	\$1.88	\$2.02	\$2.12	\$2.23	\$2.35	\$2.48	\$2.61	\$2.75	\$2.90	\$3.06	\$3.22	\$3.39	\$3.57	\$107.97	
Hawaiian Electric Industries, Inc.	HE	\$1.16	\$1.26	\$1.37	\$1.48	\$1.61	\$1.74	\$1.88	\$2.02	\$2.16	\$2.30	\$2.44	\$2.57	\$2.71	\$2.85	\$3.00	\$90.80	
Northwestern Corporation	NWE	\$2.29	\$2.38	\$2.48	\$2.58	\$2.64	\$2.70	\$2.78	\$2.88	\$2.99	\$3.12	\$3.27	\$3.44	\$3.62	\$3.82	\$4.02	\$121.48	
OGE Energy Corp.	OGE	\$1.53	\$1.62	\$1.72	\$1.82	\$1.91	\$2.00	\$2.09	\$2.19	\$2.28	\$2.38	\$2.48	\$2.61	\$2.75	\$2.89	\$3.05	\$92.10	
PNM Resources, Inc.	PNM	\$1.11	\$1.19	\$1.28	\$1.38	\$1.55	\$1.73	\$1.92	\$2.12	\$2.34	\$2.56	\$2.79	\$2.94	\$3.10	\$3.26	\$3.43	\$103.81	
Pinnacle West Capital Corporation	PNW	\$3.09	\$3.27	\$3.47	\$3.68	\$3.93	\$4.19	\$4.47	\$4.76	\$5.07	\$5.38	\$5.71	\$6.02	\$6.34	\$6.68	\$7.03	\$212.51	
Projected Annual Data Investor Cash Flows		[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]
Company	Ticker	Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33
ALLETE, Inc.	ALE	(\$75.79)	\$0.00	\$2.03	\$2.39	\$2.61	\$2.76	\$2.93	\$3.10	\$3.27	\$3.45	\$3.64	\$3.84	\$4.04	\$4.25	\$4.48	\$4.72	\$155.12
Black Hills Corporation	BKH	(\$66.04)	\$0.00	\$1.98	\$2.34	\$2.51	\$2.64	\$2.87	\$3.12	\$3.38	\$3.65	\$3.93	\$4.23	\$4.54	\$4.78	\$5.03	\$5.30	\$174.35
El Paso Electric Company	EE	(\$51.24)	\$0.00	\$1.43	\$1.67	\$1.88	\$2.02	\$2.12	\$2.23	\$2.35	\$2.48	\$2.61	\$2.75	\$2.90	\$3.06	\$3.22	\$3.39	\$111.54
Hawaiian Electric Industries, Inc.	HE	(\$36.69)	\$0.00	\$1.02	\$1.21	\$1.37	\$1.48	\$1.61	\$1.74	\$1.88	\$2.02	\$2.16	\$2.30	\$2.44	\$2.57	\$2.71	\$2.85	\$93.80
Northwestern Corporation	NWE	(\$62.50)	\$0.00	\$2.00	\$2.32	\$2.48	\$2.58	\$2.64	\$2.70	\$2.78	\$2.88	\$2.99	\$3.12	\$3.27	\$3.44	\$3.62	\$3.82	\$125.50
OGE Energy Corp.	OGE	(\$40.48)	\$0.00	\$1.34	\$1.58	\$1.72	\$1.82	\$1.91	\$2.00	\$2.09	\$2.19	\$2.28	\$2.38	\$2.48	\$2.61	\$2.75	\$2.89	\$95.15
PNM Resources, Inc.	PNM	(\$41.99)	\$0.00	\$0.97	\$1.15	\$1.28	\$1.38	\$1.55	\$1.73	\$1.92	\$2.12	\$2.34	\$2.56	\$2.79	\$2.94	\$3.10	\$3.26	\$107.24
Pinnacle West Capital Corporation	PNW	(\$86.95)	\$0.00	\$2.70	\$3.18	\$3.47	\$3.68	\$3.93	\$4.19	\$4.47	\$4.76	\$5.07	\$5.38	\$5.71	\$6.02	\$6.34	\$6.68	\$219.54

Multi-Stage Growth Discounted Cash Flow Model - Terminal P/E Ratio Equals 19.82  
 30 Day Average Stock Price  
 Low EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]					
Company	Ticker	Stock Price	EPS Growth Rate Estimates			Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio						
			Zacks	First Call	Line		Low Growth	2019	2022	2029	Proof			IRR					
ALLETE, Inc.	ALE	\$75.79	NA	6.00%	3.50%	3.50%	5.32%	66.00%	66.00%	65.57%	\$0.00	6.62%	19.82	3.73					
Black Hills Corporation	BKH	\$66.05	4.70%	4.46%	6.50%	4.46%	5.32%	59.00%	57.00%	65.57%	\$0.00	9.03%	19.82	3.73					
El Paso Electric Company	EE	\$51.25	4.40%	5.10%	3.00%	3.00%	5.32%	61.00%	65.00%	65.57%	\$0.00	7.44%	19.82	3.73					
Hawaiian Electric Industries, Inc.	HE	\$36.89	6.40%	7.80%	3.50%	3.50%	5.32%	61.00%	62.00%	65.57%	\$0.00	7.23%	19.82	3.73					
Northwestern Corporation	NWE	\$62.50	2.80%	2.59%	2.50%	2.50%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.34%	19.82	3.73					
OGE Energy Corp.	OGE	\$40.48	5.20%	NA	6.00%	5.20%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.22%	19.82	3.73					
PNM Resources, Inc.	PNM	\$41.99	4.70%	4.10%	7.50%	4.10%	5.32%	50.00%	50.00%	65.57%	\$0.00	7.54%	19.82	3.73					
Pinnacle West Capital Corporation	PNW	\$86.95	4.60%	4.16%	6.00%	4.16%	5.32%	62.00%	62.00%	65.57%	\$0.00	8.91%	19.82	3.73					
											Mean	8.04%		8.17%					
											Max	9.22%		9.36%					
											Min	6.62%		6.75%					
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
ALLETE, Inc.	ALE	\$3.13	\$3.24	\$3.35	\$3.47	\$3.59	\$3.72	\$3.85	\$3.99	\$4.16	\$4.34	\$4.55	\$4.77	\$5.03	\$5.29	\$5.58	\$5.87	\$6.19	
Black Hills Corporation	BKH	\$3.38	\$3.53	\$3.69	\$3.85	\$4.02	\$4.20	\$4.39	\$4.59	\$4.81	\$5.05	\$5.30	\$5.58	\$5.87	\$6.18	\$6.51	\$6.86	\$7.22	
El Paso Electric Company	EE	\$2.42	\$2.49	\$2.57	\$2.64	\$2.72	\$2.81	\$2.89	\$2.99	\$3.10	\$3.23	\$3.38	\$3.54	\$3.73	\$3.93	\$4.14	\$4.36	\$4.59	
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.70	\$1.76	\$1.82	\$1.88	\$1.95	\$2.02	\$2.09	\$2.18	\$2.27	\$2.38	\$2.50	\$2.63	\$2.77	\$2.92	\$3.08	\$3.24	
Northwestern Corporation	NWE	\$3.34	\$3.42	\$3.51	\$3.60	\$3.69	\$3.78	\$3.87	\$3.99	\$4.13	\$4.29	\$4.47	\$4.69	\$4.94	\$5.20	\$5.48	\$5.77	\$6.08	
OGE Energy Corp.	OGE	\$1.92	\$2.02	\$2.12	\$2.24	\$2.35	\$2.47	\$2.60	\$2.74	\$2.88	\$3.03	\$3.19	\$3.36	\$3.54	\$3.73	\$3.93	\$4.14	\$4.36	
PNM Resources, Inc.	PNM	\$1.92	\$2.00	\$2.08	\$2.17	\$2.25	\$2.35	\$2.44	\$2.55	\$2.66	\$2.79	\$2.93	\$3.08	\$3.24	\$3.41	\$3.59	\$3.78	\$3.98	
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.61	\$4.81	\$5.01	\$5.21	\$5.43	\$5.66	\$5.90	\$6.17	\$6.46	\$6.78	\$7.13	\$7.51	\$7.91	\$8.33	\$8.77	\$9.24	
Projected Annual Dividend Payout Ratio			[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]		
Company	Ticker		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE		66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%		
Black Hills Corporation	BKH		59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
El Paso Electric Company	EE		61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%		
Hawaiian Electric Industries, Inc.	HE		61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Northwestern Corporation	NWE		65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%		
OGE Energy Corp.	OGE		71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
PNM Resources, Inc.	PNM		50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
Pinnacle West Capital Corporation	PNW		62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Projected Annual Cash Flows			[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	
Company	Ticker		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value	
ALLETE, Inc.	ALE		\$2.21	\$2.29	\$2.37	\$2.45	\$2.54	\$2.63	\$2.74	\$2.85	\$2.99	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$4.06	\$122.59	
Black Hills Corporation	BKH		\$2.18	\$2.25	\$2.32	\$2.40	\$2.56	\$2.73	\$2.92	\$3.12	\$3.35	\$3.59	\$3.85	\$4.05	\$4.27	\$4.50	\$4.74	\$143.18	
El Paso Electric Company	EE		\$1.57	\$1.65	\$1.73	\$1.82	\$1.88	\$1.95	\$2.02	\$2.11	\$2.21	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$3.01	\$90.97	
Hawaiian Electric Industries, Inc.	HE		\$1.07	\$1.12	\$1.16	\$1.21	\$1.26	\$1.32	\$1.38	\$1.46	\$1.54	\$1.63	\$1.73	\$1.82	\$1.92	\$2.02	\$2.13	\$64.23	
Northwestern Corporation	NWE		\$2.28	\$2.37	\$2.47	\$2.57	\$2.62	\$2.68	\$2.76	\$2.86	\$2.97	\$3.09	\$3.24	\$3.41	\$3.59	\$3.78	\$3.99	\$120.48	
OGE Energy Corp.	OGE		\$1.51	\$1.59	\$1.67	\$1.76	\$1.83	\$1.90	\$1.98	\$2.06	\$2.14	\$2.23	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$86.36	
PNM Resources, Inc.	PNM		\$1.04	\$1.08	\$1.13	\$1.17	\$1.28	\$1.39	\$1.51	\$1.64	\$1.79	\$1.95	\$2.12	\$2.24	\$2.36	\$2.48	\$2.61	\$78.98	
Pinnacle West Capital Corporation	PNW		\$2.98	\$3.10	\$3.23	\$3.37	\$3.54	\$3.72	\$3.92	\$4.14	\$4.38	\$4.64	\$4.92	\$5.19	\$5.46	\$5.75	\$6.06	\$183.13	
Projected Annual Data Investor Cash Flows			[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]
Company	Ticker		Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33
ALLETE, Inc.	ALE		(\$75.79)	\$0.00	\$1.93	\$2.25	\$2.37	\$2.45	\$2.54	\$2.63	\$2.74	\$2.85	\$2.99	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$126.65
Black Hills Corporation	BKH		(\$66.04)	\$0.00	\$1.90	\$2.22	\$2.32	\$2.40	\$2.56	\$2.73	\$2.92	\$3.12	\$3.35	\$3.59	\$3.85	\$4.05	\$4.27	\$4.50	\$147.91
El Paso Electric Company	EE		(\$51.24)	\$0.00	\$1.37	\$1.59	\$1.73	\$1.82	\$1.88	\$1.95	\$2.02	\$2.11	\$2.21	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$93.98
Hawaiian Electric Industries, Inc.	HE		(\$36.69)	\$0.00	\$0.94	\$1.09	\$1.16	\$1.21	\$1.26	\$1.32	\$1.38	\$1.46	\$1.54	\$1.63	\$1.73	\$1.82	\$1.92	\$2.02	\$66.36
Northwestern Corporation	NWE		(\$62.50)	\$0.00	\$1.99	\$2.31	\$2.47	\$2.57	\$2.62	\$2.68	\$2.76	\$2.86	\$2.97	\$3.09	\$3.24	\$3.41	\$3.59	\$3.78	\$124.47
OGE Energy Corp.	OGE		(\$40.48)	\$0.00	\$1.32	\$1.55	\$1.67	\$1.76	\$1.83	\$1.90	\$1.98	\$2.06	\$2.14	\$2.23	\$2.32	\$2.45	\$2.58	\$2.71	\$89.22
PNM Resources, Inc.	PNM		(\$41.99)	\$0.00	\$0.91	\$1.06	\$1.13	\$1.17	\$1.28	\$1.39	\$1.51	\$1.64	\$1.79	\$1.95	\$2.12	\$2.24	\$2.36	\$2.48	\$81.60
Pinnacle West Capital Corporation	PNW		(\$86.95)	\$0.00	\$2.60	\$3.04	\$3.23	\$3.37	\$3.54	\$3.72	\$3.92	\$4.14	\$4.38	\$4.64	\$4.92	\$5.19	\$5.46	\$5.75	\$189.19



Multi-Stage Growth Discounted Cash Flow Model - Terminal P/E Ratio Equals 19.82  
 90 Day Average Stock Price  
 Average EPS Growth Rate Estimate in First Stage

Inputs	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]																	
Company	Ticker	Stock Price	EPS Growth Rate Estimates				Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio																
			Zacks	First Call	Line	Average		2019	2022	2029	Proof	IRR																		
ALLETE, Inc.	ALE	\$76.90	NA	6.00%	3.50%	4.75%	5.32%	66.00%	66.00%	65.57%	\$0.00	7.34%	19.82	3.73																
Black Hills Corporation	BKH	\$64.12	4.70%	4.46%	6.50%	5.22%	5.32%	59.00%	57.00%	65.57%	\$0.00	9.85%	19.82	3.73																
El Paso Electric Company	EE	\$54.34	4.40%	5.10%	3.00%	4.17%	5.32%	61.00%	65.00%	65.57%	\$0.00	7.70%	19.82	3.73																
Hawaiian Electric Industries, Inc.	HE	\$37.01	6.40%	7.80%	3.50%	5.90%	5.32%	61.00%	62.00%	65.57%	\$0.00	8.80%	19.82	3.73																
Northwestern Corporation	NWE	\$61.78	2.80%	2.59%	2.50%	2.56%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.49%	19.82	3.73																
OGE Energy Corp.	OGE	\$39.18	5.20%	NA	6.00%	5.60%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.82%	19.82	3.73																
PNM Resources, Inc.	PNM	\$41.40	4.70%	4.10%	7.50%	5.43%	5.32%	50.00%	50.00%	65.57%	\$0.00	8.57%	19.82	3.73																
Pinnacle West Capital Corporation	PNW	\$86.69	4.60%	4.16%	6.00%	4.92%	5.32%	62.00%	62.00%	65.57%	\$0.00	9.47%	19.82	3.73	Including Flotation Costs															
											Mean	8.76%	19.82							8.89%										
											Max	9.85%							9.98%											
											Min	7.34%							7.47%											
Projected Annual Earnings per Share														[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033												
ALLETE, Inc.	ALE	\$3.13	\$3.28	\$3.43	\$3.60	\$3.77	\$3.95	\$4.13	\$4.34	\$4.55	\$4.78	\$5.02	\$5.29	\$5.57	\$5.86	\$6.17	\$6.50	\$6.85												
Black Hills Corporation	BKH	\$3.38	\$3.56	\$3.74	\$3.94	\$4.14	\$4.36	\$4.59	\$4.83	\$5.08	\$5.35	\$5.63	\$5.93	\$6.24	\$6.58	\$6.93	\$7.29	\$7.68												
El Paso Electric Company	EE	\$2.42	\$2.52	\$2.63	\$2.74	\$2.85	\$2.97	\$3.09	\$3.23	\$3.37	\$3.53	\$3.71	\$3.90	\$4.10	\$4.32	\$4.55	\$4.80	\$5.05												
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.74	\$1.84	\$1.95	\$2.06	\$2.18	\$2.31	\$2.45	\$2.59	\$2.73	\$2.88	\$3.04	\$3.20	\$3.37	\$3.55	\$3.74	\$3.94												
Northwestern Corporation	NWE	\$3.34	\$3.43	\$3.51	\$3.60	\$3.70	\$3.79	\$3.89	\$4.01	\$4.14	\$4.31	\$4.50	\$4.72	\$4.97	\$5.23	\$5.51	\$5.80	\$6.11												
OGE Energy Corp.	OGE	\$1.92	\$2.03	\$2.14	\$2.26	\$2.39	\$2.52	\$2.66	\$2.81	\$2.97	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$4.06	\$4.27	\$4.50												
PNM Resources, Inc.	PNM	\$1.92	\$2.02	\$2.13	\$2.25	\$2.37	\$2.50	\$2.64	\$2.78	\$2.93	\$3.09	\$3.25	\$3.43	\$3.61	\$3.80	\$4.00	\$4.22	\$4.44												
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.65	\$4.88	\$5.12	\$5.37	\$5.63	\$5.91	\$6.20	\$6.52	\$6.85	\$7.21	\$7.59	\$7.99	\$8.41	\$8.86	\$9.33	\$9.83												
Projected Annual Dividend Payout Ratio														[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]		
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033														
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%														
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%														
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%														
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%														
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%														
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%														
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%														
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%														
Projected Annual Cash Flows														[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value													
ALLETE, Inc.	ALE	\$2.27	\$2.37	\$2.49	\$2.61	\$2.73	\$2.86	\$2.99	\$3.14	\$3.30	\$3.47	\$3.65	\$3.84	\$4.05	\$4.26	\$4.49	\$135.75													
Black Hills Corporation	BKH	\$2.21	\$2.30	\$2.39	\$2.48	\$2.67	\$2.87	\$3.08	\$3.31	\$3.55	\$3.82	\$4.09	\$4.31	\$4.54	\$4.78	\$5.04	\$152.27													
El Paso Electric Company	EE	\$1.60	\$1.70	\$1.81	\$1.93	\$2.01	\$2.10	\$2.20	\$2.31	\$2.42	\$2.55	\$2.69	\$2.83	\$2.99	\$3.14	\$3.31	\$100.09													
Hawaiian Electric Industries, Inc.	HE	\$1.12	\$1.19	\$1.27	\$1.35	\$1.45	\$1.54	\$1.64	\$1.75	\$1.86	\$1.98	\$2.10	\$2.21	\$2.33	\$2.45	\$2.58	\$78.04													
Northwestern Corporation	NWE	\$2.28	\$2.38	\$2.48	\$2.58	\$2.63	\$2.70	\$2.78	\$2.87	\$2.98	\$3.11	\$3.26	\$3.43	\$3.61	\$3.80	\$4.01	\$121.11													
OGE Energy Corp.	OGE	\$1.52	\$1.61	\$1.70	\$1.79	\$1.87	\$1.95	\$2.04	\$2.12	\$2.21	\$2.30	\$2.40	\$2.53	\$2.66	\$2.80	\$2.95	\$89.19													
PNM Resources, Inc.	PNM	\$1.07	\$1.13	\$1.19	\$1.25	\$1.38	\$1.51	\$1.66	\$1.82	\$1.99	\$2.17	\$2.37	\$2.49	\$2.62	\$2.76	\$2.91	\$88.00													
Pinnacle West Capital Corporation	PNW	\$3.02	\$3.17	\$3.33	\$3.49	\$3.69	\$3.91	\$4.14	\$4.39	\$4.65	\$4.93	\$5.24	\$5.52	\$5.81	\$6.12	\$6.44	\$194.79													
Projected Annual Data Investor Cash Flows														[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]
Company	Ticker	Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33												
ALLETE, Inc.	ALE	(\$76.90)	\$0.00	\$1.98	\$2.32	\$2.49	\$2.61	\$2.73	\$2.86	\$2.99	\$3.14	\$3.30	\$3.47	\$3.65	\$3.84	\$4.05	\$4.26	\$140.24												
Black Hills Corporation	BKH	(\$64.12)	\$0.00	\$1.93	\$2.27	\$2.39	\$2.48	\$2.67	\$2.87	\$3.08	\$3.31	\$3.55	\$3.82	\$4.09	\$4.31	\$4.54	\$4.78	\$157.31												
El Paso Electric Company	EE	(\$54.34)	\$0.00	\$1.40	\$1.64	\$1.81	\$1.93	\$2.01	\$2.10	\$2.20	\$2.31	\$2.42	\$2.55	\$2.69	\$2.83	\$2.99	\$3.14	\$103.40												
Hawaiian Electric Industries, Inc.	HE	(\$37.01)	\$0.00	\$0.98	\$1.16	\$1.27	\$1.35	\$1.45	\$1.54	\$1.64	\$1.75	\$1.86	\$1.98	\$2.10	\$2.21	\$2.33	\$2.45	\$80.63												
Northwestern Corporation	NWE	(\$61.78)	\$0.00	\$2.00	\$2.31	\$2.48	\$2.58	\$2.63	\$2.70	\$2.78	\$2.87	\$2.98	\$3.11	\$3.26	\$3.43	\$3.61	\$3.80	\$125.12												
OGE Energy Corp.	OGE	(\$39.18)	\$0.00	\$1.33	\$1.56	\$1.70	\$1.79	\$1.87	\$1.95	\$2.04	\$2.12	\$2.21	\$2.30	\$2.40	\$2.53	\$2.66	\$2.80	\$92.14												
PNM Resources, Inc.	PNM	(\$41.40)	\$0.00	\$0.93	\$1.10	\$1.19	\$1.25	\$1.38	\$1.51	\$1.66	\$1.82	\$1.99	\$2.17	\$2.37	\$2.49	\$2.62	\$2.76	\$90.91												
Pinnacle West Capital Corporation	PNW	(\$86.69)	\$0.00	\$2.64	\$3.10	\$3.33	\$3.49	\$3.69	\$3.91	\$4.14	\$4.39	\$4.65	\$4.93	\$5.24	\$5.52	\$5.81	\$6.12	\$201.24												

Multi-Stage Growth Discounted Cash Flow Model - Terminal P/E Ratio Equals 19.82  
 90 Day Average Stock Price  
 High EPS Growth Rate Estimate in First Stage

Inputs	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]									
Company	Ticker	Stock Price	EPS Growth Rate Estimates				Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio								
			Zacks	First Call	Line	High Growth		2019	2022	2029	Proof	IRR			Including Flotation Costs							
ALLETE, Inc.	ALE	\$76.90	NA	6.00%	3.50%	6.00%	5.32%	66.00%	66.00%	65.57%	\$0.00	8.19%	19.82	3.73								
Black Hills Corporation	BKH	\$64.12	4.70%	4.46%	6.50%	6.50%	5.32%	59.00%	57.00%	65.57%	\$0.00	10.74%	19.82	3.73								
El Paso Electric Company	EE	\$54.34	4.40%	5.10%	3.00%	5.10%	5.32%	61.00%	65.00%	65.57%	\$0.00	8.35%	19.82	3.73								
Hawaiian Electric Industries, Inc.	HE	\$37.01	6.40%	7.80%	3.50%	7.80%	5.32%	61.00%	62.00%	65.57%	\$0.00	10.11%	19.82	3.73								
Northwestern Corporation	NWE	\$61.78	2.80%	2.59%	2.50%	2.60%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.52%	19.82	3.73								
OGE Energy Corp.	OGE	\$39.18	5.20%	NA	6.00%	6.00%	5.32%	71.00%	71.00%	65.57%	\$0.00	10.11%	19.82	3.73								
PNM Resources, Inc.	PNM	\$41.40	4.70%	4.10%	7.50%	7.50%	5.32%	50.00%	50.00%	65.57%	\$0.00	9.98%	19.82	3.73								
Pinnacle West Capital Corporation	PNW	\$86.69	4.60%	4.16%	6.00%	6.00%	5.32%	62.00%	62.00%	65.57%	\$0.00	10.23%	19.82	3.73								
											Mean	9.53%	19.82								9.66%	
											Max	10.74%										10.87%
											Min	8.19%										8.32%
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]				
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033				
ALLETE, Inc.	ALE	\$3.13	\$3.32	\$3.52	\$3.73	\$3.95	\$4.19	\$4.44	\$4.70	\$4.97	\$5.25	\$5.55	\$5.85	\$6.16	\$6.49	\$6.83	\$7.19	\$7.58				
Black Hills Corporation	BKH	\$3.38	\$3.60	\$3.83	\$4.08	\$4.35	\$4.63	\$4.93	\$5.24	\$5.56	\$5.89	\$6.23	\$6.57	\$6.92	\$7.29	\$7.68	\$8.08	\$8.51				
El Paso Electric Company	EE	\$2.42	\$2.54	\$2.67	\$2.81	\$2.95	\$3.10	\$3.26	\$3.43	\$3.61	\$3.79	\$3.99	\$4.20	\$4.43	\$4.66	\$4.91	\$5.17	\$5.45				
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.77	\$1.91	\$2.05	\$2.21	\$2.39	\$2.57	\$2.76	\$2.96	\$3.15	\$3.34	\$3.54	\$3.72	\$3.92	\$4.13	\$4.35	\$4.58				
Northwestern Corporation	NWE	\$3.34	\$3.43	\$3.52	\$3.61	\$3.70	\$3.80	\$3.90	\$4.02	\$4.16	\$4.32	\$4.51	\$4.73	\$4.98	\$5.25	\$5.53	\$5.82	\$6.13				
OGE Energy Corp.	OGE	\$1.92	\$2.04	\$2.16	\$2.29	\$2.42	\$2.57	\$2.72	\$2.88	\$3.05	\$3.22	\$3.40	\$3.59	\$3.78	\$3.98	\$4.19	\$4.41	\$4.65				
PNM Resources, Inc.	PNM	\$1.92	\$2.06	\$2.22	\$2.39	\$2.56	\$2.76	\$2.96	\$3.17	\$3.39	\$3.61	\$3.82	\$4.04	\$4.26	\$4.48	\$4.72	\$4.97	\$5.24				
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.70	\$4.98	\$5.28	\$5.59	\$5.93	\$6.28	\$6.65	\$7.04	\$7.44	\$7.85	\$8.27	\$8.72	\$9.18	\$9.67	\$10.18	\$10.72				
Projected Annual Dividend Payout Ratio				[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]				
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033						
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%				
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%				
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%				
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%				
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%				
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%				
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%				
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%				
Projected Annual Cash Flows				[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]			
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value					
ALLETE, Inc.	ALE	\$2.32	\$2.46	\$2.61	\$2.76	\$2.93	\$3.10	\$3.27	\$3.45	\$3.64	\$3.84	\$4.04	\$4.25	\$4.48	\$4.72	\$4.97	\$150.15					
Black Hills Corporation	BKH	\$2.26	\$2.38	\$2.51	\$2.64	\$2.87	\$3.12	\$3.38	\$3.65	\$3.93	\$4.23	\$4.54	\$4.78	\$5.03	\$5.30	\$5.58	\$168.77					
El Paso Electric Company	EE	\$1.63	\$1.75	\$1.88	\$2.02	\$2.12	\$2.23	\$2.35	\$2.48	\$2.61	\$2.75	\$2.90	\$3.06	\$3.22	\$3.39	\$3.57	\$107.97					
Hawaiian Electric Industries, Inc.	HE	\$1.16	\$1.26	\$1.37	\$1.48	\$1.61	\$1.74	\$1.88	\$2.02	\$2.16	\$2.30	\$2.44	\$2.57	\$2.71	\$2.85	\$3.00	\$90.80					
Northwestern Corporation	NWE	\$2.29	\$2.38	\$2.48	\$2.58	\$2.64	\$2.70	\$2.78	\$2.88	\$2.99	\$3.12	\$3.27	\$3.44	\$3.62	\$3.82	\$4.02	\$121.48					
OGE Energy Corp.	OGE	\$1.53	\$1.62	\$1.72	\$1.82	\$1.91	\$2.00	\$2.09	\$2.19	\$2.28	\$2.38	\$2.48	\$2.61	\$2.75	\$2.89	\$3.05	\$92.10					
PNM Resources, Inc.	PNM	\$1.11	\$1.19	\$1.28	\$1.38	\$1.55	\$1.73	\$1.92	\$2.12	\$2.34	\$2.56	\$2.79	\$2.94	\$3.10	\$3.26	\$3.43	\$103.81					
Pinnacle West Capital Corporation	PNW	\$3.09	\$3.27	\$3.47	\$3.68	\$3.93	\$4.19	\$4.47	\$4.76	\$5.07	\$5.38	\$5.71	\$6.02	\$6.34	\$6.68	\$7.03	\$212.51					
Projected Annual Data Investor Cash Flows			[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]			
Company	Ticker	Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33				
ALLETE, Inc.	ALE	(\$76.90)	\$0.00	\$2.03	\$2.39	\$2.61	\$2.76	\$2.93	\$3.10	\$3.27	\$3.45	\$3.64	\$3.84	\$4.04	\$4.25	\$4.48	\$4.72	\$4.97	\$155.12			
Black Hills Corporation	BKH	(\$64.12)	\$0.00	\$1.98	\$2.34	\$2.51	\$2.64	\$2.87	\$3.12	\$3.38	\$3.65	\$3.93	\$4.23	\$4.54	\$4.78	\$5.03	\$5.30	\$174.35				
El Paso Electric Company	EE	(\$54.34)	\$0.00	\$1.43	\$1.67	\$1.88	\$2.02	\$2.12	\$2.23	\$2.35	\$2.48	\$2.61	\$2.75	\$2.90	\$3.06	\$3.22	\$3.39	\$111.54				
Hawaiian Electric Industries, Inc.	HE	(\$37.01)	\$0.00	\$1.02	\$1.21	\$1.37	\$1.48	\$1.61	\$1.74	\$1.88	\$2.02	\$2.16	\$2.30	\$2.44	\$2.57	\$2.71	\$2.85	\$93.80				
Northwestern Corporation	NWE	(\$61.78)	\$0.00	\$2.00	\$2.32	\$2.48	\$2.58	\$2.64	\$2.70	\$2.78	\$2.88	\$2.99	\$3.12	\$3.27	\$3.44	\$3.62	\$3.82	\$125.50				
OGE Energy Corp.	OGE	(\$39.18)	\$0.00	\$1.34	\$1.58	\$1.72	\$1.82	\$1.91	\$2.00	\$2.09	\$2.19	\$2.28	\$2.38	\$2.48	\$2.61	\$2.75	\$2.89	\$95.15				
PNM Resources, Inc.	PNM	(\$41.40)	\$0.00	\$0.97	\$1.15	\$1.28	\$1.38	\$1.55	\$1.73	\$1.92	\$2.12	\$2.34	\$2.56	\$2.79	\$2.94	\$3.10	\$3.26	\$107.24				
Pinnacle West Capital Corporation	PNW	(\$86.69)	\$0.00	\$2.70	\$3.18	\$3.47	\$3.68	\$3.93	\$4.19	\$4.47	\$4.76	\$5.07	\$5.38	\$5.71	\$6.02	\$6.34	\$6.68	\$219.54				

Multi-Stage Growth Discounted Cash Flow Model - Terminal P/E Ratio Equals 19.82  
 90 Day Average Stock Price  
 Low EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]						
Company	Ticker	Stock Price	Zacks	EPS Growth Rate Estimates			Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio						
				First Call	Line	Low Growth		2019	2022	2029	Proof	IRR								
ALLETE, Inc.	ALE	\$76.90	NA	6.00%	3.50%	3.50%	5.32%	66.00%	66.00%	65.57%	\$0.00	6.49%	19.82	3.73						
Black Hills Corporation	BKH	\$64.12	4.70%	4.46%	6.50%	4.46%	5.32%	59.00%	57.00%	65.57%	\$0.00	9.31%	19.82	3.73						
El Paso Electric Company	EE	\$54.34	4.40%	5.10%	3.00%	3.00%	5.32%	61.00%	65.00%	65.57%	\$0.00	6.90%	19.82	3.73						
Hawaiian Electric Industries, Inc.	HE	\$37.01	6.40%	7.80%	3.50%	3.50%	5.32%	61.00%	62.00%	65.57%	\$0.00	7.15%	19.82	3.73						
Northwestern Corporation	NWE	\$61.78	2.80%	2.59%	2.50%	2.50%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.45%	19.82	3.73						
OGE Energy Corp.	OGE	\$39.18	5.20%	NA	6.00%	5.20%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.54%	19.82	3.73						
PNM Resources, Inc.	PNM	\$41.40	4.70%	4.10%	7.50%	4.10%	5.32%	50.00%	50.00%	65.57%	\$0.00	7.66%	19.82	3.73						
Pinnacle West Capital Corporation	PNW	\$86.69	4.60%	4.16%	6.00%	4.16%	5.32%	62.00%	62.00%	65.57%	\$0.00	8.94%	19.82	3.73	Including Flotation Costs					
											Mean	8.06%	19.82							8.19%
											Max	9.54%							9.67%	
											Min	6.49%							6.62%	
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]		
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE	\$3.13	\$3.24	\$3.35	\$3.47	\$3.59	\$3.72	\$3.85	\$3.99	\$4.16	\$4.34	\$4.55	\$4.77	\$5.03	\$5.29	\$5.58	\$5.87	\$6.19		
Black Hills Corporation	BKH	\$3.38	\$3.53	\$3.69	\$3.85	\$4.02	\$4.20	\$4.39	\$4.59	\$4.81	\$5.05	\$5.30	\$5.58	\$5.87	\$6.18	\$6.51	\$6.86	\$7.22		
El Paso Electric Company	EE	\$2.42	\$2.49	\$2.57	\$2.64	\$2.72	\$2.81	\$2.89	\$2.99	\$3.10	\$3.23	\$3.38	\$3.54	\$3.73	\$3.93	\$4.14	\$4.36	\$4.59		
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.70	\$1.76	\$1.82	\$1.88	\$1.95	\$2.02	\$2.09	\$2.18	\$2.27	\$2.38	\$2.50	\$2.63	\$2.77	\$2.92	\$3.08	\$3.24		
Northwestern Corporation	NWE	\$3.34	\$3.42	\$3.51	\$3.60	\$3.69	\$3.78	\$3.87	\$3.99	\$4.13	\$4.29	\$4.47	\$4.69	\$4.94	\$5.20	\$5.48	\$5.77	\$6.08		
OGE Energy Corp.	OGE	\$1.92	\$2.02	\$2.12	\$2.24	\$2.35	\$2.47	\$2.60	\$2.74	\$2.88	\$3.03	\$3.19	\$3.36	\$3.54	\$3.73	\$3.93	\$4.14	\$4.36		
PNM Resources, Inc.	PNM	\$1.92	\$2.00	\$2.08	\$2.17	\$2.25	\$2.35	\$2.44	\$2.55	\$2.66	\$2.79	\$2.93	\$3.08	\$3.24	\$3.41	\$3.59	\$3.78	\$3.98		
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.61	\$4.81	\$5.01	\$5.21	\$5.43	\$5.66	\$5.90	\$6.17	\$6.46	\$6.78	\$7.13	\$7.51	\$7.91	\$8.33	\$8.77	\$9.24		
Projected Annual Dividend Payout Ratio		[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]				
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033				
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%		
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%		
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%		
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%		
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%		
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%		
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%		
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%	65.57%		
Projected Annual Cash Flows		[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	Terminal Value		
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value			
ALLETE, Inc.	ALE	\$2.21	\$2.29	\$2.37	\$2.45	\$2.54	\$2.63	\$2.74	\$2.85	\$2.99	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$4.06	\$122.59			
Black Hills Corporation	BKH	\$2.18	\$2.25	\$2.32	\$2.40	\$2.56	\$2.73	\$2.92	\$3.12	\$3.35	\$3.59	\$3.85	\$4.05	\$4.27	\$4.50	\$4.74	\$143.18			
El Paso Electric Company	EE	\$1.57	\$1.65	\$1.73	\$1.82	\$1.88	\$1.95	\$2.02	\$2.11	\$2.21	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$3.01	\$90.97			
Hawaiian Electric Industries, Inc.	HE	\$1.07	\$1.12	\$1.16	\$1.21	\$1.26	\$1.32	\$1.38	\$1.46	\$1.54	\$1.63	\$1.73	\$1.82	\$1.92	\$2.02	\$2.13	\$64.23			
Northwestern Corporation	NWE	\$2.28	\$2.37	\$2.47	\$2.57	\$2.62	\$2.68	\$2.76	\$2.86	\$2.97	\$3.09	\$3.24	\$3.41	\$3.59	\$3.78	\$3.99	\$120.48			
OGE Energy Corp.	OGE	\$1.51	\$1.59	\$1.67	\$1.76	\$1.83	\$1.90	\$1.98	\$2.06	\$2.14	\$2.23	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$86.36			
PNM Resources, Inc.	PNM	\$1.04	\$1.08	\$1.13	\$1.17	\$1.28	\$1.39	\$1.51	\$1.64	\$1.79	\$1.95	\$2.12	\$2.24	\$2.36	\$2.48	\$2.61	\$78.98			
Pinnacle West Capital Corporation	PNW	\$2.98	\$3.10	\$3.23	\$3.37	\$3.54	\$3.72	\$3.92	\$4.14	\$4.38	\$4.64	\$4.92	\$5.19	\$5.46	\$5.75	\$6.06	\$183.13			
Projected Annual Data Investor Cash Flows		[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]		
Company	Ticker	Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33		
ALLETE, Inc.	ALE	(\$76.90)	\$0.00	\$1.93	\$2.25	\$2.37	\$2.45	\$2.54	\$2.63	\$2.74	\$2.85	\$2.99	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$126.65		
Black Hills Corporation	BKH	(\$64.12)	\$0.00	\$1.90	\$2.22	\$2.32	\$2.40	\$2.56	\$2.73	\$2.92	\$3.12	\$3.35	\$3.59	\$3.85	\$4.05	\$4.27	\$4.50	\$147.91		
El Paso Electric Company	EE	(\$54.34)	\$0.00	\$1.37	\$1.59	\$1.73	\$1.82	\$1.88	\$1.95	\$2.02	\$2.11	\$2.21	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$93.98		
Hawaiian Electric Industries, Inc.	HE	(\$37.01)	\$0.00	\$0.94	\$1.09	\$1.16	\$1.21	\$1.26	\$1.32	\$1.38	\$1.46	\$1.54	\$1.63	\$1.73	\$1.82	\$1.92	\$2.02	\$66.36		
Northwestern Corporation	NWE	(\$61.78)	\$0.00	\$1.99	\$2.31	\$2.47	\$2.57	\$2.62	\$2.68	\$2.76	\$2.86	\$2.97	\$3.09	\$3.24	\$3.41	\$3.59	\$3.78	\$124.47		
OGE Energy Corp.	OGE	(\$39.18)	\$0.00	\$1.32	\$1.55	\$1.67	\$1.76	\$1.83	\$1.90	\$1.98	\$2.06	\$2.14	\$2.23	\$2.32	\$2.45	\$2.58	\$2.71	\$89.22		
PNM Resources, Inc.	PNM	(\$41.40)	\$0.00	\$0.91	\$1.06	\$1.13	\$1.17	\$1.28	\$1.39	\$1.51	\$1.64	\$1.79	\$1.95	\$2.12	\$2.24	\$2.36	\$2.48	\$81.60		
Pinnacle West Capital Corporation	PNW	(\$86.69)	\$0.00	\$2.60	\$3.04	\$3.23	\$3.37	\$3.54	\$3.72	\$3.92	\$4.14	\$4.38	\$4.64	\$4.92	\$5.19	\$5.46	\$5.75	\$189.19		

Multi-Stage Growth Discounted Cash Flow Model - Terminal P/E Ratio Equals 19.82  
 180 Day Average Stock Price  
 Average EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]				
Company	Ticker	Stock Price	EPS Growth Rate Estimates				Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio				
			Zacks	First Call	Line	Average		2019	2022	2029	Proof	IRR						
ALLETE, Inc.	ALE	\$76.55	NA	6.00%	3.50%	4.75%	5.32%	66.00%	66.00%	65.57%	\$0.00	7.38%	19.82	3.73				
Black Hills Corporation	BKH	\$61.83	4.70%	4.46%	6.50%	5.22%	5.32%	59.00%	57.00%	65.57%	\$0.00	10.19%	19.82	3.73				
El Paso Electric Company	EE	\$57.24	4.40%	5.10%	3.00%	4.17%	5.32%	61.00%	65.00%	65.57%	\$0.00	7.23%	19.82	3.73				
Hawaiian Electric Industries, Inc.	HE	\$35.90	6.40%	7.80%	3.50%	5.90%	5.32%	61.00%	62.00%	65.57%	\$0.00	9.08%	19.82	3.73				
Northwestern Corporation	NWE	\$59.97	2.80%	2.59%	2.50%	2.56%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.78%	19.82	3.73				
OGE Energy Corp.	OGE	\$37.55	5.20%	NA	6.00%	5.60%	5.32%	71.00%	71.00%	65.57%	\$0.00	10.24%	19.82	3.73				
PNM Resources, Inc.	PNM	\$40.10	4.70%	4.10%	7.50%	5.43%	5.32%	50.00%	50.00%	65.57%	\$0.00	8.86%	19.82	3.73				
Pinnacle West Capital Corporation	PNW	\$83.10	4.60%	4.16%	6.00%	4.92%	5.32%	62.00%	62.00%	65.57%	\$0.00	9.88%	19.82	3.73				
											Mean	8.96%	19.82	9.09%				
											Max	10.24%		10.37%				
											Min	7.23%		7.36%				
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
ALLETE, Inc.	ALE	\$3.13	\$3.28	\$3.43	\$3.60	\$3.77	\$3.95	\$4.13	\$4.34	\$4.55	\$4.78	\$5.02	\$5.29	\$5.57	\$5.86	\$6.17	\$6.50	\$6.85
Black Hills Corporation	BKH	\$3.38	\$3.56	\$3.74	\$3.94	\$4.14	\$4.36	\$4.59	\$4.83	\$5.08	\$5.35	\$5.63	\$5.93	\$6.24	\$6.58	\$6.93	\$7.29	\$7.68
El Paso Electric Company	EE	\$2.42	\$2.52	\$2.63	\$2.74	\$2.85	\$2.97	\$3.09	\$3.23	\$3.37	\$3.53	\$3.71	\$3.90	\$4.10	\$4.32	\$4.55	\$4.80	\$5.05
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.74	\$1.84	\$1.95	\$2.06	\$2.18	\$2.31	\$2.45	\$2.59	\$2.73	\$2.88	\$3.04	\$3.20	\$3.37	\$3.55	\$3.74	\$3.94
Northwestern Corporation	NWE	\$3.34	\$3.43	\$3.51	\$3.60	\$3.70	\$3.79	\$3.89	\$4.01	\$4.14	\$4.31	\$4.50	\$4.72	\$4.97	\$5.23	\$5.51	\$5.80	\$6.11
OGE Energy Corp.	OGE	\$1.92	\$2.03	\$2.14	\$2.26	\$2.39	\$2.52	\$2.66	\$2.81	\$2.97	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$4.06	\$4.27	\$4.50
PNM Resources, Inc.	PNM	\$1.92	\$2.02	\$2.13	\$2.25	\$2.37	\$2.50	\$2.64	\$2.78	\$2.93	\$3.09	\$3.25	\$3.43	\$3.61	\$3.80	\$4.00	\$4.22	\$4.44
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.65	\$4.88	\$5.12	\$5.37	\$5.63	\$5.91	\$6.20	\$6.52	\$6.85	\$7.21	\$7.59	\$7.99	\$8.41	\$8.86	\$9.33	\$9.83
Projected Annual Dividend Payout Ratio		[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]		
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%		
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%		
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%		
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Projected Annual Cash Flows		[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value	
ALLETE, Inc.	ALE	\$2.27	\$2.37	\$2.49	\$2.61	\$2.73	\$2.86	\$2.99	\$3.14	\$3.30	\$3.47	\$3.65	\$3.84	\$4.05	\$4.26	\$4.49	\$135.75	
Black Hills Corporation	BKH	\$2.21	\$2.30	\$2.39	\$2.48	\$2.67	\$2.87	\$3.08	\$3.31	\$3.55	\$3.82	\$4.09	\$4.31	\$4.54	\$4.78	\$5.04	\$152.27	
El Paso Electric Company	EE	\$1.60	\$1.70	\$1.81	\$1.93	\$2.01	\$2.10	\$2.20	\$2.31	\$2.42	\$2.55	\$2.69	\$2.83	\$2.99	\$3.14	\$3.31	\$100.09	
Hawaiian Electric Industries, Inc.	HE	\$1.12	\$1.19	\$1.27	\$1.35	\$1.45	\$1.54	\$1.64	\$1.75	\$1.86	\$1.98	\$2.10	\$2.21	\$2.33	\$2.45	\$2.58	\$78.04	
Northwestern Corporation	NWE	\$2.28	\$2.38	\$2.48	\$2.58	\$2.63	\$2.70	\$2.78	\$2.87	\$2.98	\$3.11	\$3.26	\$3.43	\$3.61	\$3.80	\$4.01	\$121.11	
OGE Energy Corp.	OGE	\$1.52	\$1.61	\$1.70	\$1.79	\$1.87	\$1.95	\$2.04	\$2.12	\$2.21	\$2.30	\$2.40	\$2.53	\$2.66	\$2.80	\$2.95	\$89.19	
PNM Resources, Inc.	PNM	\$1.07	\$1.13	\$1.19	\$1.25	\$1.38	\$1.51	\$1.66	\$1.82	\$1.99	\$2.17	\$2.37	\$2.49	\$2.62	\$2.76	\$2.91	\$88.00	
Pinnacle West Capital Corporation	PNW	\$3.02	\$3.17	\$3.33	\$3.49	\$3.69	\$3.91	\$4.14	\$4.39	\$4.65	\$4.93	\$5.24	\$5.52	\$5.81	\$6.12	\$6.44	\$194.79	
Projected Annual Data Investor Cash Flows		[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]
Company	Ticker	Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33
ALLETE, Inc.	ALE	(\$76.55)	\$0.00	\$1.98	\$2.32	\$2.49	\$2.61	\$2.73	\$2.86	\$2.99	\$3.14	\$3.30	\$3.47	\$3.65	\$3.84	\$4.05	\$4.26	\$140.24
Black Hills Corporation	BKH	(\$61.83)	\$0.00	\$1.93	\$2.27	\$2.39	\$2.48	\$2.67	\$2.87	\$3.08	\$3.31	\$3.55	\$3.82	\$4.09	\$4.31	\$4.54	\$4.78	\$157.31
El Paso Electric Company	EE	(\$57.24)	\$0.00	\$1.40	\$1.64	\$1.81	\$1.93	\$2.01	\$2.10	\$2.20	\$2.31	\$2.42	\$2.55	\$2.69	\$2.83	\$2.99	\$3.14	\$103.40
Hawaiian Electric Industries, Inc.	HE	(\$35.90)	\$0.00	\$0.98	\$1.16	\$1.27	\$1.35	\$1.45	\$1.54	\$1.64	\$1.75	\$1.86	\$1.98	\$2.10	\$2.21	\$2.33	\$2.45	\$80.63
Northwestern Corporation	NWE	(\$59.97)	\$0.00	\$2.00	\$2.31	\$2.48	\$2.58	\$2.63	\$2.70	\$2.78	\$2.87	\$2.98	\$3.11	\$3.26	\$3.43	\$3.61	\$3.80	\$125.12
OGE Energy Corp.	OGE	(\$37.55)	\$0.00	\$1.33	\$1.56	\$1.70	\$1.79	\$1.87	\$1.95	\$2.04	\$2.12	\$2.21	\$2.30	\$2.40	\$2.53	\$2.66	\$2.80	\$92.14
PNM Resources, Inc.	PNM	(\$40.10)	\$0.00	\$0.93	\$1.10	\$1.19	\$1.25	\$1.38	\$1.51	\$1.66	\$1.82	\$1.99	\$2.17	\$2.37	\$2.49	\$2.62	\$2.76	\$90.91
Pinnacle West Capital Corporation	PNW	(\$83.10)	\$0.00	\$2.64	\$3.10	\$3.33	\$3.49	\$3.69	\$3.91	\$4.14	\$4.39	\$4.65	\$4.93	\$5.24	\$5.52	\$5.81	\$6.12	\$201.24

Multi-Stage Growth Discounted Cash Flow Model - Terminal P/E Ratio Equals 19.82  
 180 Day Average Stock Price  
 High EPS Growth Rate Estimate in First Stage

Inputs	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]							
Company	Ticker	Stock Price	EPS Growth Rate Estimates			Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio							
			Zacks	First Call	Line		High Growth	2019	2022	2029	Proof			IRR						
ALLETE, Inc.	ALE	\$76.55	NA	6.00%	3.50%	6.00%	5.32%	66.00%	66.00%	65.57%	\$0.00	8.23%	19.82	3.73						
Black Hills Corporation	BKH	\$61.83	4.70%	4.46%	6.50%	6.50%	5.32%	59.00%	57.00%	65.57%	\$0.00	11.10%	19.82	3.73						
El Paso Electric Company	EE	\$57.24	4.40%	5.10%	3.00%	5.10%	5.32%	61.00%	65.00%	65.57%	\$0.00	7.87%	19.82	3.73						
Hawaiian Electric Industries, Inc.	HE	\$35.90	6.40%	7.80%	3.50%	7.80%	5.32%	61.00%	62.00%	65.57%	\$0.00	10.40%	19.82	3.73						
Northwestern Corporation	NWE	\$59.97	2.80%	2.59%	2.50%	2.60%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.80%	19.82	3.73						
OGE Energy Corp.	OGE	\$37.55	5.20%	NA	6.00%	6.00%	5.32%	71.00%	71.00%	65.57%	\$0.00	10.53%	19.82	3.73						
PNM Resources, Inc.	PNM	\$40.10	4.70%	4.10%	7.50%	7.50%	5.32%	50.00%	50.00%	65.57%	\$0.00	10.28%	19.82	3.73						
Pinnacle West Capital Corporation	PNW	\$83.10	4.60%	4.16%	6.00%	6.00%	5.32%	62.00%	62.00%	65.57%	\$0.00	10.64%	19.82	3.73	Including Flotation Costs					
											Mean	9.73%	19.82				9.86%			
											Max	11.10%					11.23%			
											Min	7.87%					8.00%			
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]		
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE	\$3.13	\$3.32	\$3.52	\$3.73	\$3.95	\$4.19	\$4.44	\$4.70	\$4.97	\$5.25	\$5.55	\$5.85	\$6.16	\$6.49	\$6.83	\$7.19	\$7.58		
Black Hills Corporation	BKH	\$3.38	\$3.60	\$3.83	\$4.08	\$4.35	\$4.63	\$4.93	\$5.24	\$5.56	\$5.89	\$6.23	\$6.57	\$6.92	\$7.29	\$7.68	\$8.08	\$8.51		
El Paso Electric Company	EE	\$2.42	\$2.54	\$2.67	\$2.81	\$2.95	\$3.10	\$3.26	\$3.43	\$3.61	\$3.79	\$3.99	\$4.20	\$4.43	\$4.66	\$4.91	\$5.17	\$5.45		
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.77	\$1.91	\$2.05	\$2.21	\$2.39	\$2.57	\$2.76	\$2.96	\$3.15	\$3.34	\$3.54	\$3.72	\$3.92	\$4.13	\$4.35	\$4.58		
Northwestern Corporation	NWE	\$3.34	\$3.43	\$3.52	\$3.61	\$3.70	\$3.80	\$3.90	\$4.02	\$4.16	\$4.32	\$4.51	\$4.73	\$4.98	\$5.25	\$5.53	\$5.82	\$6.13		
OGE Energy Corp.	OGE	\$1.92	\$2.04	\$2.16	\$2.29	\$2.42	\$2.57	\$2.72	\$2.88	\$3.05	\$3.22	\$3.40	\$3.59	\$3.78	\$3.98	\$4.19	\$4.41	\$4.65		
PNM Resources, Inc.	PNM	\$1.92	\$2.06	\$2.22	\$2.39	\$2.56	\$2.76	\$2.96	\$3.17	\$3.39	\$3.61	\$3.82	\$4.04	\$4.26	\$4.48	\$4.72	\$4.97	\$5.24		
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.70	\$4.98	\$5.28	\$5.59	\$5.93	\$6.28	\$6.65	\$7.04	\$7.44	\$7.85	\$8.27	\$8.72	\$9.18	\$9.67	\$10.18	\$10.72		
Projected Annual Dividend Payout Ratio			[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]			
Company	Ticker		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033			
ALLETE, Inc.	ALE		66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%			
Black Hills Corporation	BKH		59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%			
El Paso Electric Company	EE		61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%			
Hawaiian Electric Industries, Inc.	HE		61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%			
Northwestern Corporation	NWE		65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%			
OGE Energy Corp.	OGE		71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%			
PNM Resources, Inc.	PNM		50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%			
Pinnacle West Capital Corporation	PNW		62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%			
Projected Annual Cash Flows			[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]		
Company	Ticker		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value		
ALLETE, Inc.	ALE		\$2.32	\$2.46	\$2.61	\$2.76	\$2.93	\$3.10	\$3.27	\$3.45	\$3.64	\$3.84	\$4.04	\$4.25	\$4.48	\$4.72	\$4.97	\$150.15		
Black Hills Corporation	BKH		\$2.26	\$2.38	\$2.51	\$2.64	\$2.87	\$3.12	\$3.38	\$3.65	\$3.93	\$4.23	\$4.54	\$4.78	\$5.03	\$5.30	\$5.58	\$168.77		
El Paso Electric Company	EE		\$1.63	\$1.75	\$1.88	\$2.02	\$2.12	\$2.23	\$2.35	\$2.48	\$2.61	\$2.75	\$2.90	\$3.06	\$3.22	\$3.39	\$3.57	\$107.97		
Hawaiian Electric Industries, Inc.	HE		\$1.16	\$1.26	\$1.37	\$1.48	\$1.61	\$1.74	\$1.88	\$2.02	\$2.16	\$2.30	\$2.44	\$2.57	\$2.71	\$2.85	\$3.00	\$90.80		
Northwestern Corporation	NWE		\$2.29	\$2.38	\$2.48	\$2.58	\$2.64	\$2.70	\$2.78	\$2.88	\$2.99	\$3.12	\$3.27	\$3.44	\$3.62	\$3.82	\$4.02	\$121.48		
OGE Energy Corp.	OGE		\$1.53	\$1.62	\$1.72	\$1.82	\$1.91	\$2.00	\$2.09	\$2.19	\$2.28	\$2.38	\$2.48	\$2.61	\$2.75	\$2.89	\$3.05	\$92.10		
PNM Resources, Inc.	PNM		\$1.11	\$1.19	\$1.28	\$1.38	\$1.55	\$1.73	\$1.92	\$2.12	\$2.34	\$2.56	\$2.79	\$2.94	\$3.10	\$3.26	\$3.43	\$103.81		
Pinnacle West Capital Corporation	PNW		\$3.09	\$3.27	\$3.47	\$3.68	\$3.93	\$4.19	\$4.47	\$4.76	\$5.07	\$5.38	\$5.71	\$6.02	\$6.34	\$6.68	\$7.03	\$212.51		
Projected Annual Data Investor Cash Flows		[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]		
Company	Ticker	Initial	Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33	
ALLETE, Inc.	ALE	(\$76.55)	\$0.00	\$2.03	\$2.39	\$2.61	\$2.76	\$2.93	\$3.10	\$3.27	\$3.45	\$3.64	\$3.84	\$4.04	\$4.25	\$4.48	\$4.72	\$155.12		
Black Hills Corporation	BKH	(\$61.83)	\$0.00	\$1.98	\$2.34	\$2.51	\$2.64	\$2.87	\$3.12	\$3.38	\$3.65	\$3.93	\$4.23	\$4.54	\$4.78	\$5.03	\$5.30	\$174.35		
El Paso Electric Company	EE	(\$57.24)	\$0.00	\$1.43	\$1.67	\$1.88	\$2.02	\$2.12	\$2.23	\$2.35	\$2.48	\$2.61	\$2.75	\$2.90	\$3.06	\$3.22	\$3.39	\$111.54		
Hawaiian Electric Industries, Inc.	HE	(\$35.90)	\$0.00	\$1.02	\$1.21	\$1.37	\$1.48	\$1.61	\$1.74	\$1.88	\$2.02	\$2.16	\$2.30	\$2.44	\$2.57	\$2.71	\$2.85	\$93.80		
Northwestern Corporation	NWE	(\$59.97)	\$0.00	\$2.00	\$2.32	\$2.48	\$2.58	\$2.64	\$2.70	\$2.78	\$2.88	\$2.99	\$3.12	\$3.27	\$3.44	\$3.62	\$3.82	\$125.50		
OGE Energy Corp.	OGE	(\$37.55)	\$0.00	\$1.34	\$1.58	\$1.72	\$1.82	\$1.91	\$2.00	\$2.09	\$2.19	\$2.28	\$2.38	\$2.48	\$2.61	\$2.75	\$2.89	\$95.15		
PNM Resources, Inc.	PNM	(\$40.10)	\$0.00	\$0.97	\$1.15	\$1.28	\$1.38	\$1.55	\$1.73	\$1.92	\$2.12	\$2.34	\$2.56	\$2.79	\$2.94	\$3.10	\$3.26	\$107.24		
Pinnacle West Capital Corporation	PNW	(\$83.10)	\$0.00	\$2.70	\$3.18	\$3.47	\$3.68	\$3.93	\$4.19	\$4.47	\$4.76	\$5.07	\$5.38	\$5.71	\$6.02	\$6.34	\$6.68	\$219.54		

Multi-Stage Growth Discounted Cash Flow Model - Terminal P/E Ratio Equals 19.82  
 180 Day Average Stock Price  
 Low EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]				
Company	Ticker	Stock Price	EPS Growth Rate Estimates			Low Growth	Long-Term Growth	Payout Ratio			Iterative Solution		Terminal P/E Ratio	Terminal PEG Ratio				
			Zacks	First Call	Line			2019	2022	2029	Proof	IRR						
ALLETE, Inc.	ALE	\$76.55	NA	6.00%	3.50%	3.50%	5.32%	66.00%	66.00%	65.57%	\$0.00	6.53%	19.82	3.73				
Black Hills Corporation	BKH	\$61.83	4.70%	4.46%	6.50%	4.46%	5.32%	59.00%	57.00%	65.57%	\$0.00	9.66%	19.82	3.73				
El Paso Electric Company	EE	\$57.24	4.40%	5.10%	3.00%	3.00%	5.32%	61.00%	65.00%	65.57%	\$0.00	6.43%	19.82	3.73				
Hawaiian Electric Industries, Inc.	HE	\$35.90	6.40%	7.80%	3.50%	3.50%	5.32%	61.00%	62.00%	65.57%	\$0.00	7.43%	19.82	3.73				
Northwestern Corporation	NWE	\$59.97	2.80%	2.59%	2.50%	2.50%	5.32%	65.00%	68.00%	65.57%	\$0.00	8.73%	19.82	3.73				
OGE Energy Corp.	OGE	\$37.55	5.20%	NA	6.00%	5.20%	5.32%	71.00%	71.00%	65.57%	\$0.00	9.96%	19.82	3.73				
PNM Resources, Inc.	PNM	\$40.10	4.70%	4.10%	7.50%	4.10%	5.32%	50.00%	50.00%	65.57%	\$0.00	7.95%	19.82	3.73				
Pinnacle West Capital Corporation	PNW	\$83.10	4.60%	4.16%	6.00%	4.16%	5.32%	62.00%	62.00%	65.57%	\$0.00	9.34%	19.82	3.73				
											Mean	8.25%	19.82	8.38%				
											Max	9.96%		10.09%				
											Min	6.43%		6.56%				
Projected Annual Earnings per Share		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]
Company	Ticker	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
ALLETE, Inc.	ALE	\$3.13	\$3.24	\$3.35	\$3.47	\$3.59	\$3.72	\$3.85	\$3.99	\$4.16	\$4.34	\$4.55	\$4.77	\$5.03	\$5.29	\$5.58	\$5.87	\$6.19
Black Hills Corporation	BKH	\$3.38	\$3.53	\$3.69	\$3.85	\$4.02	\$4.20	\$4.39	\$4.59	\$4.81	\$5.05	\$5.30	\$5.58	\$5.87	\$6.18	\$6.51	\$6.86	\$7.22
El Paso Electric Company	EE	\$2.42	\$2.49	\$2.57	\$2.64	\$2.72	\$2.81	\$2.89	\$2.99	\$3.10	\$3.23	\$3.38	\$3.54	\$3.73	\$3.93	\$4.14	\$4.36	\$4.59
Hawaiian Electric Industries, Inc.	HE	\$1.64	\$1.70	\$1.76	\$1.82	\$1.88	\$1.95	\$2.02	\$2.09	\$2.18	\$2.27	\$2.38	\$2.50	\$2.63	\$2.77	\$2.92	\$3.08	\$3.24
Northwestern Corporation	NWE	\$3.34	\$3.42	\$3.51	\$3.60	\$3.69	\$3.78	\$3.87	\$3.99	\$4.13	\$4.29	\$4.47	\$4.69	\$4.94	\$5.20	\$5.48	\$5.77	\$6.08
OGE Energy Corp.	OGE	\$1.92	\$2.02	\$2.12	\$2.24	\$2.35	\$2.47	\$2.60	\$2.74	\$2.88	\$3.03	\$3.19	\$3.36	\$3.54	\$3.73	\$3.93	\$4.14	\$4.36
PNM Resources, Inc.	PNM	\$1.92	\$2.00	\$2.08	\$2.17	\$2.25	\$2.35	\$2.44	\$2.55	\$2.66	\$2.79	\$2.93	\$3.08	\$3.24	\$3.41	\$3.59	\$3.78	\$3.98
Pinnacle West Capital Corporation	PNW	\$4.43	\$4.61	\$4.81	\$5.01	\$5.21	\$5.43	\$5.66	\$5.90	\$6.17	\$6.46	\$6.78	\$7.13	\$7.51	\$7.91	\$8.33	\$8.77	\$9.24
Projected Annual Dividend Payout Ratio			[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
ALLETE, Inc.	ALE	66.00%	66.00%	66.00%	66.00%	65.94%	65.88%	65.82%	65.75%	65.69%	65.63%	65.57%	65.57%	65.57%	65.57%	65.57%		
Black Hills Corporation	BKH	59.00%	58.33%	57.67%	57.00%	58.22%	59.45%	60.67%	61.90%	63.12%	64.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
El Paso Electric Company	EE	61.00%	62.33%	63.67%	65.00%	65.08%	65.16%	65.24%	65.33%	65.41%	65.49%	65.57%	65.57%	65.57%	65.57%	65.57%		
Hawaiian Electric Industries, Inc.	HE	61.00%	61.33%	61.67%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Northwestern Corporation	NWE	65.00%	66.00%	67.00%	68.00%	67.65%	67.31%	66.96%	66.61%	66.26%	65.92%	65.57%	65.57%	65.57%	65.57%	65.57%		
OGE Energy Corp.	OGE	71.00%	71.00%	71.00%	71.00%	70.22%	69.45%	68.67%	67.90%	67.12%	66.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
PNM Resources, Inc.	PNM	50.00%	50.00%	50.00%	50.00%	52.22%	54.45%	56.67%	58.90%	61.12%	63.35%	65.57%	65.57%	65.57%	65.57%	65.57%		
Pinnacle West Capital Corporation	PNW	62.00%	62.00%	62.00%	62.00%	62.51%	63.02%	63.53%	64.04%	64.55%	65.06%	65.57%	65.57%	65.57%	65.57%	65.57%		
Projected Annual Cash Flows			[46]	[47]	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]
Company	Ticker	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value	
ALLETE, Inc.	ALE	\$2.21	\$2.29	\$2.37	\$2.45	\$2.54	\$2.63	\$2.74	\$2.85	\$2.99	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$4.06	\$122.59	
Black Hills Corporation	BKH	\$2.18	\$2.25	\$2.32	\$2.40	\$2.56	\$2.73	\$2.92	\$3.12	\$3.35	\$3.59	\$3.85	\$4.05	\$4.27	\$4.50	\$4.74	\$143.18	
El Paso Electric Company	EE	\$1.57	\$1.65	\$1.73	\$1.82	\$1.88	\$1.95	\$2.02	\$2.11	\$2.21	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$3.01	\$90.97	
Hawaiian Electric Industries, Inc.	HE	\$1.07	\$1.12	\$1.16	\$1.21	\$1.26	\$1.32	\$1.38	\$1.46	\$1.54	\$1.63	\$1.73	\$1.82	\$1.92	\$2.02	\$2.13	\$64.23	
Northwestern Corporation	NWE	\$2.28	\$2.37	\$2.47	\$2.57	\$2.62	\$2.68	\$2.76	\$2.86	\$2.97	\$3.09	\$3.24	\$3.41	\$3.59	\$3.78	\$3.99	\$120.48	
OGE Energy Corp.	OGE	\$1.51	\$1.59	\$1.67	\$1.76	\$1.83	\$1.90	\$1.98	\$2.06	\$2.14	\$2.23	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$86.36	
PNM Resources, Inc.	PNM	\$1.04	\$1.08	\$1.13	\$1.17	\$1.28	\$1.39	\$1.51	\$1.64	\$1.79	\$1.95	\$2.12	\$2.24	\$2.36	\$2.48	\$2.61	\$78.98	
Pinnacle West Capital Corporation	PNW	\$2.98	\$3.10	\$3.23	\$3.37	\$3.54	\$3.72	\$3.92	\$4.14	\$4.38	\$4.64	\$4.92	\$5.19	\$5.46	\$5.75	\$6.06	\$183.13	
Projected Annual Data Investor Cash Flows		[62]	[63]	[64]	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]
Company	Ticker	Initial Outflow	2/15/19	12/31/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30	6/30/31	6/30/32	6/30/33
ALLETE, Inc.	ALE	(\$76.55)	\$0.00	\$1.93	\$2.25	\$2.37	\$2.45	\$2.54	\$2.63	\$2.74	\$2.85	\$2.99	\$3.13	\$3.30	\$3.47	\$3.66	\$3.85	\$126.65
Black Hills Corporation	BKH	(\$61.83)	\$0.00	\$1.90	\$2.22	\$2.32	\$2.40	\$2.56	\$2.73	\$2.92	\$3.12	\$3.35	\$3.59	\$3.85	\$4.05	\$4.27	\$4.50	\$147.91
El Paso Electric Company	EE	(\$57.24)	\$0.00	\$1.37	\$1.59	\$1.73	\$1.82	\$1.88	\$1.95	\$2.02	\$2.11	\$2.21	\$2.32	\$2.45	\$2.58	\$2.71	\$2.86	\$93.98
Hawaiian Electric Industries, Inc.	HE	(\$35.90)	\$0.00	\$0.94	\$1.09	\$1.16	\$1.21	\$1.26	\$1.32	\$1.38	\$1.46	\$1.54	\$1.63	\$1.73	\$1.82	\$1.92	\$2.02	\$66.36
Northwestern Corporation	NWE	(\$59.97)	\$0.00	\$1.99	\$2.31	\$2.47	\$2.57	\$2.62	\$2.68	\$2.76	\$2.86	\$2.97	\$3.09	\$3.24	\$3.41	\$3.59	\$3.78	\$124.47
OGE Energy Corp.	OGE	(\$37.55)	\$0.00	\$1.32	\$1.55	\$1.67	\$1.76	\$1.83	\$1.90	\$1.98	\$2.06	\$2.14	\$2.23	\$2.32	\$2.45	\$2.58	\$2.71	\$89.22
PNM Resources, Inc.	PNM	(\$40.10)	\$0.00	\$0.91	\$1.06	\$1.13	\$1.17	\$1.28	\$1.39	\$1.51	\$1.64	\$1.79	\$1.95	\$2.12	\$2.24	\$2.36	\$2.48	\$81.60
Pinnacle West Capital Corporation	PNW	(\$83.10)	\$0.00	\$2.60	\$3.04	\$3.23	\$3.37	\$3.54	\$3.72	\$3.92	\$4.14	\$4.38	\$4.64	\$4.92	\$5.19	\$5.46	\$5.75	\$189.19

Multi-Stage DCF Notes:

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- [1] Source: Bloomberg; based on 30-, 90-, and 180-day historical average as of February 15, 2019
  - [2] Source: Zacks
  - [3] Source: Yahoo! Finance
  - [4] Source: Value Line
  - [5] Equals indicated value (average, minimum, maximum) of Columns [2], [3], [4]
  - [6] Source: Federal Reserve, Bureau of Economic Analysis, Blue Chip Financial Forecast
  - [7] Source: Value Line
  - [8] Source: Value Line
  - [9] Source: Bloomberg Professional
  - [10] Equals Column [1] + Column [62]
  - [11] Equals result of Excel Solver function; goal: Column [10] equals \$0.00
  - [12] Equals Column [61] / Column [30] or Proxy Group 30-day average PE ratio. Source: S&P Global Market Intelligence
  - [13] Equals Column [12] / (Column [6] x 100)
  - [14] Source: Value Line
  - [15] Equals Column [14] x (1 + Column [5])
  - [16] Equals Column [15] x (1 + Column [5])
  - [17] Equals Column [16] x (1 + Column [5])
  - [18] Equals Column [17] x (1 + Column [5])
  - [19] Equals Column [18] x (1 + Column [5])
  - [20] Equals Column [19] x (1 + Column [5])
  - [21] Equals (1 + (Column [5] + (((Column [6] - Column [5]) / (2029 - 2024 + 1)) x (2024 - 2023)))) x Column [20]
  - [22] Equals (1 + (Column [5] + (((Column [6] - Column [5]) / (2029 - 2024 + 1)) x (2025 - 2023)))) x Column [21]
  - [23] Equals (1 + (Column [5] + (((Column [6] - Column [5]) / (2029 - 2024 + 1)) x (2026 - 2023)))) x Column [22]
  - [24] Equals (1 + (Column [5] + (((Column [6] - Column [5]) / (2029 - 2024 + 1)) x (2027 - 2023)))) x Column [23]
  - [25] Equals (1 + (Column [5] + (((Column [6] - Column [5]) / (2029 - 2024 + 1)) x (2028 - 2023)))) x Column [24]
  - [26] Equals Column [25] x (1 + Column [6])
  - [27] Equals Column [26] x (1 + Column [6])
  - [28] Equals Column [27] x (1 + Column [6])
  - [29] Equals Column [28] x (1 + Column [6])
  - [30] Equals Column [29] x (1 + Column [6])
  - [31] Equals Column [7]
  - [32] Equals Column [31] + ((Column [34] - Column [31]) / 3)
  - [33] Equals Column [32] + ((Column [34] - Column [31]) / 3)
  - [34] Equals Column [8]
  - [35] Equals Column [34] + ((Column [41] - Column [34]) / 7)
  - [36] Equals Column [35] + ((Column [41] - Column [34]) / 7)
  - [37] Equals Column [36] + ((Column [41] - Column [34]) / 7)
  - [38] Equals Column [37] + ((Column [41] - Column [34]) / 7)
  - [39] Equals Column [38] + ((Column [41] - Column [34]) / 7)
  - [40] Equals Column [39] + ((Column [41] - Column [34]) / 7)
  - [41] Equals Column [9]
  - [42] Equals Column [9]
  - [43] Equals Column [9]
  - [44] Equals Column [9]
  - [45] Equals Column [9]
  - [46] Equals Column [16] x Column [31]
  - [47] Equals Column [17] x Column [32]
  - [48] Equals Column [18] x Column [33]
  - [49] Equals Column [19] x Column [34]
  - [50] Equals Column [20] x Column [35]
  - [51] Equals Column [21] x Column [36]
  - [52] Equals Column [22] x Column [37]
  - [53] Equals Column [23] x Column [38]
  - [54] Equals Column [24] x Column [39]
  - [55] Equals Column [25] x Column [40]
  - [56] Equals Column [26] x Column [41]
  - [57] Equals Column [27] x Column [42]
  - [58] Equals Column [28] x Column [43]
  - [59] Equals Column [29] x Column [44]
  - [60] Equals Column [30] x Column [45]
  - [61] Equals (Column [60] x (1 + Column [6])) / (Column [11] - Column [6]), or Column [12] x Column [30]
  - [62] Equals negative net present value; discount rate equals Column [11], cash flows equal Column [63] through Column [78]
  - [63] Equals \$0.00
  - [64] Equals Column [46] x (12/31/2019 - 2/15/2019) / 365
  - [65] Equals Column [46] x (1 + (0.5 x Column [5]))
  - [66] Equals Column [48]
  - [67] Equals Column [49]
  - [68] Equals Column [50]
  - [69] Equals Column [51]
  - [70] Equals Column [52]
  - [71] Equals Column [53]
  - [72] Equals Column [54]
  - [73] Equals Column [55]
  - [74] Equals Column [56]
  - [75] Equals Column [57]

[76] Equals Column [58]  
[77] Equals Column [59]  
[78] Equals Column [60] + [61]



Ex-Ante Market Risk Premium  
Market DCF Method Based - Bloomberg

[1]	[2]	[3]
S&P 500 Est. Required Market Return	Current 30-Year Treasury (30-day average)	Implied Market Risk Premium
13.75%	3.03%	10.72%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Agilent Technologies Inc	A	24,869.29	0.10%	0.86%	9.50%	10.40%	0.0105%
American Airlines Group Inc	AAL	16,143.38	0.07%	1.16%	15.20%	16.45%	0.0108%
Advance Auto Parts Inc	AAP	12,391.20	0.05%	0.14%	17.37%	17.52%	0.0088%
Apple Inc	AAPL	803,578.02	3.27%	1.72%	9.40%	11.20%	0.3660%
AbbVie Inc	ABBV	121,615.89	0.49%	5.34%	8.81%	14.39%	0.0712%
AmerisourceBergen Corp	ABC	18,293.05	0.07%	1.85%	8.42%	10.36%	0.0077%
ABIOMED Inc	ABMD	16,323.77	0.07%	0.00%	29.00%	29.00%	0.0192%
Abbott Laboratories	ABT	132,164.06	0.54%	1.63%	11.69%	13.41%	0.0721%
Accenture PLC	ACN	101,653.74	0.41%	1.84%	10.27%	12.20%	0.0504%
Adobe Inc	ADBE	126,540.49	0.51%	0.00%	16.75%	16.75%	0.0862%
Analog Devices Inc	ADI	39,049.76	0.16%	1.86%	8.43%	10.37%	0.0165%
Archer-Daniels-Midland Co	ADM	23,535.85	0.10%	3.38%	1.40%	4.80%	0.0046%
Automatic Data Processing Inc	ADP	65,200.69	0.27%	1.93%	14.00%	16.07%	0.0426%
Alliance Data Systems Corp	ADS	9,435.36	0.04%	1.44%	4.43%	5.90%	0.0023%
Autodesk Inc	ADSK	35,118.07	0.14%	0.00%	54.78%	54.78%	0.0782%
Ameren Corp	AEE	17,004.71	0.07%	2.79%	6.70%	9.59%	0.0066%
American Electric Power Co Inc	AEP	39,088.74	0.16%	3.39%	5.96%	9.45%	0.0150%
AES Corp/VA	AES	11,206.07	0.05%	3.07%	8.66%	11.86%	0.0054%
Aflac Inc	AFL	37,220.49	0.15%	2.22%	3.43%	5.69%	0.0086%
Allergan PLC	AGN	46,256.69	0.19%	2.14%	7.11%	9.32%	0.0175%
American International Group Inc	AIG	36,796.66	0.15%	3.20%	11.00%	14.38%	0.0215%
Apartment Investment & Management Co	AIV	7,366.79	0.03%	3.27%	-2.74%	0.49%	0.0001%
Assurant Inc	AIZ	6,094.32	N/A	2.54%	N/A	N/A	N/A
Arthur J Gallagher & Co	AJG	14,695.35	0.06%	2.15%	10.17%	12.43%	0.0074%
Akamai Technologies Inc	AKAM	11,415.28	0.05%	0.00%	16.57%	16.57%	0.0077%
Albemarle Corp	ALB	8,641.97	0.04%	1.65%	9.81%	11.54%	0.0041%
Align Technology Inc	ALGN	20,392.82	0.08%	0.00%	23.19%	23.19%	0.0192%
Alaska Air Group Inc	ALK	8,165.08	0.03%	2.04%	5.60%	7.69%	0.0026%
Allstate Corp/The	ALL	31,330.68	0.13%	2.05%	7.10%	9.23%	0.0118%
Alegion PLC	ALLE	8,703.31	0.04%	0.92%	11.97%	12.95%	0.0046%
Alexion Pharmaceuticals Inc	ALXN	28,921.41	0.12%	0.00%	16.74%	16.74%	0.0197%
Applied Materials Inc	AMAT	37,295.79	0.15%	2.20%	9.23%	11.53%	0.0175%
Advanced Micro Devices Inc	AMD	23,805.48	0.10%	0.00%	15.67%	15.67%	0.0152%
AMETEK Inc	AME	18,339.48	0.07%	0.73%	8.84%	9.60%	0.0072%
Affiliated Managers Group Inc	AMG	5,739.24	0.02%	1.27%	4.37%	5.67%	0.0013%
Amgen Inc	AMGN	117,199.84	0.48%	3.02%	6.16%	9.28%	0.0442%
Ameriprise Financial Inc	AMP	17,811.68	0.07%	2.91%	11.80%	14.88%	0.0108%
American Tower Corp	AMT	78,327.55	0.32%	1.76%	15.19%	17.09%	0.0544%
Amazon.com Inc	AMZN	789,829.69	3.21%	0.00%	37.60%	37.60%	1.2075%
Arista Networks Inc	ANET	19,909.04	0.08%	0.00%	21.64%	21.64%	0.0175%
ANSYS Inc	ANSS	14,580.39	0.06%	0.00%	12.20%	12.20%	0.0072%
Anthem Inc	ANTM	80,587.70	0.33%	0.99%	11.14%	12.18%	0.0399%
Aon PLC	AON	41,417.96	0.17%	0.99%	10.90%	11.95%	0.0201%
AO Smith Corp	AOS	8,671.01	0.04%	1.67%	9.33%	11.08%	0.0039%
Apache Corp	APA	12,638.80	0.05%	5.50%	-5.19%	0.17%	0.0001%
Anadarko Petroleum Corp	APC	22,595.82	0.09%	2.60%	23.31%	26.21%	0.0241%
Air Products & Chemicals Inc	APD	38,233.39	0.16%	2.64%	12.30%	15.10%	0.0235%
Amphenol Corp	APH	27,629.70	0.11%	0.96%	10.64%	11.65%	0.0131%
Aptiv PLC	APTIV	21,049.80	0.09%	1.14%	10.66%	11.86%	0.0101%
Alexandria Real Estate Equities Inc	ARE	15,202.55	0.06%	2.91%	4.80%	7.78%	0.0048%
Arconic Inc	ARNC	8,480.90	0.03%	0.57%	14.40%	15.01%	0.0052%
Activision Blizzard Inc	ATVI	11,344.89	0.05%	2.16%	6.50%	8.73%	0.0040%
AvalonBay Communities Inc	AVB	34,032.06	0.14%	0.83%	6.65%	7.51%	0.0104%
Broadcom Inc	AVGO	27,101.30	0.11%	3.11%	5.38%	8.58%	0.0095%
Avery Dennison Corp	AVY	114,821.89	0.47%	3.47%	13.15%	16.85%	0.0787%
American Water Works Co Inc	AWK	9,095.91	0.04%	2.01%	5.75%	7.82%	0.0029%
American Express Co	AXP	17,707.71	0.07%	1.79%	8.45%	10.31%	0.0074%
AutoZone Inc	AZO	90,560.93	0.37%	1.50%	14.99%	16.60%	0.0611%
Boeing Co/The	BA	23,182.41	0.09%	0.00%	12.80%	12.80%	0.0121%
Bank of America Corp	BAC	236,146.83	0.96%	1.90%	16.70%	18.76%	0.1801%
Baxter International Inc	BAX	281,472.93	1.14%	2.36%	9.70%	12.17%	0.1393%
BB&T Corp	BBT	39,075.11	0.16%	1.14%	12.20%	13.41%	0.0213%
Best Buy Co Inc	BBY	38,717.33	0.16%	3.37%	9.85%	13.38%	0.0211%
Becton Dickinson and Co	BDX	16,194.53	0.07%	2.99%	11.10%	14.26%	0.0094%
Franklin Resources Inc	BEN	66,819.20	0.27%	1.27%	12.41%	13.76%	0.0374%
Brown-Forman Corp	BF/B	16,533.61	0.07%	3.15%	10.00%	13.31%	0.0089%
BrightHouse Financial Inc	BHF	23,403.56	0.10%	1.34%	9.86%	11.27%	0.0107%
Baker Hughes a GE Co	BHGE	4,930.48	0.02%	0.00%	11.14%	11.14%	0.0022%
Biogen Inc	BIIB	26,732.47	0.11%	2.62%	40.82%	43.97%	0.0478%
Bank of New York Mellon Corp/The	BK	65,478.45	0.27%	0.00%	5.08%	5.08%	0.0135%
Booking Holdings Inc	BKNG	50,892.97	0.21%	2.28%	7.33%	9.69%	0.0201%
BlackRock Inc	BLK	89,581.50	0.36%	0.00%	15.78%	15.78%	0.0575%
Ball Corp	BLL	68,541.37	0.28%	3.07%	9.69%	12.91%	0.0360%
Bristol-Myers Squibb Co	BMJ	18,360.49	0.07%	0.74%	6.50%	7.26%	0.0054%
Broadridge Financial Solutions Inc	BR	84,349.45	0.34%	3.19%	12.78%	16.17%	0.0555%
Berkshire Hathaway Inc	BRK/B	11,608.57	0.05%	1.91%	10.00%	12.00%	0.0057%
Boston Scientific Corp	BSX	505,680.48	2.06%	0.00%	-5.60%	-5.60%	-0.1151%

		[4]	[5]	[6]	[7]	[8]	[9]
Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
BorgWarner Inc	BWA	55,365.87	0.23%	0.00%	33.46%	33.46%	0.0753%
Boston Properties Inc	BXP	8,730.79	0.04%	1.65%	5.84%	7.53%	0.0027%
Citigroup Inc	C	20,638.74	0.08%	2.91%	6.46%	9.46%	0.0079%
Conagra Brands Inc	CAG	156,956.13	0.64%	3.03%	11.07%	14.26%	0.0910%
Cardinal Health Inc	CAH	11,898.23	0.05%	3.43%	8.00%	11.57%	0.0056%
Caterpillar Inc	CAT	16,533.96	0.07%	3.51%	15.67%	19.46%	0.0131%
Chubb Ltd	CB	78,388.92	0.32%	2.58%	13.35%	16.10%	0.0513%
Choe Global Markets Inc	CBOE	61,170.48	0.25%	2.28%	10.00%	12.39%	0.0308%
CBRE Group Inc	CBRE	10,495.37	0.04%	1.40%	13.46%	14.95%	0.0064%
CBS Corp	CBS	17,057.65	0.07%	0.00%	8.55%	8.55%	0.0059%
Crown Castle International Corp	CCI	18,946.57	0.08%	1.55%	14.79%	16.45%	0.0127%
Carnival Corp	CCL	49,853.95	0.20%	3.82%	15.50%	19.61%	0.0398%
Cadence Design Systems Inc	CDNS	39,358.41	0.16%	3.60%	10.93%	14.73%	0.0236%
Celanese Corp	CE	14,835.03	0.06%	0.00%	10.90%	10.90%	0.0066%
Celgene Corp	CELG	12,843.32	0.05%	2.35%	7.05%	9.48%	0.0050%
Cerner Corp	CERN	63,504.65	0.26%	0.00%	20.70%	20.70%	0.0534%
CF Industries Holdings Inc	CF	18,783.74	0.08%	0.00%	12.93%	12.93%	0.0099%
Citizens Financial Group Inc	CFG	9,640.16	0.04%	2.89%	19.75%	22.92%	0.0090%
Church & Dwight Co Inc	CHD	17,102.49	0.07%	3.67%	16.69%	20.66%	0.0144%
CH Robinson Worldwide Inc	CHRW	15,928.79	0.06%	1.42%	8.21%	9.69%	0.0063%
Charter Communications Inc	CHTR	12,574.78	0.05%	2.21%	9.07%	11.38%	0.0058%
Cigna Corp	CI	87,671.16	0.36%	0.00%	41.16%	41.16%	0.1467%
Cincinnati Financial Corp	CINF	75,373.43	0.31%	0.01%	14.10%	14.12%	0.0433%
Colgate-Palmolive Co	CL	13,910.82	N/A	2.72%	N/A	N/A	N/A
Clorox Co/The	CLX	57,659.43	0.23%	2.60%	6.24%	8.92%	0.0209%
Comerica Inc	CMA	20,029.52	0.08%	2.49%	4.91%	7.46%	0.0061%
Comcast Corp	CMCSA	13,732.87	0.06%	3.02%	16.41%	19.68%	0.0110%
CME Group Inc	CME	170,945.60	0.70%	2.22%	11.03%	13.37%	0.0929%
Chipotle Mexican Grill Inc	CMG	62,751.25	0.26%	2.99%	13.40%	16.59%	0.0423%
Cummins Inc	CMI	16,758.48	0.07%	0.00%	20.31%	20.31%	0.0138%
CMS Energy Corp	CMS	24,461.47	0.10%	2.98%	6.81%	9.89%	0.0098%
Centene Corp	CNC	14,955.02	0.06%	2.90%	6.61%	9.60%	0.0058%
CenterPoint Energy Inc	CNP	26,798.70	0.11%	0.00%	13.68%	13.68%	0.0149%
Capital One Financial Corp	COF	15,481.72	0.06%	3.63%	6.90%	10.66%	0.0067%
Cabot Oil & Gas Corp	COG	38,150.29	0.16%	2.03%	4.54%	6.61%	0.0102%
Cooper Cos Inc/The	COO	10,878.67	0.04%	1.01%	33.27%	34.44%	0.0152%
ConocoPhillips	COP	13,769.08	0.06%	0.02%	10.50%	10.52%	0.0059%
Costco Wholesale Corp	COST	80,794.16	0.33%	1.76%	6.00%	7.82%	0.0257%
Coty Inc	COTY	95,352.97	0.39%	1.09%	10.58%	11.72%	0.0454%
Campbell Soup Co	CPB	8,293.88	0.03%	4.53%	8.76%	13.49%	0.0045%
Capri Holdings Ltd	CPRI	10,472.80	0.04%	4.08%	3.16%	7.31%	0.0031%
Copart Inc	CPRT	6,705.02	0.03%	0.00%	6.73%	6.73%	0.0018%
salesforce.com Inc	CRM	12,643.86	0.05%	0.00%	10.00%	10.00%	0.0051%
Cisco Systems Inc	CSCO	121,673.25	0.49%	0.00%	23.98%	23.98%	0.1186%
CSX Corp	CSX	222,235.39	0.90%	2.76%	6.84%	9.70%	0.0876%
Cintas Corp	CTAS	59,165.83	0.24%	1.26%	10.47%	11.80%	0.0284%
CenturyLink Inc	CTL	21,305.00	0.09%	0.99%	12.11%	13.15%	0.0114%
Cognizant Technology Solutions Corp	CTSH	14,848.26	0.06%	11.11%	-15.21%	-4.94%	-0.0030%
Citrix Systems Inc	CTXS	42,444.12	0.17%	1.02%	11.40%	12.47%	0.0215%
CVS Health Corp	CVS	14,027.48	0.06%	0.00%	11.85%	11.85%	0.0068%
Chevron Corp	CVX	89,908.88	0.37%	2.89%	11.30%	14.36%	0.0525%
Concho Resources Inc	CXO	228,050.92	0.93%	3.95%	6.36%	10.43%	0.0967%
Dominion Energy Inc	D	24,624.77	0.10%	0.00%	31.00%	31.00%	0.0310%
Delta Air Lines Inc	DAL	58,374.14	0.24%	5.00%	5.72%	10.87%	0.0258%
Deere & Co	DE	34,680.77	0.14%	2.86%	13.07%	16.11%	0.0227%
Discover Financial Services	DFS	50,857.82	0.21%	1.83%	10.39%	12.32%	0.0255%
Dollar General Corp	DG	23,596.99	0.10%	2.31%	8.80%	11.21%	0.0108%
Quest Diagnostics Inc	DGX	31,283.24	0.13%	0.97%	15.00%	16.04%	0.0204%
DR Horton Inc	DHI	11,854.35	0.05%	2.38%	7.88%	10.35%	0.0050%
Danaher Corp	DHR	14,925.72	0.06%	1.51%	11.80%	13.40%	0.0081%
Walt Disney Co/The	DIS	77,489.78	0.32%	0.60%	10.00%	10.63%	0.0335%
Discovery Inc	DISCA	167,846.56	0.68%	1.58%	3.76%	5.37%	0.0367%
DISH Network Corp	DISH	20,510.35	0.08%	0.00%	12.30%	12.30%	0.0103%
Digital Realty Trust Inc	DLR	14,457.62	0.06%	0.00%	-20.68%	-20.68%	-0.0122%
Dollar Tree Inc	DLTR	24,962.26	0.10%	3.72%	18.00%	22.06%	0.0224%
Dover Corp	DOV	23,523.33	0.10%	0.00%	9.96%	9.96%	0.0095%
Duke Realty Corp	DRE	13,345.54	0.05%	2.18%	10.97%	13.27%	0.0072%
Darden Restaurants Inc	DRI	10,670.75	0.04%	2.90%	4.50%	7.46%	0.0032%
DTE Energy Co	DTE	13,847.84	0.06%	2.68%	10.31%	13.13%	0.0074%
Duke Energy Corp	DUK	21,796.44	0.09%	3.17%	5.87%	9.13%	0.0081%
DaVita Inc	DVA	63,619.77	0.26%	4.32%	5.00%	9.43%	0.0244%
Devon Energy Corp	DVN	9,833.49	0.04%	0.00%	16.56%	16.56%	0.0066%
DowDuPont Inc	DWDP	13,306.24	0.05%	1.06%	10.92%	12.03%	0.0065%
DXC Technology Co	DXC	122,298.29	0.50%	2.90%	6.17%	9.15%	0.0455%
Electronic Arts Inc	EA	17,561.03	0.07%	1.17%	6.50%	7.71%	0.0055%
eBay Inc	EBAY	32,008.79	0.13%	3.10%	11.87%	15.15%	0.0197%
Ecolab Inc	ECL	33,466.33	0.14%	0.70%	10.67%	11.41%	0.0155%
Consolidated Edison Inc	ED	47,224.97	0.19%	1.00%	13.20%	14.27%	0.0274%
Equifax Inc	EFX	25,524.60	0.10%	3.65%	3.73%	7.44%	0.0077%
Edison International	EIX	13,180.06	0.05%	1.43%	6.60%	8.08%	0.0043%
Estee Lauder Cos Inc/The	EL	19,711.58	0.08%	4.01%	5.34%	9.46%	0.0076%
Eastman Chemical Co	EMN	55,983.80	0.23%	1.07%	11.80%	12.93%	0.0294%
Emerson Electric Co	EMR	11,582.88	0.05%	2.87%	6.73%	9.70%	0.0046%
EOG Resources Inc	EOG	41,984.68	0.17%	2.88%	8.95%	11.95%	0.0204%
Equinix Inc	EQIX	58,135.28	0.24%	0.80%	11.06%	11.90%	0.0281%
Equity Residential	EQR	33,875.75	0.14%	2.37%	19.40%	22.00%	0.0303%
Eversource Energy	ES	27,044.15	0.11%	3.05%	6.31%	9.46%	0.0104%
Essex Property Trust Inc	ESS	22,245.38	0.09%	2.89%	5.62%	8.59%	0.0078%

		[4]	[5]	[6]	[7]	[8]	[9]
Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
E*TRADE Financial Corp	ETFC	18,420.27	0.07%	2.79%	6.02%	8.89%	0.0067%
Eaton Corp PLC	ETN	11,698.66	0.05%	1.05%	12.08%	13.19%	0.0063%
Entergy Corp	ETR	34,121.58	0.14%	3.64%	9.23%	13.03%	0.0181%
Every Inc	EVRG	16,277.44	0.07%	4.00%	-0.69%	3.29%	0.0022%
Edwards Lifesciences Corp	EW	15,483.26	0.06%	2.79%	8.66%	11.58%	0.0073%
Exelon Corp	EXC	36,936.70	0.15%	0.00%	14.00%	14.00%	0.0210%
Expeditors International of Washington I	EXPD	46,614.66	0.19%	3.00%	4.12%	7.18%	0.0136%
Expedia Group Inc	EXPE	12,709.53	0.05%	1.20%	9.60%	10.86%	0.0056%
Extra Space Storage Inc	EXR	18,706.42	0.08%	1.03%	17.20%	18.32%	0.0139%
Ford Motor Co	F	12,616.11	0.05%	3.35%	5.34%	8.78%	0.0045%
Diamondback Energy Inc	FANG	33,971.29	0.14%	6.84%	-5.41%	1.25%	0.0017%
Fastenal Co	FAST	17,310.99	0.07%	0.41%	15.26%	15.70%	0.0111%
Facebook Inc	FB	18,005.11	0.07%	2.70%	14.85%	17.76%	0.0130%
Fortune Brands Home & Security Inc	FBHS	463,773.34	1.89%	0.00%	21.88%	21.88%	0.4126%
Freepoint-McMoRan Inc	FCX	6,702.59	0.03%	1.77%	9.97%	11.82%	0.0032%
FedEx Corp	FDX	17,794.44	0.07%	1.83%	-12.55%	-10.83%	-0.0078%
FirstEnergy Corp	FE	46,805.12	0.19%	1.43%	14.30%	15.84%	0.0301%
F5 Networks Inc	FFIV	20,248.12	0.08%	3.64%	-0.02%	3.62%	0.0030%
Fidelity National Information Services I	FIS	10,181.11	0.04%	0.00%	9.39%	9.39%	0.0039%
Fiserv Inc	FISV	35,673.30	0.15%	1.29%	12.00%	13.36%	0.0194%
Fifth Third Bancorp	FITB	34,180.82	0.14%	0.00%	7.40%	7.40%	0.0103%
Foot Locker Inc	FL	17,568.96	0.07%	3.57%	3.95%	7.59%	0.0054%
FLIR Systems Inc	FLIR	6,693.26	0.03%	2.30%	6.24%	8.61%	0.0023%
Fluor Corp	FLR	7,250.82	N/A	1.30%	N/A	N/A	N/A
Flowserve Corp	FLS	5,107.67	0.02%	2.31%	19.23%	21.77%	0.0045%
FleetCor Technologies Inc	FLT	6,252.35	0.03%	1.61%	20.07%	21.84%	0.0056%
FMC Corp	FMC	19,233.65	0.08%	0.00%	16.50%	16.50%	0.0129%
Twenty-First Century Fox Inc	FOXA	11,493.05	0.05%	1.62%	10.27%	11.97%	0.0056%
First Republic Bank/CA	FRC	93,285.81	0.38%	0.79%	2.66%	3.46%	0.0131%
Federal Realty Investment Trust	FRT	16,936.76	0.07%	0.75%	12.39%	13.18%	0.0091%
TechnipFMC PLC	FTI	10,075.08	0.04%	3.08%	4.25%	7.39%	0.0030%
Fortinet Inc	FTNT	10,624.12	0.04%	2.26%	5.58%	7.90%	0.0034%
Fortive Corp	FTV	14,159.47	0.06%	0.00%	22.10%	22.10%	0.0127%
General Dynamics Corp	GD	27,362.10	0.11%	0.37%	12.93%	13.32%	0.0148%
General Electric Co	GE	50,510.46	0.21%	2.25%	10.09%	12.46%	0.0256%
Gilead Sciences Inc	GILD	87,763.98	0.36%	0.40%	1.60%	2.00%	0.0071%
General Mills Inc	GIS	86,650.38	0.35%	3.71%	-1.48%	2.20%	0.0078%
Coming Inc	GLW	26,877.57	0.11%	4.38%	6.43%	10.95%	0.0120%
General Motors Co	GM	27,151.12	0.11%	2.31%	10.39%	12.82%	0.0141%
Alphabet Inc	GOOGL	55,096.53	0.22%	3.91%	11.77%	15.91%	0.0356%
Genuine Parts Co	GPC	776,123.64	3.16%	0.00%	15.22%	15.22%	0.4804%
Global Payments Inc	GPN	15,789.83	0.06%	2.64%	5.62%	8.34%	0.0054%
Gap Inc/The	GPS	19,476.71	0.08%	0.03%	14.67%	14.70%	0.0116%
Garmin Ltd	GRMN	9,562.55	0.04%	3.87%	8.63%	12.66%	0.0049%
Goldman Sachs Group Inc/The	GS	13,522.50	0.05%	2.93%	6.03%	9.05%	0.0050%
Goodyear Tire & Rubber Co/The	GT	76,735.17	0.31%	1.71%	7.27%	9.04%	0.0282%
WW Grainger Inc	GWW	4,362.99	N/A	3.44%	N/A	N/A	N/A
Halliburton Co	HAL	17,832.18	0.07%	1.80%	12.47%	14.38%	0.0104%
Hasbro Inc	HAS	27,790.49	0.11%	2.19%	30.08%	32.60%	0.0368%
Huntington Bancshares Inc/OH	HBAN	10,930.25	0.04%	3.15%	8.98%	12.26%	0.0054%
Hanesbrands Inc	HBI	14,665.85	0.06%	4.23%	8.20%	12.60%	0.0075%
HCA Healthcare Inc	HCA	6,783.93	0.03%	3.34%	3.72%	7.11%	0.0020%
HCP Inc	HCP	49,648.59	0.20%	0.94%	11.56%	12.56%	0.0253%
Home Depot Inc/The	HD	14,734.48	0.06%	4.82%	2.47%	7.35%	0.0044%
Hess Corp	HES	217,309.84	0.88%	2.14%	13.01%	15.29%	0.1351%
HollyFrontier Corp	HFC	17,058.26	0.07%	1.76%	-9.49%	-7.81%	-0.0054%
Hartford Financial Services Group Inc/Th	HIG	10,030.75	0.04%	2.30%	7.07%	9.45%	0.0039%
Huntington Ingalls Industries Inc	HII	17,503.82	0.07%	2.55%	9.50%	12.18%	0.0087%
Hilton Worldwide Holdings Inc	HLT	9,124.12	0.04%	1.55%	40.00%	41.86%	0.0155%
Harley-Davidson Inc	HOG	23,940.27	0.10%	0.81%	10.74%	11.59%	0.0113%
Hologic Inc	HOLX	6,073.66	0.02%	4.20%	8.97%	13.35%	0.0033%
Honeywell International Inc	HON	13,484.96	0.05%	0.00%	3.10%	3.10%	0.0017%
Helmerich & Payne Inc	HP	111,783.45	0.45%	2.17%	13.06%	15.37%	0.0699%
Hewlett Packard Enterprise Co	HPE	6,279.87	0.03%	4.96%	96.36%	103.70%	0.0265%
HP Inc	HPQ	22,155.32	0.09%	2.90%	4.86%	7.83%	0.0071%
H&R Block Inc	HRB	36,165.35	0.15%	2.73%	6.06%	8.87%	0.0130%
Hormel Foods Corp	HRL	4,953.22	0.02%	4.16%	10.00%	14.37%	0.0029%
Harris Corp	HRS	23,094.53	0.09%	1.93%	5.80%	7.78%	0.0073%
Henry Schein Inc	HSIC	19,418.35	0.08%	1.64%	7.00%	8.69%	0.0069%
Host Hotels & Resorts Inc	HST	9,510.59	0.04%	0.00%	7.53%	7.53%	0.0029%
Hershey Co/The	HSY	13,832.04	0.06%	4.46%	4.57%	9.13%	0.0051%
Humana Inc	HUM	22,942.48	0.09%	2.70%	8.00%	10.81%	0.0101%
International Business Machines Corp	IBM	42,066.34	0.17%	0.63%	14.11%	14.79%	0.0253%
Intercontinental Exchange Inc	ICE	125,440.81	0.51%	4.71%	3.59%	8.38%	0.0428%
IDEXX Laboratories Inc	IDXX	42,921.60	0.17%	1.42%	8.02%	9.50%	0.0166%
International Flavors & Fragrances Inc	IFF	18,083.73	0.07%	0.00%	18.21%	18.21%	0.0134%
Illumina Inc	ILMN	14,074.80	0.06%	2.15%	9.00%	11.24%	0.0064%
Incyte Corp	INCY	44,073.54	0.18%	0.00%	25.16%	25.16%	0.0451%
IHS Markit Ltd	INFO	18,012.17	0.07%	0.00%	47.53%	47.53%	0.0348%
Intel Corp	INTC	21,226.97	0.09%	0.00%	11.21%	11.21%	0.0097%
Intuit Inc	INTU	232,315.02	0.94%	2.44%	8.54%	11.09%	0.1047%
International Paper Co	IP	60,554.77	0.25%	0.79%	15.87%	16.72%	0.0412%
Interpublic Group of Cos Inc/The	IPG	19,097.09	0.08%	4.28%	6.08%	10.48%	0.0081%
IPG Photonics Corp	IPGP	8,986.14	0.04%	3.98%	8.53%	12.67%	0.0046%
IQVIA Holdings Inc	IQV	8,199.60	0.03%	0.00%	9.24%	9.24%	0.0031%
Ingersoll-Rand PLC	IR	28,015.38	0.11%	0.00%	15.23%	15.23%	0.0173%
Iron Mountain Inc	IRM	25,362.32	0.10%	2.08%	9.92%	12.11%	0.0125%
Intuitive Surgical Inc	ISRG	10,057.16	0.04%	7.02%	7.16%	14.43%	0.0059%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Gartner Inc	IT	62,797.00	0.26%	0.00%	12.95%	12.95%	0.0331%
Illinois Tool Works Inc	ITW	13,018.77	0.05%	0.00%	14.02%	14.02%	0.0074%
Invesco Ltd	IVZ	47,316.51	0.19%	2.78%	7.90%	10.79%	0.0208%
JB Hunt Transport Services Inc	JBHT	7,757.79	0.03%	6.58%	4.30%	11.02%	0.0035%
Johnson Controls International plc	JCI	12,401.34	0.05%	0.89%	18.78%	19.75%	0.0100%
Jacobs Engineering Group Inc	JEC	32,036.23	0.13%	3.07%	7.63%	10.82%	0.0141%
Jefferies Financial Group Inc	JEF	9,587.60	0.04%	0.84%	13.57%	14.46%	0.0056%
Jack Henry & Associates Inc	JKHY	6,790.99	N/A	2.38%	N/A	N/A	N/A
Johnson & Johnson	JNJ	10,325.46	0.04%	1.15%	11.00%	12.21%	0.0051%
Juniper Networks Inc	JNPR	365,768.16	1.49%	2.79%	7.26%	10.15%	0.1510%
JPMorgan Chase & Co	JPM	9,360.59	0.04%	2.78%	8.63%	11.53%	0.0044%
Nordstrom Inc	JWN	350,997.10	1.43%	3.20%	9.33%	12.68%	0.1810%
Kellogg Co	K	7,435.87	0.03%	3.38%	10.55%	14.10%	0.0043%
KeyCorp	KEY	19,707.33	0.08%	4.15%	3.68%	7.91%	0.0063%
Keysight Technologies Inc	KEYS	17,851.50	0.07%	4.23%	13.17%	17.68%	0.0128%
Kraft Heinz Co/The	KHC	15,086.18	0.06%	0.00%	17.00%	17.00%	0.0104%
Kimco Realty Corp	KIM	58,069.49	0.24%	5.32%	3.30%	8.71%	0.0206%
KLA-Tencor Corp	KLAC	7,483.81	0.03%	6.36%	3.86%	10.34%	0.0031%
Kimberly-Clark Corp	KMB	16,376.07	0.07%	2.76%	7.15%	10.00%	0.0067%
Kinder Morgan Inc/DE	KMI	40,794.48	0.17%	3.47%	6.09%	9.66%	0.0160%
CarMax Inc	KMX	42,556.74	0.17%	5.29%	10.00%	15.56%	0.0269%
Coca-Cola Co/The	KO	10,555.61	0.04%	0.00%	12.92%	12.92%	0.0055%
Kroger Co/The	KR	192,564.69	0.78%	3.64%	6.72%	10.48%	0.0821%
Kohl's Corp	KSS	23,533.42	0.10%	1.84%	6.43%	8.34%	0.0080%
Kansas City Southern	KSU	10,886.98	0.04%	3.70%	10.60%	14.50%	0.0064%
Loews Corp	L	10,855.25	0.04%	1.42%	8.97%	10.45%	0.0046%
L Brands Inc	LB	14,537.68	N/A	0.60%	N/A	N/A	N/A
Leggett & Platt Inc	LEG	7,521.92	0.03%	8.80%	10.72%	19.99%	0.0061%
Lennar Corp	LEN	5,862.28	0.02%	3.43%	10.00%	13.60%	0.0032%
Laboratory Corp of America Holdings	LH	15,491.69	0.06%	0.33%	12.74%	13.09%	0.0082%
Linde PLC	LIN	15,152.15	0.06%	0.00%	7.61%	7.61%	0.0047%
LKQ Corp	LKQ	92,033.63	0.37%	1.81%	19.10%	21.09%	0.0789%
L3 Technologies Inc	LLL	8,639.20	0.04%	0.00%	13.85%	13.85%	0.0049%
Eli Lilly & Co	LLY	16,702.77	0.07%	1.56%	10.49%	12.13%	0.0082%
Lockheed Martin Corp	LMT	129,745.79	0.53%	2.03%	10.72%	12.86%	0.0678%
Lincoln National Corp	LNC	86,811.69	0.35%	2.91%	7.61%	10.63%	0.0375%
Alliant Energy Corp	LNT	13,160.19	0.05%	2.43%	9.00%	11.54%	0.0062%
Lowe's Cos Inc	LOW	10,993.85	0.04%	2.98%	6.49%	9.57%	0.0043%
Lam Research Corp	LRCX	83,700.24	0.34%	1.74%	15.17%	17.04%	0.0580%
Southwest Airlines Co	LUV	27,633.15	0.11%	2.24%	-0.42%	1.82%	0.0020%
Lamb Weston Holdings Inc	LW	31,890.15	0.13%	1.20%	10.73%	12.00%	0.0156%
LyondellBasell Industries NV	LYB	10,182.66	0.04%	1.14%	11.02%	12.22%	0.0051%
Macy's Inc	M	32,952.64	0.13%	4.64%	6.80%	11.60%	0.0155%
Mastercard Inc	MA	7,649.78	0.03%	6.16%	-0.17%	5.99%	0.0019%
Mid-America Apartment Communities Inc	MAA	227,864.66	0.93%	0.52%	16.68%	17.24%	0.1598%
Macerich Co/The	MAC	11,859.62	0.05%	3.70%	7.00%	10.83%	0.0052%
Marriott International Inc/MD	MAR	6,162.51	0.03%	6.94%	2.39%	9.41%	0.0024%
Masco Corp	MAS	41,293.82	0.17%	1.29%	12.10%	13.47%	0.0226%
Mattel Inc	MAT	11,031.69	0.04%	1.27%	12.50%	13.85%	0.0062%
McDonald's Corp	MCD	4,769.98	0.02%	0.00%	10.00%	10.00%	0.0019%
Microchip Technology Inc	MCHP	138,740.72	0.56%	2.60%	8.74%	11.45%	0.0646%
McKesson Corp	MCK	21,587.87	0.09%	1.60%	12.39%	14.09%	0.0124%
Moody's Corp	MCO	26,003.83	0.11%	1.09%	7.96%	9.09%	0.0096%
Mondelez International Inc	MDLZ	32,430.22	0.13%	1.15%	12.80%	14.02%	0.0185%
Medtronic PLC	MDT	69,551.20	0.28%	2.17%	7.33%	9.58%	0.0271%
MetLife Inc	MET	123,922.80	0.50%	2.15%	7.94%	10.18%	0.0513%
MGM Resorts International	MGM	43,002.80	0.17%	3.90%	8.46%	12.53%	0.0219%
Mohawk Industries Inc	MHK	15,145.09	0.06%	1.79%	3.32%	5.15%	0.0032%
McCormick & Co Inc/MD	MKC	10,329.24	0.04%	0.00%	7.59%	7.59%	0.0032%
Martin Marietta Materials Inc	MLM	16,985.21	0.07%	1.78%	6.10%	7.93%	0.0055%
Marsh & McLennan Cos Inc	MMC	11,919.06	0.05%	1.03%	13.29%	14.39%	0.0070%
3M Co	MMM	45,918.03	0.19%	1.92%	11.80%	13.83%	0.0258%
Monster Beverage Corp	MNST	120,261.59	0.49%	2.75%	7.70%	10.55%	0.0516%
Altria Group Inc	MO	32,470.02	0.13%	0.00%	15.40%	15.40%	0.0203%
Mosaic Co/The	MOS	91,341.57	0.37%	6.73%	8.50%	15.52%	0.0576%
Marathon Petroleum Corp	MPC	12,377.44	0.05%	0.31%	7.00%	7.32%	0.0037%
Merck & Co Inc	MRK	45,009.11	0.18%	3.21%	16.14%	19.61%	0.0359%
Marathon Oil Corp	MRO	207,536.05	0.84%	2.76%	8.33%	11.20%	0.0945%
Morgan Stanley	MS	14,198.19	0.06%	1.17%	0.45%	1.62%	0.0009%
MSCI Inc	MSCI	71,383.00	0.29%	3.12%	13.50%	16.83%	0.0488%
Microsoft Corp	MSFT	14,749.31	0.06%	1.28%	13.10%	14.46%	0.0087%
Motorola Solutions Inc	MSI	830,286.94	3.38%	1.65%	11.68%	13.43%	0.4533%
M&T Bank Corp	MTB	22,717.48	0.09%	1.67%	4.10%	5.80%	0.0054%
Mettler-Toledo International Inc	MTD	24,179.42	0.10%	2.49%	10.45%	13.07%	0.0128%
Micron Technology Inc	MU	16,584.54	0.07%	0.00%	12.66%	12.66%	0.0085%
Maxim Integrated Products Inc	MXIM	47,072.76	0.19%	0.34%	-3.30%	-2.97%	-0.0057%
Mylan NV	MYL	15,269.30	0.06%	3.29%	8.93%	12.37%	0.0077%
Noble Energy Inc	NBL	16,417.71	0.07%	0.00%	6.01%	6.01%	0.0040%
Norwegian Cruise Line Holdings Ltd	NCLH	10,862.65	0.04%	1.88%	25.48%	27.59%	0.0122%
Nasdaq Inc	NDAQ	11,665.33	0.05%	0.00%	12.82%	12.82%	0.0061%
NextEra Energy Inc	NEE	14,388.87	0.06%	2.11%	8.16%	10.36%	0.0061%
Newmont Mining Corp	NEM	87,961.05	0.36%	2.71%	7.90%	10.72%	0.0383%
Nefflix Inc	NFLX	17,770.60	0.07%	1.67%	-3.00%	-1.36%	-0.0010%
Newfield Exploration Co	NFX	155,808.94	0.63%	0.00%	36.80%	36.80%	0.2331%
NiSource Inc	NI	10,086.21	0.04%	2.87%	5.54%	8.49%	0.0035%
NIKE Inc	NKE	134,370.83	0.55%	0.99%	18.34%	19.42%	0.1061%
Nektar Therapeutics	NKTR	7,215.92	N/A	0.00%	N/A	N/A	N/A
Nielsen Holdings PLC	NLSN	9,341.96	N/A	5.27%	N/A	N/A	N/A

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Northrop Grumman Corp	NOC	48,711.27	0.20%	1.81%	8.89%	10.78%	0.0214%
National Oilwell Varco Inc	NOV	11,430.15	0.05%	0.73%	77.76%	78.78%	0.0366%
NRG Energy Inc	NRG	12,310.43	0.05%	0.28%	46.03%	46.38%	0.0232%
Norfolk Southern Corp	NSC	48,909.56	0.20%	1.86%	9.13%	11.07%	0.0220%
NetApp Inc	NTAP	16,128.26	0.07%	2.44%	13.23%	15.83%	0.0104%
Northern Trust Corp	NTRS	20,609.69	0.08%	2.63%	12.53%	15.32%	0.0128%
Nucor Corp	NUE	18,678.99	0.08%	2.67%	0.85%	3.53%	0.0027%
NVIDIA Corp	NVDA	95,977.40	0.39%	0.43%	7.86%	8.30%	0.0324%
Newell Brands Inc	NWL	8,010.29	0.03%	5.10%	1.98%	7.13%	0.0023%
News Corp	NWSA	7,494.12	0.03%	1.68%	-9.13%	-7.52%	-0.0023%
Realty Income Corp	O	20,684.71	0.08%	3.75%	6.59%	10.47%	0.0088%
ONEOK Inc	OKE	27,853.29	0.11%	4.84%	23.23%	28.63%	0.0324%
Omnicom Group Inc	OMC	16,776.81	0.07%	3.45%	5.22%	8.76%	0.0060%
Oracle Corp	ORCL	185,618.89	0.75%	1.48%	7.54%	9.07%	0.0685%
O'Reilly Automotive Inc	ORLY	30,669.04	0.12%	0.00%	15.58%	15.58%	0.0194%
Occidental Petroleum Corp	OXY	50,730.19	0.21%	4.66%	-0.50%	4.15%	0.0086%
Paychex Inc	PAYX	27,211.93	0.11%	3.01%	9.25%	12.40%	0.0137%
People's United Financial Inc	PBCT	6,546.11	0.03%	4.12%	2.00%	6.16%	0.0016%
PACCAR Inc	PCAR	23,603.46	0.10%	3.98%	6.10%	10.21%	0.0098%
PG&E Corp	PCG	28,466.93	0.12%	3.19%	6.64%	9.94%	0.0115%
Public Service Enterprise Group Inc	PEG	162,817.17	0.66%	3.36%	6.68%	10.15%	0.0672%
PepsiCo Inc	PEP	245,092.12	1.00%	3.40%	5.45%	8.94%	0.0891%
Pfizer Inc	PFE	14,135.55	0.06%	4.39%	4.16%	8.64%	0.0050%
Principal Financial Group Inc	PFG	246,355.57	1.00%	2.95%	6.60%	9.64%	0.0966%
Procter & Gamble Co/The	PG	41,608.71	0.17%	1.99%	8.00%	10.07%	0.0170%
Progressive Corp/The	PGR	22,465.59	0.09%	1.73%	9.52%	11.33%	0.0104%
Parker-Hannifin Corp	PH	7,516.09	0.03%	1.62%	7.17%	8.84%	0.0027%
PulteGroup Inc	PHM	9,305.15	0.04%	3.12%	8.25%	11.50%	0.0044%
Packaging Corp of America	PKG	10,455.37	0.04%	0.31%	15.49%	15.82%	0.0067%
PerkinElmer Inc	PKI	44,815.14	0.18%	2.82%	6.87%	9.78%	0.0178%
Prologis Inc	PLD	129,745.61	0.53%	5.61%	9.06%	14.93%	0.0787%
Philip Morris International Inc	PM	56,736.55	0.23%	3.30%	7.37%	10.78%	0.0249%
PNC Financial Services Group Inc/The	PNC	7,416.24	0.03%	1.86%	10.22%	12.17%	0.0037%
Pentair PLC	PNR	10,082.69	0.04%	3.16%	4.99%	8.22%	0.0034%
Pinnacle West Capital Corp	PNW	26,173.83	0.11%	1.77%	7.49%	9.33%	0.0099%
PPG Industries Inc	PPG	21,941.04	0.09%	5.53%	6.17%	11.87%	0.0106%
PPL Corp	PPL	6,650.18	0.03%	1.51%	1.17%	2.68%	0.0007%
Perrigo Co PLC	PRGO	38,507.35	0.16%	4.24%	9.00%	13.43%	0.0210%
Prudential Financial Inc	PRU	36,222.48	0.15%	3.85%	4.45%	8.39%	0.0124%
Public Storage	PSA	44,263.42	0.18%	3.58%	5.70%	9.39%	0.0169%
Phillips 66	PSX	8,550.51	0.03%	0.14%	11.03%	11.17%	0.0039%
PVH Corp	PVH	5,239.44	0.02%	0.00%	25.00%	25.00%	0.0053%
Quanta Services Inc	PWR	24,776.66	0.10%	0.29%	26.85%	27.18%	0.0274%
Pioneer Natural Resources Co	PXD	111,349.30	0.45%	0.00%	22.12%	22.12%	0.1002%
PayPal Holdings Inc	PYPL	62,911.69	0.26%	4.86%	11.71%	16.86%	0.0431%
QUALCOMM Inc	QCOM	8,000.90	0.03%	0.00%	11.83%	11.83%	0.0038%
Qorvo Inc	QRVO	24,657.73	0.10%	2.37%	11.72%	14.22%	0.0143%
Royal Caribbean Cruises Ltd	RCL	8,818.42	0.04%	2.55%	10.00%	12.67%	0.0045%
Everest Re Group Ltd	RE	11,248.46	0.05%	3.45%	6.04%	9.59%	0.0044%
Regency Centers Corp	REG	46,330.25	0.19%	0.00%	13.90%	13.90%	0.0262%
Regeneron Pharmaceuticals Inc	REGN	16,541.92	0.07%	3.78%	14.52%	18.58%	0.0125%
Regions Financial Corp	RF	7,975.88	0.03%	1.82%	13.20%	15.13%	0.0049%
Robert Half International Inc	RHI	31,990.11	0.13%	0.00%	18.40%	18.40%	0.0239%
Red Hat Inc	RHT	11,611.66	0.05%	1.57%	12.30%	13.97%	0.0066%
Raymond James Financial Inc	RJF	9,834.82	0.04%	1.95%	6.84%	8.86%	0.0035%
Ralph Lauren Corp	RL	14,394.49	0.06%	1.49%	12.50%	14.09%	0.0082%
ResMed Inc	RMD	21,205.90	0.09%	2.19%	8.44%	10.72%	0.0092%
Rockwell Automation Inc	ROK	13,128.74	0.05%	1.96%	10.00%	12.05%	0.0064%
Rollins Inc	ROL	32,266.29	0.13%	0.58%	11.13%	11.75%	0.0154%
Roper Technologies Inc	ROP	34,839.05	0.14%	0.96%	10.50%	11.51%	0.0163%
Ross Stores Inc	ROST	24,967.01	0.10%	1.94%	9.98%	12.02%	0.0122%
Republic Services Inc	RSG	52,104.14	0.21%	2.01%	10.03%	12.14%	0.0257%
Raytheon Co	RTN	21,021.13	0.09%	0.00%	45.90%	45.90%	0.0392%
SBA Communications Corp	SBAC	87,934.96	0.36%	2.11%	13.22%	15.47%	0.0553%
Starbucks Corp	SBUX	62,606.99	0.25%	1.32%	19.78%	21.23%	0.0540%
Charles Schwab Corp/The	SCHW	6,614.39	0.03%	1.57%	6.04%	7.66%	0.0021%
Sealed Air Corp	SEE	41,118.81	0.17%	0.97%	10.74%	11.76%	0.0197%
Sherwin-Williams Co/The	SHW	12,986.24	0.05%	0.01%	11.00%	11.01%	0.0058%
SVB Financial Group	SIVB	11,760.32	0.05%	3.24%	2.99%	6.27%	0.0030%
JM Smucker Co/The	SJM	62,164.25	0.25%	4.47%	33.69%	38.92%	0.0984%
Schlumberger Ltd	SLB	7,759.15	0.03%	3.72%	-0.59%	3.13%	0.0010%
SL Green Realty Corp	SLG	8,775.11	0.04%	2.39%	7.93%	10.41%	0.0037%
Snap-on Inc	SNA	15,198.20	0.06%	0.00%	15.20%	15.20%	0.0094%
Synopsys Inc	SNPS	49,246.45	0.20%	4.92%	3.38%	8.37%	0.0168%
Southern Co/The	SO	56,663.01	0.23%	4.51%	4.70%	9.32%	0.0215%
Simon Property Group Inc	SPG	49,302.35	0.20%	1.13%	11.05%	12.25%	0.0245%
S&P Global Inc	SPGI	31,542.08	0.13%	3.11%	9.96%	13.22%	0.0170%
Sempra Energy	SRE	28,805.28	0.12%	3.27%	9.18%	12.60%	0.0148%
SunTrust Banks Inc	STI	26,847.04	0.11%	2.86%	8.69%	11.68%	0.0127%
State Street Corp	STT	12,878.34	0.05%	5.51%	2.88%	8.47%	0.0044%
Seagate Technology PLC	STX	33,211.33	0.14%	1.69%	8.64%	10.40%	0.0140%
Constellation Brands Inc	STZ	20,603.09	0.08%	1.96%	10.50%	12.57%	0.0105%
Stanley Black & Decker Inc	SWK	14,513.51	0.06%	1.87%	8.87%	10.82%	0.0064%
Skyworks Solutions Inc	SWKS	22,538.13	0.09%	2.84%	6.20%	9.13%	0.0084%
Synchrony Financial	SYF	69,624.93	0.28%	1.20%	8.64%	9.90%	0.0280%
Stryker Corp	SYK	14,797.88	0.06%	1.32%	7.50%	8.87%	0.0053%
Symantec Corp	SYMC	34,679.27	0.14%	2.24%	12.53%	14.91%	0.0210%
Sysco Corp	YYY	221,882.54	0.90%	6.71%	4.99%	11.87%	0.1070%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
AT&T Inc	T	13,190.49	0.05%	3.36%	0.26%	3.62%	0.0019%
Molson Coors Brewing Co	TAP	23,279.51	0.09%	0.00%	11.79%	11.79%	0.0112%
TransDigm Group Inc	TDG	27,833.50	0.11%	2.16%	11.18%	13.46%	0.0152%
TE Connectivity Ltd	TEL	13,145.83	0.05%	0.48%	12.95%	13.46%	0.0072%
Target Corp	TGT	38,010.36	0.15%	3.54%	6.44%	10.09%	0.0156%
Tiffany & Co	TIF	11,071.92	0.05%	2.36%	10.53%	13.01%	0.0059%
TJX Cos Inc/The	TJX	61,940.89	0.25%	1.52%	11.18%	12.77%	0.0322%
Torchmark Corp	TMK	9,298.01	0.04%	0.81%	7.53%	8.37%	0.0032%
Thermo Fisher Scientific Inc	TMO	101,646.51	0.41%	0.28%	11.00%	11.30%	0.0467%
Tapestry Inc	TPR	10,413.11	0.04%	3.78%	10.33%	14.31%	0.0061%
TripAdvisor Inc	TRIP	7,834.17	0.03%	0.00%	10.16%	10.16%	0.0032%
T Rowe Price Group Inc	TROW	23,054.60	0.09%	3.09%	4.27%	7.43%	0.0070%
Travelers Cos Inc/The	TRV	33,908.96	0.14%	2.50%	17.69%	20.41%	0.0281%
Tractor Supply Co	TSCO	11,911.40	0.05%	1.37%	12.09%	13.53%	0.0066%
Tyson Foods Inc	TSN	22,869.39	N/A	2.52%	N/A	N/A	N/A
Total System Services Inc	TSS	16,926.92	0.07%	0.57%	12.14%	12.75%	0.0088%
Take-Two Interactive Software Inc	TTWO	10,558.01	0.04%	3.32%	10.30%	13.79%	0.0059%
Twitter Inc	TWTR	23,773.85	0.10%	0.00%	37.35%	37.35%	0.0361%
Texas Instruments Inc	TXN	103,325.64	0.42%	2.92%	10.48%	13.54%	0.0569%
Textron Inc	TXT	12,865.11	0.05%	0.16%	12.56%	12.72%	0.0067%
Under Armour Inc	UA	8,971.16	0.04%	0.00%	34.93%	34.93%	0.0127%
United Continental Holdings Inc	UAL	24,061.33	0.10%	0.00%	14.17%	14.17%	0.0139%
UDR Inc	UDR	12,286.59	0.05%	3.03%	5.60%	8.71%	0.0044%
Universal Health Services Inc	UHS	12,538.20	0.05%	0.28%	9.82%	10.12%	0.0052%
Ulta Beauty Inc	ULTA	18,170.87	0.07%	0.00%	19.00%	19.00%	0.0140%
UnitedHealth Group Inc	UNH	260,159.68	1.06%	1.33%	13.73%	15.15%	0.1602%
Unum Group	UNM	7,792.56	0.03%	2.95%	9.00%	12.08%	0.0038%
Union Pacific Corp	UNP	123,062.72	0.50%	2.06%	13.86%	16.07%	0.0804%
United Parcel Service Inc	UPS	95,126.46	0.39%	3.43%	9.71%	13.31%	0.0515%
United Rentals Inc	URI	10,733.65	0.04%	0.00%	17.76%	17.76%	0.0078%
US Bancorp	USB	82,506.48	0.34%	3.08%	7.83%	11.03%	0.0370%
United Technologies Corp	UTX	110,097.03	0.45%	2.33%	9.80%	12.25%	0.0548%
Visa Inc	V	290,888.98	1.18%	0.69%	15.59%	16.34%	0.1932%
Varian Medical Systems Inc	VAR	12,049.81	0.05%	0.00%	16.10%	16.10%	0.0079%
VF Corp	VFC	34,378.11	0.14%	2.08%	-16.64%	-14.74%	-0.0206%
Viacom Inc	VIAB	12,016.92	0.05%	2.77%	3.67%	6.48%	0.0032%
Valero Energy Corp	VLO	35,811.62	0.15%	4.24%	19.17%	23.82%	0.0347%
Vulcan Materials Co	VMC	14,939.89	0.06%	1.09%	15.34%	16.52%	0.0100%
Vornado Realty Trust	VNO	13,108.84	0.05%	3.77%	2.95%	6.77%	0.0036%
Verisk Analytics Inc	VRSK	20,640.07	0.08%	0.00%	12.91%	12.91%	0.0108%
VeriSign Inc	VRSN	20,998.00	0.09%	0.00%	8.80%	8.80%	0.0075%
Vertex Pharmaceuticals Inc	VRTX	48,081.39	0.20%	0.00%	49.41%	49.41%	0.0966%
Ventas Inc	VTR	23,256.97	0.09%	4.92%	2.29%	7.27%	0.0069%
Verizon Communications Inc	VZ	227,923.65	0.93%	4.42%	2.30%	6.77%	0.0627%
Waters Corp	WAT	17,776.76	0.07%	0.00%	11.10%	11.10%	0.0080%
Walgreens Boots Alliance Inc	WBA	69,277.15	0.28%	2.43%	9.77%	12.32%	0.0347%
WeillCare Health Plans Inc	WCG	13,956.03	0.06%	0.00%	17.08%	17.08%	0.0097%
Western Digital Corp	WDC	13,859.05	0.06%	4.20%	2.72%	6.97%	0.0039%
WEC Energy Group Inc	WEC	23,497.01	0.10%	3.15%	4.89%	8.12%	0.0078%
Welltower Inc	WELL	29,153.76	0.12%	4.56%	6.69%	11.40%	0.0135%
Wells Fargo & Co	WFC	225,491.59	0.92%	3.70%	11.26%	15.16%	0.1390%
Whirlpool Corp	WHR	8,859.07	0.04%	3.41%	5.75%	9.26%	0.0033%
Willis Towers Watson PLC	WLTW	22,032.38	0.09%	1.52%	10.00%	11.59%	0.0104%
Waste Management Inc	WM	41,979.60	0.17%	2.03%	9.73%	11.86%	0.0202%
Williams Cos Inc/The	WMB	33,012.08	0.13%	5.60%	3.90%	9.61%	0.0129%
Walmart Inc	WMT	290,496.95	1.18%	2.08%	5.01%	7.14%	0.0843%
Westrock Co	WRK	9,972.31	0.04%	4.64%	4.73%	9.47%	0.0038%
Western Union Co/The	WU	7,853.36	0.03%	4.37%	3.64%	8.09%	0.0026%
Weyerhaeuser Co	WY	19,062.83	0.08%	5.30%	8.70%	14.23%	0.0110%
Wynn Resorts Ltd	WYNN	13,539.03	0.06%	2.43%	31.10%	33.91%	0.0187%
Cimarex Energy Co	XEC	7,266.07	0.03%	0.76%	63.18%	64.19%	0.0190%
Xcel Energy Inc	XEL	27,980.03	0.11%	3.00%	5.98%	9.07%	0.0103%
Xilinx Inc	XLNX	30,204.98	0.12%	1.21%	9.33%	10.59%	0.0130%
Exxon Mobil Corp	XOM	329,009.16	1.34%	4.35%	11.51%	16.11%	0.2155%
DENTSPLY SIRONA Inc	XRAY	9,698.63	0.04%	0.80%	6.90%	7.72%	0.0030%
Xerox Corp	XRJ	6,994.32	0.03%	3.37%	-0.10%	3.26%	0.0009%
Xylem Inc/NY	XYL	13,286.41	0.05%	1.30%	13.90%	15.29%	0.0083%
Yum! Brands Inc	YUM	28,800.72	0.12%	1.75%	12.97%	14.83%	0.0174%
Zimmer Biomet Holdings Inc	ZBH	25,221.67	0.10%	0.81%	4.74%	5.58%	0.0057%
Zions Bancorp NA	ZION	9,398.33	0.04%	2.63%	6.78%	9.49%	0.0036%
Zoetis Inc	ZTS	45,660.48	0.19%	0.62%	16.50%	17.17%	0.0319%
Total Market Capitalization:		24,595,841					13.75%

Notes:

- [1] Equals sum of Col. [9]
- [2] Source: Bloomberg Professional
- [3] Equals [1] - [2]
- [4] Source: Bloomberg Professional
- [5] Equals weight in S&P 500 based on market capitalization
- [6] Source: Bloomberg Professional
- [7] Source: Bloomberg Professional
- [8] Equals ([6] x (1 + (0.5 x [7]))) + [7]
- [9] Equals Col. [5] x Col. [8]

Ex-Ante Market Risk Premium  
Market DCF Method Based - Value Line

[1]	[2]	[3]
S&P 500 Est. Required Market Return	Current 30-Year Treasury (30-day average)	Implied Market Risk Premium
17.14%	3.03%	14.10%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Agilent Technologies Inc	A	23,954.94	0.11%	0.88%	9.50%	10.42%	0.0115%
American Airlines Group Inc	AAL	16,658.42	0.08%	1.11%	-0.50%	0.61%	0.0005%
Advance Auto Parts Inc	AAP	11,891.20	0.05%	0.15%	13.00%	13.16%	0.0072%
Apple Inc	AAPL	808,512.60	3.72%	1.88%	17.50%	19.54%	0.7273%
AbbVie Inc	ABBV	119,084.30	0.55%	5.41%	14.50%	20.30%	0.1113%
AmerisourceBergen Corp	ABC	18,105.95	0.08%	1.87%	8.00%	9.94%	0.0083%
ABIOMED Inc	ABMD	15,392.26	0.07%	0.00%	24.50%	24.50%	0.0174%
Abbott Laboratories	ABT	127,755.70	0.59%	1.76%	10.00%	11.85%	0.0697%
Accenture PLC	ACN	99,008.87	0.46%	1.97%	9.50%	11.56%	0.0527%
Adobe Inc	ADBE	123,739.60	0.57%	0.00%	22.00%	22.00%	0.1253%
Analog Devices Inc	ADI	37,249.20	0.17%	1.91%	10.50%	12.51%	0.0214%
Archer-Daniels-Midland Co	ADM	23,184.00	0.11%	3.38%	9.50%	13.04%	0.0139%
Automatic Data Processing Inc	ADP	63,545.61	0.29%	2.31%	15.00%	17.48%	0.0511%
Alliance Data Systems Corp	ADS	8,855.57	0.04%	1.41%	14.50%	16.01%	0.0065%
Autodesk Inc	ADSK	32,974.00	N/A	0.00%	N/A	N/A	N/A
Ameren Corp	AEE	17,025.62	0.08%	2.77%	7.50%	10.37%	0.0081%
American Electric Power Co Inc	AEP	39,176.55	0.18%	3.42%	4.50%	8.00%	0.0144%
AES Corp/VA	AES	11,331.90	N/A	3.21%	N/A	N/A	N/A
Aflac Inc	AFL	36,972.82	0.17%	2.31%	8.50%	10.91%	0.0186%
Allergan PLC	AGN	44,658.77	0.21%	2.24%	4.50%	6.79%	0.0140%
American International Group Inc	AIG	37,889.48	0.17%	2.99%	52.00%	55.77%	0.0973%
Apartment Investment & Management Co	AIV	8,119.78	0.04%	3.09%	5.50%	8.67%	0.0032%
Assurant Inc	AIZ	6,069.81	0.03%	2.47%	7.50%	10.06%	0.0028%
Arthur J Gallagher & Co	AJG	14,326.76	0.07%	2.21%	17.00%	19.40%	0.0128%
Akamai Technologies Inc	AKAM	11,313.17	0.05%	0.00%	17.50%	17.50%	0.0091%
Albemarle Corp	ALB	8,562.92	0.04%	1.66%	8.50%	10.23%	0.0040%
Align Technology Inc	ALGN	19,481.41	0.09%	0.00%	28.50%	28.50%	0.0256%
Alaska Air Group Inc	ALK	8,046.84	0.04%	2.15%	1.50%	3.67%	0.0014%
Allstate Corp/The	ALL	31,853.85	0.15%	1.99%	12.00%	14.11%	0.0207%
Allegion PLC	ALLE	8,625.02	0.04%	1.19%	10.50%	11.75%	0.0047%
Alexion Pharmaceuticals Inc	ALXN	26,502.05	0.12%	0.00%	24.50%	24.50%	0.0299%
Applied Materials Inc	AMAT	38,602.64	0.18%	2.00%	19.00%	21.19%	0.0376%
Advanced Micro Devices Inc	AMD	22,647.33	N/A	0.00%	N/A	N/A	N/A
AMETEK Inc	AME	17,434.23	0.08%	0.75%	10.50%	11.29%	0.0091%
Affiliated Managers Group Inc	AMG	6,353.10	0.03%	1.47%	6.50%	8.02%	0.0023%
Amgen Inc	AMGN	117,999.30	0.54%	3.15%	8.50%	11.78%	0.0640%
Ameriprise Financial Inc	AMP	17,508.26	0.08%	2.88%	16.00%	19.11%	0.0154%
American Tower Corp	AMT	75,817.71	0.35%	2.00%	11.50%	13.62%	0.0475%
Amazon.com Inc	AMZN	789,427.00	3.63%	0.00%	57.00%	57.00%	2.0711%
Arista Networks Inc	ANET	16,607.57	0.08%	0.00%	19.00%	19.00%	0.0145%
ANSYS Inc	ANSS	14,245.93	0.07%	0.00%	13.00%	13.00%	0.0085%
Anthem Inc	ANTM	79,764.00	0.37%	1.04%	18.00%	19.13%	0.0702%
Aon PLC	AON	40,251.46	0.19%	0.96%	9.50%	10.51%	0.0195%
AO Smith Corp	AOS	8,380.28	0.04%	1.79%	12.50%	14.40%	0.0056%
Apache Corp	APA	11,649.27	N/A	3.28%	N/A	N/A	N/A
Anadarko Petroleum Corp	APC	21,040.14	N/A	2.82%	N/A	N/A	N/A
Air Products & Chemicals Inc	APD	36,507.07	0.17%	2.79%	9.50%	12.42%	0.0209%
Amphenol Corp	APH	27,074.82	0.12%	1.02%	10.00%	11.07%	0.0138%
Aptiv PLC	APTIV	20,129.47	0.09%	1.16%	10.00%	11.22%	0.0104%
Alexandria Real Estate Equities Inc	ARE	13,243.33	N/A	2.92%	N/A	N/A	N/A
Arconic Inc	ARNC	8,543.72	N/A	1.36%	N/A	N/A	N/A
Activision Blizzard Inc	ATVI	10,796.82	0.05%	2.20%	7.50%	9.78%	0.0049%
AvalonBay Communities Inc	AVB	33,541.00	0.15%	0.86%	14.50%	15.42%	0.0238%
Broadcom Inc	AVGO	26,966.99	0.12%	3.12%	5.50%	8.71%	0.0108%
Avery Dennison Corp	AVY	111,134.20	0.51%	3.94%	47.50%	52.38%	0.2679%
American Water Works Co Inc	AWK	8,964.95	0.04%	2.14%	11.50%	13.76%	0.0057%
American Express Co	AXP	17,494.33	0.08%	2.00%	10.00%	12.10%	0.0097%
AutoZone Inc	AZO	89,149.06	0.41%	1.58%	9.00%	10.65%	0.0437%
Boeing Co/The	BA	22,159.06	0.10%	0.00%	12.50%	12.50%	0.0127%
Bank of America Corp	BAC	230,541.30	1.06%	2.03%	18.00%	20.21%	0.2145%
Baxter International Inc	BAX	278,397.10	1.28%	2.13%	13.00%	15.27%	0.1956%
BB&T Corp	BBT	37,921.61	0.17%	1.07%	12.50%	13.64%	0.0238%
Best Buy Co Inc	BBY	38,885.48	0.18%	3.21%	10.00%	13.37%	0.0239%
Becton Dickinson and Co	BDX	16,009.92	0.07%	3.74%	12.00%	15.96%	0.0118%
Franklin Resources Inc	BEN	64,792.19	0.30%	1.29%	10.00%	11.35%	0.0339%
Brown-Forman Corp	BF/B	15,523.48	0.07%	3.53%	9.00%	12.69%	0.0091%
Brighthouse Financial Inc	BHF	23,025.45	0.11%	1.37%	15.50%	16.98%	0.0180%
Baker Hughes a GE Co	BHGE	N/A	N/A	0.00%	N/A	N/A	N/A
Biogen Inc	BIIB	10,048.68	N/A	2.95%	N/A	N/A	N/A
Bank of New York Mellon Corp/The	BK	62,203.84	0.29%	0.00%	6.50%	6.50%	0.0186%
Booking Holdings Inc	BKNG	51,525.17	0.24%	2.15%	9.00%	11.25%	0.0267%
BlackRock Inc	BLK	87,519.80	0.40%	0.00%	14.00%	14.00%	0.0564%
Ball Corp	BLL	65,919.36	0.30%	3.18%	9.00%	12.32%	0.0374%
Bristol-Myers Squibb Co	BMJ	18,144.72	0.08%	0.75%	22.00%	22.83%	0.0191%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Broadridge Financial Solutions Inc	BR	81,691.56	0.38%	3.28%	13.50%	17.00%	0.0639%
Berkshire Hathaway Inc	BRK/B	11,316.75	0.05%	2.00%	12.00%	14.12%	0.0074%
Boston Scientific Corp	BSX	-	N/A	0.00%	N/A	N/A	N/A
BorgWarner Inc	BWA	53,756.94	0.25%	0.00%	17.00%	17.00%	0.0421%
Boston Properties Inc	BXP	8,168.47	0.04%	1.73%	8.50%	10.30%	0.0039%
Citigroup Inc	C	20,465.04	0.09%	2.94%	3.50%	6.49%	0.0061%
Conagra Brands Inc	CAG	153,390.60	0.71%	3.15%	8.50%	11.78%	0.0832%
Cardinal Health Inc	CAH	10,790.97	0.05%	3.83%	4.50%	8.42%	0.0042%
Caterpillar Inc	CAT	16,166.50	0.07%	3.59%	10.00%	13.77%	0.0102%
Chubb Ltd	CB	75,993.98	0.35%	2.67%	17.00%	19.90%	0.0696%
Choe Global Markets Inc	CBOE	60,229.01	0.28%	2.24%	9.50%	11.85%	0.0328%
CBRE Group Inc	CBRE	10,604.47	0.05%	1.31%	17.00%	18.42%	0.0090%
CBS Corp	CBS	15,735.02	0.07%	0.00%	11.50%	11.50%	0.0083%
Crown Castle International Corp	CCI	18,431.25	0.08%	1.47%	10.50%	12.05%	0.0102%
Carnival Corp	CCL	49,086.20	0.23%	3.89%	12.00%	16.12%	0.0364%
Cadence Design Systems Inc	CDNS	39,872.00	0.18%	3.51%	13.50%	17.25%	0.0317%
Celanese Corp	CE	14,270.74	0.07%	0.00%	12.50%	12.50%	0.0082%
Celgene Corp	CELG	13,010.62	0.06%	2.50%	10.00%	12.63%	0.0076%
Cerner Corp	CERN	61,132.79	0.28%	0.00%	14.50%	14.50%	0.0408%
CF Industries Holdings Inc	CF	18,316.31	0.08%	0.00%	9.00%	9.00%	0.0076%
Citizens Financial Group Inc	CFG	9,577.39	0.04%	3.15%	48.50%	52.41%	0.0231%
Church & Dwight Co Inc	CHD	16,869.23	0.08%	3.60%	12.50%	16.33%	0.0127%
CH Robinson Worldwide Inc	CHRW	15,395.93	0.07%	1.45%	10.00%	11.52%	0.0082%
Charter Communications Inc	CHTR	12,469.68	0.06%	2.21%	10.00%	12.32%	0.0071%
Cigna Corp	CI	82,484.66	0.38%	0.00%	19.50%	19.50%	0.0740%
Cincinnati Financial Corp	CINF	45,287.58	0.21%	0.02%	13.00%	13.02%	0.0271%
Colgate-Palmolive Co	CL	13,715.61	0.06%	2.66%	7.00%	9.75%	0.0062%
Clorox Co/The	CLX	56,419.17	0.26%	2.58%	10.50%	13.22%	0.0343%
Comerica Inc	CMA	19,622.11	0.09%	2.51%	7.50%	10.10%	0.0091%
Comcast Corp	CMCSA	13,847.78	0.06%	3.21%	18.00%	21.50%	0.0137%
CME Group Inc	CME	171,425.30	0.79%	2.23%	13.00%	15.37%	0.1213%
Chipotle Mexican Grill Inc	CMG	60,233.92	0.28%	1.69%	4.50%	6.23%	0.0173%
Cummins Inc	CMI	16,280.00	0.07%	0.00%	18.50%	18.50%	0.0139%
CMS Energy Corp	CMS	24,014.01	0.11%	3.05%	8.00%	11.17%	0.0123%
Centene Corp	CNC	14,901.58	0.07%	2.91%	7.00%	10.01%	0.0069%
CenterPoint Energy Inc	CNP	26,248.35	0.12%	0.00%	17.00%	17.00%	0.0205%
Capital One Financial Corp	COF	13,296.21	0.06%	3.73%	3.50%	7.30%	0.0045%
Cabot Oil & Gas Corp	COG	37,433.11	0.17%	2.03%	10.00%	12.13%	0.0209%
Cooper Cos Inc/The	COO	10,294.69	N/A	1.18%	N/A	N/A	N/A
ConocoPhillips	COP	13,395.46	0.06%	0.02%	14.50%	14.52%	0.0090%
Costco Wholesale Corp	COST	77,685.80	N/A	1.81%	N/A	N/A	N/A
Coty Inc	COTY	92,096.13	0.42%	1.16%	8.50%	9.71%	0.0412%
Campbell Soup Co	CPB	5,300.65	0.02%	7.08%	11.00%	18.47%	0.0045%
Capri Holdings Ltd	CPRI	11,046.60	N/A	4.09%	N/A	N/A	N/A
Copart Inc	CPRT	7,078.07	0.03%	0.00%	7.50%	7.50%	0.0024%
salesforce.com Inc	CRM	12,002.27	0.06%	0.00%	13.00%	13.00%	0.0072%
Cisco Systems Inc	CSCO	118,521.40	0.55%	0.00%	65.00%	65.00%	0.3546%
CSX Corp	CSX	210,943.90	0.97%	3.02%	8.00%	11.14%	0.1082%
Cintas Corp	CTAS	57,597.89	0.27%	1.41%	18.50%	20.04%	0.0531%
CenturyLink Inc	CTL	20,157.53	0.09%	1.07%	15.00%	16.15%	0.0150%
Cognizant Technology Solutions Corp	CTSH	15,257.69	0.07%	15.30%	2.50%	17.99%	0.0126%
Citrix Systems Inc	CTXS	42,334.20	0.19%	1.10%	10.00%	11.16%	0.0217%
CVS Health Corp	CVS	14,155.35	0.07%	1.33%	7.50%	8.88%	0.0058%
Chevron Corp	CVX	66,999.25	0.31%	3.04%	8.50%	11.67%	0.0360%
Concho Resources Inc	CXO	225,910.80	1.04%	4.03%	31.00%	35.65%	0.3707%
Dominion Energy Inc	D	22,577.06	0.10%	0.00%	34.50%	34.50%	0.0359%
Delta Air Lines Inc	DAL	47,598.85	0.22%	5.05%	6.50%	11.71%	0.0257%
Deere & Co	DE	34,562.05	0.16%	2.78%	10.50%	13.43%	0.0214%
Discover Financial Services	DFS	51,526.02	0.24%	1.88%	14.00%	16.01%	0.0380%
Dollar General Corp	DG	23,289.45	0.11%	2.32%	8.00%	10.41%	0.0112%
Quest Diagnostics Inc	DGX	30,854.69	0.14%	0.99%	13.00%	14.05%	0.0200%
DR Horton Inc	DHI	12,204.64	0.06%	2.36%	9.50%	11.97%	0.0067%
Danaher Corp	DHR	14,351.15	0.07%	1.56%	8.00%	9.62%	0.0064%
Walt Disney Co/The	DIS	76,099.87	0.35%	0.59%	10.50%	11.12%	0.0390%
Discovery Inc	DISCA	166,425.00	0.77%	1.59%	7.00%	8.65%	0.0662%
DISH Network Corp	DISH	14,993.04	0.07%	0.00%	17.00%	17.00%	0.0117%
Digital Realty Trust Inc	DLR	14,530.57	0.07%	0.00%	1.00%	1.00%	0.0007%
Dollar Tree Inc	DLTR	22,611.97	0.10%	3.91%	6.50%	10.54%	0.0110%
Dover Corp	DOV	23,390.07	0.11%	0.00%	17.50%	17.50%	0.0188%
Duke Realty Corp	DRE	12,718.39	0.06%	2.21%	13.00%	15.35%	0.0090%
Darden Restaurants Inc	DRI	10,705.08	0.05%	2.93%	7.00%	10.03%	0.0049%
DTE Energy Co	DTE	13,535.35	0.06%	2.83%	12.50%	15.51%	0.0097%
Duke Energy Corp	DUK	21,521.73	0.10%	3.25%	7.50%	10.87%	0.0108%
DaVita Inc	DVA	63,799.24	0.29%	4.27%	5.50%	9.89%	0.0290%
Devon Energy Corp	DVN	9,466.07	0.04%	0.00%	10.00%	10.00%	0.0044%
DowDuPont Inc	DWDP	11,969.43	0.06%	1.27%	23.50%	24.92%	0.0137%
DXC Technology Co	DXC	119,703.10	N/A	3.22%	N/A	N/A	N/A
Electronic Arts Inc	EA	18,245.73	0.08%	1.18%	14.00%	15.26%	0.0128%
eBay Inc	EBAY	25,314.10	0.12%	0.00%	11.50%	11.50%	0.0134%
Ecolab Inc	ECL	33,945.75	0.16%	1.59%	14.50%	16.21%	0.0253%
Consolidated Edison Inc	ED	45,818.14	0.21%	1.16%	9.50%	10.72%	0.0226%
Equifax Inc	EFX	24,324.94	0.11%	3.83%	3.00%	6.89%	0.0077%
Edison International	EIX	12,855.96	0.06%	1.46%	7.50%	9.01%	0.0053%
Estee Lauder Cos Inc/The	EL	18,796.04	0.09%	4.26%	4.50%	8.86%	0.0077%
Eastman Chemical Co	EMN	55,114.89	0.25%	1.13%	12.50%	13.70%	0.0348%



		[4]	[5]	[6]	[7]	[8]	[9]
Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Emerson Electric Co	EMR	11,035.49	0.05%	3.15%	9.50%	12.80%	0.0065%
EOG Resources Inc	EOG	40,852.17	0.19%	2.97%	14.00%	17.18%	0.0323%
Equinix Inc	EQIX	53,918.49	N/A	0.99%	N/A	N/A	N/A
Equity Residential	EQR	31,180.47	0.14%	2.67%	25.50%	28.51%	0.0409%
Eversource Energy	ES	27,064.04	0.12%	2.94%	-15.00%	-12.28%	-0.0153%
Essex Property Trust Inc	ESS	22,188.36	0.10%	3.06%	5.50%	8.64%	0.0088%
E*TRADE Financial Corp	ETFC	18,327.35	0.08%	2.75%	0.50%	3.26%	0.0027%
Eaton Corp PLC	ETN	11,975.52	0.06%	1.20%	26.00%	27.36%	0.0151%
Entergy Corp	ETR	33,094.43	0.15%	3.46%	10.00%	13.63%	0.0208%
Every Inc	EVRG	16,350.70	0.08%	4.06%	1.00%	5.08%	0.0038%
Edwards Lifesciences Corp	EW	-	N/A	3.37%	N/A	N/A	N/A
Exelon Corp	EXC	35,599.27	0.16%	0.00%	15.00%	15.00%	0.0246%
Expeditors International of Washington I	EXPD	46,541.71	0.21%	3.01%	7.50%	10.62%	0.0228%
Expedia Group Inc	EXPE	12,321.07	0.06%	1.26%	9.50%	10.82%	0.0061%
Extra Space Storage Inc	EXR	19,080.76	0.09%	1.00%	20.00%	21.10%	0.0185%
Ford Motor Co	F	12,550.30	0.06%	3.57%	5.00%	8.66%	0.0050%
Diamondback Energy Inc	FANG	33,056.37	0.15%	7.22%	0.50%	7.74%	0.0118%
Fastenal Co	FAST	9,666.11	N/A	0.77%	N/A	N/A	N/A
Facebook Inc	FB	17,438.71	0.08%	2.63%	11.50%	14.28%	0.0115%
Fortune Brands Home & Security Inc	FBHS	478,009.80	2.20%	0.00%	26.00%	26.00%	0.5720%
Freeport-McMoRan Inc	FCX	6,327.87	0.03%	1.97%	13.50%	15.60%	0.0045%
FedEx Corp	FDX	17,185.14	N/A	2.02%	N/A	N/A	N/A
FirstEnergy Corp	FE	47,345.55	0.22%	1.43%	9.50%	11.00%	0.0240%
F5 Networks Inc	FFIV	20,104.90	0.09%	3.92%	6.50%	10.55%	0.0098%
Fidelity National Information Services I	FIS	9,591.86	0.04%	0.00%	10.50%	10.50%	0.0046%
Fiserv Inc	FISV	35,643.76	0.16%	1.29%	15.50%	16.89%	0.0277%
Fifth Third Bancorp	FITB	33,688.01	0.16%	0.00%	13.50%	13.50%	0.0209%
Foot Locker Inc	FL	17,557.40	0.08%	3.29%	7.00%	10.41%	0.0084%
FLIR Systems Inc	FLIR	6,414.53	0.03%	2.44%	8.00%	10.54%	0.0031%
Fluor Corp	FLR	6,861.27	0.03%	1.37%	13.50%	14.96%	0.0047%
Flowserve Corp	FLS	4,892.44	0.02%	2.42%	8.50%	11.02%	0.0025%
FleetCor Technologies Inc	FLT	5,713.00	0.03%	1.74%	7.50%	9.31%	0.0024%
FMC Corp	FMC	19,331.47	0.09%	0.00%	14.50%	14.50%	0.0129%
Twenty-First Century Fox Inc	FOXA	11,342.24	0.05%	1.90%	22.50%	24.61%	0.0128%
First Republic Bank/CA	FRC	91,917.98	0.42%	0.73%	12.50%	13.28%	0.0562%
Federal Realty Investment Trust	FRT	16,584.84	0.08%	0.72%	11.50%	12.26%	0.0094%
TechnipFMC PLC	FTI	9,910.41	0.05%	3.02%	3.50%	6.57%	0.0030%
Fortinet Inc	FTNT	N/A	N/A	0.00%	N/A	N/A	N/A
Fortive Corp	FTV	13,515.01	0.06%	0.00%	39.50%	39.50%	0.0246%
General Dynamics Corp	GD	26,032.12	N/A	0.38%	N/A	N/A	N/A
General Electric Co	GE	51,408.50	0.24%	2.14%	9.00%	11.24%	0.0266%
Gilead Sciences Inc	GILD	87,503.03	N/A	0.40%	N/A	N/A	N/A
General Mills Inc	GIS	87,060.32	0.40%	3.75%	-6.50%	-2.87%	-0.0115%
Corning Inc	GLW	26,171.26	0.12%	4.51%	3.00%	7.58%	0.0091%
General Motors Co	GM	26,581.25	0.12%	2.41%	15.50%	18.10%	0.0221%
Alphabet Inc	GOOGL	54,110.00	0.25%	4.04%	3.00%	7.10%	0.0177%
Genuine Parts Co	GPC	N/A	N/A	0.00%	N/A	N/A	N/A
Global Payments Inc	GPN	15,097.10	0.07%	2.80%	9.00%	11.93%	0.0083%
Gap Inc/The	GPS	17,875.02	0.08%	0.04%	20.00%	20.04%	0.0165%
Garmin Ltd	GRMN	9,523.26	0.04%	3.89%	7.00%	11.03%	0.0048%
Goldman Sachs Group Inc/The	GS	13,137.33	0.06%	3.05%	10.50%	13.71%	0.0083%
Goodyear Tire & Rubber Co/The	GT	71,964.72	0.33%	1.66%	9.50%	11.24%	0.0372%
WW Grainger Inc	GWV	4,788.15	0.02%	3.21%	12.50%	15.91%	0.0035%
Halliburton Co	HAL	17,068.34	0.08%	1.80%	9.50%	11.39%	0.0089%
Hasbro Inc	HAS	26,718.00	N/A	2.36%	N/A	N/A	N/A
Huntington Bancshares Inc/OH	HBAN	11,436.12	0.05%	2.79%	8.00%	10.90%	0.0057%
Hanesbrands Inc	HBI	14,818.94	0.07%	4.01%	13.00%	17.27%	0.0118%
HCA Healthcare Inc	HCA	6,747.97	0.03%	3.21%	4.00%	7.27%	0.0023%
HCP Inc	HCP	48,525.99	0.22%	1.14%	15.00%	16.23%	0.0362%
Home Depot Inc/The	HD	14,726.21	0.07%	4.85%	35.50%	41.21%	0.0279%
Hess Corp	HES	208,183.20	0.96%	2.50%	12.50%	15.16%	0.1452%
HollyFrontier Corp	HFC	15,523.66	N/A	1.91%	N/A	N/A	N/A
Hartford Financial Services Group Inc/Th	HIG	9,553.27	0.04%	2.48%	25.00%	27.79%	0.0122%
Huntington Ingalls Industries Inc	HII	17,288.18	0.08%	2.49%	13.00%	15.65%	0.0125%
Hilton Worldwide Holdings Inc	HLT	9,040.32	0.04%	1.64%	12.50%	14.24%	0.0059%
Harley-Davidson Inc	HOG	22,177.12	0.10%	0.80%	9.00%	9.84%	0.0100%
Hologic Inc	HOLX	5,796.86	0.03%	4.16%	9.00%	13.35%	0.0036%
Honeywell International Inc	HON	11,615.23	0.05%	0.00%	18.50%	18.50%	0.0099%
Helmerich & Payne Inc	HP	109,673.70	0.50%	2.21%	9.00%	11.31%	0.0571%
Hewlett Packard Enterprise Co	HPE	6,099.33	0.03%	5.09%	56.50%	63.03%	0.0177%
HP Inc	HPQ	22,554.55	0.10%	2.84%	7.50%	10.45%	0.0108%
H&R Block Inc	HRB	35,661.60	0.16%	2.80%	9.50%	12.43%	0.0204%
Hormel Foods Corp	HLR	4,928.54	0.02%	4.30%	8.50%	12.98%	0.0029%
Harris Corp	HRS	22,690.06	0.10%	1.98%	9.00%	11.07%	0.0116%
Henry Schein Inc	HSIC	18,541.16	0.09%	1.74%	13.50%	15.36%	0.0131%
Host Hotels & Resorts Inc	HST	12,147.79	0.06%	0.00%	8.50%	8.50%	0.0048%
Hershey Co/The	HSY	13,444.23	N/A	4.56%	N/A	N/A	N/A
Humana Inc	HUM	22,431.76	0.10%	2.70%	6.50%	9.29%	0.0096%
International Business Machines Corp	IBM	41,700.43	0.19%	0.72%	14.00%	14.77%	0.0283%
Intercontinental Exchange Inc	ICE	121,042.30	N/A	4.90%	N/A	N/A	N/A
IDEXX Laboratories Inc	IDXX	43,139.05	0.20%	1.27%	12.50%	13.85%	0.0275%
International Flavors & Fragrances Inc	IFF	17,898.58	0.08%	0.00%	15.00%	15.00%	0.0124%
Illumina Inc	ILMN	13,049.50	0.06%	2.09%	9.50%	11.69%	0.0070%
Incyte Corp	INCY	40,648.44	0.19%	0.00%	15.50%	15.50%	0.0290%
IHS Markit Ltd	INFO	16,984.15	N/A	0.00%	N/A	N/A	N/A

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Intel Corp	INTC	20,746.11	0.10%	0.00%	20.00%	20.00%	0.0191%
Intuit Inc	INTU	224,685.70	1.03%	2.56%	12.50%	15.22%	0.1574%
International Paper Co	IP	57,357.40	0.26%	0.85%	14.50%	15.41%	0.0407%
Interpublic Group of Cos Inc/The	IPG	18,755.55	0.09%	4.32%	15.50%	20.15%	0.0174%
IPG Photonics Corp	IPGP	8,561.18	0.04%	3.84%	11.50%	15.56%	0.0061%
IQVIA Holdings Inc	IQV	7,435.23	0.03%	0.00%	10.50%	10.50%	0.0036%
Ingersoll-Rand PLC	IR	26,228.19	0.12%	0.00%	14.50%	14.50%	0.0175%
Iron Mountain Inc	IRM	24,865.30	0.11%	2.09%	13.50%	15.73%	0.0180%
Intuitive Surgical Inc	ISRG	10,458.52	0.05%	6.68%	8.50%	15.46%	0.0074%
Gartner Inc	IT	58,168.91	0.27%	0.00%	15.00%	15.00%	0.0402%
Illinois Tool Works Inc	ITW	12,647.76	0.06%	0.00%	15.00%	15.00%	0.0087%
Invesco Ltd	IVZ	44,799.63	0.21%	2.96%	11.00%	14.12%	0.0291%
JB Hunt Transport Services Inc	JBHT	7,555.58	0.03%	6.53%	4.00%	10.66%	0.0037%
Johnson Controls International plc	JCI	11,885.99	0.05%	0.96%	13.50%	14.52%	0.0079%
Jacobs Engineering Group Inc	JEC	30,931.84	0.14%	3.07%	6.00%	9.16%	0.0130%
Jefferies Financial Group Inc	JEF	9,158.29	0.04%	1.04%	13.00%	14.11%	0.0059%
Jack Henry & Associates Inc	JKHY	6,651.50	0.03%	2.49%	20.50%	23.25%	0.0071%
Johnson & Johnson	JNJ	10,185.41	0.05%	1.12%	11.50%	12.68%	0.0059%
Juniper Networks Inc	JNPR	354,310.60	1.63%	2.84%	10.50%	13.49%	0.2200%
JPMorgan Chase & Co	JPM	8,962.25	0.04%	2.93%	4.50%	7.50%	0.0031%
Nordstrom Inc	JWN	340,455.60	1.57%	3.17%	9.50%	12.82%	0.2009%
Kellogg Co	K	7,838.65	0.04%	3.19%	7.00%	10.30%	0.0037%
KeyCorp	KEY	19,376.48	0.09%	4.05%	5.50%	9.66%	0.0086%
Keysight Technologies Inc	KEYS	17,655.28	0.08%	3.98%	13.00%	17.24%	0.0140%
Kraft Heinz Co/The	KHC	14,290.99	0.07%	0.00%	16.00%	16.00%	0.0105%
Kimco Realty Corp	KIM	57,573.38	0.26%	5.29%	9.50%	15.04%	0.0399%
KLA-Tencor Corp	KLAC	7,499.88	0.03%	6.47%	-0.50%	5.95%	0.0021%
Kimberly-Clark Corp	KMB	15,965.87	0.07%	2.84%	10.50%	13.49%	0.0099%
Kinder Morgan Inc/DE	KMI	39,256.68	0.18%	3.63%	10.50%	14.32%	0.0259%
CarMax Inc	KMX	39,610.72	0.18%	4.45%	57.00%	62.72%	0.1143%
Coca-Cola Co/The	KO	10,327.71	0.05%	0.00%	11.50%	11.50%	0.0055%
Kroger Co/The	KR	210,331.50	0.97%	3.36%	6.50%	9.97%	0.0965%
Kohl's Corp	KSS	22,487.64	0.10%	2.20%	5.00%	7.26%	0.0075%
Kansas City Southern	KSU	10,979.10	0.05%	3.94%	11.00%	15.16%	0.0077%
Loews Corp	L	10,405.51	0.05%	1.40%	12.50%	13.99%	0.0067%
L Brands Inc	LB	15,066.87	0.07%	0.52%	16.50%	17.06%	0.0118%
Leggett & Platt Inc	LEG	7,403.00	0.03%	4.46%	-4.50%	-0.14%	0.0000%
Lennar Corp	LEN	5,709.70	0.03%	3.47%	9.00%	12.63%	0.0033%
Laboratory Corp of America Holdings	LH	15,255.87	0.07%	0.35%	12.00%	12.37%	0.0087%
Linde PLC	LIN	14,952.44	0.07%	0.00%	9.50%	9.50%	0.0065%
LKQ Corp	LKQ	N/A	N/A	0.00%	N/A	N/A	N/A
L3 Technologies Inc	LLL	8,352.67	0.04%	0.00%	12.00%	12.00%	0.0046%
Eli Lilly & Co	LLY	15,923.96	0.07%	1.58%	11.00%	12.67%	0.0093%
Lockheed Martin Corp	LMT	124,470.30	0.57%	2.20%	12.00%	14.33%	0.0821%
Lincoln National Corp	LNC	85,364.77	0.39%	3.07%	13.50%	16.78%	0.0659%
Alliant Energy Corp	LNT	12,719.09	0.06%	2.57%	10.50%	13.20%	0.0077%
Lowe's Cos Inc	LOW	10,555.78	0.05%	3.17%	6.50%	9.77%	0.0047%
Lam Research Corp	LRCX	78,085.28	0.36%	2.17%	13.00%	15.31%	0.0550%
Southwest Airlines Co	LUV	27,054.03	0.12%	2.50%	13.00%	15.66%	0.0195%
Lamb Weston Holdings Inc	LW	32,321.41	0.15%	1.11%	9.50%	10.66%	0.0159%
LyondellBasell Industries NV	LYB	10,343.80	N/A	1.13%	N/A	N/A	N/A
Macy's Inc	M	32,751.39	0.15%	4.73%	6.50%	11.38%	0.0172%
Mastercard Inc	MA	7,889.60	0.04%	5.89%	5.00%	11.04%	0.0040%
Mid-America Apartment Communities Inc	MAA	221,459.00	1.02%	0.62%	16.00%	16.67%	0.1699%
Macerich Co/The	MAC	11,760.92	0.05%	3.71%	-4.50%	-0.87%	-0.0005%
Marriott International Inc/MD	MAR	6,038.77	0.03%	7.05%	8.00%	15.33%	0.0043%
Masco Corp	MAS	39,407.34	0.18%	1.42%	12.50%	14.01%	0.0254%
Mattel Inc	MAT	10,766.11	0.05%	1.35%	14.50%	15.95%	0.0079%
McDonald's Corp	MCD	4,248.13	0.02%	0.00%	22.00%	22.00%	0.0043%
Microchip Technology Inc	MCHP	135,123.30	0.62%	2.65%	10.00%	12.78%	0.0795%
McKesson Corp	MCK	20,869.33	0.10%	1.70%	15.00%	16.83%	0.0162%
Moody's Corp	MCO	25,075.20	0.12%	1.19%	9.00%	10.24%	0.0118%
Mondelez International Inc	MDLZ	30,803.06	0.14%	1.10%	13.00%	14.17%	0.0201%
Medtronic PLC	MDT	67,754.45	0.31%	2.32%	9.50%	11.93%	0.0372%
MetLife Inc	MET	119,675.30	0.55%	2.39%	7.50%	9.98%	0.0550%
MGM Resorts International	MGM	42,938.74	0.20%	4.00%	7.00%	11.14%	0.0220%
Mohawk Industries Inc	MHK	15,372.98	0.07%	1.66%	31.00%	32.92%	0.0233%
McCormick & Co Inc/MD	MKC	9,563.98	0.04%	0.00%	4.50%	4.50%	0.0020%
Martin Marietta Materials Inc	MLM	16,438.38	0.08%	1.83%	10.00%	11.92%	0.0090%
Marsh & McLennan Cos Inc	MMC	11,429.89	0.05%	1.06%	13.00%	14.13%	0.0074%
3M Co	MMM	45,071.41	0.21%	1.86%	9.00%	10.94%	0.0227%
Monster Beverage Corp	MNST	116,364.20	0.54%	2.88%	9.00%	12.01%	0.0643%
Altria Group Inc	MO	31,756.03	0.15%	0.00%	15.00%	15.00%	0.0219%
Mosaic Co/The	MOS	91,596.91	0.42%	6.57%	10.50%	17.41%	0.0734%
Marathon Petroleum Corp	MPC	12,103.76	0.06%	0.64%	12.00%	12.68%	0.0071%
Merck & Co Inc	MRK	28,728.70	0.13%	3.33%	14.50%	18.07%	0.0239%
Marathon Oil Corp	MRO	204,244.30	0.94%	2.86%	5.50%	8.44%	0.0793%
Morgan Stanley	MS	12,796.26	N/A	1.44%	N/A	N/A	N/A
MSCI Inc	MSCI	71,585.86	0.33%	2.89%	11.00%	14.05%	0.0463%
Microsoft Corp	MSFT	15,277.86	0.07%	1.46%	22.00%	23.62%	0.0166%
Motorola Solutions Inc	MSI	808,789.40	3.72%	1.75%	15.00%	16.88%	0.6284%
M&T Bank Corp	MTB	19,394.37	0.09%	1.92%	13.00%	15.04%	0.0134%
Mettler-Toledo International Inc	MTD	23,578.97	0.11%	2.40%	13.00%	15.56%	0.0169%
Micron Technology Inc	MU	16,232.42	0.07%	0.00%	11.00%	11.00%	0.0082%
Maxim Integrated Products Inc	MXIM	44,105.60	0.20%	0.00%	7.50%	7.50%	0.0152%

		[4]	[5]	[6]	[7]	[8]	[9]
Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Mylan NV	MYL	14,995.88	0.07%	3.36%	11.50%	15.05%	0.0104%
Noble Energy Inc	NBL	15,648.85	0.07%	0.00%	14.00%	14.00%	0.0101%
Norwegian Cruise Line Holdings Ltd	NCLH	10,104.57	N/A	2.09%	N/A	N/A	N/A
Nasdaq Inc	NDAQ	11,380.34	0.05%	0.00%	16.50%	16.50%	0.0086%
NextEra Energy Inc	NEE	14,234.05	0.07%	2.03%	9.50%	11.63%	0.0076%
Newmont Mining Corp	NEM	86,675.33	0.40%	2.76%	9.00%	11.88%	0.0474%
Netflix Inc	NFLX	17,966.62	0.08%	1.66%	5.00%	6.70%	0.0055%
Newfield Exploration Co	NFX	150,322.90	0.69%	0.00%	47.00%	47.00%	0.3252%
NiSource Inc	NI	9,663.87	0.04%	3.01%	18.00%	21.28%	0.0095%
NIKE Inc	NKE	129,929.00	0.60%	1.07%	16.00%	17.16%	0.1026%
Nektar Therapeutics	NKTR	7,583.36	N/A	0.00%	N/A	N/A	N/A
Nielsen Holdings PLC	NLSN	9,069.82	0.04%	5.48%	3.00%	8.56%	0.0036%
Northrop Grumman Corp	NOC	48,388.19	0.22%	1.72%	13.00%	14.83%	0.0330%
National Oilwell Varco Inc	NOV	10,979.00	0.05%	0.70%	41.50%	42.35%	0.0214%
NRG Energy Inc	NRG	12,052.39	N/A	0.29%	N/A	N/A	N/A
Norfolk Southern Corp	NSC	46,426.99	0.21%	2.02%	13.50%	15.66%	0.0335%
NetApp Inc	NTAP	17,015.46	0.08%	2.39%	20.50%	23.13%	0.0181%
Northern Trust Corp	NTRS	19,887.91	0.09%	2.67%	11.00%	13.82%	0.0126%
Nucor Corp	NUE	18,628.78	0.09%	2.70%	20.50%	23.48%	0.0201%
NVIDIA Corp	NVDA	89,926.21	0.41%	0.43%	23.00%	23.48%	0.0972%
Newell Brands Inc	NWL	10,154.87	0.05%	4.44%	9.50%	14.15%	0.0066%
News Corp	NWSA	7,433.23	N/A	1.57%	N/A	N/A	N/A
Realty Income Corp	O	19,923.40	0.09%	3.87%	4.50%	8.46%	0.0078%
ONEOK Inc	OKE	26,795.93	0.12%	5.53%	20.50%	26.60%	0.0328%
Omnicom Group Inc	OMC	16,713.75	0.08%	3.22%	7.00%	10.33%	0.0079%
Oracle Corp	ORCL	182,399.00	0.84%	1.51%	9.50%	11.08%	0.0930%
O'Reilly Automotive Inc	ORLY	29,363.25	0.14%	0.00%	13.00%	13.00%	0.0176%
Occidental Petroleum Corp	OXY	48,948.90	N/A	4.84%	N/A	N/A	N/A
Paychex Inc	PAYX	26,487.21	0.12%	3.36%	11.00%	14.54%	0.0177%
People's United Financial Inc	PBCT	5,816.70	0.03%	4.18%	11.00%	15.41%	0.0041%
PACCAR Inc	PCAR	23,051.82	0.11%	5.01%	7.00%	12.19%	0.0129%
PG&E Corp	PCG	28,067.76	0.13%	3.41%	4.50%	7.99%	0.0103%
Public Service Enterprise Group Inc	PEG	159,683.10	0.73%	3.28%	7.50%	10.90%	0.0801%
PepsiCo Inc	PEP	241,045.80	1.11%	3.45%	14.00%	17.69%	0.1963%
Pfizer Inc	PFE	13,601.46	0.06%	4.50%	6.50%	11.15%	0.0070%
Principal Financial Group Inc	PFG	243,003.50	1.12%	2.97%	10.50%	13.63%	0.1524%
Procter & Gamble Co/The	PG	39,487.53	0.18%	1.70%	15.50%	17.33%	0.0315%
Progressive Corp/The	PGR	20,997.23	0.10%	1.87%	14.00%	16.00%	0.0155%
Parker-Hannifin Corp	PH	7,584.78	0.03%	1.64%	15.50%	17.27%	0.0060%
PulteGroup Inc	PHM	8,962.38	0.04%	3.33%	9.50%	12.99%	0.0054%
Packaging Corp of America	PKG	10,176.68	0.05%	0.31%	11.50%	11.83%	0.0055%
PerkinElmer Inc	PKI	37,481.86	0.17%	2.84%	9.00%	11.97%	0.0206%
Prologis Inc	PLD	119,278.30	0.55%	5.94%	7.50%	13.66%	0.0750%
Philip Morris International Inc	PM	56,752.08	0.26%	3.09%	9.50%	12.74%	0.0333%
PNC Financial Services Group Inc/The	PNC	7,107.23	0.03%	1.76%	5.50%	7.31%	0.0024%
Pentair PLC	PNR	9,988.07	0.05%	3.41%	6.00%	9.51%	0.0044%
Pinnacle West Capital Corp	PNW	25,151.94	0.12%	1.83%	4.50%	6.37%	0.0074%
PPG Industries Inc	PPG	22,346.75	0.10%	5.41%	3.00%	8.49%	0.0087%
PPL Corp	PPL	6,322.79	0.03%	1.81%	0.50%	2.31%	0.0007%
Perrigo Co PLC	PRGO	37,825.61	0.17%	3.94%	6.50%	10.57%	0.0184%
Prudential Financial Inc	PRU	36,481.31	0.17%	4.15%	7.00%	11.30%	0.0190%
Public Storage	PSA	42,303.61	0.19%	3.72%	8.00%	11.87%	0.0231%
Phillips 66	PSX	8,441.30	0.04%	0.14%	11.00%	11.15%	0.0043%
PVH Corp	PVH	5,101.10	0.02%	0.47%	19.50%	20.02%	0.0047%
Quanta Services Inc	PWR	23,317.50	0.11%	0.37%	75.00%	75.51%	0.0810%
Pioneer Natural Resources Co	PXD	107,021.30	0.49%	0.00%	18.50%	18.50%	0.0911%
PayPal Holdings Inc	PYPL	61,165.50	0.28%	5.20%	10.50%	15.97%	0.0450%
QUALCOMM Inc	QCOM	8,319.31	N/A	0.00%	N/A	N/A	N/A
Qorvo Inc	QRVO	24,174.57	0.11%	2.42%	11.00%	13.55%	0.0151%
Royal Caribbean Cruises Ltd	RCL	9,043.96	0.04%	2.56%	10.00%	12.69%	0.0053%
Everest Re Group Ltd	RE	11,226.29	0.05%	3.38%	14.00%	17.62%	0.0091%
Regency Centers Corp	REG	43,206.29	0.20%	0.00%	16.50%	16.50%	0.0328%
Regeneron Pharmaceuticals Inc	REGN	17,006.08	0.08%	3.74%	13.50%	17.49%	0.0137%
Regions Financial Corp	RF	7,653.91	0.04%	1.90%	9.00%	10.99%	0.0039%
Robert Half International Inc	RHI	31,661.25	0.15%	0.00%	17.50%	17.50%	0.0255%
Red Hat Inc	RHT	11,756.22	0.05%	1.73%	12.00%	13.83%	0.0075%
Raymond James Financial Inc	RJF	10,102.75	0.05%	1.99%	7.00%	9.06%	0.0042%
Ralph Lauren Corp	RL	13,714.67	0.06%	1.55%	14.50%	16.16%	0.0102%
ResMed Inc	RMD	20,328.41	0.09%	2.32%	10.50%	12.94%	0.0121%
Rockwell Automation Inc	ROK	12,310.43	0.06%	1.12%	15.50%	16.71%	0.0095%
Rollins Inc	ROL	30,783.13	0.14%	0.62%	14.50%	15.16%	0.0215%
Roper Technologies Inc	ROP	34,356.26	0.16%	1.04%	11.50%	12.60%	0.0199%
Ross Stores Inc	ROST	25,231.16	0.12%	1.97%	13.50%	15.60%	0.0181%
Republic Services Inc	RSG	50,182.80	0.23%	1.97%	11.00%	13.08%	0.0302%
Raytheon Co	RTN	21,385.31	0.10%	0.00%	45.50%	45.50%	0.0448%
SBA Communications Corp	SBAC	85,961.76	0.40%	2.20%	15.00%	17.37%	0.0687%
Starbucks Corp	SBUX	61,071.48	0.28%	1.51%	16.00%	17.63%	0.0496%
Charles Schwab Corp/The	SCHW	6,947.56	0.03%	1.45%	19.00%	20.59%	0.0066%
Sealed Air Corp	SEE	39,145.96	0.18%	0.83%	13.00%	13.88%	0.0250%
Sherwin-Williams Co/The	SHW	12,573.92	0.06%	0.00%	21.50%	21.50%	0.0124%
SVB Financial Group	SIVB	11,815.85	0.05%	3.33%	4.50%	7.90%	0.0043%
JM Smucker Co/The	SJM	60,183.49	0.28%	4.60%	26.00%	31.20%	0.0864%
Schlumberger Ltd	SLB	8,771.03	0.04%	3.69%	6.50%	10.31%	0.0042%
SL Green Realty Corp	SLG	8,522.87	0.04%	2.51%	8.00%	10.61%	0.0042%
Snap-on Inc	SNA	13,769.02	0.06%	0.00%	10.50%	10.50%	0.0067%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
Synopsys Inc	SNPS	49,110.84	0.23%	5.05%	3.50%	8.64%	0.0195%
Southern Co/The	SO	57,828.90	0.27%	4.57%	3.00%	7.64%	0.0203%
Simon Property Group Inc	SPG	48,925.50	0.23%	1.17%	13.50%	14.75%	0.0332%
S&P Global Inc	SPGI	32,337.48	0.15%	3.29%	9.50%	12.95%	0.0193%
Sempra Energy	SRE	29,077.73	0.13%	3.32%	13.50%	17.04%	0.0228%
SunTrust Banks Inc	STI	26,473.22	0.12%	2.70%	9.00%	11.82%	0.0144%
State Street Corp	STT	12,587.96	0.06%	5.67%	9.00%	14.93%	0.0086%
Seagate Technology PLC	STX	33,045.13	0.15%	1.84%	11.00%	12.94%	0.0197%
Constellation Brands Inc	STZ	19,343.23	0.09%	2.11%	10.00%	12.22%	0.0109%
Stanley Black & Decker Inc	SWK	14,199.60	0.07%	1.86%	11.00%	12.96%	0.0085%
Skyworks Solutions Inc	SWKS	21,640.36	0.10%	2.79%	11.00%	13.94%	0.0139%
Synchrony Financial	SYF	67,634.30	0.31%	1.15%	15.00%	16.24%	0.0505%
Stryker Corp	SYK	14,415.84	0.07%	1.33%	9.50%	10.89%	0.0072%
Symantec Corp	SYMC	33,435.03	0.15%	2.40%	13.00%	15.56%	0.0239%
Sysco Corp	SYU	214,109.80	0.99%	6.93%	7.00%	14.17%	0.1397%
AT&T Inc	T	14,150.01	0.07%	2.50%	11.00%	13.64%	0.0089%
Molson Coors Brewing Co	TAP	22,246.27	0.10%	0.00%	8.00%	8.00%	0.0082%
TransDigm Group Inc	TDG	28,474.77	0.13%	2.17%	9.50%	11.77%	0.0154%
TE Connectivity Ltd	TEL	12,456.07	0.06%	0.50%	12.00%	12.53%	0.0072%
Target Corp	TGT	37,497.34	0.17%	3.56%	7.00%	10.68%	0.0184%
Tiffany & Co	TIF	10,796.68	0.05%	2.65%	12.00%	14.81%	0.0074%
TJX Cos Inc/The	TJX	59,832.19	0.28%	1.65%	13.00%	14.76%	0.0406%
Torchmark Corp	TMK	9,143.94	0.04%	0.79%	10.00%	10.83%	0.0046%
Thermo Fisher Scientific Inc	TMO	97,789.73	0.45%	0.28%	10.50%	10.79%	0.0486%
Tapestry Inc	TPR	9,702.51	0.04%	4.03%	13.00%	17.29%	0.0077%
TripAdvisor Inc	TRIP	8,073.75	0.04%	0.00%	10.50%	10.50%	0.0039%
T Rowe Price Group Inc	TROW	22,741.23	0.10%	3.12%	11.50%	14.80%	0.0155%
Travelers Cos Inc/The	TRV	33,566.05	0.15%	2.43%	5.50%	8.00%	0.0124%
Tractor Supply Co	TSCO	11,082.39	0.05%	1.50%	10.50%	12.08%	0.0062%
Tyson Foods Inc	TSN	22,003.92	0.10%	2.50%	7.00%	9.59%	0.0097%
Total System Services Inc	TSS	16,572.94	0.08%	0.57%	11.50%	12.10%	0.0092%
Take-Two Interactive Software Inc	TTWO	10,901.13	0.05%	0.00%	29.50%	29.50%	0.0148%
Twitter Inc	TWTR	23,420.41	N/A	0.00%	N/A	N/A	N/A
Texas Instruments Inc	TXN	100,210.70	0.46%	2.97%	12.50%	15.66%	0.0722%
Textron Inc	TXT	12,890.28	0.06%	0.15%	15.00%	15.16%	0.0090%
Under Armour Inc	UA	9,132.38	0.04%	0.00%	11.50%	11.50%	0.0048%
United Continental Holdings Inc	UAL	23,938.69	0.11%	0.00%	6.00%	6.00%	0.0066%
UDR Inc	UDR	11,910.05	0.05%	2.90%	-2.50%	0.36%	0.0002%
Universal Health Services Inc	UHS	12,298.55	0.06%	0.30%	11.00%	11.32%	0.0064%
Ulta Beauty Inc	ULTA	17,460.13	0.08%	0.00%	20.00%	20.00%	0.0161%
UnitedHealth Group Inc	UNH	258,778.00	1.19%	1.34%	15.00%	16.44%	0.1958%
Unum Group	UNM	7,718.74	0.04%	2.95%	9.50%	12.59%	0.0045%
Union Pacific Corp	UNP	119,160.80	0.55%	1.98%	13.50%	15.61%	0.0856%
United Parcel Service Inc	UPS	92,720.46	0.43%	3.60%	8.50%	12.25%	0.0523%
United Rentals Inc	URI	10,272.03	0.05%	0.00%	17.00%	17.00%	0.0080%
US Bancorp	USB	82,694.55	0.38%	3.02%	7.50%	10.63%	0.0405%
United Technologies Corp	UTX	96,694.79	0.45%	2.44%	9.50%	12.06%	0.0537%
Visa Inc	V	285,246.00	1.31%	0.77%	14.50%	15.33%	0.2012%
Varian Medical Systems Inc	VAR	11,895.21	0.05%	0.00%	8.00%	8.00%	0.0044%
VF Corp	VFC	34,026.41	0.16%	2.37%	12.00%	14.51%	0.0227%
Viacom Inc	VIAB	11,843.08	0.05%	2.72%	4.00%	6.77%	0.0037%
Valero Energy Corp	VLO	35,632.05	0.16%	4.29%	10.00%	14.50%	0.0238%
Vulcan Materials Co	VMC	13,450.10	0.06%	1.10%	18.00%	19.20%	0.0119%
Vornado Realty Trust	VNO	13,291.48	0.06%	3.78%	-5.50%	-1.82%	-0.0011%
Verisk Analytics Inc	VRSK	19,818.52	0.09%	0.00%	9.00%	9.00%	0.0082%
VeriSign Inc	VRSN	20,966.39	0.10%	0.00%	12.00%	12.00%	0.0116%
Vertex Pharmaceuticals Inc	VRTX	46,055.99	N/A	0.00%	N/A	N/A	N/A
Ventas Inc	VTR	22,891.80	0.11%	5.03%	3.50%	8.62%	0.0091%
Verizon Communications Inc	VZ	221,352.00	1.02%	4.50%	4.50%	9.10%	0.0927%
Waters Corp	WAT	17,417.90	0.08%	0.00%	11.00%	11.00%	0.0088%
Walgreens Boots Alliance Inc	WBA	67,173.28	0.31%	2.47%	11.00%	13.61%	0.0421%
WellCare Health Plans Inc	WCG	13,990.90	0.06%	0.00%	22.50%	22.50%	0.0145%
Western Digital Corp	WDC	13,345.26	0.06%	4.36%	1.50%	5.89%	0.0036%
WEC Energy Group Inc	WEC	23,345.77	0.11%	3.19%	7.00%	10.30%	0.0111%
Welltower Inc	WELL	28,641.80	0.13%	4.62%	8.50%	13.32%	0.0176%
Wells Fargo & Co	WFC	226,531.90	1.04%	3.81%	6.00%	9.92%	0.1035%
Whirlpool Corp	WHR	8,581.76	0.04%	3.43%	8.00%	11.57%	0.0046%
Willis Towers Watson PLC	WLTW	21,136.50	N/A	1.47%	N/A	N/A	N/A
Waste Management Inc	WM	41,384.14	0.19%	1.92%	10.50%	12.52%	0.0238%
Williams Cos Inc/The	WMB	32,297.26	0.15%	5.10%	22.50%	28.17%	0.0419%
Walmart Inc	WMT	281,025.80	1.29%	2.19%	7.00%	9.27%	0.1199%
Westrock Co	WRK	9,607.65	0.04%	4.80%	14.50%	19.65%	0.0087%
Western Union Co/The	WU	8,128.58	0.04%	4.15%	7.00%	11.30%	0.0042%
Weyerhaeuser Co	WY	19,411.75	0.09%	5.25%	17.50%	23.21%	0.0207%
Wynn Resorts Ltd	WYNN	13,795.79	0.06%	2.36%	20.00%	22.60%	0.0143%
Cimarex Energy Co	XEC	6,841.35	0.03%	1.01%	39.00%	40.21%	0.0127%
Xcel Energy Inc	XEL	27,271.57	0.13%	3.01%	5.50%	8.59%	0.0108%
Xilinx Inc	XLNX	28,539.18	0.13%	1.28%	11.00%	12.35%	0.0162%
Exxon Mobil Corp	XOM	316,195.10	1.46%	4.47%	18.00%	22.87%	0.3329%
DENTSPLY SIRONA Inc	XRAY	9,536.35	0.04%	0.82%	3.00%	3.83%	0.0017%
Xerox Corp	XRJ	7,104.80	0.03%	3.45%	2.50%	5.99%	0.0020%
Xylem Inc/NY	XYL	12,645.49	0.06%	1.36%	15.50%	16.97%	0.0099%
Yum! Brands Inc	YUM	29,612.93	0.14%	1.78%	10.00%	11.87%	0.0162%
Zimmer Biomet Holdings Inc	ZBH	24,131.16	0.11%	0.81%	4.50%	5.33%	0.0059%
Zions Bancorp NA	ZION	9,473.93	0.04%	2.43%	15.00%	17.61%	0.0077%

		[4]	[5]	[6]	[7]	[8]	[9]
Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Zoetis Inc	ZTS	41,465.29	0.19%	0.77%	13.50%	14.32%	0.0273%
Total Market Capitalization:		21,726,647.16					17.14%

Notes:

- [1] Equals sum of Col. [9]
- [2] Source: Value Line
- [3] Equals [1] - [2]
- [4] Source: Value Line
- [5] Equals weight in S&P 500 based on market capitalization
- [6] Source: Value Line
- [7] Source: Value Line
- [8] Equals  $([6] \times (1 + (0.5 \times [7]))) + [7]$
- [9] Equals Col. [5] x Col. [8]

Bloomberg and Value Line Beta Coefficients

Company	Ticker	[1]	[2]
		Bloomberg	Value Line
ALLETE, Inc.	ALE	0.458	0.650
Black Hills Corporation	BKH	0.544	0.750
El Paso Electric Company	EE	0.524	0.650
Hawaiian Electric Industries, Inc.	HE	0.487	0.600
Northwestern Corporation	NWE	0.491	0.550
OGE Energy Corp.	OGE	0.562	0.850
PNM Resources, Inc.	PNM	0.513	0.650
Pinnacle West Capital Corporation	PNW	0.424	0.550
Mean		0.500	0.656

Notes:

[1] Source: Bloomberg Professional

[2] Source: Value Line

Capital Asset Pricing Model Results  
 Bloomberg, and Value Line Derived Market Risk Premium

	[1]	[2]	[3]	[4]	[5] [6] CAPM	
	Risk-Free Rate	Average Beta Coefficient	Bloomberg Market DCF Derived	Value Line Market DCF Derived	Bloomberg MRP	Value Line MRP
<b>PROXY GROUP AVERAGE BLOOMBERG BETA COEFFICIENT</b>						
Current 30-Year Treasury [7]	3.03%	0.500	10.72%	14.10%	8.40%	10.09%
Near-Term Projected 30-Year Treasury [8]	3.33%	0.500	10.72%	14.10%	8.70%	10.39%
Mean					8.55%	10.24%
<b>PROXY GROUP AVERAGE VALUE LINE AVERAGE BETA COEFFICIENT</b>						
Current 30-Year Treasury [7]	3.03%	0.656	10.72%	14.10%	10.07%	12.29%
Near-Term Projected 30-Year Treasury [8]	3.33%	0.656	10.72%	14.10%	10.37%	12.59%
Mean					10.22%	12.44%

Notes:

[1] See Notes [7] and [8]

[2] Source: Exhibit\_\_\_(RBH-2), Schedule 4

[3] Source: Exhibit\_\_\_(RBH-2), Schedule 3

[4] Source: Exhibit\_\_\_(RBH-2), Schedule 3

[5] Equals Col. [1] + (Col. [2] x Col. [3])

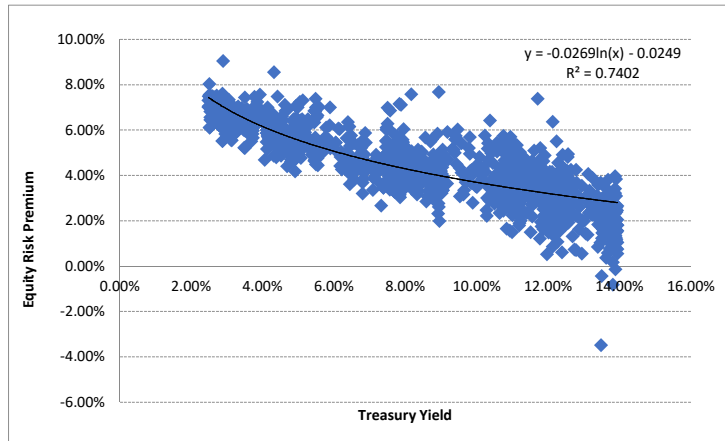
[6] Equals Col. [1] + (Col. [2] x Col. [4])

[7] Source: Bloomberg Professional

[8] Blue Chip Financial Forecasts, Vol. 38, No. 2, February 1, 2019, at 2.

Bond Yield Plus Risk Premium

[1]	[2]	[3]	[4]	[5]
Constant	Slope	30-Year Treasury Yield	Risk Premium	Return on Equity
-2.49%	-2.69%			
		Current 30-Year Treasury	3.03%	6.90%
		Near-Term Projected 30-Year Treasury	3.33%	6.65%
		Long-Term Projected 30-Year Treasury	4.05%	6.12%
				9.93%
				9.98%
				10.17%



Notes:

- [1] Constant of regression equation
- [2] Slope of regression equation
- [3] Source: Current = Bloomberg Professional,  
 Near Term Projected = Blue Chip Financial Forecasts, Vol. 38, No. 2, February 1, 2019, at 2,  
 Long Term Projected = Blue Chip Financial Forecasts, Vol. 37, No. 12, December 1, 2018, at 14.
- [4] Equals [1] + ln([3]) x [2]
- [5] Equals [3] + [4]
- [6] Source: S&P Global Market Intelligence
- [7] Source: S&P Global Market Intelligence
- [8] Source: Bloomberg Professional, equals 200-trading day average (i.e. lag period)
- [9] Equals [7] - [8]



Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
1/1/1980	14.50%	9.36%	5.14%
1/7/1980	14.39%	9.38%	5.01%
1/9/1980	15.00%	9.40%	5.60%
1/14/1980	15.17%	9.42%	5.75%
1/17/1980	13.93%	9.44%	4.49%
1/23/1980	15.50%	9.47%	6.03%
1/30/1980	13.86%	9.52%	4.34%
1/31/1980	12.61%	9.53%	3.08%
2/6/1980	13.71%	9.58%	4.13%
2/13/1980	12.80%	9.63%	3.17%
2/14/1980	13.00%	9.65%	3.35%
2/19/1980	13.50%	9.68%	3.82%
2/27/1980	13.75%	9.78%	3.97%
2/29/1980	13.75%	9.81%	3.94%
2/29/1980	14.00%	9.81%	4.19%
2/29/1980	14.77%	9.81%	4.96%
3/7/1980	12.70%	9.89%	2.81%
3/14/1980	13.50%	9.97%	3.53%
3/26/1980	14.16%	10.10%	4.06%
3/27/1980	14.24%	10.12%	4.12%
3/28/1980	14.50%	10.13%	4.37%
4/11/1980	12.75%	10.27%	2.48%
4/14/1980	13.85%	10.29%	3.56%
4/16/1980	15.50%	10.31%	5.19%
4/22/1980	13.25%	10.35%	2.90%
4/22/1980	13.90%	10.35%	3.55%
4/24/1980	16.80%	10.38%	6.43%
4/29/1980	15.50%	10.41%	5.09%
5/6/1980	13.70%	10.45%	3.25%
5/7/1980	15.00%	10.45%	4.55%
5/8/1980	13.75%	10.46%	3.29%
5/9/1980	14.35%	10.47%	3.88%
5/13/1980	13.60%	10.48%	3.12%
5/15/1980	13.25%	10.49%	2.76%
5/19/1980	13.75%	10.51%	3.24%
5/27/1980	13.62%	10.54%	3.08%
5/27/1980	14.60%	10.54%	4.06%
5/29/1980	16.00%	10.56%	5.44%
5/30/1980	13.80%	10.56%	3.24%
6/2/1980	15.63%	10.57%	5.06%
6/9/1980	15.90%	10.60%	5.30%
6/10/1980	13.78%	10.60%	3.18%
6/12/1980	14.25%	10.61%	3.64%
6/19/1980	13.40%	10.62%	2.78%
6/30/1980	13.00%	10.65%	2.35%
6/30/1980	13.40%	10.65%	2.75%
7/9/1980	14.75%	10.67%	4.08%
7/10/1980	15.00%	10.68%	4.32%
7/15/1980	15.80%	10.70%	5.10%
7/18/1980	13.80%	10.71%	3.09%
7/22/1980	14.10%	10.72%	3.38%
7/24/1980	15.00%	10.73%	4.27%
7/25/1980	13.48%	10.73%	2.75%
7/31/1980	14.58%	10.75%	3.83%
8/8/1980	13.50%	10.78%	2.72%
8/8/1980	14.00%	10.78%	3.22%
8/8/1980	15.45%	10.78%	4.67%
8/11/1980	14.85%	10.78%	4.07%
8/14/1980	14.00%	10.79%	3.21%
8/14/1980	16.25%	10.79%	5.46%
8/25/1980	13.75%	10.82%	2.93%
8/27/1980	13.80%	10.83%	2.97%
8/29/1980	12.50%	10.84%	1.66%
9/15/1980	13.50%	10.88%	2.62%
9/15/1980	13.93%	10.88%	3.05%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
9/15/1980	15.80%	10.88%	4.92%
9/24/1980	12.50%	10.93%	1.57%
9/24/1980	15.00%	10.93%	4.07%
9/26/1980	13.75%	10.94%	2.81%
9/30/1980	14.10%	10.96%	3.14%
9/30/1980	14.20%	10.96%	3.24%
10/1/1980	13.90%	10.97%	2.93%
10/3/1980	15.50%	10.98%	4.52%
10/7/1980	12.50%	10.99%	1.51%
10/9/1980	13.25%	11.00%	2.25%
10/9/1980	14.50%	11.00%	3.50%
10/9/1980	14.50%	11.00%	3.50%
10/16/1980	16.10%	11.02%	5.08%
10/17/1980	14.50%	11.03%	3.47%
10/31/1980	13.75%	11.11%	2.64%
10/31/1980	14.25%	11.11%	3.14%
11/4/1980	15.00%	11.12%	3.88%
11/5/1980	13.75%	11.12%	2.63%
11/5/1980	14.00%	11.12%	2.88%
11/8/1980	13.75%	11.14%	2.61%
11/10/1980	14.85%	11.15%	3.70%
11/17/1980	14.00%	11.18%	2.82%
11/18/1980	14.00%	11.19%	2.81%
11/19/1980	13.00%	11.19%	1.81%
11/24/1980	14.00%	11.21%	2.79%
11/26/1980	14.00%	11.21%	2.79%
12/8/1980	14.15%	11.22%	2.93%
12/8/1980	15.10%	11.22%	3.88%
12/9/1980	15.35%	11.22%	4.13%
12/12/1980	15.45%	11.23%	4.22%
12/17/1980	13.25%	11.23%	2.02%
12/18/1980	15.80%	11.23%	4.57%
12/19/1980	14.50%	11.23%	3.27%
12/19/1980	14.64%	11.23%	3.41%
12/22/1980	13.45%	11.23%	2.22%
12/22/1980	15.00%	11.23%	3.77%
12/30/1980	14.50%	11.22%	3.28%
12/30/1980	14.95%	11.22%	3.73%
12/31/1980	13.39%	11.22%	2.17%
1/2/1981	15.25%	11.22%	4.03%
1/7/1981	14.30%	11.21%	3.09%
1/19/1981	15.25%	11.20%	4.05%
1/23/1981	13.10%	11.20%	1.90%
1/23/1981	14.40%	11.20%	3.20%
1/26/1981	15.25%	11.20%	4.05%
1/27/1981	15.00%	11.21%	3.79%
1/31/1981	13.47%	11.22%	2.25%
2/3/1981	15.25%	11.23%	4.02%
2/5/1981	15.75%	11.25%	4.50%
2/11/1981	15.60%	11.28%	4.32%
2/20/1981	15.25%	11.33%	3.92%
3/11/1981	15.40%	11.49%	3.91%
3/12/1981	14.51%	11.50%	3.01%
3/12/1981	16.00%	11.50%	4.50%
3/13/1981	13.02%	11.52%	1.50%
3/18/1981	16.19%	11.55%	4.64%
3/19/1981	13.75%	11.56%	2.19%
3/23/1981	14.30%	11.58%	2.72%
3/25/1981	15.30%	11.60%	3.70%
4/1/1981	14.53%	11.68%	2.85%
4/3/1981	19.10%	11.71%	7.39%
4/9/1981	15.00%	11.78%	3.22%
4/9/1981	15.30%	11.78%	3.52%
4/9/1981	16.50%	11.78%	4.72%
4/9/1981	17.00%	11.78%	5.22%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
4/10/1981	13.75%	11.80%	1.95%
4/13/1981	13.57%	11.82%	1.75%
4/15/1981	15.30%	11.85%	3.45%
4/16/1981	13.50%	11.87%	1.63%
4/17/1981	14.10%	11.87%	2.23%
4/21/1981	14.00%	11.90%	2.10%
4/21/1981	16.80%	11.90%	4.90%
4/24/1981	16.00%	11.95%	4.05%
4/27/1981	12.50%	11.97%	0.53%
4/27/1981	13.61%	11.97%	1.64%
4/29/1981	13.65%	12.00%	1.65%
4/30/1981	13.50%	12.02%	1.48%
5/4/1981	16.22%	12.05%	4.17%
5/5/1981	14.40%	12.07%	2.33%
5/7/1981	16.25%	12.11%	4.14%
5/7/1981	16.27%	12.11%	4.16%
5/8/1981	13.00%	12.13%	0.87%
5/8/1981	16.00%	12.13%	3.87%
5/12/1981	13.50%	12.16%	1.34%
5/15/1981	15.75%	12.22%	3.53%
5/18/1981	14.88%	12.23%	2.65%
5/20/1981	16.00%	12.26%	3.74%
5/21/1981	14.00%	12.27%	1.73%
5/26/1981	14.90%	12.30%	2.60%
5/27/1981	15.00%	12.31%	2.69%
5/29/1981	15.50%	12.34%	3.16%
6/1/1981	16.50%	12.35%	4.15%
6/3/1981	14.67%	12.37%	2.30%
6/5/1981	13.00%	12.39%	0.61%
6/10/1981	16.75%	12.42%	4.33%
6/17/1981	14.40%	12.46%	1.94%
6/18/1981	16.33%	12.47%	3.86%
6/25/1981	14.75%	12.51%	2.24%
6/26/1981	16.00%	12.52%	3.48%
6/30/1981	15.25%	12.54%	2.71%
7/1/1981	15.50%	12.56%	2.94%
7/1/1981	17.50%	12.56%	4.94%
7/10/1981	16.00%	12.62%	3.38%
7/14/1981	16.90%	12.64%	4.26%
7/15/1981	16.00%	12.65%	3.35%
7/17/1981	15.00%	12.67%	2.33%
7/20/1981	15.00%	12.68%	2.32%
7/21/1981	14.00%	12.69%	1.31%
7/28/1981	13.48%	12.74%	0.74%
7/31/1981	13.50%	12.78%	0.72%
7/31/1981	15.00%	12.78%	2.22%
7/31/1981	16.00%	12.78%	3.22%
8/5/1981	15.71%	12.83%	2.88%
8/10/1981	14.50%	12.87%	1.63%
8/11/1981	15.00%	12.88%	2.12%
8/20/1981	13.50%	12.95%	0.55%
8/20/1981	16.50%	12.95%	3.55%
8/24/1981	15.00%	12.97%	2.03%
8/28/1981	15.00%	13.01%	1.99%
9/3/1981	14.50%	13.05%	1.45%
9/10/1981	14.50%	13.11%	1.39%
9/11/1981	16.00%	13.12%	2.88%
9/16/1981	16.00%	13.15%	2.85%
9/17/1981	16.50%	13.16%	3.34%
9/23/1981	15.85%	13.20%	2.65%
9/28/1981	15.50%	13.23%	2.27%
10/9/1981	15.75%	13.33%	2.42%
10/15/1981	16.25%	13.37%	2.88%
10/16/1981	15.50%	13.38%	2.12%
10/16/1981	16.50%	13.38%	3.12%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
10/19/1981	14.25%	13.39%	0.86%
10/20/1981	15.25%	13.41%	1.84%
10/20/1981	17.00%	13.41%	3.59%
10/23/1981	16.00%	13.45%	2.55%
10/27/1981	10.00%	13.48%	-3.48%
10/29/1981	14.75%	13.51%	1.24%
10/29/1981	16.50%	13.51%	2.99%
11/3/1981	15.17%	13.53%	1.64%
11/5/1981	16.60%	13.55%	3.05%
11/6/1981	15.17%	13.56%	1.61%
11/24/1981	15.50%	13.61%	1.89%
11/25/1981	15.25%	13.61%	1.64%
11/25/1981	15.35%	13.61%	1.74%
11/25/1981	16.10%	13.61%	2.49%
11/25/1981	16.10%	13.61%	2.49%
12/1/1981	15.70%	13.61%	2.09%
12/1/1981	16.00%	13.61%	2.39%
12/1/1981	16.49%	13.61%	2.88%
12/1/1981	16.50%	13.61%	2.89%
12/4/1981	16.00%	13.61%	2.39%
12/11/1981	16.25%	13.63%	2.62%
12/14/1981	14.00%	13.63%	0.37%
12/15/1981	15.81%	13.63%	2.18%
12/15/1981	16.00%	13.63%	2.37%
12/16/1981	15.25%	13.63%	1.62%
12/17/1981	16.50%	13.63%	2.87%
12/18/1981	15.45%	13.63%	1.82%
12/30/1981	14.25%	13.67%	0.58%
12/30/1981	16.00%	13.67%	2.33%
12/30/1981	16.25%	13.67%	2.58%
12/31/1981	16.15%	13.67%	2.48%
1/4/1982	15.50%	13.67%	1.83%
1/11/1982	14.50%	13.72%	0.78%
1/11/1982	17.00%	13.72%	3.28%
1/13/1982	14.75%	13.74%	1.01%
1/14/1982	15.75%	13.75%	2.00%
1/15/1982	15.00%	13.76%	1.24%
1/15/1982	16.50%	13.76%	2.74%
1/22/1982	16.25%	13.79%	2.46%
1/27/1982	16.84%	13.81%	3.03%
1/28/1982	13.00%	13.81%	-0.81%
1/29/1982	15.50%	13.82%	1.68%
2/1/1982	15.85%	13.82%	2.03%
2/3/1982	16.44%	13.84%	2.60%
2/8/1982	15.50%	13.86%	1.64%
2/11/1982	16.00%	13.88%	2.12%
2/11/1982	16.20%	13.88%	2.32%
2/17/1982	15.00%	13.89%	1.11%
2/19/1982	15.17%	13.89%	1.28%
2/26/1982	15.25%	13.89%	1.36%
3/1/1982	15.03%	13.89%	1.14%
3/1/1982	16.00%	13.89%	2.11%
3/3/1982	15.00%	13.88%	1.12%
3/8/1982	17.10%	13.88%	3.22%
3/12/1982	16.25%	13.88%	2.37%
3/17/1982	17.30%	13.88%	3.42%
3/22/1982	15.10%	13.89%	1.21%
3/27/1982	15.40%	13.89%	1.51%
3/30/1982	15.50%	13.90%	1.60%
3/31/1982	17.00%	13.91%	3.09%
4/1/1982	14.70%	13.91%	0.79%
4/1/1982	16.50%	13.91%	2.59%
4/2/1982	15.50%	13.91%	1.59%
4/5/1982	15.50%	13.92%	1.58%
4/8/1982	16.40%	13.93%	2.47%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
4/13/1982	14.50%	13.94%	0.56%
4/23/1982	15.75%	13.94%	1.81%
4/27/1982	15.00%	13.94%	1.06%
4/28/1982	15.75%	13.94%	1.81%
4/30/1982	14.70%	13.94%	0.76%
4/30/1982	15.50%	13.94%	1.56%
5/3/1982	16.60%	13.94%	2.66%
5/4/1982	16.00%	13.94%	2.06%
5/14/1982	15.50%	13.92%	1.58%
5/18/1982	15.42%	13.92%	1.50%
5/19/1982	14.69%	13.92%	0.77%
5/20/1982	15.00%	13.91%	1.09%
5/20/1982	15.10%	13.91%	1.19%
5/20/1982	15.50%	13.91%	1.59%
5/20/1982	16.30%	13.91%	2.39%
5/21/1982	17.75%	13.91%	3.84%
5/27/1982	15.00%	13.89%	1.11%
5/28/1982	15.50%	13.89%	1.61%
5/28/1982	17.00%	13.89%	3.11%
6/1/1982	13.75%	13.89%	-0.14%
6/1/1982	16.60%	13.89%	2.71%
6/9/1982	17.86%	13.88%	3.98%
6/14/1982	15.75%	13.88%	1.87%
6/15/1982	14.85%	13.88%	0.97%
6/18/1982	15.50%	13.87%	1.63%
6/21/1982	14.90%	13.87%	1.03%
6/23/1982	16.00%	13.86%	2.14%
6/23/1982	16.17%	13.86%	2.31%
6/24/1982	14.85%	13.86%	0.99%
6/25/1982	14.70%	13.86%	0.84%
7/1/1982	16.00%	13.84%	2.16%
7/2/1982	15.62%	13.84%	1.78%
7/2/1982	17.00%	13.84%	3.16%
7/13/1982	14.00%	13.82%	0.18%
7/13/1982	16.80%	13.82%	2.98%
7/14/1982	15.76%	13.82%	1.94%
7/14/1982	16.02%	13.82%	2.20%
7/19/1982	16.50%	13.80%	2.70%
7/22/1982	14.50%	13.77%	0.73%
7/22/1982	17.00%	13.77%	3.23%
7/27/1982	16.75%	13.75%	3.00%
7/29/1982	16.50%	13.74%	2.76%
8/11/1982	17.50%	13.68%	3.82%
8/18/1982	17.07%	13.63%	3.44%
8/20/1982	15.73%	13.60%	2.13%
8/25/1982	16.00%	13.57%	2.43%
8/26/1982	15.50%	13.56%	1.94%
8/30/1982	15.00%	13.55%	1.45%
9/3/1982	16.20%	13.53%	2.67%
9/8/1982	15.00%	13.52%	1.48%
9/15/1982	13.08%	13.50%	-0.42%
9/15/1982	16.25%	13.50%	2.75%
9/16/1982	16.00%	13.50%	2.50%
9/17/1982	15.25%	13.50%	1.75%
9/23/1982	17.17%	13.47%	3.70%
9/24/1982	14.50%	13.46%	1.04%
9/27/1982	15.25%	13.46%	1.79%
10/1/1982	15.50%	13.42%	2.08%
10/15/1982	15.90%	13.32%	2.58%
10/22/1982	15.75%	13.24%	2.51%
10/22/1982	17.15%	13.24%	3.91%
10/29/1982	15.54%	13.16%	2.38%
11/1/1982	15.50%	13.15%	2.35%
11/3/1982	17.20%	13.13%	4.07%
11/4/1982	16.25%	13.11%	3.14%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
11/5/1982	16.20%	13.09%	3.11%
11/9/1982	16.00%	13.05%	2.95%
11/23/1982	15.50%	12.89%	2.61%
11/23/1982	15.85%	12.89%	2.96%
11/30/1982	16.50%	12.81%	3.69%
12/1/1982	17.04%	12.79%	4.25%
12/6/1982	15.00%	12.73%	2.27%
12/6/1982	16.35%	12.73%	3.62%
12/10/1982	15.50%	12.66%	2.84%
12/13/1982	16.00%	12.65%	3.35%
12/14/1982	15.30%	12.63%	2.67%
12/14/1982	16.40%	12.63%	3.77%
12/20/1982	16.00%	12.57%	3.43%
12/21/1982	14.75%	12.56%	2.19%
12/21/1982	15.85%	12.56%	3.29%
12/22/1982	16.25%	12.54%	3.71%
12/22/1982	16.58%	12.54%	4.04%
12/22/1982	16.75%	12.54%	4.21%
12/29/1982	14.90%	12.48%	2.42%
12/29/1982	16.25%	12.48%	3.77%
12/30/1982	16.00%	12.47%	3.53%
12/30/1982	16.35%	12.47%	3.88%
12/30/1982	16.77%	12.47%	4.30%
1/5/1983	17.33%	12.40%	4.93%
1/11/1983	15.90%	12.34%	3.56%
1/12/1983	14.63%	12.33%	2.30%
1/12/1983	15.50%	12.33%	3.17%
1/20/1983	17.75%	12.24%	5.51%
1/21/1983	15.00%	12.22%	2.78%
1/24/1983	14.50%	12.21%	2.29%
1/24/1983	15.50%	12.21%	3.29%
1/25/1983	15.85%	12.19%	3.66%
1/27/1983	16.14%	12.17%	3.97%
2/1/1983	18.50%	12.13%	6.37%
2/4/1983	14.00%	12.10%	1.90%
2/10/1983	15.00%	12.06%	2.94%
2/21/1983	15.50%	11.98%	3.52%
2/22/1983	15.50%	11.97%	3.53%
2/23/1983	15.10%	11.96%	3.14%
2/23/1983	16.00%	11.96%	4.04%
3/2/1983	15.25%	11.89%	3.36%
3/9/1983	15.20%	11.82%	3.38%
3/15/1983	13.00%	11.77%	1.23%
3/18/1983	15.25%	11.73%	3.52%
3/23/1983	15.40%	11.69%	3.71%
3/24/1983	15.00%	11.67%	3.33%
3/29/1983	15.50%	11.63%	3.87%
3/30/1983	16.71%	11.61%	5.10%
3/31/1983	15.00%	11.59%	3.41%
4/4/1983	15.20%	11.58%	3.62%
4/8/1983	15.50%	11.51%	3.99%
4/11/1983	14.81%	11.49%	3.32%
4/19/1983	14.50%	11.38%	3.12%
4/20/1983	16.00%	11.36%	4.64%
4/29/1983	16.00%	11.24%	4.76%
5/1/1983	14.50%	11.24%	3.26%
5/9/1983	15.50%	11.15%	4.35%
5/11/1983	16.46%	11.12%	5.34%
5/12/1983	14.14%	11.11%	3.03%
5/18/1983	15.00%	11.05%	3.95%
5/23/1983	14.90%	11.01%	3.89%
5/23/1983	15.50%	11.01%	4.49%
5/25/1983	15.50%	10.98%	4.52%
5/27/1983	15.00%	10.96%	4.04%
5/31/1983	14.00%	10.95%	3.05%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
5/31/1983	15.50%	10.95%	4.55%
6/2/1983	14.50%	10.93%	3.57%
6/17/1983	15.03%	10.84%	4.19%
7/1/1983	14.80%	10.78%	4.02%
7/1/1983	14.90%	10.78%	4.12%
7/8/1983	16.25%	10.76%	5.49%
7/13/1983	13.20%	10.75%	2.45%
7/19/1983	15.00%	10.74%	4.26%
7/19/1983	15.10%	10.74%	4.36%
7/25/1983	16.25%	10.73%	5.52%
7/28/1983	15.90%	10.74%	5.16%
8/3/1983	16.34%	10.75%	5.59%
8/3/1983	16.50%	10.75%	5.75%
8/19/1983	15.00%	10.80%	4.20%
8/22/1983	15.50%	10.80%	4.70%
8/22/1983	16.40%	10.80%	5.60%
8/31/1983	14.75%	10.84%	3.91%
9/7/1983	15.00%	10.86%	4.14%
9/14/1983	15.78%	10.89%	4.89%
9/16/1983	15.00%	10.90%	4.10%
9/19/1983	14.50%	10.91%	3.59%
9/20/1983	16.50%	10.91%	5.59%
9/28/1983	14.50%	10.94%	3.56%
9/29/1983	15.50%	10.95%	4.55%
9/30/1983	15.25%	10.95%	4.30%
9/30/1983	16.15%	10.95%	5.20%
10/4/1983	14.80%	10.96%	3.84%
10/7/1983	16.00%	10.97%	5.03%
10/13/1983	15.52%	10.99%	4.53%
10/17/1983	15.50%	11.00%	4.50%
10/18/1983	14.50%	11.00%	3.50%
10/19/1983	16.25%	11.01%	5.24%
10/19/1983	16.50%	11.01%	5.49%
10/26/1983	15.00%	11.04%	3.96%
10/27/1983	15.20%	11.04%	4.16%
11/1/1983	16.00%	11.06%	4.94%
11/9/1983	14.90%	11.09%	3.81%
11/10/1983	14.35%	11.10%	3.25%
11/23/1983	16.00%	11.13%	4.87%
11/23/1983	16.15%	11.13%	5.02%
11/30/1983	15.00%	11.14%	3.86%
12/5/1983	15.25%	11.15%	4.10%
12/6/1983	15.07%	11.15%	3.92%
12/8/1983	15.90%	11.16%	4.74%
12/9/1983	14.75%	11.17%	3.58%
12/12/1983	14.50%	11.17%	3.33%
12/15/1983	15.56%	11.19%	4.37%
12/19/1983	14.80%	11.21%	3.59%
12/20/1983	14.69%	11.22%	3.47%
12/20/1983	16.00%	11.22%	4.78%
12/20/1983	16.25%	11.22%	5.03%
12/22/1983	14.75%	11.23%	3.52%
12/22/1983	15.75%	11.23%	4.52%
1/3/1984	14.75%	11.27%	3.48%
1/10/1984	15.90%	11.30%	4.60%
1/12/1984	15.60%	11.31%	4.29%
1/18/1984	13.75%	11.33%	2.42%
1/19/1984	15.90%	11.33%	4.57%
1/30/1984	16.10%	11.37%	4.73%
1/31/1984	15.25%	11.37%	3.88%
2/1/1984	14.80%	11.38%	3.42%
2/6/1984	13.75%	11.40%	2.35%
2/6/1984	14.75%	11.40%	3.35%
2/9/1984	15.25%	11.42%	3.83%
2/15/1984	15.70%	11.44%	4.26%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
2/20/1984	15.00%	11.46%	3.54%
2/20/1984	15.00%	11.46%	3.54%
2/22/1984	14.75%	11.47%	3.28%
2/28/1984	14.50%	11.51%	2.99%
3/2/1984	14.25%	11.54%	2.71%
3/20/1984	16.00%	11.64%	4.36%
3/23/1984	15.50%	11.67%	3.83%
3/26/1984	14.71%	11.68%	3.03%
4/2/1984	15.50%	11.71%	3.79%
4/6/1984	14.74%	11.75%	2.99%
4/11/1984	15.72%	11.78%	3.94%
4/17/1984	15.00%	11.81%	3.19%
4/18/1984	16.20%	11.82%	4.38%
4/25/1984	14.64%	11.85%	2.79%
4/30/1984	14.40%	11.87%	2.53%
5/16/1984	14.69%	11.98%	2.71%
5/16/1984	15.00%	11.98%	3.02%
5/22/1984	14.40%	12.02%	2.38%
5/29/1984	15.10%	12.06%	3.04%
6/13/1984	15.25%	12.15%	3.10%
6/15/1984	15.60%	12.17%	3.43%
6/22/1984	16.25%	12.21%	4.04%
6/29/1984	15.25%	12.26%	2.99%
7/2/1984	13.35%	12.27%	1.08%
7/10/1984	16.00%	12.31%	3.69%
7/12/1984	16.50%	12.32%	4.18%
7/13/1984	16.25%	12.33%	3.92%
7/17/1984	14.14%	12.35%	1.79%
7/18/1984	15.30%	12.36%	2.94%
7/18/1984	15.50%	12.36%	3.14%
7/19/1984	14.30%	12.37%	1.93%
7/24/1984	16.79%	12.39%	4.40%
7/31/1984	16.00%	12.43%	3.57%
8/3/1984	14.25%	12.44%	1.81%
8/17/1984	14.30%	12.49%	1.81%
8/20/1984	15.00%	12.49%	2.51%
8/27/1984	16.30%	12.51%	3.79%
8/31/1984	15.55%	12.52%	3.03%
9/6/1984	16.00%	12.53%	3.47%
9/10/1984	14.75%	12.54%	2.21%
9/13/1984	15.00%	12.55%	2.45%
9/17/1984	17.38%	12.56%	4.82%
9/26/1984	14.50%	12.57%	1.93%
9/28/1984	15.00%	12.57%	2.43%
9/28/1984	16.25%	12.57%	3.68%
10/9/1984	14.75%	12.58%	2.17%
10/12/1984	15.60%	12.59%	3.01%
10/22/1984	15.00%	12.59%	2.41%
10/26/1984	16.40%	12.58%	3.82%
10/31/1984	16.25%	12.58%	3.67%
11/7/1984	15.60%	12.58%	3.02%
11/9/1984	16.00%	12.58%	3.42%
11/14/1984	15.75%	12.58%	3.17%
11/20/1984	15.25%	12.58%	2.67%
11/20/1984	15.92%	12.58%	3.34%
11/23/1984	15.00%	12.58%	2.42%
11/28/1984	16.15%	12.57%	3.58%
12/3/1984	15.80%	12.56%	3.24%
12/4/1984	16.50%	12.56%	3.94%
12/18/1984	16.40%	12.53%	3.87%
12/19/1984	14.75%	12.53%	2.22%
12/19/1984	15.00%	12.53%	2.47%
12/20/1984	16.00%	12.53%	3.47%
12/28/1984	16.00%	12.50%	3.50%
1/3/1985	14.75%	12.49%	2.26%



Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
1/10/1985	15.75%	12.47%	3.28%
1/11/1985	16.30%	12.46%	3.84%
1/23/1985	15.80%	12.43%	3.37%
1/24/1985	15.82%	12.43%	3.39%
1/25/1985	16.75%	12.42%	4.33%
1/30/1985	14.90%	12.40%	2.50%
1/31/1985	14.75%	12.39%	2.36%
2/8/1985	14.47%	12.35%	2.12%
3/1/1985	13.84%	12.31%	1.53%
3/8/1985	16.85%	12.28%	4.57%
3/14/1985	15.50%	12.25%	3.25%
3/15/1985	15.62%	12.25%	3.37%
3/29/1985	15.62%	12.17%	3.45%
4/3/1985	14.60%	12.14%	2.46%
4/9/1985	15.50%	12.11%	3.39%
4/16/1985	15.70%	12.06%	3.64%
4/22/1985	14.00%	12.02%	1.98%
4/26/1985	15.50%	11.98%	3.52%
4/29/1985	15.00%	11.97%	3.03%
5/2/1985	14.68%	11.94%	2.74%
5/8/1985	15.62%	11.89%	3.73%
5/10/1985	16.50%	11.87%	4.63%
5/29/1985	14.61%	11.73%	2.88%
5/31/1985	16.00%	11.71%	4.29%
6/14/1985	15.50%	11.61%	3.89%
7/9/1985	15.00%	11.45%	3.55%
7/16/1985	14.50%	11.39%	3.11%
7/26/1985	14.50%	11.33%	3.17%
8/2/1985	14.80%	11.29%	3.51%
8/7/1985	15.00%	11.27%	3.73%
8/28/1985	14.25%	11.15%	3.10%
8/28/1985	15.50%	11.15%	4.35%
8/29/1985	14.50%	11.15%	3.35%
9/9/1985	14.60%	11.11%	3.49%
9/9/1985	14.90%	11.11%	3.79%
9/17/1985	14.90%	11.08%	3.82%
9/23/1985	15.00%	11.06%	3.94%
9/27/1985	15.50%	11.05%	4.45%
9/27/1985	15.80%	11.05%	4.75%
10/2/1985	14.00%	11.03%	2.97%
10/2/1985	14.75%	11.03%	3.72%
10/3/1985	15.25%	11.03%	4.22%
10/24/1985	15.40%	10.96%	4.44%
10/24/1985	15.82%	10.96%	4.86%
10/24/1985	15.85%	10.96%	4.89%
10/28/1985	16.00%	10.95%	5.05%
10/29/1985	16.65%	10.94%	5.71%
10/31/1985	15.06%	10.93%	4.13%
11/4/1985	14.50%	10.92%	3.58%
11/7/1985	15.50%	10.90%	4.60%
11/8/1985	14.30%	10.89%	3.41%
12/12/1985	14.75%	10.73%	4.02%
12/18/1985	15.00%	10.69%	4.31%
12/20/1985	14.50%	10.67%	3.83%
12/20/1985	14.50%	10.67%	3.83%
12/20/1985	15.00%	10.67%	4.33%
1/24/1986	15.40%	10.41%	4.99%
1/31/1986	15.00%	10.35%	4.65%
2/5/1986	15.00%	10.32%	4.68%
2/5/1986	15.75%	10.32%	5.43%
2/10/1986	13.30%	10.29%	3.01%
2/11/1986	12.50%	10.28%	2.22%
2/14/1986	14.40%	10.24%	4.16%
2/18/1986	16.00%	10.23%	5.77%
2/24/1986	14.50%	10.18%	4.32%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
2/26/1986	14.00%	10.15%	3.85%
3/5/1986	14.90%	10.08%	4.82%
3/11/1986	14.50%	10.02%	4.48%
3/12/1986	13.50%	10.00%	3.50%
3/27/1986	14.10%	9.86%	4.24%
3/31/1986	13.50%	9.84%	3.66%
4/1/1986	14.00%	9.83%	4.17%
4/2/1986	15.50%	9.81%	5.69%
4/4/1986	15.00%	9.78%	5.22%
4/14/1986	13.40%	9.69%	3.71%
4/23/1986	15.00%	9.57%	5.43%
5/16/1986	14.50%	9.32%	5.18%
5/16/1986	14.50%	9.32%	5.18%
5/29/1986	13.90%	9.19%	4.71%
5/30/1986	15.10%	9.18%	5.92%
6/2/1986	12.81%	9.17%	3.64%
6/11/1986	14.00%	9.07%	4.93%
6/24/1986	16.63%	8.94%	7.69%
6/26/1986	12.00%	8.91%	3.09%
6/26/1986	14.75%	8.91%	5.84%
6/30/1986	13.00%	8.87%	4.13%
7/10/1986	14.34%	8.75%	5.59%
7/11/1986	12.75%	8.73%	4.02%
7/14/1986	12.60%	8.71%	3.89%
7/17/1986	12.40%	8.66%	3.74%
7/25/1986	14.25%	8.57%	5.68%
8/6/1986	13.50%	8.44%	5.06%
8/14/1986	13.50%	8.35%	5.15%
9/16/1986	12.75%	8.06%	4.69%
9/19/1986	13.25%	8.03%	5.22%
10/1/1986	14.00%	7.95%	6.05%
10/3/1986	13.40%	7.93%	5.47%
10/31/1986	13.50%	7.77%	5.73%
11/5/1986	13.00%	7.75%	5.25%
12/3/1986	12.90%	7.58%	5.32%
12/4/1986	14.44%	7.58%	6.86%
12/16/1986	13.60%	7.52%	6.08%
12/22/1986	13.80%	7.51%	6.29%
12/30/1986	13.00%	7.49%	5.51%
1/2/1987	13.00%	7.49%	5.51%
1/12/1987	12.40%	7.47%	4.93%
1/27/1987	12.71%	7.46%	5.25%
3/2/1987	12.47%	7.47%	5.00%
3/3/1987	13.60%	7.47%	6.13%
3/4/1987	12.38%	7.47%	4.91%
3/10/1987	13.50%	7.47%	6.03%
3/13/1987	13.00%	7.47%	5.53%
3/31/1987	13.00%	7.46%	5.54%
4/6/1987	13.00%	7.47%	5.53%
4/14/1987	12.50%	7.49%	5.01%
4/16/1987	14.50%	7.50%	7.00%
4/27/1987	12.00%	7.54%	4.46%
5/5/1987	12.85%	7.58%	5.27%
5/12/1987	12.65%	7.62%	5.03%
5/28/1987	13.50%	7.70%	5.80%
6/15/1987	13.20%	7.78%	5.42%
6/29/1987	15.00%	7.83%	7.17%
6/30/1987	12.50%	7.84%	4.66%
7/8/1987	12.00%	7.86%	4.14%
7/10/1987	12.90%	7.86%	5.04%
7/15/1987	13.50%	7.88%	5.62%
7/16/1987	13.50%	7.88%	5.62%
7/16/1987	15.00%	7.88%	7.12%
7/27/1987	13.00%	7.92%	5.08%
7/27/1987	13.40%	7.92%	5.48%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
7/27/1987	13.50%	7.92%	5.58%
7/31/1987	12.98%	7.95%	5.03%
8/26/1987	12.63%	8.06%	4.57%
8/26/1987	12.75%	8.06%	4.69%
8/27/1987	13.25%	8.06%	5.19%
9/9/1987	13.00%	8.14%	4.86%
9/30/1987	12.75%	8.31%	4.44%
9/30/1987	13.00%	8.31%	4.69%
10/2/1987	11.50%	8.33%	3.17%
10/15/1987	13.00%	8.43%	4.57%
11/2/1987	13.00%	8.55%	4.45%
11/19/1987	13.00%	8.64%	4.36%
11/30/1987	12.00%	8.68%	3.32%
12/3/1987	14.20%	8.70%	5.50%
12/15/1987	13.25%	8.77%	4.48%
12/16/1987	13.50%	8.78%	4.72%
12/16/1987	13.72%	8.78%	4.94%
12/17/1987	11.75%	8.79%	2.96%
12/18/1987	13.50%	8.80%	4.70%
12/21/1987	12.01%	8.81%	3.20%
12/22/1987	12.00%	8.81%	3.19%
12/22/1987	12.00%	8.81%	3.19%
12/22/1987	12.75%	8.81%	3.94%
12/22/1987	13.00%	8.81%	4.19%
1/20/1988	13.80%	8.94%	4.86%
1/26/1988	13.90%	8.95%	4.95%
1/29/1988	13.20%	8.96%	4.24%
2/4/1988	12.60%	8.96%	3.64%
3/1/1988	11.56%	8.94%	2.62%
3/23/1988	12.87%	8.92%	3.95%
3/24/1988	11.24%	8.92%	2.32%
3/30/1988	12.72%	8.92%	3.80%
4/1/1988	12.50%	8.92%	3.58%
4/7/1988	13.25%	8.93%	4.32%
4/25/1988	10.96%	8.96%	2.00%
5/3/1988	12.91%	8.97%	3.94%
5/11/1988	13.50%	8.99%	4.51%
5/16/1988	13.00%	8.99%	4.01%
6/30/1988	12.75%	9.00%	3.75%
7/1/1988	12.75%	8.99%	3.76%
7/20/1988	13.40%	8.96%	4.44%
8/5/1988	12.75%	8.92%	3.83%
8/23/1988	11.70%	8.93%	2.77%
8/29/1988	12.75%	8.94%	3.81%
8/30/1988	13.50%	8.94%	4.56%
9/8/1988	12.60%	8.95%	3.65%
10/13/1988	13.10%	8.93%	4.17%
12/19/1988	13.00%	9.02%	3.98%
12/20/1988	12.25%	9.02%	3.23%
12/20/1988	13.00%	9.02%	3.98%
12/21/1988	12.90%	9.02%	3.88%
12/27/1988	13.00%	9.03%	3.97%
12/28/1988	13.10%	9.03%	4.07%
12/30/1988	13.40%	9.04%	4.36%
1/27/1989	13.00%	9.05%	3.95%
1/31/1989	13.00%	9.05%	3.95%
2/17/1989	13.00%	9.05%	3.95%
2/20/1989	12.40%	9.05%	3.35%
3/1/1989	12.76%	9.05%	3.71%
3/8/1989	13.00%	9.05%	3.95%
3/30/1989	14.00%	9.05%	4.95%
4/5/1989	14.20%	9.05%	5.15%
4/18/1989	13.00%	9.05%	3.95%
5/5/1989	12.40%	9.05%	3.35%
6/2/1989	13.20%	9.00%	4.20%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
6/8/1989	13.50%	8.98%	4.52%
6/27/1989	13.25%	8.91%	4.34%
6/30/1989	13.00%	8.90%	4.10%
8/14/1989	12.50%	8.77%	3.73%
9/28/1989	12.25%	8.63%	3.62%
10/24/1989	12.50%	8.54%	3.96%
11/9/1989	13.00%	8.49%	4.51%
12/15/1989	13.00%	8.34%	4.66%
12/20/1989	12.90%	8.32%	4.58%
12/21/1989	12.90%	8.31%	4.59%
12/27/1989	12.50%	8.29%	4.21%
12/27/1989	13.00%	8.29%	4.71%
1/10/1990	12.80%	8.24%	4.56%
1/11/1990	12.90%	8.24%	4.66%
1/17/1990	12.80%	8.22%	4.58%
1/26/1990	12.00%	8.20%	3.80%
2/9/1990	12.10%	8.17%	3.93%
2/24/1990	12.86%	8.15%	4.71%
3/30/1990	12.90%	8.16%	4.74%
4/4/1990	15.76%	8.17%	7.59%
4/12/1990	12.52%	8.18%	4.34%
4/19/1990	12.75%	8.20%	4.55%
5/21/1990	12.10%	8.28%	3.82%
5/29/1990	12.40%	8.30%	4.10%
5/31/1990	12.00%	8.30%	3.70%
6/4/1990	12.90%	8.30%	4.60%
6/6/1990	12.25%	8.31%	3.94%
6/15/1990	13.20%	8.32%	4.88%
6/20/1990	12.92%	8.32%	4.60%
6/27/1990	12.90%	8.33%	4.57%
6/29/1990	12.50%	8.33%	4.17%
7/6/1990	12.10%	8.34%	3.76%
7/6/1990	12.35%	8.34%	4.01%
8/10/1990	12.55%	8.41%	4.14%
8/16/1990	13.21%	8.43%	4.78%
8/22/1990	13.10%	8.45%	4.65%
8/24/1990	13.00%	8.46%	4.54%
9/26/1990	11.45%	8.59%	2.86%
10/2/1990	13.00%	8.61%	4.39%
10/5/1990	12.84%	8.62%	4.22%
10/19/1990	13.00%	8.67%	4.33%
10/25/1990	12.30%	8.68%	3.62%
11/21/1990	12.70%	8.69%	4.01%
12/13/1990	12.30%	8.67%	3.63%
12/17/1990	12.87%	8.67%	4.20%
12/18/1990	13.10%	8.67%	4.43%
12/19/1990	12.00%	8.66%	3.34%
12/20/1990	12.75%	8.66%	4.09%
12/21/1990	12.50%	8.66%	3.84%
12/27/1990	12.79%	8.66%	4.13%
1/2/1991	13.10%	8.65%	4.45%
1/4/1991	12.50%	8.65%	3.85%
1/15/1991	12.75%	8.64%	4.11%
1/25/1991	11.70%	8.63%	3.07%
2/4/1991	12.50%	8.60%	3.90%
2/7/1991	12.50%	8.59%	3.91%
2/12/1991	13.00%	8.58%	4.43%
2/14/1991	12.72%	8.57%	4.15%
2/22/1991	12.80%	8.55%	4.25%
3/6/1991	13.10%	8.53%	4.57%
3/8/1991	12.30%	8.52%	3.78%
3/8/1991	13.00%	8.52%	4.48%
4/22/1991	13.00%	8.49%	4.51%
5/7/1991	13.50%	8.47%	5.03%
5/13/1991	13.25%	8.47%	4.78%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
5/30/1991	12.75%	8.44%	4.31%
6/12/1991	12.00%	8.41%	3.59%
6/25/1991	11.70%	8.39%	3.31%
6/28/1991	12.50%	8.38%	4.12%
7/1/1991	12.00%	8.38%	3.62%
7/3/1991	12.50%	8.37%	4.13%
7/19/1991	12.10%	8.34%	3.76%
8/1/1991	12.90%	8.32%	4.58%
8/16/1991	13.20%	8.29%	4.91%
9/27/1991	12.50%	8.23%	4.27%
9/30/1991	12.25%	8.23%	4.02%
10/17/1991	13.00%	8.20%	4.80%
10/23/1991	12.50%	8.20%	4.30%
10/23/1991	12.55%	8.20%	4.35%
10/31/1991	11.80%	8.19%	3.61%
11/1/1991	12.00%	8.19%	3.81%
11/5/1991	12.25%	8.19%	4.06%
11/12/1991	12.50%	8.18%	4.32%
11/12/1991	13.25%	8.18%	5.07%
11/25/1991	12.40%	8.18%	4.22%
11/26/1991	11.60%	8.18%	3.42%
11/26/1991	12.50%	8.18%	4.32%
11/27/1991	12.10%	8.18%	3.92%
12/18/1991	12.25%	8.15%	4.10%
12/19/1991	12.60%	8.15%	4.45%
12/19/1991	12.80%	8.15%	4.65%
12/20/1991	12.65%	8.14%	4.51%
1/9/1992	12.80%	8.09%	4.71%
1/16/1992	12.75%	8.07%	4.68%
1/21/1992	12.00%	8.06%	3.94%
1/22/1992	13.00%	8.06%	4.94%
1/27/1992	12.65%	8.05%	4.60%
1/31/1992	12.00%	8.04%	3.96%
2/11/1992	12.40%	8.03%	4.37%
2/25/1992	12.50%	8.01%	4.49%
3/16/1992	11.43%	7.98%	3.45%
3/18/1992	12.28%	7.98%	4.30%
4/2/1992	12.10%	7.95%	4.15%
4/9/1992	11.45%	7.94%	3.51%
4/10/1992	11.50%	7.93%	3.57%
4/14/1992	11.50%	7.93%	3.57%
5/5/1992	11.50%	7.89%	3.61%
5/12/1992	11.87%	7.88%	3.99%
5/12/1992	12.46%	7.88%	4.58%
6/1/1992	12.30%	7.87%	4.43%
6/12/1992	10.90%	7.86%	3.04%
6/26/1992	12.35%	7.85%	4.50%
6/29/1992	11.00%	7.85%	3.15%
6/30/1992	13.00%	7.85%	5.15%
7/13/1992	11.90%	7.84%	4.06%
7/13/1992	13.50%	7.84%	5.66%
7/22/1992	11.20%	7.83%	3.37%
8/3/1992	12.00%	7.81%	4.19%
8/6/1992	12.50%	7.80%	4.70%
9/22/1992	12.00%	7.71%	4.29%
9/28/1992	11.40%	7.71%	3.69%
9/30/1992	11.75%	7.70%	4.05%
10/2/1992	13.00%	7.70%	5.30%
10/12/1992	12.20%	7.70%	4.50%
10/16/1992	13.16%	7.70%	5.46%
10/30/1992	11.75%	7.71%	4.04%
11/3/1992	12.00%	7.71%	4.29%
12/3/1992	11.85%	7.68%	4.17%
12/15/1992	11.00%	7.66%	3.34%
12/16/1992	11.90%	7.66%	4.24%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
12/16/1992	12.40%	7.66%	4.74%
12/17/1992	12.00%	7.66%	4.34%
12/22/1992	12.30%	7.65%	4.65%
12/22/1992	12.40%	7.65%	4.75%
12/29/1992	12.25%	7.63%	4.62%
12/30/1992	12.00%	7.63%	4.37%
12/31/1992	11.90%	7.63%	4.27%
1/12/1993	12.00%	7.61%	4.39%
1/21/1993	11.25%	7.59%	3.66%
2/2/1993	11.40%	7.56%	3.84%
2/15/1993	12.30%	7.52%	4.78%
2/24/1993	11.90%	7.49%	4.41%
2/26/1993	11.80%	7.48%	4.32%
2/26/1993	12.20%	7.48%	4.72%
4/23/1993	11.75%	7.29%	4.46%
5/11/1993	11.75%	7.25%	4.50%
5/14/1993	11.50%	7.24%	4.26%
5/25/1993	11.50%	7.23%	4.27%
5/28/1993	11.00%	7.22%	3.78%
6/3/1993	12.00%	7.21%	4.79%
6/16/1993	11.50%	7.19%	4.31%
6/18/1993	12.10%	7.18%	4.92%
6/25/1993	11.67%	7.17%	4.50%
7/21/1993	11.38%	7.10%	4.28%
7/23/1993	10.46%	7.09%	3.37%
8/24/1993	11.50%	6.96%	4.54%
9/21/1993	10.50%	6.81%	3.69%
9/29/1993	11.47%	6.77%	4.70%
9/30/1993	11.60%	6.76%	4.84%
11/2/1993	10.80%	6.60%	4.20%
11/12/1993	12.00%	6.57%	5.43%
11/26/1993	11.00%	6.52%	4.48%
12/14/1993	10.55%	6.48%	4.07%
12/16/1993	10.60%	6.48%	4.12%
12/21/1993	11.30%	6.47%	4.83%
1/4/1994	10.07%	6.44%	3.63%
1/13/1994	11.00%	6.42%	4.58%
1/21/1994	11.00%	6.40%	4.60%
1/28/1994	11.35%	6.39%	4.96%
2/3/1994	11.40%	6.38%	5.02%
2/17/1994	10.60%	6.36%	4.24%
2/25/1994	11.25%	6.35%	4.90%
2/25/1994	12.00%	6.35%	5.65%
3/1/1994	11.00%	6.35%	4.65%
3/4/1994	11.00%	6.35%	4.65%
4/25/1994	11.00%	6.41%	4.59%
5/10/1994	11.75%	6.45%	5.30%
5/13/1994	10.50%	6.46%	4.04%
6/3/1994	11.00%	6.54%	4.46%
6/27/1994	11.40%	6.65%	4.75%
8/5/1994	12.75%	6.88%	5.87%
10/31/1994	10.00%	7.33%	2.67%
11/9/1994	10.85%	7.39%	3.46%
11/9/1994	10.85%	7.39%	3.46%
11/18/1994	11.20%	7.45%	3.75%
11/22/1994	11.60%	7.47%	4.13%
11/28/1994	11.06%	7.49%	3.57%
12/8/1994	11.50%	7.54%	3.96%
12/8/1994	11.70%	7.54%	4.16%
12/14/1994	10.95%	7.56%	3.39%
12/15/1994	11.50%	7.57%	3.93%
12/19/1994	11.50%	7.58%	3.92%
12/28/1994	12.15%	7.61%	4.54%
1/9/1995	12.28%	7.64%	4.64%
1/31/1995	11.00%	7.69%	3.31%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
2/10/1995	12.60%	7.70%	4.90%
2/17/1995	11.90%	7.70%	4.20%
3/9/1995	11.50%	7.71%	3.79%
3/20/1995	12.00%	7.72%	4.28%
3/23/1995	12.81%	7.72%	5.09%
3/29/1995	11.60%	7.72%	3.88%
4/6/1995	11.10%	7.71%	3.39%
4/7/1995	11.00%	7.71%	3.29%
4/19/1995	11.00%	7.70%	3.30%
5/12/1995	11.63%	7.68%	3.95%
5/25/1995	11.20%	7.65%	3.55%
6/9/1995	11.25%	7.60%	3.65%
6/21/1995	12.25%	7.56%	4.69%
6/30/1995	11.10%	7.52%	3.58%
9/11/1995	11.30%	7.20%	4.10%
9/27/1995	11.30%	7.12%	4.18%
9/27/1995	11.50%	7.12%	4.38%
9/27/1995	11.75%	7.12%	4.63%
9/29/1995	11.00%	7.11%	3.89%
11/9/1995	11.38%	6.90%	4.48%
11/9/1995	12.36%	6.90%	5.46%
11/17/1995	11.00%	6.86%	4.14%
12/4/1995	11.35%	6.78%	4.57%
12/11/1995	11.40%	6.74%	4.66%
12/20/1995	11.60%	6.70%	4.90%
12/27/1995	12.00%	6.66%	5.34%
2/5/1996	12.25%	6.48%	5.77%
3/29/1996	10.67%	6.42%	4.25%
4/8/1996	11.00%	6.42%	4.58%
4/11/1996	12.59%	6.43%	6.16%
4/11/1996	12.59%	6.43%	6.16%
4/24/1996	11.25%	6.43%	4.82%
4/30/1996	11.00%	6.43%	4.57%
5/13/1996	11.00%	6.44%	4.56%
5/23/1996	11.25%	6.43%	4.82%
6/25/1996	11.25%	6.48%	4.77%
6/27/1996	11.20%	6.48%	4.72%
8/12/1996	10.40%	6.57%	3.83%
9/27/1996	11.00%	6.71%	4.29%
10/16/1996	12.25%	6.76%	5.49%
11/5/1996	11.00%	6.81%	4.19%
11/26/1996	11.30%	6.83%	4.47%
12/18/1996	11.75%	6.83%	4.92%
12/31/1996	11.50%	6.83%	4.67%
1/3/1997	10.70%	6.83%	3.87%
2/13/1997	11.80%	6.82%	4.98%
2/20/1997	11.80%	6.82%	4.98%
3/31/1997	10.02%	6.80%	3.22%
4/2/1997	11.65%	6.80%	4.85%
4/28/1997	11.50%	6.81%	4.69%
4/29/1997	11.70%	6.81%	4.89%
7/17/1997	12.00%	6.77%	5.23%
12/12/1997	11.00%	6.60%	4.40%
12/23/1997	11.12%	6.57%	4.55%
2/2/1998	12.75%	6.39%	6.36%
3/2/1998	11.25%	6.29%	4.96%
3/6/1998	10.75%	6.27%	4.48%
3/20/1998	10.50%	6.22%	4.28%
4/30/1998	12.20%	6.12%	6.08%
7/10/1998	11.40%	5.94%	5.46%
9/15/1998	11.90%	5.78%	6.12%
11/30/1998	12.60%	5.58%	7.02%
12/10/1998	12.20%	5.54%	6.66%
12/17/1998	12.10%	5.52%	6.58%
2/5/1999	10.30%	5.38%	4.92%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
3/4/1999	10.50%	5.34%	5.16%
4/6/1999	10.94%	5.32%	5.62%
7/29/1999	10.75%	5.52%	5.23%
9/23/1999	10.75%	5.70%	5.05%
11/17/1999	11.10%	5.90%	5.20%
1/7/2000	11.50%	6.05%	5.45%
1/7/2000	11.50%	6.05%	5.45%
2/17/2000	10.60%	6.17%	4.43%
3/28/2000	11.25%	6.20%	5.05%
5/24/2000	11.00%	6.18%	4.82%
7/18/2000	12.20%	6.16%	6.04%
9/29/2000	11.16%	6.03%	5.13%
11/28/2000	12.90%	5.89%	7.01%
11/30/2000	12.10%	5.88%	6.22%
1/23/2001	11.25%	5.79%	5.46%
2/8/2001	11.50%	5.77%	5.73%
5/8/2001	10.75%	5.62%	5.13%
6/26/2001	11.00%	5.62%	5.38%
7/25/2001	11.02%	5.60%	5.42%
7/25/2001	11.02%	5.60%	5.42%
7/31/2001	11.00%	5.59%	5.41%
8/31/2001	10.50%	5.56%	4.94%
9/7/2001	10.75%	5.55%	5.20%
9/10/2001	11.00%	5.55%	5.45%
9/20/2001	10.00%	5.55%	4.45%
10/24/2001	10.30%	5.54%	4.76%
11/28/2001	10.60%	5.49%	5.11%
12/3/2001	12.88%	5.49%	7.39%
12/20/2001	12.50%	5.50%	7.00%
1/22/2002	10.00%	5.50%	4.50%
3/27/2002	10.10%	5.45%	4.65%
4/22/2002	11.80%	5.45%	6.35%
5/28/2002	10.17%	5.46%	4.71%
6/10/2002	12.00%	5.47%	6.53%
6/18/2002	11.16%	5.48%	5.68%
6/20/2002	11.00%	5.48%	5.52%
6/20/2002	12.30%	5.48%	6.82%
7/15/2002	11.00%	5.48%	5.52%
9/12/2002	12.30%	5.45%	6.85%
9/26/2002	10.45%	5.41%	5.04%
12/4/2002	11.55%	5.29%	6.26%
12/13/2002	11.75%	5.27%	6.48%
12/20/2002	11.40%	5.25%	6.15%
1/8/2003	11.10%	5.19%	5.91%
1/31/2003	12.45%	5.13%	7.32%
2/28/2003	12.30%	5.05%	7.25%
3/6/2003	10.75%	5.03%	5.72%
3/7/2003	9.96%	5.02%	4.94%
3/20/2003	12.00%	4.98%	7.02%
4/3/2003	12.00%	4.96%	7.04%
4/15/2003	11.15%	4.94%	6.21%
6/25/2003	10.75%	4.79%	5.96%
6/26/2003	10.75%	4.79%	5.96%
7/9/2003	9.75%	4.79%	4.96%
7/16/2003	9.75%	4.79%	4.96%
7/25/2003	9.50%	4.80%	4.70%
8/26/2003	10.50%	4.83%	5.67%
12/17/2003	9.85%	4.94%	4.91%
12/17/2003	10.70%	4.94%	5.76%
12/18/2003	11.50%	4.94%	6.56%
12/19/2003	12.00%	4.94%	7.06%
12/19/2003	12.00%	4.94%	7.06%
12/23/2003	10.50%	4.94%	5.56%
1/13/2004	12.00%	4.95%	7.05%
3/2/2004	10.75%	4.99%	5.76%



Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
3/26/2004	10.25%	5.02%	5.23%
4/5/2004	11.25%	5.03%	6.22%
5/18/2004	10.50%	5.07%	5.43%
5/25/2004	10.25%	5.08%	5.17%
5/27/2004	10.25%	5.08%	5.17%
6/2/2004	11.22%	5.08%	6.14%
6/30/2004	10.50%	5.10%	5.40%
6/30/2004	10.50%	5.10%	5.40%
7/16/2004	11.60%	5.11%	6.49%
8/25/2004	10.25%	5.10%	5.15%
9/9/2004	10.40%	5.10%	5.30%
11/9/2004	10.50%	5.07%	5.43%
11/23/2004	11.00%	5.06%	5.94%
12/14/2004	10.97%	5.07%	5.90%
12/21/2004	11.25%	5.07%	6.18%
12/21/2004	11.50%	5.07%	6.43%
12/22/2004	10.70%	5.07%	5.63%
12/22/2004	11.50%	5.07%	6.43%
12/29/2004	9.85%	5.07%	4.78%
1/6/2005	10.70%	5.08%	5.62%
2/18/2005	10.30%	4.98%	5.32%
2/25/2005	10.50%	4.96%	5.54%
3/10/2005	11.00%	4.93%	6.07%
3/24/2005	10.30%	4.90%	5.40%
4/4/2005	10.00%	4.88%	5.12%
4/7/2005	10.25%	4.87%	5.38%
5/18/2005	10.25%	4.78%	5.47%
5/25/2005	10.75%	4.76%	5.99%
5/26/2005	9.75%	4.76%	4.99%
6/1/2005	9.75%	4.75%	5.00%
7/19/2005	11.50%	4.64%	6.86%
8/5/2005	11.75%	4.62%	7.13%
8/15/2005	10.13%	4.61%	5.52%
9/28/2005	10.00%	4.54%	5.46%
10/4/2005	10.75%	4.54%	6.21%
12/12/2005	11.00%	4.55%	6.45%
12/13/2005	10.75%	4.55%	6.20%
12/21/2005	10.29%	4.54%	5.75%
12/21/2005	10.40%	4.54%	5.86%
12/22/2005	11.00%	4.54%	6.46%
12/22/2005	11.15%	4.54%	6.61%
12/28/2005	10.00%	4.54%	5.46%
12/28/2005	10.00%	4.54%	5.46%
1/5/2006	11.00%	4.53%	6.47%
1/27/2006	9.75%	4.52%	5.23%
3/3/2006	10.39%	4.53%	5.86%
4/17/2006	10.20%	4.61%	5.59%
4/26/2006	10.60%	4.64%	5.96%
5/17/2006	11.60%	4.69%	6.91%
6/6/2006	10.00%	4.74%	5.26%
6/27/2006	10.75%	4.80%	5.95%
7/6/2006	10.20%	4.83%	5.37%
7/24/2006	9.60%	4.86%	4.74%
7/26/2006	10.50%	4.86%	5.64%
7/28/2006	10.05%	4.86%	5.19%
8/23/2006	9.55%	4.89%	4.66%
9/1/2006	10.54%	4.90%	5.64%
9/14/2006	10.00%	4.91%	5.09%
10/6/2006	9.67%	4.92%	4.75%
11/21/2006	10.08%	4.95%	5.13%
11/21/2006	10.08%	4.95%	5.13%
11/21/2006	10.12%	4.95%	5.17%
12/1/2006	10.25%	4.95%	5.30%
12/1/2006	10.50%	4.95%	5.55%
12/7/2006	10.75%	4.95%	5.80%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
12/21/2006	10.90%	4.95%	5.95%
12/21/2006	11.25%	4.95%	6.30%
12/22/2006	10.25%	4.95%	5.30%
1/5/2007	10.00%	4.95%	5.05%
1/11/2007	10.10%	4.95%	5.15%
1/11/2007	10.10%	4.95%	5.15%
1/11/2007	10.90%	4.95%	5.95%
1/12/2007	10.10%	4.95%	5.15%
1/13/2007	10.40%	4.95%	5.45%
1/19/2007	10.80%	4.94%	5.86%
3/21/2007	11.35%	4.87%	6.48%
3/22/2007	9.75%	4.86%	4.89%
5/15/2007	10.00%	4.81%	5.19%
5/17/2007	10.25%	4.81%	5.44%
5/17/2007	10.25%	4.81%	5.44%
5/22/2007	10.20%	4.80%	5.40%
5/22/2007	10.50%	4.80%	5.70%
5/23/2007	10.70%	4.80%	5.90%
5/25/2007	9.67%	4.80%	4.87%
6/15/2007	9.90%	4.82%	5.08%
6/21/2007	10.20%	4.83%	5.37%
6/22/2007	10.50%	4.83%	5.67%
6/28/2007	10.75%	4.84%	5.91%
7/12/2007	9.67%	4.86%	4.81%
7/19/2007	10.00%	4.87%	5.13%
7/19/2007	10.00%	4.87%	5.13%
8/15/2007	10.40%	4.88%	5.52%
10/9/2007	10.00%	4.91%	5.09%
10/17/2007	9.10%	4.91%	4.19%
10/31/2007	9.96%	4.90%	5.06%
11/29/2007	10.90%	4.87%	6.03%
12/6/2007	10.75%	4.86%	5.89%
12/13/2007	9.96%	4.86%	5.10%
12/14/2007	10.70%	4.86%	5.84%
12/14/2007	10.80%	4.86%	5.94%
12/19/2007	10.20%	4.86%	5.34%
12/20/2007	10.20%	4.85%	5.35%
12/20/2007	11.00%	4.85%	6.15%
12/28/2007	10.25%	4.85%	5.40%
12/31/2007	11.25%	4.85%	6.40%
1/8/2008	10.75%	4.83%	5.92%
1/17/2008	10.75%	4.81%	5.94%
1/28/2008	9.40%	4.80%	4.60%
1/30/2008	10.00%	4.79%	5.21%
1/31/2008	10.71%	4.79%	5.92%
2/29/2008	10.25%	4.75%	5.50%
3/12/2008	10.25%	4.73%	5.52%
3/25/2008	9.10%	4.68%	4.42%
4/22/2008	10.25%	4.60%	5.65%
4/24/2008	10.10%	4.60%	5.50%
5/1/2008	10.70%	4.59%	6.11%
5/19/2008	11.00%	4.56%	6.44%
5/27/2008	10.00%	4.55%	5.45%
6/10/2008	10.70%	4.54%	6.16%
6/27/2008	10.50%	4.54%	5.96%
6/27/2008	11.04%	4.54%	6.50%
7/10/2008	10.43%	4.52%	5.91%
7/16/2008	9.40%	4.52%	4.88%
7/30/2008	10.80%	4.51%	6.29%
7/31/2008	10.70%	4.51%	6.19%
8/11/2008	10.25%	4.51%	5.74%
8/26/2008	10.18%	4.50%	5.68%
9/10/2008	10.30%	4.50%	5.80%
9/24/2008	10.65%	4.48%	6.17%
9/24/2008	10.65%	4.48%	6.17%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
9/24/2008	10.65%	4.48%	6.17%
9/30/2008	10.20%	4.48%	5.72%
10/8/2008	10.15%	4.46%	5.69%
11/13/2008	10.55%	4.45%	6.10%
11/17/2008	10.20%	4.44%	5.76%
12/1/2008	10.25%	4.40%	5.85%
12/23/2008	11.00%	4.27%	6.73%
12/29/2008	10.00%	4.24%	5.76%
12/29/2008	10.20%	4.24%	5.96%
12/31/2008	10.75%	4.22%	6.53%
1/14/2009	10.50%	4.15%	6.35%
1/21/2009	10.50%	4.12%	6.38%
1/21/2009	10.50%	4.12%	6.38%
1/21/2009	10.50%	4.12%	6.38%
1/27/2009	10.76%	4.09%	6.67%
1/30/2009	10.50%	4.08%	6.42%
2/4/2009	8.75%	4.06%	4.69%
3/4/2009	10.50%	3.96%	6.54%
3/12/2009	11.50%	3.93%	7.57%
4/2/2009	11.10%	3.85%	7.25%
4/21/2009	10.61%	3.80%	6.81%
4/24/2009	10.00%	3.79%	6.21%
4/30/2009	11.25%	3.78%	7.47%
5/4/2009	10.74%	3.77%	6.97%
5/20/2009	10.25%	3.74%	6.51%
5/28/2009	10.50%	3.74%	6.76%
6/22/2009	10.00%	3.76%	6.24%
6/24/2009	10.80%	3.77%	7.03%
7/8/2009	10.63%	3.77%	6.86%
7/17/2009	10.50%	3.78%	6.72%
8/31/2009	10.25%	3.82%	6.43%
10/14/2009	10.70%	4.01%	6.69%
10/23/2009	10.88%	4.06%	6.82%
11/2/2009	10.70%	4.09%	6.61%
11/3/2009	10.70%	4.10%	6.60%
11/24/2009	10.25%	4.15%	6.10%
11/25/2009	10.75%	4.16%	6.59%
11/30/2009	10.35%	4.17%	6.18%
12/3/2009	10.50%	4.18%	6.32%
12/7/2009	10.70%	4.18%	6.52%
12/16/2009	10.90%	4.21%	6.69%
12/16/2009	11.00%	4.21%	6.79%
12/18/2009	10.40%	4.22%	6.18%
12/18/2009	10.40%	4.22%	6.18%
12/22/2009	10.20%	4.23%	5.97%
12/22/2009	10.40%	4.23%	6.17%
12/22/2009	10.40%	4.23%	6.17%
12/30/2009	10.00%	4.26%	5.74%
1/4/2010	10.80%	4.28%	6.52%
1/11/2010	11.00%	4.30%	6.70%
1/26/2010	10.13%	4.35%	5.78%
1/27/2010	10.40%	4.35%	6.05%
1/27/2010	10.40%	4.35%	6.05%
1/27/2010	10.70%	4.35%	6.35%
2/9/2010	9.80%	4.38%	5.42%
2/18/2010	10.60%	4.40%	6.20%
2/24/2010	10.18%	4.41%	5.77%
3/2/2010	9.63%	4.41%	5.22%
3/4/2010	10.50%	4.41%	6.09%
3/5/2010	10.50%	4.41%	6.09%
3/11/2010	11.90%	4.42%	7.48%
3/17/2010	10.00%	4.41%	5.59%
3/25/2010	10.15%	4.42%	5.73%
4/2/2010	10.10%	4.43%	5.67%
4/27/2010	10.00%	4.46%	5.54%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
4/29/2010	9.90%	4.46%	5.44%
4/29/2010	10.06%	4.46%	5.60%
4/29/2010	10.26%	4.46%	5.80%
5/12/2010	10.30%	4.45%	5.85%
5/12/2010	10.30%	4.45%	5.85%
5/28/2010	10.10%	4.44%	5.66%
5/28/2010	10.20%	4.44%	5.76%
6/7/2010	10.30%	4.44%	5.86%
6/16/2010	10.00%	4.44%	5.56%
6/28/2010	9.67%	4.43%	5.24%
6/28/2010	10.50%	4.43%	6.07%
6/30/2010	9.40%	4.43%	4.97%
7/1/2010	10.25%	4.43%	5.82%
7/15/2010	10.53%	4.43%	6.10%
7/15/2010	10.70%	4.43%	6.27%
7/30/2010	10.70%	4.41%	6.29%
8/4/2010	10.50%	4.41%	6.09%
8/6/2010	9.83%	4.41%	5.42%
8/25/2010	9.90%	4.37%	5.53%
9/3/2010	10.60%	4.35%	6.25%
9/14/2010	10.70%	4.33%	6.37%
9/16/2010	10.00%	4.33%	5.67%
9/16/2010	10.00%	4.33%	5.67%
9/30/2010	9.75%	4.29%	5.46%
10/14/2010	10.35%	4.24%	6.11%
10/28/2010	10.70%	4.21%	6.49%
11/2/2010	10.38%	4.20%	6.18%
11/4/2010	10.70%	4.20%	6.50%
11/19/2010	10.20%	4.18%	6.02%
11/22/2010	10.00%	4.18%	5.82%
12/1/2010	10.13%	4.16%	5.97%
12/6/2010	9.86%	4.15%	5.71%
12/9/2010	10.25%	4.15%	6.10%
12/13/2010	10.70%	4.15%	6.55%
12/14/2010	10.13%	4.15%	5.98%
12/15/2010	10.44%	4.15%	6.29%
12/17/2010	10.00%	4.15%	5.85%
12/20/2010	10.60%	4.15%	6.45%
12/21/2010	10.30%	4.14%	6.16%
12/27/2010	9.90%	4.14%	5.76%
12/29/2010	11.15%	4.14%	7.01%
1/5/2011	10.15%	4.13%	6.02%
1/12/2011	10.30%	4.12%	6.18%
1/13/2011	10.30%	4.12%	6.18%
1/18/2011	10.00%	4.12%	5.88%
1/20/2011	9.30%	4.12%	5.18%
1/20/2011	10.13%	4.12%	6.01%
1/31/2011	9.60%	4.12%	5.48%
2/3/2011	10.00%	4.12%	5.88%
2/25/2011	10.00%	4.14%	5.86%
3/25/2011	9.80%	4.18%	5.62%
3/30/2011	10.00%	4.18%	5.82%
4/12/2011	10.00%	4.21%	5.79%
4/25/2011	10.74%	4.23%	6.51%
4/26/2011	9.67%	4.23%	5.44%
4/27/2011	10.40%	4.24%	6.16%
5/4/2011	10.00%	4.24%	5.76%
5/4/2011	10.00%	4.24%	5.76%
5/24/2011	10.50%	4.27%	6.23%
6/8/2011	10.75%	4.30%	6.45%
6/16/2011	9.20%	4.32%	4.88%
6/17/2011	9.95%	4.32%	5.63%
7/13/2011	10.20%	4.36%	5.84%
8/1/2011	9.20%	4.39%	4.81%
8/8/2011	10.00%	4.38%	5.62%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
8/11/2011	10.00%	4.38%	5.62%
8/12/2011	10.35%	4.37%	5.98%
8/19/2011	10.25%	4.36%	5.89%
9/2/2011	12.88%	4.32%	8.56%
9/22/2011	10.00%	4.24%	5.76%
10/12/2011	10.30%	4.14%	6.16%
10/20/2011	10.50%	4.10%	6.40%
11/30/2011	10.90%	3.87%	7.03%
11/30/2011	10.90%	3.87%	7.03%
12/14/2011	10.00%	3.80%	6.20%
12/14/2011	10.30%	3.80%	6.50%
12/20/2011	10.20%	3.76%	6.44%
12/21/2011	10.20%	3.76%	6.44%
12/22/2011	9.90%	3.75%	6.15%
12/22/2011	10.40%	3.75%	6.65%
12/23/2011	10.19%	3.74%	6.45%
1/25/2012	10.50%	3.57%	6.93%
1/27/2012	10.50%	3.56%	6.94%
2/15/2012	10.20%	3.47%	6.73%
2/23/2012	9.90%	3.44%	6.46%
2/27/2012	10.25%	3.43%	6.82%
2/29/2012	10.40%	3.41%	6.99%
3/29/2012	10.37%	3.32%	7.05%
4/4/2012	10.00%	3.30%	6.70%
4/26/2012	10.00%	3.21%	6.79%
5/2/2012	10.00%	3.18%	6.82%
5/7/2012	9.80%	3.17%	6.63%
5/15/2012	10.00%	3.14%	6.86%
5/29/2012	10.05%	3.11%	6.94%
6/7/2012	10.30%	3.08%	7.22%
6/14/2012	9.40%	3.06%	6.34%
6/15/2012	10.40%	3.06%	7.34%
6/18/2012	9.60%	3.06%	6.54%
6/19/2012	9.25%	3.05%	6.20%
6/26/2012	10.10%	3.04%	7.06%
6/29/2012	10.00%	3.04%	6.96%
7/9/2012	10.20%	3.03%	7.17%
7/16/2012	9.80%	3.02%	6.78%
7/20/2012	9.31%	3.01%	6.30%
7/20/2012	9.81%	3.01%	6.80%
9/13/2012	9.80%	2.94%	6.86%
9/19/2012	9.80%	2.94%	6.86%
9/19/2012	10.05%	2.94%	7.11%
9/26/2012	9.50%	2.94%	6.56%
10/12/2012	9.60%	2.93%	6.67%
10/23/2012	9.75%	2.93%	6.82%
10/24/2012	10.30%	2.93%	7.37%
11/9/2012	10.30%	2.92%	7.38%
11/28/2012	10.40%	2.90%	7.50%
11/29/2012	9.75%	2.89%	6.86%
11/29/2012	9.88%	2.89%	6.99%
12/5/2012	9.71%	2.89%	6.82%
12/5/2012	10.40%	2.89%	7.51%
12/12/2012	9.80%	2.88%	6.92%
12/13/2012	9.50%	2.88%	6.62%
12/13/2012	10.50%	2.88%	7.62%
12/14/2012	10.40%	2.88%	7.52%
12/19/2012	9.71%	2.87%	6.84%
12/19/2012	10.25%	2.87%	7.38%
12/20/2012	9.50%	2.87%	6.63%
12/20/2012	9.80%	2.87%	6.93%
12/20/2012	10.25%	2.87%	7.38%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
12/20/2012	10.25%	2.87%	7.38%
12/20/2012	10.30%	2.87%	7.43%
12/20/2012	10.40%	2.87%	7.53%
12/20/2012	10.45%	2.87%	7.58%
12/21/2012	10.20%	2.87%	7.33%
12/26/2012	9.80%	2.86%	6.94%
1/9/2013	9.70%	2.85%	6.85%
1/9/2013	9.70%	2.85%	6.85%
1/9/2013	9.70%	2.85%	6.85%
1/16/2013	9.60%	2.84%	6.76%
1/16/2013	9.60%	2.84%	6.76%
2/13/2013	10.20%	2.84%	7.36%
2/22/2013	9.75%	2.85%	6.90%
2/27/2013	10.00%	2.86%	7.14%
3/14/2013	9.30%	2.88%	6.42%
3/27/2013	9.80%	2.90%	6.90%
5/1/2013	9.84%	2.94%	6.90%
5/15/2013	10.30%	2.96%	7.34%
5/30/2013	10.20%	2.98%	7.22%
5/31/2013	9.00%	2.98%	6.02%
6/11/2013	10.00%	3.00%	7.00%
6/21/2013	9.75%	3.02%	6.73%
6/25/2013	9.80%	3.03%	6.77%
7/12/2013	9.36%	3.07%	6.29%
8/8/2013	9.83%	3.14%	6.69%
8/14/2013	9.15%	3.16%	5.99%
9/11/2013	10.20%	3.26%	6.94%
9/11/2013	10.25%	3.26%	6.99%
9/24/2013	10.20%	3.31%	6.89%
10/3/2013	9.65%	3.33%	6.32%
11/6/2013	10.20%	3.41%	6.79%
11/21/2013	10.00%	3.44%	6.56%
11/26/2013	10.00%	3.45%	6.55%
12/3/2013	10.25%	3.47%	6.78%
12/4/2013	9.50%	3.47%	6.03%
12/5/2013	10.20%	3.48%	6.72%
12/9/2013	8.72%	3.48%	5.24%
12/9/2013	9.75%	3.48%	6.27%
12/13/2013	9.75%	3.50%	6.25%
12/16/2013	9.95%	3.50%	6.45%
12/16/2013	9.95%	3.50%	6.45%
12/16/2013	10.12%	3.50%	6.62%
12/17/2013	9.50%	3.51%	5.99%
12/17/2013	10.95%	3.51%	7.44%
12/18/2013	8.72%	3.51%	5.21%
12/18/2013	9.80%	3.51%	6.29%
12/19/2013	10.15%	3.51%	6.64%
12/30/2013	9.50%	3.54%	5.96%
2/20/2014	9.20%	3.68%	5.52%
2/26/2014	9.75%	3.69%	6.06%
3/17/2014	9.55%	3.72%	5.83%
3/26/2014	9.40%	3.73%	5.67%
3/26/2014	9.96%	3.73%	6.23%
4/2/2014	9.70%	3.73%	5.97%
5/16/2014	9.80%	3.70%	6.10%
5/30/2014	9.70%	3.68%	6.02%
6/6/2014	10.40%	3.67%	6.73%
6/30/2014	9.55%	3.64%	5.91%
7/2/2014	9.62%	3.64%	5.98%
7/10/2014	9.95%	3.63%	6.32%
7/23/2014	9.75%	3.61%	6.14%
7/29/2014	9.45%	3.60%	5.85%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
7/31/2014	9.90%	3.60%	6.30%
8/20/2014	9.75%	3.57%	6.18%
8/25/2014	9.60%	3.56%	6.04%
8/29/2014	9.80%	3.54%	6.26%
9/11/2014	9.60%	3.51%	6.09%
9/15/2014	10.25%	3.51%	6.74%
10/9/2014	9.80%	3.45%	6.35%
11/6/2014	9.56%	3.37%	6.19%
11/6/2014	10.20%	3.37%	6.83%
11/14/2014	10.20%	3.35%	6.85%
11/26/2014	9.70%	3.33%	6.37%
11/26/2014	10.20%	3.33%	6.87%
12/4/2014	9.68%	3.31%	6.37%
12/10/2014	9.25%	3.29%	5.96%
12/10/2014	9.25%	3.29%	5.96%
12/11/2014	10.07%	3.29%	6.78%
12/12/2014	10.20%	3.28%	6.92%
12/17/2014	9.17%	3.27%	5.90%
12/18/2014	9.83%	3.26%	6.57%
1/23/2015	9.50%	3.14%	6.36%
2/24/2015	9.83%	3.04%	6.79%
3/18/2015	9.75%	2.98%	6.77%
3/25/2015	9.50%	2.96%	6.54%
3/26/2015	9.72%	2.95%	6.77%
4/23/2015	10.20%	2.87%	7.33%
4/29/2015	9.53%	2.86%	6.67%
5/1/2015	9.60%	2.85%	6.75%
5/26/2015	9.75%	2.83%	6.92%
6/17/2015	9.00%	2.82%	6.18%
6/17/2015	9.00%	2.82%	6.18%
9/2/2015	9.50%	2.79%	6.71%
9/10/2015	9.30%	2.79%	6.51%
10/15/2015	9.00%	2.81%	6.19%
11/19/2015	10.00%	2.88%	7.12%
11/19/2015	10.30%	2.88%	7.42%
12/3/2015	10.00%	2.90%	7.10%
12/9/2015	9.14%	2.90%	6.24%
12/9/2015	9.14%	2.90%	6.24%
12/11/2015	10.30%	2.90%	7.40%
12/15/2015	9.60%	2.91%	6.69%
12/17/2015	9.70%	2.91%	6.79%
12/18/2015	9.50%	2.91%	6.59%
12/30/2015	9.50%	2.93%	6.57%
1/6/2016	9.50%	2.94%	6.56%
2/23/2016	9.75%	2.94%	6.81%
3/16/2016	9.85%	2.91%	6.94%
4/29/2016	9.80%	2.83%	6.97%
6/3/2016	9.75%	2.80%	6.95%
6/8/2016	9.48%	2.80%	6.68%
6/15/2016	9.00%	2.78%	6.22%
6/15/2016	9.00%	2.78%	6.22%
7/18/2016	9.98%	2.71%	7.27%
8/9/2016	9.85%	2.66%	7.19%
8/18/2016	9.50%	2.63%	6.87%
8/24/2016	9.75%	2.62%	7.13%
9/1/2016	9.50%	2.59%	6.91%
9/8/2016	10.00%	2.58%	7.42%
9/28/2016	9.58%	2.54%	7.04%
9/30/2016	9.90%	2.53%	7.37%
11/9/2016	9.80%	2.48%	7.32%
11/10/2016	9.50%	2.48%	7.02%
11/15/2016	9.55%	2.49%	7.06%

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
11/18/2016	10.00%	2.50%	7.50%
11/29/2016	10.55%	2.51%	8.04%
12/1/2016	10.00%	2.51%	7.49%
12/6/2016	8.64%	2.52%	6.12%
12/6/2016	8.64%	2.52%	6.12%
12/7/2016	10.10%	2.52%	7.58%
12/12/2016	9.60%	2.53%	7.07%
12/14/2016	9.10%	2.53%	6.57%
12/19/2016	9.00%	2.54%	6.46%
12/19/2016	9.37%	2.54%	6.83%
12/22/2016	9.60%	2.55%	7.05%
12/22/2016	9.90%	2.55%	7.35%
12/28/2016	9.50%	2.55%	6.95%
1/18/2017	9.45%	2.58%	6.87%
1/24/2017	9.00%	2.59%	6.41%
1/31/2017	10.10%	2.60%	7.50%
2/15/2017	9.60%	2.62%	6.98%
2/22/2017	9.60%	2.64%	6.96%
2/24/2017	9.75%	2.64%	7.11%
2/28/2017	10.10%	2.64%	7.46%
3/2/2017	9.41%	2.65%	6.76%
3/20/2017	9.50%	2.68%	6.82%
4/4/2017	10.25%	2.71%	7.54%
4/12/2017	9.40%	2.74%	6.66%
4/20/2017	9.50%	2.76%	6.74%
5/3/2017	9.50%	2.79%	6.71%
5/11/2017	9.20%	2.81%	6.39%
5/18/2017	9.50%	2.83%	6.67%
5/23/2017	9.70%	2.84%	6.86%
6/16/2017	9.65%	2.89%	6.76%
6/22/2017	9.70%	2.90%	6.80%
6/22/2017	9.70%	2.90%	6.80%
7/24/2017	9.50%	2.95%	6.55%
8/15/2017	10.00%	2.97%	7.03%
9/22/2017	9.60%	2.93%	6.67%
9/28/2017	9.80%	2.92%	6.88%
10/20/2017	9.50%	2.91%	6.59%
10/26/2017	10.20%	2.91%	7.29%
10/26/2017	10.25%	2.91%	7.34%
10/26/2017	10.30%	2.91%	7.39%
11/6/2017	10.25%	2.90%	7.35%
11/15/2017	11.95%	2.89%	9.06%
11/30/2017	10.00%	2.88%	7.12%
11/30/2017	10.00%	2.88%	7.12%
12/5/2017	9.50%	2.88%	6.62%
12/6/2017	8.40%	2.87%	5.53%
12/6/2017	8.40%	2.87%	5.53%
12/7/2017	9.80%	2.87%	6.93%
12/14/2017	9.60%	2.86%	6.74%
12/14/2017	9.65%	2.86%	6.79%
12/18/2017	9.50%	2.86%	6.64%
12/20/2017	9.58%	2.86%	6.72%
12/21/2017	9.10%	2.85%	6.25%
12/28/2017	9.50%	2.85%	6.65%
12/29/2017	9.51%	2.85%	6.66%
1/18/2018	9.70%	2.84%	6.86%
1/31/2018	9.30%	2.84%	6.46%
2/2/2018	9.98%	2.84%	7.14%
2/23/2018	9.90%	2.85%	7.05%
3/12/2018	9.25%	2.86%	6.39%
3/15/2018	9.00%	2.87%	6.13%
3/29/2018	10.00%	2.88%	7.12%
4/12/2018	9.90%	2.89%	7.01%
4/13/2018	9.73%	2.89%	6.84%



Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
4/18/2018	9.25%	2.89%	6.36%
4/18/2018	10.00%	2.89%	7.11%
4/26/2018	9.50%	2.90%	6.60%
5/30/2018	9.95%	2.94%	7.01%
5/31/2018	9.50%	2.94%	6.56%
6/14/2018	8.80%	2.96%	5.84%
6/22/2018	9.50%	2.97%	6.53%
6/22/2018	9.90%	2.97%	6.93%
6/28/2018	9.35%	2.97%	6.38%
6/29/2018	9.50%	2.97%	6.53%
8/8/2018	9.53%	2.99%	6.54%
8/21/2018	9.70%	3.00%	6.70%
8/24/2018	9.28%	3.01%	6.27%
9/5/2018	9.10%	3.02%	6.08%
9/14/2018	10.00%	3.03%	6.97%
9/20/2018	9.80%	3.04%	6.76%
9/26/2018	9.77%	3.05%	6.72%
9/26/2018	10.00%	3.05%	6.95%
9/27/2018	9.30%	3.05%	6.25%
10/4/2018	9.85%	3.06%	6.79%
10/29/2018	9.60%	3.10%	6.50%
10/31/2018	9.99%	3.11%	6.88%
11/1/2018	8.69%	3.11%	5.58%
12/4/2018	8.69%	3.14%	5.55%
12/13/2018	9.30%	3.14%	6.16%
12/14/2018	9.50%	3.14%	6.36%
12/19/2018	9.84%	3.14%	6.70%
12/20/2018	9.65%	3.14%	6.51%
12/21/2018	9.30%	3.14%	6.16%
1/9/2019	10.00%	3.14%	6.86%
		# of Cases:	1580
		Average:	4.66%

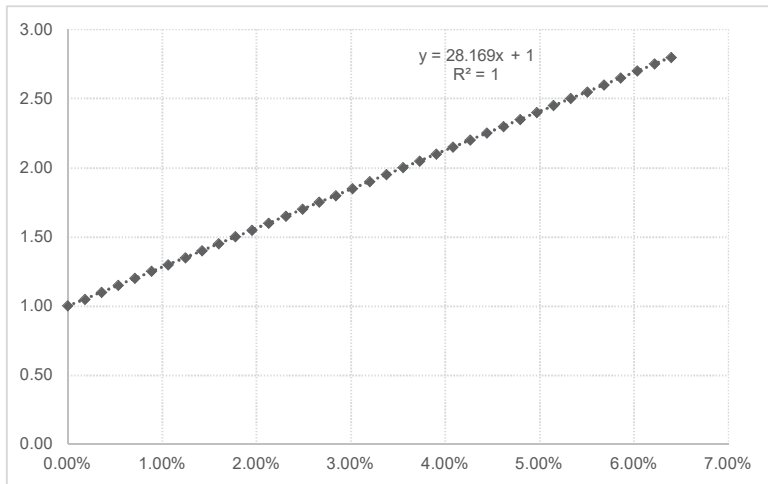
Summary of Recently Authorized ROEs for Vertically Integrated Electric Utilities

State	Company	Docket	Date	Authorized ROE	RRA Ranking
Washington	Avista Corp.	D-UE-150204	1/6/2016	9.50%	Average / 3
Arkansas	Entergy Arkansas Inc.	D-15-015-U	2/23/2016	9.75%	Average / 1
Indiana	Indianapolis Power & Light Co.	Ca-44576	3/16/2016	9.85%	Average / 1
New Mexico	El Paso Electric Co.	C-15-00127-UT	6/8/2016	9.48%	Below Average / 2
Indiana	Northern IN Public Svc Co.	Ca-44688	7/18/2016	9.98%	Average / 1
Tennessee	Kingsport Power Company	D-16-00001	8/9/2016	9.85%	Above Average / 3
Arizona	UNS Electric Inc.	D-E-04204A-15-0142	8/18/2016	9.50%	Average / 3
Washington	PacificCorp	D-UE-152253	9/1/2016	9.50%	Average / 3
Michigan	Upper Peninsula Power Co.	C-U-17895	9/8/2016	10.00%	Above Average / 3
New Mexico	Public Service Co. of NM	C-15-00261-UT	9/28/2016	9.58%	Below Average / 2
Wisconsin	Madison Gas and Electric Co.	D-3270-UR-121 (Elec)	11/9/2016	9.80%	Above Average / 2
Oklahoma	Public Service Co. of OK	Ca-PUD201500208	11/10/2016	9.50%	Average / 3
Wisconsin	Wisconsin Power and Light Co	D-6680-UR-120 (Elec)	11/18/2016	10.00%	Above Average / 2
Florida	Florida Power & Light Co.	D-160021-EI	11/29/2016	10.55%	Above Average / 2
California	Liberty Utilities CalPeco Ele	A-15-05-008	12/1/2016	10.00%	Average / 1
South Carolina	Duke Energy Progress LLC	D-2016-227-E	12/7/2016	10.10%	Average / 3
Colorado	Black Hills Colorado Electric	D-16AL-0326E	12/19/2016	9.37%	Average / 2
Nevada	Sierra Pacific Power Co.	D-16-06006	12/22/2016	9.60%	Average / 2
North Carolina	Virginia Electric & Power Co.	D-E-22, Sub 532	12/22/2016	9.90%	Average / 1
Idaho	Avista Corp.	C-AVU-E-16-03	12/28/2016	9.50%	Average / 2
Wyoming	MDU Resources Group Inc.	D-20004-117-ER-16	1/18/2017	9.45%	Average / 3
Michigan	DTE Electric Co.	C-U-18014	1/31/2017	10.10%	Above Average / 3
Arizona	Tucson Electric Power Co.	D-E-01933A-15-0322	2/24/2017	9.75%	Average / 3
Michigan	Consumers Energy Co.	C-U-17990	2/28/2017	10.10%	Above Average / 3
Minnesota	Otter Tail Power Co.	D-E-017/GR-15-1033	3/2/2017	9.41%	Average / 2
Oklahoma	Oklahoma Gas and Electric Co.	Ca-PUD201500273	3/20/2017	9.50%	Average / 3
Florida	Gulf Power Co.	D-160186-EI	4/4/2017	10.25%	Above Average / 2
Missouri	Kansas City Power & Light	C-ER-2016-0285	5/3/2017	9.50%	Average / 3
Minnesota	Northern States Power Co. - MN	D-E-002/GR-15-826	5/11/2017	9.20%	Average / 2
Arkansas	Oklahoma Gas and Electric Co.	D-16-052-U	5/18/2017	9.50%	Average / 1
North Dakota	MDU Resources Group Inc.	C-PU-16-666	6/16/2017	9.65%	Average / 1
Kentucky	Kentucky Utilities Co.	C-2016-00370	6/22/2017	9.70%	Average / 1
Kentucky	Louisville Gas & Electric Co.	C-2016-00371 (elec.)	6/22/2017	9.70%	Average / 1
Arizona	Arizona Public Service Co.	D-E-01345A-16-0036	8/15/2017	10.00%	Average / 3
California	San Diego Gas & Electric Co.	Advice No. 3120-E	10/26/2017	10.20%	Average / 1
California	Pacific Gas and Electric Co.	Advice No. 3887-G/5148-E	10/26/2017	10.25%	Average / 1
California	Southern California Edison Co.	Advice No. 3665-E	10/26/2017	10.30%	Average / 1
Florida	Tampa Electric Co.	D-20170210-EI	11/6/2017	10.25%	Above Average / 2
Alaska	Alaska Electric Light Power	D-U-16-086	11/15/2017	11.95%	Below Average / 1
Washington	Puget Sound Energy Inc.	D-UE-170033	12/5/2017	9.50%	Average / 3
Wisconsin	Northern States Power Co - WI	D-4220-UR-123 (Elec)	12/7/2017	9.80%	Above Average / 2
Texas	Southwestern Electric Power Co	D-46449	12/14/2017	9.60%	Average / 3
Texas	El Paso Electric Co.	D-46831	12/14/2017	9.65%	Average / 3
Oregon	Portland General Electric Co.	D-UE-319	12/18/2017	9.50%	Average / 2
New Mexico	Public Service Co. of NM	C-16-00276-UT	12/20/2017	9.58%	Below Average / 2
Vermont	Green Mountain Power Corp.	C-17-3112-INV	12/21/2017	9.10%	Average / 3
Idaho	Avista Corp.	D-AVU-E-17-01	12/28/2017	9.50%	Average / 2
Nevada	Nevada Power Co.	D-17-06003	12/29/2017	9.51%	Average / 2
Kentucky	Kentucky Power Co.	C-2017-00179	1/18/2018	9.70%	Average / 1
Oklahoma	Public Service Co. of OK	Ca-PUD201700151	1/31/2018	9.30%	Average / 3
Iowa	Interstate Power & Light Co.	D-RPU-2017-0001	2/2/2018	9.98%	Average / 1
North Carolina	Duke Energy Progress LLC	D-E-2, Sub 1142	2/23/2018	9.90%	Average / 1
Minnesota	ALLETE (Minnesota Power)	D-E-015/GR-16-664	3/12/2018	9.25%	Average / 2
Michigan	Consumers Energy Co.	C-U-18322	3/29/2018	10.00%	Above Average / 3
Michigan	Indiana Michigan Power Co.	C-U-18370	4/12/2018	9.90%	Above Average / 3
Kentucky	Duke Energy Kentucky Inc.	C-2017-00321	4/13/2018	9.73%	Average / 1
Michigan	DTE Electric Co.	C-U-18255	4/18/2018	10.00%	Above Average / 3
Washington	Avista Corp.	D-UE-170485	4/26/2018	9.50%	Average / 3
Indiana	Indiana Michigan Power Co.	Ca-44967	5/30/2018	9.95%	Average / 1
Hawaii	Hawaiian Electric Co.	D-2016-0328	6/22/2018	9.50%	Average / 2
North Carolina	Duke Energy Carolinas LLC	D-E-7, Sub 1146	6/22/2018	9.90%	Average / 1
Hawaii	Hawaii Electric Light Co	D-2015-0170	6/29/2018	9.50%	Average / 2
New Mexico	Southwestern Public Service Co	C-17-00255-UT	9/5/2018	9.10%	Below Average / 2
Wisconsin	Wisconsin Power and Light Co	D-6680-UR-121 (Elec)	9/14/2018	10.00%	Above Average / 2
Wisconsin	Madison Gas and Electric Co.	D-3270-UR-122 (Elec)	9/20/2018	9.80%	Above Average / 2
North Dakota	Otter Tail Power Co.	C-PU-17-398	9/26/2018	9.77%	Average / 1
Kansas	Westar Energy Inc.	D-18-WSEE-328-RTS	9/27/2018	9.30%	Below Average / 1
Indiana	Indianapolis Power & Light Co.	Ca-45029	10/31/2018	9.99%	Average / 1
Kansas	Kansas City Power & Light	D-18-KCPE-480-RTS	12/13/2018	9.30%	Below Average / 1
Oregon	Portland General Electric Co.	D-UE-335	12/14/2018	9.50%	Average / 2
Michigan	Consumers Energy Co.	C-U-20134	1/9/2019	10.00%	Above Average / 3

	Authorized ROE / RRA Ranking		
	Min	Max	Median
Above Average	9.80%	10.55%	10.00%
Average	9.10%	10.30%	9.60%
Below Average	9.10%	11.95%	9.48%

"Excess Returns" Analysis

DIV/SHR	PRICE	M/B	BOOK VALUE	DIV YLD	BOOK YLD	XROE	XROE (BY - DY)
\$1.75	\$49.30	1.00	\$49.30	3.55%	3.55%	0.00%	0.00%
\$1.75	\$49.30	1.05	\$46.95	3.55%	3.73%	0.18%	0.18%
\$1.75	\$49.30	1.10	\$44.81	3.55%	3.91%	0.36%	0.36%
\$1.75	\$49.30	1.15	\$42.87	3.55%	4.08%	0.53%	0.53%
\$1.75	\$49.30	1.20	\$41.08	3.55%	4.26%	0.71%	0.71%
\$1.75	\$49.30	1.25	\$39.44	3.55%	4.44%	0.89%	0.89%
\$1.75	\$49.30	1.30	\$37.92	3.55%	4.62%	1.07%	1.07%
\$1.75	\$49.30	1.35	\$36.52	3.55%	4.79%	1.24%	1.24%
\$1.75	\$49.30	1.40	\$35.21	3.55%	4.97%	1.42%	1.42%
\$1.75	\$49.30	1.45	\$34.00	3.55%	5.15%	1.60%	1.60%
\$1.75	\$49.30	1.50	\$32.86	3.55%	5.33%	1.78%	1.78%
\$1.75	\$49.30	1.55	\$31.80	3.55%	5.50%	1.95%	1.95%
\$1.75	\$49.30	1.60	\$30.81	3.55%	5.68%	2.13%	2.13%
\$1.75	\$49.30	1.65	\$29.88	3.55%	5.86%	2.31%	2.31%
\$1.75	\$49.30	1.70	\$29.00	3.55%	6.04%	2.49%	2.49%
\$1.75	\$49.30	1.75	\$28.17	3.55%	6.21%	2.66%	2.66%
\$1.75	\$49.30	1.80	\$27.39	3.55%	6.39%	2.84%	2.84%
\$1.75	\$49.30	1.85	\$26.65	3.55%	6.57%	3.02%	3.02%
\$1.75	\$49.30	1.90	\$25.95	3.55%	6.75%	3.20%	3.20%
\$1.75	\$49.30	1.95	\$25.28	3.55%	6.92%	3.37%	3.37%
\$1.75	\$49.30	2.00	\$24.65	3.55%	7.10%	3.55%	3.55%
\$1.75	\$49.30	2.05	\$24.05	3.55%	7.28%	3.73%	3.73%
\$1.75	\$49.30	2.10	\$23.47	3.55%	7.46%	3.91%	3.91%
\$1.75	\$49.30	2.15	\$22.93	3.55%	7.63%	4.08%	4.08%
\$1.75	\$49.30	2.20	\$22.41	3.55%	7.81%	4.26%	4.26%
\$1.75	\$49.30	2.25	\$21.91	3.55%	7.99%	4.44%	4.44%
\$1.75	\$49.30	2.30	\$21.43	3.55%	8.17%	4.62%	4.62%
\$1.75	\$49.30	2.35	\$20.98	3.55%	8.34%	4.79%	4.79%
\$1.75	\$49.30	2.40	\$20.54	3.55%	8.52%	4.97%	4.97%
\$1.75	\$49.30	2.45	\$20.12	3.55%	8.70%	5.15%	5.15%
\$1.75	\$49.30	2.50	\$19.72	3.55%	8.88%	5.33%	5.33%
\$1.75	\$49.30	2.55	\$19.33	3.55%	9.05%	5.50%	5.50%
\$1.75	\$49.30	2.60	\$18.96	3.55%	9.23%	5.68%	5.68%
\$1.75	\$49.30	2.65	\$18.60	3.55%	9.41%	5.86%	5.86%
\$1.75	\$49.30	2.70	\$18.26	3.55%	9.58%	6.03%	6.04%
\$1.75	\$49.30	2.75	\$17.93	3.55%	9.76%	6.21%	6.21%
\$1.75	\$49.30	2.80	\$17.61	3.55%	9.94%	6.39%	6.39%



Growth Rate Regression Analysis

Company	Ticker	Trailing P/E	Proj. Earnings Growth Rate	Proj. Dividend/ Distrib. Growth Rate	Proj. Book Value Growth Rate	Proj. Retained to Common Equity
ALLETE, Inc.	ALE	29.10	3.50%	4.50%	3.50%	3.00%
Alliant Energy Corporation	LNT	20.70	6.50%	6.00%	5.00%	4.00%
Ameren Corporation	AEE	20.40	7.50%	5.50%	4.50%	4.50%
American Electric Power Company, Inc.	AEP	19.80	4.50%	6.00%	4.00%	4.00%
Avangrid, Inc.	AGR	29.00	12.00%	5.50%	1.50%	2.00%
Avista Corporation	AVA	20.90	5.50%	4.00%	3.00%	3.00%
Black Hills Corporation	BKH	18.10	6.50%	6.00%	6.00%	4.00%
CenterPoint Energy, Inc.	CNP	28.30	3.50%	2.00%	5.50%	2.00%
CMS Energy Corporation	CMS	21.40	7.00%	7.00%	7.00%	5.50%
Consolidated Edison, Inc.	ED	18.10	3.00%	3.50%	3.50%	2.50%
Dominion Energy Inc.	D	21.70	6.50%	7.00%	8.00%	2.00%
DTE Energy Company	DTE	19.40	7.50%	6.50%	5.50%	4.50%
Duke Energy Corporation	DUK	20.20	5.50%	4.00%	2.00%	2.00%
Edison International	EIX	12.70	4.50%	5.50%	4.00%	6.50%
El Paso Electric Company	EE	18.70	3.00%	7.00%	3.50%	3.00%
Entergy Corporation	ETR	17.00	1.00%	2.00%	3.00%	4.50%
Exelon Corporation	EXC	22.70	7.50%	5.00%	5.50%	5.50%
FirstEnergy Corp.	FE	32.50	6.50%	4.00%	1.50%	8.00%
Eergy, Inc.	EVRG	NMF	NMF	NMF	NMF	3.50%
Hawaiian Electric Industries, Inc.	HE	19.70	3.50%	2.00%	4.00%	3.50%
IDACORP, Inc.	IDA	19.80	4.50%	6.50%	4.50%	4.00%
MGE Energy, Inc.	MGEE	27.20	7.50%	5.00%	9.50%	5.00%
NextEra Energy, Inc.	NEE	26.20	9.00%	10.50%	7.00%	5.00%
Eversource Energy	ES	21.20	5.50%	6.00%	4.00%	3.50%
NorthWestern Corporation	NWE	18.30	2.50%	4.50%	3.50%	3.00%
OGE Energy Corp.	OGE	18.70	6.00%	8.00%	4.00%	3.50%
Otter Tail Corporation	OTTR	21.70	9.00%	3.50%	7.50%	5.00%
PG&E Corporation	PCG	NMF	7.50%	2.00%	6.50%	4.50%
Pinnacle West Capital Corporation	PNW	18.40	6.00%	6.00%	4.00%	4.00%
PNM Resources, Inc.	PNM	20.50	7.50%	7.00%	4.00%	4.50%
Portland General Electric Company	POR	18.10	4.00%	6.00%	3.50%	3.00%
PPL Corporation	PPL	12.00	3.00%	2.50%	5.50%	5.00%
Public Service Enterprise Group Incorporated	PEG	19.20	4.50%	5.00%	4.50%	5.00%
Sempra Energy	SRE	20.80	9.50%	8.50%	5.00%	4.50%
Southern Company	SO	14.50	3.50%	3.00%	3.00%	3.50%
Vectren Corporation	VVC	27.30	5.50%	6.50%	5.50%	4.00%
WEC Energy Group, Inc.	WEC	21.50	7.00%	6.00%	3.50%	4.00%
Xcel Energy Inc.	XEL	20.20	5.50%	5.50%	4.50%	4.00%

Notes:

Source: Value Line Reports as of February 15, 2019

Growth Rate Regression Analysis

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.432927
R Square	0.187426
Adjusted R Square	0.163527
Standard Error	4.075650
Observations	36

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	130.268516	130.268516	7.842339	0.008357
Residual	34	564.771484	16.610926		
Total	35	695.040000			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	16.164232	1.855603	8.711041	0.000000	12.393194	19.935270
Proj. Earnings Growth Rate	84.920806	30.324336	2.800418	0.008357	23.294341	146.547270

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.110558
R Square	0.012223
Adjusted R Square	-0.016829
Standard Error	4.493605
Observations	36

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	8.495463	8.495463	0.420724	0.520933
Residual	34	686.544537	20.192486		
Total	35	695.040000			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	19.589934	2.299297	8.519966	0.000000	14.917200	24.262669
Proj. Dividend Growth Rate	26.301742	40.549536	0.648632	0.520933	-56.104831	108.708314

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.071194
R Square	0.005069
Adjusted R Square	-0.024194
Standard Error	4.509849
Observations	36

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	3.522876	3.522876	0.173210	0.679890
Residual	34	691.517124	20.338739		
Total	35	695.040000			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	20.168845	2.133844	9.451885	0.000000	15.832353	24.505337
Proj. Book Value Growth Rate	18.300654	43.972377	0.416185	0.679890	-71.061968	107.663276

Growth Rate Regression Analysis

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.025318
R Square	0.000641
Adjusted R Square	-0.028752
Standard Error	4.519873
Observations	36

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.445513	0.445513	0.021808	0.883472
Residual	34	694.594487	20.429250		
Total	35	695.040000			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	20.645893	2.513440	8.214199	0.000000	15.537969	25.753818
Proj. Retained to Common Equity	8.822031	59.739943	0.147674	0.883472	-112.584140	130.228202

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.458287
R Square	0.210027
Adjusted R Square	0.108095
Standard Error	4.208528
Observations	36

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	145.977156	36.494289	2.060462	0.110137
Residual	31	549.062844	17.711705		
Total	35	695.040000			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	18.05290	3.17110	5.69295	0.00000	11.58540	24.52040
Proj. Earnings Growth Rate	104.44206	37.66839	2.77267	0.00932	27.61688	181.26724
Proj. Dividend Growth Rate	-38.04275	45.28721	-0.84003	0.40732	-130.40662	54.32112
Proj. Book Value Growth Rate	-5.46963	43.56109	-0.12556	0.90089	-94.31306	83.37380
Proj. Retained to Common Equity	-17.74757	57.08617	-0.31089	0.75796	-134.17559	98.68045

Retention Ratio Regression Analysis

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.44825419
R Square	0.20093182
Adjusted R Square	0.19421696
Standard Error	0.41731722
Observations	121

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	5.211280369	5.211280369	29.92346159	2.52462E-07
Residual	119	20.72428559	0.17415366		
Total	120	25.93556596			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0.233	0.039	5.969	0.000	0.156	0.311
Retention Ratio	-0.253	0.046	-5.470	0.000	-0.344	-0.161

Date	Ticker	Payout Ratio	Retention Ratio	5-year Fwd EPS Growth
2004	ALE	22.22%	77.78%	13.03%
2005	ALE	50.40%	49.60%	-0.53%
2006	ALE	52.35%	47.65%	1.33%
2007	ALE	53.25%	46.75%	-1.44%
2008	ALE	60.99%	39.01%	0.64%
2009	ALE	93.12%	6.88%	9.29%
2010	ALE	80.37%	19.63%	9.42%
2011	ALE	67.17%	32.83%	3.80%
2012	ALE	71.32%	28.68%	4.27%
1996	LNT	86.78%	13.22%	6.92%
1997	LNT	105.26%	-5.26%	-0.07%
1998	LNT	158.73%	-58.73%	13.28%
1999	LNT	91.32%	8.68%	2.08%
2000	LNT	80.97%	19.03%	3.42%
2001	LNT	82.64%	17.36%	2.46%
2002	LNT	169.49%	-69.49%	18.83%
2003	LNT	63.69%	36.31%	11.10%
2004	LNT	55.14%	44.86%	2.50%
2005	LNT	47.51%	52.49%	7.55%
2006	LNT	55.83%	44.17%	8.91%
2007	LNT	47.21%	52.79%	4.97%
2008	LNT	55.12%	44.88%	7.73%
2009	LNT	78.95%	21.05%	13.86%
2010	LNT	57.45%	42.55%	4.34%
2011	LNT	61.82%	38.18%	3.86%
2012	LNT	59.02%	40.98%	5.80%
1996	BKH	65.71%	34.29%	20.76%
1997	BKH	63.76%	36.24%	13.10%
1998	BKH	62.50%	37.50%	7.41%
1999	BKH	61.18%	38.82%	5.08%
2000	BKH	45.57%	54.43%	1.45%
2001	BKH	32.75%	67.25%	-6.47%
2002	BKH	49.79%	50.21%	4.16%
2003	BKH	65.22%	34.78%	-10.29%

Date	Ticker	Payout Ratio	Retention Ratio	5-year Fwd EPS Growth
2004	BKH	71.26%	28.74%	228.58%
2005	BKH	60.66%	39.34%	218.63%
2006	BKH	59.73%	40.27%	209.85%
2007	BKH	51.12%	48.88%	224.61%
2008	BKH	777.78%	-677.78%	249.76%
2009	BKH	61.21%	38.79%	14.13%
2010	BKH	86.75%	13.25%	19.41%
2011	BKH	144.55%	-44.55%	25.82%
2012	BKH	75.13%	24.87%	12.52%
2011	EE	26.61%	73.39%	-0.24%
2012	EE	42.92%	57.08%	1.79%
1996	HE	93.08%	6.92%	4.99%
1997	HE	88.41%	11.59%	4.01%
1998	HE	83.78%	16.22%	2.06%
1999	HE	85.52%	14.48%	-0.31%
2000	HE	97.64%	2.36%	3.64%
2001	HE	77.50%	22.50%	-3.34%
2002	HE	76.54%	23.46%	-6.90%
2003	HE	78.48%	21.52%	-7.12%
2004	HE	91.18%	8.82%	-7.33%
2005	HE	84.93%	15.07%	-2.21%
2006	HE	93.23%	6.77%	3.38%
2007	HE	111.71%	-11.71%	9.88%
2008	HE	115.89%	-15.89%	10.00%
2009	HE	136.26%	-36.26%	13.24%
2010	HE	102.48%	-2.48%	4.94%
2011	HE	86.11%	13.89%	11.67%
2012	HE	74.25%	25.75%	2.80%
1996	IDA	84.16%	15.84%	9.88%
1997	IDA	80.17%	19.83%	-1.38%
1998	IDA	78.48%	21.52%	-10.03%
1999	IDA	76.54%	23.46%	9.04%
2000	IDA	53.14%	46.86%	-1.34%
2001	IDA	55.52%	44.48%	6.37%
2002	IDA	114.11%	-14.11%	12.47%
2003	IDA	177.08%	-77.08%	24.13%
2004	IDA	63.16%	36.84%	8.77%
2005	IDA	68.57%	31.43%	12.70%
2006	IDA	51.06%	48.94%	8.62%
2007	IDA	64.52%	35.48%	12.85%
2008	IDA	55.05%	44.95%	11.01%
2009	IDA	45.45%	54.55%	7.94%
2010	IDA	40.68%	59.32%	5.70%
2011	IDA	35.71%	64.29%	3.28%
2012	IDA	40.65%	59.35%	4.59%
2005	NWE	58.48%	41.52%	5.90%
2006	NWE	94.66%	5.34%	14.23%
2007	NWE	88.89%	11.11%	10.11%
2008	NWE	74.58%	25.42%	7.29%
2009	NWE	66.34%	33.66%	8.78%
2010	NWE	63.55%	36.45%	6.99%
2011	NWE	56.92%	43.08%	6.72%
2012	NWE	65.49%	34.51%	8.56%
1996	OGE	82.72%	17.28%	-2.52%
1997	OGE	82.72%	17.28%	-0.37%
1998	OGE	65.69%	34.31%	-1.39%
1999	OGE	69.07%	30.93%	0.05%



Date	Ticker	Payout Ratio	Retention Ratio	5-year Fwd EPS Growth
2000	OGE	70.53%	29.47%	1.14%
2001	OGE	103.08%	-3.08%	14.19%
2002	OGE	93.06%	6.94%	13.50%
2003	OGE	77.01%	22.99%	8.28%
2004	OGE	75.28%	24.72%	9.10%
2005	OGE	72.83%	27.17%	10.98%
2006	OGE	54.47%	45.53%	7.31%
2007	OGE	51.52%	48.48%	6.54%
2008	OGE	56.00%	44.00%	9.27%
2009	OGE	53.38%	46.62%	8.41%
2010	OGE	48.67%	51.33%	2.92%
2011	OGE	43.93%	56.07%	-0.15%
2012	OGE	44.69%	55.31%	1.88%
1996	PNM	20.87%	79.13%	20.65%
1997	PNM	33.60%	66.40%	7.11%
1998	PNM	34.00%	66.00%	4.60%
1999	PNM	41.09%	58.91%	12.27%
2000	PNM	34.19%	65.81%	10.06%
2001	PNM	20.31%	79.69%	-1.57%
2002	PNM	53.27%	46.73%	-0.93%
2003	PNM	53.04%	46.96%	-19.53%
2004	PNM	44.06%	55.94%	61.06%
2005	PNM	50.64%	49.36%	69.24%
2006	PNM	50.00%	50.00%	72.01%
2007	PNM	119.74%	-19.74%	87.44%
2008	PNM	554.55%	-454.55%	106.07%
2009	PNM	86.21%	13.79%	21.18%
2010	PNM	57.47%	42.53%	11.59%
2011	PNM	46.30%	53.70%	6.50%
2012	PNM	44.27%	55.73%	8.54%

Retention Ratio Regression Analysis

Company	Ticker	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
ALLETE, Inc.	ALE	Earnings Per Share	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.35	2.48	2.77	3.08	2.82	1.89	2.19	2.65	2.58	2.63	2.90	3.38	3.14	3.13	
		Dividends Per Share	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.30	1.25	1.45	1.64	1.72	1.76	1.78	1.84	1.90	1.96	2.02	2.08	2.14	
		Payout Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22.22%	50.40%	52.35%	53.25%	60.99%	93.12%	80.37%	67.17%	71.32%	72.24%	67.59%	59.76%	66.24%	68.37%
		Annual Earnings Growth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	83.70%	11.69%	11.19%	-8.44%	-32.98%	15.87%	21.00%	-2.64%	1.94%	10.27%	16.55%	-7.10%	-0.32%
		Syr Avg Fwd EPS Growth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13.03%	-0.53%	1.33%	-1.44%	0.64%	9.29%	9.42%	3.80%	4.27%	N/A	N/A	N/A	N/A	N/A
Alliant Energy Corporation	LNT	Earnings Per Share	1.14	0.95	0.63	1.10	1.24	1.21	0.59	0.33	1.11	1.03	1.35	1.27	0.95	1.38	1.55	1.85	1.74	1.68	1.68	1.68	1.59	
		Dividends Per Share	0.99	1.00	1.00	1.00	1.00	1.00	0.50	0.51	0.53	0.58	0.64	0.70	0.75	0.79	0.85	0.90	0.94	1.02	1.10	1.18	1.26	
		Payout Ratio	86.78%	105.26%	158.73%	91.32%	80.97%	82.64%	169.49%	63.69%	55.14%	47.51%	56.31%	47.41%	55.12%	78.95%	57.25%	61.59%	58.82%	56.97%	58.62%	65.09%	71.52%	63.32%
		Annual Earnings Growth	N/A	-16.30%	-33.68%	73.81%	12.79%	-2.02%	-51.24%	33.05%	17.83%	19.46%	-6.79%	31.07%	-5.93%	-25.20%	45.26%	0.00%	10.87%	7.84%	5.45%	-2.87%	-2.37%	20.61%
		Syr Avg Fwd EPS Growth	6.92%	-0.07%	13.28%	2.08%	3.42%	2.46%	18.93%	11.13%	2.52%	7.68%	9.04%	5.00%	7.76%	13.89%	4.26%	3.79%	5.73%	N/A	N/A	N/A	N/A	N/A
Black Hills Corporation	BKH	Earnings Per Share	1.40	1.49	1.60	1.70	2.37	3.42	2.33	1.84	1.74	2.11	2.21	2.68	0.18	2.32	1.66	1.01	1.97	2.61	2.89	2.83	2.63	3.38
		Dividends Per Share	0.92	0.95	1.00	1.04	1.08	1.12	1.16	1.20	1.24	1.28	1.32	1.37	1.40	1.42	1.44	1.46	1.48	1.52	1.56	1.62	1.68	1.81
		Payout Ratio	65.71%	63.76%	62.50%	61.18%	45.57%	32.75%	49.79%	65.22%	71.26%	60.66%	59.73%	51.12%	77.78%	61.21%	86.75%	144.55%	75.13%	58.24%	53.98%	57.24%	63.88%	53.55%
		Annual Earnings Growth	N/A	6.43%	7.38%	6.25%	39.41%	44.30%	-31.87%	-21.03%	-5.43%	21.26%	4.74%	21.27%	-93.28%	1188.89%	-28.45%	-39.16%	95.05%	32.49%	10.73%	-2.08%	-7.07%	28.52%
		Syr Avg Fwd EPS Growth	20.76%	13.10%	7.41%	5.08%	1.45%	-6.47%	4.16%	-10.29%	228.58%	218.63%	209.85%	224.61%	249.76%	14.13%	19.41%	25.82%	12.52%	N/A	N/A	N/A	N/A	N/A
El Paso Electric	EE	Earnings Per Share	0.52	0.61	0.70	0.86	1.09	1.27	0.57	0.64	0.69	0.76	1.27	1.63	1.73	1.50	2.07	2.48	2.26	2.20	2.27	2.03	2.39	2.42
		Dividends Per Share	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.97	1.05	1.11	1.23	
		Payout Ratio	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	26.61%	42.92%	47.73%	48.90%	57.64%	51.46%
		Annual Earnings Growth	N/A	17.31%	14.75%	22.86%	26.74%	16.51%	-55.12%	12.28%	7.81%	10.14%	67.11%	28.35%	6.13%	-13.29%	38.00%	19.81%	-8.87%	-2.65%	3.18%	-10.57%	17.73%	1.26%
		Syr Avg Fwd EPS Growth	19.64%	5.15%	4.66%	1.65%	-1.07%	8.45%	25.14%	23.91%	19.69%	25.26%	15.80%	8.36%	6.60%	9.89%	0.18%	-0.24%	1.79%	N/A	N/A	N/A	N/A	N/A
Hawaiian Electric Industries, Inc.	HE	Earnings Per Share	1.30	1.38	1.48	1.45	1.27	1.50	1.62	1.58	1.36	1.46	1.33	1.11	1.07	0.91	1.21	1.44	1.67	1.62	1.64	1.50	2.29	1.84
		Dividends Per Share	1.21	1.22	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
		Payout Ratio	93.08%	88.41%	83.78%	85.52%	97.64%	77.50%	76.54%	78.48%	91.18%	84.93%	93.23%	111.71%	115.89%	136.26%	102.48%	86.11%	74.25%	76.54%	75.61%	82.67%	54.15%	75.61%
		Annual Earnings Growth	N/A	6.15%	7.25%	-2.03%	-12.41%	25.98%	1.25%	-2.47%	-13.92%	7.35%	-8.90%	-16.54%	-3.60%	-14.95%	32.97%	19.01%	15.97%	-2.99%	1.23%	-8.54%	52.67%	-28.38%
		Syr Avg Fwd EPS Growth	4.99%	4.01%	2.06%	-0.31%	3.64%	-3.34%	-6.90%	-7.12%	-7.33%	-2.21%	3.38%	9.88%	10.00%	13.24%	4.94%	11.67%	2.80%	N/A	N/A	N/A	N/A	N/A
IDACORP, Inc.	IDA	Earnings Per Share	2.21	2.32	2.37	2.43	3.50	3.35	1.63	0.96	1.90	1.75	2.35	1.86	2.18	2.64	2.95	3.36	3.37	3.64	3.85	3.87	3.94	4.21
		Dividends Per Share	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.37	1.57	1.76	1.92	2.08	
		Payout Ratio	84.16%	80.17%	79.48%	76.54%	53.14%	55.52%	114.11%	177.08%	63.16%	68.57%	51.06%	64.52%	55.05%	45.45%	40.68%	35.71%	40.65%	43.13%	45.71%	49.61%	52.79%	53.21%
		Annual Earnings Growth	N/A	4.98%	2.16%	2.53%	44.03%	-4.29%	-51.34%	-41.10%	97.92%	-7.89%	34.29%	-20.85%	17.20%	21.10%	11.74%	13.90%	0.30%	8.01%	5.77%	0.52%	1.81%	6.85%
		Syr Avg Fwd EPS Growth	9.88%	-1.38%	-10.03%	9.04%	-1.34%	6.37%	12.47%	24.13%	8.77%	12.70%	8.62%	12.85%	11.01%	7.94%	5.70%	3.28%	4.59%	N/A	N/A	N/A	N/A	N/A
NorthWestern Corporation	NWE	Earnings Per Share	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.71	1.31	1.44	1.77	2.02	2.14	2.53	2.26	2.46	2.99	2.90	3.39	3.34	
		Dividends Per Share	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.00	1.24	1.28	1.32	1.34	1.36	1.44	1.48	1.52	1.60	1.92	2.00	2.10	
		Payout Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	58.48%	94.66%	88.89%	74.58%	66.34%	63.55%	56.92%	65.49%	61.79%	53.51%	66.21%	59.00%	62.87%	
		Annual Earnings Growth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-23.39%	9.92%	22.92%	14.12%	5.94%	18.22%	-10.67%	8.85%	21.54%	-3.01%	16.90%	-1.47%	
		Syr Avg Fwd EPS Growth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.90%	14.23%	10.11%	7.29%	8.78%	6.99%	6.72%	8.56%	N/A	N/A	N/A	N/A	N/A
OGE Energy Corp.	OGE	Earnings Per Share	0.81	0.81	1.02	0.97	0.95	0.65	0.72	0.87	0.89	0.92	1.23	1.32	1.25	1.33	1.5	1.73	1.79	1.94	1.98	1.69	1.69	
		Dividends Per Share	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.68	0.7	0.71	0.73	0.76	0.8	0.85	0.95	1.05	1.16	
		Payout Ratio	82.72%	82.72%	65.69%	69.07%	70.53%	103.08%	93.06%	77.01%	75.28%	72.83%	54.47%	51.52%	56.00%	53.38%	48.67%	43.93%	44.69%	43.81%	47.98%	62.13%	68.64%	66.15%
		Annual Earnings Growth	N/A	0.00%	25.93%	-4.90%	-2.06%	-31.58%	10.77%	20.83%	2.30%	3.37%	33.70%	7.32%	-5.30%	6.40%	12.78%	15.33%	3.47%	8.38%	2.06%	-14.65%	0.00%	13.61%
		Syr Avg Fwd EPS Growth	-2.52%	-0.37%	-1.39%	0.05%	1.14%	14.19%	13.50%	8.28%	9.10%	10.98%	7.31%	6.54%	9.27%	8.41%	2.92%	-0.15%	1.88%	N/A	N/A	N/A	N/A	N/A
PNM Resources	PNM	Earnings Per Share	1.15	1.25	1.50	1.29	1.55	2.61	1.07	1.15	1.43	1.56	1.72	0.76	0.11	0.58	0.87	1.08	1.31	1.41	1.45	1.48	1.46	
		Dividends Per Share	0.24	0.42	0.51	0.53	0.53	0.57	0.61	0.63	0.79	0.86	0.91	0.61	0.50	0.50	0.58	0.68	0.76	0.82	0.90	0.99	0.99	
		Payout Ratio	20.87%	33.60%	34.00%	41.09%	34.19%	20.31%	53.27%	53.04%	44.06%	50.64%	50.00%	119.74%	55.55%	86.21%	57.47%	46.30%	44.27%	48.23%	52.41%	55.41%	61.64%	51.56%
		Annual Earnings Growth	N/A	8.70%	20.00%	-14.00%	20.16%	68.39%	-59.00%	7.48%	24.35%	9.09%	10.26%	-55.81%	-85.53%	427.27%	50.00%	24.14%	21.30%	7.63%	2.84%	2.07%	-1.35%	31.51%
		Syr Avg Fwd EPS Growth	20.65%	7.11%	4.60%	12.27%	10.06%	-1.57%	-0.93%	-19.53%	61.06%	69.24%	72.01%	87.44%	106.07%	21.18%	11.59%	6.50%	8.54%	N/A	N/A	N/A	N/A	N/A

Mr. Copeland Dividend Discount Model - Terminal Value Assuming M/B of 1.85

Company	Inputs:								Output:				Solver Cells	
	Dividend Yield	2018 EPS	Analyst Growth	Long-Term Growth	Retention Ratios 2018	Retention Ratios 2022	Retention Ratios 2037	Implied P/E Ratio	DDM (k) Return	Adjusted P/E Ratio	Delta	IRR		
ALLETE	3.02%	3.35	6.00%	3.50%	0.33	0.25	0.36	22.15	7.15%	22.15	0.00%	7.15%		
Alliant Energy	3.27%	2.15	6.61%	3.50%	0.38	0.36	0.36	19.04	7.50%	19.04	0.00%	7.50%		
Black Hills Corp.	3.26%	3.40	4.56%	3.50%	0.43	0.42	0.36	17.43	7.06%	17.43	0.00%	7.06%		
El Paso Electric	2.80%	2.30	4.75%	3.50%	0.38	0.33	0.36	22.07	6.63%	22.07	0.00%	6.63%		
Hawaiian Electric	3.51%	1.90	7.10%	3.50%	0.35	0.38	0.36	18.58	7.69%	18.58	0.00%	7.69%		
IDACORP, Inc.	2.62%	4.50	2.59%	3.50%	0.47	0.42	0.36	20.35	6.06%	20.35	0.00%	6.06%		
NorthWestern Corp.	3.84%	3.40	2.49%	3.50%	0.35	0.31	0.36	16.83	7.07%	16.83	0.00%	7.07%		
OGE Energy Corp	3.85%	2.10	1.46%	3.50%	0.33	0.26	0.36	17.31	6.84%	17.31	0.00%	6.84%		
PNM Resources	2.85%	1.95	4.40%	3.50%	0.44	0.46	0.36	19.63	6.53%	19.63	0.00%	6.53%		
Mean:			4.44%	3.50%	0.38	0.35		19.27	6.95%	19.27		6.95%		
Median:			4.56%	3.50%	0.38	0.36		19.04	7.06%	19.04		7.06%		
								Current Market/Book Ratio	1.85					
								Target Market/Book Ratio	1.85					
								Difference	-					

Source: Exhibit\_\_(BLC-1), Schedule 2

Mr. Copeland Dividend Discount Model - Terminal Value Assuming M/B of 1.25

Company	Inputs:								Output:				Solver Cells	
	Dividend Yield	2018 EPS	Analyst Growth	Long-Term Growth	Retention Ratios 2018	Retention Ratios 2022	Retention Ratios 2037	Implied P/E Ratio	DDM (k) Return	Adjusted P/E Ratio	Delta	IRR		
ALLETE	3.02%	3.35	6.00%	3.50%	0.33	0.25	0.36	22.15	5.74%	14.97	0.00%	5.74%		
Alliant Energy	3.27%	2.15	6.61%	3.50%	0.38	0.36	0.36	19.04	6.13%	12.86	0.00%	6.13%		
Black Hills Corp.	3.26%	3.40	4.56%	3.50%	0.43	0.42	0.36	17.43	5.71%	11.77	0.00%	5.71%		
El Paso Electric	2.80%	2.30	4.75%	3.50%	0.38	0.33	0.36	22.07	5.19%	14.92	0.00%	5.19%		
Hawaiian Electric	3.51%	1.90	7.10%	3.50%	0.35	0.38	0.36	18.58	6.33%	12.56	0.00%	6.33%		
IDACORP, Inc.	2.62%	4.50	2.59%	3.50%	0.47	0.42	0.36	20.35	4.61%	13.75	0.00%	4.61%		
NorthWestern Corp.	3.84%	3.40	2.49%	3.50%	0.35	0.31	0.36	16.83	5.78%	11.37	0.00%	5.78%		
OGE Energy Corp	3.85%	2.10	1.46%	3.50%	0.33	0.26	0.36	17.31	5.54%	11.69	0.00%	5.54%		
PNM Resources	2.85%	1.95	4.40%	3.50%	0.44	0.46	0.36	19.63	5.10%	13.26	0.00%	5.10%		
Mean:			4.44%	3.50%	0.38	0.35		19.27	5.57%	13.02		5.57%		
Median:			4.56%	3.50%	0.38	0.36		19.04	5.71%	12.86		5.71%		
								Current Market/Book Ratio	1.85					
								Target Market/Book Ratio	1.25					
								Difference	(0.32)					

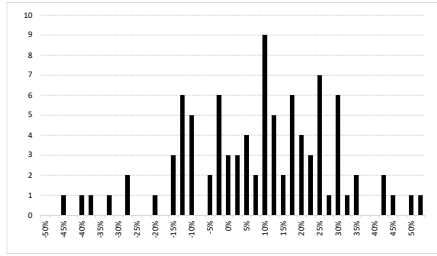
Source: Exhibit\_\_(BLC-1), Schedule 2

Mr. Copeland Dividend Discount Model - Terminal Value Assuming M/B of 1.10

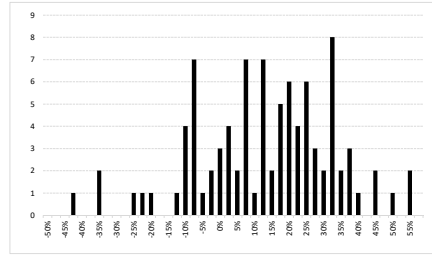
Company	Inputs:								Output:				Solver Cells	
	Dividend Yield	2018 EPS	Analyst Growth	Long-Term Growth	Retention Ratios 2018	Retention Ratios 2022	Retention Ratios 2037	Implied P/E Ratio	DDM (k) Return	Adjusted P/E Ratio	Delta	IRR		
ALLETE	3.02%	3.35	6.00%	3.50%	0.33	0.25	0.36	22.15	5.31%	13.17	0.00%	5.31%		
Alliant Energy	3.27%	2.15	6.61%	3.50%	0.38	0.36	0.36	19.04	5.71%	11.32	0.00%	5.71%		
Black Hills Corp.	3.26%	3.40	4.56%	3.50%	0.43	0.42	0.36	17.43	5.30%	10.36	0.00%	5.30%		
El Paso Electric	2.80%	2.30	4.75%	3.50%	0.38	0.33	0.36	22.07	4.75%	13.13	0.00%	4.75%		
Hawaiian Electric	3.51%	1.90	7.10%	3.50%	0.35	0.38	0.36	18.58	5.92%	11.05	0.00%	5.92%		
IDACORP, Inc.	2.62%	4.50	2.59%	3.50%	0.47	0.42	0.36	20.35	4.18%	12.10	0.00%	4.18%		
NorthWestern Corp.	3.84%	3.40	2.49%	3.50%	0.35	0.31	0.36	16.83	5.39%	10.01	0.00%	5.39%		
OGE Energy Corp	3.85%	2.10	1.46%	3.50%	0.33	0.26	0.36	17.31	5.15%	10.29	0.00%	5.15%		
PNM Resources	2.85%	1.95	4.40%	3.50%	0.44	0.46	0.36	19.63	4.66%	11.67	0.00%	4.66%		
Mean:			4.44%	3.50%	0.38	0.35		19.27	5.15%	11.46				
Median:			4.56%	3.50%	0.38	0.36		19.04	5.30%	11.32				
								Current Market/Book Ratio	1.85					
								Target Market/Book Ratio	1.10					
								Difference	(0.41)					

Source: Exhibit\_\_(BLC-1), Schedule 2

Frequency Distribution of Market Risk Premium, 1926 - 2017



Frequency Distribution of Market Returns, 1926 - 2017



Source: Duff & Phelps, 2018 SBBI Yearbook at Appendix A-1, A-7

Market Risk Premium, 1926 - 2017

Year	Large Company Stocks Total Returns		Long-Term Government Bond Income Returns		MRP
	Jan-Dec*	Jan-Dec*	Jan-Dec*	Jan-Dec*	
1926	0.1162	0.0373	7.89%		
1927	0.3749	0.0341	34.08%		
1928	0.4361	0.0322	40.39%		
1929	-0.0842	0.0347	-11.89%		
1930	-0.2490	0.0332	-28.22%		
1931	-0.4334	0.0333	-46.67%		
1932	-0.0819	0.0369	-11.88%		
1933	0.5399	0.0312	50.87%		
1934	-0.0144	0.0318	-4.62%		
1935	0.4767	0.0281	44.86%		
1936	0.3392	0.0277	31.15%		
1937	-0.3503	0.0266	-37.69%		
1938	0.3112	0.0264	28.48%		
1939	-0.0041	0.0240	-2.81%		
1940	-0.0978	0.0223	-12.01%		
1941	-0.1159	0.0194	-13.53%		
1942	0.2034	0.0246	17.88%		
1943	0.2590	0.0244	23.46%		
1944	0.1975	0.0246	17.29%		
1945	0.3644	0.0234	34.10%		
1946	-0.0807	0.0204	-10.11%		
1947	0.0571	0.0213	3.58%		
1948	0.0550	0.0240	3.10%		
1949	0.1879	0.0225	16.54%		
1950	0.3171	0.0212	29.59%		
1951	0.2402	0.0238	21.64%		
1952	0.1837	0.0266	15.71%		
1953	-0.0099	0.0284	-8.83%		
1954	0.5262	0.0279	49.83%		
1955	0.3166	0.0275	28.81%		
1956	0.0656	0.0299	3.57%		
1957	-0.1078	0.0344	-14.22%		
1958	0.4336	0.0327	40.09%		
1959	0.1196	0.0401	7.95%		
1960	0.0047	0.0426	-3.79%		
1961	0.2689	0.0383	23.06%		
1962	-0.0873	0.0400	-12.73%		
1963	0.2280	0.0389	18.91%		
1964	0.1648	0.0415	12.33%		
1965	0.1245	0.0420	8.25%		
1966	-0.1006	0.0449	-14.55%		
1967	0.2398	0.0459	19.39%		
1968	0.1106	0.0550	5.56%		
1969	-0.0850	0.0595	-14.45%		
1970	0.0386	0.0674	-2.88%		
1971	0.1430	0.0632	7.98%		
1972	0.1899	0.0587	13.12%		
1973	-0.1469	0.0651	-21.20%		
1974	-0.2647	0.0727	-33.74%		
1975	0.3723	0.0799	29.24%		
1976	0.2393	0.0789	16.04%		
1977	-0.0716	0.0714	-14.30%		
1978	0.0657	0.0790	-1.33%		
1979	0.1861	0.0886	9.75%		
1980	0.3250	0.0997	22.53%		
1981	-0.0492	0.1155	-16.47%		
1982	0.2155	0.1350	8.05%		
1983	0.2256	0.1038	12.18%		
1984	0.0627	0.1174	-5.47%		
1985	0.3173	0.1125	20.48%		
1986	0.1867	0.0898	9.69%		
1987	0.0525	0.0792	-2.67%		
1988	0.1661	0.0897	7.64%		
1989	0.3169	0.0881	22.88%		
1990	-0.0310	0.0819	-11.29%		
1991	0.3047	0.0822	22.25%		
1992	0.0762	0.0726	0.36%		
1993	0.1008	0.0717	2.91%		
1994	0.0132	0.0659	-5.27%		
1995	0.3758	0.0760	29.98%		
1996	0.2266	0.0616	16.78%		
1997	0.3336	0.0664	26.72%		
1998	0.2858	0.0583	22.75%		
1999	0.2104	0.0557	15.47%		
2000	-0.0910	0.0650	-15.60%		
2001	-0.1189	0.0553	-17.42%		
2002	-0.2210	0.0559	-27.69%		
2003	0.2868	0.0480	23.88%		
2004	0.1088	0.0502	5.86%		
2005	0.0491	0.0469	0.22%		
2006	0.1579	0.0468	11.11%		
2007	0.0549	0.0486	0.63%		
2008	-0.3700	0.0445	-41.45%		
2009	0.2646	0.0347	22.99%		
2010	0.1506	0.0425	10.81%		
2011	0.0211	0.0390	-1.79%		
2012	0.1600	0.0246	13.54%		
2013	0.3239	0.0288	29.51%		
2014	0.1369	0.0341	10.28%		
2015	0.0198	0.0247	-1.09%		
2016	0.1196	0.0230	9.66%		
2017	0.2183	0.0267	19.16%		
Average	0.1206	0.0499	7.07%		
Std. Dev.	0.1980	0.0263			

Market Risk Premium

Bin	Frequency	Cumulative %
-50.00%	0	0.00%
-47.50%	0	0.00%
-45.00%	1	1.09%
-42.50%	0	1.09%
-40.00%	1	2.17%
-37.50%	1	3.26%
-35.00%	0	3.26%
-32.50%	1	4.35%
-30.00%	0	4.35%
-27.50%	2	6.52%
-25.00%	0	6.52%
-22.50%	0	6.52%
-20.00%	1	7.61%
-17.50%	0	7.61%
-15.00%	3	10.87%
-12.50%	6	17.39%
-10.00%	5	22.83%
-7.50%	0	22.83%
-5.00%	2	25.00%
-2.50%	6	31.52%
0.00%	3	34.78%
2.50%	3	38.04%
5.00%	4	42.39%
7.50%	2	44.57%
10.00%	9	54.35%
12.50%	5	59.78%
15.00%	2	61.96%
17.50%	6	68.48%
20.00%	4	72.83%
22.50%	3	76.09%
25.00%	7	83.70%
27.50%	1	84.78%
30.00%	6	91.30%
32.50%	1	92.39%
35.00%	2	94.57%
37.50%	0	94.57%
40.00%	0	94.57%
42.50%	2	96.74%
45.00%	1	97.83%
47.50%	0	97.83%
50.00%	1	98.91%
51.00%	1	100.00%

Count: 92

Hevert Direct MRP	Rank
11.78%	57.60%
12.49%	59.30%

Market Return

Bin	Frequency	Cumulative %
-50.00%	0	0.00%
-47.50%	0	0.00%
-45.00%	0	0.00%
-42.50%	1	1.09%
-40.00%	0	1.09%
-37.50%	0	1.09%
-35.00%	2	3.26%
-32.50%	0	3.26%
-30.00%	0	3.26%
-27.50%	0	3.26%
-25.00%	1	4.35%
-22.50%	1	5.43%
-20.00%	1	6.52%
-17.50%	0	6.52%
-15.00%	0	6.52%
-12.50%	1	7.61%
-10.00%	4	11.96%
-7.50%	7	19.57%
-5.00%	1	20.65%
-2.50%	2	22.83%
0.00%	3	26.09%
2.50%	4	30.43%
5.00%	2	32.61%
7.50%	7	40.22%
10.00%	1	41.30%
12.50%	7	48.91%
15.00%	2	51.09%
17.50%	5	56.52%
20.00%	6	63.04%
22.50%	4	67.39%
25.00%	6	73.91%
27.50%	3	77.17%
30.00%	2	79.35%
32.50%	8	88.04%
35.00%	2	90.22%
37.50%	3	93.48%
40.00%	1	94.57%
42.50%	0	94.57%
45.00%	2	96.74%
47.50%	0	96.74%
50.00%	1	97.83%
52.50%	0	97.83%
55.00%	2	100.00%
57.50%	0	100.00%

Count: 92

Hevert	% Rank	Occurrence
14.84%	51.30%	45
15.54%	52.30%	44