

Application: A.21-08-XXX  
Company: San Diego Gas & Electric Company (U 902 M)  
Proceeding: 2022 Cost of Capital  
Exhibit: SDG&E-04

**PREPARED DIRECT TESTIMONY OF  
JAMES M. COYNE - RETURN ON EQUITY  
ON BEHALF OF  
SAN DIEGO GAS & ELECTRIC COMPANY**

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**



**AUGUST 23, 2021**

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### EXHIBITS

JMC-1 COYNE RESUME

JMC-2 COMPREHENSIVE SUMMARY OF ROE RESULTS

JMC-3 PROXY GROUP SCREENING ANALYSIS

JMC-4 CONSTANT GROWTH DCF ANALYSIS

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JMC-5.2 CAPM ANALYSIS

JMC-6 RISK PREMIUM ANALYSIS

JMC-7 EXPECTED EARNINGS ANALYSIS

JMC-8 WILDFIRE RISK ANALYSIS

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JMC-11 CAPITAL STRUCTURE ANALYSIS

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**PREPARED DIRECT TESTIMONY OF  
JAMES M. COYNE  
ON BEHALF OF  
SAN DIEGO GAS & ELECTRIC COMPANY**

**I. INTRODUCTION AND SUMMARY**

**Q. Please state your name and business address.**

A. My name is James M. Coyne, and I am employed by Concentric Energy Advisors, Inc. (“Concentric”) as a Senior Vice President. Concentric is a management consulting and economic advisory firm, focused on the North American energy and water industries. Based in Marlborough, Massachusetts and Washington, D.C., Concentric specializes in regulatory and litigation support, financial advisory services, energy market strategies, market assessments, energy commodity contracting and procurement, economic feasibility studies, and capital market analyses. My business address is 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts 01752.

**Q. On whose behalf are you testifying?**

A. I am submitting this testimony to the California Public Utilities Commission (the “Commission”) on behalf San Diego Gas & Electric Company (“SDG&E” or the “Company”), which is a wholly owned subsidiary of Sempra Energy.

**Q. Please describe your experience in the energy and utility industries and your educational and professional qualifications.**

A. I am among Concentric’s professionals who provide expert testimony before federal, state, and Canadian provincial agencies on matters pertaining to economics, finance, and public policy in the energy industry. I regularly advise regulatory agencies, utilities, generating companies, and private equity investors on business issues pertaining to the utility industry. This work includes calculating the cost of capital for the purpose of ratemaking and

1 providing expert testimony and studies on matters pertaining to rate policy, valuation,  
2 capital costs, and performance-based regulation. I have authored numerous articles on the  
3 energy industry, lectured on utility regulation for regulatory commission staff, and provided  
4 testimony before the Federal Energy Regulatory Commission (“FERC”), the Canadian  
5 Energy Regulator (“CER”), as well as state and provincial jurisdictions in the U.S. and  
6 Canada, including the California Public Utilities Commission (“CPUC”). I hold a B.S. in  
7 Business Administration from Georgetown University and an M.S. in Resource Economics  
8 from the University of New Hampshire. My educational and professional background is  
9 summarized more fully in Exhibit JMC-1.

10 **Q. Are you sponsoring any exhibits in this case?**

11 A. Yes. My analyses and recommendations are supported by the data presented in Exhibits  
12 JMC-2 through JMC-11, which have been prepared by me or under my direction. I am  
13 sponsoring the following exhibits:

- 14 • JMC-2 Comprehensive Summary of ROE Results
- 15 • JMC-3 Proxy Group Screening Analysis
- 16 • JMC-4 Constant Growth DCF Analysis
- 17 • JMC-5.1 Market Risk Premium
- 18 • JMC-5.2 CAPM Analysis
- 19 • JMC-6 Risk Premium Analysis
- 20 • JMC-7 Expected Earnings Analysis
- 21 • JMC-8 Wildfire Risk Analysis
- 22 • JMC-9 Capital Expenditures Analysis
- 23 • JMC-10 Regulatory Risk Assessment

- JMC-11 Capital Structure Analysis

1  
2 **Q. What is the purpose of your testimony?**

3 A. The purpose of my direct testimony is to present evidence and provide a recommendation  
4 for SDG&E's return on equity ("ROE"). My direct testimony also discusses the Company's  
5 capital structure in comparison to the proxy group companies supporting my analysis.

6 **II. OVERVIEW AND SUMMARY**

7 **Q. What is your conclusion regarding the appropriate cost of equity for SDG&E?**

8 A. I have estimated SDG&E's ROE range based on the results from standard models used for  
9 the purpose of estimating the required rate of return for regulated utilities: the Discounted  
10 Cash Flow ("DCF") model, the Capital Asset Pricing Model ("CAPM"), the Bond Yield  
11 Plus Risk Premium model, and the Expected Earnings model. As shown in Exhibit JMC-2,  
12 these models produce a range of estimates of SDG&E's cost of equity, with a four-model  
13 average of 10.82 percent or 10.99 percent, depending on whether current or projected  
14 interest rates are utilized. Based on these analyses, I consider an ROE range of 10.50  
15 percent to 11.50 percent to be reasonable for an average risk utility. Considering the  
16 Company's specific risk profile, the Company's requested ROE of 10.55 percent sponsored  
17 by Valerie Bille (Exhibit SDG&E-01) is conservative. SDG&E's above-average business  
18 and financial risks support an ROE above the return required for an average risk utility.

19 **Q. Please provide a brief overview of the analyses that you conducted to support your**  
20 **ROE recommendation.**

21 A. As mentioned, my ROE range recommendation is based on the range of results produced  
22 from four modeling methodologies. Analysts and academics understand that ROE models  
23 are tools to be used in the ROE estimation process, and that strict adherence to any single  
24 approach, or the specific results of any single approach, can lead to flawed conclusions. No

1 model can exactly pinpoint the correct cost of equity, but each is designed to provide a an  
2 estimate of the return required to attract equity investment. Therefore, my analysis  
3 considers the range of results produced by these four different models. From within that  
4 range, regulators use informed judgment to select an authorized ROE that takes into  
5 consideration the relevant risk factors, as well as capital market conditions in order to  
6 determine a fair return. The DCF analysis estimates the cost of equity based on market data  
7 on dividend yields and analysts' projected earnings per share growth rates from reputable  
8 third-party sources. The CAPM analysis is based on both current and forecasted interest  
9 rates and a forward-looking market risk premium. The Risk Premium approach is based on  
10 the spread between authorized ROEs for electric and gas utilities and Treasury bond yields.  
11 The Expected Earnings approach is based on projected returns on book equity that investors  
12 expect to receive over the next three to five years. My ROE range recommendation is  
13 ultimately based on the range of results produced by these four methodologies.

14 My recommendation also considers the general economic and capital market  
15 environment and the influence capital market conditions exert over the results of the DCF,  
16 CAPM and Risk Premium models. In addition, I consider the Company's business and  
17 regulatory risks in relation to a set of proxy companies to assist in the determination of the  
18 appropriate ROE and capital structure from within the range of analytical results. I identify  
19 risk factors that indicate SDG&E is above average risk and consider this risk profile in  
20 relation to the results for an average risk utility represented by the proxy group companies.

1 **Q. Your ROE recommendation for SDG&E is higher than the Company's currently**  
2 **authorized ROE. Please summarize the primary factors that support this view.**

3 A. SDG&E's current ROE of 10.20 percent was authorized in December 2019. While interest  
4 rates on government and corporate bonds declined to historically low levels in 2020, they  
5 have since somewhat rebounded and are projected to increase as fiscal and monetary  
6 stimulus continue to unwind. Simultaneously, other risk factors indicate that equity  
7 investors now require a higher rate of return from utility investments. Longer term, the  
8 industry faces complex structural challenges associated with climate change,  
9 decarbonization, grid modernization, and shifting consumer preferences amid a flat overall  
10 demand outlook.

11 Volatility in equity markets reached levels in March 2020 not seen since the  
12 financial crisis of 2008/2009. Credit spreads between government and utility bonds  
13 increased to levels well above their historical average, and the correlation between utility  
14 share prices and the broader market has increased, which reflects the fact that investors have  
15 not viewed the utility sector as a safe-haven during the current economic downturn. Beta  
16 coefficients (which are the measure of risk in the CAPM analysis) have increased  
17 substantially for both electric and natural gas utilities since the Commission's prior decision.  
18 Furthermore, the economic stimulus provided through monetary and fiscal policy increases  
19 the likelihood of higher inflation. Taken together, these factors drive higher estimates of the  
20 cost of equity than those determined by the Commission in 2019.

1 **Q. How has the Cost of Capital Mechanism (“CCM”) been affected by recent market**  
2 **conditions?**

3 A. The CCM process (alternatively, the “adjustment mechanism”) is based on a direct  
4 relationship between the cost of equity and the Moody’s utility bond index. However, the  
5 Moody’s measure of debt yields, is an imperfect measure of the cost of equity, as evidenced  
6 during the COVID-19 pandemic. Measures taken to contain COVID-19 have resulted in  
7 different impacts on debt markets and equity markets. Debt yields were driven lower by an  
8 aggressive and unprecedented level of federal government action designed to support the  
9 economy. Equity investors, responding to increased levels of risk and market volatility,  
10 required higher returns. So debt and equity returns have moved in opposite directions,  
11 particularly for utilities. Higher Beta coefficients for utilities signal an increase in relative  
12 risk, and therefore a higher return to justify taking on those risks. As discussed in more  
13 detail in Section IV.C, the cost of equity for utilities has not tracked the cost of debt. So the  
14 CCM’s adjustment mechanism cannot be expected to produce a reliable result under the  
15 current or expected capital market conditions.

16 **Q. How is the remainder of your Direct Testimony organized?**

17 A. The remainder of my Direct Testimony is organized as follows. Section III provides  
18 background on the regulatory principles that guide the determination of ROE. Section IV  
19 presents a review of current and prospective economic and capital market conditions and the  
20 implications for utility cost of capital. Section V describes the criteria and approach for the  
21 selection of a proxy group of comparable companies. Section VI provides a description of  
22 the data and methodologies used to estimate the cost of equity, as well as the results of the  
23 various ROE estimation models. Section VII provides an assessment of the business and



1 regulatory risk factors I have considered in arriving at an appropriate ROE for SDG&E.

2 Section VIII reviews SDG&E's capital structure in the context of the proxy group. Finally,

3 Section IX summarizes my results, conclusions, and recommendations.

### 4 **III. REGULATORY PRINCIPLES**

#### 5 **Q. Please describe the guiding principles used in establishing the cost of capital for a** 6 **regulated utility.**

7 A. The foundations of public utility regulation require that utilities receive a fair rate of return  
8 sufficient to attract capital, maintain the financial integrity of the company, and provide  
9 investors with returns comparable to those of equivalent risk. The basic tenets of this  
10 regulatory doctrine originate from several bellwether decisions by the United States  
11 Supreme Court, notably *Bluefield Waterworks and Improvement Company v. Public Service*  
12 *Commission of West Virginia*, 262 U.S. 679 (1923) ("*Bluefield*"), and *Federal Power*  
13 *Commission v. Hope Natural Gas Company*, 320 U.S. 591 (1944) ("*Hope*"). In *Bluefield*,  
14 the Court stated:

15 A public utility is entitled to such rates as will permit it to earn a return on  
16 the value of the property which it employs for the convenience of the public  
17 equal to that generally being made at the same time and in the same general  
18 part of the country on investments in other business undertakings which are  
19 attended by corresponding risks and uncertainties...

20 The return should be reasonably sufficient to assure investor confidence in  
21 the financial soundness of the utility and should be adequate, under efficient  
22 and economical management, to maintain and support its credit and enable it  
23 to raise the money necessary for the proper discharge of its public duties.<sup>1</sup>

24 Later, in *Hope*, the Court established a standard for the ROE that remains the  
25 guiding principle for ratemaking regulatory proceedings to this day:

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<sup>1</sup> *Bluefield*, 262 U.S. at 692.

1 [T]he return to the equity owner should be commensurate with returns on  
2 investments in other enterprises having corresponding risks. That return,  
3 moreover, should be sufficient to assure confidence in the financial integrity  
4 of the enterprise, so as to maintain its credit and to attract capital.<sup>2</sup>

5 **Q. Has the Commission provided similar guidance?**

6 A. Yes, the Commission applies these same legal standards in setting the cost of capital for  
7 utilities under its jurisdiction. In doing so, the Commission summarizes:

8 We attempt to set the ROE at a level of return commensurate with market  
9 returns on investments having corresponding risks, and adequate to enable a  
10 utility to attract investors to finance the replacement and expansion of a  
11 utility's facilities to fulfill its public utility service obligation. To accomplish  
12 this objective, we have consistently evaluated analytical financial models as a  
13 starting point to arrive at a fair ROE.<sup>3</sup>

14 **Q. Please explain how these principles apply in the context of the regulated rate of return.**

15 A. Regulated utilities rely primarily on common stock and long-term debt to finance permanent  
16 property, plant, and equipment. The allowed rate of return for a regulated utility is based on  
17 its weighted average cost of capital, where the costs of the individual sources of capital (*i.e.*,  
18 debt and equity) are weighted by their respective book values. The ROE represents the cost  
19 of raising and retaining equity capital and is estimated by using one or more analytical  
20 techniques that use market data to quantify investor requirements for equity returns.  
21 However, the ROE cannot be derived through quantitative metrics and models alone. To  
22 properly estimate the ROE, the financial, regulatory, and economic context must also be  
23 considered.

24 The DCF, CAPM, Risk Premium and Expected Earnings approaches, while  
25 fundamental to the ROE determination, are still only models. The results of these models

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<sup>2</sup> *Hope*, 320 U.S. at 603.

<sup>3</sup> Decision ("D.") 12-12-034, p. 18; D.19-12-056, p. 16; *see generally* D.18-05-035, p. 6.

1 cannot be mechanistically applied without also using informed judgment to consider  
2 economic and capital market conditions and the relative risk of SDG&E as compared to the  
3 proxy group companies.

4 Based on these legal and regulatory standards, the Commission's order in this case  
5 should provide SDG&E with the opportunity to earn a return on equity that is:

- 6 • Commensurate with returns on investments in enterprises having comparable risks;
- 7 • Adequate to attract capital on reasonable terms, thereby enabling SDG&E to provide  
8 safe, reliable service; and
- 9 • Sufficient to ensure the financial soundness of SDG&E's electric and gas utility  
10 operations.

11 Importantly, a fair return must satisfy all three of these standards. The allowed ROE  
12 should enable SDG&E to finance capital expenditures on reasonable terms and provide the  
13 Company with the ability to raise capital under a full range of capital market circumstances.

14 **Q. What are your conclusions regarding regulatory principles?**

15 A. The ratemaking process is premised on the principle that, in order for investors and  
16 companies to commit the capital needed to provide safe and reliable utility services, the  
17 utility must have the opportunity to recover invested capital and the market-required return  
18 on that capital. Because utility operations are capital-intensive, regulatory decisions should  
19 enable the utility to attract capital on favorable terms. The financial community carefully  
20 monitors the current and expected financial condition of utility companies as well as the  
21 regulatory environment in which they operate. In that respect, the regulatory environment is  
22 one of the most important factors considered by both debt and equity investors in their  
23 assessments of risk. It is therefore essential that the ROE authorized in this proceeding

1 takes into consideration the current and expected capital market conditions that SDG&E  
2 faces, as well as investors' expectations and requirements regarding both risks and returns.  
3 A reasonable ROE is required both for continued capital investment by SDG&E and to  
4 maintain confidence in California's regulatory environment among credit rating agencies  
5 and investors.

6 **IV. ECONOMIC AND CAPITAL MARKET CONDITIONS**

7 **Q. Why is it important to consider the effects of current and expected economic and**  
8 **financial market conditions when setting the appropriate ROE?**

9 A. It is important to consider current and expected conditions in the general economy and  
10 financial markets because the authorized ROE for a public utility should allow the utility to  
11 attract investor capital at a reasonable cost under a variety of economic and financial market  
12 conditions, as underscored by the *Hope* and *Bluefield* decisions. The standard ROE  
13 estimation tools, such as the DCF, CAPM, Risk Premium, and Expected Earnings models,  
14 each reflect the state of the general economy and financial markets by incorporating specific  
15 economic and financial data. These inputs are, however, only samples of the various  
16 economic and market forces that determine a utility's required return. Consideration must  
17 be given to whether the assumptions relied on in the current or projected market data are  
18 appropriate. If investors do not expect current market conditions to be sustained in the  
19 future, it is possible that the ROE estimation models will not provide an accurate estimate of  
20 investors' forward-looking required return. Therefore, an assessment of current and  
21 projected market conditions is integral to any ROE recommendation.

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

3 A. The cost of equity for regulated utility companies is being affected by several key factors in  
4 the current and prospective capital markets, including: (1) ongoing uncertainty and volatility  
5 in equity markets; (2) the steepening yield curve and potential inflation risk; and (3) the fact  
6 that utilities have not been a safe-haven for investors during this economic downturn. That  
7 is, despite a decline in interest rates in 2020, the cost of equity has not declined. In fact,  
8 utilities' Beta coefficients have increased, indicating these stocks are trading more in line  
9 with the market as a whole. In this section, I discuss each of these factors and how it affects  
10 the models used to estimate the cost of equity for regulated utilities.

11 **A. Ongoing Uncertainty and Volatility in Capital Markets**

12 **Q. Please discuss economic and capital market conditions.**

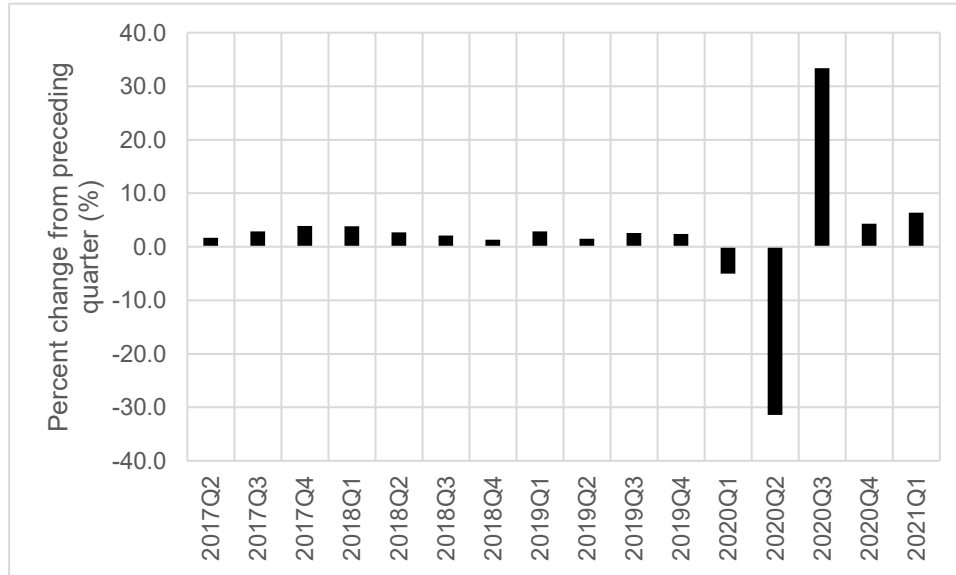
13 A. Capital market conditions were unsettled in 2020 and 2021 due to the economic impacts of  
14 the COVID-19 pandemic. Measures taken to contain COVID-19 and the associated impacts  
15 on business and consumer behavior forced the U.S. economy into a sharp recession. As  
16 shown in Figure 1, according to the Bureau of Economic Analysis, real gross domestic  
17 product ("GDP") decreased at an annual rate of 5.0 percent in the first quarter of 2020 and at  
18 an unprecedented annual rate of 31.4 percent in the second quarter before rebounding in the  
19 third quarter at an annual rate of 33.4 percent. The fourth quarter of 2020 shows GDP  
20 expanded at an annual rate of 4.3 percent and the "third" estimate of the first quarter of 2020  
21 shows that GDP continued to expand at an annual rate of 6.4 percent.<sup>4</sup>

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<sup>4</sup> Gross Domestic Product (Third Estimate), GDP by Industry, and Corporate Profits (Revised), 1st Quarter 2021, U.S. Bureau of Economic Analysis (BEA).

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**Figure 1: U.S. Real GDP Growth – 2017Q2-2021Q1<sup>5</sup>**



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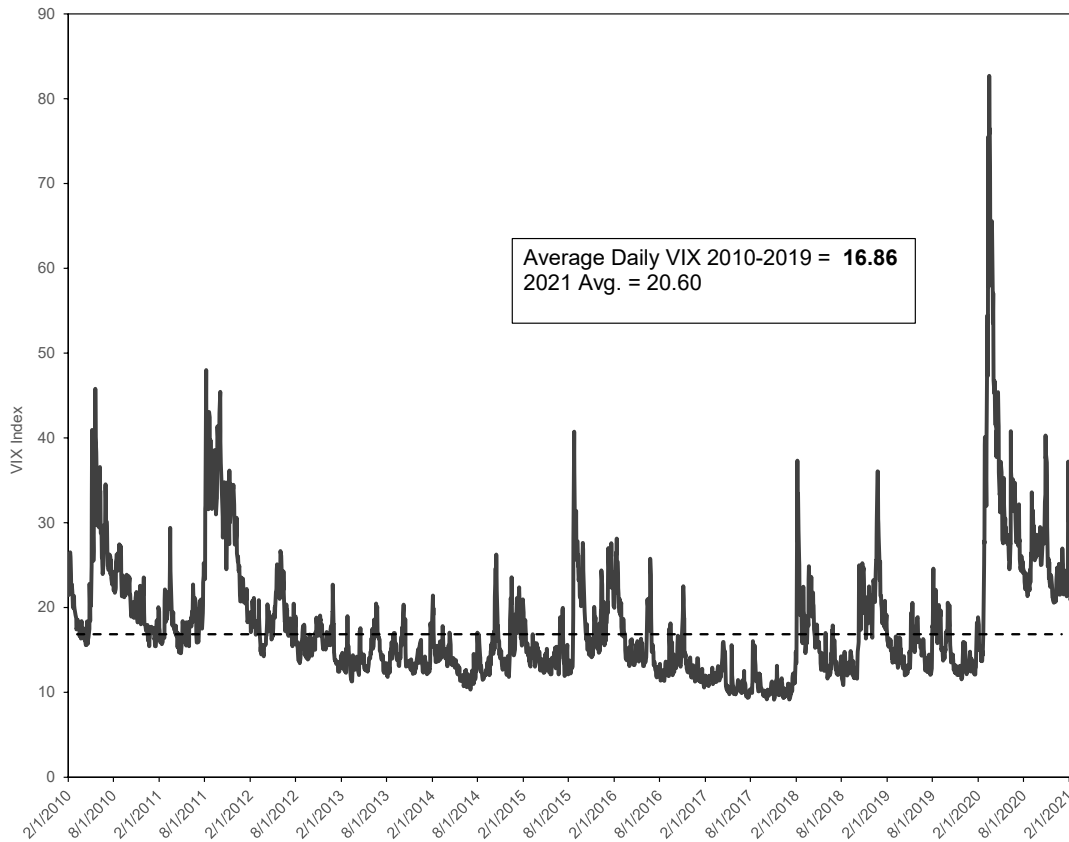
9

The Chicago Board Options Exchange (“CBOE”) Volatility Index (“VIX”) measures investors’ expectations of volatility in the S&P 500 over the next 30 days. As shown in Figure 2, the VIX reached 82.69 on March 16, 2020 in response to the pandemic. The VIX last traded above 80 in November 2008 during the financial crisis and Great Recession of 2008/09. As a point of comparison, from January 1, 2021 through June 30, 2021 the VIX averaged 20.60, higher than the long-term average of 16.86 from 2010-2019. This indicates that equity market volatility levels have settled but remain above the historical mean.

<sup>5</sup> Source: U.S. Bureau of Economic Analysis (BEA), available at <https://www.bea.gov/news/2021/gross-domestic-product-third-estimate-gdp-industry-and-corporate-profits-revised-1st>.

1

**Figure 2: CBOE VIX – January 2010 – June 2021<sup>6</sup>**



2

3 **Q. Has increased volatility in equity markets been reflected in the market data used to**  
4 **estimate the cost of equity?**

5 A. Yes. Utility company stocks have traded more in-line with the broader market since  
6 February 2020 when the COVID-19 pandemic became a concern in financial markets. This  
7 higher correlation is reflected in the Beta coefficients, which are the measure of risk in the  
8 CAPM, and which have increased substantially between January 2020 and June 2021 for the  
9 companies in my proxy group. Figure 3 presents the average Value Line and Bloomberg  
10 Beta coefficients for my proxy group companies and Sempra Energy over this period.

<sup>6</sup> Source: Bloomberg Professional.

1 These higher Beta coefficients, which have contributed to a significant increase in the  
 2 CAPM results for regulated utilities, indicate that investors have not viewed the utilities  
 3 sector as a safe-haven during this economic downturn. Of note, these Beta coefficients are  
 4 calculated on a five-year average basis, so these changes are not simply the result of the last  
 5 17 months of market volatility.

6 **Figure 3: Beta Coefficients for Proxy Group and Sempra Energy**

	<b>January 2020</b>	<b>June 2021</b>
<i>Proxy Group Average</i>		
Value Line Beta	0.56	0.88
Bloomberg Beta	0.532	0.891
<i>Sempra Energy</i>		
Value Line Beta	0.70	0.95
Bloomberg Beta	0.633	0.924

7  
 8 **Q. What steps did the Federal Reserve and the U.S. Congress take to stabilize financial  
 9 markets and support the economy in response to COVID-19?**

10 A. In response to the economic effects of COVID-19, the Federal Reserve decreased the federal  
 11 funds rate twice in March 2020, resulting in a target range of 0.00 percent to 0.25 percent. It  
 12 also announced plans to increase its holdings of both Treasury and mortgage-backed  
 13 securities. And on March 23, 2020, the Federal Reserve began expansive programs to  
 14 support credit to large employers, including the Primary Market Corporate Credit Facility  
 15 (“PMCCF”) to provide liquidity for new issuances of corporate bonds, and the Secondary  
 16 Market Corporate Credit Facility (“SMCCF”) to provide liquidity for outstanding corporate



1 debt issuances. Further, the Federal Reserve supported the flow of credit to consumers and  
2 businesses through the Term Asset-Backed Securities Loan Facility (“TALF”).<sup>7</sup>

3 In addition to the Federal Reserve’s response, the U.S. Congress passed fiscal  
4 stimulus programs. On March 27, 2020, the Coronavirus Aid, Relief, and Economic  
5 Security Act was signed into law, providing a large fiscal stimulus package aimed at  
6 mitigating the economic effects of the coronavirus. Further, in March 2021, the U.S.  
7 Congress approved additional fiscal stimulus of \$1.9 trillion in response to the ongoing  
8 economic effects of COVID-19.

9 While these expansive monetary and fiscal programs have provided for greater price  
10 stability, as shown in Figure 2, the VIX remains above long-term historical levels. The  
11 extraordinary measures taken by the Federal Reserve and U.S. Congress to support the  
12 economy and stabilize financial markets have thus far been successful. But in doing so, it  
13 has driven investors from very low yielding bonds into equities, creating upward pressure on  
14 valuations and downward pressure on yields for dividend paying companies such as utilities.  
15 Moreover, additional fiscal stimulus is likely to increase inflationary pressure, and the bond  
16 market may be at risk of a sharp upward spike in interest rates if inflation is higher than  
17 currently anticipated by investors.

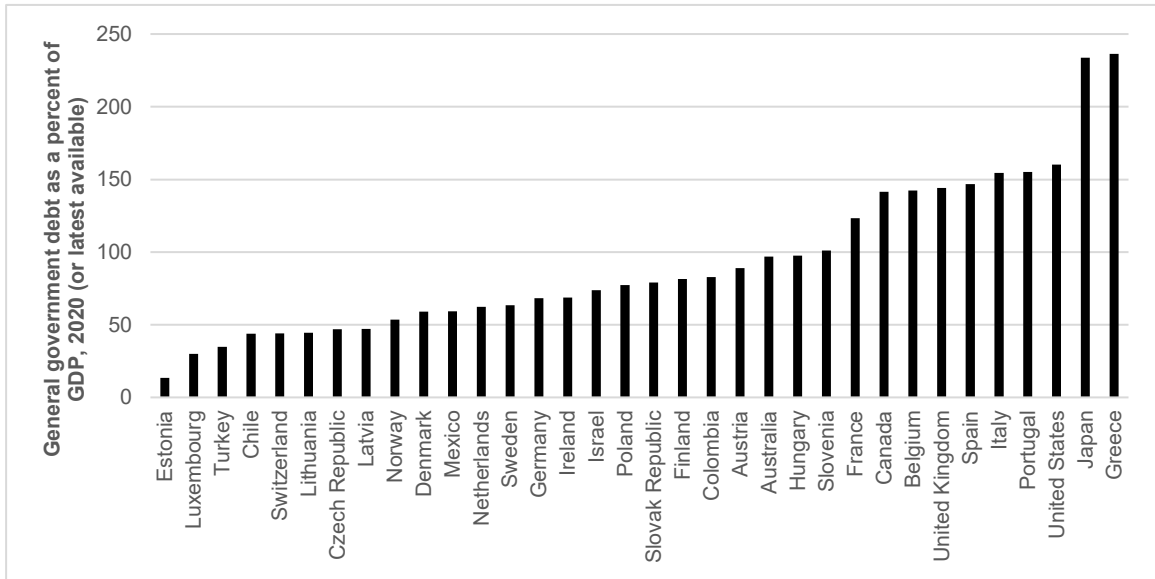
18 Longer term, there are structural risks to both economic growth and equity markets.  
19 Among these is the level of government debt amassed by the U.S. and other Organization  
20 for Economic Cooperation and Development (“OECD”) countries. The most recent  
21 comparison data for the 34 OECD countries at the end of 2020, as illustrated in Figure 4,

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<sup>7</sup> Federal Reserve Board Press Release, *Federal Reserve announces extensive new measures to support the economy* (March 23, 2020), available at <https://www.federalreserve.gov/newsevents/pressreleases/monetary20200323b.htm>.

1 show U.S. government debt stood at 160 percent of GDP, exceeded only by Greece and  
2 Japan in this measure.<sup>8</sup>

3 **Figure 4: Government Debt as % of GDP (2020 or latest available)**



4  
5 Adding additional pressure to the government debt balance, the Federal Reserve  
6 recently confirmed its intention “to increase its holdings of Treasury securities by at least  
7 \$80 billion per month and agency mortgage-backed securities by another \$40 billion per  
8 month until substantial further progress has been made toward the Committee’s maximum  
9 employment and price stability goals.”<sup>9</sup> While supportive in the near-term, increasing debt  
10 creates concerns among investors for increased inflation and tax rates in the future that  
11 could serve as a drag on the economy.

<sup>8</sup> See OECD Data, *Organization for Economic Co-operation and Development*, available at <https://data.oecd.org/gga/general-government-debt.htm>.

<sup>9</sup> Federal Reserve, Press Release (April 28, 2021), p. 2, available at <https://www.federalreserve.gov/monetarypolicy/files/monetary20210428a1.pdf>.

1 **Q. How have the Federal Reserve's programs affected the economy and financial markets?**

2 A. These programs allow the Federal Reserve to purchase government bonds and corporate  
3 bonds from banks. The banks then receive cash from the Federal Reserve, which results in  
4 an expansion of the money supply. This increase in the money supply keeps short-term  
5 interest rates low and increases the ability of banks to lend to consumers and businesses.

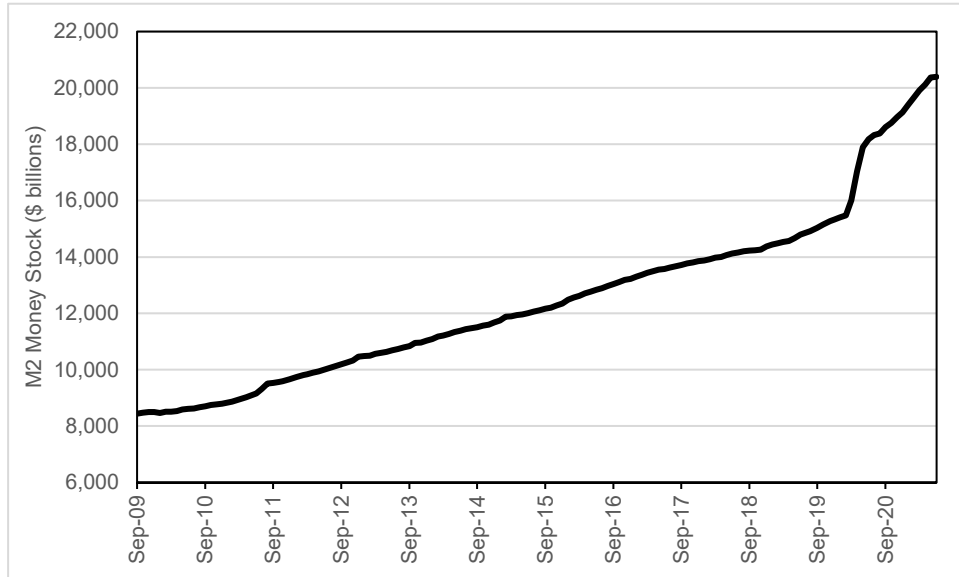
6 Investors in longer term bonds also respond, which affects the entire duration of the  
7 bond yield curve, from very near-term rates all the way out to 30-year yields. Continued  
8 access to capital is particularly important in current market conditions because it allows  
9 companies to offset the negative effects of COVID-19 on business operations. As shown in  
10 Figure 5, the programs enacted by the Federal Reserve have resulted in an unprecedented  
11 expansion of the money supply, as measured by M2<sup>10</sup> in recent months. That expansion has  
12 been much greater than the increase following the Federal Reserve's response to the Great  
13 Recession of 2008/2009. This again demonstrates the level of intervention that has been  
14 necessary to provide some stability to capital markets.

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<sup>10</sup> M2 is defined by the Federal Reserve as follows: M2 includes a broader set of financial assets held principally by households. M2 consists of M1 plus: (1) savings deposits (which include money market deposit accounts, or MMDAs); (2) small-denomination time deposits (time deposits in amounts of less than \$100,000); and (3) balances in retail money market mutual funds ( MMMFs).

1

**Figure 5: M2 Money Stock – September 2009 – June 2021<sup>11</sup>**



2

3

**Q. How has the current economic environment affected the credit ratings for utilities?**

4

A. According to a recent report by S&P Global, credit ratings for North American utilities

5

“weakened sharply in 2020.”<sup>12</sup> According to S&P, “[t]he percentage of North American

6

regulated utilities with a negative outlook or on CreditWatch with negative implications

7

surged from 18% in 2019 to 36% in 2020.”<sup>13</sup> The report also indicated “that the number of

8

downgrades exceeded the number of upgrades by a wide margin in 2020 for the first time

9

since 2010.”<sup>14</sup> The COVID-19 pandemic “was not the culprit for weaker credit quality” the

10

report states.<sup>15</sup> On the additional causes of the weakening credit profiles, S&P stated: “[t]he

<sup>11</sup> Board of Governors of the Federal Reserve System (US), M2 Money Stock [M2], retrieved from FRED, Federal Reserve Bank of St. Louis (July 27, 2021), available at <https://fred.stlouisfed.org/series/M2SL>.

<sup>12</sup> S&P, *Utility sector's credit ratings weakened sharply in 2020: S&P Global Ratings* (January 21, 2021), available at <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/012121-utility-sectors-credit-ratings-weakened-sharply-in-2020-sampp-global-ratings>.

<sup>13</sup> *Id.*

<sup>14</sup> *Id.*

<sup>15</sup> *Id.*

1 main causes of weakening credit quality reflected environment, social, and governance  
2 (ESG) risks, regulatory issues, and companies' practice of strategically managing financial  
3 measures close to their downgrade threshold with little or no cushion."<sup>16</sup> While the views of  
4 rating agencies represent an important consideration, they are only one factor that equity  
5 investors consider. The important distinction is that credit rating agencies are primarily  
6 focused on the ability of a utility to pay its debts. Equity analysts and institutional investors  
7 are more concerned with profitability, value creation, and the risks that affect equity.

8 **Q. What are your conclusions regarding the effects of the current market environment on**  
9 **the cost of equity for SDG&E?**

10 A. The risks to equity investors are elevated in comparison to the conditions that existed during  
11 the 2019 timeframe when SDG&E's last cost of capital case was filed and decided. Given  
12 the uncertainty and volatility that have characterized capital markets since February 2020,  
13 the increase in relative risk to the utility industry (as measured by Beta) compared to the  
14 broader market, and the pressures cited by S&P on utility credit quality, it is reasonable that  
15 equity investors would require a higher ROE to compensate them for the additional risk  
16 associated with owning common stock.

17 **B. The Steepening Yield Curve and Inflation Risk**

18 **Q. The Federal Reserve generally has pursued an accommodative monetary policy since**  
19 **the Great Recession of 2008/2009. Has the Federal Reserve recently signaled a**  
20 **continuation of its accommodative monetary policy?**

21 A. Yes. In a press release on April 28, 2021, Federal Reserve Chairman Jerome Powell stated  
22 that, "[o]ur guidance for interest rates and asset purchases ties the path of the federal funds

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<sup>16</sup> *Id.*

1 rate and the size of the balance sheet to our employment and inflation goals. This outcome-  
2 based guidance will ensure that the stance of monetary policy remains highly  
3 accommodative as the recovery progresses.”<sup>17</sup> The Federal Reserve also indicated that it  
4 would keep the federal funds rate near zero and continue to maintain its sizeable asset  
5 purchases of both Treasuries and mortgage-backed securities until substantial further  
6 progress was made toward its dual goals of maximum employment and price stability,  
7 noting that “[t]he economy is a long way from our goals, and it is likely to take some time  
8 for substantial further progress to be achieved.”<sup>18</sup>

9 **Q. What effect, if any, will the Federal Reserve’s accommodative monetary policy have on**  
10 **long-term interest rates over the near term?**

11 A. Although the Federal Reserve’s current accommodative monetary policy will keep short-  
12 term interest rates low, long-term interest rates can increase even though monetary policy  
13 remains accommodative. That is exactly what occurred in August 2020 when yields on  
14 government and corporate bonds started rising.

15 **Q. In general, what conclusions can be drawn from the relationship between short-term**  
16 **and long-term interest rates?**

17 A. The yield curve—which illustrates the difference between long-term and short-term interest  
18 rates—is a leading economic indicator of phases of the business cycle. A flat (or inverted)  
19 yield curve means that long-term interest rates are similar to (or lower than) short-term  
20 interest rates. Such a yield curve shape usually precedes a recession. An upward-sloping

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<sup>17</sup> Board of Governors of the Federal Reserve System, *FOMC Press Conference* (April 28, 2021), available at <https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20210428.pdf>.

<sup>18</sup> *Id.*

1 yield curve means that long-term interest rates are higher than short-term interest rates. A  
2 steepening yield curve indicates that the economy is entering a period of economic  
3 expansion following a recession.<sup>19</sup> The change in yield curve shape over time can be  
4 illustrated as a single data series: the interest rate term spread. The term spread is the  
5 difference between long-term and short-term rates.

6 **Q. Have you reviewed the yield curve to determine investors' expectations regarding the**  
7 **economy over the near-term?**

8 A. Yes. I calculated the difference between the yield on the 10-year Treasury bond and the 2-  
9 year Treasury bond from January 2016 to June 2021. I selected the 10-year Treasury bond  
10 yield to represent long-term interest rates and the 2-year Treasury bond to represent short-  
11 term interest rates. As shown in Figure 6, the yield curve has been steepening since June  
12 2020 and increased to approximately 160 basis points in April 2021, which is the highest  
13 level in more than five years. While the spread decreased to 120 basis points in June 2021,  
14 the decrease is seen as transitory resulting from a recent increase in COVID-19 cases that  
15 could affect economic growth in the short-term. However, over the near and long-term,  
16 long-term interest rates are still expected to continue to increase and thus the yield curve  
17 will continue to steepen.<sup>20</sup> The steepening of the yield curve indicates that investors expect  
18 economic growth and inflation to increase in the near-term. As a result, investors have been

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<sup>19</sup> Fidelity.com, *What is a yield curve*, available at <https://www.fidelity.com/learning-center/investment-products/fixed-income-bonds/bond-yield-curve>.

<sup>20</sup> CNBC.com, Landsman, Stephanie. *Inflation Breakout Will Drive 10-Year Treasury Yields above 2% in Coming Months, Wells Fargo Predicts* (June 18, 2021), available at [www.cnbc.com/2021/06/18/inflation-breakout-will-soon-drive-10-year-yields-above-2percent-wells-fargo.html](http://www.cnbc.com/2021/06/18/inflation-breakout-will-soon-drive-10-year-yields-above-2percent-wells-fargo.html); CNBC.com, Domm, Patti. *The Mystifying Bond Market Behavior Could Last All Summer* (Jul. 17, 2021), available at <https://www.cnbc.com/2021/07/16/the-mystifying-bond-market-behavior-could-last-all-summer.html>.

1 rotating out of long-term government bonds to avoid being locked into low interest rates for  
2 the long-term. The steeper yield curve signals that higher yields are required by investors in  
3 long-term government bonds.

4 **Figure 6: 10-year Treasury Bond Yield Minus 2-year Treasury Bond Yield – January**  
5 **2016 – June 2021<sup>21</sup>**



6  
7  
8 **Q. Have investment firms commented on the steepening of the yield curve?**

9 A. Yes. Several investment firms have noted that the yield curve is expected to continue to  
10 steepen, which is an indicator that the economy is entering the early expansion phase of the  
11 business cycle. For example, Morgan Stanley indicated that they expect a “V-shaped”  
12 economic recovery and therefore advised investors to underweight government bonds and

<sup>21</sup> Federal Reserve Bank of St. Louis, 10-Year Treasury Constant Maturity Minus 2-Year Treasury Constant Maturity [T10Y2Y], retrieved from FRED, Federal Reserve Bank of St. Louis (June 30, 2021), available at <https://fred.stlouisfed.org/series/T10Y2Y>



1 overweight equities.<sup>22</sup> Similarly, an article in Bloomberg News discussed Goldman Sachs’  
2 views:

3 As the economic recovery consolidates next year, we expect to see more  
4 differentiation across the curve, with policymakers committing to keeping  
5 front-end rates low, but higher expectations for real growth and inflation  
6 driving long-end rates higher,” Goldman strategists including Zach Pandl  
7 wrote in the report, released Tuesday.

8 This should be especially true in the U.S. due to the Federal Reserve’s new  
9 average inflation targeting framework, which commits the central bank to  
10 holding off on rate hikes until inflation has reached its target and is on track  
11 to overshoot it.<sup>23</sup>

12 More recently, a different article in Bloomberg News summarized the following comments  
13 by BTG Pactual Asset Management regarding increasing interest rates:

14 We’re talking about a fair amount of stimulus—both fiscal and monetary—  
15 going forward,” BTG Pactual Asset Management’s John Fath said, referring  
16 to the \$1.9 trillion pandemic-relief bill and prospects for more, along with the  
17 Federal Reserve’s pledge to stay accommodative. “We potentially could  
18 grow a lot faster and inflation could come into the horizon a lot quicker,”  
19 which begets higher rates.<sup>24</sup>

20 Citigroup also projected that the yield on the 10-year Treasury bond is expected to increase  
21 in 2021, which prompted Citigroup’s recommendation to overweight equities and favor  
22 cyclical sectors over more defensive sectors such as utilities.<sup>25</sup>

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<sup>22</sup> Ossinger, Joanna. “Morgan Stanley Says Go Risk-On and ‘Trust the Recovery’ in 2021.” *Bloomberg.com*, 15 Nov. 2020, available at [www.bloomberg.com/news/articles/2020-11-16/morgan-stanley-says-go-risk-on-and-trust-the-recovery-in-2021](http://www.bloomberg.com/news/articles/2020-11-16/morgan-stanley-says-go-risk-on-and-trust-the-recovery-in-2021) .

<sup>23</sup> McCormick, Liz. “Goldman Goes All-In for Steeper U.S. Yield Curves as 2021 Theme.” *Bloomberg.com*, (Nov. 10, 2020), available at <https://www.bloomberg.com/news/articles/2020-11-10/goldman-goes-all-in-for-steeper-u-s-yield-curves-as-2021-theme>.

<sup>24</sup> Spratt, Stephen, et al. “Treasury Yields Leap Past Key Level to 1.64%, Highest in a Year.” *Bloomberg.com*, Bloomberg (March 12, 2021), available at [www.bloomberg.com/news/articles/2021-03-12/treasury-yields-surge-to-test-key-level-in-sudden-selling-bout](http://www.bloomberg.com/news/articles/2021-03-12/treasury-yields-surge-to-test-key-level-in-sudden-selling-bout).

<sup>25</sup> Keown, Callum. “10-Year Treasury Yields Will Rise Into 2021, Citi Says. This 'Aggressive' Equity Strategy Can Outperform.” *Barrons.com*, (Nov. 16, 2020), available at [www.barrons.com/articles/10-](http://www.barrons.com/articles/10-)

1 **Q. Have equity analysts specifically commented on the performance of the utility sector**  
2 **over the near-term?**

3 A. Yes. In a recent article, Barron's conducted its Big Money poll of 152 professional  
4 investors regarding the outlook for the next twelve months. The majority of respondents  
5 projected the yield on the 10-year Treasury Bond to be between 2.00 percent and 2.50  
6 percent at the end of the next twelve months, which is an increase from the current 30-day  
7 average 10-year Treasury Bond yield as of July 26, 2021 of 1.30 percent.<sup>26</sup> Furthermore,  
8 the utility sector was selected as the sector that will perform the worst over the next twelve  
9 months.<sup>27</sup> Therefore, the professional investors surveyed by Barron's are projecting that  
10 utilities will underperform the broader market in 2021.

11 Similarly, Fidelity recently recommended underweighting the utility sector and ranked  
12 the utility sector last in its relative strength rankings, which measure each sectors'  
13 performance relative to the broader market.<sup>28</sup>

14 **Q. How has the utility sector performed historically during periods where the yield curve**  
15 **is steepening, and the economy is in the early stage of the business cycle?**

16 A. Fidelity Investments recently noted that the utility sector has historically been one of the  
17 worst performing sectors during the early phase of the business cycle, with a geometric

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[year-treasury-yields-will-rise-into-2021-citi-says-this-aggressive-equity-strategy-can-outperform-51605543920.](https://www.barrons.com/articles/stocks-have-more-room-to-rise-says-barrons-big-money-poll-51619222301?mod=past_editions)

<sup>26</sup> Barron's, Jasinski, Nicholas, This Bull Market Is Far From Over, Pros Say. Where They're Investing Now. (Apr. 26, 2021), available at [www.barrons.com/articles/stocks-have-more-room-to-rise-says-barrons-big-money-poll-51619222301?mod=past\\_editions](https://www.barrons.com/articles/stocks-have-more-room-to-rise-says-barrons-big-money-poll-51619222301?mod=past_editions).

<sup>27</sup> *Id.*

<sup>28</sup> Fidelity, "Q2 2021 sector scorecard: The financials and energy sectors may be areas to watch as inflation returns," (May 5, 2021), available at [https://institutional.fidelity.com/app/item/RD\\_13569\\_42895/quarterly-sector-update.html](https://institutional.fidelity.com/app/item/RD_13569_42895/quarterly-sector-update.html).

1 average return of -10.5 percent.<sup>29</sup> This conclusion is further supported by studies conducted  
2 by both Goldman Sachs and Deutsche Bank that examined the sensitivity of share prices in  
3 different industries to changes in interest rates over the past five years. Both Goldman  
4 Sachs and Deutsche Bank found that utilities had one of the strongest negative relationships  
5 with bond yields (*i.e.*, increases in bond yields resulted in the decline of utility share  
6 prices).<sup>30</sup> This is important because if the utility sector underperforms over the near-term,  
7 then the DCF model, which relies on recent historical averages of share prices, is likely to  
8 understate the cost of equity for SDG&E over the period that the rates established in this  
9 proceeding will be in effect.

10 **Q. What is the interest rate outlook?**

11 A. While yields on government and corporate bonds have already risen by 50 to 100 basis  
12 points from historic lows in July and August 2020, investors continue to expect upward  
13 pressure on interest rates over the next several years. Yields on 30-year Treasury bonds are  
14 forecast to increase from the current 30-day average of 2.20 percent for the period ending

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<sup>29</sup> Fidelity Investments, “The Business Cycle Approach to Equity Sector Investing,” 2020, *available at* [https://www.fidelity.com/webcontent/ap101883-markets\\_sectors-content/21.01.0/business\\_cycle/Business\\_Cycle\\_Sector\\_Approach\\_2020.pdf](https://www.fidelity.com/webcontent/ap101883-markets_sectors-content/21.01.0/business_cycle/Business_Cycle_Sector_Approach_2020.pdf).

<sup>30</sup> Bloomberg.com, Lee, Justina. “Wall Street Is Rethinking the Treasury Threat to Big Tech Stocks.” (Mar. 11, 2021), *available at* [www.bloomberg.com/news/articles/2021-03-11/wall-street-is-rethinking-the-treasury-threat-to-big-tech-stocks](http://www.bloomberg.com/news/articles/2021-03-11/wall-street-is-rethinking-the-treasury-threat-to-big-tech-stocks).

1 June 30, 2021, to 3.50 percent over the period from 2023-2027, according to Blue Chip  
2 Financial Forecasts.<sup>31</sup>

3 **Q. Is inflation risk becoming more of a concern for investors?**

4 A. Yes, I believe it is. Given the economic stimulus that has been provided to support the  
5 economy in response to the COVID-19 pandemic in the form of both monetary policy from  
6 the Federal Reserve and fiscal policy from the U.S. Congress, there is an increased  
7 likelihood of upward pressure on inflation over the next several years. Illustrating this risk,  
8 Morgan Stanley’s research points to a combination of economic fundamentals that lead to  
9 an inflation forecast of 2.00 percent in 2021 and “staying above 2% on a sustained basis  
10 from 2022.”<sup>32</sup>

11 A recent article in the Economist noted the following:

12 Core consumer prices in America rose by 0.9% month-on-month in April, the  
13 highest jump since 1982, practically guaranteeing that the annual rate will  
14 exceed 3% in the near future. Some economists sense the first stirrings of an  
15 outbreak of sustained high inflation, like that which afflicted many countries  
16 in the 1970s.<sup>33</sup>

17 **Q. What is your conclusion with regard to current and prospective interest rates?**

18 A. Interest rates on government and corporate bonds have risen substantially from near all-time  
19 low levels in July and August 2020. The steepening yield curve indicates that investors  
20 believe the economy is in the early stages of an economic recovery and suggests that yields

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<sup>31</sup> Blue Chip Financial Forecasts, Vol 40, No. 6 (June 1, 2021), p. 14.

<sup>32</sup> Morgan Stanley and Co. LLC., *Don’t Underestimate Inflation’s Upside Risks* (January 5, 2021).

<sup>33</sup> The Economist, “When does transitory inflation become sustained? Some lessons from the 1970s,” (May 29, 2021), available at [https://www.economist.com/finance-and-economics/2021/05/29/when-does-transitory-inflation-become-sustained?gclid=CjwKCAjwjdOIBhA\\_EiwAHz8xmWfdncW0OXMwjBaVyuN1B151gp7bNPE0HseCoHP2-BWY4rGgLmdxyhoCZFkQAvD\\_BwE&gclid=aw.ds](https://www.economist.com/finance-and-economics/2021/05/29/when-does-transitory-inflation-become-sustained?gclid=CjwKCAjwjdOIBhA_EiwAHz8xmWfdncW0OXMwjBaVyuN1B151gp7bNPE0HseCoHP2-BWY4rGgLmdxyhoCZFkQAvD_BwE&gclid=aw.ds).

1 on longer-term Treasury bonds will continue to increase as the recovery progresses and as  
2 the market recognizes the potential risk of higher inflation. While government bond yields  
3 are low relative to historical levels, it is important to view current Treasury bond yields in  
4 the context of conditions in the economy and capital markets. The low interest rate  
5 environment over the past year has been directly attributable to steps the Federal Reserve  
6 has taken to contain the economic effects of COVID-19, including reducing the federal  
7 funds rates and taking additional measures to support the U.S. economy and provide  
8 liquidity and stability in financial markets. These are short-term events that have little to do  
9 with the longer-term trend in bond yields or equity costs. Further, Treasury bond yields are  
10 only one of many factors that equity investors consider in determining their return  
11 requirements.

12 As discussed below, the CCM's adjustment mechanism relies on Moody's utilities  
13 bond index data as a proxy for changes in the cost of capital. In recent months, the direction  
14 of Moody's utility bond index has been highly correlated with changes in Treasury bond  
15 yields. Therefore, the Moody's utilities bond index data from the measurement period at  
16 issue under the CCM largely reflects anomalous data driven by responses to the COVID 19-  
17 pandemic.

### 18 **C. Cost of Capital Mechanism and the Cost of Equity**

#### 19 **Q. Please describe the CCM and how it applies to the Company.**

20 A. The CCM was adopted in 2008 (D.08-05-035) for SDG&E. It provides two methods to assess  
21 SDG&E's cost of capital in years that the Company is not required to file a cost of capital  
22 application—the adjustment mechanism and a utility's right to file, as discussed below. It  
23 was subsequently continued in D.13-03-015 and D.19-12-056 and is currently in effect for  
24 SDG&E.

1 Under the CCM process, the adjustment mechanism can automatically alter revenue  
2 requirements based on changes in utility bond rates. The CCM benchmark rate for SDG&E  
3 under the adjustment mechanism—which is set based on a yearly average of the applicable  
4 Moody’s utility bond index as of September 30 in the year prior to a cost of capital  
5 decision—is the basis of comparison to determine if future measurement periods “trigger”  
6 the mechanism. The trigger occurs if the change in the average Moody’s Baa utility bond  
7 index (the index that applies to SDG&E based on its credit ratings at the time D.19-12-056  
8 was issued) relative to the adjustment mechanism’s benchmark is larger than plus or minus  
9 1.00 percent.

10 If a change of more than 1.00 percent occurs, SDG&E’s authorized ROE is adjusted,  
11 upward or downward, by one half of the difference between the CCM benchmark and the  
12 twelve-month average determined during the CCM Period, measured from October through  
13 September of each calendar year. While the CCM’s adjustment mechanism tracks broad  
14 movements in the capital markets by monitoring utility debt yields, extraordinary events can  
15 materially impact the cost of equity in ways not reflected in average utility bond yields. In  
16 that case, the CCM alternatively provides utilities the right to file a cost of capital  
17 application to have a full assessment of their cost of capital for that year.<sup>34</sup>

18 **Q. Has the current CCM Period been influenced by extraordinary events?**

19 A. Yes, as discussed above, capital market conditions were unsettled in 2020 and 2021 due to  
20 the economic effects of the extraordinary event of the COVID-19 pandemic. While utilities  
21 have traditionally been a “safe-haven” for investors, that has not been true during the

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<sup>34</sup> See D.13-03-015, p. 7; D.08-05-035, p. 16; see also D.19-12-056, p. 45 (keeping the “existing CCM in place”).

1 COVID-19 pandemic. Capital market conditions changed dramatically in 2020 and the first  
2 two quarters of 2021, resulting in greater risk for investors in both the broader equity market  
3 and utility stocks. As such, the effects of the pandemic have materially impacted utilities’  
4 cost of capital and caused utilities to be affected differently than debt markets in general.  
5 Moreover, with regard to SDG&E, Moody’s is specifically monitoring “customer usage  
6 declines, utility bill payment delinquency, and the regulatory response to counter any  
7 negative impacts on earnings and cash flow.”<sup>35</sup> This could have the effect of increasing the  
8 risk profile of the Company.

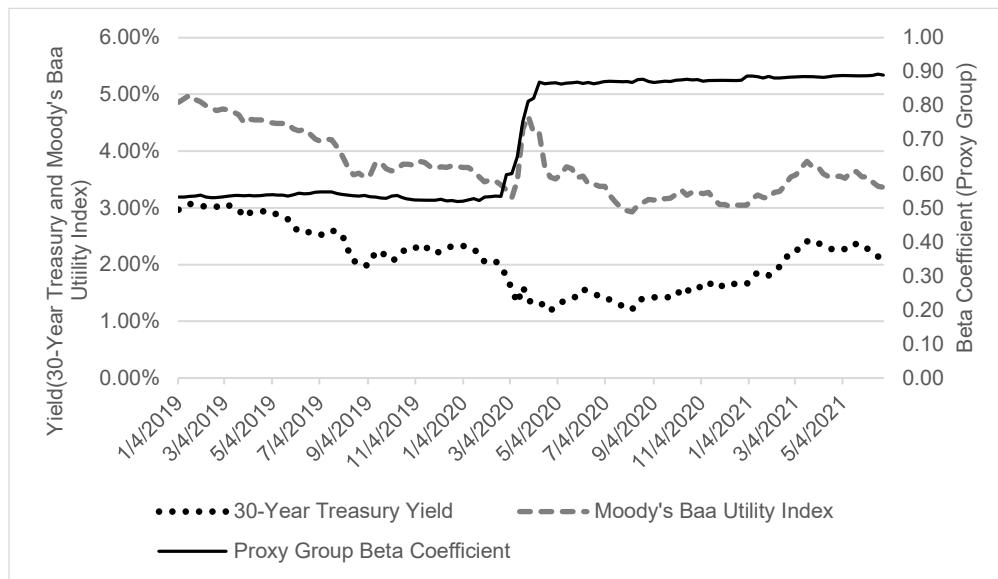
9 **Q. Is there specific evidence underscoring the divergence in debt and equity market**  
10 **response to the economic effects of COVID-19?**

11 A. Yes. As described above, the Federal Reserve and U.S. Congress took extraordinary  
12 measures to support the economy and stabilize financial markets. But in doing so they have  
13 driven down interest rates, particularly during the CCM period at issue, as evidenced in the  
14 Moody’s Baa utility bond index dropping to historically low levels at the beginning of the  
15 CCM measurement period in the fall of 2020 and early 2021. Conversely, other market  
16 indicators suggest that the cost of equity has risen, including heightened volatility in equity  
17 markets overall, and significantly higher Beta coefficients in the utility industry. As shown  
18 in Figure 7, the risk of equity investments in utility companies has increased since the onset  
19 of the COVID-19 pandemic even as interest rates declined.

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<sup>35</sup> Moody’s Investors Service, *San Diego Gas & Electric Company, Update to credit analysis following upgrade to A3* (May 10, 2021) (“Moody’s May 10, 2021”), p. 2.

1 **Figure 7: Cost of Debt and Utility Beta Coefficients, January 2019-June 2021<sup>36</sup>**



2  
3 At the onset of the COVID-19 pandemic, utility interest rates sharply increased in  
4 March 2020. However, as monetary and fiscal policies were designed to contain the economic  
5 consequences, utility interest rates stabilized and declined in April 2020. These  
6 unprecedented programs allow the Federal Reserve to purchase both government bonds and  
7 corporate bonds from banks, supporting lower bond yields.

8 Yet Beta coefficients for utility companies remain elevated and have continued to  
9 increase. Higher betas translate to greater risk and higher required equity returns. Under  
10 these circumstances, the Moody's utility bond index cannot be expected to be a reliable  
11 indicator of the cost of equity for utilities and an example of the circumstances under which  
12 the CCM provides utilities the right to file an application instead of the adjustment  
13 mechanism applying and tying ROE to interest rates.

<sup>36</sup> Source: Bloomberg Professional. Beta coefficients are based on 5-years of weekly returns relative to the S&P 500.



1 **Q. Utilities traditionally have been a safe haven for investors during periods of market**  
2 **volatility. Has this been true during the recent period of volatility?**

3 A. No, it has not. Charles Schwab recently rated the Utilities sector as “Underperform,” noting:

4 The Utilities sector has tended to perform relatively better when concerns  
5 about slowing economic growth resurface, and to underperform when those  
6 worries fade. That’s partly because of the sector’s traditional defensive  
7 nature and steady revenues—people need water, gas and electric services  
8 during all phases of the business cycle. Meanwhile, the low interest rates  
9 that typically come with a weak economy provide cheap funding for the large  
10 capital expenditures required in this industry.

11 However, valuations have been driven up in recent years as investors have  
12 reached for yield in this new era of low interest rates; this may decrease the  
13 sector’s traditional defensive characteristics. And while interest rates are  
14 expected to remain generally low, they could edge higher as the economy  
15 continues to expand. On the flip side, there is the potential for a renewed  
16 decline in the economy to push rates even lower, or there could be significant  
17 government funding to Utilities as part of clean-energy initiatives that would  
18 benefit the sector’s profit outlook.<sup>37</sup>

19 **Q. How have utilities performed relative to the broader equity market since the onset of**  
20 **COVID-19?**

21 A. While the overall market has surpassed its pre-pandemic levels, the same is not true with  
22 regard to the utility sector. The S&P Utilities sector was one of the worst performing  
23 market sectors in 2020, declining by 7.49 percent from the mid-February peak as compared  
24 to a 12.57 percent increase for the S&P 500. The only market sectors that underperformed  
25 utilities in 2020 were real estate (down 8.30 percent) and energy (down 26.31 percent). By  
26 the end of the year, seven of the other eight market sectors were above their mid-February  
27 2020 levels, led by technology (up 28.09 percent), consumer discretionary (up 22.92  
28 percent), and materials (up 22.26 percent).<sup>38</sup> Figure 8 compares the year-to-date daily

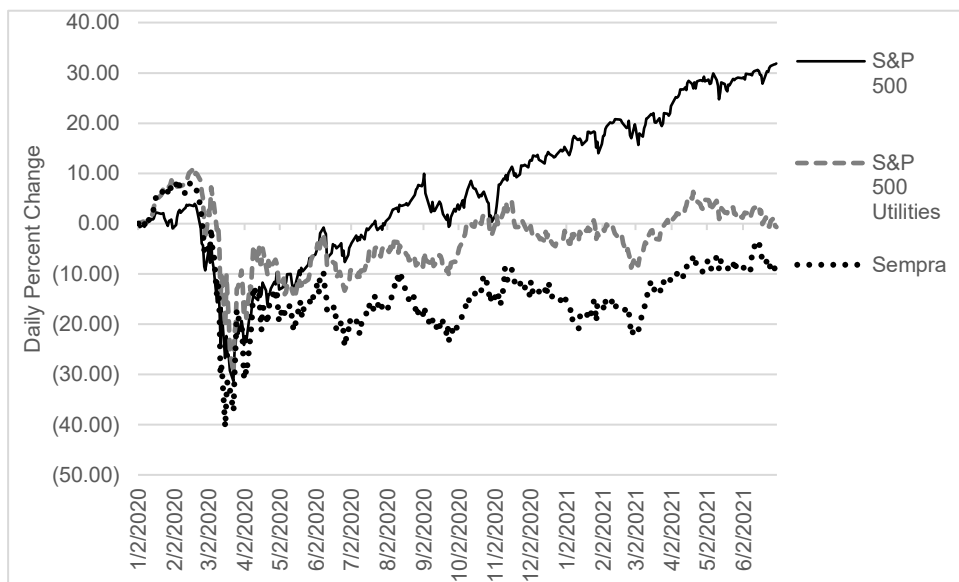
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<sup>37</sup> Charles Schwab, Utilities Sector Rating: Underperform (March 18, 2021).

<sup>38</sup> Comparison from February 19, 2020 through December 31, 2020.

1 performance of the S&P 500 stock market index and the S&P Utilities Index as of June 30,  
 2 2021. Performance is shown as the percentage gain from the last trading day of the previous  
 3 year. As Figure 8 shows, the S&P 500 has largely recovered as it now exceeds its pre-  
 4 COVID-19 levels. However, the Utilities Index remains well below pre-pandemic as of the  
 5 end of June 2021.

6 **Figure 8: Relative Performance of Utilities and the S&P 500**  
 7 **January 2020 – June 2021<sup>39</sup>**



8 As such, not only has the utility industry cost of equity diverged from interest rates,  
 9 its performance has diverged from the broader equity market as well.

11 **Q. What conclusions do you draw from your analysis of capital market conditions?**

12 **A.** The important conclusions regarding capital market conditions are:

- 13 • The assumptions used in the ROE estimation models have been affected by recent,  
 14 historically atypical market conditions. Therefore, it is important to consider the  
 15 results of multiple methodologies to inform the determination of the appropriate cost

<sup>39</sup> Source: S&P Market Intelligence.

1 of equity for SDG&E in this proceeding.

- 2 • While short-term interest rates remain low in order to ensure the economic recovery  
3 continues and is sustainable following the COVID-19 pandemic, investors are  
4 increasingly concerned that inflation will exceed the Federal Reserve's target. As  
5 such, long-term interest rates have increased substantially since August 2020 and the  
6 yield curve is steeper than at any time in the last five years. This supports the use of  
7 both current and forecast bond yields in the CAPM and Risk Premium models.
- 8 • As interest rates increase, high utility valuations are expected to decline as utilities  
9 underperform the broader market. For that reason, the results of the DCF model tend  
10 to understate the forward-looking cost of equity because the dividend yield is  
11 calculated using historical average stock prices, which do not fully reflect investors'  
12 expectation for higher inflation and higher bond yields. Therefore, it is important to  
13 also consider the results of alternative models such as the CAPM, Risk Premium,  
14 and Expected Earnings approaches.
- 15 • The CCM's adjustment mechanism is an unreliable measure of the cost of equity  
16 capital in these prevailing market conditions. The CCM's right to file a full cost of  
17 capital application is the more appropriate method to accurately assess the cost of  
18 capital in the circumstances of the COVID-19 pandemic.

19 **V. PROXY GROUP SELECTION**

20 **Q. Why is it necessary to select a proxy group to estimate the cost of equity for SDG&E?**

21 A. Since the ROE is a market-based concept and SDG&E is not publicly traded, it is necessary  
22 to establish a group of companies that is both publicly traded and comparable to SDG&E.  
23 Even if SDG&E were a publicly traded entity, it is possible that transitory events could bias

1 the Company's market value in one way or another in a given period of time. A significant  
2 benefit of using a proxy group is the ability to mitigate the effects of short-term events that  
3 may be associated with any one company. The proxy companies used in my ROE analyses  
4 possess a set of business and operating characteristics similar to SDG&E's electric and gas  
5 utility operations, and thus provide a reasonable basis for estimating the Company's ROE.

6 **Q. Please provide a summary profile of SDG&E.**

7 A. SDG&E is a wholly owned subsidiary of Sempra Energy, providing electric services to a  
8 population of approximately 3.7 million and natural gas services to a population of  
9 approximately 3.4 million. In addition, SDG&E owns and operates four natural gas-fired  
10 power plants, three of which are in California and one of which is in Nevada.<sup>40</sup> SDG&E has  
11 long-term issuer ratings from S&P of BBB+ (Outlook: Stable), Moody's Investors Service  
12 ("Moody's") of A3 (Outlook: Stable), and Fitch Ratings ("Fitch") of BBB+ (Outlook:  
13 Stable).<sup>41</sup>

14 **Q. Please describe the specific screening criteria you have utilized to select a proxy group.**

15 A. I began with the 36 investor-owned domestic electric or combination gas and electric  
16 utilities covered by Value Line and then screened companies according to the following  
17 criteria:

- 18 1. Consistently pays quarterly cash dividends;
- 19 2. Maintains an investment grade long-term issuer rating (BBB- or higher) from S&P;
- 20 3. Is covered by more than one equity analyst;

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<sup>40</sup> Sempra Energy, 2020 SEC Form 10-K (February 27, 2020), pp. 12-14.

<sup>41</sup> *Id.* at 74; Moody's, Ratings Action: Moody's upgrades San Diego Gas & Electric to A3 from Baa1; outlook stable (March 30, 2021) ("Moody's March 30, 2021"), p. 1.

4. Has positive earnings growth rates published by at least two of the following sources: Value Line, Thomson First Call (as reported by Yahoo! Finance), and Zack's Investment Research ("Zacks");
5. Regulated revenue and net operating income make up more than 80 percent of the consolidated company's revenue and net operating income (based on a three-year average from 2018-2020); and
6. Is not involved in a merger or other transformative transaction for an approximate six-month period prior to my analysis.

**Q. What is the composition of your resulting proxy group?**

A. Based on the screening criteria discussed above, I arrived at a proxy group consisting of the companies shown in Figure 9. The results of my screening process are shown in Exhibit JMC-3.

**Figure 9: Proxy Group**

<b>Company</b>	<b>Ticker</b>
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power Company, Inc.	AEP
Avista Corporation	AVA
Black Hills Corporation	BKH
CMS Energy Corporation	CMS
Consolidated Edison, Inc.	ED
Duke Energy Corporation	DUK
Edison International	EIX
Entergy Corporation	ETR
Evergy, Inc.	EVRG
Eversource Energy	ES
IDACORP, Inc.	IDA
NorthWestern Corporation	NWE

OGE Energy Corporation	OGE
Pinnacle West Capital Corporation	PNW
Portland General Electric Company	POR
Southern Company	SO
Wisconsin Energy Corporation	WEC
Xcel Energy Inc.	XEL

1 **Q. Do your screening criteria result in a group of companies that investors would view as**  
2 **comparable to SDG&E?**

3 A. Yes. I have selected this group of utilities to best align with the financial and operational  
4 characteristics of SDG&E. The proxy group screening criterion requiring an investment  
5 grade credit rating ensures that the proxy group companies, like SDG&E, are in sound  
6 financial condition. Additionally, I have screened on the percent of revenue and net  
7 operating income from regulated operations to differentiate between utilities that are  
8 protected by regulation and those with substantial unregulated operations or market-related  
9 risks. The proxy group also reflects SDG&E's electric and gas operations, and results in a  
10 proxy group with an average of 86 percent of regulated revenue and net operating income  
11 from electric operations and 14 percent from natural gas utility operations, which is  
12 comparable to SDG&E's composition. These screens collectively reflect key risk factors  
13 that investors consider in making investments in electric and gas utilities.

14 **Q. What is your conclusion with regard to the proxy group for SDG&E?**

15 A. My conclusion is that my group of 20 electric and gas utilities adequately reflects the broad  
16 set of risks that investors consider when investing in a U.S.-regulated electric and gas utility  
17 such as SDG&E. Later in my testimony, I will evaluate whether an adjustment should be  
18 made to the results of my ROE analyses to account for differences in SDG&E's company-  
19 specific risks relative to the proxy group companies.

1 **VI. DETERMINATION OF THE APPROPRIATE COST OF EQUITY**

2 **Q. What models did you use in your ROE analyses?**

3 A. I have utilized four ROE estimation models: the Constant Growth DCF, the CAPM, the  
4 Bond Yield Plus Risk Premium, and Expected Earnings. The following describes each of  
5 the models and inputs I have utilized to estimate SDG&E's cost of equity.

6 **A. Constant Growth DCF Model**

7 **Q. Please describe the DCF approach.**

8 A. The DCF approach is based on the theory that a stock's current price represents the present  
9 value of all expected future cash flows. In its simplest form, the DCF model expresses the  
10 ROE as the sum of the expected dividend yield and long-term growth rate:

$$k = \frac{D(1+g)}{P_0} + g \quad [1]$$

12 Where "k" equals the required return, "D" is the current dividend, "g" is the expected  
13 growth rate, and "P" represents the subject company's stock price.

14 Assuming a constant growth rate in dividends, the model may be rearranged to compute the  
15 ROE accordingly, as shown in Formula [2]:

$$r = \frac{D}{P} + g \quad [2]$$

17 Stated in this manner, the cost of common equity is equal to the dividend yield plus the  
18 dividend growth rate.

19 **Q. What are the assumptions underlying the Constant Growth DCF model?**

20 A. The Constant Growth DCF model is based on the following assumptions: (1) a constant  
21 average growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a  
22 constant price-to-earnings multiple; and (4) a discount rate greater than the expected growth  
23 rate.

1 **Q. Please summarize your application of the Constant Growth DCF model.**

2 A. I calculated DCF results for each of the proxy group companies using the following inputs:

- 3 1. Average stock prices for the historical period, over 30-, 90-, and 180-trading days
- 4 through June 30, 2021;
- 5 2. Annualized dividend per share as of June 30, 2021; and
- 6 3. Company-specific earnings growth forecasts for the term  $g$ .

7 My application of the Constant Growth DCF model is provided in Exhibit JMC-4.

8 **Q. Why did you use averaging periods of 30, 90, and 180 trading days?**

9 A. It is important to use an average of recent trading days to calculate the term  $P$  in the DCF  
10 model to ensure that the calculated ROE is not skewed by anomalous events that may affect  
11 stock prices on any given trading day. At the same time, it is important to reflect the  
12 conditions that have defined the financial markets over the recent past. In my view,  
13 consideration of those three averaging periods reasonably balances these interests.

14 **Q. Did you adjust the dividend yield to account for periodic growth in dividends?**

15 A. Yes, I did. Utility companies tend to increase their quarterly dividends at different times  
16 throughout the year. So it is reasonable to assume that such increases will be evenly  
17 distributed over calendar quarters. Given that assumption, it is reasonable to apply one-half  
18 of the expected annual dividend growth rate for the purposes of calculating this component  
19 of the DCF model. This adjustment ensures that the expected dividend yield is  
20 representative of the coming 12-month period. Accordingly, the DCF estimates reflect one-  
21 half of the expected growth in the dividend yield.<sup>42</sup>

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<sup>42</sup> The expected dividend yield is calculated as  $d_1 = d_0 (1 + \frac{1}{2} g)$ .



1 **Q. What sources of growth have you used in your DCF analysis?**

2 A. I have used the consensus analyst five-year growth estimates in earnings per share (“EPS”)  
3 from Thomson First Call and Zacks, as well as EPS growth rate estimates published by  
4 Value Line.

5 **Q. Why did you focus on earnings per share growth?**

6 A. The Constant Growth DCF model assumes that dividends grow at a constant rate in  
7 perpetuity. Accordingly, in order to reduce the long-term growth rate to a single measure,  
8 one must assume a constant payout ratio, and that earnings per share, dividends per share,  
9 and book value per share all grow at the same constant rate. Over the long term, however,  
10 dividend growth can only be sustained by earnings growth. As noted by Brigham and  
11 Houston in their text, *Fundamentals of Financial Management*: “Growth in dividends  
12 occurs primarily as a result of growth in *earnings per share* (EPS).”<sup>43</sup> It is therefore  
13 important to focus on measures of long-term earnings growth from credible sources as an  
14 appropriate measure of long-term growth in the DCF model.

15 **Q. Are other sources of dividend growth available to investors?**

16 A. Yes, although that does not mean that investors incorporate such estimates into their  
17 investment decisions. Academic studies suggest that investors base their investment  
18 decisions on analysts’ expectations of growth in earnings.<sup>44</sup> I am not aware of any similar

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<sup>43</sup> Eugene F. Brigham and Joel F. Houston, *Fundamentals of Financial Management* (Concise Fourth Edition, Thomson South-Western), at 317 (emphasis added).

<sup>44</sup> See, e.g., Harris and Marston, *Estimating Shareholder Risk Premia Using Analysts Growth Forecasts*, *Financial Management*, Summer 1992, at 65; and 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 that updated study are consistent with Vander Weide and Carleton’s original conclusions.

1 findings regarding non-earnings-based growth estimates. In addition, the only forward-  
2 looking growth rates that are available on a consensus basis are analysts' EPS growth rates.  
3 The fact that earnings growth projections are the only widely-accepted estimates of growth  
4 provides further support that earnings growth is the most meaningful measure of growth  
5 among the investment community.

6 **Q. What are the results of your Constant Growth DCF analysis?**

7 A. The results of my Constant Growth DCF analysis are provided in Exhibit JMC-4 and  
8 summarized in Figure 10.

9 **Figure 10: Constant Growth DCF Results**

	<b>Mean Low</b>	<b>Mean</b>	<b>Mean High</b>
30-day average	8.20%	8.95%	9.66%
90-day average	8.24%	8.99%	9.70%
180-day average	8.33%	9.08%	9.79%

10  
11 **Q. How did you calculate the Mean High, Mean Low, and Overall Mean DCF results?**

12 A. I calculated the Mean High DCF result using the maximum growth rate (*i.e.*, the maximum  
13 of the First Call, Value Line, and Zacks EPS growth rates) in combination with the expected  
14 dividend yield for each of the proxy group companies. I used a similar method to calculate  
15 the Mean Low DCF results, using the minimum growth rate for each company. The Mean  
16 results reflect the average growth rate from each source for each company in combination  
17 with the expected dividend yield.

18 **Q. What is your conclusion regarding the results of the DCF model?**

19 A. The reliability of the DCF model has been subject to increasing scrutiny over the past  
20 decade. A combination of unsustainably low interest rates, coupled with unsustainably high

1 utility stock prices and reduced near-term earnings growth, affect all three inputs to the DCF  
2 model. Concerns regarding the reliability of the DCF model have led the FERC to abandon  
3 its long-held reliance on the DCF to now consider the results from multiple models. As  
4 explained in a recent order, the FERC summarized:

5 We find that it is appropriate to use the CAPM and Risk Premium models in  
6 addition to the DCF model, consistent with the Commission's findings in  
7 Opinion No. 569, as modified by Opinion Nos. 569-A and 569-B, to  
8 determine the ROE in this proceeding. The Commission explained that using  
9 these models will better reflect how investors make their investment  
10 decisions.<sup>45</sup>

11 The Commission has also repeatedly stated that it reviews the results of multiple  
12 financial models.<sup>46</sup> The average DCF result is 9.01 percent, establishing a low-end estimate  
13 in comparison to the other models. Consistent with FERC's approach, I also consider the  
14 CAPM and Bond Yield Risk Premium results. Lastly, I estimate the Expected Earnings  
15 model in order to determine where to set the appropriate return. These models rely on  
16 market and analyst inputs that mitigate the problems associated with the DCF method.

#### 17 **B. CAPM Analysis**

18 **Q. Please briefly describe the general form of the Capital Asset Pricing Model.**

19 A. The CAPM is a risk premium approach that estimates the cost of equity for a given security  
20 as a function of a risk-free return plus a risk premium (to compensate investors for the non-  
21 diversifiable or "systematic" risk of that security).<sup>47</sup> As shown in Equation [3], the CAPM

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<sup>45</sup> 175 FERC ¶ 61,136 (Opinion No. 575) P 55 (May 20, 2021).

<sup>46</sup> See, e.g., D.19-12-056, pp. 20-21.

<sup>47</sup> Systematic risks are fundamental market risks that reflect aggregate economic measures and therefore cannot be mitigated through diversification. Unsystematic risks reflect company-specific risks that can be mitigated and ultimately eliminated through investments in a portfolio of companies and/or market sectors.

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

$$3 \quad K_e = r_f + \beta(r_m - r_f) \quad [3]$$

4 where:

5  $K_e$  = the required ROE for a given security;

6  $r_f$  = the risk-free rate of return;

7  $\beta$  = the Beta of an individual security; and

8  $r_m$  = the required return for the market as a whole.

9 The term  $(r_m - r_f)$  represents the Market Risk Premium (“MRP”). According to the  
10 theory underlying the CAPM, since unsystematic risk can be diversified away, investors  
11 should be concerned only with systematic or non-diversifiable risk. Non-diversifiable risk  
12 is measured by Beta, which is defined as:

$$13 \quad \beta = \frac{\text{Covariance}(r_e, r_m)}{\text{Variance}(r_m)} \quad [4]$$

14 where:

15  $r_e$  = the rate of return for the individual security or portfolio.

16 The variance of the market return, noted in Equation [4], is a measure of the  
17 uncertainty of the general market, and the covariance between the return on a specific  
18 security and the market reflects the extent to which the return on that security will respond  
19 to a given change in the market return. Thus, Beta represents the risk that the selected  
20 security will not be effective in diversifying systematic market risks.

21 **Q. Have economic and financial market conditions also affected the CAPM?**

22 A. Yes. Given the extraordinarily low level of interest rates on Treasury bonds as compared to  
23 historical levels, using current or even near-term projections of government bond yields

1 would distort market expectations for a reasonable risk-free rate. Using the 5-year forecast  
2 of bond yields helps alleviate these short-term market factors affecting the risk-free rate, or  
3 “ $r_f$ ” in the CAPM formula. As discussed in Section IV, interest rates are expected to  
4 increase as the economy recovers from the effects of the COVID-19 pandemic. Further, due  
5 to the fiscal and monetary stimulus provided to the U.S. economy in recent months, inflation  
6 risk is elevated. It is also important to recognize that SDG&E is financing long-lived assets,  
7 and the cost of capital should be forward looking to reflect that perspective.

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

9 A. Since both the CAPM and Risk Premium models assume long-term investment horizons, I  
10 used the Blue Chip forecast of the yield on 30-year Treasury bonds for 2023-2027 of 3.50  
11 percent as my estimate of the risk-free rate.<sup>48</sup> That time period reflects a forward-looking  
12 view, which is the objective of the ROE analysis. I also considered CAPM results applying  
13 the 30-day average yield (as of June 30, 2021) on 30-year Treasury bonds of 2.20 percent.

14 **Q. Have regulators in other jurisdictions supported the use of a projected risk-free rate in  
15 the CAPM analysis?**

16 A. Yes. In a 2017 decision, the Massachusetts Department of Public Utilities (or “MDPU”)  
17 noted that accommodative Federal monetary policy had pushed Treasury yields to near  
18 historical lows. As a result, the MDPU found it appropriate to use prospective interest rate  
19 expectations in the CAPM, stating:

20 Current federal monetary policy that is intended to stimulate the economy  
21 has pushed treasury yields to near historic lows [ ]. Consequently, the  
22 Department has found that a CAPM analysis based on current treasury yields  
23 may tend to underestimate the risk-free rate over the long term and, thereby,  
24 understate the required ROE. The CAPM is based on investor expectations  
25 and, therefore, it is appropriate to use a prospective measure for the risk-free

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<sup>48</sup> Blue Chip Financial Forecasts, Volume 40, No. 6 (June 1, 2021), p. 14.

1 rate component. The Department has found that Blue Chip Financial  
2 Forecasts is widely relied on by investors and provides a useful proxy for  
3 investor expectations for the risk-free rate.<sup>49</sup>

4 **Q. What measures of Beta did you use in your CAPM analysis?**

5 A. As shown in Exhibit JMC-5.2, I considered two measures of Beta for the proxy group  
6 companies: (1) the Beta coefficients from Bloomberg (which are calculated using five years  
7 of weekly data against the S&P 500 Index); and (2) the reported Beta coefficients from  
8 Value Line (which are calculated using five years of weekly data against the New York  
9 Stock Exchange Composite Index). As discussed in Section IV, Beta coefficients for  
10 utilities have increased substantially since January 2020, as utilities have traded more like  
11 the broader market. As noted, it is important to emphasize that Beta coefficients are  
12 calculated over a five-year period, so this recent increase is not a short-term market  
13 phenomenon solely attributable to the COVID-19 pandemic. The substantial increase in  
14 Beta coefficients for the proxy group companies represents a significant departure from how  
15 investors have typically viewed utilities relative to the broader market.

16 **Q. What Market Risk Premium did you use in your CAPM analysis?**

17 A. The CAPM is inherently a forward-looking model since it is designed to estimate investors'  
18 required equity return expectations. The MRP should, therefore, reflect investors' expected  
19 equity market returns relative to expected returns on Treasury securities. While these return  
20 expectations may be informed by history, they should primarily reflect forward-looking  
21 return expectations. I reviewed the Constant Growth DCF model to estimate the total

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<sup>49</sup> D.P.U. 17-05, *Petition of NSTAR Electric Company and Western Massachusetts Electric Company, each doing business as Eversource Energy*, Pursuant to G.L. c. 164, § 94 and 220 CMR 5.00 et seq., for Approval of General Increases in Base Distribution Rates for Electric Service and a Performance Based Ratemaking Mechanism, November 30, 2017, at 693 (citations omitted).

1 market return for the S&P 500 Index, using projected earnings growth rates and dividend  
 2 yields from three sources: (1) S&P’s Earnings and Estimates report; (2) Bloomberg  
 3 Professional; and (3) Value Line. Using the DCF model for a broad-based total market  
 4 return mitigates the challenges specific to the utilities sector. As of June 30, 2021, the  
 5 average total market return from these three sources is 16.52 percent, as shown in Figure 11  
 6 (also see Exhibit JMC-5.1). Recognizing S&P’s estimates are higher than the others, I  
 7 relied only on the DCF approach using earnings growth rates estimates from Bloomberg  
 8 Professional and Value Line, which results in an estimated expected market return of 15.48  
 9 percent.

10 **Figure 11: Total Market Return**

Source	Market Return
S&P Earnings & Estimates	18.59%
Bloomberg Professional	16.96%
Value Line	14.00%
Average – All Methods	16.52%
Average – Bloomberg Professional and Value Line	15.48%

11 I then calculated the MRP by subtracting the risk-free rate (based on the current 30-  
 12 year Treasury bond yield of 2.20 percent, or the 5-year forecast of the 30-year Treasury  
 13 bond of 3.50 percent) from the total market return. My calculation as shown in Exhibit  
 14 JMC-5.2 yielded a forward looking “ex-ante” MRP of 11.98 percent to 13.28 percent.

15 **Q. What are the results of your CAPM analyses?**

16 **A.** Using the MRP as calculated above, and the projected risk-free rate, I now have the required  
 17 market return ( $R_m$ ) input to equation [3] and can solve the CAPM model. As shown in  
 18 Exhibit JMC-5.2, the CAPM results are 14.07 percent (using Value Line Betas) and 14.17  
 19 percent (using Bloomberg Betas), or an average of 14.12 percent. Applying the 30-day  
 20

1 average yield on 30-year Treasury bonds, the CAPM results are 13.92 percent (using Value  
2 Line Betas) and 14.03 percent (using Bloomberg Betas), or an average of 13.97 percent.

3 The CAPM results define the upper end of my estimates.

#### 4 **C. Risk Premium Analysis**

5 **Q. Please describe the Risk Premium approach that you used.**

6 A. I use an approach similar to that adopted by FERC. In general terms, this approach  
7 recognizes that equity is riskier than debt because equity investors bear the residual risk  
8 associated with ownership. Equity investors, therefore, require a greater return (*i.e.*, a  
9 premium) than would a bondholder. The Risk Premium approach estimates the cost of  
10 equity as the sum of the Equity Risk Premium and the yield on a particular class of bonds.

$$11 \quad ROE = RP + Y \quad [5]$$

12 Where:

13  $RP$  = Risk Premium (difference between allowed ROE and the 30-Year Treasury  
14 Yield) and

15  $Y$  = Applicable bond yield.

16 Since the equity risk premium is not directly observable, it is typically estimated  
17 using a variety of approaches, some of which incorporate *ex-ante*, or forward-looking,  
18 estimates of the cost of equity and others that consider historical, or *ex-post*, estimates. For  
19 my Risk Premium analysis, I have relied on authorized returns from a large sample of  
20 electric utility companies and a separate large sample of gas utilities.

21 **Q. What did your Risk Premium analysis reveal?**

22 A. To estimate the relationship between risk premia and interest rates, I conducted a regression  
23 analysis using the following equation:

$$24 \quad RP = a + (b \times Y) \quad [6]$$



1 where:

2  $RP$  = Risk Premium (difference between allowed ROEs and the 30-Year Treasury  
3 Yield);

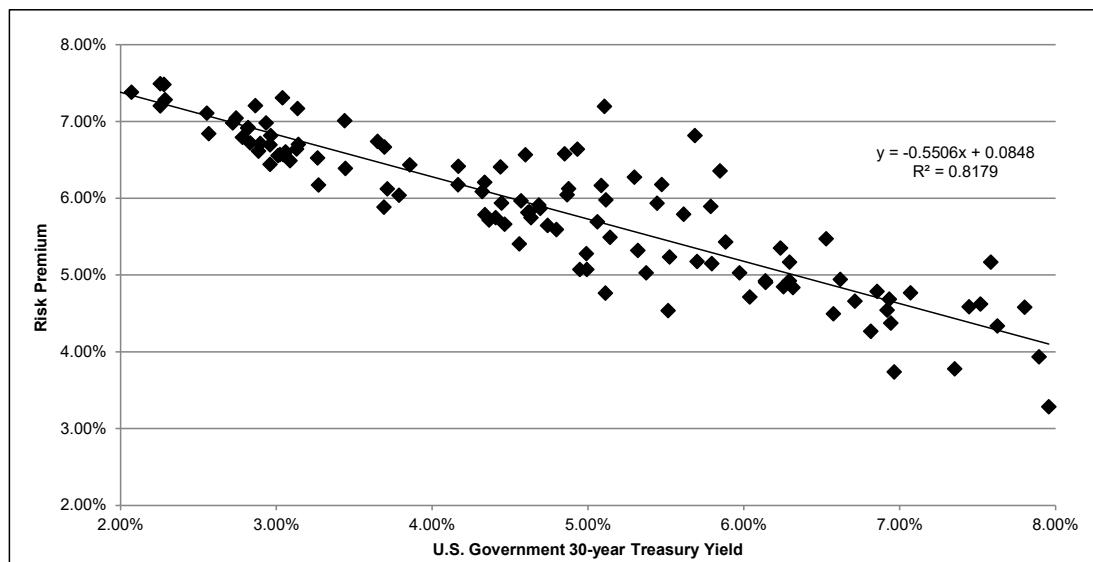
4  $a$  = Intercept term;

5  $b$  = Slope term; and

6  $Y$  = 30-Year Treasury Yield.

7 Data regarding allowed ROEs were derived from electric and gas utility company  
8 rate cases from January 1992 through June 30, 2021, as reported by Regulatory Research  
9 Associates.

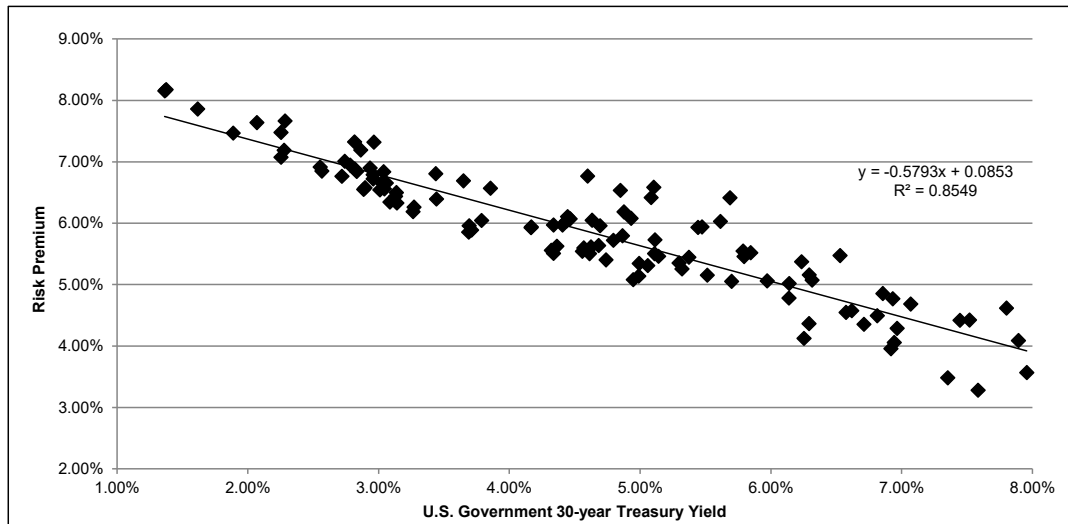
10 **Figure 12: Risk Premium Results – Electric Utilities**



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**Figure 13: Risk Premium Results – Natural Gas Utilities**



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As illustrated by Figures 12 and 13 (above), the risk premium varies with the level of bond yield, and generally increases as the bond yields decrease, and vice versa. In order to apply this relationship to current and expected bond yields, I consider three estimates of the 30-year Treasury yield, including the current 30-day average, a near-term Blue Chip consensus forecast for Q4 2021 – Q4 2022, and a Blue Chip consensus forecast for 2023–2027. I find this 5-year result to be most applicable for the following reasons: (1) investors are expecting increases in government bond yields; (2) investors typically have a multi-year view of their required returns on equity; and (3) SDG&E’s capital expenditure plan requires that the Company continue to be able to attract capital on reasonable terms and conditions. Based on the regression coefficients in Exhibit JMC-6, which allow for the estimation of the risk premium at varying bond yields, the results of my Risk Premium analysis are shown in Figure 14.

1 **Figure 14: Risk Premium Results Using 30-Year Treasury Yield**

	<b>Using 30-Day Average Yield on 30-Year Treasury Bond</b>	<b>Using Q4 2021–Q4 2022 Forecast for Yield on 30-Year Treasury Bond<sup>50</sup></b>	<b>Using 2023–2027 Forecast for Yield 30-Year Treasury Bond<sup>51</sup></b>
<i>Electric Utilities</i>			
Yield	2.20%	2.62%	3.50%
Risk Premium	7.27%	7.04%	6.55%
Resulting ROE	9.47%	9.66%	10.05%
<i>Gas Utilities</i>			
Yield	2.20%	2.62%	3.50%
Risk Premium	7.25%	7.01%	6.50%
Resulting ROE	9.46%	9.63%	10.00%

2  
3 **D. Expected Earning Analysis**

4 **Q. Have you conducted any other analysis to estimate the cost of equity for SDG&E?**

5 A. Yes. I have also conducted an Expected Earnings analysis to estimate the cost of equity for  
6 SDG&E based on the projected ROEs for the proxy group companies.

7 **Q. What is an Expected Earnings Analysis?**

8 A. The Expected Earnings methodology is a comparable earnings analysis that calculates the  
9 earnings that an investor expects to receive on the book value of a stock. The Expected  
10 Earnings analysis is a forward-looking estimate of investors' expected returns. The use of  
11 an Expected Earnings approach based on the proxy companies provides a range of the  
12 expected returns on a group of risk-comparable companies to the subject company. This

<sup>50</sup> Blue Chip Financial Forecasts, Vol. 40, No. 7 (July 1, 2021), p. 2.

<sup>51</sup> Blue Chip Financial Forecasts, Vol. 40, No. 6 (June 1, 2021), p. 14.

1 range is useful in helping to determine the opportunity cost of investing in the subject  
2 company, which is relevant in determining a company's ROE.

3 The Expected Earnings approach relying on expected returns for like-risk companies  
4 is a core strength of the model and consistent with the basic tenets of *Hope* that "the return  
5 to the equity owner should be commensurate with returns on investments in other  
6 enterprises having corresponding risks."<sup>52</sup> Since the Expected Earnings model provides an  
7 accounting-based approach that relies on investment analysts' projections of earnings on  
8 book equity, it affords the benefit of analyst insights, knowledge, and expertise in  
9 interpreting a given company's earnings prospects in the context of current market  
10 conditions.

11 **Q. How is the Expected Earnings Approach calculated?**

12 A. I relied primarily on the projected ROE for the proxy companies as reported by Value Line  
13 for the period from 2024-2026. I then adjusted those projected ROEs to account for the fact  
14 that the ROEs reported by Value Line are calculated on the basis of common shares  
15 outstanding at the end of the period, as opposed to average shares outstanding over the  
16 entire period. As shown in Exhibit JMC-7, the Expected Earnings analysis results in a mean  
17 of 10.82 percent and a median of 10.77 percent.

18 **E. Evaluating Model Results**

19 **Q. Please explain how you have considered the results of the DCF, CAPM, Risk Premium  
20 and Expected Earnings analysis to arrive at your ROE recommendation.**

21 A. As shown in Figure 15, I have considered the results of the DCF, CAPM, Bond Yield Plus  
22 Risk Premium, and Expected Earnings analyses. While I would typically rely on the results

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<sup>52</sup> *Hope*, 320 U.S. at 603.

1 of analyses using projected interest rates, especially given the current capital market  
2 environment and the prospect for inflationary pressures in the near future, I considered the  
3 range using both current and projected interest rates.

4 **Figure 15: Base ROE Results**

	<b>Model Results (Current Interest Rates)</b>	<b>Model Results (Projected Interest Rates)</b>
DCF	9.01%	9.01%
CAPM	13.97%	14.12%
Risk Premium	9.46%	10.03%
Expected Earnings	10.82%	10.82%
Range	9.01% – 13.97%	9.01% – 14.12%
Average ROE	10.82%	10.99%

5  
6 As discussed in the next Section of my testimony, these mean estimates serve as a  
7 base ROE prior to consideration of relative business and financial risks.

8 **VII. BUSINESS AND FINANCIAL RISKS**

9 **Q. Are there factors specific to SDG&E's risk profile that you also considered in**  
10 **developing your ROE recommendation?**

11 A. Yes, there are several factors that have a direct bearing on SDG&E's risk profile in relation  
12 to the proxy group. Those risk factors include: (1) the Company's exposure to Wildfire  
13 Risks; (2) the Company's substantial capital expenditure program; (3) California's clean  
14 energy mandates; and (4) regulatory risk relative to the proxy group companies. In  
15 aggregate, those risk factors elevate SDG&E's risk profile relative to the proxy group and

1 would support an authorized ROE above the mean, although I have not made an explicit  
2 adjustment.

3 **A. California Wildfire Risks and Inverse Condemnation**

4 **Q. Please describe the risks that the California utilities face due to the wildfires.**

5 A. Wildfires present unique risks to the California investor-owned utilities for two main  
6 reasons. First, wildfires have become more frequent and larger in magnitude over time,  
7 creating more opportunities for a utility's equipment to be involved in an ignition.<sup>53</sup> Second,  
8 each time a California utility's equipment is involved in the ignition of a fire that creates  
9 economic damages, that utility may face enormous uninsured, and potentially  
10 unrecoverable, liabilities, regardless of fault.

11 Under California state law, a legal standard known as inverse condemnation applies  
12 when utility equipment is a cause of a wildfire ignition. This doctrine makes utilities strictly  
13 liable for liability damages caused by their own facilities, regardless of negligence and other  
14 causes. These liabilities may include homeowner insurance claims, uninsured property  
15 damage claims, business interruptions, agricultural damages, emotional harm, personal  
16 injuries, and other losses.

17 Illustrating SDG&E's risk exposure, after the 2007 Witch, Guejito, and Rice fires,  
18 SDG&E settled approximately \$2.4 billion of the \$4 billion in total damage claims. While  
19 SDG&E was able to offset that liability with an insurance reimbursement of \$1.1 billion,  
20 settlements with third parties of \$827 million, and FERC-authorized recovery of \$80  
21 million, the CPUC denied recovery of \$421 million of wildfire costs incurred by SDG&E in

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<sup>53</sup> See Prepared Direct Testimony of Ari Beer – Company Risk (Aug. 23, 2021), p. AB-4.

1 the CPUC’s Final Decision issued December 2017.<sup>54</sup> The alternative findings regarding  
2 cost recovery by FERC and the CPUC over the same conduct by SDG&E has left investors  
3 with significant uncertainty as to the ability for the Company to recover wildfire-related  
4 costs regardless of conduct.

5 Concurrently, in 2017-2020 California experienced multiple catastrophic wildfires,  
6 reflecting the overall increased wildfire risk in the state. Although Moody’s recently  
7 upgraded SDG&E’s credit rating one notch based, in part, on SDG&E’s effective wildfire  
8 mitigation programs,<sup>55</sup> these risks have led SDG&E’s credit ratings to remain at least two  
9 notches lower by all three credit rating agencies than where the Company’s credit rating was  
10 prior to 2018—despite SDG&E’s equipment not being the cause of any significant wildfire  
11 ignition during that time—and despite those credit rating agencies repeatedly lauding  
12 SDG&E’s wildfire mitigation efforts.

13 **Q. Can insurance products mitigate the financial exposure to these risks?**

14 A. Yes, to a point. However, SDG&E’s ability to purchase insurance at a reasonable cost is  
15 influenced by several factors, including state policy and the future frequency of wildfires.  
16 SDG&E’s wildfire insurance costs continue to increase. Any loss that exceeds the level of  
17 insurance coverage is subject to potential recovery in a regulatory process, either at the  
18 CPUC or FERC. This translates into uncertainty, given that insurance providers are not

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<sup>54</sup> See D.17-11-033. The total liability of SDG&E’s California-jurisdictional operations totaled \$421 million. After applying a voluntary Company contribution of 10%, or \$42 million, the net amount was \$379 million. None of these costs were deemed recoverable.

<sup>55</sup> Moody’s March 30, 2021, p. 1.

1 required to operate in California and doing so carries risk since the state has experienced  
2 frequent wildfires. This contributes to SDG&E’s unmitigated financial risk.

3 **Q. What Legislative actions have been taken to address this issue?**

4 A. In August 2018, California passed Senate Bill 901 (“SB 901”), which introduced a series of  
5 changes relevant to investor-owned utilities but did not change the doctrine of inverse  
6 condemnation. Assembly Bill 1054 (“AB 1054”) was signed into law by Governor  
7 Newsom on July 12, 2019, creating a Wildfire Fund to mitigate the effects of wildfire  
8 liabilities on utilities. There are three primary sources of risk reduction created by the  
9 Wildfire Fund:

- 10 1. Establishing a revised prudence standard for determining whether a utility’s costs  
11 and expenses arising from a covered wildfire are just and reasonable;<sup>56</sup>
- 12 2. Establishing a cap on wildfire related expenses that have been found to be  
13 imprudently incurred equal to 20% of the utility’s transmission and distribution  
14 rate base;<sup>57</sup> and
- 15 3. Creating liquidity through the creation of a Wildfire Fund that reimburses utilities’  
16 settled claims while the utility seeks cost recovery through the Commission.

17 While these features moderate the extraordinary risks of California’s wildfire  
18 liability for utilities and their customers, significant risks remain that are unique to  
19 California and borne by shareholders.

20 **Q. What unique risks remain after the passage of SB 901 and AB 1054?**

21 A. There are several substantial wildfire risks remaining after the enactment of AB 1054 that  
22 do not apply to utilities outside California, which would exclude all but one of the proxy

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<sup>56</sup> California Public Utilities. (“Pub. Utils.”) Code § 451.1.

<sup>57</sup> *Id.* at § 3292(h)(2)(C)(i).



1 companies (Edison International) from this exposure. Principal among these are the  
2 following:

- 3 • The legal standard known as inverse condemnation was unchanged by AB 1054.  
4 Under this doctrine, utilities remain strictly liable when their equipment is the cause  
5 of a wildfire ignition, regardless of whether the utility acted reasonably and showed  
6 no negligence. So even though AB 1054 may cap the utilities' ultimate liability, this  
7 is a unique risk in California. Credit rating agencies continue to recognize this  
8 doctrine as a credit constraint,<sup>58</sup> and equity analysts continue to apply a discount to  
9 Sempra's stock price based on inverse condemnation's continuation.<sup>59</sup>
- 10 • There is no precedent for the CPUC operating under the revised prudence standard  
11 or other regulatory aspects articulated in AB 1054. The impact on the CPUC's  
12 determination of prudence is uncharted water with the potential for significant  
13 impact on shareholders. The risk reducing effect of the adoption of the "industry  
14 norm" for prudence depends on how the CPUC implements the standard for utilities  
15 operating under the Wildfire Fund. For example, if the CPUC were to adopt a view  
16 that it only takes minimal evidence to overcome the presumption of prudence and  
17 shift the burden of proof, then the risk reducing effect is minimal. The only relevant  
18 precedent of a CPUC prudence review is the Commission's 2017 100 percent  
19 imprudence finding in SDG&E's aforementioned application, further increasing  
20 uncertainty. Moody's noted that it could again downgrade SDG&E's credit rating if  
21 there is an 'unsupportive application of the new prudency standard.'<sup>60</sup>
- 22 • There are ongoing concerns about the Wildfire Fund's durability. The Fund was  
23 created by a combination of State and utility funding totaling \$21 billion. Governor  
24 Newsom's Strike Force retained an energy advisory firm, Filsinger Energy Partners,  
25 ("Filsinger") to measure the probability of exhausting the Wildfire Fund. Filsinger  
26 estimated various probabilities for the Fund's exhaustion, ranging from 0.1% to  
27 21.9% by the year 2035, depending on the likelihood of the CPUC finding the utility  
28 to be imprudent (Filsinger's estimated that the amount of prudence findings would  
29 range from 25% to 75%). This assumed a median wildfire loss of \$7 billion per

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<sup>58</sup> See, e.g., Fitch Ratings, *Fitch Affirms San Diego Gas & Electric's IDR at 'BBB+; Outlook Revised to Stable* (July 17, 2019), p. 1; see also S&P, RRA Regulatory Focus, *California Regulatory Review* (Dec. 14, 2020) (noting that AB 1054 "does nothing to alter the inverse condemnation policy, thus a substantial risk for PG&E and other utilities in the state remains.").

<sup>59</sup> See Wells Fargo, *Sempra*, p. 3 (June 29, 2021) (stating that the discount applied to California electric utilities reflects "lingering risks related to CA's inverse condemnation policy and highly politicized regulatory environment, partially offset by a highly supportive 5-year rate plan and separately, constructive FERC regulation").

<sup>60</sup> Moody's March 30, 2021, p. 2.

1 year based upon the experience of the previous five years.<sup>61</sup> If the Fund is  
2 exhausted, the risk reducing benefits of the imprudence liability cap and liquidity  
3 supported by the Fund are negated. Although the fund's liquidity is not an  
4 immediate concern, it is a risk that weighs down SDG&E's current credit ratings.<sup>62</sup>

- 5 • Under AB 1054, a utility's insurance coverage is subject to a recommendation of  
6 "reasonable insurance coverage" by the Fund Administrator. If the Administrator  
7 should recommend a lower insurance level, and if adopted by the CPUC, the utility's  
8 shareholders would be subject to greater risk.
- 9 • The imprudence liability cap, which is approximately \$950 million for SDG&E, can  
10 also be nullified by the Wildfire Fund Administrator if the Administrator concludes  
11 that the utility has acted in a manner that constitutes "conscious or willful disregard of  
12 the rights and safety of others"<sup>63</sup> or if a utility does not possess a safety certificate.  
13 Concerns remain regarding the standard that the new Wildfire Safety Division will  
14 apply to obtaining a certificate.

15 Lastly, it must be recognized that the magnitude of wildfire risk is unique to  
16 California. Post AB 1054, the state's utilities will still bear more risk than their industry  
17 peers. In other words, the higher overall number and risk of wildfires, the higher the risk  
18 that a utility's equipment will be involved in one ignition. As S&P recently stated, "because  
19 we view the likelihood of a change to California's interpretation of inverse condemnation as  
20 remote, and favorable climate change patterns are also unlikely to emerge for a state with a  
21 long history of drought conditions, we are unlikely to raise ratings for utilities with  
22 meaningful wildfire-related risks in the near term."<sup>64</sup> As a result, the combination of risk-

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<sup>61</sup> California Wildfire Fund Durability Analysis, Filsinger Energy Partners, June 26, 2019 ("Filsinger June 26, 2019"), pp. 2-3, assuming a 20% cap, as ultimately adopted; *see also* Moody's, *Rating Action: Moody's affirms San Diego Gas & Electric's ratings; changes outlook to positive from negative* (July 29, 2019), p. 1 (referencing Filsinger analysis).

<sup>62</sup> S&P, *How are California's Wildfire Risks Affecting Utility Credit Quality* (Jun. 3, 2021) ("S&P Jun. 3, 2021"); Moody's May 10, 2021.

<sup>63</sup> AB 1054, codified Pub. Util. Code §3292(h)(3)(A).

<sup>64</sup> S&P Jun. 3, 2021, p. 10.

1 reducing elements of the legislation and these remaining uncertainties following  
2 implementation cannot be measured within a standard industry peer group.

3 Thinking about this from an investor’s perspective, with all other risks being equal,  
4 why would an investor choose to invest in a California utility company without a premium  
5 for bearing that additional risk?

6 **Q. Please describe your approach to estimating the risk of potential losses associated with**  
7 **wildfires.**

8 A. As described above, the Company experienced devastating wildfires in 2007 resulting in  
9 significant liabilities that were borne by shareholders. Since that time, the Company has  
10 made substantial efforts to mitigate that risk as described in its Wildfire Mitigation Plan  
11 (“WMP”) and is recognized as a “global leader” in wildfire mitigation.<sup>65</sup> Nonetheless, even  
12 though the Company has sought to limit the potential for another catastrophic wildfire, it  
13 cannot eliminate that risk. The Company has also taken steps to limit its financial exposure  
14 to the potential liabilities associated with wildfire events. But it may also be financially  
15 inefficient to fully-insure against that risk; if it is even possible. Looking at the earnings  
16 impact from future wildfire liabilities relative to the Company’s insurance coverage  
17 provides an estimate of losses an investor can expect, and the offsetting earnings required to  
18 compensate for that loss.

19 **Q. What is the Company’s current level of insurance coverage for liabilities associated**  
20 **with wildfires?**

21 A. The Company currently maintains insurance policies for wildfire liabilities with a covered  
22 amount of \$1.25 billion. This includes several conventional insurance policies arrayed in an

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<sup>65</sup> *Id.*

1 “insurance tower,” which also includes two CAT bonds. For comparison, the liability  
2 claims and expenses associated with the 2007 wildfires were approximately \$2.4 billion. If  
3 the Company experienced an event of a similar magnitude today, there would be a potential  
4 gap of \$1.15 billion of claims above insurance reimbursements. However, the effects of  
5 inflation, increased residential and commercial density in the service territory, and litigation  
6 experience could make a similar fire far more costly today.

7 **Q. Please summarize the results of your wildfire risk premium analyses.**

8 A. I have relied on three analytical approaches to estimate the risks associated with wildfires.  
9 These approaches include the “Estimated Loss Approach,” the “Insurance Approach,” and  
10 the “CAT Bond Approach.” The Estimated Loss Approach is based on the best available  
11 estimate of the Company’s expected risk of wildfire financial loss, and the earnings required  
12 to offset this loss. This analysis, which indicates that a risk premium of 41 to 60 basis points  
13 is appropriate, directly measures the potential likelihood of an annual unrecoverable wildfire  
14 loss above the Company’s insurance coverage (approximately a 5.77 percent annual  
15 probability of an average \$3.51 billion event), for which the risk premium would compensate  
16 investors. The Insurance and CAT Bond Approaches are the most specific and direct market  
17 measure we have of the cost to “put” the risk to a third party. I have incorporated the actual  
18 costs to insure, or place a catastrophe bond instrument to cover some, or all, of the expected  
19 financial risk. The counterparties are informed and sophisticated investors, able to discern  
20 the level of risk associated with wildfires. I then use these costs to estimate the current costs  
21 to investors to self-insure (*i.e.*, be responsible for), the SDG&E model’s average expected  
22 loss of wildfire events that are above the Company’s \$1.25 billion in coverage—*i.e.*, the  
23 additional \$950 million (capped exposure under the Wildfire Fund) in self-insurance being

1 provided by investors to cover the annual 5.77 percent chance of a wildfire event that would  
2 cost. This approach produces risk premia ranging from 126 basis points up to 362 basis  
3 points.

4 **Q. Can you provide more details on the estimated likelihood of a catastrophic wildfire**  
5 **with significant liabilities to the Company?**

6 A. While the Company makes substantial efforts to mitigate the likelihood of an ignition and  
7 has made investments to limit the consequences of an ignition event, the risk cannot be  
8 eliminated completely. The Company has developed risk assessment models to estimate the  
9 likelihood and consequence of SDG&E's wildfire risk at a point in time using a probability  
10 distribution of possible scenarios. SDG&E's wildfire risk model results in a 1-in-14-year  
11 event, or a 6.98 percent annual probability of incurring wildfire liabilities. Accordingly, the  
12 Company currently maintains insurance policies for wildfire liabilities with a covered  
13 amount of \$1.25 billion. That said, there is a potential for wildfire liabilities to exceed this  
14 threshold. To estimate the point in which any incremental wildfire liability will exceed the  
15 Company's present insurance coverage of \$1.25 billion, SDG&E's wildfire risk model  
16 results in a 5.77 percent probability in any given year of a \$1.25 billion or greater financial  
17 loss. The average of the scenarios where potential wildfire liabilities exceeds the present  
18 insurance coverage results in an approximate average liability of \$3.51 billion for these  
19 scenarios.

20 **Q. What are the losses an investor can expect given this probability of wildfire liabilities?**

21 A. Assuming a liability of \$3.51 billion, \$1.25 billion would be reimbursed through insurance  
22 policies. Based on prior FERC practice, 18.81 percent of the remaining \$2.26 billion of

1 liabilities (\$424 million) can be assumed to be recoverable under FERC rates.<sup>66</sup> The  
2 remaining potential liability to the Company would be \$1.83 billion, subject to CPUC  
3 recovery. The capped shareholder liability for SDG&E in the case of an imprudence finding  
4 is estimated to be \$950 million. For this analysis, I assume that all liabilities above the cap  
5 are recoverable through the Wildfire Fund or CPUC approved rates. According to the  
6 Company's wildfire modeling, the average liability (net of insurance and FERC recovery)  
7 for events up to the cap of \$950 million is approximately \$779 million. After applying a 45  
8 percent to 65 percent conditional probability of an imprudence finding, based on the  
9 Filsinger Study conducted for Governor Newsom's strike force that resulted in AB 1054,<sup>67</sup>  
10 the expected pre-tax liability of the capped for the portion of shareholder liability below the  
11 cap is equal to \$350 million to \$506 million. There would also be a reduction in income tax  
12 liability that would have the effect of reducing the loss borne by shareholders by 27.98  
13 percent.<sup>68</sup> This results in an after-tax exposure of \$252 million to \$364 million. The  
14 assumption is that the \$252 million to \$364 million would be borne by shareholders.  
15 Applying this loss to an annual probability of 5.77 percent (*i.e.*, approximately a 1-in-17-  
16 years probability) suggests an estimated loss value of \$14.6 million to \$21.0 million.

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<sup>66</sup> This assumption reflects the disposition of SDG&E's regulatory claims for the 2007 wildfire liabilities; I recognize that both the CPUC and FERC recoveries could be different for future fires.

<sup>67</sup> Filsinger June 26, 2019; Moody's Investor Service, *Rating Action: Moody's affirms San Diego Gas & Electric Company's ratings; outlook remains negative*, (July 12, 2019) p. 1 (discussing Filsinger study). The Filsinger study assumes that a utility's likelihood of being found to be imprudent over the 2020 to 2030 declines from 75 percent to 25 percent. That suggests an average likelihood of an imprudence finding of 65 percent in 2022, and the average likelihood of an imprudence finding of 45 percent over the 2022 to 2030 period.

<sup>68</sup> This assumes that the tax shield created by the wildfire losses could be fully utilized on a timely basis; this assumption causes our estimated risk premium to be conservative.

1 **Q. How can shareholders be compensated for bearing this incremental risk above the**  
2 **average utility risk profile?**

3 A. SDG&E's total 2020 CPUC-jurisdictional gas and electric rate base is \$6.54 billion, and the  
4 Company's proposed common equity ratio is 54 percent, resulting in an equity component  
5 of rate base of \$3.53 billion. Providing investors compensation of potential annual wildfire  
6 liabilities of approximately \$14.6 million to \$21.0 million would require a 0.41 percent (41  
7 basis points) to 0.60 percent (60 basis points) risk premium to accept this risk.

8 **Q. Please describe the Company's insurance coverage, and the costs associated with**  
9 **limiting financial exposure to wildfire liabilities using insurance pricing as a proxy for**  
10 **equity shareholder risk to wildfire liabilities.**

11 A. As previously described, the Company's current insurance policies cover wildfire related  
12 liabilities up to \$1.25 billion. Shareholders bear a portion of the risk for liabilities that  
13 exceed this amount. Given that the insurance industry provides a clear price signal for the  
14 cost required to bear the risk of wildfire liabilities, insurance premiums provide a suitable  
15 proxy for the incremental risk borne by shareholders in the Company.

16 While the provisions of AB 1054 and other supporting legislation provide some  
17 protection to shareholders that could limit the risk shareholders bear for liabilities in excess  
18 of insurance coverage, there remain uncertainties as to how the provisions will be applied.  
19 And SDG&E's insurance premiums are a direct, market-based measure of the compensation  
20 required to bear these wildfire risks. We can use insurance market data from SDG&E's  
21 Rate on Line ("ROL") as a market measure of the equivalent premium that investors require  
22 to self-insure the remaining potential shareholder liability. As shown in Exhibit JMC-8,  
23 based on an equity rate base of \$3.53 billion, and applying a 45 percent to 65 percent

1 conditional probability of an imprudence finding derived from the Filsinger Report,<sup>69</sup> the  
2 cost of incremental insurance coverage of \$308 million to \$445 million of liabilities at the  
3 updated ROL would be equivalent to providing equity investors a 1.26 percent to 1.81  
4 percent risk premium to accept this risk.

5 **Q. Can SDG&E's CAT bond yields be used to determine a wildfire risk premium?**

6 A. Yes. To assess a CAT Bond investors' required return for this risk, the appropriate  
7 comparison is the CAT Bond yield relative to the 3-year U.S. Treasury note as a measure of  
8 the risk-free rate. This provides an estimate that is analogous to the ROL for insurance  
9 discussed in the context of the Insurance Approach and provides a price signal for the cost  
10 required to bear the risk of wildfire liabilities that could be applied to the residual risk that  
11 shareholders bear to self-insure above the Company's insurance limits. Over the last twelve  
12 months, the yields on CAT Bonds have exceeded the yields on 3-year Treasury notes by an  
13 average of 7.72 percent. After applying the 45 percent to 65 percent conditional probability  
14 of an imprudence finding derived from the Filsinger Report,<sup>70</sup> this suggests a premium of  
15 3.48 percent to 5.02 percent. Since we are estimating the implicit cost for shareholders to  
16 self-insure, the assumed premium is reduced by the composite tax rate of 27.98 percent for a  
17 tax-adjusted estimate of 2.50 percent to 3.62 percent.

18 **Q. Have you made any adjustment to the recommended ROE for wildfire risks?**

19 A. No, but SDG&E's shareholders are bearing these risks.

20 **Q. Have you included an estimated risk premium in your ROE recommendation?**

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<sup>69</sup> See n.67, *supra*.

<sup>70</sup> *Id.*



1 A. No, I have not. While I have provided estimates of an appropriate risk premium to  
2 compensate investors for the risks they related to wildfire liabilities, I did not make an  
3 explicit adjustment to my ROE recommendation. Rather, I considered wildfire risks along  
4 with several other risk factors in assessing how the Company compares to an average risk  
5 utility company.

6 **B. Capital Expenditure Program**

7 **Q. Please discuss SDG&E's capital spending program.**

8 A. The Company plans a major capital investment program over the 2021-2025 period, totaling  
9 \$9.45 billion, which will result in an unprecedented increase in the Company's invested  
10 plant. As with any utility facing substantial capital expenditure requirements, the  
11 Company's risk profile is affected in two significant and related ways: (1) the heightened  
12 level of investment increases the risk of under recovery or delayed recovery of the invested  
13 capital; and (2) an inadequate return would put downward pressure on key credit metrics.  
14 The absolute level of investment required will put significant pressure on the Company's  
15 ability to raise capital, and the terms will have lasting impacts for the Company's customers.

16 **Q. Do credit rating agencies recognize the risks associated with elevated levels of capital  
17 expenditures?**

18 A. Yes. From a credit perspective, the additional pressure on cash flows associated with higher  
19 levels of capital expenditures exerts corresponding pressure on credit metrics and, therefore,  
20 credit ratings. To that point, S&P explains the importance of regulatory support for large  
21 capital projects:

22 When applicable, a jurisdiction's willingness to support large capital projects  
23 with cash during construction is an important aspect of our analysis. This is  
24 especially true when the project represents a major addition to rate base and  
25 entails long lead times and technological risks that make it susceptible to  
26 construction delays. Broad support for all capital spending is the most credit-

1 sustaining. Support for only specific types of capital spending, such as  
2 specific environmental projects or system integrity plans, is less so, but still  
3 favorable for creditors. Allowance of a cash return on construction work-in-  
4 progress or similar ratemaking methods historically were extraordinary  
5 measures for use in unusual circumstances, but when construction costs are  
6 rising, cash flow support could be crucial to maintain credit quality through  
7 the spending program. Even more favorable are those jurisdictions that  
8 present an opportunity for a higher return on capital projects as an incentive  
9 to investors.<sup>71</sup>

10 With regard to SDG&E's credit profile, S&P acknowledged that the Company's  
11 capital spending as a "key risk," and more specifically "[c]ontinued negative discretionary  
12 cash flow primarily driven by robust capital spending."<sup>72</sup> Moody's similarly regards  
13 SDG&E's elevated level of capital spending as a credit challenge.<sup>73</sup> Therefore, to the extent  
14 that SDG&E's rates do not permit the Company an opportunity to recover its full cost of  
15 doing business, SDG&E will face increased recovery risk and increased pressure on its  
16 credit metrics. Maintaining access to capital markets on favorable terms is especially  
17 important for utilities and their customers during periods of significant capital investment.

18 **Q. Have you analyzed how SDG&E's capital spending program compares to those of the**  
19 **proxy group companies?**

20 **A.** Yes. I compared the ratio of projected capital expenditures to net utility plant for SDG&E  
21 to the ratios for the proxy group companies. Figure 16 shows that SDG&E's ratio of  
22 projected capital expenditures to net utility plant is 1.13 times higher than the median ratio  
23 for the proxy group of 49.24 percent.

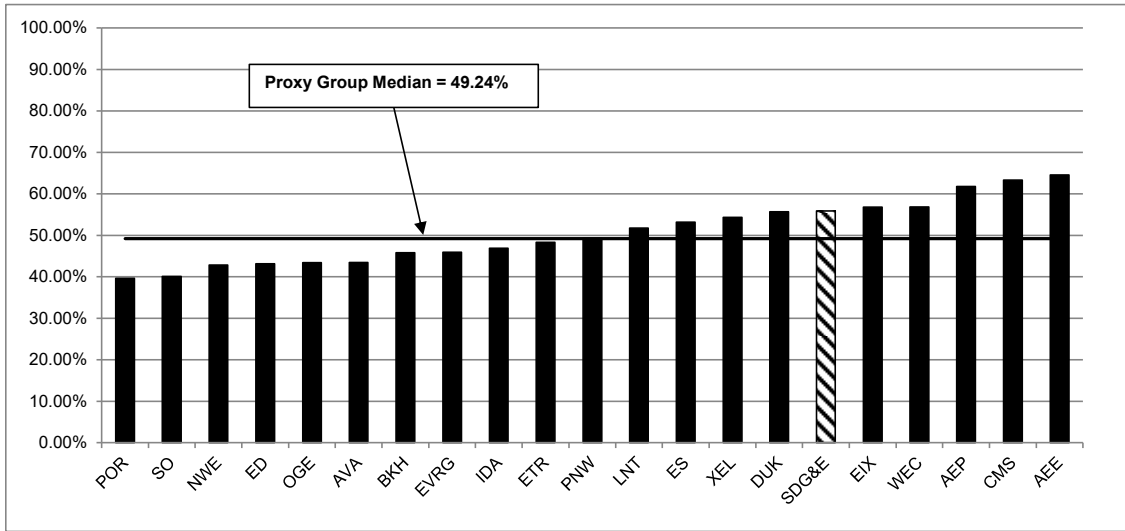
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<sup>71</sup> S&P Global Ratings, "Assessing U.S. Investor-Owned Utility Regulatory Environments" (August 10, 2016), at 7.

<sup>72</sup> S&P Global Ratings, *San Diego Gas & Electric Co.* (June 30, 2020), p. 2.

<sup>73</sup> Moody's May 10, 2021, p. 2.

1 **Figure 16: Ratio of 2021-25 Capital Expenditures to 2020 Net Utility Plant**



2  
3 **Q. What is your conclusion regarding how SDG&E’s projected capital expenditure**  
4 **program affects the Company’s risk profile and cost of equity?**

5 A. My primary conclusion is that SDG&E is projecting a substantial capital spending program  
6 through 2025 that will require the Company to maintain access to capital markets on  
7 favorable terms and conditions. SDG&E’s ratio of capital expenditure requirements to net  
8 utility plant is above the ratios for the proxy group average, and the absolute magnitude of  
9 SDG&E’s capital program places pressure on the Company’s cash flows and credit metrics.  
10 These investments elevate the risk profile of SDG&E. For these reasons, it is important that  
11 the authorized ROE be set at a level that allows SDG&E to continue to attract both debt and  
12 equity under favorable terms under a variety of economic and financial market conditions.

13 **C. Environmental and Clean Energy Mandates**

14 **Q. Please describe the environmental mandates that will be required by SDG&E to**  
15 **achieve California’s clean energy goals.**

16 A. Senate Bill 100 (“SB 100”) requires each California electric utility, including SDG&E, to  
17 procure 50 percent of its annual electric energy requirements from renewable energy sources

1 by 2026, and 60 percent by 2030. In addition, SB 100 creates the policy of meeting all of  
2 California’s retail electricity supply with a mix of Renewable Portfolio Standard (“RPS”)  
3 Program-eligible and zero-carbon resources by 2045.<sup>74</sup>

4 **Q. Have you considered how the SB 100 requirements compare to other states and the**  
5 **proxy companies?**

6 A. Yes. California is one of eight states that will require at least 50 percent carbon-free  
7 generation by 2050. Moody’s has recognized the incremental risk in California relative to  
8 other states, observing that “SDG&E’s credit also factors in our view that political risk, in  
9 terms of media attention and the demand on utilities to implement the state’s clean energy  
10 policy goals, is higher in California compared to most other jurisdictions in the US.”<sup>75</sup> To  
11 assess the relative risk compared to the proxy group, I compared all of the operating  
12 companies in the proxy group by the renewable portfolio standards by state for each  
13 company’s service territory. Based on the state requirements, I assigned each state a value  
14 of 1 through 5 based on the following criteria shown in Figure 17, with 1 representing the  
15 strongest or strictest requirements, like those mandated in California.

16 **Figure 17: RPS Rankings**

<b>State Requirement Categories</b>	<b>Rank Assigned</b>
Requirements of 50% or greater, and 100% by 2050 or sooner	1
Requirements of 50% or greater	2
Requirements of < 50%	3
Voluntary Goal	4
No Standard or Target	5

17  

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<sup>74</sup> Sempra Energy, 2020 SEC Form 10-K (February 27, 2020), p. 37.

<sup>75</sup> Moody’s May 10, 2021, p. 1.

In order to compare this information for each proxy company, I combined the rankings for the operating companies' jurisdictions, weighting each jurisdiction by the operating company's customers as a percent of the total customers. This resulted in a weighted total ranking for each proxy company, shown in the Figure 18, below in order of most strict to least strict requirements.

**Figure 18: Proxy Group Comparative RPS Rankings**

<b>Company</b>	<b>Weighted Average Ranking</b>
<i>SDG&amp;E</i>	<i>1.00</i>
Edison International	1.00
Consolidated Edison, Inc.	1.02
Portland General Electric Company	2.00
Xcel Energy Inc.	2.23
Avista Corporation	2.49
Eversource Energy	2.67
Black Hills Corporation	2.84
WEC Energy Group, Inc.	2.99
Alliant Energy Corporation	3.00
Ameren Corporation	3.00
CMS Energy Corporation	3.00
Pinnacle West Capital Corporation	3.00
NorthWestern Corporation	3.15
American Electric Power Company, Inc.	3.58
Evergy, Inc.	3.61
Duke Energy Corporation	3.76
OGE Energy Corp.	4.08
Entergy Corporation	4.70
IDACORP, Inc.	4.90
Southern Company	5.00

The requirements imposed on SDG&E are significantly more stringent relative to the proxy companies, and only matched by one other company, Edison International. There are other companies that have set voluntary corporate targets, but these lack the enforcement of

1 California's mandate that an investor would consider. Compliance with SB 100's  
2 requirements create risks for SDG&E relative to the proxy companies.

3 **D. Regulatory Risk**

4 **Q. Please explain how the regulatory framework affects investors' risk assessments.**

5 A. The ratemaking process is premised on the principle that, for investors and companies to  
6 commit the capital needed to provide safe and reliable utility services, the utility must have  
7 the opportunity to recover invested capital and the market-required return on such capital.  
8 Regulatory commissions recognize that, because utility operations are capital intensive,  
9 regulatory decisions should enable the utility to attract capital at reasonable terms, thereby  
10 balancing the long-term interests of investors and customers. In that respect, the regulatory  
11 framework in which a utility operates is one of the most important factors in both debt and  
12 equity investors' risk assessments. Because investors have many investment alternatives,  
13 even within a given market sector, the Company's authorized return must be adequate on a  
14 relative basis to ensure its ability to attract capital under a variety of economic and financial  
15 market conditions.

16 **Q. Please explain how credit rating agencies consider the regulatory framework in  
17 establishing a company's credit rating.**

18 A. Moody's and S&P both consider the overall regulatory framework in establishing credit  
19 ratings. Moody's establishes credit ratings based on four key factors:

20 **Figure 19: Moody's Rating Factors**

<b>Factor</b>	<b>Weighting</b>
Regulatory Framework	25%
Ability to Recover Costs and Earn Returns	25%
Diversification	10%
Financial Strength	40%
Total	100%

21

1 Two of these factors (*i.e.*, regulatory framework and the ability to recover costs and  
2 earn returns) are based on the regulatory environment such that half of Moody’s overall  
3 assessment of business and financial risk for regulated utilities is based upon the regulatory  
4 environment.<sup>76</sup> Moody’s further subdivides the first two factors, Regulatory Framework  
5 and the Ability to Recover Costs and Earn Returns, into sub-factors to help “provide more  
6 granularity and transparency on the overall regulatory environment, which is the most  
7 important consideration for this sector.”<sup>77</sup> Similarly, S&P has identified the regulatory  
8 environment as an important factor, stating, “we believe the fundamental regulatory  
9 environment in the jurisdictions in which a utility operates often influence credit quality the  
10 most.”<sup>78</sup>

11 **Q. Please explain the effect of regulatory risk on the Company’s ability to raise capital**  
12 **and the impact on customers.**

13 A. Given the robust capital spending plan, and the consequent need to raise capital, it is  
14 important that the Company be able to maintain access to the capital markets at reasonable  
15 rates. Moody’s has highlighted the SDG&E’s material capital investment plan, which will  
16 require incremental debt, as a “credit challenge.”<sup>79</sup> In addition, Moody’s observes “[o]ur  
17 view considers the elevated political risk and public scrutiny in California along with  
18 affordability issues and the significant demands that are placed on the California utilities

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<sup>76</sup> Moody’s Investor Service, Rating Methodology, “Regulated Electric and Gas Utilities” (December 23, 2013), p. 6.

<sup>77</sup> *Id.* at 3.

<sup>78</sup> Standard & Poor’s, “Assessing U.S. Utility Regulatory Environments.” (March 11, 2010), p. 2.

<sup>79</sup> Moody’s May 10, 2021, p. 2.

amid many ambitious public policy initiatives.”<sup>80</sup> Equity analysts have similarly discounted Sempra and other publicly-traded California utility parent companies based upon “a challenging regulatory and political backdrop along with heightened fire risk.”<sup>81</sup> In other states, the regulatory environment has come into increased focus for investors. For example, in New York, several of the state’s operating utilities have experienced an erosion in credit metrics and received credit rating downgrades. Figure 20 below summarizes the recent credit ratings actions by Moody’s on New York utilities.

**Figure 20: Moody’s Rating Actions on New York Utilities**

<b>Credit Action</b>	<b>Date</b>
Brooklyn Union Gas (“KEDNY”) and KeySpan Gas East (“KEDLI”) - put on review for downgrade	November 2019
KEDNY and KEDLI - ratings confirmed with negative outlooks	December 2019
Consolidated Edison, Inc. (“ConEd”), Consolidated Edison Company of New York, Inc. (“CECONY”) and Orange and Rockland Utilities (“O&R”)	December 2019
ConEd and CECONY downgraded	March 2020
Niagara Mohawk - negative outlook	June 2020
KEDNY - review for downgrade	August 2020
New York State Electric & Gas and Rochester Gas and Electric - negative outlooks	September 2020
Central Hudson Gas & Electric - negative outlook	October 2020
KEDNY - downgraded to Baa1	November 2020

Declining credit ratings will increase costs to customers by increasing the cost of debt as the New York utilities continue to raise capital to support their capital programs. As noted, Moody’s has similarly stated that a downgrade of SDG&E’s credit rating is possible

<sup>80</sup> *Id.* at 10.

<sup>81</sup> Morgan Stanley, *Sempra Energy Analyst Day Takeaways* (Jun. 30, 2021), p. 2.



1 if there is a “deterioration in regulatory support or an increase in regulatory  
2 contentiousness.”<sup>82</sup> In particular, Moody’s notes that its outlook is predicated upon  
3 continued regulatory and political support for SDG&E’s wildfire mitigation plans, including  
4 its use of public safety power shutoffs;<sup>83</sup> which S&P believes are mitigating fire risks.<sup>84</sup> As  
5 discussed above, the Company’s capital expenditure program is designed to benefit and  
6 deliver value for customers. Given the significant level of planned capital expenditures, any  
7 increases in borrowing costs would have a proportional impact on costs to customers.

8 **Q. Have you performed an analysis of the regulatory mechanisms for SDG&E as**  
9 **compared to those for the proxy group companies?**

10 A. Yes. I have conducted an analysis of the regulatory mechanisms that are in place for  
11 SDG&E compared with those for the operating utility companies held by the proxy group.  
12 The results of my analysis are presented in Exhibit JMC-10. Specifically, I examined the  
13 following factors that affect the regulatory risk of SDG&E and the proxy group companies:  
14 (1) test year convention; (2) rate base convention; (3) revenue decoupling; (4) capital cost  
15 recovery; and (5) Construction Work in Progress (“CWIP”) in rate base.

16 While SDG&E has a number of regulatory balancing accounts, it is instructive to  
17 look at the overall regulatory cost recovery mechanisms available to the proxy companies  
18 when evaluating the regulatory risk of the subject company to the proxy group. As shown  
19 in Exhibit JMC-10, 53 percent of the operating companies in the proxy group provide  
20 service in jurisdictions that allow the use of a fully or partially forecasted test year, which is

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<sup>82</sup> Moody’s March 30, 2021, p. 2.

<sup>83</sup> *Id.*

<sup>84</sup> S&P Jun. 3, 2021, p. 3.

1 effectively similar to SDG&E's projected rate base for the forecasted test year. Also, 57  
2 percent of the operating companies in the proxy group use average rate base like SDG&E,  
3 while 43 percent are allowed to use year-end rate base. SDG&E can apply a true-up  
4 mechanism to mitigate volumetric risk through decoupling, while approximately 55 percent  
5 of the operating companies held by the proxy group have either full or partial revenue  
6 decoupling mechanisms that protect against volumetric risk. Approximately 17 percent of  
7 the operating companies in the proxy group have a cost recovery mechanism for generation  
8 capacity, and about 38 percent have cost recovery for generic infrastructure replacement.  
9 Finally, approximately 71 percent of the operating companies held by the proxy group are  
10 allowed to include CWIP in a rate base. Overall, from an investor perspective, the  
11 regulatory structures available to SDG&E do not offer any level of risk mitigation that is  
12 meaningfully different from the proxy companies.

## 13 **VIII. CAPITAL STRUCTURE**

### 14 **Q. What is SDG&E's proposed capital structure?**

15 A. As discussed in Maritza Mekitarian's testimony (Exhibit SDG&E-02), SDG&E is proposing  
16 to use an authorized financial capital structure consisting of 54 percent common equity and  
17 46 percent debt, compared to its actual capital structure of 56 percent common equity and 44  
18 percent debt, and its currently authorized capital structure of 52.00 percent common equity,  
19 2.75 percent preferred equity, and 45.25 percent long-term debt.

### 20 **Q. How have you assessed the reasonableness of SDG&E's proposed capital structure 21 with respect to the proxy group?**

22 A. The proxy group has been selected to reflect comparable companies in terms of business and  
23 financial risks. Therefore, it is appropriate to compare the financial capital structures of the  
24 proxy group companies to the financial capital structure proposed by SDG&E in order to

1 assess whether the Company's capital structure is reasonable and consistent with industry  
2 standards for companies with commensurate risk. I calculated the weighted average capital  
3 structures for each of the proxy group operating companies on a quarterly basis for the eight  
4 quarters through Q4 2020. Exhibit JMC-11 shows that the Company's proposed common  
5 equity ratio of 54 percent is well within the range of actual common equity ratios of 47.30  
6 percent to 59.27 percent for the operating companies held by the proxy group over this  
7 period.

8 **Q. What is your conclusion regarding the appropriateness of SDG&E's proposed capital**  
9 **structure in this proceeding?**

10 A. Based on the analysis presented in Exhibit JMC-11, my conclusion is that SDG&E's  
11 proposed financial capital structure is reasonable. Sufficient equity in the capital structure is  
12 an important factor for maintaining SDG&E's financial integrity and investment grade  
13 credit rating. And it is an essential component of SDG&E's financial policies enabling  
14 access to capital on favorable terms in a variety of market circumstances.

15 **IX. CONCLUSION**

16 **Q. What is your conclusion regarding a fair ROE for SDG&E?**

17 A. Based on the quantitative analyses provided in my Direct Testimony, I have established a  
18 range of ROE results shown previously in Figure 15 (also see Exhibit JMC-2 for summary  
19 table). I consider a reasonable range of ROE for average risk utility to be in the range 10.50  
20 percent to 11.50 percent. In creating this range, I give weight to the results of the DCF,  
21 CAPM, Bond Yield Risk Premium, and the Expected Earnings analyses. In addition to  
22 establishing the range of ROE results, I also considered SDG&E risks compared to the  
23 proxy utilities. And I conclude that SDG&E faces above average risk and that it would be  
24 reasonable for SDG&E's ROE to be set at the top of the range, given the quantification of

1 their wildfire risk premium alone. From within that reasonable range, the Company is  
2 requesting an ROE of 10.55 percent. Based on SDG&E's business and financial risks, the  
3 Company's requested ROE of 10.55 percent is reasonable if not conservative.

4 **Q. What is your recommendation with regard to the capital structure for SDG&E in this**  
5 **proceeding?**

6 A. I support SDG&E's actual financial capital structure of 54 percent common equity and 46  
7 percent debt as reasonable relative to the range of capital structures for the operating  
8 companies held by the proxy group companies.

9 **Q. Does this conclude your direct testimony?**

10 A. Yes, it does.

**JMC-1**

**COYNE RESUME**

**JAMES M. COYNE**

Senior Vice President

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Mr. Coyne provides financial, regulatory, strategic, and litigation support services to clients in the natural gas, power, and utilities industries. Drawing upon his industry and regulatory expertise, he regularly advises utilities, public agencies and investors on business strategies, investment evaluations, and matters pertaining to rate and regulatory policy. Prior to Concentric, Mr. Coyne worked in senior consulting positions focused on North American utilities industries, in corporate planning for an integrated energy company, and in regulatory and policy positions in Maine and Massachusetts. He has authored numerous articles on the energy industry and provided testimony and expert reports before federal, state and provincial jurisdictions in the U.S. and Canada. Mr. Coyne holds a B.S. in Business from Georgetown University and an M.S. in Resource Economics from the University of New Hampshire.

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**AREAS OF EXPERTISE**

## Energy Regulation

- Rate policy
- Cost of capital
- Incentive regulation
- Fuels and power markets

## Management and Business Strategy

- Fuels and power market assessments
- Investment feasibility
- Corporate and business unit planning
- Benchmarking and productivity analysis

## Financial and Economic Advisory

- Valuation analysis
- Due diligence
- Buy and sell-side advisory

## Litigation Support and Expert Testimony

- Rate and regulatory policy
- Fuels and power markets
- Contract litigation
- Valuation and damages



## PROFESSIONAL HISTORY

### **Concentric Energy Advisors, Inc. (2006 – Present)**

Senior Vice President

Vice President

### **FTI Consulting (Lexecon) (2002 – 2006)**

Senior Managing Director – Energy Practice

### **Arthur Andersen LLP (2000 – 2002)**

Managing Director, Andersen Corporate Finance – Energy and Utilities

### **Navigant Consulting, Inc. (1996 – 2000)**

Managing Director, Financial Services Practice

Senior Vice President, Strategy Practice

### **TotalFinaElf (1990 – 1996)**

Manager, Corporate Planning and Development

Manager, Investor Relations

Manager of Strategic Planning and Vice President, Natural Gas Division

### **Arthur D. Little, Inc. (1989 – 1990)**

Senior Consultant – International Energy Practice

### **DRI/McGraw-Hill (1984 – 1989)**

Director, North American Natural Gas Consulting

Senior Economist, U.S. Electricity Service

### **Massachusetts Energy Facilities Siting Council (1982 – 1984)**

Senior Economist – Gas and Electric Utilities

### **Maine Office of Energy Resources (1981 – 1982)**

State Energy Economist

## EDUCATION

### **University of New Hampshire**

M.S., Resource Economics, *with honors*, 1981

### **Georgetown University**

B.S., Business Administration and Economics, *cum laude*, 1975

## DESIGNATIONS AND AFFILIATIONS

Community Rowing Inc., Board of Directors, 2015 - 2019

Georgetown University, Alumni Admissions Interviewer, 1988 – current

NASD General Securities Representative and Managing Principal (Series 7, 63 and 24 Certifications), 2001



American Petroleum Institute, CEO's Liaison to Management and Policy Committees, 1994-1996

National Petroleum Council, Regulatory and Policy Task Forces, 1992

President, International Association for Energy Economics, Dallas Chapter, 1995

Gas Research Institute, Economics Advisory Committee, 1990-1993

NARUC, Advanced Regulatory Studies Program, Michigan State University, 1984

## **PUBLICATIONS AND RESEARCH**

"Advancing FERC's Methodology for Determining Allowed ROEs for Electric Transmission Companies," submitted to FERC on behalf of EEI, James Coyne, Joshua Nowak and Julie Lieberman, May, 2020.

"Regulator Rationale for Ratepayer-Funded Electricity and Natural Gas Innovation", James M. Coyne, Robert C. Yardley, Jr. and Jessalyn G. Pryciak, Energy Regulation Quarterly, Volume 6, Issue 3, 2018.

"Stimulating Innovation on Behalf of Canada's Electricity and Natural Gas Consumers" (with Robert Yardley), prepared for the Canadian Gas Association and Canadian Electricity Association, May 2015.

"Autopilot Error: Why Similar U.S. and Canadian Risk Profiles Yield Varied Rate-making Results" (with John Trogonoski), Public Utilities Fortnightly, May 2010

"A Comparative Analysis of Return on Equity of Natural Gas Utilities" (with Dan Dane and Julie Lieberman), prepared for the Ontario Energy Board, June 2007

"Do Utilities Mergers Deliver?" (with Prescott Hartshorne), Public Utilities Fortnightly, June 2006

"Winners and Losers: Utility Strategy and Shareholder Return" (with Prescott Hartshorne), Public Utilities Fortnightly, October 2004

"Winners and Losers in Restructuring: Assessing Electric and Gas Company Financial Performance" (with Prescott Hartshorne), white paper distributed to clients and press, August 2003

"The New Generation Business," commissioned by the Electric Power Research Institute (EPRI) and distributed to EPRI members to contribute to a series on the changes in the Power Industry, December 2001

Potential for Natural Gas in the United States, Volume V, Regulatory and Policy Issues (co-author), National Petroleum Council, December 1992

"Natural Gas Outlook," articles on U.S. natural gas markets, published quarterly in the Data Resources Energy Review and Natural Gas Review, 1984-1989

## **SELECTED SPEAKING ENGAGEMENTS**

"Energy Sector in Transition", Ontario Energy Association, Toronto, ON, September 24, 2018.





“Understanding Regulated Utilities in Today’s Capital Markets”, NARUC Annual Meeting, La Quinta, CA, November 14, 2016.

“Rate of Return: Where the Regulatory Rubber Meets the Road,” CAMPUT Annual Conference, Montreal, Quebec, May 17, 2016.

“Innovations in Utility Business Models and Regulation”, The Canadian Association of Members of Public Utility Tribunals (CAMPUT) 2015 Energy Regulation Course, Queens University, Kingston, Ontario, June 2015

“M&A and Valuations,” Panelist at Infocast Utility Scale Solar Summit, September 2010

“The Use of Expert Evidence,” The Canadian Association of Members of Public Utility Tribunals (CAMPUT) 2010 Energy Regulation Course, Queens University, Kingston, Ontario, June 2010

“A Comparative Analysis of Return on Equity for Utilities in Canada and the U.S.”, The Canadian Association of Members of Public Utility Tribunals (CAMPUT) Annual Conference, Banff, Alberta, April 22, 2008

“Nuclear Power on the Verge of a New Era,” moderator for a client event co-hosted by Sutherland Asbill & Brennan and Lexecon, Washington D.C., October 2005

“The Investment Implications of the Repeal of PUCHA,” Skadden Arps Client Conference, New York, NY, October 2005

“Anatomy of the Deal,” First Annual Energy Transactions Conference, Newport, RI, May 2005

“The Outlook for Wind Power,” Skadden Arps Annual Energy and Project Finance Seminar, Naples, FL, March 2005

“Direction of U.S. M&A Activity for Utilities,” Energy and Mineral Law Foundation Conference, Sanibel Island, FL, February 2002

“Outlook for U.S. Merger & Acquisition Activity,” Utility Mergers & Acquisitions Conference, San Antonio, TX, October 2001

“Investor Perspectives on Emerging Energy Companies,” Panel Moderator at Energy Venture Conference, Boston, MA, June 2001

“Electric Generation Asset Transactions: A Practical Guide,” workshop conducted at the 1999 Thai Electricity and Gas Investment Briefing, Bangkok, Thailand, July 1999

“New Strategic Options for the Power Sector,” Electric Utility Business Environment Conference, Denver, CO, May 1999

“Electric and Gas Industries: Moving Forward Together,” New England Gas Association Annual Meeting, November 1998

“Opportunities and Challenges in the Electric Marketplace,” Electric Power Research Institute, July 1998



SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
<b>Alberta Beverage Container Management Board</b>				
Alberta Beverage Container Management Board	2016 2019	Expert for the Board	N/A	Return Margin on Bottle Depots
<b>Alberta Utilities Commission</b>				
ATCO Utilities Group	2008 2009	ATCO Gas; ATCO Pipelines Ltd.; ATCO Electric Ltd.	Application No. 1578571 / Proceeding ID. 85	2009 Generic Cost of Capital Proceeding (Gas & Electric)
Enmax Power Corporation	2017	Enmax	22570	Cost of Common Equity
Enmax Power Corporation	2020	Enmax	24110	2021 Generic Cost of Capital
<b>American Arbitration Association</b>				
TransCanada Corporation	2004	TransCanada Corporation	AAA Case No. 50T 1810018804	Valuation of Natural Gas Pipeline
<b>British Columbia Utilities Commission</b>				
FortisBC	2012	FortisBC Utilities	G-20-12	Cost of Capital Adjustment Mechanisms
FortisBC	2015 2016	FortisBC Utilities	Project 3698852	Cost of Capital (Gas and Electric Distribution)
<b>California Utilities Commission</b>				
San Diego Gas & Electric Company	2019	San Diego Gas & Electric Company	A-19-04-014	Cost of Capital (Gas and Electric Distribution)
<b>Canada Energy Regulator</b>				
Enbridge Pipelines Inc.	2021	Enbridge Pipelines Inc.	RH-001-2020	Cost of Capital (Oil Pipeline)
<b>Connecticut Department of Public Utility Control</b>				
Aquarion Water Company of CT/ Macquarie Securities	2007	Aquarion Water Company of CT	DPUC Docket No. 07-05-19	Return on Equity (Water)
<b>Federal Energy Regulatory Commission</b>				
Atlantic Power Corporation	2007	Atlantic Path 15, LLC	ER08-374-000	Return on Equity (Electric)
Atlantic Power Corporation	2010	Atlantic Path 15, LLC	Docket No. ER11-2909-000	Return on Equity (Electric)
Atlantic Power Corporation	2011	Atlantic Path 15, LLC	Docket Nos. ER11-2909 and EL11-29	Rate of Return (Electric Transmission)
Startrans IO, LLC	2012	Startrans IO, LLC	ER-13-272-000	Cost of Capital (Electric Transmission)



<b>SPONSOR</b>	<b>DATE</b>	<b>CASE/APPLICANT</b>	<b>DOCKET</b>	<b>SUBJECT</b>
Startrans IO, LLC	2015	Startran IO, LLC	ER-16-194-000 and EL16-25-000	Cost of Capital (Electric Transmission)
Northern States Power Company	2019	Northern States Power Company	ER20-26-000	Cost of Capital (Electric Transmission)
PPL Electric Utilities Corp.	2020	PP&I Industrial Customer Alliance v. PPL Electric	EL20-48-000	Answering Testimony in Response to a Section 206 ROE Complaint
South First Energy Operating Companies	2020	South First Energy Operating Companies	ER21-253-000	Cost of Capital (Electric Transmission)
<b>Florida Public Service Commission</b>				
Florida Power & Light Company	2021	Florida Power & Light Company	Docket No. 20210015-EI	Cost of Capital (Electric)
<b>Hawaii Public Utility Commission</b>				
The Gas Company	2017	The Gas Company	Docket No. 2017-0105	Cost of Capital (Gas Distribution)
<b>Maine Public Utilities Commission</b>				
Bangor Hydro Electric Company	1998	Bangor Hydro Electric Company	MPUC Docket No. 98-820	Transaction-Related Financial Advisory Services, Valuation
Central Maine Power Company	2007	Central Maine Power Company	MPUC Docket No. 2007-215	Sales Forecast
Enmax Corporation	2019	Enmax Corporation	2019-00097	Regulatory Approval of Emera Maine Acquisition
Versant Power	2021	Versant Power	MPUC Docket No. 2020-00316	Cost of Capital (Electric)
<b>Maryland State Board of Contract Appeals</b>				
Green Planet Power Solutions	2018	Green Planet Power Solutions and Maryland Bio Energy LLC v. Maryland Department of General Services	MSBCA 3061	Contract Litigation, Power Purchase Agreement, Damages Analysis
<b>Massachusetts Superior Court</b>				
Burncoat Pond Watershed District	2010	Central Water District v. Burncoat Pond Watershed District	WDCV 2001-0105	Valuation/Eminent Domain



SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
<b>Minnesota Public Utilities Commission</b>				
Northern States Power Company	2015 2016	Northern States Power Company	E-002-GR-15-826	Cost of Capital (Electric)
Northern States Power Company	2017	Northern States Power Company	E002/M-17-797 G002/M-17-787 E002/M-17-818	Cost of Capital (Electric and Gas Rate Riders for Transmission, Renewable Generation and Gas Distribution)
<b>New Brunswick Energy and Utilities Board</b>				
Liberty Utilities (Gas New Brunswick) LP	2021	Liberty Utilities (Gas New Brunswick) LP	491	Cost of Capital (Gas)
<b>Newfoundland and Labrador Board of Commissioners of Public Utilities</b>				
Newfoundland Power	2016	Newfoundland Power	2016 GRA	Cost of Capital (Electric)
Newfoundland Power	2018	Newfoundland Power	2018 GRA	Cost of Capital (Electric)
Newfoundland Power	2021	Newfoundland Power	2021 GRA	Cost of Capital (Electric)
<b>New Jersey Board of Public Utilities</b>				
Conectiv	2000- 2001	Atlantic City Electric Company	NJBPU Docket No. EM00020106	Transaction-Related Financial Advisory Services
<b>Nova Scotia Utility and Review Board</b>				
Nova Scotia Power Inc.	2012	Nova Scotia Power Inc.	2013 GRA	Return on Equity/Business Risk (Electric)
<b>Ontario Energy Board</b>				
Enbridge Gas Distribution and Hydro One Networks and the Coalition of Large Distributors	2009	Enbridge Gas Distribution and Hydro One Networks and the Coalition of Large Distributors	EB-2009-0084	Ontario Energy Board's 2009 Consultative Process on Cost of Capital Review (Gas & Electric)
Enbridge Gas Distribution	2012	Enbridge Gas Distribution	EB-2011-0354	Industry Benchmarking Study and Cost of Capital (Gas Distribution)
Enbridge Gas Distribution	2014	Enbridge Gas Distribution	EB-2012-0459	Incentive Regulation Plan and Industry Productivity Study
Ontario Power Generation	2016	Ontario Power Generation	EB-2016-0152	Cost of Capital (Electric Generation)



SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
Ontario Power Generation	2020	Ontario Power Generation	EB-2020-0290	Capital Structure (Electric Generation)
<b>Prince Edward Island Regulatory and Appeals Commission</b>				
Maritime Electric Company	2015	Maritime Electric Company	UE20942	Return on Capital (Electric)
<b>Régie de l'énergie du Québec</b>				
Gaz Métro	2012	Gaz Métro	R-3809-2012	Return on Equity/Business Risk/ Capital Structure (Gas Distribution)
Hydro-Québec Distribution and Hydro- Québec TransÉnergie	2013	Hydro-Québec Distribution and Hydro- Québec TransÉnergie	R-3842-2013	Return on Equity/Business Risk (Electric)
Hydro-Québec Distribution	2014	Hydro-Québec Distribution	R-3905-2014	Remuneration of Deferral Accounts
Hydro-Québec Distribution and Hydro- Québec TransÉnergie	2015-2017	Hydro-Québec Distribution and Hydro- Québec TransÉnergie	R-3897-2014	Performance-Based Ratemaking
<b>South Dakota Public Service Commission</b>				
Northern States Power Company-MN	2012	Northern States Power Company-MN	EL 11-019	Return on Equity
<b>Texas Public Utility Commission</b>				
Texas New Mexico Power Company	2004	Texas New Mexico Power Company	PUC Docket No. 29206	Auction Process and Stranded Cost Recovery
<b>U.S. Department of Commerce</b>				
Government of Québec	2017	Duty Investigation of Uncoated Groundwood Paper from Canada	PUC Docket No. 29206	Contracting for Renewable Resources, Market Analysis, Damages Analysis
<b>Vermont Public Service Board</b>				
Vermont Gas Systems, Inc.	2006	Vermont Gas Systems, Inc.	VPSB Docket No. 7109	Models of Incentive Regulation
Vermont Gas Systems, Inc.	2012	Vermont Gas Systems, Inc.	Docket No. 7803A	Cost of Capital (Gas Distribution)
Green Mountain Power Corporation	2013	Green Mountain Power Corporation	Docket No. 8191	Return on Equity (Electric)
Vermont Gas Systems, Inc.	2016	Vermont Gas Systems, Inc.	Docket No. 8698/8710	Return on Equity (Gas Distribution)



<b>SPONSOR</b>	<b>DATE</b>	<b>CASE/APPLICANT</b>	<b>DOCKET</b>	<b>SUBJECT</b>
Green Mountain Power Corporation	2017	Green Mountain Power Corporation	Docket No. Tariff-8677	Return on Equity (Electric)
Green Mountain Power Corporation	2018	Green Mountain Power Corporation	18-0974	Return on Equity (Electric)
<b>State Corporation of Virginia</b>				
Dominion Energy Virginia	2021	Virginia Electric and Power Company	PUR-2021-00058	Cost of Capital (Electric)
<b>Wisconsin Public Service Commission</b>				
Wisconsin Power and Light Company	2007	Wisconsin Power and Light Company	PSCW Docket No. 6680-CE-170	Return on Equity (Electric)
Wisconsin Power and Light Company	2007	Wisconsin Power and Light Company	PSCW Docket No. 6680-CE-171	Return on Equity (Electric)
Northern States Power Company	2011	Northern States Power Company	PSCW Docket No. 4220-UR-117	Return on Equity (Electric)
Northern States Power Company	2013	Northern States Power Company	PSCW Docket No. 4220-UR-119	Return on Equity (Gas & Electric)
Northern States Power Company	2015	Northern States Power Company	PSCW Docket No. 4220-UR-121	Return on Equity (Gas & Electric)
Northern States Power Company	2017 2019	Northern States Power Company	PSCW Docket No. 4220-UR-123, 4220-UR-124	Return on Equity (Gas & Electric)
Northern States Power Company	2021	Northern States Power Company	4220-UR-125	Cost of Capital (Electric, Affidavit)
<b>Yukon Utilities Board</b>				
ATCO Electric Yukon	2016	ATCO Electric Yukon	2016-2017 GRA	Return on Equity (Electric)

**JMC-2**

**COMPREHENSIVE SUMMARY OF ROE RESULTS**

COMBINED DCF, CAPM, RISK PREMIUM AND EXPECTED EARNINGS RESULTS - CURRENT INTEREST RATES

Company		30-Day DCF	90-Day DCF	180-Day DCF	CAPM VL Beta	CAPM BB Beta	AVG DCF	AVG CAPM	Risk Premium	Expected Earnings	4-model Average
Alliant Energy Corporation	LNT	8.38%	8.52%	8.60%	13.49%	13.84%	8.50%	13.66%	9.46%	10.76%	10.60%
Ameren Corporation	AEE	9.88%	9.96%	10.03%	12.82%	12.90%	9.96%	12.86%	9.46%	10.92%	10.80%
American Electric Power Company, Inc.	AEP	9.80%	9.81%	9.82%	12.16%	13.53%	9.81%	12.84%	9.46%	11.42%	10.88%
Avista Corporation	AVA	8.30%	8.25%	8.60%	14.82%	13.40%	8.38%	14.11%	9.46%	8.68%	10.16%
Black Hills Corporation	BKH	8.35%	8.39%	8.56%	15.48%	15.67%	8.43%	15.58%	9.46%	9.29%	10.69%
CMS Energy Corporation	CMS	9.96%	9.98%	9.98%	12.82%	13.20%	9.97%	13.01%	9.46%	14.08%	11.63%
Consolidated Edison, Inc.	ED	7.11%	7.18%	7.19%	12.16%	11.45%	7.16%	11.81%	9.46%	8.70%	9.28%
Duke Energy Corporation	DUK	9.67%	9.80%	9.92%	13.49%	13.14%	9.79%	13.31%	9.46%	9.63%	10.55%
Edison International	EIX	8.50%	8.40%	8.30%	14.82%	14.65%	8.40%	14.73%	9.46%	11.86%	11.11%
Energy Corporation	ETR	8.33%	8.44%	8.46%	14.82%	15.10%	8.41%	14.96%	9.46%	11.38%	11.05%
Evergy, Inc.	EVRG	10.07%	10.16%	10.35%	14.82%	13.73%	10.20%	14.27%	9.46%	9.16%	10.77%
Eversource Energy	ES	9.31%	9.24%	9.16%	14.15%	14.29%	9.24%	14.22%	9.46%	9.73%	10.66%
IDACORP, Inc.	IDA	6.61%	6.63%	6.76%	12.82%	13.88%	6.67%	13.35%	9.46%	9.67%	9.79%
NorthWestern Corporation	NWE	8.14%	8.06%	8.32%	14.82%	16.05%	8.17%	15.43%	9.46%	8.68%	10.44%
OGE Energy Corporation	OGE	8.87%	9.03%	9.11%	16.14%	16.24%	9.00%	16.19%	9.46%	13.23%	11.97%
Pinnacle West Capital Corporation	PNW	8.12%	8.24%	8.29%	14.15%	14.73%	8.22%	14.44%	9.46%	11.26%	10.85%
Portland General Electric Company	POR	11.76%	11.79%	12.06%	14.15%	13.99%	11.87%	14.07%	9.46%	10.18%	11.40%
Southern Company	SO	9.76%	9.79%	9.88%	14.82%	14.26%	9.81%	14.54%	9.46%	13.82%	11.91%
Wisconsin Energy Corporation	WEC	9.25%	9.26%	9.24%	12.82%	13.16%	9.25%	12.99%	9.46%	13.25%	11.24%
Xcel Energy Inc.	XEL	8.83%	8.89%	8.90%	12.82%	13.33%	8.88%	13.08%	9.46%	10.77%	10.55%
PROXY GROUP MEAN		8.95%	8.99%	9.08%	13.92%	14.03%	9.01%	13.97%	9.46%	10.82%	10.82%
PROXY GROUP MEDIAN		8.85%	8.96%	9.01%	14.15%	13.86%	8.94%	14.09%	9.46%	10.77%	10.79%
Range - Low		6.61%	6.63%	6.76%	12.16%	11.45%	6.67%	11.81%	9.46%	8.68%	9.28%
Range - High		11.76%	11.79%	12.06%	16.14%	16.24%	11.87%	16.19%	9.46%	14.08%	11.97%



COMBINED DCF, CAPM, RISK PREMIUM AND EXPECTED EARNINGS RESULTS - PROJECTED INTEREST RATES

Company		30-Day DCF	90-Day DCF	180-Day DCF	CAPM VL Beta	CAPM BB Beta	AVG DCF	AVG CAPM	Risk Premium	Expected Earnings	4-model Average
Alliant Energy Corporation	LNT	8.38%	8.52%	8.60%	13.68%	14.00%	8.50%	13.84%	10.03%	10.76%	10.78%
Ameren Corporation	AEE	9.88%	9.96%	10.03%	13.08%	13.16%	9.96%	13.12%	10.03%	10.92%	11.01%
American Electric Power Company, Inc.	AEP	9.80%	9.81%	9.82%	12.49%	13.72%	9.81%	13.10%	10.03%	11.42%	11.09%
Avista Corporation	AVA	8.30%	8.25%	8.60%	14.88%	13.60%	8.38%	14.24%	10.03%	8.68%	10.33%
Black Hills Corporation	BKH	8.35%	8.39%	8.56%	15.48%	15.65%	8.43%	15.57%	10.03%	9.29%	10.83%
CMS Energy Corporation	CMS	9.96%	9.98%	9.98%	13.08%	13.42%	9.97%	13.25%	10.03%	14.08%	11.83%
Consolidated Edison, Inc.	ED	7.11%	7.18%	7.19%	12.49%	11.85%	7.16%	12.17%	10.03%	8.70%	9.51%
Duke Energy Corporation	DUK	9.67%	9.80%	9.92%	13.68%	13.37%	9.79%	13.53%	10.03%	9.63%	10.74%
Edison International	EIX	8.50%	8.40%	8.30%	14.88%	14.73%	8.40%	14.81%	10.03%	11.86%	11.27%
Energy Corporation	ETR	8.33%	8.44%	8.46%	14.88%	15.14%	8.41%	15.01%	10.03%	11.38%	11.21%
Evergy, Inc.	EVRG	10.07%	10.16%	10.35%	14.88%	13.90%	10.20%	14.39%	10.03%	9.16%	10.94%
Eversource Energy	ES	9.31%	9.24%	9.16%	14.28%	14.41%	9.24%	14.34%	10.03%	9.73%	10.84%
IDACORP, Inc.	IDA	6.61%	6.63%	6.76%	13.08%	14.03%	6.67%	13.56%	10.03%	9.67%	9.98%
NorthWestern Corporation	NWE	8.14%	8.06%	8.32%	14.88%	15.99%	8.17%	15.44%	10.03%	8.68%	10.58%
OGE Energy Corporation	OGE	8.87%	9.03%	9.11%	16.08%	16.16%	9.00%	16.12%	10.03%	13.23%	12.10%
Pinnacle West Capital Corporation	PNW	8.12%	8.24%	8.29%	14.28%	14.80%	8.22%	14.54%	10.03%	11.26%	11.01%
Portland General Electric Company	POR	11.76%	11.79%	12.06%	14.28%	14.14%	11.87%	14.21%	10.03%	10.18%	11.57%
Southern Company	SO	9.76%	9.79%	9.88%	14.88%	14.38%	9.81%	14.63%	10.03%	13.82%	12.07%
Wisconsin Energy Corporation	WEC	9.25%	9.26%	9.24%	13.08%	13.38%	9.25%	13.23%	10.03%	13.25%	11.44%
Xcel Energy Inc.	XEL	8.83%	8.89%	8.90%	13.08%	13.54%	8.88%	13.31%	10.03%	10.77%	10.75%
PROXY GROUP MEAN		8.95%	8.99%	9.08%	14.07%	14.17%	9.01%	14.12%	10.03%	10.82%	10.99%
PROXY GROUP MEDIAN		8.85%	8.96%	9.01%	14.28%	14.02%	8.94%	14.23%	10.03%	10.77%	10.98%
Range - Low		6.61%	6.63%	6.76%	12.49%	11.85%	6.67%	12.17%	10.03%	8.68%	9.51%
Range - High		11.76%	11.79%	12.06%	16.08%	16.16%	11.87%	16.12%	10.03%	14.08%	12.10%

**JMC-3**

**PROXY GROUP SCREENING ANALYSIS**

PROXY GROUP SCREENING DATA AND RESULTS - FINAL PROXY GROUP

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	
Company	Ticker	Dividends	S&P Credit Rating Between BBB- and AAA	Covered by More Than 1 Analyst	Positive Growth Rates From At Least 2 Sources	% Regulated Revenue of Total Utility Revenue > 80%	% Regulated Operating Income of Total Income > 80%	% Regulated Electric Revenue of Total Regulated Revenue	% Regulated Electric Income of Total Regulated Income	% Regulated Electric Revenue of Total Regulated Revenue	% Regulated Electric Income of Total Regulated Income	Announced Merger within 180 days from 6/30/21
Alliant Energy Corporation	LNT	Yes	A-	Yes	Yes	98%	96%	86%	91%	12%	9%	No
Ameren Corporation	AEE	Yes	BBB+	Yes	Yes	100%	100%	81%	86%	18%	14%	No
American Electric Power Company, Inc.	AEP	Yes	A-	Yes	Yes	95%	97%	100%	100%	0%	0%	No
Avista Corporation	AVA	Yes	BBB	Yes	Yes	99%	100%	70%	78%	30%	22%	No
Black Hills Corporation	BKH	Yes	BBB+	Yes	Yes	100%	95%	42%	44%	59%	56%	No
CMS Energy Corporation	CMS	Yes	BBB+	Yes	Yes	93%	91%	70%	71%	29%	29%	No
Consolidated Edison, Inc.	ED	Yes	A-	Yes	Yes	94%	93%	75%	75%	20%	23%	No
Duke Energy Corporation	DUK	Yes	BBB+	Yes	Yes	98%	99%	92%	91%	8%	9%	No
Edison International	EIX	Yes	BBB	Yes	Yes	100%	90%	100%	100%	0%	0%	No
Entergy Corporation	ETR	Yes	BBB+	Yes	Yes	88%	100%	99%	99%	1%	1%	No
Evergy, Inc.	EVRG	Yes	A-	Yes	Yes	100%	100%	100%	100%	0%	0%	No
Eversource Energy	ES	Yes	A-	Yes	Yes	100%	92%	88%	89%	11%	11%	No
IDACORP, Inc.	IDA	Yes	BBB	Yes	Yes	100%	100%	100%	100%	0%	0%	No
NorthWestern Corporation	NWE	Yes	BBB	Yes	Yes	100%	100%	78%	83%	22%	17%	No
OGE Energy Corporation	OGE	Yes	BBB+	Yes	Yes	100%	100%	100%	100%	0%	0%	No
Pinnacle West Capital Corporation	PNW	Yes	A-	Yes	Yes	100%	100%	100%	100%	0%	0%	No
Portland General Electric Company	POR	Yes	BBB+	Yes	Yes	100%	100%	100%	100%	0%	0%	No
Southern Company	SO	Yes	A-	Yes	Yes	90%	87%	81%	82%	19%	18%	No
Wisconsin Energy Corporation	WEC	Yes	A-	Yes	Yes	99%	92%	59%	53%	41%	47%	No
Xcel Energy Inc.	XEL	Yes	A-	Yes	Yes	99%	100%	85%	87%	15%	13%	No

Notes:

[1] Source: Bloomberg Professional

[2] Source: SNL Financial

[3] Source: Yahoo! Finance and Zacks

[4] Source: Yahoo! Finance, Value Line Investment Survey, and Zacks

[5] - [10] Source: Form 10-Ks for 2018, 2019 & 2020, three-year average

[11] SNL Financial News Releases

**JMC-4**

**CONSTANT GROWTH DCF ANALYSIS**

30-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low DCF ROE	Mean DCF ROE	High DCF ROE
Alliant Energy Corporation	LNT	\$1.61	\$57.51	2.80%	2.88%	5.50%	5.50%	5.50%	5.50%	8.38%	8.38%	8.38%
Ameren Corporation	AEE	\$2.20	\$83.93	2.62%	2.72%	6.50%	7.70%	7.30%	7.17%	9.21%	9.88%	10.42%
American Electric Power Company, Inc.	AEP	\$2.96	\$84.85	3.49%	3.60%	6.50%	6.20%	5.90%	6.20%	9.49%	9.80%	10.10%
Avista Corporation	AVA	\$1.69	\$44.70	3.78%	3.86%	1.00%	6.90%	5.40%	4.43%	4.80%	8.30%	10.81%
Black Hills Corporation	BKH	\$2.26	\$67.56	3.34%	3.43%	5.00%	4.67%	5.10%	4.92%	8.09%	8.35%	8.53%
CMS Energy Corporation	CMS	\$1.74	\$61.04	2.85%	2.95%	7.50%	6.64%	6.90%	7.01%	9.59%	9.96%	10.46%
Consolidated Edison, Inc.	ED	\$3.10	\$76.22	4.07%	4.13%	4.00%	2.95%	2.00%	2.98%	6.11%	7.11%	8.15%
Duke Energy Corporation	DUK	\$3.86	\$100.96	3.82%	3.93%	7.00%	5.00%	5.20%	5.73%	8.92%	9.67%	10.96%
Edison International	EIX	\$2.65	\$56.81	4.66%	4.75%	NMF	3.40%	4.10%	3.75%	8.14%	8.50%	8.86%
Entergy Corporation	ETR	\$3.80	\$105.17	3.61%	3.70%	3.00%	5.80%	5.10%	4.63%	6.67%	8.33%	9.52%
Evergy, Inc.	EVRG	\$2.14	\$62.45	3.43%	3.54%	8.00%	5.80%	5.80%	6.53%	9.33%	10.07%	11.56%
Eversource Energy	ES	\$2.41	\$81.64	2.95%	3.04%	5.50%	6.81%	6.50%	6.27%	8.53%	9.31%	9.86%
IDACORP, Inc.	IDA	\$2.84	\$99.34	2.86%	2.91%	4.00%	3.20%	3.90%	3.70%	6.10%	6.61%	6.92%
NorthWestern Corporation	NWE	\$2.48	\$62.93	3.94%	4.02%	3.00%	4.46%	4.90%	4.12%	7.00%	8.14%	8.94%
OGE Energy Corporation	OGE	\$1.61	\$34.23	4.70%	4.80%	4.00%	3.80%	4.40%	4.07%	8.59%	8.87%	9.21%
Pinnacle West Capital Corporation	PNW	\$3.32	\$84.98	3.91%	3.99%	5.00%	3.40%	4.00%	4.13%	7.37%	8.12%	9.00%
Portland General Electric Company	POR	\$1.72	\$48.44	3.55%	3.69%	8.50%	7.10%	8.60%	8.07%	10.78%	11.76%	12.30%
Southern Company	SO	\$2.64	\$63.16	4.18%	4.29%	5.00%	6.50%	4.90%	5.47%	9.18%	9.76%	10.82%
Wisconsin Energy Corporation	WEC	\$2.71	\$92.43	2.93%	3.02%	6.50%	6.19%	6.00%	6.23%	9.02%	9.25%	9.53%
Xcel Energy Inc.	XEL	\$1.83	\$69.02	2.65%	2.73%	6.00%	6.20%	6.10%	6.10%	8.73%	8.83%	8.93%
PROXY GROUP MEAN				3.51%	3.60%	5.34%	5.41%	5.38%	5.35%	8.20%	8.95%	9.66%

Notes

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals 30-day average as of June 30, 2021
- [3] Equals [1] / [2]
- [4] Equals [3] x (1 + 0.50 x [8])
- [5] Source: Value Line
- [6] Source: Yahoo! Finance
- [7] Source: Zacks
- [8] Equals Average ([5], [6], [7])
- [9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7]))
- [10] Equals [4] + [8]
- [11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7]))

90-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low DCF ROE	Mean DCF ROE	High DCF ROE
Alliant Energy Corporation	LNT	\$1.61	\$54.85	2.94%	3.02%	5.50%	5.50%	5.50%	5.50%	8.52%	8.52%	8.52%
Ameren Corporation	AEE	\$2.20	\$81.51	2.70%	2.80%	6.50%	7.70%	7.30%	7.17%	9.29%	9.96%	10.50%
American Electric Power Company, Inc.	AEP	\$2.96	\$84.58	3.50%	3.61%	6.50%	6.20%	5.90%	6.20%	9.50%	9.81%	10.11%
Avista Corporation	AVA	\$1.69	\$45.30	3.73%	3.81%	1.00%	6.90%	5.40%	4.43%	4.75%	8.25%	10.76%
Black Hills Corporation	BKH	\$2.26	\$66.80	3.38%	3.47%	5.00%	4.67%	5.10%	4.92%	8.13%	8.39%	8.57%
CMS Energy Corporation	CMS	\$1.74	\$60.80	2.86%	2.96%	7.50%	6.64%	6.90%	7.01%	9.60%	9.98%	10.47%
Consolidated Edison, Inc.	ED	\$3.10	\$74.91	4.14%	4.20%	4.00%	2.95%	2.00%	2.98%	6.18%	7.18%	8.22%
Duke Energy Corporation	DUK	\$3.86	\$97.71	3.95%	4.06%	7.00%	5.00%	5.20%	5.73%	9.05%	9.80%	11.09%
Edison International	EIX	\$2.65	\$58.11	4.56%	4.65%	NMF	3.40%	4.10%	3.75%	8.04%	8.40%	8.75%
Entergy Corporation	ETR	\$3.80	\$102.03	3.72%	3.81%	3.00%	5.80%	5.10%	4.63%	6.78%	8.44%	9.63%
Evergy, Inc.	EVRG	\$2.14	\$60.92	3.51%	3.63%	8.00%	5.80%	5.80%	6.53%	9.41%	10.16%	11.65%
Eversource Energy	ES	\$2.41	\$83.60	2.88%	2.97%	5.50%	6.81%	6.50%	6.27%	8.46%	9.24%	9.79%
IDACORP, Inc.	IDA	\$2.84	\$98.62	2.88%	2.93%	4.00%	3.20%	3.90%	3.70%	6.13%	6.63%	6.94%
NorthWestern Corporation	NWE	\$2.48	\$64.24	3.86%	3.94%	3.00%	4.46%	4.90%	4.12%	6.92%	8.06%	8.85%
OGE Energy Corporation	OGE	\$1.61	\$33.10	4.86%	4.96%	4.00%	3.80%	4.40%	4.07%	8.76%	9.03%	9.37%
Pinnacle West Capital Corporation	PNW	\$3.32	\$82.45	4.03%	4.11%	5.00%	3.40%	4.00%	4.13%	7.50%	8.24%	9.13%
Portland General Electric Company	POR	\$1.72	\$48.02	3.58%	3.73%	8.50%	7.10%	8.60%	8.07%	10.81%	11.79%	12.34%
Southern Company	SO	\$2.64	\$62.68	4.21%	4.33%	5.00%	6.50%	4.90%	5.47%	9.22%	9.79%	10.85%
Wisconsin Energy Corporation	WEC	\$2.71	\$92.18	2.94%	3.03%	6.50%	6.19%	6.00%	6.23%	9.03%	9.26%	9.54%
Xcel Energy Inc.	XEL	\$1.83	\$67.49	2.71%	2.79%	6.00%	6.20%	6.10%	6.10%	8.79%	8.89%	9.00%
PROXY GROUP MEAN				3.55%	3.64%	5.34%	5.41%	5.38%	5.35%	8.24%	8.99%	9.70%

Notes

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals 90-day average as of June 30, 2021
- [3] Equals [1] / [2]
- [4] Equals [3] x (1 + 0.50 x [8])
- [5] Source: Value Line
- [6] Source: Yahoo! Finance
- [7] Source: Zacks
- [8] Equals Average ([5], [6], [7])
- [9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7]))
- [10] Equals [4] + [8]
- [11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7]))

180-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low DCF ROE	Mean DCF ROE	High DCF ROE
Alliant Energy Corporation	LNT	\$1.61	\$53.41	3.01%	3.10%	5.50%	5.50%	5.50%	5.50%	8.60%	8.60%	8.60%
Ameren Corporation	AEE	\$2.20	\$79.57	2.76%	2.86%	6.50%	7.70%	7.30%	7.17%	9.35%	10.03%	10.57%
American Electric Power Company, Inc.	AEP	\$2.96	\$84.41	3.51%	3.62%	6.50%	6.20%	5.90%	6.20%	9.51%	9.82%	10.12%
Avista Corporation	AVA	\$1.69	\$41.51	4.07%	4.16%	1.00%	6.90%	5.40%	4.43%	5.09%	8.60%	11.11%
Black Hills Corporation	BKH	\$2.26	\$63.60	3.55%	3.64%	5.00%	4.67%	5.10%	4.92%	8.31%	8.56%	8.74%
CMS Energy Corporation	CMS	\$1.74	\$60.67	2.87%	2.97%	7.50%	6.64%	6.90%	7.01%	9.60%	9.98%	10.48%
Consolidated Edison, Inc.	ED	\$3.10	\$74.73	4.15%	4.21%	4.00%	2.95%	2.00%	2.98%	6.19%	7.19%	8.23%
Duke Energy Corporation	DUK	\$3.86	\$94.90	4.07%	4.18%	7.00%	5.00%	5.20%	5.73%	9.17%	9.92%	11.21%
Edison International	EIX	\$2.65	\$59.27	4.47%	4.55%	NMF	3.40%	4.10%	3.75%	7.95%	8.30%	8.66%
Entergy Corporation	ETR	\$3.80	\$101.68	3.74%	3.82%	3.00%	5.80%	5.10%	4.63%	6.79%	8.46%	9.65%
Evergy, Inc.	EVRG	\$2.14	\$57.83	3.70%	3.82%	8.00%	5.80%	5.80%	6.53%	9.61%	10.35%	11.85%
Eversource Energy	ES	\$2.41	\$85.89	2.81%	2.89%	5.50%	6.81%	6.50%	6.27%	8.38%	9.16%	9.71%
IDACORP, Inc.	IDA	\$2.84	\$94.64	3.00%	3.06%	4.00%	3.20%	3.90%	3.70%	6.25%	6.76%	7.06%
NorthWestern Corporation	NWE	\$2.48	\$60.32	4.11%	4.20%	3.00%	4.46%	4.90%	4.12%	7.17%	8.32%	9.11%
OGE Energy Corporation	OGE	\$1.61	\$32.56	4.95%	5.05%	4.00%	3.80%	4.40%	4.07%	8.84%	9.11%	9.45%
Pinnacle West Capital Corporation	PNW	\$3.32	\$81.53	4.07%	4.16%	5.00%	3.40%	4.00%	4.13%	7.54%	8.29%	9.17%
Portland General Electric Company	POR	\$1.72	\$44.83	3.84%	3.99%	8.50%	7.10%	8.60%	8.07%	11.07%	12.06%	12.60%
Southern Company	SO	\$2.64	\$61.49	4.29%	4.41%	5.00%	6.50%	4.90%	5.47%	9.30%	9.88%	10.93%
Wisconsin Energy Corporation	WEC	\$2.71	\$92.72	2.92%	3.01%	6.50%	6.19%	6.00%	6.23%	9.01%	9.24%	9.52%
Xcel Energy Inc.	XEL	\$1.83	\$67.36	2.72%	2.80%	6.00%	6.20%	6.10%	6.10%	8.80%	8.90%	9.00%
PROXY GROUP MEAN				3.63%	3.73%	5.34%	5.41%	5.38%	5.35%	8.33%	9.08%	9.79%

Notes

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals 180-day average as of June 30, 2021
- [3] Equals [1] / [2]
- [4] Equals [3] x (1 + 0.50 x [8])
- [5] Source: Value Line
- [6] Source: Yahoo! Finance
- [7] Source: Zacks
- [8] Equals Average ([5], [6], [7])
- [9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7]))
- [10] Equals [4] + [8]
- [11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7]))

**JMC-5.1**

**MARKET RISK PREMIUM**



MARKET RISK PREMIUM DERIVED FROM S&P EARNINGS AND ESTIMATE REPORT

[1] S&P's estimate of the S&P 500 Dividend Yield	1.38%
[2] S&P's estimate of the S&P 500 Growth Rate	17.09%
[3] S&P 500 Estimated Required Market Return	18.59%

Notes:

[1] Source: S&P Dow Jones Indices, S&P 500 Earnings and Estimate Report, June 30, 2021

[2] Source: S&P Dow Jones Indices, S&P 500 Earnings and Estimate Report, June 30, 2021

[3] Equals  $([1] \times (1 + (0.5 \times [2]))) + [2]$

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED BLOOMBERG GROWTH RATES

[4] Cap. Weighted Estimate of the S&P 500 Dividend Yield	1.36%
[5] Cap. Weighted Estimate of the S&P 500 Growth Rate	15.50%
[6] Cap. Weighted S&P 500 Estimated Required Market Return	16.96%

Notes:

[4] Source: Bloomberg Professional, as of June 30, 2021

[5] Source: Bloomberg Professional, as of June 30, 2021

[6] Equals  $([4] \times (1 + (0.5 \times [5]))) + [5]$

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED BLOOMBERG GROWTH RATES

Name	Ticker	Shares Out/g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Long-Term Growth
LyondellBasell Industries NV	LYB	334.35	102.87	4.39	5.50	34,395.00	0.09%	0.40%	0.50%
American Express Co	AXP	803.30	165.23	1.04	35.24	132,729.75	0.35%	0.37%	12.46%
Verizon Communications Inc	VZ	4140.07	56.03	4.48	2.79	231,968.01	0.62%	2.77%	1.72%
Broadcom Inc	AVGO	410.26	476.84	3.02	19.60	195,628.86	0.52%	1.57%	10.22%
Boeing Co/The	BA	584.81	239.56	n/a	13.00	140,097.08	0.37%		4.85%
Caterpillar Inc	CAT	547.79	217.63	2.04	14.75	119,214.88	0.32%	0.65%	4.68%
JPMorgan Chase & Co	JPM	3027.13	155.54	2.31	7.30	470,839.49	1.25%	2.90%	9.16%
Chevron Corp	CVX	1932.76	104.74	5.12	-4.26	202,437.18	0.54%	2.76%	-2.30%
Coca-Cola Co/The	KO	4311.68	54.11	3.10	8.18	233,305.06	0.62%	1.93%	5.08%
AbbVie Inc	ABBV	1766.22	112.64	4.62	1.49	198,947.25	0.53%	2.45%	0.79%
Walt Disney Co/The	DIS	1816.93	175.77	n/a	66.71	319,362.14	0.85%		56.75%
FleetCor Technologies Inc	FLT	83.35	256.06	n/a	15.51	21,342.60	0.06%	0.88%	
Extra Space Storage Inc	EXR	133.73	163.82	2.44	5.30	21,907.32	0.06%	0.14%	0.31%
Exxon Mobil Corp	XOM	4233.54	63.08	5.52	17.21	267,051.64	0.71%	3.92%	12.24%
Phillips 66	PSX	437.87	85.82	4.19	15.29	37,577.75	0.10%	0.42%	1.53%
General Electric Co	GE	8778.64	13.46	0.30	53.13	118,160.51	0.31%	0.09%	16.72%
HP Inc	HPQ	1201.26	30.19	2.57	8.48	36,265.89	0.10%	0.25%	0.82%
Home Depot Inc/The	HD	1063.26	318.89	2.07	10.28	339,062.34	0.90%	1.87%	9.28%
Monolithic Power Systems Inc	MPWR	45.75	373.45	0.64	20.40	17,086.83	0.05%	0.03%	0.93%
International Business Machines Corp	IBM	893.52	146.59	4.48	9.81	130,981.54	0.35%	1.56%	3.42%
Johnson & Johnson	JNJ	2633.40	164.74	2.57	9.05	433,825.66	1.16%	2.97%	10.46%
McDonald's Corp	MCD	746.17	230.99	2.23	10.76	172,358.73	0.46%	1.03%	4.94%
Merck & Co Inc	MRK	2532.06	77.77	3.34	6.62	196,918.15	0.52%	1.75%	3.47%
3M Co	MMM	579.68	198.63	2.98	9.80	115,140.85	0.31%	0.91%	3.01%
American Water Works Co Inc	AWK	181.47	154.13	1.56	8.78	27,969.82	0.07%	0.12%	0.65%
Bank of America Corp	BAC	8569.32	41.23	1.75	11.27	353,312.98	0.94%	1.64%	10.60%
Baker Hughes Co	BKR	773.84	22.87	3.15	60.90	17,697.81	0.05%	0.15%	2.87%
Pfizer Inc	PFE	5597.69	39.16	3.98	1.97	219,205.70	0.58%	2.33%	1.15%
Procter & Gamble Co/The	PG	2448.23	134.93	2.58	6.90	330,340.08	0.88%	2.27%	6.07%
AT&T Inc	T	7140.00	28.78	7.23	1.98	205,489.20	0.55%	3.96%	1.09%
Travelers Cos Inc/The	TRV	251.47	149.71	2.35	9.38	37,646.83	0.10%	0.24%	0.94%
Raytheon Technologies Corp	RTX	1515.09	85.31	2.39	23.54	129,252.33	0.34%	0.82%	8.11%
Analog Devices Inc	ADI	368.83	172.16	1.60	11.13	63,497.26	0.17%	0.27%	1.88%
Walmart Inc	WMT	2802.15	141.02	1.56	6.90	395,158.63	1.05%	1.64%	7.26%
Cisco Systems Inc/Delaware	CSCO	4214.21	53.00	2.79	5.65	223,352.87	0.59%	1.66%	3.36%
Intel Corp	INTC	4038.00	56.14	2.48	6.07	226,693.32	0.60%	1.50%	3.66%
General Motors Co	GM	1450.67	59.17	n/a	11.77	85,836.20	0.23%	2.69%	
Microsoft Corp	MSFT	7531.58	270.90	0.83	14.68	2,040,303.67	5.44%	4.49%	79.81%
Dollar General Corp	DG	236.21	216.39	0.78	10.72	51,112.40	0.14%	0.11%	1.46%
Cigna Corp	CI	343.15	237.07	1.69	9.97	81,349.62	0.22%	0.37%	2.16%
Kinder Morgan Inc	KMI	2264.58	18.23	5.92	6.35	41,283.35	0.11%	0.65%	0.70%
Citigroup Inc	C	2067.05	70.75	2.88	17.82	146,243.65	0.39%	1.12%	6.94%
American International Group Inc	AIG	858.14	47.60	2.69	20.10	40,847.51	0.11%	0.29%	2.19%
Altria Group Inc	MO	1850.64	47.68	7.21	4.35	88,238.42	0.24%	1.70%	1.02%
HCA Healthcare Inc	HCA	336.94	206.74	0.93	11.86	69,658.36	0.19%	0.17%	2.20%
Under Armour Inc	UA	188.62	21.15	n/a	39.44	3,989.36	0.01%	0.42%	
International Paper Co	IP	391.74	61.31	3.34	2.80	24,017.52	0.06%	0.21%	0.18%
Hewlett Packard Enterprise Co	HPE	1305.93	14.58	3.29	5.81	19,040.43	0.05%	0.17%	0.29%
Abbott Laboratories	ABT	1776.82	115.93	1.55	12.05	205,986.74	0.55%	0.85%	6.61%
Aflac Inc	AFL	679.67	53.66	2.46	n/a	0.00	0.00%	0.00%	
Air Products and Chemicals Inc	APD	221.31	287.68	2.09	14.21	63,667.61	0.17%	0.35%	2.41%
Royal Caribbean Cruises Ltd	RCL	254.57	85.28	n/a	n/a	0.00	0.00%		
Hess Corp	HES	308.42	87.32	1.15	7.77	26,931.32	0.07%	0.08%	0.56%
Archer-Daniels-Midland Co	ADM	558.70	60.60	2.44	4.50	33,857.34	0.09%	0.22%	0.41%
Automatic Data Processing Inc	ADP	425.52	198.62	1.87	8.60	84,516.39	0.23%	0.42%	1.94%
Verisk Analytics Inc	VRSK	162.09	174.72	0.66	7.49	28,320.54	0.08%	0.05%	0.57%
AutoZone Inc	AZO	21.55	1492.22	n/a	11.61	32,149.88	0.09%	0.99%	
Avery Dennison Corp	AVY	83.01	210.24	1.29	5.65	17,451.60	0.05%	0.06%	0.26%
Enphase Energy Inc	ENPH	135.70	183.63	n/a	n/a	0.00	0.00%		
MSCI Inc	MSCI	82.42	533.08	0.59	15.00	43,938.05	0.12%	0.07%	1.76%
Ball Corp	BLL	328.26	81.02	0.74	8.17	26,595.22	0.07%	0.05%	0.58%
Carrier Global Corp	CARR	869.00	48.60	0.99	16.18	42,233.35	0.11%	0.11%	1.82%
Bank of New York Mellon Corp/The	BK	875.48	51.23	2.42	9.17	44,850.89	0.12%	0.29%	1.10%











MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED BLOOMBERG GROWTH RATES

Name	Ticker	Shares Out/g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
ABIOMED Inc	ABMD	45.35	312.11	n/a	n/a	0.00	0.00%		
Delta Air Lines Inc	DAL	639.65	43.26	n/a	n/a	0.00	0.00%		
United Airlines Holdings Inc	UAL	323.58	52.29	n/a	-120.09	16,919.89	0.05%		-5.41%
Seagate Technology Holdings PLC	STX	228.87	87.93	3.05	8.00	20,124.80	0.05%	0.16%	0.43%
News Corp	NWS	199.63	24.35	0.82	29.05	4,860.99	0.01%	0.01%	0.38%
Centene Corp	CNC	582.74	72.93	n/a	12.29	42,498.86	0.11%		1.39%
Martin Marietta Materials Inc	MLM	62.36	351.81	0.65	15.70	21,938.87	0.06%	0.04%	0.92%
Teradyne Inc	TER	166.27	133.96	0.30	15.00	22,272.99	0.06%	0.02%	0.89%
PayPal Holdings Inc	PYPL	1174.73	291.48	n/a	23.82	342,409.72	0.91%		21.73%
Tesla Inc	TSLA	963.33	679.70	n/a	38.43	654,775.40	1.74%		67.04%
DISH Network Corp	DISH	288.91	41.80	n/a	6.34	12,076.44	0.03%		0.20%
Alexion Pharmaceuticals Inc	ALXN	221.02	183.71	n/a	11.85	40,603.40	0.11%		1.28%
Penn National Gaming Inc	PENN	156.36	76.49	n/a	80.69	11,959.82	0.03%		2.57%
Dow Inc	DOW	745.23	63.28	4.42	50.25	47,157.84	0.13%	0.56%	6.31%
Everest Re Group Ltd	RE	40.08	252.01	2.46	62.87	10,101.57	0.03%	0.07%	1.69%
Teledyne Technologies Inc	TDY	46.54	418.83	n/a	18.29	19,492.35	0.05%		0.95%
News Corp	NWSA	391.18	25.77	0.78	29.05	10,080.76	0.03%	0.02%	0.78%
Exelon Corp	EXC	976.76	44.31	3.45	2.54	43,280.24	0.12%	0.40%	0.29%
Global Payments Inc	GPN	295.22	187.54	0.42	18.91	55,364.81	0.15%	0.06%	2.79%
Crown Castle International Corp	CCI	432.19	195.10	2.73	20.85	84,320.27	0.22%	0.61%	4.68%
Aptiv PLC	APTIV	270.46	157.33	n/a	18.02	42,551.94	0.11%		2.04%
Advance Auto Parts Inc	AAP	65.44	205.14	1.95	14.44	13,424.16	0.04%	0.07%	0.52%
Align Technology Inc	ALGN	79.14	611.00	n/a	7.25	48,352.71	0.13%		0.93%
Illumina Inc	ILMN	146.00	473.21	n/a	30.73	69,088.66	0.18%		5.66%
LKQ Corp	LKQ	302.16	49.22	n/a	10.20	14,872.32	0.04%		0.40%
Nielsen Holdings PLC	NLSN	358.50	24.67	0.97	n/a	0.00	0.00%	0.00%	
Garmin Ltd	GRMN	192.15	144.64	1.85	6.90	27,791.85	0.07%	0.14%	0.51%
Zoetis Inc	ZTS	474.77	186.36	0.54	13.10	88,477.58	0.24%	0.13%	3.09%
Digital Realty Trust Inc	DLR	281.59	150.46	3.08	21.70	42,367.73	0.11%	0.35%	2.45%
Equinix Inc	EQIX	89.58	802.60	1.43	22.03	71,896.91	0.19%	0.27%	4.22%
Las Vegas Sands Corp	LVS	763.97	52.69	n/a	4.00	40,253.32	0.11%		0.43%
Discovery Inc	DISCK	330.15	28.98	n/a	6.80	9,567.63	0.03%		0.17%



MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

[7] Cap. Weighted Estimate of the S&P 500 Dividend Yield	1.41%
[8] Cap. Weighted Estimate of the S&P 500 Growth Rate	12.50%
[9] Cap. Weighted S&P 500 Estimated Required Market Return	14.00%

Notes:

- [7] Source: Bloomberg Professional, as of June 30, 2021
- [8] Source: Bloomberg Professional, as of June 30, 2021, and Value Line, as of June 30, 2021
- [9] Equals  $([7] \times (1 + (0.5 \times [8]))) + [8]$

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
LyondellBasell Industries NV	LYB	334.35	102.87	4.39	0.00	34,395.00	0.10%	0.42%	0.00%
American Express Co	AXP	803.30	165.23	1.04	6.00	132,729.75	0.37%	0.39%	2.23%
Verizon Communications Inc	VZ	4140.07	56.03	4.48	3.50	231,968.01	0.65%	2.91%	2.28%
Broadcom Inc	AVGO	410.26	476.84	3.02	27.00	195,628.86	0.55%	1.66%	14.81%
Boeing Co/The	BA	584.81	239.56	n/a		0.00	0.00%		0.00%
Caterpillar Inc	CAT	547.79	217.63	2.04	8.50	119,214.88	0.33%	0.68%	2.84%
JPMorgan Chase & Co	JPM	3027.13	155.54	2.31	6.50	470,839.49	1.32%	3.05%	8.58%
Chevron Corp	CVX	1932.76	104.74	5.12	23.50	202,437.18	0.57%	2.90%	13.34%
Coca-Cola Co/The	KO	4311.68	54.11	3.10	6.50	233,305.06	0.65%	2.03%	4.25%
AbbVie Inc	ABBV	1766.22	112.64	4.62	6.50	198,947.25	0.56%	2.57%	3.62%
Walt Disney Co/The	DIS	1816.93	175.77	n/a	14.00	319,362.14	0.90%		12.53%
FleetCor Technologies Inc	FLT	83.35	256.06	n/a	11.00	21,342.60	0.06%	0.06%	
Extra Space Storage Inc	EXR	133.73	163.82	2.44	5.00	21,907.32	0.06%	0.15%	0.31%
Exxon Mobil Corp	XOM	4233.54	63.08	5.52	2.50	267,051.64	0.75%	4.13%	1.87%
Phillips 66	PSX	437.87	85.82	4.19	20.00	37,577.75	0.11%	0.44%	2.11%
General Electric Co	GE	8778.64	13.46	0.30	4.00	118,160.51	0.33%	0.10%	1.32%
HP Inc	HPQ	1201.26	30.19	2.57	14.00	36,265.89	0.10%	0.26%	1.42%
Home Depot Inc/The	HD	1063.26	318.89	2.07	8.00	339,062.34	0.95%	1.97%	7.60%
Monolithic Power Systems Inc	MPWR	45.75	373.45	0.64	17.50	17,086.83	0.05%	0.03%	0.84%
International Business Machines Corp	IBM	893.52	146.59	4.48	1.50	130,981.54	0.37%	1.64%	0.55%
Johnson & Johnson	JNJ	2633.40	164.74	2.57	10.00	433,825.66	1.22%	3.13%	12.16%
McDonald's Corp	MCD	746.17	230.99	2.23	10.00	172,358.73	0.48%	1.08%	4.83%
Merck & Co Inc	MRK	2532.06	77.77	3.34	7.50	196,918.15	0.55%	1.85%	4.14%
3M Co	MMM	579.68	198.63	2.98	4.50	115,140.85	0.32%	0.96%	1.45%
American Water Works Co Inc	AWK	181.47	154.13	1.56	8.50	27,969.82	0.08%	0.12%	0.67%
Bank of America Corp	BAC	8569.32	41.23	1.75	4.50	353,312.98	0.99%	1.73%	4.46%
Baker Hughes Co	BKR	773.84	22.87	3.15		0.00	0.00%	0.00%	0.00%
Pfizer Inc	PFE	5597.69	39.16	3.98	8.00	219,205.70	0.61%	2.45%	4.92%
Procter & Gamble Co/The	PG	2448.23	134.93	2.58	7.00	330,340.08	0.93%	2.39%	6.48%
AT&T Inc	T	7140.00	28.78	7.23	2.50	205,489.20	0.58%	4.16%	1.44%
Travelers Cos Inc/The	TRV	251.47	149.71	2.35	8.00	37,646.83	0.11%	0.25%	0.84%
Raytheon Technologies Corp	RTX	1515.09	85.31	2.39	1.00	129,252.33	0.36%	0.87%	0.36%
Analog Devices Inc	ADI	368.83	172.16	1.60	8.50	63,497.26	0.18%	0.29%	1.51%
Walmart Inc	WMT	2802.15	141.02	1.56	6.00	395,158.63	1.11%	1.73%	6.65%
Cisco Systems Inc/Delaware	CSCO	4214.21	53.00	2.79	6.00	223,352.87	0.63%	1.75%	3.76%
Intel Corp	INTC	4038.00	56.14	2.48	7.00	226,693.32	0.64%	1.57%	4.45%
General Motors Co	GM	1450.67	59.17	n/a	11.00	85,836.20	0.24%		2.65%
Microsoft Corp	MSFT	7531.58	270.90	0.83	15.00	2,040,303.67	5.72%	4.73%	85.79%
Dollar General Corp	DG	236.21	216.39	0.78	10.50	51,112.40	0.14%	0.11%	1.50%
Cigna Corp	CI	343.15	237.07	1.69	11.00	81,349.62	0.23%	0.38%	2.51%
Kinder Morgan Inc	KMI	2264.58	18.23	5.92	19.00	41,283.35	0.12%	0.69%	2.20%
Citigroup Inc	C	2067.05	70.75	2.88	5.00	146,243.65	0.41%	1.18%	2.05%
American International Group Inc	AIG	858.14	47.60	2.69	28.50	40,847.51	0.11%	0.31%	3.26%
Altria Group Inc	MO	1850.64	47.68	7.21	6.50	88,238.42	0.25%	1.78%	1.61%
HCA Healthcare Inc	HCA	336.94	206.74	0.93	10.50	69,658.36	0.20%	0.18%	2.05%
Under Armour Inc	UA	188.62	21.15	n/a	11.00	3,989.36	0.01%		0.12%
International Paper Co	IP	391.74	61.31	3.34	11.00	24,017.52	0.07%	0.23%	0.74%
Hewlett Packard Enterprise Co	HPE	1305.93	14.58	3.29	6.50	19,040.43	0.05%	0.18%	0.35%
Abbott Laboratories	ABT	1776.82	115.93	1.55	11.50	205,986.74	0.58%	0.90%	6.64%
Aflac Inc	AFL	679.67	53.66	2.46	8.50	36,470.93	0.10%	0.25%	0.87%
Air Products and Chemicals Inc	APD	221.31	287.68	2.09	12.00	63,667.61	0.18%	0.37%	2.14%
Royal Caribbean Cruises Ltd	RCL	254.57	85.28	n/a		0.00	0.00%		0.00%
Hess Corp	HES	308.42	87.32	1.15		0.00	0.00%	0.00%	0.00%
Archer-Daniels-Midland Co	ADM	558.70	60.60	2.44	7.50	33,857.34	0.09%	0.23%	0.71%
Automatic Data Processing Inc	ADP	425.52	198.62	1.87	9.00	84,516.39	0.24%	0.44%	2.13%
Verisk Analytics Inc	VRSK	162.09	174.72	0.66	7.50	28,320.54	0.08%	0.05%	0.60%
AutoZone Inc	AZO	21.55	1492.22	n/a	14.50	32,149.88	0.09%		1.31%
Avery Dennison Corp	AVY	83.01	210.24	1.29	9.50	17,451.60	0.05%	0.06%	0.46%
Enphase Energy Inc	ENPH	135.70	183.63	n/a	40.00	24,918.41	0.07%		2.79%
MSCI Inc	MSCI	82.42	533.08	0.59	16.00	43,938.05	0.12%	0.07%	1.97%
Ball Corp	BLL	328.26	81.02	0.74	22.00	26,595.22	0.07%	0.06%	1.64%
Carrier Global Corp	CARR	869.00	48.60	0.99		0.00	0.00%	0.00%	0.00%
Bank of New York Mellon Corp/The	BK	875.48	51.23	2.42	3.00	44,850.89	0.13%	0.30%	0.38%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Otis Worldwide Corp	OTIS	429.14	81.77	1.17		0.00	0.00%	0.00%	0.00%
Baxter International Inc	BAX	502.85	80.50	1.39	8.50	40,479.59	0.11%	0.16%	0.96%
Becton Dickinson and Co	BDX	290.82	243.19	1.37	7.50	70,724.27	0.20%	0.27%	1.49%
Berkshire Hathaway Inc	BRK/B	1326.57	277.92	n/a	6.00	368,680.89	1.03%		6.20%
Best Buy Co Inc	BBY	250.47	114.98	2.44	8.50	28,799.39	0.08%	0.20%	0.69%
Boston Scientific Corp	BSX	1420.91	42.76	n/a	17.50	60,758.15	0.17%		2.98%
Bristol-Myers Squibb Co	BMJ	2232.84	66.82	2.93	12.50	149,198.64	0.42%	1.23%	5.23%
Fortune Brands Home & Security Inc	FBHS	138.60	99.61	1.04	10.00	13,805.75	0.04%	0.04%	0.39%
Brown-Forman Corp	BF/B	309.69	74.94	0.96	11.00	23,208.24	0.07%	0.06%	0.72%
Cabot Oil & Gas Corp	COG	399.66	17.46	2.52	14.50	6,978.13	0.02%	0.05%	0.28%
Campbell Soup Co	CPB	303.05	45.59	3.25	5.00	13,816.10	0.04%	0.13%	0.19%
Kansas City Southern	KSU	90.93	283.37	0.76	12.50	25,767.97	0.07%	0.06%	0.90%
Hilton Worldwide Holdings Inc	HLT	278.53	120.62	n/a	26.50	33,596.77	0.09%		2.50%
Carnival Corp	CCL	973.83	26.36	n/a		0.00	0.00%		0.00%
Qorvo Inc	QRVO	111.26	195.65	n/a	19.50	21,768.41	0.06%		1.19%
Lumen Technologies Inc	LUMN	1105.31	13.59	7.36	2.50	15,021.20	0.04%	0.31%	0.11%
UDR Inc	UDR	296.85	48.98	2.96	6.00	14,539.57	0.04%	0.12%	0.24%
Clorox Co/The	CLX	124.37	179.91	2.58	6.00	22,375.77	0.06%	0.16%	0.38%
Paycom Software Inc	PAYC	60.18	363.47	n/a	19.50	21,874.72	0.06%		1.20%
CMS Energy Corp	CMS	289.46	59.08	2.95	7.50	17,101.30	0.05%	0.14%	0.36%
Newell Brands Inc	NWL	425.30	27.47	3.35		0.00	0.00%	0.00%	0.00%
Colgate-Palmolive Co	CL	845.97	81.35	2.21	4.50	68,819.58	0.19%	0.43%	0.87%
Comerica Inc	CMA	139.61	71.34	3.81	2.50	9,959.99	0.03%	0.11%	0.07%
IPG Photonics Corp	IPGP	53.58	210.77	n/a	17.00	11,292.85	0.03%		0.54%
Conagra Brands Inc	CAG	479.95	36.38	3.02	5.00	17,460.47	0.05%	0.15%	0.24%
Consolidated Edison Inc	ED	353.07	71.72	4.32	4.00	25,322.32	0.07%	0.31%	0.28%
Corning Inc	GLW	851.36	40.90	2.35	20.00	34,820.50	0.10%	0.23%	1.95%
Cummins Inc	CMI	146.20	243.81	2.21	7.50	35,645.75	0.10%	0.22%	0.75%
Caesars Entertainment Inc	CZR	208.70	103.75	n/a		0.00	0.00%		0.00%
Danaher Corp	DHR	713.28	268.36	0.31	18.00	191,415.55	0.54%	0.17%	9.66%
Target Corp	TGT	494.72	241.74	1.49	13.00	119,594.58	0.34%	0.50%	4.36%
Deere & Co	DE	311.94	352.71	1.02	14.00	110,025.06	0.31%	0.31%	4.32%
Dominion Energy Inc	D	806.52	73.57	3.43	12.00	59,335.97	0.17%	0.57%	2.00%
Dover Corp	DOV	143.93	150.60	1.31	6.50	21,675.41	0.06%	0.08%	0.39%
Alliant Energy Corp	LNT	250.14	55.76	2.89	5.50	13,947.53	0.04%	0.11%	0.22%
Duke Energy Corp	DUK	769.22	98.72	3.91	7.00	75,937.10	0.21%	0.83%	1.49%
Regency Centers Corp	REG	169.86	64.07	3.71	10.00	10,883.06	0.03%	0.11%	0.31%
Eaton Corp PLC	ETN	398.50	148.18	2.05	5.50	59,049.73	0.17%	0.34%	0.91%
Ecolab Inc	ECL	285.94	205.97	0.93	6.00	58,894.44	0.17%	0.15%	0.99%
PerkinElmer Inc	PKI	112.09	154.41	0.18	11.00	17,307.97	0.05%	0.01%	0.53%
Emerson Electric Co	EMR	599.70	96.24	2.10	10.50	57,715.13	0.16%	0.34%	1.70%
EOG Resources Inc	EOG	583.61	83.44	1.98	12.50	48,696.00	0.14%	0.27%	1.71%
Aon PLC	AON	225.65	238.76	0.85	7.00	53,875.48	0.15%	0.13%	1.06%
Entergy Corp	ETR	200.66	99.70	3.81	3.00	20,005.80	0.06%	0.21%	0.17%
Equifax Inc	EFX	121.70	239.51	0.65	5.50	29,149.09	0.08%	0.05%	0.45%
IQVIA Holdings Inc	IQV	191.66	242.32	n/a	14.00	46,443.29	0.13%		1.82%
Gartner Inc	IT	86.08	242.20	n/a	15.50	20,847.85	0.06%		0.91%
FedEx Corp	FDX	265.34	298.33	1.01	8.50	79,159.48	0.22%	0.22%	1.89%
FMC Corp	FMC	128.88	108.20	1.77	9.50	13,944.49	0.04%	0.07%	0.37%
Ford Motor Co	F	3920.79	14.86	n/a	46.00	58,262.97	0.16%		7.51%
NextEra Energy Inc	NEE	1961.45	73.28	2.10	10.50	143,734.69	0.40%	0.85%	4.23%
Franklin Resources Inc	BEN	504.32	31.99	3.50	11.50	16,133.29	0.05%	0.16%	0.52%
Freeport-McMoRan Inc	FCX	1465.53	37.11	0.81	36.50	54,385.71	0.15%	0.12%	5.56%
Gap Inc/The	GPS	377.60	33.65	1.43	25.00	12,706.31	0.04%	0.05%	0.89%
Dexcom Inc	DXCM	96.71	427.00	n/a	27.50	41,293.46	0.12%		3.18%
General Dynamics Corp	GD	282.60	188.26	2.53	5.00	53,201.90	0.15%	0.38%	0.75%
General Mills Inc	GIS	609.97	60.93	3.35	3.50	37,165.53	0.10%	0.35%	0.36%
Genuine Parts Co	GPC	144.47	126.47	2.58	7.00	18,271.37	0.05%	0.13%	0.36%
Atmos Energy Corp	ATO	130.79	96.11	2.60	7.00	12,569.94	0.04%	0.09%	0.25%
WW Grainger Inc	GWW	52.11	438.00	1.48	5.50	22,824.18	0.06%	0.09%	0.35%
Halliburton Co	HAL	889.72	23.12	0.78	7.00	20,570.30	0.06%	0.04%	0.40%
L3Harris Technologies Inc	LHX	204.98	216.15	1.89		0.00	0.00%	0.00%	0.00%
Healthpeak Properties Inc	PEAK	538.93	33.29	3.60	-12.00	17,941.11	0.05%	0.18%	-0.60%
Catalent Inc	CTLT	170.34	108.12	n/a	21.00	18,417.38	0.05%		1.08%
Fortive Corp	FTV	338.53	69.74	0.40	6.00	23,608.80	0.07%	0.03%	0.40%
Hershey Co/The	HSY	146.38	174.18	1.85	5.50	25,496.99	0.07%	0.13%	0.39%
Synchrony Financial	SYF	581.60	48.52	1.81	4.50	28,219.18	0.08%	0.14%	0.36%
Hormel Foods Corp	HRL	542.08	47.75	2.05	9.00	25,884.08	0.07%	0.15%	0.65%
Arthur J Gallagher & Co	AJG	206.24	140.08	1.37	12.50	28,889.68	0.08%	0.11%	1.01%
Mondelez International Inc	MDLZ	1404.71	62.44	2.02	8.00	87,710.15	0.25%	0.50%	1.97%
CenterPoint Energy Inc	CNP	580.50	24.52	2.61	8.00	14,233.76	0.04%	0.10%	0.32%
Humana Inc	HUM	129.01	442.72	0.63	11.00	57,117.08	0.16%	0.10%	1.76%
Willis Towers Watson PLC	WLTW	128.98	230.02	1.23	11.50	29,667.29	0.08%	0.10%	0.96%
Illinois Tool Works Inc	ITW	315.88	223.56	2.04	11.00	70,618.80	0.20%	0.40%	2.18%
CDW Corp/DE	CDW	140.20	174.65	0.92	11.00	24,486.63	0.07%	0.06%	0.76%
Trane Technologies PLC	TT	239.15	184.14	1.28		0.00	0.00%	0.00%	0.00%
Interpublic Group of Cos Inc/The	IPG	393.38	32.49	3.32	12.00	12,780.79	0.04%	0.12%	0.43%
International Flavors & Fragrances Inc	IFF	248.92	149.40	2.06	7.50	37,188.65	0.10%	0.21%	0.78%
Jacobs Engineering Group Inc	J	130.22	133.42	0.63	15.00	17,373.29	0.05%	0.03%	0.73%
Generac Holdings Inc	GNRC	62.96	415.15	n/a	23.50	26,135.77	0.07%		1.72%
NXP Semiconductors NV	NXPI	275.75	205.72	1.09	11.00	56,727.29	0.16%	0.17%	1.75%
Hanesbrands Inc	HBI	349.12	18.67	3.21	6.50	6,517.98	0.02%	0.06%	0.12%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted
									Term Growth
Kellogg Co	K	340.50	64.33	3.61	3.00	21,904.11	0.06%	0.22%	0.18%
Broadridge Financial Solutions Inc	BR	116.13	161.53	1.42	10.50	18,757.83	0.05%	0.07%	0.55%
Perrigo Co PLC	PRGO	133.55	45.85	2.09	-2.00	6,123.22	0.02%	0.04%	-0.03%
Kimberly-Clark Corp	KMB	337.43	133.78	3.41	5.50	45,141.65	0.13%	0.43%	0.70%
Kimco Realty Corp	KIM	433.52	20.85	3.26	-2.00	9,038.81	0.03%	0.08%	-0.05%
Oracle Corp	ORCL	2792.00	77.84	1.64	9.50	217,329.28	0.61%	1.00%	5.79%
Kroger Co/The	KR	747.24	38.31	2.19	5.00	28,626.69	0.08%	0.18%	0.40%
Leggett & Platt Inc	LEG	133.23	51.81	3.24	10.00	6,902.80	0.02%	0.06%	0.19%
Lennar Corp	LEN	275.76	99.35	1.01	9.00	27,396.76	0.08%	0.08%	0.69%
Eli Lilly & Co	LLY	959.03	229.52	1.48	11.00	220,115.42	0.62%	0.91%	6.79%
L Brands Inc	LB	276.82	72.06	0.83	28.50	19,947.72	0.06%	0.05%	1.59%
Charter Communications Inc	CHTR	188.67	721.45	n/a	26.50	136,113.09	0.38%		10.11%
Lincoln National Corp	LNC	190.37	62.84	2.67	9.00	11,963.04	0.03%	0.09%	0.30%
Loews Corp	L	263.18	54.65	0.46	12.00	14,382.57	0.04%	0.02%	0.48%
Lowe's Cos Inc	LOW	706.89	193.97	1.65	14.00	137,115.45	0.38%	0.63%	5.38%
IDEX Corp	IEX	75.93	220.05	0.98	7.50	16,708.62	0.05%	0.05%	0.35%
Marsh & McLennan Cos Inc	MMC	509.48	140.68	1.32	9.50	71,673.93	0.20%	0.27%	1.91%
Masco Corp	MAS	253.79	58.91	1.60	9.00	14,950.53	0.04%	0.07%	0.38%
S&P Global Inc	SPGI	240.90	410.45	0.75	8.50	98,877.41	0.28%	0.21%	2.36%
Medtronic PLC	MDT	1343.90	124.13	2.03	7.00	166,818.80	0.47%	0.95%	3.27%
Viatis Inc	VTRS	1208.66	14.29	3.08		0.00	0.00%	0.00%	0.00%
CVS Health Corp	CVS	1316.57	83.44	2.40	6.00	109,854.43	0.31%	0.74%	1.85%
DuPont de Nemours Inc	DD	532.14	77.41	1.55		0.00	0.00%	0.00%	0.00%
Micron Technology Inc	MU	1121.42	84.98	n/a	11.50	95,297.93	0.27%		3.07%
Motorola Solutions Inc	MSI	169.67	216.85	1.31	7.00	36,792.51	0.10%	0.14%	0.72%
Cboe Global Markets Inc	CBOE	106.69	119.05	1.41	12.00	12,700.97	0.04%	0.05%	0.43%
Laboratory Corp of America Holdings	LH	97.64	275.85	n/a	9.50	26,934.27	0.08%		0.72%
Newmont Corp	NEM	801.16	63.38	3.47	14.50	50,777.65	0.14%	0.49%	2.06%
NIKE Inc	NKE	1274.96	154.49	0.71	24.00	196,967.95	0.55%	0.39%	13.25%
NiSource Inc	NI	392.22	24.50	3.59	9.50	9,609.32	0.03%	0.10%	0.26%
Norfolk Southern Corp	NSC	250.24	265.41	1.49	9.00	66,416.46	0.19%	0.28%	1.68%
Principal Financial Group Inc	PFGE	272.01	63.19	3.86	5.50	17,188.44	0.05%	0.19%	0.27%
Eversource Energy	ES	343.47	80.24	3.00	5.50	27,559.71	0.08%	0.23%	0.42%
Northrop Grumman Corp	NOC	160.96	363.43	1.73	7.00	58,498.06	0.16%	0.28%	1.15%
Wells Fargo & Co	WFC	4133.57	45.29	0.88	5.00	187,209.48	0.52%	0.46%	2.62%
Nucor Corp	NUE	299.24	95.93	1.69	8.00	28,706.29	0.08%	0.14%	0.64%
PVH Corp	PVH	71.36	107.59	n/a	12.50	7,677.62	0.02%		0.27%
Occidental Petroleum Corp	OXY	933.42	31.27	0.13	36.50	29,188.01	0.08%	0.01%	2.99%
Omicron Group Inc	OMC	215.08	79.99	3.50	6.00	17,204.33	0.05%	0.17%	0.29%
ONEOK Inc	OKE	445.54	55.64	6.72	9.50	24,789.68	0.07%	0.47%	0.66%
Raymond James Financial Inc	RJF	137.42	129.90	1.20	6.50	17,850.60	0.05%	0.06%	0.33%
Parker-Hannifin Corp	PH	129.06	307.11	1.34	13.00	39,634.39	0.11%	0.15%	1.44%
Rollins Inc	ROL	492.12	34.20	0.94	11.50	16,830.64	0.05%	0.04%	0.54%
PPL Corp	PPL	769.42	27.97	5.93	3.00	21,520.59	0.06%	0.36%	0.18%
ConocoPhillips	COP	1349.42	60.90	2.82	10.50	82,179.56	0.23%	0.65%	2.42%
PulteGroup Inc	PHM	262.97	54.57	1.03	11.00	14,350.05	0.04%	0.04%	0.44%
Pinnacle West Capital Corp	PNW	112.75	81.97	4.05	5.00	9,242.20	0.03%	0.10%	0.13%
PNC Financial Services Group Inc/The	PNC	424.86	190.76	2.41	3.00	81,045.91	0.23%	0.55%	0.68%
PPG Industries Inc	PPG	237.09	169.77	1.27	3.00	40,250.94	0.11%	0.14%	0.34%
Progressive Corp/The	PGR	585.30	98.21	0.41	5.00	57,482.31	0.16%	0.07%	0.81%
Public Service Enterprise Group Inc	PEG	505.48	59.74	3.41	3.50	30,197.38	0.08%	0.29%	0.30%
Robert Half International Inc	RHI	112.78	88.97	1.71	7.50	10,034.13	0.03%	0.05%	0.21%
Edison International	EIX	379.44	57.82	4.58	23.50	21,939.11	0.06%	0.28%	1.45%
Schlumberger NV	SLB	1398.33	32.01	1.56	8.50	44,760.61	0.13%	0.20%	1.07%
Charles Schwab Corp/The	SCHW	1807.05	72.81	0.99	7.50	131,571.53	0.37%	0.36%	2.77%
Sherwin-Williams Co/The	SHW	265.95	272.45	0.81	10.50	72,458.08	0.20%	0.16%	2.13%
West Pharmaceutical Services Inc	WST	73.82	359.10	0.19	17.00	26,510.20	0.07%	0.01%	1.26%
J M Smucker Co/The	SJM	108.34	129.57	2.78	4.00	14,038.13	0.04%	0.11%	0.16%
Snap-on Inc	SNA	54.08	223.43	2.20	5.00	12,083.09	0.03%	0.07%	0.17%
AMETEK Inc	AME	230.92	133.50	0.60	10.00	30,827.69	0.09%	0.05%	0.86%
Southern Co/The	SO	1059.66	60.51	4.36	5.00	64,120.09	0.18%	0.78%	0.90%
Truist Financial Corp	TFC	1344.85	55.50	3.24	5.50	74,638.90	0.21%	0.68%	1.15%
Southwest Airlines Co	LUV	591.38	53.09	n/a	1.50	31,396.20	0.09%		0.13%
W R Berkley Corp	WRB	177.38	74.43	0.70	14.50	13,202.47	0.04%	0.03%	0.54%
Stanley Black & Decker Inc	SWK	161.50	204.99	1.37	6.00	33,104.86	0.09%	0.13%	0.56%
Public Storage	PSA	174.98	300.69	2.66	2.50	52,614.13	0.15%	0.39%	0.37%
Arista Networks Inc	ANET	76.32	362.31	n/a	4.50	27,652.22	0.08%		0.35%
Sysco Corp	SYYS	511.58	77.75	2.42	11.50	39,775.50	0.11%	0.27%	1.28%
Corteva Inc	CTVA	738.32	44.35	1.17		0.00	0.00%	0.00%	0.00%
Texas Instruments Inc	TXN	923.52	192.30	2.12	8.50	177,593.67	0.50%	1.06%	4.23%
Textron Inc	TXT	225.71	68.77	0.12	7.50	15,522.01	0.04%	0.01%	0.33%
Thermo Fisher Scientific Inc	TMO	393.03	504.47	0.21	13.00	198,270.84	0.56%	0.11%	7.23%
TJX Cos Inc/The	TJX	1206.49	67.42	1.54	12.00	81,341.35	0.23%	0.35%	2.74%
Globe Life Inc	GL	103.05	95.25	0.83	8.00	9,815.80	0.03%	0.02%	0.22%
Johnson Controls International plc	JCI	716.72	68.63	1.57	8.50	49,188.15	0.14%	0.22%	1.17%
Ulta Beauty Inc	ULTA	54.76	345.77	n/a	12.50	18,933.67	0.05%		0.66%
Union Pacific Corp	UNP	664.30	219.93	1.95	10.00	146,100.16	0.41%	0.80%	4.10%
Keysight Technologies Inc	KEYS	184.23	154.41	n/a	17.00	28,446.34	0.08%		1.36%
UnitedHealth Group Inc	UNH	943.70	400.44	1.45	12.00	377,896.03	1.06%	1.53%	12.71%
Unum Group	UNM	204.24	28.40	4.23	3.50	5,800.44	0.02%	0.07%	0.06%
Marathon Oil Corp	MRO	788.15	13.62	1.17	49.00	10,734.64	0.03%	0.04%	1.47%
Bio-Rad Laboratories Inc	BIO	24.69	644.29	n/a	11.50	15,909.45	0.04%		0.51%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line		Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
					Long-Term Growth Estimate	Market Cap				
Ventas Inc	VTR	375.20	57.10	3.15	4.50	21,423.81	0.06%	0.19%	0.27%	
VF Corp	VFC	392.36	82.04	2.39	5.50	32,188.89	0.09%	0.22%	0.50%	
Vornado Realty Trust	VNO	191.47	46.67	4.54	-19.00	8,935.67	0.03%	0.11%	-0.48%	
Vulcan Materials Co	VMC	132.67	174.07	0.85	10.00	23,093.00	0.06%	0.06%	0.65%	
Weyerhaeuser Co	WY	749.22	34.42	1.98	21.00	25,787.98	0.07%	0.14%	1.52%	
Whirlpool Corp	WHR	62.63	218.02	2.57	5.50	13,653.50	0.04%	0.10%	0.21%	
Williams Cos Inc/The	WMB	1214.76	26.55	6.18	12.00	32,251.93	0.09%	0.56%	1.08%	
WEC Energy Group Inc	WEC	315.44	88.95	3.05	6.50	28,057.94	0.08%	0.24%	0.51%	
Adobe Inc	ADBE	478.00	585.64	n/a	14.50	279,935.92	0.78%		11.38%	
AES Corp/The	AES	666.26	26.07	2.31	24.00	17,369.32	0.05%	0.11%	1.17%	
Amgen Inc	AMGN	574.55	243.75	2.89	6.00	140,047.54	0.39%	1.13%	2.36%	
Apple Inc	AAPL	16687.63	136.96	0.64	14.50	2,285,537.94	6.41%	4.12%	92.90%	
Autodesk Inc	ADSK	220.01	291.90	n/a	18.00	64,221.79	0.18%		3.24%	
Cintas Corp	CTAS	105.05	382.00	0.79	13.00	40,130.25	0.11%	0.09%	1.46%	
Comcast Corp	CMCSA	4584.85	57.02	1.75	11.00	261,427.86	0.73%	1.29%	8.06%	
Molson Coors Beverage Co	TAP	200.53	53.69	n/a	41.00	10,766.62	0.03%		1.24%	
KLA Corp	KLAC	153.28	324.21	1.11	17.50	49,695.56	0.14%	0.15%	2.44%	
Marriott International Inc/MD	MAR	325.64	136.52	n/a	17.50	44,456.24	0.12%		2.18%	
McCormick & Co Inc/MD	MKC	249.00	88.32	1.54	5.50	21,991.94	0.06%	0.09%	0.34%	
PACCAR Inc	PCAR	347.16	89.25	1.52	5.50	30,983.67	0.09%	0.13%	0.48%	
Costco Wholesale Corp	COST	442.07	395.67	0.80	9.50	174,913.44	0.49%	0.39%	4.66%	
First Republic Bank/CA	FRC	176.25	187.17	0.47	12.50	32,989.09	0.09%	0.04%	1.16%	
Stryker Corp	SYK	376.75	259.73	0.97	11.00	97,852.76	0.27%	0.27%	3.02%	
Tyson Foods Inc	TSN	294.77	73.76	2.41	6.50	21,742.46	0.06%	0.15%	0.40%	
Lamb Weston Holdings Inc	LW	146.28	80.66	1.17	2.50	11,799.11	0.03%	0.04%	0.08%	
Applied Materials Inc	AMAT	913.98	142.40	0.67	16.00	130,150.89	0.36%	0.25%	5.84%	
American Airlines Group Inc	AAL	641.38	21.21	n/a	-3.50	13,603.73	0.04%		-0.13%	
Cardinal Health Inc	CAH	290.15	57.09	3.44	12.00	16,564.55	0.05%	0.16%	0.56%	
Cerner Corp	CERN	301.32	78.16	1.13	9.00	23,550.94	0.07%	0.07%	0.59%	
Cincinnati Financial Corp	CINF	161.10	116.62	2.16	13.50	18,787.13	0.05%	0.11%	0.71%	
ViacomCBS Inc	VIAC	605.59	45.20	2.12	8.00	27,372.49	0.08%	0.16%	0.61%	
DR Horton Inc	DHI	360.48	90.37	0.89	14.50	32,576.94	0.09%	0.08%	1.32%	
Electronic Arts Inc	EA	285.73	143.83	0.47	9.00	41,097.12	0.12%	0.05%	1.04%	
Expeditors International of Washington Inc	EXPD	168.89	126.60	0.92	8.50	21,380.97	0.06%	0.05%	0.51%	
Fastenal Co	FAST	574.34	52.00	2.15	9.00	29,865.73	0.08%	0.18%	0.75%	
M&T Bank Corp	MTB	128.65	145.31	3.03	4.00	18,694.71	0.05%	0.16%	0.21%	
Xcel Energy Inc	XEL	538.21	65.88	2.78	6.00	35,457.08	0.10%	0.28%	0.60%	
Fiserv Inc	FISV	666.77	106.89	n/a	13.00	71,270.94	0.20%		2.60%	
Fifth Third Bancorp	FITB	703.97	38.23	2.83	7.00	26,912.62	0.08%	0.21%	0.53%	
Gilead Sciences Inc	GILD	1254.18	68.86	4.12	3.50	86,362.70	0.24%	1.00%	0.85%	
Hasbro Inc	HAS	137.57	94.52	2.88	12.50	13,003.02	0.04%	0.10%	0.46%	
Huntington Bancshares Inc/OH	HBAN	1476.43	14.27	4.20	6.00	21,068.60	0.06%	0.25%	0.35%	
Welltower Inc	WELL	417.52	83.10	2.94	-1.50	34,696.00	0.10%	0.29%	-0.15%	
Biogen Inc	BIIB	150.56	346.27	n/a	7.00	52,132.68	0.15%		1.02%	
Northern Trust Corp	NTRS	208.14	115.62	2.42	7.00	24,065.15	0.07%	0.16%	0.47%	
Packaging Corp of America	PKG	94.99	135.42	2.95	5.00	12,864.09	0.04%	0.11%	0.18%	
Paychex Inc	PAYX	359.80	107.30	2.46	6.50	38,606.54	0.11%	0.27%	0.70%	
People's United Financial Inc	PBCT	427.63	17.14	4.26	4.00	7,329.58	0.02%	0.09%	0.08%	
QUALCOMM Inc	QCOM	1128.00	142.93	1.90	14.00	161,225.04	0.45%	0.86%	6.33%	
Roper Technologies Inc	ROP	105.24	470.20	0.48	10.00	49,483.38	0.14%	0.07%	1.39%	
Ross Stores Inc	ROST	357.12	124.00	0.92	14.00	44,283.00	0.12%	0.11%	1.74%	
IDEXX Laboratories Inc	IDXX	85.28	631.55	n/a	13.50	53,859.22	0.15%		2.04%	
Starbucks Corp	SBUX	1178.30	111.81	1.61	16.00	131,745.72	0.37%	0.59%	5.91%	
KeyCorp	KEY	970.52	20.65	3.58	9.50	20,041.22	0.06%	0.20%	0.53%	
Fox Corp	FOXA	326.94	37.13	1.24		0.00	0.00%	0.00%	0.00%	
Fox Corp	FOX	253.27	35.20	1.31		0.00	0.00%	0.00%	0.00%	
State Street Corp	STT	347.77	82.28	2.53	6.50	28,614.35	0.08%	0.20%	0.52%	
Norwegian Cruise Line Holdings Ltd	NCLH	369.93	29.41	n/a		0.00	0.00%		0.00%	
US Bancorp	USB	1489.68	56.97	2.95	4.50	84,866.96	0.24%	0.70%	1.07%	
A O Smith Corp	AOS	134.47	72.06	1.44	5.00	9,689.69	0.03%	0.04%	0.14%	
NortonLifeLock Inc	NLOK	579.95	27.22	1.84	7.00	15,786.10	0.04%	0.08%	0.31%	
T Rowe Price Group Inc	TROW	226.86	197.97	2.18	8.00	44,910.68	0.13%	0.27%	1.01%	
Waste Management Inc	WM	422.04	140.11	1.64	6.00	59,132.16	0.17%	0.27%	0.99%	
Constellation Brands Inc	STZ	169.00	233.89	1.30	6.50	39,527.18	0.11%	0.14%	0.72%	
Xilinx Inc	XLNX	245.88	144.64	n/a	7.50	35,563.65	0.10%		0.75%	
DENTSPLY SIRONA Inc	XRAY	218.32	63.26	0.70	5.50	13,810.80	0.04%	0.03%	0.21%	
Zions Bancorp NA	ZION	163.82	52.86	2.57	7.00	8,659.31	0.02%	0.06%	0.17%	
Alaska Air Group Inc	ALK	124.48	60.31	n/a	77.50	7,507.51	0.02%		1.63%	
Invesco Ltd	IVZ	461.45	26.73	2.54	12.00	12,334.59	0.03%	0.09%	0.41%	
Linde PLC	LIN	518.89	289.10	1.47		0.00	0.00%	0.00%	0.00%	
Intuit Inc	INTU	273.26	490.17	0.48	14.50	133,943.36	0.38%	0.18%	5.44%	
Morgan Stanley	MS	1860.59	91.69	1.53	8.50	170,597.41	0.48%	0.73%	4.06%	
Microchip Technology Inc	MCHP	273.53	149.74	1.10	9.00	40,958.53	0.11%	0.13%	1.03%	
Chubb Ltd	CB	449.69	158.94	2.01	10.00	71,473.89	0.20%	0.40%	2.00%	
Hologic Inc	HOLX	256.23	66.72	n/a	25.00	17,095.87	0.05%		1.20%	
Citizens Financial Group Inc	CFG	425.93	45.87	3.40	12.00	19,537.41	0.05%	0.19%	0.66%	
O'Reilly Automotive Inc	ORLY	69.76	566.21	n/a	11.00	39,499.94	0.11%		1.22%	
Allstate Corp/The	ALL	299.34	130.44	2.48	5.00	39,045.78	0.11%	0.27%	0.55%	
Equity Residential	EQR	374.01	77.00	3.13	2.00	28,798.39	0.08%	0.25%	0.16%	
BorgWarner Inc	BWA	239.85	48.54	1.40	5.50	11,642.22	0.03%	0.05%	0.18%	
Organon & Co	OGN	253.52	30.26	n/a		0.00	0.00%		0.00%	
Host Hotels & Resorts Inc	HST	706.09	17.09	n/a	10.00	12,067.01	0.03%		0.34%	

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line		Market Cap Excl. n/a	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
					Long-Term Growth Estimate	Market Cap				
Incyte Corp	INCY	219.92	84.13	n/a	59.00	18,502.12	0.05%		3.06%	
Simon Property Group Inc	SPG	328.53	130.48	4.29	1.50	42,866.72	0.12%	0.52%	0.18%	
Eastman Chemical Co	EMN	136.52	116.75	2.36	5.00	15,938.24	0.04%	0.11%	0.22%	
Twitter Inc	TWTR	798.13	68.81	n/a	29.00	54,919.12	0.15%		4.46%	
AvalonBay Communities Inc	AVB	139.61	208.69	3.05	1.00	29,134.17	0.08%	0.25%	0.08%	
Prudential Financial Inc	PRU	394.00	102.47	4.49	4.50	40,373.18	0.11%	0.51%	0.51%	
United Parcel Service Inc	UPS	723.32	207.97	1.96	10.50	150,426.24	0.42%	0.83%	4.43%	
Walgreens Boots Alliance Inc	WBA	864.39	52.61	3.55	6.00	45,475.77	0.13%	0.45%	0.76%	
STERIS Inc	STE	99.67	206.30	0.78	10.00	20,561.30	0.06%	0.04%	0.58%	
McKesson Corp	MCK	154.67	191.24	0.88	9.00	29,578.52	0.08%	0.07%	0.75%	
Lockheed Martin Corp	LMT	277.93	378.35	2.75	7.50	105,156.33	0.29%	0.81%	2.21%	
AmerisourceBergen Corp	ABC	207.41	114.49	1.54	6.50	23,746.49	0.07%	0.10%	0.43%	
Capital One Financial Corp	COF	451.49	154.69	1.03	5.50	69,840.83	0.20%	0.20%	1.08%	
Waters Corp	WAT	61.70	345.61	n/a	6.00	21,324.14	0.06%		0.36%	
Dollar Tree Inc	DLTR	231.95	99.50	n/a	9.50	23,079.42	0.06%		0.61%	
Darden Restaurants Inc	DRY	130.84	145.99	3.01	14.50	19,101.77	0.05%	0.16%	0.78%	
Dominos Pizza Inc	DPZ	38.83	466.49	0.81	13.00	18,112.87	0.05%	0.04%	0.66%	
NVR Inc	NVR	3.64	4973.30	n/a	8.00	18,087.89	0.05%		0.41%	
NetApp Inc	NTAP	223.22	81.82	2.44	6.50	18,263.61	0.05%	0.13%	0.33%	
Citrix Systems Inc	CTXS	124.17	117.27	1.26	9.00	14,561.06	0.04%	0.05%	0.37%	
DXC Technology Co	DXC	254.81	38.94	n/a	2.50	9,922.18	0.03%		0.07%	
Old Dominion Freight Line Inc	ODFL	115.97	253.80	0.32	9.00	29,431.92	0.08%	0.03%	0.74%	
DaVita Inc	DVA	106.20	120.43	n/a	15.00	12,789.67	0.04%		0.54%	
Hartford Financial Services Group Inc/The	HIG	357.19	61.97	2.26	8.50	22,135.13	0.06%	0.14%	0.53%	
Iron Mountain Inc	IRM	288.73	42.32	5.85	7.50	12,219.10	0.03%	0.20%	0.26%	
Estee Lauder Cos Inc/The	EL	231.90	318.08	0.67	11.00	73,761.16	0.21%	0.14%	2.27%	
Cadence Design Systems Inc	CDNS	278.27	136.82	n/a	9.50	38,072.22	0.11%		1.01%	
Tyler Technologies Inc	TYL	40.74	452.37	n/a	8.00	18,429.10	0.05%		0.41%	
Universal Health Services Inc	UHS	77.97	146.43	0.55	10.00	11,417.44	0.03%	0.02%	0.32%	
Skyworks Solutions Inc	SWKS	165.09	191.75	1.04	13.50	31,656.58	0.09%	0.09%	1.20%	
NOV Inc	NOV	390.64	15.32	n/a		0.00	0.00%		0.00%	
Quest Diagnostics Inc	DGX	130.64	131.97	1.88	7.00	17,240.30	0.05%	0.09%	0.34%	
Activision Blizzard Inc	ATVI	777.02	95.44	0.49	14.50	74,158.50	0.21%	0.10%	3.01%	
Rockwell Automation Inc	ROK	116.08	286.02	1.50	6.50	33,200.34	0.09%	0.14%	0.60%	
Kraft Heinz Co/The	KHC	1223.15	40.78	3.92	1.50	49,879.93	0.14%	0.55%	0.21%	
American Tower Corp	AMT	454.70	270.14	1.88	10.00	122,831.58	0.34%	0.65%	3.44%	
Regeneron Pharmaceuticals Inc	REGN	104.70	558.54	n/a	12.50	58,476.35	0.16%		2.05%	
Amazon.com Inc	AMZN	504.32	3440.16	n/a	28.50	1,734,955.25	4.86%		138.61%	
Jack Henry & Associates Inc	JKHY	74.28	163.51	1.13	10.50	12,146.01	0.03%	0.04%	0.36%	
Ralph Lauren Corp	RL	48.61	117.81	2.33	6.00	5,723.22	0.02%	0.04%	0.10%	
Boston Properties Inc	BXP	156.07	114.59	3.42	-2.00	17,884.52	0.05%	0.17%	-0.10%	
Amphenol Corp	APH	597.62	68.41	0.85	10.50	40,882.91	0.11%	0.10%	1.20%	
Howmet Aerospace Inc	HWM	434.33	34.47	n/a	12.00	14,971.18	0.04%		0.50%	
Pioneer Natural Resources Co	PXD	243.95	162.52	1.38	17.50	39,647.08	0.11%	0.15%	1.94%	
Valero Energy Corp	VLO	408.76	78.08	5.02	2.00	31,915.98	0.09%	0.45%	0.18%	
Synopsys Inc	SNPS	152.58	275.79	n/a	12.50	42,078.66	0.12%		1.47%	
Western Union Co/The	WU	409.25	22.97	4.09	6.00	9,400.52	0.03%	0.11%	0.16%	
Etsy Inc	ETSY	127.10	205.84	n/a	27.00	26,162.88	0.07%		1.98%	
CH Robinson Worldwide Inc	CHRW	132.99	93.67	2.18	8.00	12,457.08	0.03%	0.08%	0.28%	
Accenture PLC	ACN	634.14	294.79	1.19	9.50	186,937.25	0.52%	0.63%	4.98%	
TransDigm Group Inc	TDG	54.89	647.29	n/a	9.50	35,531.04	0.10%		0.95%	
Yum! Brands Inc	YUM	297.90	115.03	1.74	10.50	34,267.55	0.10%	0.17%	1.01%	
Prologis Inc	PLD	739.75	119.53	2.11	8.50	88,421.72	0.25%	0.52%	2.11%	
FirstEnergy Corp	FE	543.90	37.21	4.19	11.50	20,238.52	0.06%	0.24%	0.65%	
VersiSign Inc	VRSN	112.62	227.69	n/a	9.50	25,642.22	0.07%		0.68%	
Quanta Services Inc	PWR	139.35	90.57	0.26	12.50	12,620.57	0.04%	0.01%	0.44%	
Henry Schein Inc	HSIC	140.70	74.19	n/a	6.50	10,438.24	0.03%		0.19%	
Ameren Corp	AEE	255.41	80.04	2.75	6.50	20,443.02	0.06%	0.16%	0.37%	
ANSYS Inc	ANSS	87.15	347.06	n/a	8.00	30,246.97	0.08%		0.68%	
NVIDIA Corp	NVDA	623.00	800.10	0.08	15.50	498,462.30	1.40%	0.11%	21.66%	
Sealed Air Corp	SEE	151.99	59.25	1.35	13.50	9,005.41	0.03%	0.03%	0.34%	
Cognizant Technology Solutions Corp	CTSH	527.41	69.26	1.39	6.50	36,528.56	0.10%	0.14%	0.67%	
SVB Financial Group	SIVB	54.32	556.43	n/a	8.00	30,222.50	0.08%		0.68%	
Intuitive Surgical Inc	ISRG	118.41	919.64	n/a	15.00	108,897.33	0.31%		4.58%	
Take-Two Interactive Software Inc	TTWO	116.17	177.02	n/a	15.50	20,564.59	0.06%		0.89%	
Republic Services Inc	RSG	319.03	110.01	1.55	7.50	35,096.82	0.10%	0.15%	0.74%	
eBay Inc	EBAY	681.26	70.21	1.03	16.50	47,831.41	0.13%	0.14%	2.21%	
Goldman Sachs Group Inc/The	GS	339.76	379.53	1.32	7.00	128,949.87	0.36%	0.48%	2.53%	
SBA Communications Corp	SBAC	109.35	318.70	0.73	43.50	34,848.25	0.10%	0.07%	4.25%	
Sempra Energy	SRE	315.07	132.48	3.32	10.00	41,740.61	0.12%	0.39%	1.17%	
Moody's Corp	MCO	187.20	362.37	0.68	9.00	67,835.66	0.19%	0.13%	1.71%	
Booking Holdings Inc	BKNG	41.05	2188.09	n/a	14.00	89,827.66	0.25%		3.53%	
F5 Networks Inc	FFIV	59.62	186.66	n/a	7.00	11,127.74	0.03%		0.22%	
Akamai Technologies Inc	AKAM	162.99	116.60	n/a	9.50	19,004.87	0.05%		0.51%	
Charles River Laboratories International Inc	CRL	50.25	369.92	n/a	7.00	18,589.59	0.05%		0.36%	
MarketAxess Holdings Inc	MKTX	37.98	463.59	0.57	15.00	17,608.54	0.05%	0.03%	0.74%	
Devon Energy Corp	DVN	676.90	29.19	1.51	21.00	19,758.71	0.06%	0.08%	1.16%	
Alphabet Inc	GOOGL	300.75	2441.79	n/a		0.00	0.00%		0.00%	
Teleflex Inc	TFX	46.73	401.79	0.34	14.50	18,776.85	0.05%	0.02%	0.76%	
Allegion plc	ALLE	89.98	139.30	1.03	8.50	12,533.94	0.04%	0.04%	0.30%	
Netflix Inc	NFLX	443.40	528.21	n/a	23.50	234,209.90	0.66%		15.43%	
Agilent Technologies Inc	A	303.44	147.81	0.52	11.00	44,851.91	0.13%	0.07%	1.38%	

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted
									Term Growth
Trimble Inc	TRMB	250.97	81.83	n/a	14.00	20,536.47	0.06%		0.81%
Anthem Inc	ANTM	244.84	381.80	1.18	12.50	93,480.29	0.26%	0.31%	3.28%
CME Group Inc	CME	359.09	212.68	1.69	8.00	76,372.11	0.21%	0.36%	1.71%
Juniper Networks Inc	JNPR	327.74	27.35	2.93	7.00	8,963.69	0.03%	0.07%	0.18%
BlackRock Inc	BLK	152.53	874.97	1.89	9.50	133,455.67	0.37%	0.71%	3.55%
DTE Energy Co	DTE	193.73	110.27	2.99	6.00	21,362.28	0.06%	0.18%	0.36%
Celanese Corp	CE	112.63	151.60	1.79	5.50	17,075.16	0.05%	0.09%	0.26%
Nasdaq Inc	NDAQ	164.09	175.80	1.23	5.00	28,847.55	0.08%	0.10%	0.40%
Philip Morris International Inc	PM	1558.54	99.11	4.84	5.00	154,466.60	0.43%	2.10%	2.17%
Ingersoll Rand Inc	IR	419.45	48.81	n/a		0.00	0.00%		0.00%
salesforce.com Inc	CRM	926.00	244.27	n/a	39.50	226,194.02	0.63%		25.05%
Huntington Ingalls Industries Inc	HII	40.23	210.75	2.16	7.00	8,478.89	0.02%	0.05%	0.17%
MetLife Inc	MET	875.42	59.85	3.21	6.50	52,393.59	0.15%	0.47%	0.95%
Under Armour Inc	UA	233.92	18.57	n/a		0.00	0.00%		0.00%
Tapestry Inc	TPR	278.86	43.48	n/a	1.50	12,124.75	0.03%		0.05%
CSX Corp	CSX	2272.20	32.08	1.16	8.50	72,892.21	0.20%	0.24%	1.74%
Edwards Lifesciences Corp	EW	621.64	103.57	n/a	13.00	64,382.94	0.18%		2.35%
Ameriprise Financial Inc	AMP	115.91	248.88	1.82	13.00	28,846.44	0.08%	0.15%	1.05%
Zebra Technologies Corp	ZBRA	53.51	529.49	n/a	11.00	28,333.54	0.08%		0.87%
Zimmer Biomet Holdings Inc	ZBH	208.48	160.82	0.60	8.50	33,528.08	0.09%	0.06%	0.80%
CBRE Group Inc	CBRE	335.66	85.73	n/a	8.50	28,775.87	0.08%		0.69%
Mastercard Inc	MA	982.91	365.09	0.48	12.50	358,848.79	1.01%	0.48%	12.57%
CarMax Inc	KMX	162.94	129.15	n/a	11.00	21,043.06	0.06%		0.65%
Intercontinental Exchange Inc	ICE	562.77	118.70	1.11	8.00	66,800.32	0.19%	0.21%	1.50%
Fidelity National Information Services Inc	FIS	620.13	141.67	1.10	28.00	87,853.25	0.25%	0.27%	6.90%
Chipotle Mexican Grill Inc	CMG	28.15	1550.34	n/a	18.50	43,642.07	0.12%		2.26%
Wynn Resorts Ltd	WYNN	115.66	122.30	n/a	27.00	14,144.97	0.04%		1.07%
Live Nation Entertainment Inc	LYV	218.68	87.59	n/a		0.00	0.00%		0.00%
Assurant Inc	AIZ	60.57	156.18	1.69	11.50	9,459.35	0.03%	0.04%	0.30%
NRG Energy Inc	NRG	244.75	40.30	3.23	-1.50	9,863.59	0.03%	0.09%	-0.04%
Monster Beverage Corp	MNST	528.56	91.35	n/a	11.50	48,284.14	0.14%		1.56%
Regions Financial Corp	RF	961.29	20.18	3.07	9.00	19,398.73	0.05%	0.17%	0.49%
Mosaic Co/The	MOS	379.79	31.91	0.94	33.50	12,118.97	0.03%	0.03%	1.14%
Expedia Group Inc	EXPE	141.45	163.71	n/a		0.00	0.00%		0.00%
Evergy Inc	EVRG	226.99	60.43	3.54	8.00	13,717.19	0.04%	0.14%	0.31%
Discovery Inc	DISCA	168.65	30.68	n/a	15.50	5,174.30	0.01%		0.22%
CF Industries Holdings Inc	CF	214.52	51.45	2.33	19.50	11,036.80	0.03%	0.07%	0.60%
APA Corp	APA	377.97	21.63	0.46	47.00	8,175.56	0.02%	0.01%	1.08%
Leidos Holdings Inc	LDOS	141.42	101.10	1.35	9.50	14,297.56	0.04%	0.05%	0.38%
Alphabet Inc	GOOG	323.58	2506.32	n/a	15.00	810,995.03	2.27%		34.10%
Cooper Cos Inc/The	COO	49.25	396.27	0.02	14.50	19,515.50	0.05%	0.00%	0.79%
TE Connectivity Ltd	TEL	330.23	135.21	1.48	9.00	44,649.72	0.13%	0.19%	1.13%
Discover Financial Services	DFS	304.89	118.29	1.49	5.50	36,065.20	0.10%	0.15%	0.56%
Visa Inc	V	1691.81	233.82	0.55	12.00	395,578.08	1.11%	0.61%	13.31%
Mid-America Apartment Communities Inc	MAA	114.49	168.42	2.43	0.50	19,281.90	0.05%	0.13%	0.03%
Xylem Inc/NY	XYL	180.04	119.96	0.93	10.50	21,597.84	0.06%	0.06%	0.64%
Marathon Petroleum Corp	MPC	652.65	60.42	3.84	3.50	39,433.11	0.11%	0.42%	0.39%
Advanced Micro Devices Inc	AMD	1215.02	93.93	n/a	26.50	114,126.92	0.32%		8.48%
Tractor Supply Co	TSCO	115.26	186.06	1.12	10.00	21,444.53	0.06%	0.07%	0.60%
ResMed Inc	RMD	145.52	246.52	0.63	8.50	35,873.10	0.10%	0.06%	0.85%
Mettler-Toledo International Inc	MTD	23.27	1385.34	n/a	11.50	32,235.48	0.09%		1.04%
Copart Inc	CPRT	236.58	131.83	n/a	10.00	31,188.08	0.09%		0.87%
Fortinet Inc	FTNT	163.32	238.19	n/a	19.00	38,900.71	0.11%		2.07%
Albermarle Corp	ALB	116.72	168.46	0.93	4.00	19,662.99	0.06%	0.05%	0.22%
Essex Property Trust Inc	ESS	65.00	300.01	2.79	-0.50	19,500.35	0.05%	0.15%	-0.03%
Realty Income Corp	O	379.81	66.74	4.23	6.00	25,348.39	0.07%	0.30%	0.43%
Westrock Co	WRK	266.12	53.22	1.80	8.00	14,162.69	0.04%	0.07%	0.32%
IHS Markit Ltd	INFO	398.61	112.66	0.71	11.50	44,907.63	0.13%	0.09%	1.45%
Westinghouse Air Brake Technologies Corp	WAB	189.00	82.30	0.58	9.50	15,554.54	0.04%	0.03%	0.41%
Pool Corp	POOL	40.11	458.66	0.70	15.00	18,395.02	0.05%	0.04%	0.77%
Western Digital Corp	WDC	306.45	71.17	n/a	1.00	21,810.26	0.06%		0.06%
PepsiCo Inc	PEP	1381.63	148.17	2.90	6.00	204,716.27	0.57%	1.67%	3.44%
Diamondback Energy Inc	FANG	181.00	93.89	1.70	0.50	16,993.81	0.05%	0.08%	0.02%
Maxim Integrated Products Inc	MXIM	268.36	105.36	n/a	11.00	28,274.83	0.08%		0.87%
ServiceNow Inc	NOW	197.45	549.55	n/a	44.50	108,507.55	0.30%		13.54%
Church & Dwight Co Inc	CHD	245.25	85.22	1.19	8.00	20,899.86	0.06%	0.07%	0.47%
Duke Realty Corp	DRE	374.99	47.35	2.15	-1.00	17,755.54	0.05%	0.11%	-0.05%
Federal Realty Investment Trust	FRT	77.76	117.17	3.62	-2.00	9,111.14	0.03%	0.09%	-0.05%
MGM Resorts International	MGM	490.54	42.65	0.02	25.00	20,921.36	0.06%	0.00%	1.47%
American Electric Power Co Inc	AEP	499.75	84.59	3.50	6.50	42,273.85	0.12%	0.41%	0.77%
PTC Inc	PTC	116.86	141.26	n/a	33.50	16,506.94	0.05%		1.55%
JB Hunt Transport Services Inc	JBHT	105.67	162.95	0.74	8.00	17,219.09	0.05%	0.04%	0.39%
Lam Research Corp	LRCX	142.62	650.70	0.80	17.50	92,802.18	0.26%	0.21%	4.55%
Mohawk Industries Inc	MHK	69.71	192.19	n/a	6.50	13,397.18	0.04%		0.24%
Pentair PLC	PNR	166.17	67.49	1.19	5.50	11,214.95	0.03%	0.04%	0.17%
Vertex Pharmaceuticals Inc	VRTX	258.87	201.63	n/a	28.50	52,195.15	0.15%		4.17%
Ancor PLC	AMCR	1541.79	11.46	4.10		0.00	0.00%	0.00%	0.00%
Facebook Inc	FB	2396.05	347.71	n/a	15.50	833,129.50	2.34%		36.20%
T-Mobile US Inc	TMUS	1246.86	144.83	n/a	8.50	180,582.44	0.51%		4.30%
United Rentals Inc	URI	72.38	319.01	n/a	7.50	23,089.31	0.06%		0.49%
Alexandria Real Estate Equities Inc	ARE	155.56	181.94	2.46	13.00	28,301.86	0.08%	0.20%	1.03%
Honeywell International Inc	HON	694.56	219.35	1.70	8.00	152,350.86	0.43%	0.72%	3.42%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
ABIOMED Inc	ABMD	45.35	312.11	n/a	10.00	14,152.63	0.04%		0.40%
Delta Air Lines Inc	DAL	639.65	43.26	n/a	49.00	27,671.13	0.08%		3.80%
United Airlines Holdings Inc	UAL	323.58	52.29	n/a		0.00	0.00%		0.00%
Seagate Technology Holdings PLC	STX	228.87	87.93	3.05	4.00	20,124.80	0.06%	0.17%	0.23%
News Corp	NWS	199.63	24.35	0.82		0.00	0.00%	0.00%	0.00%
Centene Corp	CNC	582.74	72.93	n/a	9.50	42,498.86	0.12%		1.13%
Martin Marietta Materials Inc	MLM	62.36	351.81	0.65	6.00	21,938.87	0.06%	0.04%	0.37%
Teradyne Inc	TER	166.27	133.96	0.30	13.00	22,272.99	0.06%	0.02%	0.81%
PayPal Holdings Inc	PYPL	1174.73	291.48	n/a	19.00	342,409.72	0.96%		18.24%
Tesla Inc	TSLA	963.33	679.70	n/a		0.00	0.00%		0.00%
DISH Network Corp	DISH	288.91	41.80	n/a	2.50	12,076.44	0.03%		0.08%
Alexion Pharmaceuticals Inc	ALXN	221.02	183.71	n/a	19.50	40,603.40	0.11%		2.22%
Penn National Gaming Inc	PENN	156.36	76.49	n/a	27.00	11,959.82	0.03%		0.91%
Dow Inc	DOW	745.23	63.28	4.42		0.00	0.00%	0.00%	0.00%
Everest Re Group Ltd	RE	40.08	252.01	2.46	10.50	10,101.57	0.03%	0.07%	0.30%
Teledyne Technologies Inc	TDY	46.54	418.83	n/a	7.50	19,492.35	0.05%		0.41%
News Corp	NWSA	391.18	25.77	0.78		0.00	0.00%	0.00%	0.00%
Exelon Corp	EXC	976.76	44.31	3.45	5.50	43,280.24	0.12%	0.42%	0.67%
Global Payments Inc	GPN	295.22	187.54	0.42	16.50	55,364.81	0.16%	0.06%	2.56%
Crown Castle International Corp	CCI	432.19	195.10	2.73	11.50	84,320.27	0.24%	0.64%	2.72%
Aptiv PLC	APTIV	270.46	157.33	n/a	15.50	42,551.94	0.12%		1.85%
Advance Auto Parts Inc	AAP	65.44	205.14	1.95	11.00	13,424.16	0.04%	0.07%	0.41%
Align Technology Inc	ALGN	79.14	611.00	n/a	17.00	48,352.71	0.14%		2.30%
Illumina Inc	ILMN	146.00	473.21	n/a	14.00	69,088.66	0.19%		2.71%
LKQ Corp	LKQ	302.16	49.22	n/a	12.00	14,872.32	0.04%		0.50%
Nielsen Holdings PLC	NLSN	358.50	24.67	0.97		0.00	0.00%	0.00%	0.00%
Garmin Ltd	GRMN	192.15	144.64	1.85	9.00	27,791.85	0.08%	0.14%	0.70%
Zoetis Inc	ZTS	474.77	186.36	0.54	10.50	89,477.58	0.25%	0.13%	2.60%
Digital Realty Trust Inc	DLR	281.59	150.46	3.08	7.00	42,367.73	0.12%	0.37%	0.83%
Equinix Inc	EQIX	89.58	802.60	1.43	17.00	71,896.91	0.20%	0.29%	3.43%
Las Vegas Sands Corp	LVS	763.97	52.69	n/a	19.00	40,253.32	0.11%		2.14%
Discovery Inc	DISCK	330.15	28.98	n/a		0.00	0.00%		0.00%

**JMC-5.2**

**CAPM ANALYSIS**



CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & VL BETA  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Alliant Energy Corporation	LNT	2.20%	0.85	15.48%	13.28%	13.49%
Ameren Corporation	AEE	2.20%	0.80	15.48%	13.28%	12.82%
American Electric Power Company, Inc	AEP	2.20%	0.75	15.48%	13.28%	12.16%
Avista Corporation	AVA	2.20%	0.95	15.48%	13.28%	14.82%
Black Hills Corporation	BKH	2.20%	1.00	15.48%	13.28%	15.48%
CMS Energy Corporation	CMS	2.20%	0.80	15.48%	13.28%	12.82%
Consolidated Edison, Inc.	ED	2.20%	0.75	15.48%	13.28%	12.16%
Duke Energy Corporation	DUK	2.20%	0.85	15.48%	13.28%	13.49%
Edison International	EIX	2.20%	0.95	15.48%	13.28%	14.82%
Entergy Corporation	ETR	2.20%	0.95	15.48%	13.28%	14.82%
Energy, Inc.	EVRG	2.20%	0.95	15.48%	13.28%	14.82%
Eversource Energy	ES	2.20%	0.90	15.48%	13.28%	14.15%
IDACORP, Inc.	IDA	2.20%	0.80	15.48%	13.28%	12.82%
NorthWestern Corporation	NWE	2.20%	0.95	15.48%	13.28%	14.82%
OGE Energy Corporation	OGE	2.20%	1.05	15.48%	13.28%	16.14%
Pinnacle West Capital Corporation	PNW	2.20%	0.90	15.48%	13.28%	14.15%
Portland General Electric Company	POR	2.20%	0.90	15.48%	13.28%	14.15%
Southern Company	SO	2.20%	0.95	15.48%	13.28%	14.82%
Wisconsin Energy Corporation	WEC	2.20%	0.80	15.48%	13.28%	12.82%
Xcel Energy Inc.	XEL	2.20%	0.80	15.48%	13.28%	12.82%
Mean			0.883			13.92%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Value Line, as of June 30, 2021

[3] Source: Average of JMC-5.1 S&P 500 MRP 2 & 3

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & BLOOMBERG BETA  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta ( $\beta$ )	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)
Alliant Energy Corporation	LNT	2.20%	0.876	15.48%	13.28%	13.84%
Ameren Corporation	AEE	2.20%	0.806	15.48%	13.28%	12.90%
American Electric Power Company, Inc	AEP	2.20%	0.853	15.48%	13.28%	13.53%
Avista Corporation	AVA	2.20%	0.843	15.48%	13.28%	13.40%
Black Hills Corporation	BKH	2.20%	1.014	15.48%	13.28%	15.67%
CMS Energy Corporation	CMS	2.20%	0.828	15.48%	13.28%	13.20%
Consolidated Edison, Inc.	ED	2.20%	0.697	15.48%	13.28%	11.45%
Duke Energy Corporation	DUK	2.20%	0.824	15.48%	13.28%	13.14%
Edison International	EIX	2.20%	0.938	15.48%	13.28%	14.65%
Entergy Corporation	ETR	2.20%	0.972	15.48%	13.28%	15.10%
Energy, Inc.	EVRG	2.20%	0.868	15.48%	13.28%	13.73%
Eversource Energy	ES	2.20%	0.910	15.48%	13.28%	14.29%
IDACORP, Inc.	IDA	2.20%	0.879	15.48%	13.28%	13.88%
NorthWestern Corporation	NWE	2.20%	1.043	15.48%	13.28%	16.05%
OGE Energy Corporation	OGE	2.20%	1.057	15.48%	13.28%	16.24%
Pinnacle West Capital Corporation	PNW	2.20%	0.943	15.48%	13.28%	14.73%
Portland General Electric Company	POR	2.20%	0.888	15.48%	13.28%	13.99%
Southern Company	SO	2.20%	0.908	15.48%	13.28%	14.26%
Wisconsin Energy Corporation	WEC	2.20%	0.825	15.48%	13.28%	13.16%
Xcel Energy Inc.	XEL	2.20%	0.838	15.48%	13.28%	13.33%
Mean			0.891			14.03%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, 5-Year Betas as of June 30, 2021

[3] Source: Average of JMC-5.1 S&P 500 MRP 2 & 3

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & VL BETA  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2023 - 2027)	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Alliant Energy Corporation	LNT	3.50%	0.85	15.48%	11.98%	13.68%
Ameren Corporation	AEE	3.50%	0.80	15.48%	11.98%	13.08%
American Electric Power Company, Inc	AEP	3.50%	0.75	15.48%	11.98%	12.49%
Avista Corporation	AVA	3.50%	0.95	15.48%	11.98%	14.88%
Black Hills Corporation	BKH	3.50%	1.00	15.48%	11.98%	15.48%
CMS Energy Corporation	CMS	3.50%	0.80	15.48%	11.98%	13.08%
Consolidated Edison, Inc.	ED	3.50%	0.75	15.48%	11.98%	12.49%
Duke Energy Corporation	DUK	3.50%	0.85	15.48%	11.98%	13.68%
Edison International	EIX	3.50%	0.95	15.48%	11.98%	14.88%
Entergy Corporation	ETR	3.50%	0.95	15.48%	11.98%	14.88%
Energy, Inc.	EVRG	3.50%	0.95	15.48%	11.98%	14.88%
Eversource Energy	ES	3.50%	0.90	15.48%	11.98%	14.28%
IDACORP, Inc.	IDA	3.50%	0.80	15.48%	11.98%	13.08%
NorthWestern Corporation	NWE	3.50%	0.95	15.48%	11.98%	14.88%
OGE Energy Corporation	OGE	3.50%	1.05	15.48%	11.98%	16.08%
Pinnacle West Capital Corporation	PNW	3.50%	0.90	15.48%	11.98%	14.28%
Portland General Electric Company	POR	3.50%	0.90	15.48%	11.98%	14.28%
Southern Company	SO	3.50%	0.95	15.48%	11.98%	14.88%
Wisconsin Energy Corporation	WEC	3.50%	0.80	15.48%	11.98%	13.08%
Xcel Energy Inc.	XEL	3.50%	0.80	15.48%	11.98%	13.08%
Mean			0.883			14.07%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021, at 14

[2] Source: Value Line, as of June 30, 2021

[3] Source: Average of JMC-5.1 S&P 500 MRP 2 & 3

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & BLOOMBERG BET/  
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2023 - 2027)	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)
Alliant Energy Corporation	LNT	3.50%	0.876	15.48%	11.98%	14.00%
Ameren Corporation	AEE	3.50%	0.806	15.48%	11.98%	13.16%
American Electric Power Company, Inc	AEP	3.50%	0.853	15.48%	11.98%	13.72%
Avista Corporation	AVA	3.50%	0.843	15.48%	11.98%	13.60%
Black Hills Corporation	BKH	3.50%	1.014	15.48%	11.98%	15.65%
CMS Energy Corporation	CMS	3.50%	0.828	15.48%	11.98%	13.42%
Consolidated Edison, Inc.	ED	3.50%	0.697	15.48%	11.98%	11.85%
Duke Energy Corporation	DUK	3.50%	0.824	15.48%	11.98%	13.37%
Edison International	EIX	3.50%	0.938	15.48%	11.98%	14.73%
Entergy Corporation	ETR	3.50%	0.972	15.48%	11.98%	15.14%
Energy, Inc.	EVRG	3.50%	0.868	15.48%	11.98%	13.90%
Eversource Energy	ES	3.50%	0.910	15.48%	11.98%	14.41%
IDACORP, Inc.	IDA	3.50%	0.879	15.48%	11.98%	14.03%
NorthWestern Corporation	NWE	3.50%	1.043	15.48%	11.98%	15.99%
OGE Energy Corporation	OGE	3.50%	1.057	15.48%	11.98%	16.16%
Pinnacle West Capital Corporation	PNW	3.50%	0.943	15.48%	11.98%	14.80%
Portland General Electric Company	POR	3.50%	0.888	15.48%	11.98%	14.14%
Southern Company	SO	3.50%	0.908	15.48%	11.98%	14.38%
Wisconsin Energy Corporation	WEC	3.50%	0.825	15.48%	11.98%	13.38%
Xcel Energy Inc.	XEL	3.50%	0.838	15.48%	11.98%	13.54%
Mean			0.891			14.17%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021, at 14

[2] Source: Bloomberg Professional, 5-Year Betas as of June 30, 2021

[3] Source: Average of JMC-5.1 S&P 500 MRP 2 & 3

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

**JMC-6**

**RISK PREMIUM ANALYSIS**

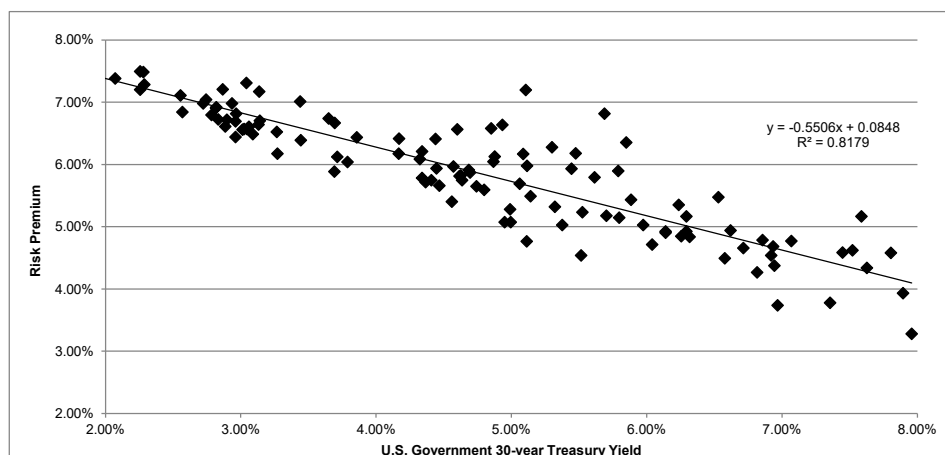
BOND YIELD PLUS RISK PREMIUM  
Risk Premium -- Electric Utilities

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

BOND YIELD PLUS RISK PREMIUM  
Risk Premium -- Electric Utilities

	[1]	[2]	[3]
	Average Authorized Elec ROE	U.S. Govt. 30-year Treasury	Risk Premium
2007.3	10.02%	4.95%	5.07%
2007.4	10.43%	4.61%	5.81%
2008.1	10.15%	4.41%	5.75%
2008.2	10.54%	4.57%	5.97%
2008.3	10.38%	4.44%	5.94%
2008.4	10.39%	3.65%	6.74%
2009.1	10.45%	3.44%	7.01%
2009.2	10.58%	4.17%	6.42%
2009.3	10.41%	4.32%	6.09%
2009.4	10.54%	4.34%	6.21%
2010.1	10.45%	4.62%	5.82%
2010.2	10.08%	4.36%	5.71%
2010.3	10.29%	3.86%	6.43%
2010.4	10.34%	4.17%	6.17%
2011.1	9.96%	4.56%	5.40%
2011.2	10.12%	4.34%	5.78%
2011.3	10.36%	3.69%	6.67%
2011.4	10.34%	3.04%	7.31%
2012.1	10.30%	3.14%	7.17%
2012.2	9.92%	2.93%	6.98%
2012.3	9.78%	2.74%	7.04%
2012.4	10.07%	2.86%	7.21%
2013.1	9.77%	3.13%	6.64%
2013.2	9.84%	3.14%	6.70%
2013.3	9.83%	3.71%	6.12%
2013.4	9.82%	3.79%	6.04%
2014.1	9.57%	3.69%	5.88%
2014.2	9.83%	3.44%	6.39%
2014.3	9.79%	3.26%	6.52%
2014.4	9.78%	2.96%	6.81%
2015.1	9.66%	2.55%	7.11%
2015.2	9.50%	2.88%	6.61%
2015.3	9.40%	2.96%	6.44%
2015.4	9.65%	2.96%	6.69%
2016.1	9.70%	2.72%	6.98%
2016.2	9.41%	2.57%	6.84%
2016.3	9.76%	2.28%	7.48%
2016.4	9.55%	2.83%	6.72%
2017.1	9.61%	3.04%	6.57%
2017.2	9.61%	2.90%	6.71%
2017.3	9.73%	2.82%	6.91%
2017.4	9.74%	2.82%	6.92%
2018.1	9.59%	3.02%	6.57%
2018.2	9.57%	3.09%	6.49%
2018.3	9.66%	3.06%	6.60%
2018.4	9.44%	3.27%	6.17%
2019.1	9.57%	3.01%	6.56%
2019.2	9.58%	2.78%	6.79%
2019.3	9.57%	2.29%	7.28%
2019.4	9.74%	2.25%	7.49%
2020.1	9.45%	1.89%	7.56%
2020.2	9.52%	1.38%	8.14%
2020.3	9.34%	1.37%	7.98%
2020.4	9.32%	1.62%	7.70%
2021.1	9.45%	2.07%	7.38%
2021.2	9.46%	2.25%	7.20%
AVERAGE	10.57%	4.65%	5.92%
MEDIAN	10.42%	4.66%	5.97%

BOND YIELD PLUS RISK PREMIUM  
Risk Premium -- Electric Utilities



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.90435
R Square	0.81785
Adjusted R Square	0.81628
Standard Error	0.00427
Observations	118

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.0095	0.0095	520.8439	0.0000
Residual	116	0.0021	0.0000		
Total	117	0.0116			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.0848	0.00119	71.39702	0.00000	0.08245	0.08716	0.08245	0.08716
X Variable 1	-0.5506	0.02413	-22.82200	0.00000	-0.59841	-0.50284	-0.59841	-0.50284

	[7]	[8]	[9]
	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current 30-day average of 30-year U.S. Treasury bond yield [4]	2.20%	7.27%	9.47%
Blue Chip Near-Term Projected Forecast (Q4 2021 - Q4 2022) [5]	2.62%	7.04%	9.66%
Blue Chip Long-Term Projected Forecast (2023-2027) [6]	3.50%	6.55%	10.05%
AVERAGE			9.73%

Notes:

- [1] Source: Regulatory Research Associates, rate cases through June 30, 2021
- [2] Source: Bloomberg Professional, quarterly bond yields are the average of each trading day in the quarter
- [3] Equals Column [1] - Column [2]
- [4] Source: Bloomberg Professional
- [5] Source: Blue Chip Financial Forecasts, Vol. 40, No. 7, July 1, 2021, at 2
- [6] Source: Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021, at 14
- [7] See notes [4] & [5]
- [8] Equals 0.084807 + (-0.550627 x Column [6])
- [9] Equals Column [6] + Column [7]



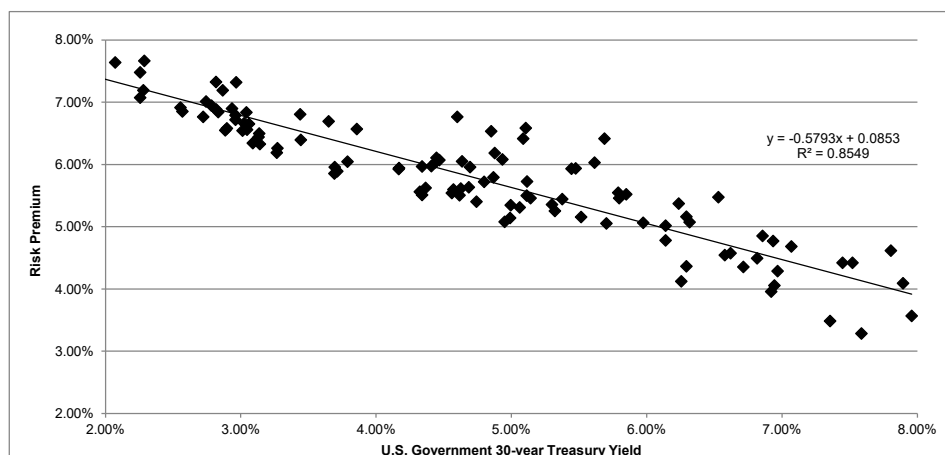
BOND YIELD PLUS RISK PREMIUM  
Risk Premium -- Natural Gas Utilities

	[1]	[2]	[3]
	Average Authorized Gas ROE	U.S. Govt. 30-year Treasury	Risk Premium
1992.1	12.42%	7.80%	4.62%
1992.2	11.98%	7.89%	4.09%
1992.3	11.87%	7.45%	4.42%
1992.4	11.94%	7.52%	4.42%
1993.1	11.75%	7.07%	4.68%
1993.2	11.71%	6.86%	4.85%
1993.3	11.39%	6.31%	5.07%
1993.4	11.16%	6.14%	5.02%
1994.1	11.12%	6.57%	4.55%
1994.2	10.84%	7.35%	3.48%
1994.3	10.87%	7.58%	3.28%
1994.4	11.53%	7.96%	3.57%
1995.2	11.00%	6.94%	4.06%
1995.3	11.07%	6.71%	4.35%
1995.4	11.61%	6.23%	5.37%
1996.1	11.45%	6.29%	5.16%
1996.2	10.88%	6.92%	3.96%
1996.3	11.25%	6.96%	4.29%
1996.4	11.19%	6.62%	4.58%
1997.1	11.31%	6.81%	4.49%
1997.2	11.70%	6.93%	4.77%
1997.3	12.00%	6.53%	5.47%
1997.4	10.92%	6.14%	4.78%
1998.2	11.37%	5.85%	5.52%
1998.3	11.41%	5.47%	5.94%
1998.4	11.69%	5.10%	6.59%
1999.1	10.82%	5.37%	5.44%
1999.2	11.25%	5.79%	5.46%
1999.4	10.38%	6.25%	4.12%
2000.1	10.66%	6.29%	4.36%
2000.2	11.03%	5.97%	5.06%
2000.3	11.33%	5.79%	5.55%
2000.4	12.10%	5.69%	6.41%
2001.1	11.38%	5.44%	5.93%
2001.2	10.75%	5.70%	5.05%
2001.4	10.65%	5.30%	5.35%
2002.1	10.67%	5.51%	5.15%
2002.2	11.64%	5.61%	6.03%
2002.3	11.50%	5.08%	6.42%
2002.4	11.01%	4.93%	6.08%
2003.1	11.38%	4.85%	6.53%
2003.2	11.36%	4.60%	6.76%
2003.3	10.61%	5.11%	5.50%
2003.4	10.84%	5.11%	5.73%
2004.1	11.06%	4.88%	6.18%
2004.2	10.57%	5.32%	5.25%
2004.3	10.37%	5.06%	5.31%
2004.4	10.66%	4.86%	5.79%
2005.1	10.65%	4.69%	5.96%
2005.2	10.54%	4.47%	6.07%
2005.3	10.47%	4.44%	6.03%
2005.4	10.32%	4.68%	5.63%
2006.1	10.68%	4.63%	6.05%
2006.2	10.60%	5.14%	5.46%
2006.3	10.34%	4.99%	5.34%
2006.4	10.14%	4.74%	5.40%
2007.1	10.52%	4.80%	5.72%
2007.2	10.13%	4.99%	5.14%
2007.3	10.03%	4.95%	5.08%
2007.4	10.12%	4.61%	5.50%
2008.1	10.38%	4.41%	5.97%
2008.2	10.17%	4.57%	5.60%

BOND YIELD PLUS RISK PREMIUM  
Risk Premium -- Natural Gas Utilities

	[1]	[2]	[3]
	Average Authorized Gas ROE	U.S. Govt. 30-year Treasury	Risk Premium
2008.3	10.55%	4.44%	6.11%
2008.4	10.34%	3.65%	6.69%
2009.1	10.24%	3.44%	6.81%
2009.2	10.11%	4.17%	5.94%
2009.3	9.88%	4.32%	5.56%
2009.4	10.31%	4.34%	5.97%
2010.1	10.24%	4.62%	5.61%
2010.2	9.99%	4.36%	5.62%
2010.3	10.43%	3.86%	6.57%
2010.4	10.09%	4.17%	5.93%
2011.1	10.10%	4.56%	5.54%
2011.2	9.85%	4.34%	5.51%
2011.3	9.65%	3.69%	5.96%
2011.4	9.88%	3.04%	6.84%
2012.1	9.63%	3.14%	6.50%
2012.2	9.83%	2.93%	6.90%
2012.3	9.75%	2.74%	7.01%
2012.4	10.06%	2.86%	7.19%
2013.1	9.57%	3.13%	6.44%
2013.2	9.47%	3.14%	6.33%
2013.3	9.60%	3.71%	5.89%
2013.4	9.83%	3.79%	6.04%
2014.1	9.54%	3.69%	5.85%
2014.2	9.84%	3.44%	6.39%
2014.3	9.45%	3.26%	6.19%
2014.4	10.28%	2.96%	7.32%
2015.1	9.47%	2.55%	6.91%
2015.2	9.43%	2.88%	6.55%
2015.3	9.75%	2.96%	6.79%
2015.4	9.68%	2.96%	6.72%
2016.1	9.48%	2.72%	6.76%
2016.2	9.42%	2.57%	6.85%
2016.3	9.47%	2.28%	7.19%
2016.4	9.67%	2.83%	6.84%
2017.1	9.60%	3.04%	6.56%
2017.2	9.47%	2.90%	6.58%
2017.3	10.14%	2.82%	7.32%
2017.4	9.70%	2.82%	6.88%
2018.1	9.68%	3.02%	6.66%
2018.2	9.43%	3.09%	6.34%
2018.3	9.71%	3.06%	6.65%
2018.4	9.53%	3.27%	6.26%
2019.1	9.55%	3.01%	6.54%
2019.2	9.73%	2.78%	6.94%
2019.3	9.95%	2.29%	7.66%
2019.4	9.73%	2.25%	7.48%
2020.1	9.35%	1.89%	7.46%
2020.2	9.55%	1.38%	8.17%
2020.3	9.52%	1.37%	8.15%
2020.4	9.47%	1.62%	7.86%
2021.1	9.71%	2.07%	7.64%
2021.2	9.33%	2.25%	7.07%
AVERAGE	10.46%	4.59%	5.87%
MEDIAN	10.35%	4.62%	5.94%

BOND YIELD PLUS RISK PREMIUM  
Risk Premium -- Natural Gas Utilities



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.92462
R Square	0.85492
Adjusted R Square	0.85362
Standard Error	0.00391
Observations	114

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.0101	0.0101	659.9691	0.0000
Residual	112	0.0017	0.0000		
Total	113	0.0118			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.0853	0.00110	77.71609	0.00000	0.08312	0.08747	0.08312	0.08747
X Variable 1	-0.5793	0.02255	-25.68986	0.00000	-0.62402	-0.53466	-0.62402	-0.53466

	[7]	[8]	[9]
	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current 30-day average of 30-year U.S. Treasury bond yield [4]	2.20%	7.25%	9.46%
Blue Chip Near-Term Projected Forecast (Q4 2021 - Q4 2022) [5]	2.62%	7.01%	9.63%
Blue Chip Long-Term Projected Forecast (2023-2027) [6]	3.50%	6.50%	10.00%
<b>AVERAGE</b>			<b>9.70%</b>

Notes:

- [1] Source: Regulatory Research Associates, rate cases through June 30, 2021
- [2] Source: Bloomberg Professional, quarterly bond yields are the average of each trading day in the quarter
- [3] Equals Column [1] - Column [2]
- [4] Source: Bloomberg Professional
- [5] Source: Blue Chip Financial Forecasts, Vol. 40, No. 7, July 1, 2021, at 2
- [6] Source: Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021, at 14
- [7] See notes [4] & [5]
- [8] Equals  $0.085299 + (-0.579341 \times \text{Column [6]})$
- [9] Equals Column [6] + Column [7]

**JMC-7**

**EXPECTED EARNINGS ANALYSIS**

EXPECTED EARNINGS ANALYSIS

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	
Company	Ticker	Value Line ROE 2024-2026	Value Line Total Capital 2020	Value Line Common Equity Ratio 2020	Total Equity 2020	Value Line Total Capital 2024-2026	Value Line Common Equity Ratio 2024-2026	Total Equity 2024-2026	Compound Annual Growth Rate	Adjustment Factor	Adjusted Return on Common Equity
Alliant Energy Corporation	LNT	10.50%	11,362	45.70%	5,192	14,500	46.00%	6,670	5.14%	1.025	10.76%
Ameren Corporation	AEE	10.50%	20,158	44.30%	8,930	27,200	49.00%	13,328	8.34%	1.040	10.92%
American Electric Power Company, Inc	AEP	11.00%	49,537	41.50%	20,558	75,500	40.00%	30,200	8.00%	1.038	11.42%
Avista Corporation	AVA	8.50%	4,090	49.60%	2,029	4,975	50.50%	2,512	4.37%	1.021	8.68%
Black Hills Corporation	BKH	9.00%	6,090	42.10%	2,564	6,975	51.00%	3,557	6.77%	1.033	9.29%
CMS Energy Corporation	CMS	13.50%	19,223	28.60%	5,498	25,600	33.00%	8,448	8.97%	1.043	14.08%
Consolidated Edison, Inc.	ED	8.50%	39,229	48.00%	18,830	48,700	49.00%	23,863	4.85%	1.024	8.70%
Duke Energy Corporation	DUK	9.50%	103,589	44.40%	45,994	120,900	43.50%	52,592	2.72%	1.013	9.63%
Edison International	EIX	11.50%	33,360	39.50%	13,177	50,100	36.00%	18,036	6.48%	1.031	11.86%
Entergy Corporation	ETR	11.00%	32,386	33.70%	10,914	43,600	35.50%	15,478	7.24%	1.035	11.38%
Evergy, Inc.	EVRG	9.00%	17,924	48.70%	8,729	21,600	48.50%	10,476	3.72%	1.018	9.16%
Eversource Energy	ES	9.50%	29,842	47.10%	14,056	40,200	44.50%	17,889	4.94%	1.024	9.73%
IDACORP, Inc.	IDA	9.50%	4,560	56.10%	2,558	6,000	51.00%	3,060	3.65%	1.018	9.67%
NorthWestern Corporation	NWE	8.50%	4,409	47.20%	2,081	5,075	50.50%	2,563	4.25%	1.021	8.68%
OGE Energy Corporation	OGE	13.00%	7,126	51.00%	3,634	8,275	52.50%	4,344	3.63%	1.018	13.23%
Pinnacle West Capital Corporation	PNW	11.00%	11,948	47.20%	5,639	17,025	42.00%	7,151	4.86%	1.024	11.26%
Portland General Electric Company	POR	10.00%	5,628	46.40%	2,611	6,550	47.50%	3,111	3.56%	1.018	10.18%
Southern Company	SO	13.50%	73,336	38.10%	27,941	90,700	39.00%	35,373	4.83%	1.024	13.82%
Wisconsin Energy Corporation	WEC	13.00%	22,228	47.10%	10,469	27,100	47.00%	12,737	4.00%	1.020	13.25%
Xcel Energy Inc.	XEL	10.50%	34,220	42.60%	14,578	45,100	42.00%	18,942	5.38%	1.026	10.77%
Mean											10.82%
Median											10.77%

Notes:

- [1] Source: Value Line
- [2] Source: Value Line
- [3] Source: Value Line
- [4] Equals [2] x [3]
- [5] Source: Value Line
- [6] Source: Value Line
- [7] Equals [5] x [6]
- [8] Equals ([7] / [4]) ^ (1/5) - 1
- [9] Equals 2 x (1 + [8]) / (2 + [8])
- [10] Equals [1] x [9]

**JMC-8**

**WILDFIRE RISK ANALYSIS**

**WILDFIRE RISK PREMIUM ANALYSIS**  
**Analytical Assumptions**

Notes	Assumptions	
[1]	SDG&E Average Wildfire Financial Impact Above Insurance (\$millions)	\$3,505
[2]	SDG&E Current Wildfire Insurance (\$millions)	-\$1,250
[3]	SDG&E Transmission Labor Allocator	18.8%
[4]	CA Effective Tax Rate	27.98%
[5]	SDG&E Requested Equity Ratio	54.0%
[6]	SDG&E CPUC Rate Base (\$millions)	\$6,540.00
[7]	SDG&E CPUC Equity Rate Base (\$millions)	\$3,531.60
[8]	SDG&E Liability Cap in Event of Imprudence Finding	\$950.00
[9a]	P(imprudence) 1	65.00%
[9b]	P(imprudence) 2	45.00%
[10]	P(fund insolvent)	0%
[11]	Probability of Fire Above \$1.5B	5.77%

**Notes**

- [1] Company-provided data
- [2] Company-provided data
- [3] Company-provided data
- [4] Company-provided data
- [5] Company-provided data
- [6] Company-provided data
- [7] Equals [5] x [6]
- [8] Company-provided data
- [9] Concentric Assumption
- [10] Concentric Assumption
- [11] Company-provided data

**WILDFIRE RISK PREMIUM ANALYSIS**  
**Earnings Approach**

Notes

[1]	p(imprudent)	65%
[2]	p(insolvent)	0%

**Estimated Fire Above Insurance Coverage**

Category	\$ (millions)	
[3] SDG&E's Average Financial Impact in Excess of Insurance (\$millions)	\$	3,505
[4] SDG&E Wildfire Insurance	\$	(1,250)
[5] Wildfire Costs in Excess of Insurance	\$	2,255
[6] Less Amount - FERC Recovery	\$	(424)
[7] Wildfire Costs in Excess of FERC Recovery	\$	1,831
[8] SDG&E Average Liability Below the Cap	\$	779
[9] SDG&E Average Liability Above the Cap	\$	1,659
[10] SDG&E Expected Liability if Found Imprudent, Below the Cap	\$	506
[11] SDG&E Expected Liability if Found Imprudent, Above the Cap, Fund Insolvent	\$	-
[12] SDG&E Total Liability Pre-Tax	\$	506
<b>[13] SDG&amp;E Liability After-Tax</b>	<b>\$</b>	<b>364</b>
[14] Probability of Fire Above \$1.5B		5.77%

**Annualized Estimated Loss**

Description	[13]	[15]
Description	Net Estimated Fire Liabilities (\$millions)	Annual Estimated Loss (\$millions)
SDG&E Liability After-Tax	\$ 364	\$ 21.03

**2019 Test Year Rate Base (\$ millions)**

[16] SDG&E Rate Base	\$	6,540.00
[17] Equity Ratio		54.0%
[18] Equity Base	\$	3,531.60

**ROE Adjustment**

Description	[13]	[19]
Description	Net Estimated Fire Liabilities (\$millions)	ROE Adjustment
Expected Annual Shareholder Loss	\$ 364	0.60%

**Notes**

- [1] See assumptions
- [2] See assumptions
- [3] See assumptions
- [4] See assumptions
- [5] Equals sum of [3] and [4]
- [6] Equals [5] x FERC labor allocator [18.8%] (see assumptions)
- [7] Equals sum of [5] and [6]
- [8] The modeled average liability less than or equal to SDG&E's shareholder liability cap [\$950 million]. (Company-provided data)
- [9] Equals [7] less [8]
- [10] Equals [8] \* [1]
- [11] Equals [9] \* [1] \* [2]
- [12] Equals sum of [10] and [11]
- [13] Equals [12] x (1- Effective Tax Rate [27.98%])
- [14] Expected probability of a \$3.51B fire based on company modeling (Company-provided data)
- [15] Equals [13] \* [14]
- [16] See assumptions
- [17] See assumptions
- [18] Equals [17] x [16]
- [19] Equals [13] / [18] \* [14]



**WILDFIRE RISK PREMIUM ANALYSIS**  
**Earnings Approach**

Notes

[1]	p(imprudent)	45%
[2]	p(insolvent)	0%

**Estimated Fire Above Insurance Coverage**

Category	\$ (millions)	
[3] SDG&E's Average Financial Impact in Excess of Insurance (\$millions)	\$	3,505
[4] SDG&E Wildfire Insurance	\$	(1,250)
[5] Wildfire Costs in Excess of Insurance	\$	2,255
[6] Less Amount - FERC Recovery	\$	(424)
[7] Wildfire Costs in Excess of FERC Recovery	\$	1,831
[8] SDG&E Average Liability Below the Cap	\$	779
[9] SDG&E Average Liability Above the Cap	\$	1,053
[10] SDG&E Expected Liability if Found Imprudent, Below the Cap	\$	350
[11] SDG&E Expected Liability if Found Imprudent, Above the Cap, Fund Insolvent	\$	-
[12] SDG&E Total Liability Pre-Tax	\$	350
[13] <b>SDG&amp;E Liability After-Tax</b>	<b>\$</b>	<b>252</b>
[14] Probability of Fire Above \$1.5B		5.77%

**Annualized Estimated Loss**

Description	[13]	[15]
Description	Net Estimated Fire Liabilities (\$millions)	Annual Estimated Loss (\$millions)
SDG&E Liability After-Tax	\$ 252	\$ 14.56

**2019 Test Year Rate Base (\$ millions)**

[16] SDG&E Rate Base	\$	6,540.00
[17] Equity Ratio		54.0%
[18] Equity Base	\$	3,531.60

**ROE Adjustment**

Description	[13]	[19]
Description	Net Estimated Fire Liabilities (\$millions)	ROE Adjustment
Expected Annual Shareholder Loss	\$ 252	0.41%

**Notes**

- [1] See assumptions
- [2] See assumptions
- [3] See assumptions
- [4] See assumptions
- [5] Equals sum of [3] and [4]
- [6] Equals [5] x FERC labor allocator [18.8%] (see assumptions)
- [7] Equals sum of [5] and [6]
- [8] The modeled average liability less than or equal to SDG&E's shareholder liability cap [\$950 million]. (Company-provided data)
- [9] Equals [7] less [8]
- [10] Equals [8] \* [1]
- [11] Equals [9] \* [1] \* [2]
- [12] Equals sum of [10] and [11]
- [13] Equals [12] x (1- Effective Tax Rate [27.98%])
- [14] Expected probability of a \$3.51B fire based on company modeling (Company-provided data)
- [15] Equals [13] \* [14]
- [16] See assumptions
- [17] See assumptions
- [18] Equals [17] x [16]
- [19] Equals [13] / [18] \* [14]

**WILDFIRE RISK PREMIUM ANALYSIS**  
**Insurance Approach**

[1]	p(imprudent)	65%
[2]	p(insolvent)	0%

**Annualized Estimated Insurance Premium**

[9]

Description	Amount of Insurance (\$ millions)	Estimated Annual Premium (\$ millions)
[3] Wildfire Costs in Excess of Insurance	\$ 2,255	
[4] Capped Portion	\$ 950	
[5] Uncapped Portion	\$ 1,305	
[6] SDG&E Expected Liability if Found Imprudent, Below the Cap	\$ 618	
[7] SDG&E Expected Liability if Found Imprudent, Above the Cap, Fund Insolvent	\$ -	
[8] Cost of Incremental Wildfire Insurance	\$ 618	\$ 89

**Annualized Estimated Insurance Premium (Net of Tax)**

[10]

[11]

Description	Amount of Insurance (\$ millions)	Estimated Annual Premium (Net of Tax)
Cost of After-tax Incremental Wildfire Insurance	\$ 445	\$ 64

[12] SDG&E CPUC Equity Rate Base (\$millions)	<u>\$ 3,532</u>
---	-----------------

**ROE Adjustment Based on Estimated Insurance Premium (Net of Tax)**

[10]

[13]

Description	Amount of Insurance (\$ millions)	ROE Adjustment
Cost of Incremental Wildfire Insurance	\$ 445	1.81%

**Notes**

[1] See assumptions

[2] See Assumptions

[3] \$2.26 billion represents the amount SDG&E would have to pay to fully cover uninsured portion of \$3.51 billion in liabilities.

[4] \$950 million is the shareholder liability cap if SDG&E is found imprudent.

[5] Equals [3] less [4]

[6] Equals [4] \* [1]

[7] Equals [5] \* [1] \* [2]

[8] Equals sum of [6] and [7]

[9] Company provided data

[10] Equals [8] \* (1-Effective Tax Rate [27.98%])

[11] Company provided data

[12] See assumptions

[13] Equals [11] / [12]

**WILDFIRE RISK PREMIUM ANALYSIS**  
**Insurance Approach**

[1]	p(imprudent)	45%
[2]	p(insolvent)	0%

**Annualized Estimated Insurance Premium**

			[9]
Description	Amount of Insurance (\$ millions)	Estimated Annual Premium (\$ millions)	
[3]	Wildfire Costs in Excess of Insurance	\$ 2,255	
[4]	Capped Portion	\$ 950	
[5]	Uncapped Portion	\$ 1,305	
[6]	SDG&E Expected Liability if Found Imprudent, Below the Cap	\$ 428	
[7]	SDG&E Expected Liability if Found Imprudent, Above the Cap, Fund Insolvent	\$ -	
[8]	Cost of Incremental Wildfire Insurance	\$ 428	\$ 62

**Annualized Estimated Insurance Premium (Net of Tax)**

			[10]	[11]
Description	Amount of Insurance (\$ millions)	Estimated Annual Premium (Net of Tax)		
	Cost of After-tax Incremental Wildfire Insurance	\$ 308	\$	44
[12]	SDG&E CPUC Equity Rate Base (\$millions)	<u>\$ 3,532</u>		

**ROE Adjustment Based on Estimated Insurance Premium (Net of Tax)**

			[10]	[13]
Description	Amount of Insurance (\$ millions)	ROE Adjustment		
	Cost of Incremental Wildfire Insurance	\$ 308		1.26%

**Notes**

[1] See assumptions

[2] See Assumptions

[3] \$2.26 billion represents the amount SDG&E would have to pay to fully cover uninsured portion of \$3.51 billion in liabilities.

[4] \$950 million is the shareholder liability cap if SDG&E is found imprudent.

[5] Equals [3] less [4]

[6] Equals [4] \* [1]

[7] Equals [5] \* [1] \* [2]

[8] Equals sum of [6] and [7]

[9] Company provided data

[10] Equals [8] \* (1-Effective Tax Rate [27.98%])

[11] Company provided data

[12] See assumptions

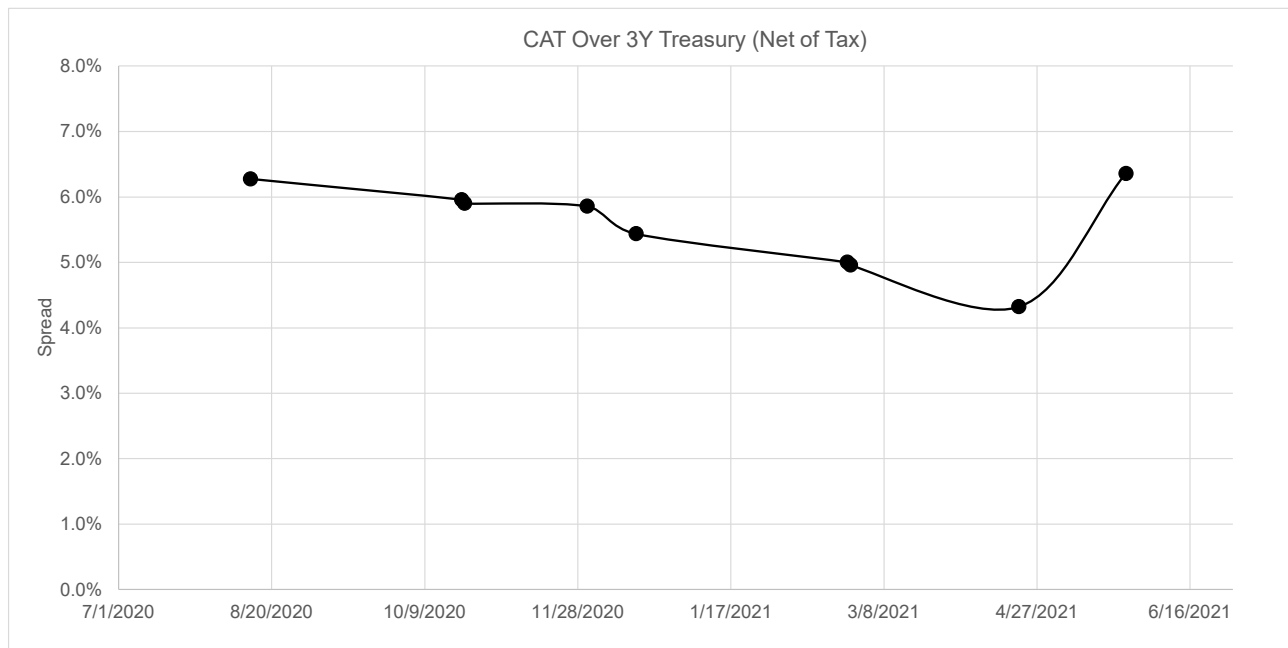
[13] Equals [11] / [12]

**WILDFIRE RISK PREMIUM ANALYSIS  
CAT Bond Approach**

Dates	3Y Treasury Bond Yield [1]	SDG&E CAT Bond Yield [2]	SDG&E CAT over 3Y Treasury [3]	CAT Over 3Y Treasury (Net of Tax) [4]	CAT Over 3Y Treasury	CAT Over 3Y Treasury
					(Net of Tax) 65% Imprudence [5]	(Net of Tax) 45% Imprudence [6]
8/13/2020	0.19%	8.90%	8.71%	6.28%	4.08%	2.82%
10/21/2020	0.20%	8.47%	8.27%	5.96%	3.87%	2.68%
10/22/2020	0.21%	8.41%	8.20%	5.90%	3.84%	2.66%
12/1/2020	0.22%	8.35%	8.13%	5.86%	3.81%	2.64%
12/17/2020	0.19%	7.74%	7.55%	5.44%	3.53%	2.45%
2/24/2021	0.24%	7.18%	6.94%	5.00%	3.25%	2.25%
2/25/2021	0.34%	7.22%	6.88%	4.96%	3.22%	2.23%
4/21/2021	0.32%	6.32%	6.00%	4.32%	2.81%	1.94%
5/26/2021	0.31%	9.14%	8.83%	6.36%	4.13%	2.86%
<b>Last 2 Average</b>	<b>0.25%</b>	<b>7.97%</b>	<b>7.72%</b>	<b>5.56%</b>	<b>3.62%</b>	<b>2.50%</b>

**Notes**

- [1] Source: Bloomberg
- [2] Source: Bloomberg SD RE Ltd
- [3] Equals [2] - [1]
- [4] Equals [3]\*(1-Effective Tax Rate [27.98%])



**WILDFIRE RISK PREMIUM ANALYSIS**  
**Range of Results - 0.45 Imprudence**

Approach Description	ROE Adjustment
Estimated Loss Approach	0.41%
Insurance Approach	1.26%
CAT Bond Approach	2.50%
<b>Mean</b>	<b>1.39%</b>
<b>Median</b>	<b>1.26%</b>
<b>Midpoint of Mean and Median</b>	<b>1.32%</b>

**Range of Results - 0.65 Imprudence**

Approach Description	ROE Adjustment
Estimated Loss Approach	0.60%
Insurance Approach	1.81%
CAT Bond Approach	3.62%
<b>Mean</b>	<b>2.01%</b>
<b>Median</b>	<b>1.81%</b>
<b>Midpoint of Mean and Median</b>	<b>1.91%</b>

**Summary Results**

	ROE Adjustment
Midpoint of Mean and Median - 0.45 Imprudence	1.32%
Midpoint of Mean and Median - 0.65 Imprudence	1.91%
<b>Midpoint of Scenarios</b>	<b>1.62%</b>

**JMC-9**

**CAPITAL EXPENDITURES ANALYSIS**

2021-2025 CAPITAL EXPENDITURES AS A PERCENT OF 2020 NET UTILITY PLANT  
(\$ Millions)

		[1]	[2]	[3]	[4]	[5]	[6]	[7]
		2020	2021	2022	2023	2024	2025	Years 2-6 Cap. Ex. / Year 0 Net Plant
Alliant Energy Corporation	LNT							
Capital Spending per Share			\$5.25	\$5.40	\$5.48	\$5.55	\$5.55	
Common Shares Outstanding			255.00	260.00	265.00	270.00	270.00	
Capital Expenditures			\$1,338.8	\$1,404.0	\$1,450.9	\$1,498.5	\$1,498.5	51.79%
Net Plant		\$13,884.0						
Ameren Corporation	AEE							
Capital Spending per Share			\$14.40	\$11.70	\$12.23	\$12.75	\$12.75	
Common Shares Outstanding			259.00	265.00	272.50	280.00	280.00	
Capital Expenditures			\$3,729.6	\$3,100.5	\$3,331.3	\$3,570.0	\$3,570.0	64.54%
Net Plant		\$26,807.0						
American Electric Power Company, Inc.	AEP							
Capital Spending per Share			\$15.45	\$15.65	\$14.83	\$14.00	\$14.00	
Common Shares Outstanding			504.00	530.00	540.00	550.00	550.00	
Capital Expenditures			\$7,786.8	\$8,294.5	\$8,005.5	\$7,700.0	\$7,700.0	61.79%
Net Plant		\$63,902.0						
Avista Corporation	AVA							
Capital Spending per Share			\$6.2	\$6.1	\$5.90	\$5.75	\$5.75	
Common Shares Outstanding			71.00	72.00	73.50	75.00	75.00	
Capital Expenditures			\$436.7	\$435.6	\$433.7	\$431.3	\$431.3	43.44%
Net Plant		\$4,991.6						
Black Hills Corporation	BKH							
Capital Spending per Share			\$10.05	\$8.40	\$7.95	\$7.50	\$7.50	
Common Shares Outstanding			\$64.50	\$65.50	67.00	\$68.50	\$68.50	
Capital Expenditures			\$648.2	\$550.2	\$532.7	\$513.8	\$513.8	45.83%
Net Plant		\$6,019.7						
CMS Energy Corporation	CMS							
Capital Spending per Share			\$8.55	\$10.10	\$9.18	\$8.25	\$8.25	
Common Shares Outstanding			293.00	297.00	301.50	306.00	306.00	
Capital Expenditures			\$2,505.2	\$2,999.7	\$2,766.3	\$2,524.5	\$2,524.5	63.31%
Net Plant		\$21,039.0						
Consolidated Edison, Inc.	ED							
Capital Spending per Share			\$11.35	\$10.95	\$10.98	\$11.00	\$11.00	
Common Shares Outstanding			354.00	360.00	365.00	370.00	370.00	
Capital Expenditures			\$4,017.9	\$3,942.0	\$4,005.9	\$4,070.0	\$4,070.0	43.19%
Net Plant		\$46,555.0						
Duke Energy Corporation	DUK							
Capital Spending per Share			\$13.60	\$16.60	\$16.05	\$15.50	\$15.50	
Common Shares Outstanding			770.00	770.00	770.00	770.00	770.00	
Capital Expenditures			\$10,472.0	\$12,782.0	\$12,358.5	\$11,935.0	\$11,935.0	55.70%
Net Plant		\$106,782.0						
Edison International	EIX							
Capital Spending per Share			\$14.30	\$13.75	\$14.00	\$14.25	\$14.25	
Common Shares Outstanding			385.00	385.00	385.00	385.00	385.00	
Capital Expenditures			\$5,505.5	\$5,293.8	\$5,390.0	\$5,486.3	\$5,486.3	56.78%
Net Plant		\$47,839.0						
Entergy Corporation	ETR							
Capital Spending per Share			\$17.00	\$17.30	\$18.03	\$18.75	\$18.75	
Common Shares Outstanding			205.00	206.00	209.00	212.00	212.00	
Capital Expenditures			\$3,485.0	\$3,563.8	\$3,767.2	\$3,975.0	\$3,975.0	48.30%
Net Plant		\$38,853.0						
Evergy, Inc.	EVRG							
Capital Spending per Share			\$8.15	\$8.00	\$8.00	\$8.00	\$8.00	
Common Shares Outstanding			230.00	230.00	230.00	230.00	230.00	
Capital Expenditures			\$1,874.5	\$1,840.0	\$1,840.0	\$1,840.0	\$1,840.0	45.93%
Net Plant		\$20,106.0						
Eversource Energy	ES							
Capital Spending per Share			\$10.25	\$10.20	\$9.35	\$8.50	\$8.50	
Common Shares Outstanding			344	347	352.00	\$357.00	\$357.00	
Capital Expenditures			\$3,526.0	\$3,539.4	\$3,291.2	\$3,034.5	\$3,034.5	53.19%
Net Plant		\$30,883.0						
IDACORP, Inc.	IDA							
Capital Spending per Share			\$7.25	\$7.70	\$8.85	\$10.00	\$10.00	
Common Shares Outstanding			50.45	50.45	50.45	50.45	50.45	
Capital Expenditures			\$365.8	\$388.5	\$446.5	\$504.5	\$504.5	46.92%
Net Plant		\$4,709.5						

2021-2025 CAPITAL EXPENDITURES AS A PERCENT OF 2020 NET UTILITY PLANT  
(\$ Millions)

		[1]	[2]	[3]	[4]	[5]	[6]	[7]
		2020	2021	2022	2023	2024	2025	Years 2-6 Cap. Ex. / Year 0 Net Plant
NorthWestern Corporation	NWE							
Capital Spending per Share			\$8.75	\$8.60	\$7.93	\$7.25	\$7.25	
Common Shares Outstanding			51.50	53.00	53.75	54.50	54.50	
Capital Expenditures			\$450.6	\$455.8	\$426.0	\$395.1	\$395.1	42.86%
Net Plant		\$4,952.9						
OGE Energy Corporation	OGE							
Capital Spending per Share			\$3.85	\$3.90	\$4.08	\$4.25	\$4.25	
Common Shares Outstanding			200.10	200.10	200.10	200.10	200.10	
Capital Expenditures			\$770.4	\$780.4	\$815.4	\$850.4	\$850.4	43.38%
Net Plant		\$9,374.6						
Pinnacle West Capital Corporation	PNW							
Capital Spending per Share			\$13.90	\$13.30	\$12.65	\$12.00	\$12.00	
Common Shares Outstanding			113.00	118.00	118.00	118.00	118.00	
Capital Expenditures			\$1,570.7	\$1,569.4	\$1,492.7	\$1,416.0	\$1,416.0	49.24%
Net Plant		\$15,159.0						
Portland General Electric Company	POR							
Capital Spending per Share			\$7.55	\$6.73	\$6.49	\$6.25	\$6.25	
Common Shares Outstanding			89.65	89.80	89.90	90.00	90.00	
Capital Expenditures			\$676.9	\$603.9	\$583.2	\$562.5	\$562.5	39.65%
Net Plant		\$7,539.0						
Southern Company	SO							
Capital Spending per Share			\$7.70	\$6.40	\$6.20	\$6.00	\$6.00	
Common Shares Outstanding			1065.00	1095.00	1095.00	1095.00	1095.00	
Capital Expenditures			\$8,200.5	\$7,008.0	\$6,789.0	\$6,570.0	\$6,570.0	40.10%
Net Plant		\$87,634.0						
Wisconsin Energy Corporation	WEC							
Capital Spending per Share			\$9.90	\$9.70	\$9.23	\$8.75	\$8.75	
Common Shares Outstanding			315.43	315.43	315.43	315.43	315.43	
Capital Expenditures			\$3,122.8	\$3,059.7	\$2,909.8	\$2,760.0	\$2,760.0	56.84%
Net Plant		\$25,707.0						
Xcel Energy Inc.	XEL							
Capital Spending per Share			\$8.30	\$8.70	\$8.60	\$8.50	\$8.50	
Common Shares Outstanding			540.00	544.00	548.50	553.00	553.00	
Capital Expenditures			\$4,482.0	\$4,732.8	\$4,717.1	\$4,700.5	\$4,700.5	54.33%
Net Plant		\$42,950.0						
<b>San Diego Gas and Electric</b>	<b>SDG&amp;E</b>							
Capital Spending per Share								
Common Shares Outstanding								
Capital Expenditures								55.85%
Net Plant [9]		\$16,923.2						
SDGE CapEx Total [8]								9,452.00
SDGE CapEx Annual Average								
Proxy Group Median								48.77%
SDGE / Proxy Group Median								1.15

Notes:

[1] - [6] Source: Value Line, dated March 12, 2021, April 23, 2021, and May 14, 2021

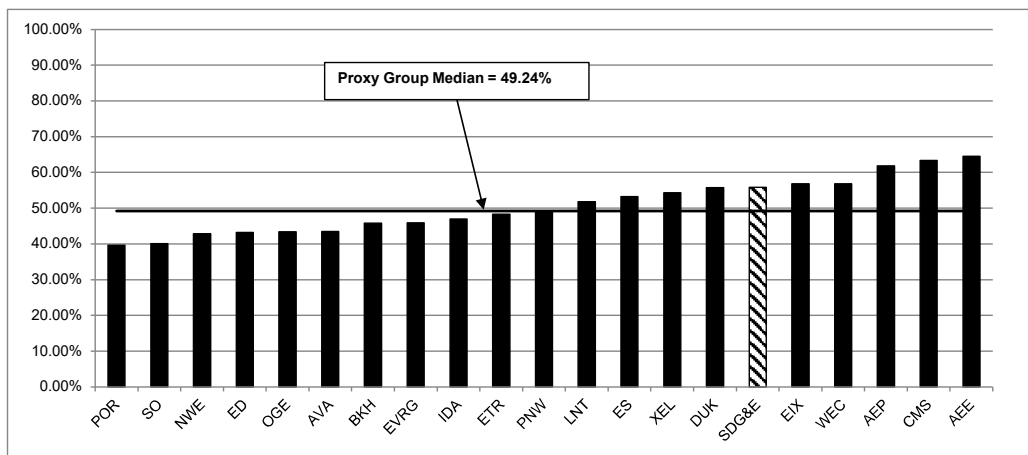
[7] Equals (Column [2] + [3] + [4] + [5] + [6]) / Column [1]

[8] Source: Company Data

[9] Source: Net Utility Plant Form 1: Page 110, Line 14, Column c



2021-2025 CAPITAL EXPENDITURES AS A PERCENT OF 2020 NET UTILITY PLANT



Projected CAPEX / 2020 Net Plant

Company	2021-2025
1 Portland General Electric Company	POR 39.65%
2 Southern Company	SO 40.10%
3 NorthWestern Corporation	NWE 42.86%
4 Consolidated Edison, Inc.	ED 43.19%
5 OGE Energy Corporation	OGE 43.38%
6 Avista Corporation	AVA 43.44%
7 Black Hills Corporation	BKH 45.83%
8 Eversource Energy	EVRG 45.93%
9 IDACORP, Inc.	IDA 46.92%
10 Entergy Corporation	ETR 48.30%
11 Pinnacle West Capital Corporation	PNW 49.24%
12 Alliant Energy Corporation	LNT 51.79%
13 Eversource Energy	ES 53.19%
14 Xcel Energy Inc.	XEL 54.33%
15 Duke Energy Corporation	DUK 55.70%
16 San Diego Gas and Electric	SDG&E 55.85%
17 Edison International	EIX 56.78%
18 Wisconsin Energy Corporation	WEC 56.84%
19 American Electric Power Company, Inc.	AEP 61.79%
20 CMS Energy Corporation	CMS 63.31%
21 Ameren Corporation	AEE 64.54%
Proxy Group Median	49.24%
SRE/Proxy Group	1.134

**JMC-10**

**REGULATORY RISK ASSESSMENT**

COMPARISON OF PROXY GROUP COMPANIES  
REGULATORY FRAMEWORK - ADJUSTMENT CLAUSES

Proxy Group Company	[1]					[2]		[3]			[4]
	TICKER	Operation State	Operation		Test Year	Rate Base	Decoupling		New Capital		CWIP in Rate Base
							Full	Partial	Generation Capacity	Generic Infrastructure	
Alliant Energy Corporation	LNT	Iowa	Electric	1	Historical	Average					No
	LNT	Iowa	Gas	1	Historical	Average					No
	LNT	Wisconsin	Electric	1	Fully Forecast	Average					Rider
	LNT	Wisconsin	Gas	1	Fully Forecast	Average					Rider
Ameren Corporation	AEE	Illinois	Electric	1	Fully Forecast	Average					Partial
	AEE	Illinois	Gas	1	Fully Forecast	Average		x		x	Partial
	AEE	Missouri	Electric	1	Partially Forecast	Year End		x		x	No
	AEE	Missouri	Gas	1	Partially Forecast	Year End		x		x	No
American Electric Power Company, Inc.	AEP	Arkansas	Electric	1	Partially Forecast	Year End		x	x		No
	AEP	Indiana	Electric	1	Historical	Year End		x		x	Partial
	AEP	Kentucky	Electric	1	Historical	Year End		x			Yes
	AEP	Louisiana	Electric	1	Historical	Average		x			Partial
	AEP	Michigan	Electric	1	Fully Forecast	Average					Yes
	AEP	Ohio	Electric	1	Partially Forecast	Year End		x		x	Partial (yes if 75% complete)
	AEP	Oklahoma	Electric	1	Historical	Year End		x		x	Yes
	AEP	Tennessee	Electric	1	Fully Forecast	Average					Yes
	AEP	Texas	Electric	1	Historical	Year End				x	No
	AEP	Texas	Electric	1	Historical	Year End				x	No
	AEP	Virginia	Electric	1	Historical	Year End			x		No
	AEP	West Virginia	Electric	1	Historical	Average					No (large projects may be allowed)
Avista Corporation	AVA	Washington	Electric	1	Historical	Year End		x			
	AVA	Washington	Gas	1	Historical	Year End		x			
	AVA	Idaho	Electric	1	Historical	Year End	x				No
	AVA	Idaho	Gas	1	Historical	Year End	x				No
	AVA	Oregon	Gas	1	Fully Forecast	Average	x				No
Black Hills Corporation	BKH	South Dakota	Electric	1	Historical	Average		x			Rider
	BKH	Wyoming	Electric	1	Historical	Year End		x			No
	BKH	Colorado	Electric	1	Historical	Average			x	x	Partial
CMS Energy Corporation	CMS	Michigan	Electric	1	Fully Forecast	Average					Yes
	CMS	Michigan	Gas	1	Fully Forecast	Average		x		x	Yes
Consolidated Edison	ED	New Jersey	Electric	1	Partially Forecast	Year End				x	Case-specific
	ED	New York	Electric	1	Fully Forecast	Average	x				Yes
	ED	New York	Gas	1	Fully Forecast	Average	x			x	Yes
	ED	New York	Electric	1	Fully Forecast	Average	x				Yes
	ED	New York	Gas	1	Fully Forecast	Average	x			x	Yes

COMPARISON OF PROXY GROUP COMPANIES  
REGULATORY FRAMEWORK - ADJUSTMENT CLAUSES

Proxy Group Company	[1]				[2]		[3]			[4]	
	TICKER	Operation State	Operation		Test Year	Rate Base	Decoupling		New Capital		CWIP in Rate Base
							Full	Partial	Generation Capacity	Generic Infrastructure	
Duke Energy Corporation	DUK	Florida	Electric	1	Fully Forecast	Average			x		Yes
	DUK	Indiana	Electric	1	Historical	Year End		x	x	x	Partial
	DUK	Kentucky	Electric	1	Fully Forecast	Average		x			Yes
	DUK	Kentucky	Gas	1	Fully Forecast	Average		x			Yes
	DUK	North Carolina	Electric	1	Historical	Year End					Yes
	DUK	North Carolina	Gas	1	Historical	Year End	x			x	Yes
	DUK	Ohio	Electric	1	Partially Forecast	Year End		x		x	Partial (yes if 75% complete)
	DUK	Ohio	Gas	1	Partially Forecast	Year End				x	Partial (yes if 75% complete)
	DUK	South Carolina	Electric	1	Historical	N/A					Yes
	DUK	South Carolina	Gas	1	Historical	N/A		x			Yes
Edison International	EIX	California	Electric	1	Fully Forecast	Average	x				No
Entergy Corporation	ETR	Arkansas	Electric	1	Partially Forecast	Average		x	x	x	No
	ETR	Louisiana-NOCC	Electric	1	Fully Forecast	Average		x	x		Partial
	ETR	Louisiana-NOCC	Gas	1	Fully Forecast	Average					Partial
	ETR	Louisiana	Electric	1	Historical	Average		x	x	x	Partial
	ETR	Louisiana	Gas	1	Historical	Average		x		x	Partial
	ETR	Mississippi	Electric	1	Fully Forecast	Average		x			Partial
	ETR	Texas	Electric	1	Historical	Year End				x	No
Eversource Energy	ES	Connecticut	Electric	1		Average	x			x	No
	ES	Massachusetts	Electric	1	Historical	Year End	x			x	No
EVRG	EVRG	Missouri	Electric	1	Partially Forecast	Year End		x		x	No
	EVRG	Kansas	Electric	1	Historical	Year End		x			Partial
Eversource Energy	ES	Connecticut	Electric	1		Average	x			x	No
	ES	Massachusetts	Electric	1	Historical	Year End	x			x	No
	ES	New Hampshire	Electric	1	Historical	Year End		x		x	No
IDACORP	IDA	Idaho	Electric	1	Partially Forecast	Average	x				No
	IDA	Oregon	Electric	1	Fully Forecast	Average					No
NorthWestern Corporation	NWE	Montana	Electric	1	Historical	Average					No
	NWE	Montana	Gas	1	Historical	Average					No
	NWE	Nebraska	Gas								Yes
	NWE	South Dakota	Elec.		Historical	Average					Rider
	NWE	South Dakota	Gas		Historical	Average					Rider
OGE Energy Corporation	OGE	Arkansas	Electric	1	Partially Forecast	Year End		x	x		No
	OGE	Oklahoma	Electric	1	Historical	Year End		x		x	Yes
Pinnacle West Capital Corporation	PNW	Arizona	Electric	1	Historical	Year End		x			No
Portland General Electric Company	POR	Oregon	Electric	1	Fully Forecast	Average		x	x		No
Southern Company	SO	Alabama	Electric	1	Historical				x		Yes
	SO	Georgia	Electric	1	Partially Forecast	Average			x		Limited basis
	SO	Mississippi	Electric	1	Fully Forecast	Year End		x			Partial

COMPARISON OF PROXY GROUP COMPANIES  
REGULATORY FRAMEWORK - ADJUSTMENT CLAUSES

Proxy Group Company	[1]		[2]				[3]		[4]		
	TICKER	Operation State	Operation		Test Year	Rate Base	Decoupling		New Capital		CWIP in Rate Base
							Full	Partial	Generation Capacity	Generic Infrastructure	
Wisconsin Energy Corporation	WEC	Wisconsin	Electric	1	Fully Forecast	NA					Rider
	WEC	Wisconsin	Gas	1	Fully Forecast	NA					Rider
	WEC	Wisconsin	Gas	1	Fully Forecast	NA					Rider
	WEC	Wisconsin	Electric	1	Fully Forecast	NA					Rider
	WEC	Michigan	Electric	1							
Xcel Energy Inc.	XEL	Colorado	Electric	1	Historical	Average			x	x	Partial
	XEL	Colorado	Gas	1	Historical	Average		x		x	Partial
	XEL	Minnesota	Electric	1	Fully Forecast	Average		x			Partial
	XEL	Minnesota	Gas	1	Fully Forecast	Average				x	Partial
	XEL	New Mexico	Electric	1	Historical	Year End					Yes
	XEL	North Dakota	Electric	1	Fully Forecast	Average				x	Partial
	XEL	North Dakota	Gas	1	Fully Forecast	Average					Partial
	XEL	South Dakota	Electric	1	Historical	Average		x	x	x	Rider
	XEL	Texas	Electric	1	Historical	Year End				x	No
	XEL	Wisconsin	Electric	1	Fully Forecast	Average					Rider
	XEL	Wisconsin	Gas	1	Fully Forecast	Average					Rider
Proxy Company Totals					Forecast: 45	Year End: 31	12	35	14	32	60
Total Jurisdictions				85							
Percent of Jurisdictions					Forecast: 53%	Average: 57%	14.1%	41.2%	16.5%	37.6%	70.6%
San Diego Gas and Electric		California	Electric	1	Fully Forecast	Average	x				No
San Diego Gas and Electric		California	Gas	1	Fully Forecast	Average	x				No

Notes:

[1] Source: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated November 12, 2019. Operating subsidiaries not covered in this report were excluded from this exhibit.

[2] Source: "Alternative Regulation for Evolving Utility Challenges," Prepared by Pacific Economics Group Research for Edison Electric Institute, Table 6, November 2015; S&P RRA Research; Company Investor Presentations

[3] Source: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated November 12, 2019.

[4] Source: S&P Global Market Intelligence, Regulatory Research Associates, Commission Profiles

[5] This exhibit includes the adjustment mechanisms for the electric and gas distribution companies.

**JMC-11**

**CAPITAL STRUCTURE ANALYSIS**

CAPITAL STRUCTURE ANALYSIS

COMMON EQUITY RATIO [1]

Proxy Group Company	Ticker	2020Q4	2020Q3	2020Q2	2020Q1	2019Q4	2019Q3	2019Q2	2019Q1	Average
Alliant Energy Corporation	LNT	53.29%	53.16%	52.01%	53.46%	52.54%	52.29%	51.51%	54.12%	52.80%
Ameren Corporation	AEE	53.44%	54.59%	53.59%	52.24%	52.85%	54.04%	53.40%	53.19%	53.42%
American Electric Power Company, Inc.	AEP	48.15%	47.85%	48.01%	48.13%	48.37%	48.83%	48.04%	48.72%	48.26%
Avista Corporation	AVA	50.57%	49.33%	51.35%	51.15%	50.83%	50.33%	51.40%	51.18%	50.77%
Black Hills Corporation	BKH	62.06%	61.64%	61.10%	60.26%	60.07%	54.34%	54.66%	54.26%	58.55%
CMS Energy Corporation	CMS	51.28%	51.67%	50.23%	49.92%	51.58%	51.82%	53.76%	52.65%	51.61%
Consolidated Edison, Inc.	ED	47.29%	47.70%	47.25%	46.86%	48.90%	49.86%	49.44%	48.85%	48.27%
Duke Energy Corporation	DUK	52.95%	52.70%	52.31%	52.02%	52.56%	52.62%	53.12%	52.16%	52.55%
Edison International	EIX	51.85%	51.72%	52.12%	51.47%	53.79%	53.53%	52.31%	49.55%	52.04%
Entergy Corporation	ETR	46.16%	47.66%	47.48%	47.35%	48.24%	47.72%	46.76%	47.03%	47.30%
Evergy, Inc.	EVRG	59.08%	59.23%	58.12%	59.87%	59.92%	59.86%	60.21%	57.84%	59.27%
Eversource Energy	ES	54.97%	54.91%	54.22%	53.59%	54.52%	52.28%	52.25%	56.16%	54.11%
IDACORP, Inc.	IDA	53.96%	54.04%	51.25%	55.18%	55.14%	55.20%	54.58%	54.36%	54.22%
NorthWestern Corporation	NWE	47.17%	48.26%	48.61%	47.78%	47.59%	47.80%	48.07%	48.74%	48.00%
OGE Energy Corporation	OGE	53.04%	52.78%	53.09%	55.28%	55.15%	54.96%	53.47%	55.38%	54.14%
Pinnacle West Capital Corporation	PNW	51.35%	51.58%	51.89%	53.66%	52.80%	54.25%	54.41%	54.48%	53.05%
Portland General Electric Company	POR	46.07%	47.85%	48.33%	50.09%	49.85%	51.78%	51.56%	50.60%	49.52%
Southern Company	SO	54.92%	55.07%	54.31%	54.96%	54.20%	53.86%	54.80%	54.70%	54.60%
WEC Energy Group, Inc.	WEC	57.00%	57.85%	57.17%	56.67%	55.81%	56.13%	57.59%	56.99%	56.90%
Xcel Energy Inc.	XEL	54.82%	54.32%	52.78%	54.56%	54.29%	54.13%	55.25%	54.92%	54.38%
MEAN		52.47%	52.69%	52.26%	52.73%	52.95%	52.78%	52.83%	52.79%	52.69%
LOW		46.07%	47.66%	47.25%	46.86%	47.59%	47.72%	46.76%	47.03%	47.30%
HIGH		62.06%	61.64%	61.10%	60.26%	60.07%	59.86%	60.21%	57.84%	59.27%

CAPITAL STRUCTURE ANALYSIS  
COMMON EQUITY RATIO - UTILITY OPERATING COMPANIES [2]

Company Name	Ticker	2020Q4	2020Q3	2020Q2	2020Q1	2019Q4	2019Q3	2019Q2	2019Q1	Average
Interstate Power and Light Company	LNT	53.62%	53.40%	51.70%	52.68%	51.72%	51.56%	53.30%	54.87%	52.86%
Wisconsin Power and Light Company	LNT	52.78%	52.78%	52.47%	54.64%	53.78%	53.40%	49.01%	53.03%	52.73%
Ameren Illinois Company	AEE	55.49%	56.88%	56.48%	54.66%	53.37%	54.85%	54.44%	54.05%	55.03%
Union Electric Company	AEE	51.61%	52.48%	50.88%	50.02%	52.36%	53.33%	52.48%	52.44%	51.95%
AEP Texas, Inc.	AEP	42.41%	42.06%	45.04%	44.16%	43.77%	46.97%	46.32%	47.54%	44.78%
Appalachian Power Company	AEP	47.19%	47.10%	46.65%	49.16%	48.74%	48.74%	48.19%	47.77%	47.94%
Indiana Michigan Power Company	AEP	48.67%	48.35%	47.83%	47.42%	46.74%	46.51%	45.83%	45.43%	47.10%
Kentucky Power Company	AEP	45.28%	44.88%	44.57%	44.60%	47.34%	46.94%	46.50%	46.42%	45.82%
Kingsport Power Company	AEP	53.42%	55.42%	54.98%	55.04%	54.62%	54.24%	50.18%	51.54%	53.68%
Ohio Power Company	AEP	52.42%	52.10%	51.75%	51.18%	54.50%	53.63%	52.92%	58.86%	53.42%
Public Service Company of Oklahoma	AEP	52.88%	51.95%	50.57%	49.51%	49.69%	49.89%	48.02%	47.19%	49.96%
Southwestern Electric Power Company	AEP	50.78%	50.57%	49.71%	48.97%	48.80%	48.63%	47.45%	47.59%	49.06%
Wheeling Power Company	AEP	54.10%	53.86%	53.55%	53.89%	53.51%	53.66%	53.83%	54.27%	53.84%
Avista Corporation	AVA	50.57%	49.33%	51.35%	51.15%	50.83%	50.33%	51.40%	51.18%	50.77%
Black Hills Colorado Electric Utility Company, LP	BKH	73.39%	73.80%	73.70%	73.55%	72.98%	54.51%	53.31%	53.25%	66.06%
Black Hills Power, Inc.	BKH	58.23%	57.51%	57.19%	56.66%	56.82%	56.42%	55.65%	55.05%	56.69%
Cheyenne Light, Fuel and Power Company	BKH	54.44%	52.80%	51.26%	48.17%	48.32%	49.96%	55.19%	54.61%	51.84%
Consumers Energy Company	CMS	51.28%	51.67%	50.23%	49.92%	51.58%	51.82%	53.76%	52.65%	51.61%
Consolidated Edison Company of New York, Inc.	ED	46.74%	47.17%	46.64%	46.23%	48.41%	49.29%	48.92%	48.30%	47.71%
Orange and Rockland Utilities, Inc.	ED	47.29%	47.06%	48.57%	48.82%	48.05%	50.40%	49.25%	49.21%	48.58%
Rockland Electric Company	ED	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Duke Energy Carolinas, LLC	DUK	52.33%	51.56%	51.56%	50.26%	52.11%	51.80%	52.94%	52.32%	51.91%
Duke Energy Florida, LLC	DUK	52.59%	52.10%	51.12%	51.30%	49.91%	52.82%	51.55%	50.56%	51.49%
Duke Energy Indiana, LLC	DUK	53.74%	53.08%	50.12%	50.22%	52.84%	51.52%	54.83%	54.29%	52.58%
Duke Energy Kentucky, Inc.	DUK	49.54%	49.28%	51.35%	50.07%	49.37%	45.44%	53.04%	52.81%	50.11%
Duke Energy Ohio, Inc.	DUK	62.46%	62.16%	61.73%	65.61%	65.22%	64.90%	64.45%	59.29%	63.23%
Duke Energy Progress, LLC	DUK	50.69%	51.10%	52.23%	51.82%	51.29%	50.86%	50.09%	49.60%	50.96%
Southern California Edison Company	EIX	51.85%	51.72%	52.12%	51.47%	53.79%	53.53%	52.31%	49.55%	52.04%
Entergy Arkansas, Inc.	ETR	45.94%	44.42%	47.93%	47.46%	47.90%	47.72%	46.49%	47.04%	46.86%
Entergy Louisiana, LLC	ETR	45.62%	48.23%	46.62%	46.00%	47.47%	47.13%	46.32%	45.79%	46.65%
Entergy Mississippi, Inc.	ETR	48.19%	47.91%	47.09%	48.92%	48.60%	48.35%	44.93%	49.41%	47.93%
Entergy New Orleans, LLC	ETR	44.14%	43.23%	42.79%	46.69%	50.33%	49.02%	48.00%	47.91%	46.51%
Entergy Texas, Inc.	ETR	47.45%	52.68%	51.59%	50.97%	50.92%	49.16%	50.79%	50.13%	50.46%
Kansas City Power & Light Company	EVRG	48.69%	48.77%	47.12%	49.97%	50.31%	50.43%	49.62%	46.04%	48.87%
Kansas Gas and Electric Company	EVRG	82.66%	82.55%	82.18%	82.03%	81.96%	81.84%	81.49%	75.13%	81.23%
KCP&L Greater Missouri Operations Company	EVRG	51.97%	52.91%	51.74%	50.52%	50.34%	51.18%	51.74%	52.68%	51.64%
Westar Energy (KPL)	EVRG	57.03%	56.97%	55.81%	57.92%	57.97%	57.66%	59.18%	58.80%	57.67%
Westar Energy, Inc.	EVRG		65.83%	64.98%	66.43%	66.41%	66.19%	67.31%	65.16%	66.05%
Great Plains Energy Incorporated	EVRG		49.94%	48.44%	50.13%	50.32%	50.65%	50.27%	47.99%	49.68%
Connecticut Light and Power Company	ES	56.70%	58.10%	56.85%	56.23%	55.97%	54.80%	56.06%	58.84%	56.69%
NSTAR Electric Company	ES	55.48%	54.39%	53.43%	52.85%	55.57%	54.08%	53.03%	56.36%	54.40%
Public Service Company of New Hampshire	ES	48.66%	47.60%	48.99%	48.26%	47.77%	40.64%	40.02%	48.38%	46.29%
Idaho Power Co.	IDA	53.96%	54.04%	51.25%	55.18%	55.14%	55.20%	54.58%	54.36%	54.22%
NorthWestern Corporation	NWE	47.17%	48.26%	48.61%	47.78%	47.59%	47.80%	48.07%	48.74%	48.00%
Oklahoma Gas and Electric Company	OGE	53.04%	52.78%	53.09%	55.28%	55.15%	54.96%	53.47%	55.38%	54.14%
Arizona Public Service Company	PNW	51.35%	51.58%	51.89%	53.66%	52.80%	54.25%	54.41%	54.48%	53.05%
Portland General Electric Company	POR	46.07%	47.85%	48.33%	50.09%	49.85%	51.78%	51.56%	50.60%	49.52%
Alabama Power Company	SO	53.12%	52.69%	53.76%	53.86%	51.90%	52.26%	53.37%	53.07%	53.00%
Georgia Power Company	SO	56.05%	56.59%	54.59%	55.70%	56.12%	55.38%	56.39%	56.43%	55.91%
Mississippi Power Company	SO	55.31%	55.53%	54.99%	54.80%	50.84%	50.23%	49.87%	49.73%	52.66%
Wisconsin Electric Power Company	WEC	57.18%	58.16%	57.39%	56.89%	56.48%	57.12%	56.85%	56.00%	57.01%
Wisconsin Public Service Corporation	WEC	56.71%	57.29%	56.78%	56.29%	54.61%	54.37%	59.04%	58.88%	56.75%
Northern States Power Company - MN	XEL	53.19%	52.20%	50.13%	52.55%	52.20%	51.79%	53.66%	53.64%	52.42%
Northern States Power Company - WI	XEL	53.85%	53.13%	52.61%	54.90%	54.23%	53.56%	53.49%	53.59%	53.67%
Public Service Company of Colorado	XEL	56.82%	56.56%	54.60%	56.58%	56.32%	56.35%	57.53%	56.68%	56.43%
Southwestern Public Service Company	XEL	54.17%	54.15%	54.22%	54.13%	54.14%	54.21%	54.14%	54.13%	54.16%

Notes:

[1] Ratios are weighted by actual common capital, short-term debt, and long-term debt of Operating Subsidiaries.

[2] Natural Gas and Electric Operating Subsidiaries with data listed as N/A from SNL Financial have been excluded from the analysis.



CAPITAL STRUCTURE ANALYSIS

LONG-TERM DEBT RATIO [1]

Proxy Group Company	Ticker	2020Q4	2020Q3	2020Q2	2020Q1	2019Q4	2019Q3	2019Q2	2019Q1	Average
Alliant Energy Corporation	LNT	46.71%	46.84%	47.99%	46.54%	47.46%	47.71%	48.49%	45.88%	47.20%
Ameren Corporation	AEE	46.56%	45.41%	46.41%	47.76%	47.15%	45.96%	46.60%	46.81%	46.58%
American Electric Power Company, Inc.	AEP	51.85%	52.15%	51.99%	51.87%	51.63%	51.17%	51.96%	51.28%	51.74%
Avista Corporation	AVA	49.43%	50.67%	48.65%	48.85%	49.17%	49.67%	48.60%	48.82%	49.23%
Black Hills Corporation	BKH	37.94%	38.36%	38.90%	39.74%	39.93%	45.66%	45.34%	45.74%	41.45%
CMS Energy Corporation	CMS	48.72%	48.33%	49.77%	50.08%	48.42%	48.18%	46.24%	47.35%	48.39%
Consolidated Edison, Inc.	ED	52.71%	52.30%	52.75%	53.14%	51.10%	50.14%	50.56%	51.15%	51.73%
Duke Energy Corporation	DUK	47.05%	47.30%	47.69%	47.98%	47.44%	47.38%	46.88%	47.84%	47.45%
Edison International	EIX	48.15%	48.28%	47.88%	48.53%	46.21%	46.47%	47.69%	50.45%	47.96%
Entergy Corporation	ETR	53.84%	52.34%	52.52%	52.65%	51.76%	52.28%	53.24%	52.97%	52.70%
Evergy, Inc.	EVRG	40.92%	40.77%	41.88%	40.13%	40.08%	40.14%	39.79%	42.16%	40.73%
Eversource Energy	ES	45.03%	45.09%	45.78%	46.41%	45.48%	47.72%	47.75%	43.84%	45.89%
IDACORP, Inc.	IDA	46.04%	45.96%	48.75%	44.82%	44.86%	44.80%	45.42%	45.64%	45.78%
NorthWestern Corporation	NWE	52.83%	51.74%	51.39%	52.22%	52.41%	52.20%	51.93%	51.26%	52.00%
OGE Energy Corporation	OGE	46.96%	47.22%	46.91%	44.72%	44.85%	45.04%	46.53%	44.62%	45.86%
Pinnacle West Capital Corporation	PNW	48.65%	48.42%	48.11%	46.34%	47.20%	45.75%	45.59%	45.52%	46.95%
Portland General Electric Company	POR	53.93%	52.15%	51.67%	49.91%	50.15%	48.22%	48.44%	49.40%	50.48%
Southern Company	SO	45.08%	44.93%	45.69%	45.04%	45.80%	46.14%	45.20%	45.30%	45.40%
WEC Energy Group, Inc.	WEC	43.00%	42.15%	42.83%	43.33%	44.19%	43.87%	42.41%	43.01%	43.10%
Xcel Energy Inc.	XEL	45.18%	45.68%	47.22%	45.44%	45.71%	45.87%	44.75%	45.08%	45.62%
MEAN		47.53%	47.31%	47.74%	47.27%	47.05%	47.22%	47.17%	47.21%	47.31%
LOW		37.94%	38.36%	38.90%	39.74%	39.93%	40.14%	39.79%	42.16%	40.73%
HIGH		53.93%	52.34%	52.75%	53.14%	52.41%	52.28%	53.24%	52.97%	52.70%

CAPITAL STRUCTURE ANALYSIS  
LONG-TERM DEBT RATIO - UTILITY OPERATING COMPANIES [2]

Company Name	Ticker	2020Q4	2020Q3	2020Q2	2020Q1	2019Q4	2019Q3	2019Q2	2019Q1	Average
Interstate Power and Light Company	LNT	46.38%	46.60%	48.30%	47.32%	48.28%	48.44%	46.70%	45.13%	47.14%
Wisconsin Power and Light Company	LNT	47.22%	47.22%	47.53%	45.36%	46.22%	46.60%	50.99%	46.97%	47.27%
Ameren Illinois Company	AEE	44.51%	43.12%	43.52%	45.34%	46.63%	45.15%	45.56%	45.95%	44.97%
Union Electric Company	AEE	48.39%	47.52%	49.12%	49.98%	47.64%	46.67%	47.52%	47.56%	48.05%
AEP Texas, Inc.	AEP	57.59%	57.94%	54.96%	55.84%	56.23%	53.03%	53.68%	52.46%	55.22%
Appalachian Power Company	AEP	52.81%	52.90%	53.35%	50.84%	51.26%	51.26%	51.81%	52.23%	52.06%
Indiana Michigan Power Company	AEP	51.33%	51.65%	52.17%	52.58%	53.26%	53.49%	54.17%	54.57%	52.90%
Kentucky Power Company	AEP	54.72%	55.12%	55.43%	55.40%	52.66%	53.06%	53.50%	53.58%	54.18%
Kingsport Power Company	AEP	46.58%	44.58%	45.02%	44.96%	45.38%	45.76%	49.82%	48.46%	46.32%
Ohio Power Company	AEP	47.58%	47.90%	48.25%	48.82%	45.50%	46.37%	47.08%	41.14%	46.58%
Public Service Company of Oklahoma	AEP	47.12%	48.05%	49.43%	50.49%	50.31%	50.11%	51.98%	52.81%	50.04%
Southwestern Electric Power Company	AEP	49.22%	49.43%	50.29%	51.03%	51.20%	51.37%	52.55%	52.41%	50.94%
Wheeling Power Company	AEP	45.90%	46.14%	46.45%	46.11%	46.49%	46.34%	46.17%	45.73%	46.16%
Avista Corporation	AVA	49.43%	50.67%	48.65%	48.85%	49.17%	49.67%	48.60%	48.82%	49.23%
Black Hills Colorado Electric Utility Company, LP	BKH	26.61%	26.20%	26.30%	26.45%	27.02%	45.49%	46.69%	46.75%	33.94%
Black Hills Power, Inc.	BKH	41.77%	42.49%	42.81%	43.34%	43.18%	43.58%	44.35%	44.95%	43.31%
Cheyenne Light, Fuel and Power Company	BKH	45.56%	47.20%	48.74%	51.83%	51.68%	50.04%	44.81%	45.39%	48.16%
Consumers Energy Company	CMS	48.72%	48.33%	49.77%	50.08%	48.42%	48.18%	46.24%	47.35%	48.39%
Consolidated Edison Company of New York, Inc.	ED	53.26%	52.83%	53.36%	53.77%	51.59%	50.71%	51.08%	51.70%	52.29%
Orange and Rockland Utilities, Inc.	ED	52.71%	52.94%	51.43%	51.18%	51.95%	49.60%	50.75%	50.79%	51.42%
Rockland Electric Company	ED	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Duke Energy Carolinas, LLC	DUK	47.67%	48.07%	48.44%	49.74%	47.89%	48.20%	47.06%	47.68%	48.09%
Duke Energy Florida, LLC	DUK	47.41%	47.90%	48.88%	48.70%	50.09%	47.18%	48.45%	49.44%	48.51%
Duke Energy Indiana, LLC	DUK	46.26%	46.92%	49.88%	49.78%	47.16%	48.48%	45.17%	45.71%	47.42%
Duke Energy Kentucky, Inc.	DUK	50.46%	50.72%	48.65%	49.93%	50.63%	54.56%	46.96%	47.19%	49.89%
Duke Energy Ohio, Inc.	DUK	37.54%	37.84%	38.27%	34.39%	34.78%	35.10%	35.55%	40.71%	36.77%
Duke Energy Progress, LLC	DUK	49.31%	48.90%	47.77%	48.18%	48.71%	49.14%	49.91%	50.40%	49.04%
Southern California Edison Company	EIX	48.15%	48.28%	47.88%	48.53%	46.21%	46.47%	47.69%	50.45%	47.96%
Entergy Arkansas, Inc.	ETR	54.06%	55.58%	52.07%	52.54%	52.10%	52.28%	53.51%	52.96%	53.14%
Entergy Louisiana, LLC	ETR	54.38%	51.77%	53.38%	54.00%	52.53%	52.87%	53.68%	54.21%	53.35%
Entergy Mississippi, Inc.	ETR	51.81%	52.09%	52.91%	51.08%	51.40%	51.65%	55.07%	50.59%	52.07%
Entergy New Orleans, LLC	ETR	55.86%	56.77%	57.21%	53.31%	49.67%	50.98%	52.00%	52.09%	53.49%
Entergy Texas, Inc.	ETR	52.55%	47.32%	48.41%	49.03%	49.08%	50.84%	49.21%	49.87%	49.54%
Kansas City Power & Light Company	EVRG	51.31%	51.23%	52.88%	50.03%	49.69%	49.57%	50.38%	53.96%	51.13%
Kansas Gas and Electric Company	EVRG	17.34%	17.45%	17.82%	17.97%	18.04%	18.16%	18.51%	24.87%	18.77%
KCP&L Greater Missouri Operations Company	EVRG	48.03%	47.09%	48.26%	49.48%	49.66%	48.82%	48.26%	47.32%	48.36%
Westar Energy (KPL)	EVRG	42.97%	43.03%	44.19%	42.08%	42.03%	42.34%	40.82%	41.20%	42.33%
Westar Energy, Inc.	EVRG		34.17%	35.02%	33.57%	33.59%	33.81%	32.69%	34.84%	33.95%
Great Plains Energy Incorporated	EVRG		50.06%	51.56%	49.87%	49.68%	49.35%	49.73%	52.01%	50.32%
Connecticut Light and Power Company	ES	43.30%	41.90%	43.15%	43.77%	44.03%	45.20%	43.94%	41.16%	43.31%
NSTAR Electric Company	ES	44.52%	45.61%	46.57%	47.15%	44.43%	45.92%	46.97%	43.64%	45.60%
Public Service Company of New Hampshire	ES	51.34%	52.40%	51.01%	51.74%	52.23%	59.36%	59.98%	51.62%	53.71%
Idaho Power Co.	IDA	46.04%	45.96%	48.75%	44.82%	44.86%	44.80%	45.42%	45.64%	45.78%
NorthWestern Corporation	NWE	52.83%	51.74%	51.39%	52.22%	52.41%	52.20%	51.93%	51.26%	52.00%
Oklahoma Gas and Electric Company	OGE	46.96%	47.22%	46.91%	44.72%	44.85%	45.04%	46.53%	44.62%	45.86%
Arizona Public Service Company	PNW	48.65%	48.42%	48.11%	46.34%	47.20%	45.75%	45.59%	45.52%	46.95%
Portland General Electric Company	POR	53.93%	52.15%	51.67%	49.91%	50.15%	48.22%	48.44%	49.40%	50.48%
Alabama Power Company	SO	46.88%	47.31%	46.24%	46.14%	48.10%	47.74%	46.63%	46.93%	47.00%
Georgia Power Company	SO	43.95%	43.41%	45.41%	44.30%	43.88%	44.62%	43.61%	43.57%	44.09%
Mississippi Power Company	SO	44.69%	44.47%	45.01%	45.20%	49.16%	49.77%	50.13%	50.27%	47.34%
Wisconsin Electric Power Company	WEC	42.82%	41.84%	42.61%	43.11%	43.52%	42.88%	43.15%	44.00%	42.99%
Wisconsin Public Service Corporation	WEC	43.29%	42.71%	43.22%	43.71%	45.39%	45.63%	40.96%	41.12%	43.25%
Northern States Power Company - MN	XEL	46.81%	47.80%	49.87%	47.45%	47.80%	48.21%	46.34%	46.36%	47.58%
Northern States Power Company - WI	XEL	46.15%	46.87%	47.39%	45.10%	45.77%	46.44%	46.51%	46.41%	46.33%
Public Service Company of Colorado	XEL	43.18%	43.44%	45.40%	43.42%	43.68%	43.65%	42.47%	43.32%	43.57%
Southwestern Public Service Company	XEL	45.83%	45.85%	45.78%	45.87%	45.86%	45.79%	45.86%	45.87%	45.84%

Notes:

[1] Ratios are weighted by actual common capital, short-term debt, and long-term debt of Operating Subsidiaries.

[2] Natural Gas and Electric Operating Subsidiaries with data listed as N/A from SNL Financial have been excluded from the analysis.