VERIFIED DIRECT TESTIMONY OF VINCENT V. REA

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VI. APPENDICES

ACRONYMS AND DEFINED TERMS

ACRONYM	DEFINED TERM
β	Beta
CAPM	Capital Asset Pricing Model
DCF	Discounted Cash Flow Model
EBITDA	Earnings before interest, taxes, depreciation and amortization
EPA	U.S. Environmental Protection Agency
FED	Federal Reserve Board
FFO	Funds from Operations
FOMC	Federal Open Market Committee
g	Growth Rate (perpetual)
GDP	Gross Domestic Product
IURC	Indiana Utility Regulatory Commission
M&M	Modigliani and Miller
NIPSCO	Northern Indiana Public Service Company LLC

ACRONYMS AND DEFINED TERMS (continued)

ACRONYM	DEFINED TERM
Rm	Expected return for the overall stock market
ROE	Return on Equity
RPM	Risk Premium Method
S&P	Standard & Poor's
SURFA	Society of Utility and Regulatory Financial Analysts
TDSIC	Transmission Distribution System Improvement Charge
WACC	Weighted Average Cost of Capital

I. INTRODUCTION

Q1. Please state your name and business address.

A1. My name is Vincent V. Rea. My business address is 80 Blake Boulevard, #4572, Pinehurst, North Carolina 28374.

Q2. By whom are you employed and in what capacity?

A2. I currently serve as Managing Director of Regulatory Finance Associates, LLC, an independent financial and regulatory consulting firm serving the utility industry.

Q3. Please describe your professional experience.

A3. Prior to moving into my current position, I served as Director, Regulatory Finance and Economics for NiSource Corporate Services Company, a subsidiary of NiSource Inc. ("NiSource"). In this position, I provided testimony and other regulatory support on behalf of NiSource's utility subsidiaries with regard to the cost of equity, overall fair rate of return, and ratemaking capital structures. Prior to serving as Director, Regulatory Finance and Economics, I served as Assistant Treasurer of NiSource Inc. In the capacity as Assistant Treasurer, I was responsible for the external capital raising and banking activities for NiSource, for inter-company financing activities among all NiSource subsidiaries, and also provided regulatory support and testimony for utility rate proceedings and financing

petitions. My educational background, professional experience and other qualifications are presented in greater detail in Schedule 1, which follows my direct testimony.

Q4. Please describe your educational background.

A4. I hold a M.B.A. in Finance from Indiana University, Bloomington, Indiana, and a B.A. with honors distinction in Business Administration from Lake Forest College, Lake Forest, Illinois.

Q5. Do you hold any professional designations?

A5. Yes. I have been awarded the designation of Certified Rate of Return Analyst by the Society of Utility and Regulatory Financial Analysts, and I am also a registered Certified Public Accountant in the State of Illinois.

Q6. Are you a member of any industry or professional organizations?

A6. Yes. I currently serve in the position of Vice President for the Society of Utility and Regulatory Financial Analysts ("SURFA").

Q7. Have you previously testified before the Indiana Utility Regulatory Commission ("Commission") or any other regulatory commission?

A7. Yes. I filed testimony in Cause No. 45621, NIPSCO's 2021 gas rate proceeding, and

Cause No. 45330-TDSIC-1, NIPSCO's 2020 TDSIC proceeding. I also have filed testimony before the Commission to provide an update to the cost of equity analysis I originally prepared as part of NIPSCO's gas rate case (Cause No. 44988). I also supported NIPSCO's request for financing authority for the period January 1, 2021 through December 31, 2022 in Cause No. 45399, as well as NIPSCO's prior requests for financing authority in Cause Nos. 44191, 43563, 43370, 42763, 44796 (as amended in Cause No. 45020), and 45113. I also filed testimony before the Commission supporting NIPSCO's proposed cost of equity, overall fair rate of return, and other financing related matters in Cause No. 45159 (NIPSCO's 2018 electric rate case), Cause No. 44988 (NIPSCO's 2017 gas rate case), Cause No. 44688 (NIPSCO's 2015 electric rate case), Cause No. 43969 (NIPSCO's 2010 electric rate case), Cause No. 43894 (NIPSCO's 2010 gas rate case), Cause No. 43526 (NIPSCO's 2008 electric rate case), and Cause No. 43941 (merger between NIPSCO, Northern Indiana Fuel and Light Company, Inc. and Kokomo Gas and Fuel Company).

I have also testified before other state regulatory commissions in utility rate proceedings concerning the cost of equity, overall cost of capital and regulatory capital structure, including Columbia Gas of Virginia (Virginia State Corporation Commission, PUR-2022-00036, PUR-2018-00131, PUE-2016-00033 and PUE-2014-

00020); Columbia Gas of Kentucky (Kentucky Public Service Commission, Case No. 2021-00183); Columbia Gas of Maryland (Maryland Public Service Commission, Case No. 9680, Case No. 9664, Case No. 9644, Case No. 9609, Case No. 9480, Case No. 9447, Case No. 9417 and Case No. 9316); NSTAR Electric Company, d/b/a Eversource Energy (Massachusetts Department of Public Utilities, D.P.U. 22-22); Bay State Gas, d/b/a Columbia Gas of Massachusetts (Massachusetts Department of Public Utilities, D.P.U. 18-45, D.P.U. 15-50, D.P.U. 13-75 and D.P.U. 12-25); Connecticut Light and Power Company, d/b/a Eversource Energy (Connecticut Public Utilities Regulatory Authority, Docket No. 17-12-03RE11); and I have also submitted testimony to the New Hampshire Public Utilities Commission and the Maine Public Utilities Commission on several matters relating to the financing activities of Northern Utilities, Inc.

Q8. What is the purpose of your direct testimony in this proceeding?

A8. The purpose of my direct testimony is to present supporting evidence, analysis and a recommendation concerning the appropriate rate of return on common equity and overall rate of return that the Commission should establish for NIPSCO's jurisdictional electric operations in relation to its revenue requirement calculation. My recommendations are supported by the detailed financial

information and comprehensive analyses presented within my testimony.

Q9. Are you sponsoring any attachments to your testimony in this Cause?

A9. Yes. I am sponsoring Attachment 16-A, which is a multi-page document divided into nine schedules as reflected in Table 1 below.

Table 1
Schedules Supporting Direct Testimony

Schedule	Description
Schedule 1	Professional Qualifications of Vincent V. Rea
Schedule 2	Comparative Risk Assessment
Schedule 3	Analysis of Regulatory Mechanisms
Schedule 4	DCF Method - Electric Group
Schedule 5	DCF Method - Gas LDC Group
Schedule 6	DCF Method - Non-Regulated Group
Schedule 7	Capital Asset Pricing Model
Schedule 8	Risk Premium Method
Schedule 9	Book Value vs. Market Value Capitalization Ratios

II. SUMMARY OF RECOMMENDATIONS

Q10. Based upon your comprehensive analyses and supporting evidence, what have you concluded with respect to the appropriate rate of return for NIPSCO in this proceeding?

A10. Based upon my comprehensive evaluation, I have concluded that the cost of common equity for NIPSCO's jurisdictional electric utility operations is in the

range of 10.40 to 10.90 percent, and that a point estimate at the midpoint of this range, or 10.65 percent, is the appropriate cost of equity to apply in the instant proceeding. As I will discuss later in my testimony, this conclusion was arrived at in an environment of rising U.S. Treasury and corporate bond yields, a U.S. inflation rate at a 40-year high level, and increased U.S. stock market volatility. Nevertheless, as further discussed in the direct testimony of NIPSCO policy witness Erin Whitehead, the Company has elected to propose a 10.40 percent cost of equity in this proceeding, which is at the low-end of the range of reasonableness indicated by my comprehensive evaluation. Therefore, based upon the Company's proposed cost of equity of 10.40 percent, I have also determined that the Company's weighted average cost of capital is 7.10 percent**,** which is based on NIPSCO's forward test-year-end regulatory capital structure as of December 31, 2023, as further outlined in Attachment 3-A-S2 (p. 5) of the testimony of Company witness Jennifer L. Shikany. This resulting overall cost of capital, if adopted by the Commission, will allow NIPSCO to earn the prevailing opportunity cost of capital, maintain its financial integrity, and attract capital at reasonable terms.

Q11. What general approach have you taken in determining the cost of common equity in this proceeding?

A11. To properly estimate NIPSCO's cost of equity, I have analyzed market-derived data and other financial information for each of the companies comprising three separate proxy groups. Considering that investors utilize this very same information in assessing risk and making investment decisions, it provides a reliable basis for estimating the cost of equity for NIPSCO's electric operations. In total, I evaluated the market and financial data of 26 companies, including nine companies comprising the Electric Group, six companies comprising the Gas LDC Group, and eleven companies comprising the Non-Regulated Group. I will discuss the selection criteria I utilized in developing each of these proxy groups later in my testimony.

During my evaluation, I applied three well-recognized analytical models to the market and financial data of the selected proxy group companies. These models include the Discounted Cash Flow ("DCF") model, Capital Asset Pricing Model ("CAPM"), and the Risk Premium Method ("RPM"). In addition, I have also evaluated two other model variants of the CAPM, specifically, the "CAPM with size adjustment", and the Empirical CAPM ("ECAPM"), both of which have been validated by empirical research. Using the multi-faceted analytical approach described above, my evaluation yielded fifteen individual estimates of the cost of

equity for NIPSCO, thereby ensuring a thorough and comprehensive analysis.

Q12. Specifically, how did you complete your cost of equity analyses using the market derived data and other financial information for the two proxy groups?

A12. With respect to the DCF analyses, I evaluated the proxy group companies on an individual basis, which resulted in a separate cost of equity estimate for each company. By taking this approach, I was able to identify anomalous or "outlier" results at the individual company level which did not pass fundamental tests of economic logic. I then eliminated these outlier results from further consideration based upon both "high-end" and "low-end" outlier thresholds as established by regulatory precedent.[1] The fundamental advantage of employing this approach is that it completely removes the effects of anomalous results from the cost of equity evaluation process. In my judgment, this approach is clearly preferable to the "total group approach," which simply averages the data of all proxy group companies, irrespective of whether outlier results are included or not. As such, the total group approach effectively blends in the effects of anomalous results into

[1] *See*, FERC Opinion 569 (November 21, 2019), Opinion 569-A (May 21, 2020) and Opinion 569-B (November 19, 2020).

the cost of equity evaluation process.

Notwithstanding the foregoing, with respect to the CAPM and RPM analyses, the respective proxy groups were evaluated on a group average basis rather than on an individual company basis. This is necessary because virtually all of the input variables into these two analytical models are non-company specific variables (i.e. risk-free rate of return, corporate bond yields for a certain credit rating, market rate of return, etc.), with the sole exception of beta, meaning that under these two approaches, company-specific input anomalies will have less of an impact on the cost of equity estimate as compared to the other analytical methods.

Q13. How did you derive your cost of equity recommendations for NIPSCO using the proxy group results?

A13. I developed my cost of equity recommendations after carefully evaluating the individual cost of equity estimates that were derived from applying the various analytical models to the market and financial data of the proxy group companies. Using a variety of analytical models in conjunction with multiple comparable risk proxy groups ensures that a diversity of investor perspectives is incorporated into the cost of capital evaluation, thus providing a solid foundation upon which the

analyst can apply his/her informed judgment in making a cost of equity recommendation. The results of my evaluation, which yielded fifteen individual estimates of the cost of equity, are summarized in Table 2 below. Additional support for the results of my evaluation can be found in Tables 8, 9, 10, 13 and 14, respectively.

Table 2
Indicated Cost of Equity for the Proxy Groups

Method/Model	Electric Group	Gas LDC Group	Non-Regulated Group
DCF Method	10.01%	9.91%	11.92%
Traditional CAPM	10.88%	10.48%	11.12%
CAPM (w/size adj.)	11.31%	11.02%	10.90%
ECAPM	11.12%	10.82%	11.31%
Risk Premium Method	10.73%	10.56%	11.56%

A further analysis of the above results yielded the following measures of central tendency for each of the analytical methods employed, as reflected in Table 3 below.

Table 3 **Cost of Equity Estimates** **Measures of Central Tendency**	
Median DCF Result	10.01%
Average DCF Result	10.61%
Median CAPM Result	11.02%
Average CAPM Result	11.00%
Median RPM Result	10.73%
Average RPM Result	10.95%

Based upon the above results, I have concluded that a reasonable estimate of NIPSCO's cost of equity is in the range of 10.40 percent - 10.90 percent, and that the Commission should adopt a cost of equity at the midpoint of this range, or 10.65 percent, in the determination of a fair rate of return for NIPSCO's jurisdictional electric operations. However, as noted earlier, and as further discussed in the testimony of NIPSCO Witness Whitehead, the Company has elected to propose a cost of equity of 10.40 percent, which is at the low-end of the range of reasonableness indicated by my comprehensive evaluation.

In developing my recommendations, I have placed primary emphasis on the cost of equity estimates derived for the Electric Group and the Gas LDC Group.

However, my recommendations also recognize that the cost of equity estimates derived for the Non-Regulated Group provide useful perspective into the returns required by investors for non-utility company investments with investment risk profiles that are similar to NIPSCO. Furthermore, in developing my recommendations, I have placed an approximate equal emphasis on each of the cost of equity analytical model results reflected in Table 2 and Table 3 above.

In my judgment, for the reasons I will discuss further herein, the constant growth DCF model continues to underestimate the cost of equity, which is in large part attributable to the extraordinary monetary policy interventions of the Federal Reserve Board in recent years. These arguments notwithstanding, to ensure a balanced evaluation, I have placed an equal emphasis on the results from all three of the cost of equity models I evaluated, including the DCF model.

Q14. Please explain why, in your judgment, your DCF model results for the Electric Group and Gas LDC Group currently underestimate the cost of equity?

A14. The recent extraordinary monetary policy interventions of the Federal Reserve Board (the "Fed") have kept long-term interest rates artificially[2] low in recent

[2] "Artificially" low from the standpoint that it has been demonstrated by the Fed's own economists that the Fed's recent monetary policy interventions have interfered with normal supply and demand

years, and this has caused the dividend yields of electric utility stocks to decline significantly as a result of the Fed's interventions. This is attributable to the fact that higher dividend yielding stocks, and utility stocks in particular, are typically viewed by investors as a substitute for fixed-income securities. Therefore, when long-term fixed income yields decline and no longer offer an attractive yield to investors, demand for higher dividend yielding stocks, such as gas and electric utility stocks, will increase, which in turn causes utility stock prices to rise and utility stock dividend yields to decline. This decline in utility stock dividend yields has the effect of causing the constant growth DCF model to underestimate the cost of equity for gas and electric utility stocks. This is demonstrated by the fact that the DCF-based cost of equity estimates for the Electric Group and the Gas LDC Group, as shown in both Table 2 and Table 3 above, are materially lower than the cost of equity estimates yielded from both my CAPM and RPM analyses.

Q15. Do you have any additional evidence that the Fed's monetary policy interventions, and particularly the Fed's quantitative easing programs, have

dynamics in the U.S. debt capital markets and have kept intermediate and long-term interest rates lower than they otherwise would have been in the absence of the Fed's interventions. *See*, Brian Bonis, Jane Ihrig, and Min Wei (2017), *The Effects of the Federal Reserve's Securities Holdings on Longer-Term Interest Rates.*

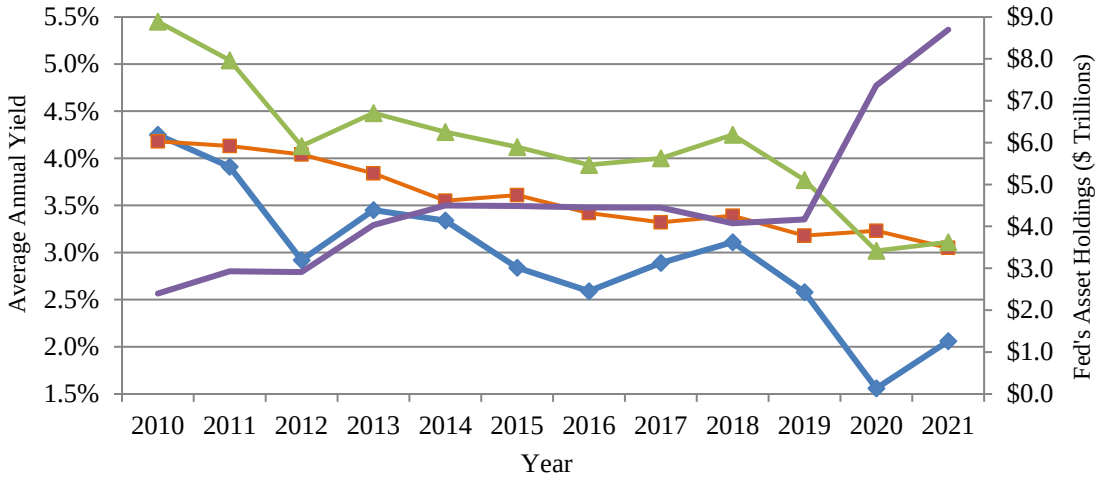
contributed to the declining dividend yields witnessed for gas and electric utility stocks in recent years?

A15. Yes. Table 4 below demonstrates that since the time of 2008-2009 financial crisis and Great Recession (i.e., during the twelve-year period between 2010 and 2021), as the Fed has increased its holdings of U.S. Treasury and mortgage-backed agency securities (from approximately $2.4 trillion to $8.7 trillion), both the 30-year U.S. Treasury bond yield and long-term utility bond yields have declined almost in lockstep with the unprecedented growth in the Fed's asset holdings. Table 4 demonstrates that the Fed's stated objective of putting downward pressure on long-term interest rates in order to stimulate U.S. economic growth has been highly successful. As noted earlier, utility stocks are widely-perceived by investors as being a substitute for fixed income securities due to their higher dividend yields relative to the overall U.S. equity market.

For this reason, and as demonstrated in Table 4 below, utility stock dividend yields have trended downward over the past twelve years, following the same general trend line as both the 30-year U.S. Treasury bond yield and longer-term utility bond yields. Indeed, as long-term bond yields have declined in the U.S. over the past decade, utility stock dividend yields have similarly declined, from an average

level of 4.18 percent in 2010, to an average level of 3.05 percent during 2021, a decline of 113 basis points.[3] It is therefore evident that the Fed's extraordinary monetary policy interventions in recent years have contributed to the decline in both U.S. bond yields and utility stock dividend yields, the latter of which helps explain why the constant growth DCF model continues to underestimate the cost of equity in the current market environment.

Table 4
Relationship Between the Federal Reserve Board's Asset Holdings, U.S. Treasury Bond Yields, Utility Bond Yields and Utility Stock Dividend Yields



[3] Based upon the historical performance of the Utilities Select Sector "SPDR" Fund (ticker symbol "XLU").

Q16. Have you evaluated any correlation metrics to establish the positive association between long-term interest rates and utility stock dividend yields, and the negative association between the level of the Fed's securities holdings and utility stock dividend yields?

A16. Yes. Table 5 below presents, for the 2010-2021 period, the coefficients of correlation between the 30-year U.S. Treasury bond yield, Moody's A-rated utility bond yield, "XLU" utility stock index dividend yield, and the level of the Fed's securities holdings acquired under the central bank's quantitative easing programs.

Table 5
Coefficients of Correlation (2010-2021)

Comparison	Coefficient of Correlation
30-Year U.S. Treasury Bond Yield vs. "XLU" Utility Stock Dividend Yield	0.81
Moody's A-Rated Utility Bond Yield vs. "XLU" Utility Stock Dividend Yield	0.86
30-Year U.S. Treasury Bond Yield vs. Federal Reserve Board Securities Holdings through Quantitative Easing	(0.82)
"XLU" Utility Stock Dividend Yield vs. Federal Reserve Board Securities Holdings through Quantitative Easing	(0.74)

As illustrated in Table 5 above, the strong positive correlation between long-term interest rates and utility stock dividend yields is demonstrated by a coefficient of correlation result ranging from 0.81 to 0.86, while the strong negative correlation between both long-term interest rates and utility stock dividend yields versus the level of the Fed's securities holdings is demonstrated by a correlation of coefficient result ranging from negative (0.74) to negative (0.82).

Q17. Are you aware of any utility regulatory commissions that have recently acknowledged that the constant growth DCF model likely underestimates the cost of equity in the recent capital markets environment?

A17. Yes. In a series of FERC opinions issued between 2014 and 2020,[4] the FERC concluded that due to the anomalous market conditions (i.e., extraordinarily low interest rates) seen in the U.S. capital markets, and their potential impact on the DCF model, the FERC found it necessary to consider additional record evidence, including alternative benchmark methodologies (including the CAPM and the Risk Premium method) for purposes of establishing authorized ROEs in utility rate proceedings. Most notably, in FERC Opinion No. 569 and Opinion No. 569-

[4] Including FERC Opinion No. 531, Opinion No. 569, Opinion No. 569-A and Opinion 569-B.

A, and as later reaffirmed in Opinion No. 569-B, the FERC concluded that the constant growth DCF method likely produced results that were inconsistent with the capital attraction standard. As a result, the FERC elected to revise their long-standing methodology of only referencing the DCF model in utility rate proceedings, and will now also reference the CAPM and Risk Premium models going forward.[5]

Q18. Is it your position that the anomalous market conditions acknowledged by the FERC will continue indefinitely, and therefore may actually become the "new normal" going forward?

A18. No. As I will discuss further in Section III (B) of my testimony (*Current Economic and Capital Market Conditions)*, the Fed has recently announced that due to increasing concerns over the rapidly escalating rate of inflation in the U.S., the Fed will now accelerate the pace of its tapering or "unwinding" of its quantitative easing or bond buying programs. This is a critically important observation, since the Fed's bond buying programs were specifically designed to put downward pressure on long-term interest rates in order to stimulate U.S. economic growth,

[5] *See*, FERC Opinion 569-B (November 19, 2020), at 113.

which has contributed to the anomalous market conditions seen in the U.S. capital markets, as acknowledged in the recent decisions of FERC. Along these lines, there is little question that the Fed's bond-buying programs have been highly-effective in reducing long-term interest rates in recent years, as this has been clearly acknowledged by the Fed's own economists, who have stated the following:

> Currently, our model suggests that the cumulative effect of the Federal Reserve's LSAPs (large scale asset purchases) and MEP (maturity extension program) results in a reduction in the 10-year Treasury yield term premium of about *100 basis points* (emphasis added).
> ….
> Roughly speaking, this implies the yield on a 10-year Treasury security would be 100 basis points higher absent the Federal Reserve's LSAPs and MEP programs.[6]

Therefore, just as the Fed's bond-buying programs have had the documented effect of reducing long-term interest rates by no less than 100 basis points, the Fed's recently announced plans to *unwind* its bond-buying programs would be fully expected to have the opposite effect. Indeed, as noted in Section III(B) of my testimony, the current consensus view of prominent economists is that as the Fed

[6] *See*, Brian Bonis, Jane Ihrig, and Min Wei (2017), *The Effects of the Federal Reserve's Securities Holdings on Longer-Term Interest Rates.*

continues to unwind its bond-buying programs going forward, long-term interest rates are expected to trend gradually upward. As interest rates rise and fixed-income securities being increasingly more appealing to yield-motivated investors, demand for higher dividend yielding stocks (including utility stocks) will likely decline, thus causing utility stock valuations to trend downward, and utility stock dividend yields to trend upward.

Stated alternatively, as the Fed gradually discontinues its bond-buying interventions in the U.S. bond markets, normal supply and demand dynamics will eventually be restored to those markets, at which point the anomalous conditions referred to by the FERC should be all but eliminated. Once these conditions are met, I would fully expect the constant growth DCF model to once again accurately estimate the market-based cost of equity for regulated utilities. However, as long as the artificial monetary policy interventions of the Fed continue to disrupt normal supply and demand dynamics in the U.S. bond markets, it is my strongly held position that the constant growth DCF model will continue to underestimate the cost of equity for regulated utilities.

III. FUNDAMENTAL ANALYSIS

A. Background

Q19. What background information have you considered in evaluating NIPSCO's cost of common equity and overall required rate of return?

A19. NIPSCO provides both electric and natural gas distribution services across the northern third of Indiana. The Company serves approximately 483,000 electric customers, and maintains vertically-integrated electric operations incorporating generation, transmission and distribution services. The Company also serves approximately 850,000 residential, commercial, and industrial natural gas customers in northern Indiana. During 2021, the Company's kilowatt-hour sales were allocated among its customer classes as follows: 23 percent residential; 24 percent commercial and 53 percent industrial.[7] The Company is a wholly-owned subsidiary of NiSource, a holding company under the Public Utility Holding Company Act of 2005. NiSource's headquarters are in Merrillville, Indiana, and its core operating companies engage in natural gas distribution, as well as electric power generation, transmission and distribution. NiSource's operating

[7] As further discussed below, even with the advent of Rate 831, NIPSCO still has a higher-than-average percentage of total kilowatt-hour sales coming from its industrial customers.

companies deliver energy to nearly 4.0 million gas and electric customers in six states.

Q20. What risk factors specifically impact NIPSCO's business risk profile?

A20. The Company's business risk profile is significantly impacted by the amount of electricity that it delivers to a relatively small number of industrial customers. During 2021, NIPSCO's kilowatt-hour sales to industrial customers represented approximately 53 percent of the Company's total kilowatt-hour sales, while these customers constituted only 0.4 percent of NIPSCO's electric customers, thus reflecting an unusually high customer concentration level. In stark contrast, the Energy Information Administration ("EIA")[8] reports that during 2020, U.S. electricity sales to industrial customers accounted for only 25.8 percent of electricity sales nationwide. Therefore, NIPSCO's industrial sales percentage (53 percent) is well in excess of the nationwide average reported by EIA, a clear indication that the Company has a higher business risk profile than the typical electric utility. This is particularly the case because NIPSCO's industrial

[8] U.S. Energy Information Administration (EIA) website, accessed July 21, 2022. https://www.eia.gov/consumption/

customers are engaged in business activities that tend to be more vulnerable to cyclical downturns in the U.S. economy, including steel manufacturing, oil refining, and chemicals processing. Although the current rate design for NIPSCO's industrial customers under the Rate 831 mitigates this risk to some extent through a firm capacity billing component for NIPSCO's industrial customers, the fact remains that a significant portion of NIPSCO's industrial revenues continue to be volumetrically-based, and therefore more susceptible to the business cycle.

B. <u>Overview of Current Economic and Capital Market Conditions</u>

Q21. Please provide a brief overview of recent trends in the U.S. economy and capital markets.

A21. Over the 18 months, as the COVID-19 lockdowns were gradually phased-out, the U.S. economy expanded at levels not seen since the mid-1980's, which, when combined with continuing U.S. supply chain challenges, contributed to the highest U.S. inflation rate seen in the past 41 years. In response to these developments, the Fed has been pursuing a more restrictive monetary policy stance thus far during 2022, in an attempt to slow an overheated U.S. economy and to fend-off a rapidly-rising U.S. inflation rate.

Meanwhile, in response to the Fed's recently announced plans to begin migrating the Fed's policy initiatives toward monetary policy "normalization" (which is currently being implemented through the Fed's most recent contractionary monetary policy actions), and also due to increasing investor anxiety over the Russian-Ukrainian conflict, the U.S. stock market has demonstrated high levels of volatility in recent months. At the same time, intermediate and long-term interest rates have trended sharply upward in recent months in response to a confluence of multiple factors, including robust U.S. economic growth,[9] significantly higher U.S. inflation, the fiscal stimulus and social spending initiatives implemented by the federal government since the COVID-19 pandemic began, as well as the Fed's recently announced policy shift away from its longstanding accommodative monetary policy stance.

Q22. Please elaborate further on how the U.S. economic recovery is now being reflected in key macroeconomic indicators.

A22. The release of pent-up consumer demand, which is attributable to the largely

[9] Notably, while U.S. real GDP expanded at a robust average growth rate of 5.55 percent during calendar-year 2021, the Fed's contractionary monetary policy actions during the first half of 2022 have contributed to more muted real GDP growth rates thus far during 2022. For example, during Q1, 2022, the real GDP growth rate reported was negative -1.6 percent, while for Q2, 2022, the growth rate reported in late-July 2022 was negative -0.90 percent.

successful COVID-19 vaccine roll-outs and the corresponding moderation of governmental lock-down restrictions, was the primary driving factor behind the robust level of U.S. economic growth during 2021. After a clearly challenging 2020, which registered negative real gross domestic product ("GDP") growth rates during the first and second quarters of 2020, real GDP growth during 2021 averaged 5.55 percent,[10] which is a very robust growth rate by recent historical standards.

Meanwhile, the U.S. unemployment rate, which reached a pandemic-high level of 14.8 percent during April 2020, has continued to decline over the past two years, and remains at a pandemic-era low of 3.5 percent as of July 2022. Furthermore, the recent strengthening in the U.S. labor market is clearly manifested in the strong wage gains made by U.S. workers over the past year, as workers' average hourly earnings increased by 5.2 percent on a year-over-year basis during July 2022, a robust pace by recent historical standards.

These strong wage gains, coupled with the release of pent-up consumer demand and continuing supply chain disruptions, have all contributed to the recent

[10] *See*, *Blue Chip Financial Forecasts*, Volume 41, No. 6, June 1, 2022, at 2.

marked increases in the U.S. inflation rate. More recently, the Russian-Ukrainian conflict and new COVID-19 lock-down restrictions in China have put additional upward pressure on the U.S. inflation rate. While China's recent lock-down restrictions have more generally exacerbated the supply-chain challenges recently witnessed in the U.S., the U.S. government's recent import ban on Russian crude oil and other energy sources, as well as Russia's export ban on a number of commodities (including various metals that are used in manufacturing processes), have only further exacerbated the rising U.S. inflation rate. Along these lines, the U.S. Labor Department recently reported that the Consumer Price Index ("CPI") rose by 9.1 percent during June 2022 on a year-over-year basis, which was the largest increase in the U.S. inflation rate during the past 41 years. The U.S. Labor Department subsequently reported that the CPI rose by 8.50 percent during July 2022, on a year-over-year basis. It is notable that in recent years leading up to the COVID-19 pandemic, the U.S. inflation rate had generally fluctuated at or below the Fed's targeted inflation rate of 2.0 percent. It is therefore clear that the currently prevailing higher U.S. inflation rate is unusual by recent historical standards, and will therefore likely put additional upward pressure on long-term capital costs over the near-to-intermediate term horizon.

Q23. Have intermediate and long-term interest rates already begun to trend upward in recent months as a result of the multiple contributing factors discussed above?

A23. Yes. Since the end of calendar-year 2021, the 30-year U.S. Treasury bond yield, which is a proxy for long-term capital costs, has increased by approximately 129 basis points, from approximately 1.90 percent to approximately 3.19 percent.[11] Moreover, considering that the uncertainty surrounding a geo-political event of the magnitude of the Russian-Ukrainian conflict would under more typical circumstances result in an investor flight to safe-haven investments (which, in turn, would typically result in lower Treasury security yields), the fact that the 30-year Treasury bond yield has continued to trend upward despite the Russian-Ukrainian conflict provides strong evidence that investors are placing a greater emphasis on the impact that rising U.S. inflation and the Fed's recently announced monetary policy actions will have on long-term interest rates. Meanwhile, as of late-August 2022, the 10-year U.S. Treasury note yield has risen by approximately 153 basis points since the end of calendar-year 2021, from approximately 1.50 percent to

[11] As of late-August 2022.

approximately 3.03 percent.

Q24. Have longer-term *utility bond* yields also trended materially upward since the end of calendar-year 2021?

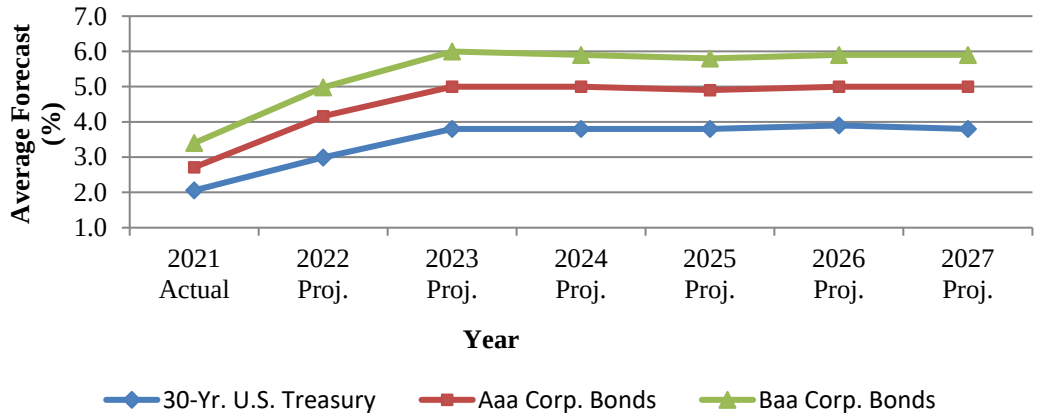
A24. Yes. The average "A-rated" long-term utility bond yield has increased from 3.13 percent during December 2021 to 4.87 percent as of late-August 2022, thus reflecting a year-to-date increase of 174 basis points. During this same period, the "Baa-rated" long-term utility bond yield has increased from 3.36 percent during December 2021 to 5.19 percent as of late-August 2022, thus reflecting a year-to-date increase of 183 basis points. This data indicates that utility bond yields have increased even more than U.S. Treasury yields since the end of calendar-year 2021, further indicating that corporate bond credit spreads have also increased since the end of calendar year 2021.

Q25. Recognizing that multiple economic and sociopolitical factors currently suggest that long-term interest rates will continue to trend materially higher over the near-to-intermediate horizon, are economists also projecting that U.S. Treasury and corporate bond yields will increase over the next several years?

A25. Yes. Prominent economists widely expect that intermediate and longer-term interest rates will continue to trend higher over the next several years as the U.S.

economy continues to expand in the post-COVID-19 environment. As reflected in Table 6 below, the consensus estimates as reflected in the Blue Chip Financial Forecasts,[12] are currently projecting material increases in long-term interest rates over the near-to-intermediate term horizon.

Table 6
Blue Chip Financial Forecasts
Interest Rate Projections for Long-Term Bonds



In view of the expected continuing upward trend in long-term capital costs, it is critical to incorporate reputable interest rate forecasts, such as those reported by the Blue Chip publication, into the cost of equity estimation process. This is

[12] *Blue Chip Financial Forecasts*, Volume 41, No. 6 (June 1, 2022), at 2 and 14.

because the cost of equity analytical models referenced in utility rate proceedings are forward-looking, and therefore require expectational inputs.

Q26. What actions did the Fed take during its March 15-16, 2022 Federal Open Market Committee ("FOMC") meeting?

A26. During the March 15-16, 2022 FOMC meeting, in response to mounting concerns over a rapidly-rising U.S. inflation rate, the Fed elected to raise the Federal Funds target rate from 0.00-0.25 percent to 0.25-0.50 percent, which was the first time the Fed raised the Federal Funds target rate since 2018. In a press release issued after the March 15-16, 2022 FOMC meeting, the Fed further indicated that ongoing increases to the Federal Funds target rate would likely be required. Furthermore, after the March 15-16, 2022 meeting, the Fed also indicated that the central bank would soon announce its plans for gradually unwinding or reducing its $9.0 trillion in holdings of U.S. Treasury and mortgage-backed securities that the central bank acquired through its quantitative easing initiatives.

Q27. What actions did the Fed take during its May 3-4, 2022 FOMC meeting?

A27. During the May 3-4, 2022 FOMC meeting, in order to more assertively address a rapidly-rising and recalcitrant U.S. inflation rate, the Fed elected to again raise the

Federal Funds target rate, this time by 0.50 percent, from 0.25-0.50 percent to 0.75-1.00 percent, which, at the time, constituted the Fed's largest increase to the Federal Funds rate since calendar-year 2000. In a press release issued after the May 3-4, 2022 FOMC meeting, the Fed further indicated that additional 0.50 percent increases to the Federal Funds target rate could also be warranted in the June-July 2022 time frame, given current economic conditions and the recent unusually high U.S. inflation rate. The Fed also announced after the May 3-4, 2022 FOMC meeting that it would begin reducing the size of its $9.0 trillion asset portfolio, by allowing $30.0 billion of maturing U.S. Treasury securities and $17.5 billion of maturing mortgage-backed securities to "run-off" (or mature without reinvesting the proceeds) the Fed's balance sheet each month during June, July and August, 2022. The Fed further indicated that beginning in September 2022, the central bank would effectively double the amount of U.S. Treasury and mortgage-backed securities (to $95.0 billion) that it would allow to "run-off" of the Fed's balance sheet each month thereafter.

Q28. What actions did the Fed take during its June 14-15, 2022 FOMC meeting?

A28. During the June 14-15, 2022 FOMC meeting, in response to a further acceleration in the U.S. inflation rate, where the U.S. Bureau of Labor Statistics reported that

the Consumer Price Index ("CPI") had risen by 8.6 percent during May 2022 (its highest level since 1981), the Fed elected to raise the Federal Funds target rate by an additional 75 basis points (from 0.75-1.00 percent to 1.50-1.75 percent). In the minutes released after the June 14-15, 2022 FOMC meeting, the Fed's rationale behind its decision to move more aggressively in raising the Federal Funds target rate an additional 75 basis points is explained as follows:

> In their consideration of the appropriate stance of monetary policy, participants concurred that the labor market was very tight, inflation was well above the Committee's 2 percent inflation objective, *and the near-term inflation outlook had deteriorated since the time of the May meeting. Against this backdrop, almost all participants agreed that it was appropriate to raise the target range for the federal funds rate 75 basis points at this meeting.*
> …..
> All participants judged that it was appropriate to continue the process of reducing the size of the Federal Reserve's balance sheet, as described in the Plans for Reducing the Size of Federal Reserve's Balance Sheet that the Committee issued in May. In light of elevated inflation pressures and signs of deterioration in some measures of inflation expectations, all participants reaffirmed their strong commitment to returning inflation to the Committee's 2 percent objective.
> ….
> Participants concurred that the economic outlook warranted moving to a restrictive stance of policy, and they recognized the possibility that an even more restrictive stance could be appropriate if elevated inflation pressures were to persist.[13]

[13] *Minutes of the Federal Open Market Committee* (June 14-15, 2022), at 9 (emphasis added).

Q29. What actions did the Fed take during its July 26-27, 2022 FOMC meeting?

A29. During the July 26-27, 2022 FOMC meeting, due to continuing inflationary pressures in the U.S. economy, the Fed elected to raise the Federal Funds target rate by an additional 75 basis points (from 1.50 - 1.75 percent to 2.25 – 2.50 percent). In the Fed's FOMC statement after the July 2022 meeting, the Fed provided the following rationale in support of the central bank's decision to raise the Federal Funds target rate another 75 basis points:

> Recent indicators of spending and production have softened. Nonetheless, job gains have been robust in recent months, and the unemployment rate has remained low. Inflation remains elevated, reflecting supply and demand imbalances related to the pandemic, higher food and energy prices, and broader price pressures.
>
> Russia's war against Ukraine is causing tremendous human and economic hardship. The war and related events are creating additional upward pressure on inflation and are weighing on global economic activity. The Committee is highly attentive to inflation risks.
>
> The Committee seeks to achieve maximum employment and inflation at the rate of 2 percent over the longer run. In support of these goals, the Committee decided to raise the target range for the federal funds rate to 2-1/4 to 2-1/2 percent and anticipates that ongoing increases in the target range will be appropriate. In addition, the Committee will continue reducing its holdings of Treasury securities and agency debt and agency mortgage-backed securities, as described in the Plans for Reducing the Size of the Federal Reserve's Balance Sheet that were issued in May. The

> Committee is strongly committed to returning inflation to its 2 percent objective.[14]

The Fed's continuing commitment to reduce the size of its balance sheet is particularly noteworthy. As the Fed gradually liquidates its security holdings going forward, the downward pressure that the Fed's quantitative easing programs were designed to put on longer-term interest rates will gradually be removed, and for this reason, it is reasonable to conclude that longer-term interest rates will continue to trend upward. In other words, considering that quantitative easing had the effect of *reducing* intermediate-term and long-term interest rates by 100 basis points or more, the Fed's current policy objective of quantitative tightening is widely-expected to have the opposite effect.

Q30. Has the U.S. equity market demonstrated a higher level of volatility in recent months?

A30. Yes, the U.S. equity market has demonstrated a high level of volatility over the past several months, which is largely attributable to a rising U.S. inflation rate, rising interest rates, and to the Fed's recent monetary policy reversal, which is now

[14] *Federal Reserve Issues FOMC Statement* (July 27, 2022); https://www.federalreserve.gov/newsevents/pressreleases/monetary20220727a.htm.

focused on monetary policy normalization going forward. In addition, geo-political tensions stemming from the Russian-Ukrainian conflict have also contributed to the recent volatility in the U.S. equity market. The rise in volatility has clearly been reflected in the CBOE implied-volatility index, or "VIX", which has risen from approximately 17.0 at the end of calendar-year 2021 to a range of 20-25 during August 2022. This is an important observation, since higher market volatility is consistent with a higher level of investment risk and therefore higher long-term capital costs.

C. Comparative Risk Assessment of Proxy Groups

Q31. Why is it necessary to analyze groups of proxy companies to estimate the cost of equity for NIPSCO?

A31. The cost of equity is an opportunity cost concept, which is determined in the financial markets based upon the relative risk assessments of investors. Simply stated, in order to attract sufficient capital to support their public service obligations, regulated utilities must offer investors a rate of return that is commensurate with returns available on alternative investments bearing similar risks. Thus, the use of proxy groups is useful in estimating a utility's cost of equity, since each company comprising the proxy group represents an alternative

investment opportunity of comparable risk vis-à-vis the subject utility. Regardless of whether the subject utility is publicly-traded or not, proxy group analyses ensure that fair rate of return principles, including comparable earnings, corresponding risks, and the opportunity cost of capital are all considered when estimating a utility's cost of equity.[15] Nonetheless, it should be noted that when the various cost of equity models are applied to the market and financial data of proxy group companies, various model inputs and/or assumptions are required, which contributes to the risk of observation error. For this reason, when possible, the use of larger proxy groups or even multiple proxy groups is recommended to mitigate these effects and to ensure a higher level of confidence in the reliability of the analytical results.

Q32. What general approach did you take in developing your utility proxy groups?

A32. In developing my utility proxy groups, my objective was to identify a group of publicly-traded utility companies with risk characteristics similar to NIPSCO.

[15] These fair rate of return principles were articulated by the U.S. Supreme Court in various landmark case decisions, including *Willcox et. al., Constituting the Public Service Commission of New York v. Consolidated Gas Co.*, 212 U.S. 19 (1909); *Bluefield Water Works and Improvement Company v. Public Service Commission of the State of West Virginia*, 262 U.S. 679 (1923); and *Federal Power Commission et al. v. Hope Natural Gas Company*, 320 U.S. 591 (1944). Although the *Hope* and *Bluefield* cases are widely-referenced with regard to fair rate of return standards, the *Consolidated Gas* case was actually the first case where the Supreme Court addressed principles surrounding a fair rate of return for public utility companies.

Considering that the instant proceeding concerns NIPSCO's electric distribution operations, I initially developed a proxy group of publicly-traded electric utilities, which I will refer to herein as the Electric Group. In addition, considering that NIPSCO is an integrated gas and electric utility, and that the Company's financial statements reflect the combined results of both its gas and electric operations, I have also evaluated a gas utility proxy group in my cost of capital evaluation.[16] In my judgment, evaluating both of these utility proxy groups will ensure the best representation of the market's risk and return expectations for NIPSCO's electric distribution operations. This is the case because an analysis of the Electric Group provides an appropriate representation of NIPSCO's jurisdictional electric operations, while an analysis of the Gas LDC Group also recognizes that NIPSCO is an integrated gas and electric utility that reports its financial results, financial position, and capital structure on the basis of the consolidated NIPSCO entity.

Q33. What criteria did you apply in selecting the companies included in your electric utility proxy group?

[16] Which I will refer to herein as the Gas LDC Group.

A33. In selecting an electric utility proxy group, my objective was to identify a group of publicly-traded electric utility companies with risk characteristics similar to NIPSCO, which is not a publicly-traded company. Accordingly, I applied the following selection criteria in making this determination: (i) Value Line Investment Survey Industry Classification as an Electric Utility (Central Region); (ii) Value Line Safety Rank of "1", "2" or "3"; (iii) S&P corporate credit rating no lower than BBB- and Moody's long-term issuer rating of no lower than Baa3 ; (iv) company must currently pay dividends and must not have discontinued or reduced their dividend payments during the previous five years (2017-2021); (v) company must not own or operate non-utility competitive nuclear power generation facilities; and (vi) company must not have recently been an acquisition target. Applying the above selection criteria yielded a proxy group consisting of the following nine publicly-traded electric utility companies:

Allete, Inc.
Alliant Energy Corp.
Ameren Corp.
American Electric Power
CMS Energy Corp.
MGE Energy Inc.
OGE Energy Corp.

Otter Tail Corp.
WEC Energy Group

I will refer to this group throughout the remainder of my testimony as the Electric Group.

Q34. Why is it necessary to complete a comparative risk assessment between NIPSCO and the Electric Group?

A34. Considering that market-derived information for the Electric Group companies will be used to estimate NIPSCO's cost of equity, it is critical that the Electric Group is risk-comparable to the Company. If material differences in risk are identified, the analyst must apply his/her informed judgment in determining whether further adjustments are required to the cost of equity estimates indicated by application of the various analytical models. Because NIPSCO itself is not publicly-traded, market-based financial information is not available for the Company. Therefore, in conducting my comparative risk assessment, I have instead analyzed various widely-recognized business and financial risk metrics, none of which are dependent upon stock prices or other market-based information.

Q35. Do a utility's credit ratings provide insight into its risk profile, cost of debt, and cost of equity?

A35. Yes. Credit ratings reflect the risk of default with respect to a company's debt obligations and are therefore strongly correlated with a company's borrowing costs. For example, companies with a lower risk of default are assigned higher credit ratings and therefore benefit from lower borrowing costs. Conversely, companies with a high risk of default are assigned lower credit ratings and consequently incur higher borrowing costs. A firm with higher borrowing costs will also have a higher cost of equity, since investors invariably demand an equity risk premium above and beyond the firm's cost of debt as compensation for bearing the additional risks inherent in common stocks.

Q36. How do the respective long-term bond ratings of the Company and the Electric Group companies compare?

A36. Presently, Standard & Poor's (S&P) has assigned a corporate credit rating of "BBB+" for NIPSCO and an average corporate credit rating of "A-" for the Electric Group companies. Moody's has assigned a long-term issuer rating of "Baa1" for NIPSCO and an average long-term issuer rating of "Baa1" for the Electric Group companies. Both the S&P and Moody's ratings reflect the overall credit-

worthiness of the issuing company, rather than the risk of default for a specific debt issue. When compared to the average ratings of the Electric Group, the Company's credit ratings are one notch lower under S&P's rating methodology, and are the same under Moody's ratings methodology, thus reflecting a higher relative level of investment risk for the Company. Additional information on the Electric Group's average credit ratings can be found on page 8 of Schedule 4.

Q37. When evaluating NIPSCO versus the Electric Group, how do their business and financial risk metrics compare?

A37. The results of my comparative risk assessment for NIPSCO and the Electric Group are presented on pages 1 and 2 of Schedule 2, respectively. Pages 3 and 4 of Schedule 2 provide additional information on the capitalization ratios for each of the nine companies comprising the Electric Group. Within this attachment, I have evaluated the five-year historical period of 2017-2021, along with the five-year historical averages. My findings are summarized by individual risk metric as presented below:

1. Relative Size

Based on a total book capitalization of $6.8 billion, the NIPSCO consolidated entity book capitalization is less than one-half the size of the average book capitalization of the Electric Group ($17.6 billion).

2. Volatility of Return on Book Equity

In the absence of observable market data, both the standard deviation and coefficient of variation of a time series of annual book ROEs can serve as suitable risk measurement substitutes for beta. Although standard deviation is a measure of total risk, while beta is a measure of non-diversifiable systematic risk, these two risk measures have been shown to be highly correlated. The coefficient of variation is calculated as the ratio of the standard deviation of ROE to the mean ROE, which facilitates a comparison of the degree of variation from one data series to another (i.e., NIPSCO vs. Electric Group), even if the respective mean ROEs differ significantly. Higher calculated values for the standard deviation and coefficient of variation indicate greater volatility in achieved ROEs, which corresponds to a higher overall level of investment risk. For the period 2017-2021, the standard deviation of achieved ROEs was 1.1 percent for NIPSCO, and 1.2 percent for the Electric Group. For the same period, the coefficient of variation

was 0.11 for NIPSCO and 0.11 for the Electric Group, reflecting a very similar level of relative volatility in achieved ROEs for NIPSCO and the Electric Group.

3. Equity Capitalization Ratio

All else being equal, a company with a higher equity capitalization weighting has a lower level of financial risk, while a company with a lower equity capitalization weighting has a higher level of financial risk. This is because companies which rely more heavily on debt capital to finance their operations are subject to a higher level of contractual obligations in the form of periodic principal and interest payments. Increasing levels of fixed-payment obligations constrain a company's financial flexibility, especially during economic downturns, and therefore increase a company's financial risk profile. For this reason, the debt-to-capitalization ratio, which is the complement of the equity capitalization ratio, serves as an important financial metric that is routinely used by the rating agencies to assess a company's credit quality and overall financial risk profile. The 5-year average equity capitalization ratio for NIPSCO was 58.5 percent based upon permanent capitalization, and 53.2 percent based upon total capitalization. The 5-year average equity capitalization ratio for the Electric Group was 50.4 percent

based upon permanent capitalization, and 47.6 percent based upon total capitalization.

4. EBITDA-to-Interest Coverage

The EBITDA-to-Interest Coverage ratio is a key analytical metric routinely used by the rating agencies to evaluate whether a company's earnings and cash flow are sufficient to adequately cover its debt service obligations. Higher coverage ratios generally imply lower levels of financial risk and higher credit quality. The 5-year average EBITDA-to-Interest Coverage ratio for the years 2017-2021 was 7.96x for NIPSCO and 5.93x for the Electric Group.

5. FFO-to-Adjusted Total Debt

The FFO-to-Adjusted Debt ratio is another important analytical metric used by the rating agencies and expresses a company's annual operating cash flows as a percentage of its total adjusted debt. The reciprocal of the FFO-to-Adjusted Debt ratio provides an approximate estimate of the total number of years of annual cash flows that would be required to retire a company's adjusted debt obligations. The 5-year average FFO-to-Adjusted Total Debt ratios for the years 2017-2021 was 24.3 percent for NIPSCO and 19.6 percent for the Electric Group.

Q38. What conclusions have you drawn from your comparative risk assessment between NIPSCO and the Electric Group?

A38. NIPSCO's investment risk metrics indicate that, on an overall basis, the Company has a similar risk profile as compared to the Electric Group. On the one hand, several of the business risk metrics I evaluated suggest that the Company has a higher risk profile relative to the Electric Group, as demonstrated by the Company's: (1) significantly higher concentration of kilowatt-hour sales to industrial customers as compared to the Electric Group, which increases the Company's risk profile because industrial customers are more heavily impacted by the cyclicality of the U.S. economy; (2) high customer concentration levels among the Company's top electric industrial customers; and (3) NIPSCO's significantly smaller size as compared to the average company in the Electric Group. At the same time, the Company's variability of book returns on equity, as measured by both the standard deviation and the coefficient of variation suggests an equivalent level of risk between NIPSCO and the Electric Group. Lastly, the financial risk metrics[17] that I evaluated suggest that NIPSCO has a slightly lower

[17] These financial risk metrics include the Equity Capitalization ratio, EBITDA-to-Interest Coverage ratio, and the FFO-to-Adjusted Total Debt ratio, as presented in Schedule 2.

financial risk profile as compared to the Electric Group.

Therefore, on an overall basis, the results of my comparative risk assessment suggests that NIPSCO's overall investment risk profile is very similar to that of the Electric Group. For this reason, I have relied entirely upon the cost of equity estimates yielded by applying the analytical models to the market and financial data of the proxy group companies I analyzed, without any further need to make an additional risk adjustment to these estimates.

Q39. Have you considered any other proxy groups in estimating the cost of equity for NIPSCO?

A39. Yes. As noted earlier, considering that NIPSCO is a combination gas and electric utility company, I have also evaluated a gas utility proxy group, which I refer to herein as the Gas LDC Group. The use of multiple comparable-risk proxy groups ensures a higher level of confidence in the statistical reliability of the analytical results when estimating a utility's cost of equity. Therefore, to ensure a robust sample size that will obviate potential distortions caused by observation errors in the various financial model inputs, I have also evaluated a proxy group of six gas utility companies, and a proxy group of eleven non-rate-regulated companies (i.e.,

the Gas LDC Group and the Non-Regulated Group, respectively). Both proxy groups have risk profiles which are similar to the Electric Group. Considering that NIPSCO is not publicly-traded, the analysis of comparative risk metrics discussed earlier was necessary to establish the relative risk relationship between the Company and the Electric Group. In order to facilitate a comparison of the risk profiles of the Gas LDC Group and the Non-Regulated Group to NIPSCO, this was accomplished indirectly through a comparative risk assessment of the three proxy groups, as based upon published risk indicators. I will discuss the relative risk relationships between the three proxy groups and NIPSCO later in my testimony.

Q40. Why is it also appropriate to evaluate a proxy group of gas utility companies in the instant proceeding?

A40. As noted earlier, it is appropriate to also evaluate a proxy group of gas utility companies because NIPSCO is an integrated gas and electric utility that reports it financial results, including its statement of financial position and capital structure, on the basis of the consolidated NIPSCO entity, which includes the financial results of both the Company's gas and electric utility operations.

Q41. What criteria did you use to select the companies included in your Gas LDC

Group?

A41. In developing the Gas LDC Group, my objective was to identify a group of publicly-traded gas utility companies with risk characteristics similar to the Electric Group, and by extension, NIPSCO. Accordingly, I applied the following screening criteria in selecting companies for inclusion in the Gas LDC Group: (i) Value Line Investment Survey Industry Classification as a Natural Gas Utility; (ii) Value Line Safety Rank of "1," "2" or "3"; (iii) S&P corporate credit rating no lower than BBB-, or Moody's long-term issuer rating of no lower than Baa3; (iv) operating income from the company's regulated gas distribution operations equals or exceeds 60 percent of the company's consolidated operating income; (v) company must currently pay dividends and must not have discontinued or reduced its dividend during the previous five years (2017-2021); and (vi) company is not, and has not recently been, an acquisition target. Applying the above selection criteria yielded a core proxy group that is comprised of the following six publicly-traded natural gas distribution companies:

Atmos Energy Corp.
New Jersey Resources Corp.
NiSource Inc.
Northwest Natural Gas Co.

ONE Gas, Inc.
Spire, Inc.

Throughout the remainder of my testimony, I will refer to this proxy group as the "Gas LDC Group."

Q42. How does the Gas LDC Group compare on a total risk basis to the Electric Group?

A42. To facilitate a comparative risk assessment between the respective proxy groups, I have compared the three groups on the basis of six well-recognized measures of investment risk. The first of these measures is the Value Line "beta," which measures a stock's non-diversifiable or systematic risk. The second measure is the Value Line "Safety Rank," which is Value Line's proprietary measure of the total risk of a stock and is determined based upon an equal weighting between Value Line's Financial Strength rating and Stock Price Stability rating. I have also considered the Value Line Financial Strength and Stock Price Stability ratings on an individual basis, which are presented as risk measures three and four. The fifth and sixth measures of investment risk I have evaluated are the long-term credit ratings assigned by S&P and Moody's, respectively. Considering that credit ratings are the product of a comprehensive, multi-dimensional analysis which

considers a utility's business risk (including regulatory risk) and financial risk, they provide a useful perspective into the overall investment risk profile of the respective proxy groups.

The summarized results of my comparative risk assessment are presented in Table 7 later in my testimony. Based upon my evaluation of the aforementioned risk measures, I have concluded, that taken on an overall basis, the Gas LDC Group has a very similar investment risk profile as compared to the Electric Group. This conclusion is based upon the fact that the Gas LDC Group and the Electric Group have equivalent risk ratings with respect to the Value Line Safety Rank ("2"), Value Line Financial Strength rating ("A") and their respective long-term credit ratings from S&P ("A-") and Moody's ("Baa1"). Although both the Gas LDC Group's average Value Line beta (0.83) and Stock Price Stability Rating (92) indicate a slightly higher level of investment risk when compared to the Electric Group's average Value Line beta (0.82) and Stock Price Stability Rating (95), this risk differential is very minor. Therefore, based upon the totality of these findings, I have concluded that the Gas LDC Group and the Electric Group are of comparable risk.

Q43. Why is it also appropriate to evaluate a proxy group of non-rate-regulated U.S. companies when estimating NIPSCO's cost of equity?

A43. Under the fair rate of return standards established in *Hope* and *Bluefield*, the U.S. Supreme Court determined that regulated utilities are entitled to earn a rate of return commensurate with other companies having comparable risks, irrespective of their business activities or the extent to which they are regulated. For example, in *Bluefield,* the Supreme Court concluded:

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

It is important to note that within its *Bluefield* opinion, the Supreme Court specifically stated that public utilities should be permitted to earn a return that is equal to the returns on "*investments in other business undertakings,"* provided they have corresponding risks. By virtue of its reference to *"other business undertakings,"* the Supreme Court implicitly endorsed the use of non-utility proxy groups in the

[18] *Bluefield Water Works and Improvement Company v. Public Service Commission of the State of West Virginia*, 262 U.S. 679, 692 (1923).

determination of a fair rate of return for utilities. Furthermore, in the *Hope* decision, the Supreme Court concluded:

> By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks.[19]

It is clear then, based upon the decisions of the Supreme Court in these landmark cases, that the use of non-rate-regulated proxy companies in the determination of a utility's cost of equity is a sound practice, and is consistent with the comparable earnings standard established in these cases. After all, utilities do not only compete with other utility companies for investor capital. They must also compete with an entire universe of risk-comparable companies, irrespective of industry classification and level of regulatory oversight. Therefore, in order to attract sufficient capital to support its public service obligations, and consistent with the concept of opportunity cost, NIPSCO must provide a return to its investors that is similar to the returns offered by non-rate-regulated companies of comparable risk. Otherwise, over the long run, investor capital will simply flow to its most productive use elsewhere.

[19] *Federal Power Commission et.al. v. Hope Natural Gas Company*, 320 U.S. 591, 603 (1944).

It is also important to note that cost-of-service ratemaking is intended to be a substitute for competition. That is, the objective of rate regulation is to produce the same results that would be achieved under the forces of market competition. In particular, it is the phenomenon of "competitive equilibrium" that rate regulation is intended to replicate, where, in the long run, market forces limit companies to earning returns that are no greater than, but also no less than, investors' minimum required rate of return. Expressed in microeconomic terms, long-run equilibrium is achieved where firms only earn minimally-required levels of "normal profits," while excessive profits, often referred to as "economic profits," are by definition equal to zero. Accordingly, the returns of regulated utilities should be no lower than the returns of comparable risk companies which operate under the constraints of market competition. The 11 companies included in the Non-Regulated Group are lower-risk companies in the consumer staple, food and beverage, chemicals processing, and transportation industries, each of which operate under the competitive pressures of the free marketplace. Considering that this proxy group is demonstrably comparable on a total risk basis to the Electric Group, its use is consistent with the fair rate of return standards established in *Hope* and *Bluefield.*

Q44. What criteria did you use to select the companies included in the Non-Regulated Group?

A44. In selecting the Non-Regulated Group, my objective was to identify a large group of publicly-traded domestic companies with a risk profile either equivalent to, or preferably lower than, the Electric Group. This approach is designed to ensure a conservative analysis when applying the various cost of equity models to the market and financial data of the Non-Regulated Group companies. To achieve this objective, I applied the following screening criteria in selecting companies for inclusion in the Non-Regulated Group: (i) Value Line Investment Survey Classification as a Conservative Stock, which is defined as stocks having a Value Line Safety Rank of no lower than "1" (Highest Rank for Relative Safety); (ii) Value Line beta ranging between 0.70 and 0.95; (iii) Value Line Financial Strength Rating of "A+" or higher; (iv) S&P corporate credit rating that is no lower than BBB-, or Moody's long-term issuer rating of no lower than Baa3; (v) company shall not be in the gas and/or electric distribution business, and shall not be an investment, financial services, pharmaceutical, life sciences, medical technology, hardware/software, or defense contractor company; (vi) the company must currently pay dividends and must not have discontinued or reduced their

dividend payments during the previous five years (2017-2021); and (vii) the company must have at least one consensus earnings estimate published by an information service provider such as Thomson Reuters or Zacks. Applying these highly-selective criteria yielded the Non-Regulated Group, which is comprised of eleven lower-risk companies which operate in the consumer staple, food and beverage, chemicals processing, and transportation sectors of the economy. The 11 companies comprising the Non-Regulated Group are as follows:

Air Products and Chemicals, Inc.
Coca-Cola Co.
Comcast Corp.
Hershey Company
J.B. Hunt Transport Services
McCormick & Co.
McDonald's Corp.
PepsiCo, Inc.
Procter and Gamble Co.
Sherwin-Williams Co.
United Parcel Service

Q45. How does the Non-Regulated Group compare on a total risk basis to the Electric Group?

A45. Based upon my evaluation of the aforementioned risk measures, and as

summarized in Table 7 below, I have concluded that the Non-Regulated Group has a very similar overall investment risk profile as compared to the Electric Group, thereby providing an appropriate complementary basis for estimating the cost of equity for NIPSCO's jurisdictional electric operations.

Table 7
Comparative Risk Assessment of Proxy Groups

Risk Measure	Electric Group	Gas LDC Group	Non-Reg. Group
Value Line Beta	0.82	0.83	0.85
Value Line Safety Rank	2	2	1
Value Line Fin. Strength Rating	A	A	A+
Value Line Stock Price Stability Rating	95	92	95
S&P Long-Term Debt Rating	A-	A-	A-
Moody's Long-Term Debt Rating	Baa1	Baa1	A3

D. <u>Analysis of Regulatory Mechanisms</u>

Q46. Have you considered the way revenue stabilization mechanisms and infrastructure cost recovery mechanisms may impact the relative risk profiles of

NIPSCO and the Electric Group?

A46. Yes, I have. Considering that NIPSCO's electric operations benefit from a partial decoupling mechanism, through the recovery of lost margins for residential customers under the Company's Demand Side Management Adjustment Mechanism (Rider 883 and Rider 783), and also from an infrastructure cost recovery mechanism under the Company's TDSIC program, it is essential for risk comparison purposes to also evaluate the revenue stabilization and infrastructure cost recovery mechanisms employed by the Electric Group companies.

Q47. Have you completed a comparative evaluation to determine the extent to which the companies comprising your Electric Group employ revenue stabilization and infrastructure cost recovery mechanisms?

A47. Yes, I have. My evaluation of the revenue stabilization and infrastructure cost recovery mechanisms employed by each of the companies comprising the Electric Group is presented within Schedule 3. Using information available primarily from Securities and Exchange Commission filings and the investor presentations prepared by the Electric Group companies, my evaluation identified, for each state jurisdiction in which the Electric Group companies have utility operations, the

specific types of regulatory mechanisms employed in each of those jurisdictions.[20] This is the same approach that investors typically employ in conducting their relative risk assessments among various investment alternatives. This is a critical observation since investors will generally form their risk perceptions with respect to the impacts of regulatory mechanisms largely on the basis of the information contained within a company's public filings and disclosures.

Q48. Based upon your evaluation of the regulatory mechanisms employed by the Electric Group companies, what specific conclusions have you drawn?

A48. As reflected in Schedule 3, I have determined that the majority of the utility holding companies comprising the Electric Group (five out of nine) have utility operating subsidiaries that employ a wide range of revenue stabilization mechanisms, including revenue decoupling, weather normalization, and lost revenue or lost margin recovery mechanisms. Schedule 3 demonstrates that, on balance, the revenue stabilization mechanisms employed by the Electric Group companies are generally comparable to NIPSCO's partial revenue decoupling mechanism under the Company's Demand Side Management Adjustment

[20] Considering the ubiquitous nature of regulatory mechanisms which ensure timely recovery of fuel costs, bad debt expense, and pension expense, I have focused my analysis strictly on revenue stabilization mechanisms, infrastructure cost recovery mechanisms, forward test years, and multi-year rate plans.

Mechanism (Rider 883 and Rider 783). As a result, my cost of equity evaluation, which relies upon the market and financial data of the Electric Group companies, already incorporates the effects of these revenue stabilization mechanisms on the risk perceptions and rate of return expectations of investors. Accordingly, an adjustment to NIPSCO's cost of equity to compensate for any such theoretical reduction of risk is clearly not warranted, since to the extent such risk reduction were to actually occur, its effect on NIPSCO's cost of equity will have already been captured within the market data of the Electric Group companies.

My evaluation further determined that all nine of the utility holding companies comprising the Electric Group have utility operating subsidiaries that utilize various forms of infrastructure cost recovery mechanisms, which are generally comparable to NIPSCO's TDSIC program. As such, the market-based data of the Electric Group companies would already capture a significant portion of any level of theoretical risk reduction that would result from the reduced regulatory lag associated with these infrastructure cost recovery mechanisms. Furthermore, all of the utility holding companies comprising the Electric Group have utility operating subsidiaries that utilize forward test years, which further serves to reduce regulatory lag. For these reasons, it would be inappropriate to apply a

downward adjustment to NIPSCO's proposed ROE due to the presence of the Company's TDSIC program, since such an adjustment would be redundant to the effects that would already be incorporated within the market data of the proxy group companies.

Q49. Have you considered what effect, if any, NIPSCO's existing industrial service structure through Rate 831 has on NIPSCO's cost of equity compared to the Electric Group?

A49. Yes. In NIPSCO's last rate case (Cause No. 45159), the Commission applied a 15-basis point reduction to the overall cost of equity to account for the perception of reduced risk resulting from the approval of Rate 831. While I understand how the Commission may have reached that conclusion, I do not believe it is appropriate to make any reduction at this time for several reasons. First, NIPSCO is still riskier than the Electric Group due to the heavy concentration of sales to industrial customers. NIPSCO is subject to higher risk of fixed cost recovery because it continues to recover fixed costs through variable charges that are applied to a highly concentrated group of customers. Second, even considering NIPSCO was able to reach a settlement on the level of Rate 831 contractual firm demand and cost allocation, as discussed by NIPSCO Witness Whitehead, the contracts that are

signed with industrial customers pursuant to Rate 831 have a limited term of the earlier of May 31, 2026 (approximately 3 years after step 2 rates are anticipated to take effect in March of 2023) or approval of rates in the ensuing rate case. Additionally, to the extent there is a significant change in operations for any of the Rate 831 customers, they can reduce their load with only 12 months' notice. As such, NIPSCO is continually at risk from accelerated expiration of these contracts. Accordingly, as compared to the Electric Group, I do not believe there is a need for a downward adjustment as a result of the industrial service structure under Rate 831.

IV. COST OF EQUITY ESTIMATES

A. Cost of Equity - General Approach

Q50. Please describe the general approach you have taken in estimating the cost of equity for NIPSCO.

A50. To facilitate a thorough analysis of NIPSCO's cost of equity, I first conducted a comparative risk assessment to establish the risk relationships between NIPSCO and the three proxy groups. I then determined the indicated cost of equity for the proxy groups by applying three widely-recognized cost of equity models to the market and/or financial data of the proxy group companies. Based on my

comparative risk assessment, I concluded that the proxy groups provided an appropriate basis for estimating NIPSCO's cost of equity, thus indicating that no further risk adjustments were necessary.

Although the cost of equity cannot be directly observed, it can be estimated using a variety of analytical models, each of which attempt to explain and/or predict investor behavior. However, since investor expectations often differ and investors rely on a variety of different sources of information and financial models to make their investment decisions, no single analytical model can possibly capture the broader universe of investor expectations. Moreover, each financial model has its own practical shortcomings, either in the form of rigid underlying assumptions or required model inputs which are dependent upon the subjective judgment of the analyst. For these reasons, in *Risk and Return for Regulated Industries*, Villadsen, Vilbert, Harris and Kolbe present a compelling argument for the use of a variety of analytical methods in estimating a utility's cost of equity, and caution against overreliance on any one particular model, where the authors state:

> It is important to recognize explicitly at the outset that models are imperfect. All models are simplifications of reality, and this is perhaps especially true of financial models. Because they cannot and do not capture all the dynamics and complexities of financial markets, asset

> pricing models can never perfectly determine or explain the actual prices we observe….There is no single, widely accepted, best pricing model – just as there is no consensus on some fundamental issues, such as the efficient market hypothesis (EMH). Analysts have a dizzying array of potential models at their disposal, and it must be acknowledged that cost of capital estimation continues to include art, not just science. The generally recommended "best practice" is therefore to look at a totality of information from alternative methodologies.[21]

Parcell makes very similar observations in *The Cost of Capital - A Practitioner's Guide*, where he maintains the following:

> Investor expectations differ and it is apparent that all investors do not rely upon the same information and models in making investment decisions. Consequently, no single model and model variant can be demonstrated to capture all investor expectations. Furthermore, no single model is so inherently precise that it can be relied on solely to the exclusion of other theoretically sound models….Each model has its own way of examining investor behavior, its own premises, and its own set of simplifications of reality.…Investors clearly do not subscribe to any singular method, nor does the stock price reflect the application of any one single method by investors. Therefore, it is essential that estimates of investors' required rate of return produced by one method be compared with those produced by other methods, and that all cost of equity estimates be required to pass fundamental tests of reasonableness and economic logic.[22]

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[21] Bente Villadsen, Michael J. Vilbert, Dan Harris and A. Lawrence Kolbe, *Risk and Return for Regulated Industries,* Academic Press, Elsevier Inc. (2017), at 38.

[22] David C. Parcell, *The Cost of Capital - A Practitioner's Guide* (Society of Utility and Regulatory Financial Analysts, 2020 Edition, Copyrighted 2022), at 86.

Consistent with the foregoing well-founded arguments, and to ensure a thorough evaluation of NIPSCO's cost of equity, I have applied a variety of analytical models to the market and/or financial data of the proxy group companies.

B. <u>Discounted Cash Flow Analysis</u>

Q51. Please provide an overview of the DCF approach used to estimate the cost of equity.

A51. The DCF approach is a commonly-used valuation model, which is based on the fundamental premise that investors value financial assets on the basis of their expected future cash flows, discounted by an appropriate risk-adjusted rate of return. The model maintains that the market-determined price of a share of common stock or other financial asset will continually adjust until investors are sufficiently compensated for the level of investment risk they bear. It is only at the point that investors have realized their required rate of return that valuation equilibrium will have been achieved. The objective of the DCF approach is to reproduce this iterative market valuation process in the form of a financial model. Considering that the price of a given share of common stock can be directly observed in the equity market, and that the stock's future dividends and capital gains can be estimated, the DCF model can be successfully rearranged to solve for

the cost of common equity. It is this "rearranged" version of the DCF model that is commonly used in utility rate proceedings, as I will discuss herein.

Q52. What is the underlying theoretical basis for employing the DCF approach to value financial assets, and how has the DCF approach evolved over the years?

A52. The theoretical underpinnings of the DCF approach are consistent with classical valuation theory, which states that the intrinsic value of any security is a function of its future earnings power. Specifically, intrinsic value can be quantified as the present value of the security's future cash flows discounted at the appropriate risk-adjusted rate of return. This concept was first formally advanced by Fisher in *The Rate of Interest*,[23] and was further elaborated upon in his subsequent work, *The Theory of Interest*, wherein Fisher maintained:

> Capital, in the sense of capital value, is simply future income discounted or, in other words, capitalized. The value of any property, or rights to wealth, is its value as a source of income and is found by discounting that expected income.[24]

Fisher's seminal valuation concept, which was first articulated over a century ago, laid the foundation for modern versions of the DCF approach, which both

[23] Irving Fisher, *The Rate of Interest*, (The Macmillan Company 1907).
[24] Irving Fisher, *The Theory of Interest*, (The Macmillan Company 1930), Part I, Chapter I, Section 7.

investors and academics continue to rely upon today.

Almost a decade after *The Theory of Interest* was published, Williams expanded upon Fisher's earlier work in valuation theory in his classic publication, *The Theory of Investment Value* (1938). It was here that Williams first expressed in modern economic terms a fully developed DCF equation, which was intended to serve as a valuation model for common stocks. Although Williams emphasized that his DCF equation was a *dividend* discounting model rather than an earnings-based model, he also acknowledged that over the long run, the two approaches would produce equivalent valuation results. Indeed, upon introducing his DCF equation in *The Theory of Investment Value*, Williams explains:

> Let us define the investment value of a stock as the present worth of all the dividends to be paid upon it….
>
> …
>
> Most people will object at once to the foregoing formula for stocks by saying that it should be the present worth of future *earnings*, not future *dividends*. But should not earnings and dividends both give the same answer under the implicit assumptions of our critics? If earnings not paid out in dividends are all successfully reinvested at compound interest for the benefit of the stockholder, as the critics imply, then these earnings should produce dividends later; if not, then they are money lost….
>
> …
>
> On analysis, therefore, it will be seen that no contradiction really exists

> between our formula using dividends and the common precept regarding earnings. How to estimate the future dividends for use in our formula is, of course, the difficulty.[25]

The DCF approach introduced by Williams included a general "long-form" equation, which reflected an ongoing series of dividend payments extending into the indefinite future, and a simplified constant growth version of the equation, which was later refined by Gordon and Shapiro.[26]

In subsequent years, Williams' long-form DCF equation was adjusted to accommodate various forms of future cash flows, rather than only dividends, and evolved into a general purpose valuation model. This so-called "general DCF model" continues to be used today in a variety of applications extending beyond security valuation, including corporate finance decision support, real estate development and other financial applications. However, when the general DCF model is employed to value common stocks, the following equation is utilized:

$$P_0 = D_1/(1+K) + D_2/(1+K)^2 + D_3/(1+K)^3 + ...+ D_n/(1+K)^n \quad \text{(Equation 1.1)}$$

[25] John Burr Williams, *The Theory of Investment Value*, (Cambridge, MA, Harvard University Press, 1938) at 55, 57-58.

[26] Myron J. Gordon and Eli Shapiro, "Capital Equipment Analysis: The Required Rate of Profit," *Management Science*, 3 (October 1956) at 102-110.

Where: P_0 = current market price of the stock,

D_1 = expected dividend at end of year 1, year 2, year 3, etc.,

n = infinity,

K = investors' expected return on common equity (the discount rate).

Q53. What form of the DCF model is used to estimate the cost of common equity in utility regulatory proceedings?

A53. In practice, the general DCF model can be challenging to apply to common stock valuation, since the model requires that discrete dividend payments be estimated well into the distant future. However, if investors assume that future dividend payments will increase at a constant growth rate each year into perpetuity, the valuation process can be greatly simplified. Drawing upon the constant growth model developed by Williams, and later refined by Gordon and Shapiro, the following constant growth equation can be utilized in valuing common stocks:

$$P_0 = D_1/(K-g) \qquad \text{(Equation 1.2)}$$

Where: P_0 = current market price of the stock,

D_1 = expected dividends over the next year,

K = investors' expected return on common equity (the discount rate),

g = expected dividend growth rate into perpetuity.

This simplified equation states that a company's stock price is determined by the present value of dividend payments occurring over the next year, plus all subsequent dividend payments growing at a constant annual rate, as discounted by the expected return on common equity. Although the constant growth model is conceptually viable and simplifies the process of estimating future dividend payments, the model is also premised upon strict underlying assumptions,[27] which are not always observed in reality.

The constant growth equation reflected above can be rearranged to solve for "K,"

[27] The strict assumptions underlying the constant growth DCF model include: (i) dividends and earnings grow at the same constant growth rate (or constant average growth trend); (ii) book value per share and the stock price also grow at the same constant growth rate; (iii) investors expect the same rate of return ("K") in all future periods, implying no changes in risk and a flat yield curve; (iv) the discount rate, "K," must exceed the expected constant growth rate, "g"; (v) a fixed dividend payout ratio will be maintained; (vi) a fixed price-earnings ("P/E") multiple will be maintained; (vii) dividends are only paid at the end of each year; and (viii) no external financing occurs, as growth is financed strictly through the retention of earnings (or alternatively, any new sales of stock only occur at book value). Despite the fact that these assumptions are not always reflective of reality, the constant growth model maintains its usefulness due in its ability to adequately explain investor behavior and the stock market valuation process.

which yields the standard DCF formulation for estimating the cost of common equity, which is expressed as follows:

$$K = D_1/P_0 + g \qquad \text{(Equation 1.3)}$$

Where: Variables are as previously defined.

It is this standard form of the DCF model that is commonly used in utility rate proceedings. The model is intuitive in that it states that common stock investors have a total return requirement ("K") which is comprised of a forward looking dividend yield component (D_1/P_0), plus the expected growth rate of dividends (and/or stock price appreciation) into perpetuity ("g"). Considering that both components of the dividend yield (D_1 and P_0) can be readily observed through a variety of publicly-available sources, and that the investor expected growth rate can be estimated using a variety of approaches, the analyst can infer "K," the required return on common equity.

Q54. What steps are involved in implementing the DCF constant growth model for estimating the cost of common equity?

A54. A detailed discussion of the steps I took in implementing the DCF constant growth model can be found in Appendix A to my testimony. Additionally, Appendix B

discusses the treatment of "outlier" DCF results which do not meet threshold tests of reasonableness and economic logic. Appendix C discusses the importance of applying a financial risk adjustment to DCF estimates whenever the market-value based equity capitalization level of the proxy group companies are materially different than the subject utility's book-value based equity capitalization level. In addition, Schedule 9 to my direct testimony provides the supporting capital structure ratios information referenced in Appendix C. Finally, Appendix D discusses the importance of applying a flotation cost adjustment to the "baseline" cost of equity results under the DCF model.

Q55. What cost of equity estimates are indicated for the Electric Group under the DCF approach?

A55. A detailed presentation of the DCF results for the Electric Group is presented on pages 1 and 2 of Schedule 4, and is also summarized in Table 8 below.

Table 8
Average DCF Estimates – Electric Group

Calculation Method	Cost of Equity
Earnings Forecast	
Yahoo Finance	10.00%
Zacks	9.60%

Value Line	9.30%
Historical Earnings Growth Rate	8.80%
Unadjusted DCF Estimate	9.60%
Flotation Cost Adjustment (6 basis points)	x 1.0060%
Subtotal	9.66%
Add: Market Value-Book Value Financial Risk Adjustment	0.35%
Indicated DCF Estimate	= 10.01%

The average unadjusted DCF estimate for the Electric Group ranged from 8.80 percent to 10.00 percent. It is well-established in the finance literature that investors place the greatest emphasis on the earnings growth estimates of equity analysts in deriving their growth and return expectations for common stocks. For this reason, although I have given some consideration to the cost of equity estimates that are based on historical earnings growth rates, I have placed the greatest emphasis on the cost of equity estimates that are based on the consensus EPS growth projections of equity analysts. On this basis, an unadjusted DCF estimate of 9.60 percent is indicated for the Electric Group. After making the required financial leverage and flotation cost adjustments to this value, the results of my analysis indicate a cost of equity of 10.01 percent for the Electric Group.

As I discussed earlier, the constant growth DCF model very likely continues to understate the cost of equity. This is largely attributable to the fact that the recent monetary policy interventions of the Fed have disrupted normal supply and demand dynamics in the capital markets, which has had the effect of putting additional downward pressure on long-term interest rates. Considering that investors often view dividend paying utility stocks as substitutes for fixed-income securities, which has the effect of causing utility dividend yields to closely track long-term interest rates, it is clear that the monetary policy interventions of the Fed have played a role in driving utility stock prices higher and dividend yields lower, which in turn results in DCF estimates which likely understate the cost of equity.

Q56. What cost of equity estimates were indicated for the Gas LDC Group using the DCF approach?

A56. DCF estimates for each member of the Gas LDC Group are presented on pages 1 and 2 of Schedule 5, and are summarized in Table 9 below. The unadjusted DCF estimates for the Gas LDC Group range from 9.10 percent to 10.60 percent. The three unadjusted DCF estimates based upon earnings growth forecasts demonstrate a central tendency of approximately 9.70 percent. The DCF estimate based upon the 5-year and 10-year historical average earnings growth rate

indicates an unadjusted cost of equity of 10.20 percent. On an overall basis, an unadjusted DCF estimate of 9.85 percent is indicated for the Gas LDC Group. After making the required flotation cost adjustment to the unadjusted DCF estimate, the results of my analysis indicate a cost of equity of 9.91 percent for the Gas LDC Group[28].

Table 9
Average DCF Estimates -
Gas LDC Group

Calculation Method	**Cost of Equity**
Earnings Forecast	
Yahoo Finance	9.40%
Zacks	9.10%
Value Line	10.60%
Historical Earnings Growth Rate	10.20%
Unadjusted DCF Estimate	9.85%
Flotation Cost Adjustment (6 basis points)	x 1.0060%
Indicated DCF Estimate	9.91%

Q57. What cost of equity estimates were indicated for the Non-Regulated Group

[28] Based upon my analysis the market value based average capital structure ratio of the Gas LDC Group versus NIPSCO's proposed rate-setting capital structure, a financial risk adjustment was not indicated for the Gas LDC Group.

using the DCF approach?

A57. DCF estimates for each member of the Non-Regulated Group are presented on pages 1 and 2 of Schedule 6, and are summarized in Table 10 below. After eliminating low-end and high-end outlier results, the unadjusted DCF estimates for the Non-Regulated Group ranged from 11.00 percent to 12.10 percent. The three unadjusted DCF estimates based upon earnings growth forecasts demonstrate a central tendency of approximately 11.65 percent. The DCF estimate based upon the 5-year and 10-year historical average earnings growth rate indicates an unadjusted cost of equity of 11.00 percent. On an overall basis, an unadjusted DCF estimate of 11.50 percent is indicated for the Non-Regulated Group. After making the required leverage and flotation cost adjustments to this estimate, the results of my DCF analysis indicate a cost of equity of 11.92 percent for the Non-Regulated Group.

Table 10 **Average DCF Estimates – Non-Regulated Group**	
Calculation Method	**Cost of Equity**
Earnings Forecast	
Yahoo Finance	12.10%
Zacks	11.80%
Value Line	11.10%
Historical Earnings Growth Rate	11.00%
Unadjusted DCF Estimate	11.50%
Flotation Cost Adjustment (7 basis points)	x 1.0060%
Subtotal	11.57%
Plus: Market Value-Book Value Financial Risk Adjustment	0.35%
Indicated DCF Estimate	= 11.92%

Consistent with established regulatory principles, authorized returns for regulated utilities should be similar to returns offered by comparable risk firms operating in the competitive marketplace. Along these lines, it is noteworthy that despite the fact that my comparative risk assessment has clearly established that the Non-Regulated Group has a similar, or even lower, risk profile as compared to the two utility proxy groups, the DCF estimates for the Non-Regulated Group are nevertheless higher than the DCF estimates for the two utility proxy groups.

C. Capital Asset Pricing Model Analysis

Q58. Please provide an overview of the CAPM and the theoretical basis for using it to estimate a utility's cost of equity.

A58. The CAPM is a market-based risk and return investment model which derives its theoretical underpinnings from both Capital Market Theory and Modern Portfolio Theory ("MPT").[29] Originally developed by Sharpe and Lintner in the early-mid 1960s for investment analysis purposes, the CAPM is considered an ex-ante, forward-looking model which recognizes that investors are generally risk averse and will demand higher returns in exchange for assuming higher levels of investment risk.

[29] MPT, which was developed by Harry Markowitz in the early 1950's, heavily influenced William Sharpe's development of the CAPM. MPT advanced the concept of an "efficient frontier" of dominating investment portfolios, which provided the highest rate of return possible for a given level of investment risk, as measured by the portfolio's covariance of returns. Essential concepts from MPT which influenced the development of the CAPM included the risk and return tradeoff relationship, and the value of diversification for eliminating firm-specific investment risk. Markowitz and Sharpe both earned the Nobel Prize in Economics in 1990 for their body of work relative to these classic financial theories.

The traditional CAPM equation is expressed as follows:

$$K = R_F + \beta(R_M - R_F) \qquad \text{(Equation 1.4)}$$

Where: K = Required rate of return for a stock;
R_F = Expected risk-free rate of return;
β = Beta, or systematic risk of a stock; and
R_M = Expected return for the overall stock market.

The investor required rate of return (K) indicated by the CAPM is equal to the expected risk-free rate of return (R_F) plus a risk premium which is proportional to the level of systematic risk implicit in the security being evaluated. Systematic risk, also referred to as market risk, is the sole risk element found within the CAPM, and refers to the variability of overall stock market returns, which are largely influenced by socioeconomic and political trends. It is only this systematic risk which commands a return premium within the CAPM, as a critical assumption underlying the model is that investors have already eliminated firm-specific investment risk in their investment portfolios via diversification.

Within the CAPM framework, an individual stock's contribution to the systematic risk of a given portfolio is indicated by the stock's beta (β) coefficient. In essence, the beta coefficient measures the co-variability of the price movements of an

individual stock versus the price movements of the total market portfolio. The beta of the market portfolio is equal to 1.0, which reflects a level of variability consistent with the overall stock market. Stocks with beta values *lower* than 1.0 have a lower expected variability and therefore less systematic risk than the overall market, while stocks with betas *higher* than 1.0 have a higher expected variability and thus greater systematic risk than the overall market. To determine the investor-required risk premium for an individual stock, the difference between the expected market return (R_M) and the expected risk-free rate of return (R_F), which is defined as the market risk premium ($R_M - R_F$), is proportionately adjusted based upon the stock's beta. Lastly, the investor required rate of return (K) is determined by adding the expected risk-free rate of return to the stock-specific risk premium.

Much like other analytical models including the DCF model, the CAPM is premised upon strict underlying assumptions, which are not always observed in reality.[30] Nonetheless, the model still possesses useful explanatory and predictive

[30] The strict assumptions underlying the CAPM include: (i) security markets are highly efficient and consistently reflect the true value of a given security; (ii) investors will always pursue their own best economic self-interest, including the maximization of profit and end-of-period wealth; (iii) all investors have the same rate of return expectations; (iv) all investors hold diversified investment portfolios; and (v) investors are not subject to taxes, transaction costs, short-selling restrictions or borrowing restrictions.

abilities, as it has been consistently demonstrated that beta is both positively and linearly correlated to security returns. At the same time, as I will discuss later in my testimony, empirical studies have also demonstrated that the risk-return relationship indicated by the CAPM, as graphically depicted by the Security Market Line ("SML"), is in reality not as steeply sloped as the model implies. In fact, the empirical evidence has shown that the implied y-axis intercept of the SML is actually higher, while the slope of the SML is actually flatter than what is predicted by the traditional CAPM. The implication of these findings is that cost of equity estimates derived from the traditional CAPM will tend to underestimate the investor-required rate of return for lower beta stocks, including utility stocks, absent an adjustment to the traditional model.

Q59. Is the CAPM commonly used to estimate the cost of equity, and does it influence the return expectations of investors?

A59. Yes, the CAPM is a widely-referenced method for estimating the cost of equity among investment professionals, academics, and corporate finance departments and, therefore, influences the return expectations of investors. According to the

Duff & Phelps Valuation Handbook:

> The CAPM has served as the foundation for pricing risk for nearly fifty years. Financial theorists generally have favored using the CAPM as the preferred method to estimate the cost of equity capital and the CAPM has become the most widely used method for estimating the cost of equity capital.[31]

Further evidence of the CAPM's popularity as a cost of equity analytical model is found in *Corporate Finance: A Focused Approach,* where Ehrhardt and Brigham state:

> Recent surveys found that the CAPM approach is by far the most widely used method. Although most firms use more than one method, almost 74% of respondents in one survey, and 85% in the other, used the CAPM.[32]

Considering the widespread acceptance of the CAPM in both investment management and academic settings, there can be no doubt that the CAPM exerts significant influence over the return expectations of investors.

Q60. What general approach did you take in applying the CAPM to estimate the cost of equity for NIPSCO's jurisdictional electric utility operations?

A60. As further detailed in Schedule 7, my CAPM analyses considered multiple

[31] *2016 Valuation Yearbook* (Duff & Phelps, John Wiley & Sons) at 2-11.

[32] Michael Ehrhardt and Eugene Brigham, *Corporate Finance: A Focused Approach,* (South-Western Cengage Learning, 2008) at 303.

variants of the CAPM and evaluated both historical and prospective measures of the expected market rate of return and market risk premium.

Q61. What approach did you take in estimating the prospective risk-free rate of return expectations of investors?

A61. When discussing appropriate proxies for the risk-free rate of return in *Modern Regulatory Finance*, a widely-referenced authoritative guide on utility cost of capital matters, Morin observes:

> ….investors price securities on the basis of long-term expectations, including interest rates. Cost of capital models are prospective (i.e., forward-looking) in nature and must take into account current market expectations for the future because investors price securities on the basis of long-term expectations, including interest rates. As a result, in order to produce a meaningful estimate of investors' required rate of return, the CAPM must be applied using data that reflects the expectations of actual investors in the market. While investors examine history as a guide to the future, it is the expectations of future events that influence security values and the cost of capital.
> ….
> The empirical evidence demonstrates that stock prices do indeed reflect prospective financial input data. Moreover, forecasted interest rates are more relevant than current spot rates since in a regulatory setting rates are being set for the future. In the same way that one relies on forecast growth rates in DCF analyses as we shall see in subsequent chapters, one should rely on interest rate forecasts as proxies for the

risk-free rate in the CAPM analysis[33]

Indeed, considering that since the time of the 2008-09 financial crisis, the interest rate environment in the U.S. has been heavily influenced by the Fed's unprecedented monetary policy interventions[34], the importance of expectational inputs (i.e., interest rate forecasts) is more evident than ever. This has recently become more apparent in view of the recent marked increase in U.S. interest rates during 2022, where the U.S. inflation rate has reached its highest level in the past 41 years (since 1981). At the same time, the Federal Reserve Board has already raised the Federal Funds target rate four times during 2022 (from 0.00%-0.25% to 2.25%-2.50%), and has also begun the process of liquidating its security holdings that were acquired under its quantitative easing initiatives.

Moreover, the use of interest rate forecasts appropriately synchronizes the time horizon of the expected risk-free rate of return with the prospective market return I have employed within my analysis. Therefore, as a proxy for the risk-free rate of

[33] Roger A. Morin, *Modern Regulatory Finance* (PUR Books LLC, 2021) at 171-172.

[34] As has been widely-reported by the financial media in recent years, the Fed's unprecedented monetary policy interventions, including the Fed's quantitative easing programs, were intentionally designed to put downward pressure on long-term interest rates in order to provide a further stimulus to U.S. economic activity.

return, I have evaluated short-to-intermediate term forecasts of the 30-year U.S. Treasury Bond yield from the Blue Chip Financial Forecasts, a highly reputable source of interest rate forecasts. In selecting the appropriate "risk-free" security to evaluate, it should be noted that, despite S&P's 2011 downgrade of the long-term sovereign debt rating of the United States, U.S. Treasury securities remain the closest thing to a risk-free financial asset, largely due to the U.S. government's taxing power and ability to create new currency. From a duration or tenor standpoint, 30-year Treasury Bonds most closely parallel the investment characteristics of common stock, since both are considered long-term, if not permanent, capital. Furthermore, in the absence of market anomalies, 30-year Treasury yields, like common stocks, reflect the long-term inflation expectations of investors, and are subject to less volatility than shorter-dated Treasury securities. Based upon an evaluation of interest rate forecasts available from the Blue Chip Financial Forecasts, and as reflected in Schedule 7, I have concluded that a reasonable proxy for the prospective risk-free rate of return is 3.82 percent.

Q62. In structuring your CAPM analysis, what approach did you take in estimating the market risk premium expectations of investors?

A62. To ensure a thorough and comprehensive evaluation of the risk premium

expectations of investors, I have completed market risk premium analyses on both a prospective basis and on a historical basis. With regard to my prospective analysis, I have evaluated forward-looking indicators of the market return expectations of investors, along with time-horizon matched forecasts of the risk-free rate of return. As for my historical analysis, I have relied upon the widely-referenced historical returns data published within the *2022 SBBI Yearbook* for the 96-year period between 1926 and 2021.

Q63. What approach did you take in estimating the prospective market return expectations of investors?

A63. To estimate the prospective market return expectations of investors, or "R_M," I have completed forward-looking DCF analyses for both the S&P 500 Index and the Value Line 1,700 stock universe. The results of these DCF analyses, which have been consistently applied to the Electric Group, Gas LDC Group, and Non-Regulated Group, are presented on page 1 of Schedule 7. These results are also summarized as follows:

DCF Estimate of Market Return for the S&P 500 Index

1.63% (D/P) + 11.31% (g) = 12.94% (K) or (R_M)

Where: D/P = expected dividend yield over the next 12 months;

g = long-term earnings growth rate estimate;

R_M = expected return of the market portfolio.

The DCF results for the Value Line 1,700 stock universe are summarized as follows:

DCF Estimate of Market Return for the Value Line 1,700 Stock Universe

1.99% (D/P) + 9.70% (g) = 11.69% (K) or (R_M)

Based upon the results of the above DCF analyses for the S&P 500 Index and the Value Line 1,700 stock universe, a 12.32 percent ((12.94%+11.69%)/2=12.32%) prospective market rate of return is indicated, which I have applied to each of the respective proxy groups. Based upon a prospective market return of 12.32 percent and a prospective risk-free rate of return assumption of 3.82 percent, a prospective market risk premium of 8.50% is indicated.

Q64. What average historical market risk premium is indicated by your analysis?

A64. Based upon historical returns data published in the *2022 SBBI Yearbook* for the period 1926-2021, a 7.40 percent historical market risk premium is indicated. This figure is derived from the 12.30 percent arithmetic average of total returns for large

company stocks (S&P 500) for the period 1926-2021, and the 4.90 percent arithmetic average income return on long-term government bonds for the same period (12.30%-4.90%=7.40%).

Q65. Based upon your informed judgment, what level of market risk premium have you applied to your CAPM analysis?

A65. As previously stated, to ensure a thorough and comprehensive evaluation of the risk premium expectations of investors, I have conducted market risk premium analyses on both a prospective basis and a historical basis. Although the historical average market risk premium provides a useful point of reference for the analyst, it should not be assumed that market risk premiums have been constant over time. In point of fact, multiple empirical studies have demonstrated that not only do market risk premiums fluctuate over time, but that they actually bear an inverse relationship with long-term interest rates. For example, studies by Harris,[35] Harris and Marston[36], and Maddox, Pippert and Sullivan[37] have shown that historically,

[35] Robert S. Harris, "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return", *Financial Management* (Spring 1986), at 58-67.

[36] Robert S. Harris and F. Marston, "Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts," *Financial Management*, 21 (Summer 1992), at 63-70.

[37] Farris M. Maddox, Donna T. Pippert and Rodney N. Sullivan, "An Empirical Study of Ex Ante Risk Premiums for the Electric Utility Industry," Financial Management, 24 (Autumn 1995), at 89-95.

for every one percentage point (1.0 percent) increase in long-term Treasury bond yields, the equity risk premium has declined by 0.37% - 0.79% (with an average decline of 0.61 percent). Morin reported similar results in his 2005 rate of return testimony for Hydro-Quebec,[38] and further elaborated on this topic in *New Regulatory Finance,* as follows:

> The gist of the empirical research on this subject is that the cost of equity has changed only half as much as interest rates have changed in the past. The knowledge that risk premiums vary inversely to the level of interest rates can be used to adjust historical risk premiums to better reflect current market conditions. Thus, when interest rates are unusually high (low), the appropriate current risk premium is somewhat below (above) that long-run average.[39]

These empirical findings argue for the use of caution when applying the historical average risk premium to the current risk-free rate of return, to the extent the latter differs significantly from the historical average risk-free rate of return. As the above studies imply, when long-term Treasury yields decline significantly below their historical averages, I would fully expect that the equity risk premium

[38] Roger A. Morin, *New Regulatory Finance* (Public Utility Reports, Inc., 2006) at 129, 132 (citing Roger A. Morin, *Prepared Testimony on Fair Rate of Return on Equity for Hydro-Quebec* (Utility Research International, 2005).

[39] Roger A. Morin, *Modern Regulatory Finance* (PUR Books LLC, 2021), at 146.

expectations of investors will increase by some fractional amount thereof. Considering that the prospective risk-free rate of return applied to my analysis (3.82 percent) is actually lower than the historical average risk-free rate reported by the *2022 SBBI Yearbook* (4.90 percent), I would fully expect that, based upon my risk-free rate assumption, investors would require a market risk premium in excess of the historical average risk premium. For this reason, I have also evaluated the prospective risk premium expectations of investors using the prospective risk-free rate assumption referenced above (3.82 percent). As noted earlier, based upon a prospective market return of 12.32 percent and a prospective risk-free rate of return assumption of 3.82 percent, I determined that a prospective market risk premium of 8.50% is indicated.

Therefore, by using the historical average risk premium as reported by the *SBBI Yearbook* in combination with the prospectively determined risk premium discussed above, I have taken a balanced approach in estimating the risk premium expectations of investors. Accordingly, the expected market risk premium indicated by my analysis is 7.95 percent ((8.50% + 7.40%)/2 = 7.95%). I further corroborated this value by also evaluating the currently-implied market risk premium, as based upon the aforementioned empirical studies that have

demonstrated an inverse relationship between government interest rates (U.S. Treasury security yields) and the market risk premium. This supporting analysis, which can be found at the bottom of page 1 of Schedule 7, suggests that the currently-implied market risk premium is in the range of 8.54 percent. Therefore, the 7.95 percent expected market risk premium that I have incorporated into my CAPM analyses represents a conservative assumption.

Q66. How did you derive the beta values employed within your CAPM analysis?

A66. In determining the appropriate betas to use for each of the proxy groups, I initially evaluated published betas from the Value Line Investment Survey, a widely-referenced source of beta values in utility regulatory proceedings. As illustrated in Table 11 below, the average Value Line betas for the Electric Group, Gas LDC Group, and the Non-Regulated Group are 0.82, 0.83, and 0.85, respectively. However, published betas from sources such as Value Line should not be directly applied to the CAPM, unless the resulting cost of equity estimate will be applied to a market value based capital structure. This is because published betas are derived from the market value price movements of individual stocks and total market indices, and thus reflect the level of financial risk associated with a market value based capitalization. In the utility regulatory setting, published betas must

be adjusted to reflect the higher relative financial risk associated with a book value capital structure, which is typically utilized for rate-setting purposes. To derive betas and a CAPM-based cost of equity that is relevant to NIPSCO's book value-based capital structure, I have utilized a beta-adjustment technique known as the Hamada method.[40]

Using the Hamada equation, I first "unlevered" the average Value Line beta by referencing the Electric Group's average market value capital structure ratios, which yielded an unlevered beta possessing only a business risk component. Next, I "re-levered" the unlevered beta based upon NIPSCO's forecasted book value capital structure, as based upon investor-supplied capital as of December 31, 2023, thereby reintroducing an appropriate level of financial risk into the beta, consistent with the Company's forecasted capital structure. The Hamada equation and results of my beta adjustment analysis are as follows:

$$\beta_L = \beta_U [1 + D/E (1 - t) + P/E] \qquad \text{(Equation 1.5)}$$

Where: β_L = levered beta;
β_U = unlevered beta;
D = debt/capital ratio;

[40] Robert S. Hamada, The Effect of the Firm's Capital Structure on the Systematic Risk of Common Stocks," *The Journal of Finance,* 27 (May 1972) at 435-452.

E = common equity/capital ratio;
P = preferred stock/capital ratio;
t = income tax rate (21% federal; 6% state)

Electric Group (values subject to rounding differences)

Value Line Beta 0.82 = 0.5807 (1 + (36.0%/64.0%)(1-.27) + (0.1%/64.0%))

Re-Levered Beta 0.88 = 0.5807 (1 + (41.48%/58.52%)(1-.27)

Non-Regulated Group (values subject to rounding differences)

Value Line Beta 0.85 = 0.6019 (1 + (36.0%/64.0%)(1-.27) + (0.1%/64.0%))

Re-Levered Beta 0.91 = 0.6019 (1 + (41.48%/58.52%)(1-.27)

Table 11
Summary of Results – Hamada Method

Beta Value	Electric Group	Non-Regulated Group
Value Line Beta	0.82	0.85
Unlevered Beta	0.5807	0.6019

Re-Levered Beta	0.88	0.91[41]

In order to derive cost of equity estimates which are relevant to NIPSCO's book-value based capital structure, I have applied the above re-levered betas to my CAPM analyses, as these betas reflect the higher level of financial risk associated with NIPSCO's book-value capital structure. Specifically, I have applied re-levered betas of 0.88 and 0.91 for the Electric Group and the Non-Regulated Group, respectively. It was not necessary to apply a re-levered beta for the Gas LDC Group, because the average market-value based capital structure for the Gas LDC Group is comparable to NIPSCO's proposed book-value based capital structure, as based upon investor-supplied capital.

Q67. When applying the CAPM, what variants of the CAPM should be applied to fully reflect the return expectations of investors?

[41] The magnitude of the difference between the Non-Regulated Group's average market-value capital structure and NIPSCO's book-value based structure (as based upon investor-supplied capital) is significantly greater than the difference between the average market-value capital structure of the Electric Group and NIPSCO's book-value capital structure. As such, under the Hamada equation, the required beta adjustment for the Non-Regulated Group would be significantly greater than that of the Electric Group. To recognize this disparity and make the Hamada adjustment method relevant to a typical electric utility company capital structure, I have applied the Hamada equation to the Non-Regulated Group's average Value Line beta by referencing the average market-value capital structure ratio of the Electric Group and NIPSCO's book-value based capital structure ratio, which yielded a re-levered beta as reflected in Table 11 above. Employing this approach ensures a more conservative analysis.

A67. Multiple academic studies have advocated the use of a size-premium adjustment to the traditional CAPM.[42] These studies have revealed that small capitalization stocks have historically earned returns that are materially higher than the returns predicted by the CAPM. Indeed, the empirical research strongly suggests that beta, or systematic risk alone, does not fully explain the higher relative returns earned by small capitalization stocks. The *2022 SBBI Yearbook* explains the size phenomenon as follows:

> One of the most remarkable discoveries of modern finance is the finding of a relationship between company size and return, generally referred to as the "size effect". The size effect is based on the empirical observation that companies of smaller size tend to have higher returns than do larger companies.
> ….
> The company size phenomenon is remarkable in several ways. First, the greater risk of small-cap stocks does not, in the context of the capital asset pricing model, fully account for their higher returns over the long term. In the capital asset pricing model (CAPM) only systematic, or beta risk, is rewarded; small-cap stock returns have exceeded those implied by their betas.
> ….
> The increased risk faced by investors in small stocks is quite real[43].

[42] *See* Michael Annin, "Equity and the Small-Stock Effect," *Public Utilities Fortnightly*, October 15, 1995, 42-43; and, Eugene F. Fama and Kenneth R. French, "The Cross-Section of Expected Stock Returns," *The Journal of Finance*, 48 (June 1992), at 427-465.

[43] *2022 SBBI Yearbook*, (Kroll LLC), at 151, 153 and 155.

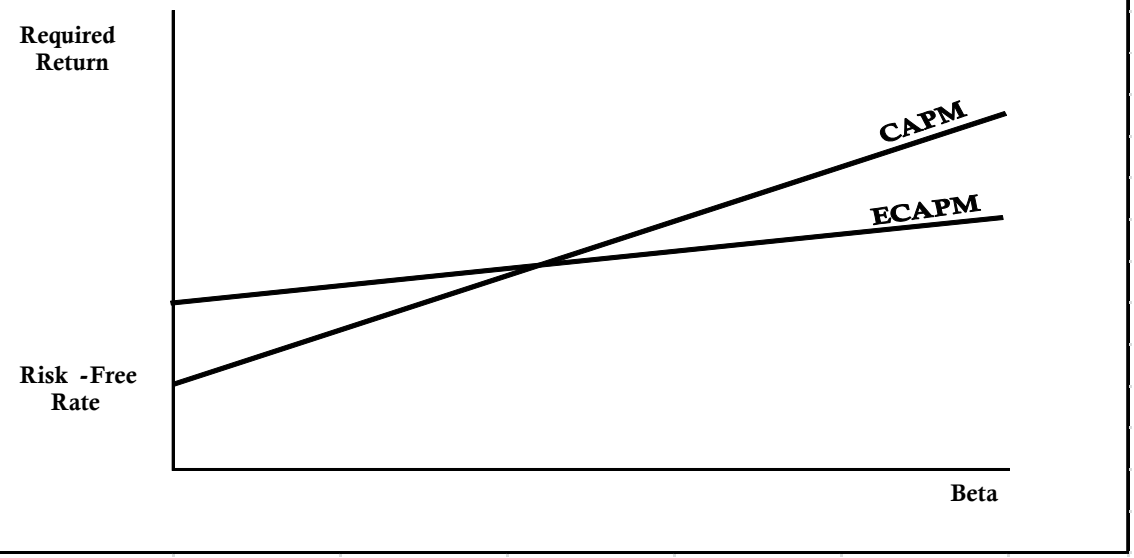
Therefore, to correct for the inherent deficiencies of the CAPM relative to smaller capitalization stocks, another Kroll LCC product offering, the *Cost of Capital Navigator*, reports size premiums, which can be used in conjunction with the CAPM to more accurately estimate the return expectations of investors relative to small and mid-capitalization stocks. According to the *Cost of Capital Navigator*, based upon an average market capitalization of $18.4 billion, the Electric Group would be classified as a Decile 2 portfolio and assigned a size premium of 0.43 percent. Based on an average market capitalization of $7.1 billion, the Gas LDC Group would be classified as a Decile 4 portfolio, and assigned an average size premium of 0.54 percent. Finally, based upon an average market capitalization of $146.2 billion, the Non-Regulated Group would be classified as a large-cap, Decile 1 Portfolio, and assigned a size premium of *negative* -0.22 percent. In the absence of these size premium adjustments, the results indicated by the traditional CAPM for the Electric Group and Gas LDC Group will *understate* the return expectations of investors, while with respect to the Non-Regulated Group, the traditional CAPM would have the tendency to *overstate* the return expectations of investors.

Q68. Have you considered any other variants of the CAPM?

A68. Yes. I have also considered the ECAPM within my evaluation. The ECAPM model

is based upon extensive empirical evidence that the risk-return relationship between beta and stock returns, as graphically depicted by the Security Market Line reflected in Table 12 below, is actually flatter than what is predicted by the traditional CAPM.

Table 12
Security Market Line
CAPM and ECAPM



In a 1989 empirical study conducted by Morin, a simplified version of the ECAPM was derived and is expressed as follows:[44]

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

In essence, the ECAPM places a 25 percent weighting on the overall market risk premium and a 75 percent weighting on the company specific, beta-adjusted risk premium. The use of similar forms of the ECAPM has been recognized by state

[44] Roger A. Morin, *Modern Regulatory Finance* (PUR Books LLC, 2021), at 220-222.

public service commissions, including the Montana Public Service Commission, New York Public Service Commission and the Regulatory Commission of Alaska. The results of my ECAPM analysis for the Electric Group, Gas LDC Group and Non-Regulated Group are presented within pages 2, 4 and 5 of Schedule 7, respectively, and are also summarized in Table 13 below.

Q69. What were the results of your application of the CAPM, including the variants of the model you evaluated?

A69. The results of my CAPM analyses are presented in Schedule 7, and are also summarized in Table 13 below. Considering that substantial empirical evidence supports the use of both the CAPM with size adjustments and the ECAPM, I have incorporated all three model variants into my evaluation, including the traditional CAPM, in determining the CAPM-indicated cost of equity for each of the respective proxy groups.

Table 13
CAPM Results by Model Variant

Model Variant	Electric Group	Gas LDC Group	Non-Regulated Group
Traditional CAPM	10.82%	10.42%	11.05%
+ Flotation cost adj.	0.06%	0.06%	0.07%
Traditional CAPM	**10.88%**	**10.48%**	**11.12%**

Traditional CAPM (with size adj.)	11.25%	10.96%	10.83%
+ Flotation cost adj.	0.06%	0.06%	0.07%
Traditional CAPM (with size adj.)	**11.31%**	**11.02%**	**10.90%**
Empirical CAPM	11.06%	10.76%	11.24%
+ Flotation cost adj.	0.06%	0.06%	0.07%
Empirical CAPM	**11.12%**	**10.82%**	**11.31%**

These results, which incorporate the appropriate flotation cost adjustments, indicate a CAPM-derived cost of equity having a central tendency of approximately 11.10 percent for the Electric Group, 10.80 percent for the Gas LDC Group, and 11.10 percent the Non-Regulated Group.

D. Risk Premium Method (RPM) Analysis

Q70. Please provide an overview of the RPM and the theoretical basis for using it to estimate a utility's cost of equity.

A70. The RPM is based upon the fundamental premise that a company's cost of common equity is greater than its prospective cost of debt, due to the additional risks associated with investing in common stocks. The most important of these risks is residual claim risk, which arises due to the subordinated position of common stockholders relative to both bondholders and preferred stockholders. In essence, common shareholders stand "last in line" with respect to the distribution

of a company's earnings, since common stock dividends are paid only after contractually required debt service payments and discretionary preferred dividend payments have been made. The same priority of claims also applies to asset-sale proceeds in the event of a bankruptcy liquidation scenario, where common shareholders typically only recover a small fraction, if any, of their original investment. As compensation for bearing these additional risks, common stock investors demand an equity risk premium over and above a company's cost of debt. Considering that the equity risk premium is a forward-looking concept, it must be estimated on the basis of investor expectations, and cannot be directly observed. Once the expected risk premium has been estimated, it can be added to the company's prospective cost of debt to estimate the cost of common equity, as follows:

$$K = C_D + P_R \quad \text{(Equation 1.6)}$$

Where: K = expected cost of common equity;
C_D = company's prospective cost of debt;
P_R = expected equity risk premium.

Q71. Is the RPM commonly used to estimate the cost of equity and does it influence the return expectations of investors?

A71. Yes, the RPM is a widely-referenced cost of equity model among investors, analysts and academics, and therefore influences investor return expectations. This is evidenced by the commercial success of the *SBBI Yearbook*, which publishes historical risk premia data for the benefit of investors and valuation professionals. Further evidence of the popularity of the RPM is found in *Corporate Finance: A Focused Approach*, where Ehrhardt and Brigham state that "three methods typically are used" in estimating the cost of common equity, one of which is the RPM.[45]

Q72. How did you approach your RPM analysis?

A72. In applying the RPM to the three respective proxy groups, I employed a virtually identical approach, as only a few minor adjustments were required for the Non-

[45] M. Ehrhardt and E. Brigham, *Corporate Finance: A Focused Approach* (South-Western Cengage Learning, 2008), at 294.

Regulated Group. In essence, my approach involved estimating the prospective long-term bond yields (C_D) for each of the proxy groups based upon their average credit ratings, and then estimating the appropriate equity risk premium (P_R) for each of the three groups. Once these two components were derived for each of the proxy groups, they were simply added together to arrive at the RPM-indicated cost of equity. My comprehensive RPM analysis is presented within Schedule 8, which is comprised of 10 pages. Summary results for the Electric Group, Gas LDC Group and the Non-Regulated Group are presented on pages 1, 7 and 9 of Schedule 8, respectively. A detailed discussion of the RPM results for the Electric Group is presented herein. Quantitative results for the Gas LDC Group and the Non-Regulated Group are presented within pages 7-10 of Schedule 8.

Q73. How did you derive the 5.55 percent prospective bond yield for the Electric Group?

A73. The bond yields referenced in the RPM must appropriately reflect the forward-looking return expectations of investors. Therefore, in determining the "C_D" component of the RPM equation, I have employed a forward-looking long-term bond yield for the Electric Group based upon the Group's average long-term credit ratings of "A-" from S&P, and "Baa1" from Moody's. As reflected on page 1 of

Schedule 8, this was accomplished by first evaluating forecasted bond yields for Aaa rated corporate bonds, and then making the necessary credit spread adjustments to reflect the higher level of default risk associated with A- / Baa1 rated utility bonds.

As reflected on pages 1 and 2 of Schedule 8, the Blue Chip Financial Forecasts consensus forecast for Aaa corporate bond yields is 4.98 percent for the 2023-2027 period. An upward adjustment of 0.44 percent was required to reflect the credit spread differential between Aaa rated corporate bonds and A rated utility bonds, both of which reflect Moody's generic ratings categories. A further upward adjustment of 0.13 percent was also required to reflect the credit spread differential between the generic rating category of "A" and the more precise "A-" rating from S&P and "Baa1" rating from Moody's. Additional information supporting both of these credit spread adjustments can be found within pages 1 and 3 of Schedule 8. The prospective bond yield for the Electric Group was derived by adding both of the aforementioned credit spread adjustments to the prospective Aaa corporate bond yield, which resulted in a 5.55 percent prospective bond yield.

Q74. What general approach have you taken in estimating the expected equity risk

premium for the Electric Group?

A74. Consistent with established practices, I have conducted equity risk premium analyses using both the total market approach and the public utility index approach. The total market approach is considered an "indirect" approach, since an equity risk premium is initially estimated for the overall market portfolio, and is subsequently adjusted to reflect the specific risk profile of the applicable proxy group. Within the framework of the total market approach, I have conducted separate risk premium analyses on both a historical basis and a prospective basis, as reflected on page 4 of Schedule 8. In contrast, the public utility index approach is considered a "direct" approach, since the expected equity risk premium is estimated by comparing average historical holding period returns for the S&P 500 Utility Index to historical yields on long-term public utility bonds, without the need for any further risk adjustments. The results of my public utility index approach analysis are presented on page 5 of Schedule 8.

Q75. In applying the total market approach to the Electric Group, how did you arrive at the indicated equity risk premium of 5.83 percent?

A75. As previously mentioned, in applying the total market approach, I conducted both historical and prospective risk premium analyses, each of which brings different

strengths and perspectives into the evaluation process.

1. Historical Risk Premium Analysis

To facilitate a historical risk premium analysis under the total market approach, I have relied upon the historical holding period returns information published by the *SBBI Yearbook* for both large company stocks (S&P 500 Index) and for high-grade, long-term corporate bonds. When the average historical risk premium is used as a proxy for the prospective risk premium, its predictive value is enhanced when the longest possible historical period is evaluated. Accordingly, I have utilized the average historical holding period returns for the entire 96-year period (1926-2021) for which data is available from the *2022 SBBI Yearbook*. The arbitrary use of shorter time periods would subject the risk premium analysis to greater potential volatility from short-term market trends and/or aberrations, which would not reflect the long-term expectations of investors. Moreover, use of the longest possible historical period for which data is available will incorporate a greater number of business and interest rate cycles into the analysis, further enhancing its predictive value. Indeed, Morin provides support for this approach in *Modern Regulatory Finance* where he maintains:

To estimate the MRP, one should rely on returns realized over long

> time periods rather than returns realized over more recent time periods because realized returns can be substantially different from prospective returns anticipated by investors, especially when measured over short time periods. But over very long periods, investor expectations coincide with realizations; otherwise, investors would never invest any money. A risk premium study should consider the longest possible period for which data are available. Short-run periods during which investors earned a lower risk premium than they expected are offset by short-run periods during which investors earned a higher risk premium than they expected. Moreover, the use of the entire study period in estimating the appropriate market risk premium minimizes subjective judgment and encompasses many diverse regimes of inflation, interest rate cycles, and economic cycles. There is no compelling reason to weigh recent returns more heavily than distant returns because of the random behavior of the market risk premium.
>
> ….Clearly, the accuracy of the realized risk premium as an estimator of the prospective risk premium is enhanced by increasing the number of years used to estimate it in the same way that one can predict with a good deal of confidence that approximately 50 heads will appear in 100 tosses of a coin.[46]

Therefore, based upon the *SBBI Yearbook* holding period returns for the entire historical period for which data is available (from 1926 to 2021), a 5.90 percent historical equity risk premium is indicated using the total market approach. As shown on page 4 of Schedule 8, this result is based upon the arithmetic average annual return of 12.30 percent for large company stocks (S&P 500 Index), and the

[46] Roger A. Morin *Modern Regulatory Finance* (PUR Books LLC, 2021), at 180.

arithmetic average annual return of 6.40 percent for high-grade, long-term corporate bonds. Use of the arithmetic average risk premium is appropriate since it best reflects the forward-looking risk premium expectations of investors and the potential variability of expected returns. In contrast, the geometric mean is more suitable for reporting past investment performance, since it reflects a consistently compounded or "smoothed" rate of growth over a given historical period.

Further support for using the arithmetic average equity risk premium is also found in the *SBBI Yearbook*, a well-regarded and widely-cited investment guide, which states:

> The arithmetic average equity risk premium can be demonstrated to be most appropriate when discounting future cash flows. For use as the expected equity risk premium in either the CAPM or the building-block approach, the arithmetic mean or the simple difference of the arithmetic means of stock market returns and riskless rates is the relevant number. This is because both the CAPM and the building-block approach are additive models, in which the cost of capital is the sum of its parts. The geometric average is more appropriate for reporting past performance because it represents the compound average return.[47]

[47] *2021 SBBI Yearbook* (Duff & Phelps, A Kroll Business), at 10-22 and 10-23.

2. Prospective Risk Premium Analysis

A prospective risk premium analysis is also required to fully capture the forward-looking return expectations of investors. Indeed, it is often maintained that prospective risk premiums bear the greatest relevance to the cost of equity estimation process, since they incorporate both historical trends and changes expected to occur in the future. To facilitate a prospective risk premium analysis using the total market approach, it was necessary to estimate both the prospective market return expectations of investors and the prospective corporate bond yield on a time horizon matched basis. As previously referenced in the CAPM section of my testimony, and as illustrated on page 1 of Schedule 7, I have estimated the prospective market return expectations of investors by completing DCF analyses for both the S&P 500 Index and the Value Line 1,700 stock universe. The results of these analyses are as follows:

DCF Estimate of Market Return for the S&P 500 Index

1.63% (D/P) + 11.31% (g) = 12.94% (K) or (R_M)

DCF Estimate of Market Return for the Value Line 1,700 Stock Universe

1.99% (D/P) + 9.70% (g) = 11.69% (K) or (R_M)

Based upon these DCF results, a 12.32 percent ((12.94% + 11.69%)/2 = 12.32%) prospective market return is indicated. As a proxy for the prospective corporate bond yield, I have relied upon the Blue Chip consensus forecast for Aaa rated corporate bonds, which indicates a 4.98 percent average yield for the 2023-2027 period, as further illustrated on pages 1 and 2 of Schedule 8. Based upon these values, and as reflected on page 4 of Schedule 8, a 7.34 percent prospective equity risk premium is indicated (12.32% - 4.98% = 7.34%).

3. Total Market Equity Risk Premium and Risk Adjustment

To ensure a balanced approach in assessing the risk premium expectations of investors, I have placed equal emphasis on the historical risk premium and prospective risk premium results indicated above. Using this balanced approach, a 6.62 percent total market risk premium is indicated ((5.90%+7.34%)/2=6.62%). Considering that this result must be adjusted to recognize the risk differential between the overall market index and the Electric Group, I have applied a re-levered beta value of 0.88 to the indicated market risk premium to derive a risk premium which is applicable to the Electric Group. Consistent with my findings in the preceding CAPM analysis, a re-levered beta of 0.88 is appropriate for the Electric Group, since it reflects the higher level of financial risk associated with the

rate-setting capital structure to which the RPM-estimated cost of equity will be applied. Therefore, as reflected on page 4 of Schedule 8, the indicated equity risk premium for the Electric Group under the Total Market Approach was determined to be 5.83 percent (6.62% x 0.88 = 5.83%).

Q76. In applying the public utility index approach to the Electric Group, how did you arrive at the indicated equity risk premium of 4.40 percent?

A76. The results of my public utility index approach analysis are presented on page 5 of Schedule 8. As a proxy for the total return expectations of investors relative to utility stocks, I have evaluated both the average historical holding period returns for the S&P 500 Utilities Index, as well as the currently-implied equity risk premium for the same index. With regard to the average historical holding period returns, for the 96-year period covering 1926-2021, the average annual total return for this index was 10.90 percent. During this same period, the average annual yield for long-term utility bonds bearing an "A" rating from Moody's was 6.25 percent. Historical yields on "A" rated utility bonds were selected for evaluation since "A" rated bonds represent the mid-point credit rating among the historical utility bond yields that have been reported by Moody's and Mergent (historical yields on three credit ratings have been reported: "Aa," "A" and "Baa"). A

detailed breakdown of these historical returns is presented on page 6 of Schedule 8. Based upon the foregoing historical returns, a 4.65 percent equity risk premium is indicated for the Electric Group (10.90% - 6.25% = 4.65%).

As further detailed in the bottom section of page 5 of Schedule 8, I have also evaluated the currently-implied equity risk premium in the prevailing market environment, by conducting an analysis of the expected equity return for the S&P Utilities Index, which yielded an expected return of 8.50 percent. I then compared the recent yields on "A" rated utility bonds (4.35 percent) to the expected equity return, which yielded a currently-implied equity risk premium of 4.15 percent (8.50%-4.35%=4.15%). Finally, to ensure a balanced estimate of the equity risk premium under the Public Utility Index Approach, I referenced the average of the equity risk premium estimates derived under the historical approach and the currently-implied approach, which yielded an indicated equity risk premium of 4.40 percent ((4.65% +4.15%)/2 = 4.40%).

Q77. Based upon your RPM analysis using both the total market approach and the public utility index approach, what level of equity risk premium and cost of equity are indicated for the Electric Group?

A77. Consistent with established practices, I have placed equal emphasis on the total market approach and the public utility index approach, and have concluded that 5.12 percent is a reasonable estimate of the investor-expected equity risk premium for the Electric Group. Based upon an expected risk premium of 5.12 percent, and a 5.55 percent prospective long-term bond yield for the Electric Group, I have also concluded that the unadjusted RPM-indicated cost of equity for the Electric Group is 10.67 percent (5.55%+5.12%=10.67%). Consistent with the other market-based analytical models, to this result I added the required flotation cost adjustment of 0.06 percent, which yielded an adjusted RPM-indicated cost of equity of 10.73 percent for the Electric Group.

Q78. Under the RPM, what cost of equity was indicated for the Gas LDC Group and the Non-Regulated Group?

A78. As reflected on page 7 of Schedule 8, the unadjusted RPM-indicated cost of equity for the Gas LDC Group was determined to be 10.50 percent. Consistent with the other market-based analytical models, I added the required 0.06 percent flotation cost adjustment to this result, which yielded an adjusted RPM-indicated cost of equity of 10.56 percent for the Gas LDC Group.

Lastly, as reflected on page 9 of Schedule 8, the unadjusted RPM-indicated cost of equity for the Non-Regulated Group was determined to be 11.49 percent. Consistent with the other market-based analytical models, I added the required 0.07 percent flotation cost adjustment to this result, which yielded an adjusted RPM-indicated cost of equity of 11.56 percent for the Non-Regulated Group.

The results of my RPM evaluation are summarized in Table 14 below.

Table 14
Risk Premium Method Results

Model Variant	Electric Group	Gas LDC Group	Non-Reg. Group
Risk Prem. Method	10.67%	10.50%	11.49%
+ Flotation cost adjust.	0.06%	0.06%	0.07%
Risk Premium Method	10.73%	10.56%	11.56%

Q79. Can you please summarize the results of the various cost of equity analytical models you evaluated, as well as your proposed ROE recommendation in the instant proceeding?

A79. Yes, I present Table 2 and Table 3 below, which were also presented earlier in my testimony, and which summarize the results of my cost of equity evaluation and

ROE recommendations.

Table 2 Indicated Cost of Equity for the Proxy Groups			
Method/Model	**Electric Group**	**Gas LDC Group**	**Non-Regulated Group**
DCF Method	10.01%	9.91%	11.92%
Traditional CAPM	10.88%	10.48%	11.12%
CAPM (w/size adj.)	11.31%	11.02%	10.90%
ECAPM	11.12%	10.82%	11.31%
Risk Premium Method	10.73%	10.56%	11.56%

As reflected in Table 3 below, an analysis of the above results yielded the following measures of central tendency for each of the analytical methods employed.

Table 3 Cost of Equity Estimates Measures of Central Tendency	
Median DCF Result	10.01%
Average DCF Result	10.61%
Median CAPM Result	11.02%
Average CAPM Result	11.00%
Median RPM Result	10.73%
Average RPM Result	10.95%

Based upon these measures of central tendency, I have concluded that the cost of

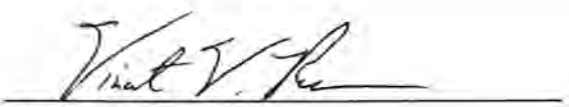
common equity for NIPSCO's jurisdictional electric utility operations is in the range of 10.40 to 10.90 percent, and that a point estimate at the midpoint of this range, or 10.65 percent, is the appropriate cost of equity to apply in the instant proceeding. However, as further discussed in the direct testimony of NIPSCO policy witness Whitehead, the Company has elected to propose a 10.40 percent cost of equity in this proceeding, which is at the low-end of the range of reasonableness indicated by my comprehensive evaluation. As noted earlier, in developing my recommendations, I have placed primary emphasis on the cost of equity estimates derived for the Electric Group and the Gas LDC Group, while still recognizing that the estimates derived for the Non-Regulated Group provide useful perspective into the returns required by investors for non-utility company investments with risk profiles similar to NIPSCO.

Q80. Does this conclude your prepared direct testimony?

A80. Yes, it does. However, I reserve the right to submit rebuttal or other supplemental testimony in this proceeding.

VERIFICATION

I, Vincent V. Rea, Managing Director, Regulatory Finance Associates, LLC, affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.



Vincent V. Rea

Date: September 19, 2022

Vincent V. Rea, CRRA

Professional Qualifications and Testimony Listing

Testimony and Regulatory Litigation Support

Provide expert testimony in regulatory proceedings before state commissions and the Federal Energy Regulatory Commission in connection with utility rate cases, financing applications, and various other financial matters. Testimony has focused on a number of topics, including the cost of equity (ROE), overall cost of capital and fair rate of return, appropriate ratemaking capital structure, embedded cost of debt, rating agency considerations, utility recapitalizations, and various other financial related matters. Collaborated with utility company regulatory staff and outside counsel in the development of litigation strategies supporting rate proceedings, including testimony development, responding to discovery requests from intervenors and commission staff, appearing at evidentiary hearings, and in the preparation of legal briefs. Currently serve as Managing Director, Regulatory Finance Associates, LLC. Previously held the position of Director, Regulatory Finance and Economics for NiSource Inc. A detailed listing of the docketed proceedings where testimony and/or subject matter support has been provided can be found in Attachment A.

Capital Markets Expertise

Broad-based capital markets experience supporting the utility industry over a period of 15 years while serving in the capacity as Financial Officer for NiSource Inc., NiSource Finance Corp., and each of NiSource's seven utility subsidiaries. In the capacity as Assistant Treasurer, led or co-led over twenty debt and equity financing transactions completed in both the public and private capital markets, with an aggregate principal value in excess of $10.0 billion. Also led or co-led numerous bank loan syndication, commercial paper and structured finance transactions having an aggregate value in excess of $11.0 billion. Responsible for NiSource's enterprise-wide activities in the areas of debt liability management, including multiple tender offer transactions; interest rate risk management; derivative transactions; banking and capital market relationships; rating agency relationships; pension fund management; and oversight of the Company's treasury operations. A detailed listing of my transactional experience in the capital markets supporting the utility industry is provided in Attachment B.

Professional Background

Managing Director, Regulatory Finance Associates, LLC (2020-present)

Director, Regulatory Finance and Economics, NiSource Inc. (2015-2020)

Assistant Treasurer and Corporate Officer, NiSource Inc. (2009-2015)

Assistant Treasurer, NiSource Finance Corp. and NiSource utility subsidiaries (2001-2015)

Director, Corporate Finance, NiSource Inc. (2001-2009)

Educational Background

M.B.A. in Finance, Indiana University, Bloomington, Indiana

B.A. with Honors in Business and Accounting, Lake Forest College, Lake Forest, Illinois

Certifications

Certified Rate of Return Analyst (CRRA), Society of Utility and Regulatory Financial Analysts

Certified Public Accountant (CPA), State of Illinois

Series 65 Uniform Investment Adviser Law Examination

Seminars/Conferences

- Society of Utility and Regulatory Financial Analysts Financial Forum (52nd Annual, 2021)
- Society of Utility and Regulatory Financial Analysts Financial Forum (51st Annual, 2019)
- Society of Utility and Regulatory Financial Analysts Financial Forum (50th Annual, 2018)
- Society of Utility and Regulatory Financial Analysts Financial Forum (49th Annual, 2017)
- Society of Utility and Regulatory Financial Analysts Financial Forum (48th Annual, 2016)
- Advanced Regulatory Studies Program, Institute of Public Utilities, Michigan State University (2015)
- Society of Utility and Regulatory Financial Analysts Financial Forum (47th Annual, 2015)
- American Gas Association (AGA) Financial Forum (2014)
- Society of Utility and Regulatory Financial Analysts Financial Forum (46th Annual, 2014)
- Essentials of Regulatory Finance, SNL Financial, Primary Instructor: Roger A. Morin, Ph.D. (2013)
- Society of Utility and Regulatory Financial Analysts Financial Forum (45th Annual, 2013)
- Society of Utility and Regulatory Financial Analysts Financial Forum (44th Annual, 2012)
- NARUC Utility Rate School (39th Annual Eastern), Committee on Water of NARUC (2011)
- Society of Utility and Regulatory Financial Analysts Financial Forum (43th Annual, 2011)
- Southern Gas Association (SGA) Ratemaking School (2011)
- Edison Electric Institute (EEI) Financial Conference (46th Annual, 2011)
- Edison Electric Institute (EEI) Financial Conference (45th Annual, 2010)

Vincent V. Rea, CRRA
Professional Qualifications and Testimony Listing

Memberships/Associations

Board of Directors, Society of Utility and Regulatory Financial Analysts (SURFA)

American Institute of Certified Public Accountants (AICPA)

Indiana Utility Regulatory Commission (IURC) Financial Roundtable participant

Presentations

"Do Cost of Equity Models (e.g. DCF Model) Understate the Cost of Equity?", Society of Utility and Regulatory Financial Analysts Financial Forum (52nd Annual, 2021), Panel Presentation.

"Financial Engineering in the Utility Sector and its Impact on the Cost of Capital", Society of Utility and Regulatory Financial Analysts Financial Forum (47th Annual, 2015), Presentation and Panel Moderator.

"Ratemaking Capital Structure: Holding Company vs. Operating Company", Society of Utility and Regulatory Financial Analysts Financial Forum (45th Annual, 2013), Presentation and Panel Moderator.

Vincent V. Rea
Testimony in Utility Regulatory Proceedings

Applicant	Date	Docket/Type of Case	Subject
Testimony before the Virginia State Corporation Commission			
Columbia Gas of Virginia	04/2022	PUR-2022-00036 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Virginia	08/2018	PUR-2018-00131 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Virginia	04/2016	PUE-2016-00033 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Virginia	04/2014	PUE-2014-00020 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Testimony before the Maryland Public Service Commission			
Columbia Gas of Maryland	05/2022	Case No. 9680 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Maryland	05/2021	Case No. 9664 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Maryland	05/2020	Case No. 9644 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Maryland	05/2019	Case No. 9609 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Maryland	04/2018	Case No. 9480 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Maryland	04/2017	Case No. 9447 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Maryland	04/2016	Case No. 9417 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Maryland	02/2013	Case No. 9316 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Testimony before the Massachusetts Department of Public Utilities			
NSTAR Electric Company d/b/a Eversource Energy	01/2022	D.P.U. 22-22 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure

Vincent V. Rea
Testimony in Utility Regulatory Proceedings

Applicant	Date	Docket/Type of Case	Subject
Testimony before the Massachusetts Department of Public Utilities (continued)			
Bay State Gas Company, d/b/a Columbia Gas of Massachusetts	04/2018	D.P.U. 18-45 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Bay State Gas Company, d/b/a Columbia Gas of Massachusetts	09/2015	D.P.U. 15-139 Financing Petition	Financing Authority ($95.0 million)
Bay State Gas Company, d/b/a Columbia Gas of Massachusetts	04/2015	D.P.U. 15-50 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Bay State Gas Company, d/b/a Columbia Gas of Massachusetts	08/2013	D.P.U. 13-129 Financing Petition	Financing Authority ($50.0 million)
Bay State Gas Company, d/b/a Columbia Gas of Massachusetts	04/2013	D.P.U. 13-75 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Bay State Gas Company, d/b/a Columbia Gas of Massachusetts	04/2012	D.P.U. 12-25 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Testimony before the Indiana Utility Regulatory Commission			
Northern Indiana Public Service Company	09/2021	Cause No. 45621 Base Rate Proceeding (Gas)	Cost of Capital (ROE)
Northern Indiana Public Service Company	10/2018	Cause No. 45159 Base Rate Proceeding (Electric)	Cost of Capital (ROE) Capital Structure
Northern Indiana Public Service Company	06/2018	Cause No. 45113 Financing Petition	Financing Authority ($470.0 million)
Northern Indiana Public Service Company	09/2017	Cause No. 44988 Base Rate Proceeding (Gas)	Cost of Capital (ROE) Capital Structure
Northern Indiana Public Service Company	12/2017	Cause No. 45020 Amendment to Financing Petition	Financing Authority ($700.0 million)

Vincent V. Rea
Testimony in Utility Regulatory Proceedings

Applicant	Date	Docket/Type of Case	Subject
Testimony before the Indiana Utility Regulatory Commission (continued)			
Northern Indiana Public Service Company	06/2016	Cause No. 44796 Financing Petition	Financing Authority ($500.0 million)
Northern Indiana Public Service Company	10/2015	Cause No. 44688 Base Rate Proceeding (Electric)	Overall Cost of Capital Capital Structure Credit Ratings
Northern Indiana Public Service Company	04/2012	Cause No. 44191 Financing Petition	Financing Authority for FGD Facilities ($400.0 million)
Northern Indiana Public Service Company	11/2010	Cause No. 43969 Base Rate Proceeding (Electric)	Financing Activities Credit Ratings Cost of Debt
Northern Indiana Public Service Co., Kokomo Gas & Fuel Co., Northern Indiana Fuel & Light Co.	09/2010	Cause No. 43941 Merger Petition and Transfer of Franchise	Benefits of Proposed Merger
Northern Indiana Public Service Company	05/2010	Cause No. 43894 Base Rate Proceeding (Gas)	Financing Activities Credit Ratings Cost of Debt
Northern Indiana Public Service Company	08/2008	Cause No. 43563 Financing Petition	Financing Authority for CCGT Generation ($120.0 million)
Northern Indiana Public Service Company	06/2008	Cause No. 43526 Base Rate Proceeding (Electric)	Financing Activities Credit Ratings Cost of Debt
Northern Indiana Public Service Company	10/2007	Cause No. 43370 Financing Petition	Financing Authority ($160.0 million)
Testimony before the Maine / New Hampshire Public Utilities Commissions			
Northern Utilities, Inc.	03/2003	Case No. 2003-00222 (ME) Docket No. 03-080 (NH) Financing Petition	Financing Authority ($60.0 million)
Northern Utilities, Inc.	11/2002	Case No. 2002-00680 Financing Vehicle	Alternative Fuel Financing Arrangement
Northern Utilities, Inc.	09/2001	Case No. 2001-00646 Participation in Intra-System Financing Vehicle	Participation in a Funds Pooling Agreement

Vincent V. Rea
Subject Matter Support in Regulatory Proceedings
(Representative Cases)

Applicant	Date	Docket/Type of Case	Subject
Testimony before the Federal Energy Regulatory Commission			
Northern Indiana Public Service Company	03/2012	Docket No. EL12-49-000 Transmission Rate Incentives for MVP Projects	Incentive Rate Treatment - CWIP and Abandoned Plant
Virginia State Corporation Commission			
Columbia Gas of Virginia	10/2016	PUE-2016-00129 Financing Petition	Financing Authority ($60.0 million)
Columbia Gas of Virginia	10/2014	PUE-2014-00109 Financing Petition	Financing Authority ($240.0 million)
Columbia Gas of Virginia	10/2012	PUE-2012-00126 Financing Petition	Financing Authority ($175.0 million)
Maryland Public Service Commission			
Columbia Gas of Maryland	12/2018	Case No. 9601 Financing Petition	Financing Authority ($21.0 million)
Columbia Gas of Maryland	09/2016	Case No. 9427 Financing Petition	Financing Authority ($20.0 million)
Columbia Gas of Maryland	07/2014	Case No. 9359 Financing Petition	Financing Authority ($10.0 million)
Public Utilities Commission of Ohio			
Columbia Gas of Ohio	09/2015	Case No. 15-1548-GA-AIS Financing Petition	Financing Authority ($300.0 million)
Columbia Gas of Ohio	08/2014	Case No. 14-1523-GA-AIS Financing Petition	Financing Authority ($300.0 million)
Columbia Gas of Ohio	07/2012	Case No. 12-2056-GA-AIS Financing Petition	Financing Authority ($300.0 million)
Pennsylvania Public Utility Commission			
Columbia Gas of Pennsylvania	11/2017	Docket No. S-2017-2632449	Financing Authority ($160.0 million)
Columbia Gas of Pennsylvania	11/2015	Docket No. S-2015-2515414	Financing Authority ($130.0 million)

Vincent V. Rea
Subject Matter Support in Regulatory Proceedings
(Representative Cases)

Applicant	Date	Docket/Type of Case	Subject
Columbia Gas of Pennsylvania	11/2013	Docket No. S-2013-2395719 Financing Petition	Financing Authority ($150.0 million)
Columbia Gas of Pennsylvania	12/2011	Docket No. S-2012-2282635 Financing Petition	Financing Authority ($185.0 million)
Kentucky Public Service Commission			
Columbia Gas of Kentucky	10/2018	Case No. 2018-00356 Financing Petition	Financing Authority ($40.0 million)
Columbia Gas of Kentucky	10/2015	Case No. 2015-00354 Financing Petition	Financing Authority ($58.0 million)
Columbia Gas of Kentucky	09/2012	Case No. 2012-00418 Financing Petition	Financing Authority ($45.0 million)
Federal Energy Regulatory Commission			
Northern Indiana Public Service Company	06/2015	Docket No. ES15-33-000 Short-Term Debt Authority Under Federal Power Act	Short-Term Debt Authority ($1.0 billion)
Northern Indiana Public Service Company	05/2013	Docket No. ES13-25-000 Short-Term Debt Authority Under Federal Power Act	Short-Term Debt Authority ($1.0 billion)
Securities and Exchange Commission - PUHCA Authority			
Columbia Energy Group and Columbia Gas of Ohio, Inc.	07/2004	HCAR No. 27899 Factoring Arrangement	Capital Contribution to Factoring Subsidiary
NiSource Inc. and Subsidiaries	11/2003	HCAR No. 27789 U-1 Financing Application	U-1 Financing PUHCA of 1935
NiSource Inc. and Subsidiaries	09/2002	HCAR No. 27567 Tax Allocation Agreement	U-1 Tax Allocation Agreement
Bay State Gas Company, Northern Utilities, Inc., and Granite State Gas Transmission, Inc.	08/2002 & 06/2002	HCAR Nos. 27559/27535 Intra-System Financing Vehicle	Release of Jurisdiction to Participate in NiSource Money Pool System
NiSource Inc. and Subsidiaries	12/2001	HCAR No. 27479 Intra-System Financing	Establish Money Pool System

Vincent V. Rea
Professional Experience in the Capital Markets

Transaction Type	Date	Company/Issuer	Transaction Size
Initial Public Offering (Equity)	02/2015	Columbia Pipeline Partners, L.P.	$1.2 billion
Public Debt Offering (30-year/10-year)	06/2012	NiSource Finance Corp.	$750.0 million
Revolving Credit Facility Amendment	05/2012	NiSource Finance Corp.	$1.5 billion
Tender Offer for Senior Unsecured Notes	12/2011	NiSource Finance Corp.	$250.0 million
Public Debt Offering (30-year/10-year)	11/2011	NiSource Finance Corp.	$500.0 million
Public Debt Offering (30-year)	06/2011	NiSource Finance Corp.	$400.0 million
Commercial Paper Program Implementation	06/2011	NiSource Finance Corp.	$500.0 million
Revolving Credit Facility	03/2011	NiSource Finance Corp.	$1.5 billion
Tender Offer for Senior Unsecured Notes	12/2010	NiSource Finance Corp.	$273.0 million
Public Debt Offering (30-year)	12/2010	NiSource Finance Corp.	$250.0 million
Equity Offering (Forward Equity Offering)	09/2010	NiSource Inc.	$400.0 million
Project Financing (Private Placement)	08/2010	Millennium Pipeline Company	$725.0 million
Accounts Receivable Securitization Program	03/2010	Columbia Gas of Pennsylvania	$75.0 million
Public Debt Offering (12-year)	12/2009	NiSource Finance Corp.	$500.0 million
Accounts Receivable Securitization Program	10/2009	Columbia Gas of Ohio	$275.0 million

Vincent V. Rea
Professional Experience in the Capital Markets

Transaction Type	Date	Company/Issuer	Transaction Size
Accounts Receivable Securitization Program	10/2009	Northern Indiana Public Service Company	$200.0 million
Term Loan Facility	04/2009	NiSource Finance Corp.	$385.0 million
Tender Offer for Senior Unsecured Notes	04/2009	NiSource Finance Corp.	$251.0 million
Public Debt Offering (7-year)	03/2009	NiSource Finance Corp.	$600.0 million
Open Market Repurchases of Senior Unsecured Notes	01/2009	NiSource Finance Corp.	$100.0 million
Revolving Credit Facility	09/2008	NiSource Finance Corp.	$500.0 million
Reoffering of Tax-Exempt Pollution Control Bonds	08/2008	Jasper County, Indiana (on behalf of Northern Indiana Public Service Company)	$254.0 million
Public Debt Offering (5-year/10-year)	05/2008	NiSource Finance Corp.	$700.0 million
Construction Financing Credit Facility	08/2007	Millennium Pipeline Company	$800.0 million
Public Debt Offering (10-year)	08/2007	NiSource Finance Corp.	$800.0 million
Project Financing (Private Placement)	06/2006	Hardy Storage Project (Hardy Storage Company)	$124.0 million
Private Placement Debt Offering (multiple tranches)	11/2005	NiSource Finance Corp.	$900.0 million
Bilateral Revolving Credit Facility	11/2005	NiSource Finance Corp.	$300.0 million
Public Debt Offering (12-year/15-year)	09/2005	NiSource Finance Corp.	$1.0 billion
Revolving Credit Facility	03/2005	NiSource Finance Corp.	$1.25 billion

Vincent V. Rea
Professional Experience in the Capital Markets

Transaction Type	Date	Company/Issuer	Transaction Size
Public Debt Offering (5-year floating rate notes)	11/2004	NiSource Finance Corp.	$450.0 million
Settlement of Forward Stock Purchase Agreements and Remarketing of Debentures	11/2004	NiSource Inc. (Mandatorily-Convertible Hybrid Securities)	$144.0 million
Accounts Receivable Securitization Program	05/2004	Columbia Gas of Ohio	$300.0 million
Revolving Credit Facilities (364-day/3-year)	03/2004	NiSource Finance Corp.	$1.25 billion
Refunding of Tax-Exempt Pollution Control Bonds	12/2003	Jasper County, Indiana (on behalf of Northern Indiana Public Service Company)	$55.0 million
Accounts Receivable Securitization Program	12/2003	Northern Indiana Public Service Company	$200.0 million
Public Debt Offering (1.5-year floating/3-year)	11/2003	NiSource Finance Corp.	$500.0 million
Public Debt Offering (11-year)	07/2003	NiSource Finance Corp.	$500.0 million
Settlement of Forward Stock Purchase Agreements and Remarketing of Debentures	02/2003	NiSource Inc. (Mandatorily-Convertible Hybrid Securities)	$345.0 million
Equity Offering	11/2002	NiSource Inc.	$735.0 million
Revolving Credit Facility (364-day)	03/2002	NiSource Finance Corp.	$500.0 million
Public Debt Offering (2-year)	04/2001	NiSource Finance Corp.	$300.0 million
Post-Merger Consolidation of Bank Credit Facilities and Commercial Paper Facilities	03/2001	NiSource Inc. Columbia Energy Group NiSource Finance Corp.	$2.5 billion

Northern Indiana Public Service Company, LLC
Comparative Risk Assessment (1) - 2021-2017 and 5-Year Averages

Business & Other Hybrid Metrics	2021	2020	2019	2018	2017	5-Year Average
Relative Size Comparison - Total Capital			(Thousands of U.S. Dollars)			
Permanent Capitalization (excl. OCI)	6,335,200	$ 5,598,100	$ 5,004,200	$ 4,854,700	$ 4,190,000	$ 5,196,440
Current Maturities and Short-Term Debt	426,600	434,100	601,000	468,100	608,600	507,680
Total Capitalization (excl. OCI)	$ 6,761,800	$ 6,032,200	$ 5,605,200	$ 5,322,800	$ 4,798,600	$ 5,704,120

Standard Deviation and Coefficient of Variation of Return on Book Equity						
Return on Avg. Book Equity, incl. AFUDC (2)	9.3%	9.3%	11.2%	11.6%	9.1%	10.1%

	Average	Std. Dev.	Coeff. Var.
Return on Avg. Book Equity, incl. AFUDC (2)	**10.1%**	**1.1%**	**0.11**

Financial Risk/Credit Quality Metrics	2021	2020	2019	2018	2017	5-Year Average
Permanent Capitalization Ratios						
Long-Term Debt	39.6%	41.8%	42.3%	43.3%	40.4%	41.5%
Preferred Stock	-	-	-	-	-	-
Common Equity (2)	60.5%	58.2%	57.7%	56.7%	59.6%	58.5%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Capitalization Ratios						
Total Debt (incl. CMD and STD)	43.4%	46.0%	48.5%	48.3%	48.0%	46.8%
Preferred Stock	-	-	-	-	-	-
Common Equity (2)	56.6%	54.0%	51.5%	51.7%	52.0%	53.2%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
EBITDA Interest Coverage (3)						
EBITDA Interest Cov. (incl. AFUDC ded.)	8.00	7.70	8.24	7.74	8.12	7.96
FFO to Adjusted Total Debt (4)						
FFO to Adj. Debt (incl. AFUDC ded.)	24.5%	23.3%	25.0%	24.2%	24.4%	24.3%

(1) Northern Indiana Public Service Compny, LLC risk metrics.

(2) Excludes Other Comprehensive Income (Loss) component of Stockholders' Equity.

(3) Earnings before interest, taxes, depreciation and amortization, divided by interest expense (including capitalized AFUDC interest).

(4) Funds from Operations (net income, including AFUDC, plus depreciation, amortization and deferred income taxes) divided by Adjusted Total Debt (total debt, incl. current maturities and short-term debt, plus post-retirement obligations recognized within the balance sheet).

Source: Company-provided financial statements.

Electric Group
Comparative Risk Assessment (1) - 2021-2017 and 5-Year Averages

Business & Hybrid Risk Metrics	2021	2020	2019	2018	2017	5-Year Average
Relative Size Comparison - Total Capital			(Thousands of U.S. Dollars)			
Permanent Capitalization (excl. OCI)	$ 16,435,944	$ 15,108,890	$ 13,925,902	$ 12,780,322	$ 11,667,351	$ 13,983,682
Current Maturities and Short-Term Debt	1,138,537	1,021,239	1,045,305	969,458	1,130,134	1,060,935
Total Capitalization (excl. OCI)	$ 17,574,481	$ 16,130,129	$ 14,971,207	$ 13,749,780	$ 12,797,486	$ 15,044,616

Standard Deviation and Coefficient of Variation of Return on Book Equity						
Return on Avg. Book Equity (2)(incl. AFUDC)	11.9%	10.9%	10.9%	11.0%	11.3%	11.2%

	Average	Std. Dev.	Coeff. Var.
Return on Avg. Book Equity (2)(incl. AFUDC)	**11.2%**	**1.2%**	**0.11**

Financial Risk/Credit Quality Metrics	2021	2020	2019	2018	2017	5-Year Average
Permanent Capitalization Ratios						
Long-Term Debt	51.3%	50.4%	49.8%	48.8%	46.8%	49.4%
Preferred Stock	0.2%	0.2%	0.2%	0.3%	0.3%	0.2%
Common Equity (2)	48.6%	49.4%	50.0%	51.0%	52.9%	50.4%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Capitalization Ratios						
Total Debt (incl. short-term debt)	53.8%	53.2%	52.1%	51.1%	50.7%	52.2%
Preferred Stock	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Common Equity (2)	46.0%	46.6%	47.7%	48.7%	49.1%	47.6%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
EBITDA Interest Coverage (3)						
EBITDA Interest Cov. (incl. AFUDC ded.)	6.23	5.70	5.72	5.78	6.23	5.93
FFO to Adjusted Total Debt (4)						
FFO to Adj. Debt (incl. AFUDC ded.)	19.3%	17.9%	19.2%	20.1%	21.6%	19.6%

(1) All comparative risk metrics for the Electric Group represent the arithmetic average of the calculated results for each of the individual companies within the Group.

(2) Excludes Other Comprehensive Income (Loss) component of Stockholders' Equity.

(3) Earnings before interest, taxes, depreciation and amortization, divided by interest expense (including and excluding capitalized AFUDC interest).

(4) Funds from Operations (net income, incl. and excl. AFUDC, plus depreciation, amortization and deferred income taxes) divided by Adjusted Total Debt (total debt, incl. current maturities and short-term debt, plus post-retirement obligations recognized within the balance sheet).
obligations recognized within the balance sheet).

Source: Proxy Company 10-K Filings

Capital Structure Ratios - Permanent Capitalization
Electric Group - 2021-2017 and 5-Year Average

	2021	2020	2019	2018	2017	5-Year Average
Allete Inc.						
Long-Term Debt	42.0%	40.7%	38.3%	39.6%	40.8%	40.3%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	58.0%	59.3%	61.7%	60.4%	59.2%	59.7%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Alliant Energy Corp.						
Long-Term Debt	52.9%	53.5%	50.6%	52.3%	47.8%	51.4%
Preferred Stock	-	1.6%	1.8%	2.0%	2.4%	0.02
Common Equity (1)	47.1%	44.9%	47.6%	45.7%	49.8%	47.0%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Ameren Corp.						
Long-Term Debt	56.5%	55.3%	52.5%	50.7%	49.6%	52.9%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	43.5%	44.7%	47.5%	49.3%	50.4%	47.1%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
American Electric Power						
Long-Term Debt	58.4%	58.4%	55.8%	52.9%	51.4%	55.4%
Preferred Stock	0.1%	0.1%	0.2%	0.3%	0.0%	0.1%
Common Equity (1)	41.5%	41.6%	43.9%	46.8%	48.6%	44.5%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
CMS Energy Corp.						
Long-Term Debt	64.3%	67.8%	70.1%	68.7%	67.1%	67.6%
Preferred Stock	1.2%	-	-	-	-	0.00
Common Equity (1)	34.5%	32.2%	29.9%	31.3%	33.0%	32.2%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
MGE Energy Inc.						
Long-Term Debt	37.4%	34.7%	38.0%	37.7%	33.9%	36.3%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	62.6%	65.3%	62.0%	62.3%	66.1%	63.7%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
OGE Energy Corp.						
Long-Term Debt	52.4%	48.8%	43.4%	41.8%	41.5%	45.6%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	47.6%	51.2%	56.6%	58.2%	58.5%	54.4%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Otter Tail Corp.						
Long-Term Debt	42.4%	41.5%	46.7%	44.6%	41.1%	43.3%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	57.6%	58.5%	53.3%	55.4%	58.9%	56.7%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
WEC Energy Group						
Long-Term Debt	55.3%	52.7%	52.5%	50.4%	48.0%	51.8%
Preferred Stock	0.1%	0.1%	0.1%	0.2%	0.2%	0.00
Common Equity (1)	44.6%	47.1%	47.4%	49.4%	51.9%	48.1%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Average of Electric Group						
Long-Term Debt	51.3%	50.4%	49.8%	48.8%	46.8%	49.4%
Preferred Stock	0.2%	0.2%	0.2%	0.3%	0.3%	0.00
Common Equity (1)	48.6%	49.4%	50.0%	51.0%	52.9%	50.4%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

(1) Excludes Other Comprehensive Income (Loss) component of Stockholders' Equity.

Capital Structure Ratios - Total Capitalization
Electric Group - 2021-2017 and 5-Year Average

	2021	2020	2019	2018	2017	5-Year Average
Allete Inc.						
Total Debt (incl. short-term debt)	44.8%	43.6%	41.7%	40.5%	41.8%	42.5%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	55.2%	56.4%	58.3%	59.5%	58.2%	57.5%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Alliant Energy Corp.						
Total Debt (incl. short-term debt)	56.8%	54.9%	54.7%	55.4%	54.7%	55.3%
Preferred Stock	0.0%	1.5%	1.7%	1.9%	2.1%	1.4%
Common Equity (1)	43.2%	43.6%	43.6%	42.7%	43.3%	43.3%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Ameren Corp.						
Total Debt (incl. short-term debt)	58.4%	56.4%	54.8%	54.1%	53.9%	55.5%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	41.6%	43.6%	45.2%	45.9%	46.1%	44.5%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
American Electric Power						
Total Debt (incl. short-term debt)	61.8%	61.9%	59.8%	56.7%	55.4%	59.1%
Preferred Stock	0.1%	0.1%	0.2%	0.2%	0.0%	0.1%
Common Equity (1)	38.1%	38.1%	40.0%	43.0%	44.6%	40.8%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
CMS Energy Corp.						
Total Debt (incl. short-term debt)	65.0%	68.8%	72.1%	70.8%	69.8%	69.3%
Preferred Stock	1.2%	-	-	-	-	0.2%
Common Equity (1)	33.8%	31.2%	27.9%	29.2%	30.2%	30.4%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
MGE Energy, Inc.						
Total Debt (incl. short-term debt)	37.8%	37.1%	38.8%	38.5%	35.4%	37.5%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	62.2%	62.9%	61.2%	61.5%	64.6%	62.5%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
OGE Energy Corp.						
Total Debt (incl. short-term debt)	55.0%	49.5%	44.2%	43.8%	45.0%	47.5%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	45.0%	50.5%	55.8%	56.2%	55.0%	52.5%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Otter Tail Corp.						
Total Debt (incl. short-term debt)	46.2%	49.0%	46.9%	45.4%	46.2%	46.7%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	53.8%	51.0%	53.1%	54.6%	53.8%	53.3%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
WEC Energy Group						
Total Debt (incl. short-term debt)	58.7%	57.6%	55.7%	54.6%	53.8%	56.1%
Preferred Stock	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Common Equity (1)	41.1%	42.2%	44.2%	45.3%	46.1%	43.8%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Average of Electric Group						
Total Debt (incl. short-term debt)	53.8%	53.2%	52.1%	51.1%	50.7%	52.2%
Preferred Stock	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Common Equity (1)	46.0%	46.6%	47.7%	48.7%	49.1%	47.6%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

(1) Excludes Other Comprehensive Income (Loss) component of Stockholders' Equity.

Regulatory Mechanisms by Jurisdiction

Allete, Inc.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Cost Recovery Mechanisms	Forward-Looking Test Year	Performance Based Rate Plan (PBR) or Multi-Year Rate Plan
MN	-	Renewables and Transmission Investment Cost Recovery Riders	Yes	-
WI	-	-	Yes	-

Regulatory Mechanisms by Jurisdiction
Alliant Energy Corp.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Cost Recovery Mechanisms	Forward-Looking Test Year	Performance Based Rate Plan (PBR) or Multi-Year Rate Plan
IA	-	Renewables and Transmission Investment Cost Recovery Riders	Yes	-
WI	-	-	Yes	-

Regulatory Mechanisms by Jurisdiction
Ameren

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Cost Recovery Mechanisms	Forward-Looking Test Year	Performance Based Rate Plan (PBR) or Multi-Year Rate Plan
IL	Partial Decoupling - Gas (VBA) & Electric (FEJA)	Infrastructure Cost Recovery Mechanism (Gas) Rider (QIP) & Illinois Energy Transition Legislation (IETL) (Electric)	Yes (Gas); Possible for Electric under IETL (2024)	Performance Based Formula Ratemaking (Electric) and IETL Effective 2024
MO	Partial Decoupling - Gas and Electric. Weather Normalization (WNAR).	Delivery Infrastructure - Electric & Gas. Plant-In-Service Accounting Regulatory Mechanism (PISA) and (RESRAM)	-	-

Regulatory Mechanisms by Jurisdiction
American Electric Power, Inc.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Cost Recovery Mechanisms	Forward-Looking Test Year	Performance Based Rate Plan (PBR) or Multi-Year Rate Plan
AR	Partial Decoupling	Formula Rate Plan (FRP)	-	Formula Rate Plan (FRP)
IN	Partial Decoupling	Transmission Capital Investment Recovery Mechanism	-	-
KY	Partial Decoupling	-	-	-
LA	Partial Decoupling	Formula Rate Plan (FRP)	-	Formula Rate Plan (FRP)
MI	Partial Decoupling	Power Supply Cost Recovery Rider (PSCR)	Yes	-
OH	Partial Decoupling	Distribution Investment Rider (DIR) and Basic Transmission Cost Rider (BTCR)	Yes	-
OK	Partial Decoupling	Distribution Reliability and Safety Rider (DRSR) and Distribution Investment Rider (DIR)	-	-
TN	-	Targeted Reliability Plan (TRP)	-	-
TX	-	Distribution Cost Recovery Factor (DCRF) & Transmission Cost Recovery Factor (TCRF)	-	-
VA	-	Generation Rate Adjustment Clause (GRAC) and Transmission Rider	-	-
WV	-	Capital Investment Surcharge	-	-

(1) Revenue stabilization mechanisms include the following rate design approaches: (a) revenue decoupling mechanisms (incl. lost revenues adjustment mechanisms); (b) weather normalization adjustment clauses; and (c) rate stabilization tariffs.

Source of Data: Company 10-K reports and company investor conference presentations.

Regulatory Mechanisms by Jurisdiction

CMS Energy Corp

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Cost Recovery Mechanisms	Forward-Looking Test Year	Performance Based Rate Plan (PBR) or Multi-Year Rate Plan
MI	Revenue Decoupling (Rate Adjustment Mech.) (Gas)	Renewables and Transmission Investment Cost Recovery	Yes	

Regulatory Mechanisms by Jurisdiction
MGE Energy, Inc.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Cost Recovery Mechanisms	Forward-Looking Test Year	Performance Based Rate Plan (PBR) or Multi-Year Rate Plan
WI	-	Current Return on 50% of CWIP and 100% CWIP or AFUDC on Major Construction Projects	Yes	-

Regulatory Mechanisms by Jurisdiction
OGE Energy Corp.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Cost Recovery Mechanisms	Forward-Looking Test Year	Performance Based Rate Plan (PBR) or Multi-Year Rate Plan
OK	Partial Decoupling	Delivery and Transmission Infrastructure	-	-
AR	Partial Decoupling	Delivery, Transmission and Generation Infrastructure	Yes	Formula Rate Plan

Regulatory Mechanisms by Jurisdiction
Otter Tail Corp

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Cost Recovery Mechanisms	Forward-Looking Test Year	Performance Based Rate Plan (PBR) or Multi-Year Rate Plan
MN	-	Capital Recovery Riders - Transmission, Environmental and Renewables	Yes	-
ND	-	Capital Recovery Riders - Delivery, Transmission, Generation, and Renewables	Yes	-
SD	-	Capital Recovery Riders - Delivery, Generation and Environmental	-	Earnings Sharing Mechanism

(1) Revenue stabilization mechanisms include the following rate design approaches: (a) revenue decoupling mechanisms (incl. lost revenues adjustment mechanisms); (b) weather normalization adjustment clauses; and (c) rate stabilization tariffs.

Source of Data: Company 10-K reports and company investor conference presentations.

Regulatory Mechanisms by Jurisdiction

WEC Energy Group

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Cost Recovery Mechanisms	Forward-Looking Test Year	Performance Based Rate Plan (PBR) or Multi-Year Rate Plan
IL	Revenue Decoupling (Gas) and Fixed-Variable Rate Design (MFV) Gas	Qualifying Infrastructure Plant Rider (Gas)	-	-
MI	-	Capital Recovery Riders - Renewables	Yes	-
MN	Partial Revenue Decoupling (Gas)	Capital Recovery Riders - Delivery Infrastructure (Gas)	-	-
WI	-	Capital Recovery Riders - Renewables	Yes	Earnings Sharing Mechanism

(1) Revenue stabilization mechanisms include the following rate design approaches: (a) revenue decoupling mechanisms (incl. lost revenues adjustment mechanisms); (b) weather normalization adjustment clauses; and (c) rate stabilization tariffs.

Source of Data: Company 10-K reports and investor conference presentations.

DCF Method
Electric Group
Projected Growth Rates and Cost of Equity Estimates

		DCF Growth Estimates			Cost of Equity Estimates		
	(1)	(2)	(3)	(4)	(5)	(5)	(5)
Electric Group	Dividend Yield	Yahoo Finance EPS Growth	Zacks EPS Growth	Value Line EPS Growth	Yahoo Finance EPS COE	Zacks EPS COE	Value Line EPS COE
Allete Inc.	4.3%	8.7%	8.7%	6.0%	13.0%	13.0%	10.3%
Alliant Energy Corp.	2.9%	5.4%	5.7%	6.0%	8.3%	8.6%	8.9%
Ameren	2.6%	6.5%	7.2%	6.5%	9.1%	9.8%	9.1%
American Electric Power, Inc.	3.3%	6.2%	6.2%	6.5%	9.5%	9.5%	9.8%
CMS Energy Corp.	2.7%	8.5%	8.1%	6.5%	11.2%	10.8%	9.2%
MGE Energy Inc.	2.0%	6.1%	6.1%	4.5%	8.1%	8.1%	6.5%
OGE Energy Corp.	4.2%	1.9%	3.5%	6.5%	6.1%	7.7%	10.7%
Otter Tail Corp.	2.7%	9.0%	n/a	4.5%	11.7%	n/a	7.2%
WEC Energy Group	3.0%	6.1%	6.1%	6.0%	9.0%	9.1%	9.0%
Average (6)	3.1%	6.5%	6.4%	5.9%	10.0%	9.6%	9.3%

Low-End and High-End Outlier Tests			
Low-End Threshold (6.75%) (6)	6.75%	6.75%	6.75%
Median Result (excluding negative values)(6)	9.1%	9.3%	9.1%
200% of Median Result (6)	18.2%	18.6%	18.3%
High-End Threshold - 200% of Median (average)	18.3%	18.3%	18.3%

(1) See page 3 of this Schedule.
(2) www.yahoo.com (retrieved June 9, 2022).
(3) www.zacks.com (retrieved June 9, 2022).
(4) See page 6 of this Schedule.
(5) Sum of dividend yield and applicable projected growth rate.
(6) For cost of equity estimates, the average calculations exclude the highlighted data. DCF estimates below 6.75% were excluded from the estimated cost of equity. Also excluded were DCF results that were more than 200% of the median value of the DCF results for the entire proxy group prior to the elimination of any outlier results (with the exception of negative estimates). See page 7 of this Schedule and FERC Opinion No. 569, 169 FERC ¶, 61,129, at P. 387 (Nov. 21, 2019), FERC Opinion No. 569-A, 171 FERC ¶ 61,154, at P.154 (May 21, 2020), and FERC Opinion No. 569-B, 173 FERC ¶ 61,159, at P.140 (Nov. 19, 2020). FERC's previous high-end outlier test of 17.7% was further applied where indicated (see ISO New England Inc., 109 FERC ¶ 61,147 at P 205 (November 3, 2004).

DCF Method
Electric Group
Historical EPS Growth Rates and Cost of Equity Estimates

Electric Group	(1) Dividend Yield	(2) 5-Year Historical EPS Growth	(3) 10-Year Historical EPS Growth	(4) Average Historical EPS Growth	(5) Cost of Equity - Hist. EPS
Allete Inc.	4.3%	1.0%	4.0%	2.5%	6.8%
Alliant Energy Corp.	2.9%	8.0%	7.0%	7.5%	10.4%
Ameren	2.6%	7.5%	3.0%	5.3%	7.9%
American Elec. Pwr.	3.3%	4.0%	4.5%	4.3%	7.6%
CMS Energy Corp.	2.7%	6.5%	7.5%	7.0%	9.7%
MGE Energy Inc.	2.0%	4.0%	5.0%	4.5%	6.5%
OGE Energy Corp.	4.2%	4.5%	4.0%	4.3%	8.5%
Otter Tail Corp.	2.7%	13.0%	19.0%	16.0%	18.7%
WEC Energy Group	3.0%	8.0%	7.5%	7.8%	10.7%
Average (6)	3.1%	6.3%	6.8%	6.6%	8.8%

Low-End and High-End Outlier Tests	
Low-End Threshold (6.75%) (6)	6.75%
Median Result (excluding negative values)(6)	8.5%
200% of Median Result (6)	16.9%
High-End Threshold - 200% of Median (average)	16.9%

(1) See page 3 of this Schedule.
(2) See page 6 of this Schedule.
(3) See page 6 of this Schedule.
(4) Average of (2) and (3) above.
(5) Sum of (1) and (4) above.
(6) For cost of equity estimates, the average calculations exclude the highlighted data. DCF estimates below 6.75% were excluded from the estimated cost of equity. Also excluded were DCF results that were more than 200% of the median value of the DCF results for the entire proxy group prior to the elimination of any outlier results (with the exception of negative estimates). See page 7 of this Schedule and FERC Opinion No. 569, 169 FERC ¶, 61,129, at P. 387 (Nov. 21, 2019), FERC Opinion No. 569-A, 171 FERC ¶ 61,154, at P.154 (May 21, 2020), and FERC Opinion No. 569-B, 173 FERC ¶ 61,159, at P.140 (Nov. 19, 2020). FERC's previous high-end outlier test of 17.7% was further applied where indicated (see ISO New England Inc., 109 FERC ¶ 61,147 at P 205 (November 3, 2004).

DCF Method
Electric Group
Dividend Yield Calculation

Electric Group	(a) 30/60/90 Day Avg. Stock Price	(b) Next 12-Mo. Dividends	(b)/(a) Dividend Yield
Allete Inc.	$ 62.31	$ 2.65	4.3%
Alliant Energy Corp.	$ 60.67	$ 1.76	2.9%
Ameren	$ 92.83	$ 2.44	2.6%
American Elec. Pwr.	$ 99.04	$ 3.27	3.3%
CMS Energy Corp.	$ 69.16	$ 1.89	2.7%
MGE Energy Inc.	$ 79.43	$ 1.60	2.0%
OGE Energy Corp.	$ 39.89	$ 1.68	4.2%
Otter Tail Corp.	$ 62.93	$ 1.70	2.7%
WEC Energy Group	$ 101.10	$ 3.01	3.0%
Average			3.1%

(a) See page 4 of this Schedule; 30-day/60-day/90-day average closing stock price through June 7, 2022.

(b) Value Line Investment Survey, Summary and Index, June 10, 2022. Estimated dividends during the next 12-months.

30/60/90 Day Avg.	$ 62.31	$ 60.67	$ 92.83	$ 99.04	$ 69.16	$ 79.43	$ 39.89	$ 62.93	$ 101.10
30-Day Average	$ 61.01	$ 60.20	$ 93.71	$ 100.54	$ 69.68	$ 80.00	$ 40.03	$ 63.27	$ 103.06
60-Day Average	$ 62.96	$ 61.40	$ 93.56	$ 99.96	$ 69.87	$ 80.19	$ 40.28	$ 62.96	$ 101.66
90-Day Average	$ 62.96	$ 60.41	$ 91.21	$ 96.63	$ 67.93	$ 78.10	$ 39.36	$ 62.57	$ 98.60

Date	Allete	Alliant Energy Corp.	Ameren	American Elec. Pwr	CMS Energy Corp.	MGE Energy Inc.	OGE Energy	Otter Tail	WEC Energy Group
6/7/2022	63.33	63.17	93.72	102.43	71.82	81.08	41.25	67.96	105.60
6/6/2022	63.35	62.53	93.15	102.06	71.20	80.94	41.14	68.69	104.31
6/3/2022	62.13	62.11	93.31	101.95	71.14	79.30	41.00	66.64	104.18
6/2/2022	62.13	62.40	94.11	102.25	71.28	79.44	41.11	66.93	104.86
6/1/2022	62.32	63.19	94.37	102.04	70.83	79.19	41.03	66.45	104.67
5/31/2022	62.02	63.82	95.19	102.03	71.04	79.37	41.30	65.39	105.07
5/27/2022	61.97	63.78	96.55	103.57	71.47	80.73	41.48	65.37	106.53
5/26/2022	61.70	62.46	95.87	102.58	70.81	80.75	41.01	64.52	105.40
5/25/2022	61.46	61.25	95.49	102.48	70.54	79.97	40.92	64.38	105.81
5/24/2022	61.53	61.32	95.51	102.22	71.71	79.91	40.63	63.67	108.28
5/23/2022	60.75	59.00	93.23	100.27	69.63	80.08	40.20	63.34	105.02
5/20/2022	61.11	58.67	92.64	99.70	68.83	80.97	39.87	63.26	103.55
5/19/2022	61.46	58.50	92.48	99.04	69.21	81.02	39.79	62.93	102.87
5/18/2022	62.10	58.94	92.80	99.88	68.90	82.01	39.92	64.27	101.95
5/17/2022	61.90	59.75	93.50	100.40	69.31	81.84	40.14	63.64	103.45
5/16/2022	60.94	58.86	92.98	99.39	69.08	82.16	39.42	62.67	102.77
5/13/2022	60.39	58.44	93.11	99.69	69.45	80.88	39.28	62.56	102.09
5/12/2022	58.73	58.02	92.61	98.53	68.58	81.26	38.89	61.59	100.82
5/11/2022	58.52	58.21	93.42	99.78	68.58	80.87	39.13	62.58	101.75
5/10/2022	59.25	58.03	92.89	99.08	68.28	80.13	38.74	62.30	100.66
5/9/2022	60.39	58.72	92.68	99.69	69.18	80.80	39.20	63.16	101.94
5/6/2022	60.12	58.74	92.65	99.65	67.75	79.40	39.33	62.32	100.66
5/5/2022	59.81	58.86	93.25	99.66	67.48	79.43	39.34	62.59	101.07
5/4/2022	61.44	59.21	93.86	100.72	68.84	80.22	39.68	63.38	101.56
5/3/2022	59.79	57.80	92.42	98.58	67.49	77.57	38.70	60.89	99.56
5/2/2022	58.89	57.85	92.00	98.13	67.80	76.77	38.48	58.86	99.73
4/29/2022	59.34	58.81	92.90	99.11	68.69	77.87	38.68	57.96	100.05
4/28/2022	61.08	61.23	95.45	102.43	70.87	78.53	40.10	59.83	102.78
4/27/2022	60.65	60.82	94.33	99.53	70.21	78.07	40.50	59.66	102.09
4/26/2022	61.67	61.63	94.92	99.24	70.38	79.36	40.52	60.24	102.63
4/25/2022	62.24	62.07	95.92	100.50	70.59	80.27	41.07	61.17	102.91
4/22/2022	63.29	63.12	96.88	100.25	71.76	81.64	41.60	62.42	103.98
4/21/2022	63.57	64.45	97.81	102.12	72.84	82.61	42.28	62.92	105.76
4/20/2022	64.50	65.11	98.51	102.83	73.04	83.59	42.33	63.90	105.40
4/19/2022	63.81	63.88	96.62	102.43	72.31	82.23	41.71	62.78	104.52
4/18/2022	63.44	62.71	96.08	101.66	71.44	81.82	41.71	62.05	102.84
4/14/2022	63.44	63.39	96.25	102.04	71.55	82.60	41.63	62.53	103.19
4/13/2022	63.19	63.59	96.25	102.25	71.90	82.55	41.58	62.61	103.20
4/12/2022	63.62	64.63	96.75	102.31	72.83	83.26	41.52	63.10	104.41
4/11/2022	64.00	64.35	96.48	101.40	72.24	82.57	41.29	62.54	103.66
4/8/2022	64.94	64.82	97.07	102.99	72.51	83.35	41.42	63.42	104.49
4/7/2022	65.33	64.33	96.80	103.37	72.36	83.44	41.93	63.47	103.81
4/6/2022	65.18	65.16	97.13	104.49	73.56	84.21	42.22	64.35	103.97

Electric Group
30/60/90-Day Average Closing Stock Price through June 7, 2022

Date	Allete	Alliant Energy Corp.	Ameren	American Elec. Pwr	CMS Energy Corp.	MGE Energy Inc.	OGE Energy	Otter Tail	WEC Energy Group
4/5/2022	64.11	63.28	94.94	101.31	71.11	82.53	41.29	63.05	101.73
4/4/2022	64.01	62.69	94.39	100.65	70.59	81.41	41.02	63.41	100.49
4/1/2022	63.82	63.29	94.79	101.51	71.10	81.42	41.28	64.32	101.13
3/31/2022	66.98	62.48	93.76	99.77	69.94	79.79	40.78	62.50	99.81
3/30/2022	67.74	62.88	93.82	99.42	69.99	79.77	40.45	62.95	100.29
3/29/2022	67.49	62.20	92.40	98.69	69.41	80.23	40.48	63.82	99.18
3/28/2022	66.13	62.00	91.80	97.61	69.12	79.67	39.84	62.90	98.55
3/25/2022	66.13	61.83	90.78	96.84	68.92	78.50	39.90	62.67	98.07
3/24/2022	65.04	60.56	89.55	96.44	68.05	77.00	39.00	61.72	96.61
3/23/2022	64.74	60.41	89.13	96.01	67.64	76.45	38.75	61.58	95.48
3/22/2022	65.04	59.91	88.58	95.25	67.01	76.70	38.88	62.47	95.37
3/21/2022	66.30	60.94	89.46	94.69	66.99	78.40	38.92	62.83	95.70
3/18/2022	65.05	60.31	87.85	94.07	66.20	78.01	38.41	61.10	94.68
3/17/2022	66.27	60.98	88.61	94.94	66.82	77.03	38.49	61.63	95.79
3/16/2022	66.17	60.86	87.93	95.07	66.47	77.15	38.76	62.40	94.60
3/15/2022	66.46	61.28	88.46	96.11	67.25	77.47	38.70	62.06	94.59
3/14/2022	65.34	60.33	87.38	94.74	66.17	75.88	38.52	60.69	93.78
3/11/2022	65.67	60.23	87.49	95.54	65.96	75.61	38.69	62.34	93.86
3/10/2022	65.05	60.14	87.55	95.99	66.05	75.14	38.87	63.06	93.56
3/9/2022	64.55	59.75	86.74	95.01	65.22	75.01	38.79	62.98	92.60
3/8/2022	64.86	60.49	87.75	95.25	65.92	75.87	38.86	63.42	94.00
3/7/2022	65.20	60.76	89.57	97.26	66.98	76.70	39.33	62.29	95.45
3/4/2022	64.91	60.59	89.52	96.33	67.00	75.86	39.81	63.14	94.61
3/3/2022	64.08	59.07	87.30	93.98	65.28	73.17	39.16	61.38	92.45
3/2/2022	62.57	57.64	85.99	91.24	64.48	71.30	38.19	60.70	90.59
3/1/2022	61.92	57.27	84.79	90.21	63.63	69.96	37.51	59.36	89.31
2/28/2022	62.94	58.40	85.95	90.65	64.01	72.02	37.55	61.86	90.88
2/25/2022	62.58	57.87	86.03	89.46	64.14	73.15	37.18	62.82	90.85
2/24/2022	60.81	55.93	83.25	86.56	61.97	70.35	36.29	61.12	88.68
2/23/2022	60.19	55.96	83.76	84.64	62.01	71.60	35.43	60.73	88.34
2/22/2022	61.10	56.70	84.92	85.99	62.69	72.24	35.94	61.17	89.79
2/18/2022	61.30	57.10	84.67	85.71	62.51	72.46	35.75	60.42	90.00
2/17/2022	60.66	56.62	84.51	85.49	62.40	72.28	35.96	62.68	89.39
2/16/2022	59.66	56.33	84.47	85.41	61.92	72.04	35.78	61.43	89.12
2/15/2022	60.94	56.35	84.38	85.44	61.85	71.62	35.80	60.35	88.90
2/14/2022	61.49	56.87	85.13	86.18	62.39	72.34	36.37	60.71	89.63
2/11/2022	62.09	57.45	85.72	87.65	63.10	72.99	36.73	60.38	91.21
2/10/2022	62.26	57.23	85.56	87.39	62.48	73.11	36.91	60.06	92.00
2/9/2022	63.74	59.12	87.71	89.38	64.82	75.13	37.82	62.74	94.32
2/8/2022	63.77	59.47	87.39	90.20	64.94	75.32	37.78	62.41	94.47
2/7/2022	63.63	59.10	87.36	89.81	64.92	75.20	37.69	61.99	94.72
2/4/2022	63.29	59.13	86.88	89.17	64.68	74.97	37.75	60.66	94.64
2/3/2022	64.19	59.86	88.01	90.19	64.65	75.88	38.29	61.86	95.69
2/2/2022	64.20	59.86	88.56	89.88	63.97	76.17	38.10	62.74	96.12
2/1/2022	63.39	58.66	87.59	88.35	63.33	75.92	37.72	62.50	95.16
1/31/2022	63.83	59.86	88.74	90.40	64.38	77.43	37.92	63.40	97.04
1/28/2022	63.69	59.31	87.65	90.13	63.84	76.40	37.84	62.80	96.57

Electric Group	Past 5-Years Historical Growth Rates				Estimated '19-'21 to '25-'27 Growth Rates				Past 10-Years Historical Growth Rates			
	EPS	DPS	BVPS	Average	EPS	DPS	BVPS	Average	EPS	DPS	BVPS	Average
Allete Inc.	1.0%	4.0%	3.5%	2.8%	6.0%	3.5%	3.5%	4.3%	4.0%	3.5%	5.0%	4.2%
Alliant Energy Corp.	8.0%	6.5%	7.0%	7.2%	6.0%	6.0%	4.0%	5.3%	7.0%	6.5%	5.5%	6.3%
Ameren	7.5%	4.0%	4.5%	5.3%	6.5%	7.0%	6.5%	6.7%	3.0%	3.0%	1.0%	2.3%
American Electric Power, Inc.	4.0%	6.0%	3.5%	4.5%	6.5%	6.0%	6.0%	6.2%	4.5%	5.0%	4.0%	4.5%
CMS Energy Corp.	6.5%	7.0%	6.5%	6.7%	6.5%	6.0%	7.0%	6.5%	7.5%	9.5%	5.5%	7.5%
MGE Energy Inc.	4.0%	4.5%	6.0%	4.8%	4.5%	4.5%	5.0%	4.7%	5.0%	4.0%	6.0%	5.0%
OGE Energy Corp.	4.5%	8.5%	3.5%	5.5%	6.5%	3.0%	5.5%	5.0%	4.0%	8.0%	5.5%	5.8%
Otter Tail Corp.	13.0%	4.0%	6.0%	7.7%	4.5%	7.0%	8.0%	6.5%	19.0%	2.0%	2.0%	7.7%
WEC Energy Group	8.0%	7.5%	6.0%	7.2%	6.0%	7.0%	4.0%	5.7%	7.5%	11.5%	7.5%	8.8%
Average	6.3%	5.8%	5.2%	5.7%	5.9%	5.6%	5.5%	5.6%	6.8%	5.9%	4.7%	5.8%

Source: Value Line Investment Survey, Ratings and Reports (June 10, 2022).
n/a = Data not published or not applicable.

Recent Moody's Average for "A" Rated and "Baa" Rated 30-Year Utility Bond Yields (1)	5.17%
Market Risk Premium per CAPM Analysis (2)	7.95%
20% Weighting Factor per FERC Opinion No. 569 (3)	20.0%
Equity Risk Premium Factor to Apply to Average of "A-"/"Baa1" Bond Yields (3)(4)	1.59%
Low-End Outlier Threshold (3)(5)	6.76%

Footnotes:

(1) Average Utility Bond Yield Between "A" rated and "Baa" rated Utility Bond Yield as of June 13, 2022 (Moody's Credit Trends, Moody's Analytics, Inc. (June 14, 2022).

(2) See Mr. Rea's CAPM analysis (Schedule 7, p. 1). Average of the historical average and prospective market risk premium estimates.

(3) See FERC Opinion No. 569, 169 FERC ¶ 61,129, at P. 387-389 (Nov. 21, 2019), and FERC Opinion No. 569-A, 171 FERC ¶ 61,154, at P.161-162 (May 21, 2020).

(4) Product of (2) x (3) above.

(5) Sum of (1) and (4) above. Rounded to 6.75% for purposes of establishing Mr. Rea's low-end outlier threshold.

DCF Method
Electric Group
Investment Risk Indicators

Electric Group	Value Line Risk Indicators: Beta	Safety Rank	Financial Strength	Fin. Str. Weight	Stock Price Stability	Long-Term Credit Ratings: S&P LT Rating	S&P Weight	Moody's LT Rating	Moody's Weight	Market Cap: Billions ($) (Value Line)
Allete Inc.	0.90	2	A	3	90	BBB	9	Baa1	8	$ 3.3
Alliant Energy Corp. (LNT)	0.80	2	A	3	95	A-	7	Baa2	9	16.0
Ameren	0.80	1	A	3	100	BBB+	8	Baa1	8	25.0
American Elec. Pwr.	0.75	1	A+	2	100	A-	7	Baa2	9	53.0
CMS Energy Corp. (CMS)	0.75	2	B++	4	95	BBB+	8	Baa2	9	21.0
MGE Energy Inc. (1) (MGEE)	0.75	1	A+	2	100	AA-	4	A1	5	2.6
OGE Energy Corp.	1.00	2	A	3	85	BBB+	8	Baa1	8	8.3
Otter Tail Corp.	0.85	2	A	3	100	BBB	9	Baa2	9	2.7
WEC Energy Group (WEC)	0.80	1	A+	2	90	A-	7	Baa1	8	34.0
Averages	0.82	2	A	3	95	A-	7	Baa1	8	$ 18.4

Source: Value Line Investment Survey, June 10, 2022.

Footnotes: (1) S&P and Moody's credit ratings for Madison Gas & Electric Company, (2) Moody's credit rating for Vectren Corp. is for subsidiaries Indiana Gas and Southern Indiana Gas & Electric.

S&P Credit Rating Weightings		Moody's Credit Rating Weightings		Value Line Fin. Str. Weightings	
AAA	1	Aaa	1	A++	1
AA+	2	Aa1	2	A+	2
AA	3	Aa2	3	A	3
AA-	4	Aa3	4	B++	4
A+	5	A1	5	B+	5
A	6	A2	6	B	6
A-	7	A3	7	C++	7
BBB+	8	Baa1	8	C+	8
BBB	9	Baa2	9	C	9
BBB-	10	Baa3	10		
BB+	11	Ba1	11		
BB	12	Ba2	12		
BB-	13	Ba3	13		

DCF Method
Gas LDC Group
Projected Growth Rates and Cost of Equity Estimates

Gas LDC Group	(1) Dividend Yield	(2) Yahoo Finance EPS Growth	(3) Zacks EPS Growth	(4) Value Line EPS Growth	(5) Yahoo Finance EPS COE	(5) Zacks EPS COE	(5) Value Line EPS COE
Atmos Energy Corp	2.5%	8.6%	7.3%	7.5%	11.1%	9.8%	10.0%
New Jersey Resources Corp.	3.3%	6.0%	6.0%	5.0%	9.3%	9.3%	8.3%
Nisource Inc.	3.1%	7.2%	7.2%	9.5%	10.3%	10.3%	12.6%
Northwest Natural Gas Co.	3.8%	5.9%	4.7%	6.5%	9.7%	8.4%	10.3%
ONE Gas, Inc.	3.0%	5.0%	5.0%	6.5%	8.0%	8.0%	9.5%
Spire Inc.	3.8%	4.3%	5.0%	9.0%	8.1%	8.8%	12.8%
Average (6)	3.2%	6.2%	5.9%	7.3%	9.4%	9.1%	10.6%
Low-End and High-End Outlier Tests							
Low-End Threshold (6.75%) (6)					6.75%	6.75%	6.75%
Median Result (excluding negative values)(6)					9.5%	9.0%	10.1%
200% of Median Result (6)					18.9%	18.1%	20.3%
High-End Threshold - 200% of Median (average)					19.1%	19.1%	19.1%

(1) See page 3 of this Schedule.
(2) www.finance.yahoo.com. Consensus earnings estimates provided by Thomson Reuters (retrieved June 10, 2022).
(3) www.zacks.com (retrieved June 10, 2022).
(4) See page 6 of this Schedule.
(5) Sum of dividend yield and applicable projected growth rate.
(6) For cost of equity estimates, the average calculations exclude the highlighted data. DCF estimates below 6.75% were excluded from the estimated cost of equity (rounded down from 6.76%). Also excluded were DCF results that were more than 200% of the median value of the DCF results for the entire proxy group prior to the elimination of any outlier results (with the exception of negative estimates). See page 7 of this Schedule and FERC Opinion No. 569, 169 FERC ¶, 61,129, at P. 387 (Nov. 21, 2019), FERC Opinion No. 569-A, 171 FERC ¶ 61,154, at P.154 (May 21, 2020), and FERC Opinion No. 569-B, 173 FERC ¶ 61,159, at P.140 (Nov. 19, 2020). FERC's previous high-end outlier test of 17.7% was further applied where indicated (see ISO New England Inc., 109 FERC ¶ 61,147 at P 205 (November 3, 2004)).

DCF Method
Gas LDC Group
Historical EPS Growth Rates and Cost of Equity Estimates

Gas LDC Group	(1) Dividend Yield	(2) 5-Year Historical EPS Growth	(3) 10-Year Historical EPS Growth	(4) Average Historical EPS Growth	(5) Cost of Equity - Hist. EPS
Atmos Energy Corp.	2.5%	8.5%	8.5%	8.5%	11.0%
New Jersey Resources Corp.	3.3%	2.5%	5.0%	3.8%	7.0%
NiSource Inc.	3.1%	4.0%	3.0%	3.5%	6.6%
Northwest Natural Gas Co.	3.8%	2.5%	-1.0%	0.8%	4.5%
ONE Gas, Inc.	3.0%	9.5%	n/a	9.5%	12.5%
Spire Inc.	3.8%	2.5%	2.0%	2.3%	6.1%
Average (6)	3.2%	4.9%	3.5%	4.7%	10.2%

Low-End and High-End Outlier Tests	
Low-End Threshold (6.75%) (6)	6.75%
Median Result (excluding negative values)(6)	6.8%
200% of Median Result (6)	13.6%
High-End Threshold - 200% of Median (average)	13.6%

(1) See page 3 of this Schedule.
(2) See page 6 of this Schedule.
(3) See page 6 of this Schedule.
(4) Average of (2) and (3) above. If either the 10-year or 5-year historical EPS growth rate is either negative or unavailable, only the positive or available EPS growth rate has been referenced.
(5) Sum of (1) and (4) above.
(6) For cost of equity estimates, the average calculations exclude the highlighted data. DCF estimates below 6.75% were excluded from the estimated cost of equity. Also excluded were DCF results that were more than 200% higher than the average of the DCF results for the entire proxy group prior to the elimination of any outlier results (with the exception of negative estimates). See page 6 of this Schedule and FERC Opinion No. 569, 169 FERC ¶, 61,129, at P. 387 (Nov. 21, 2019), FERC Opinion No. 569-A, 171 FERC ¶ 61,154, at P.154 (May 21, 2020), and FERC Opinion No. 569-B, 173 FERC ¶ 61,159, at P.140 (Nov. 19, 2020).

DCF Method
Gas LDC Group
Dividend Yield Calculations

Gas LDC Group	(a) 30/60/90 Day Avg. Stock Price	(b) Next 12-Mo. Dividends	(b)/(a) Dividend Yield
Atmos Energy Corp.	$ 114.92	$ 2.87	2.5%
New Jersey Resources Corp.	$ 44.62	$ 1.45	3.3%
NiSource Inc.	$ 30.44	$ 0.94	3.1%
Northwest Natural Gas Co.	$ 51.36	$ 1.93	3.8%
ONE Gas, Inc.	$ 85.86	$ 2.56	3.0%
Spire Inc.	$ 73.59	$ 2.80	3.8%
Average	-	-	3.2%

(a) See pages 4-5 of this Schedule; 30 day /60 day /90 day average closing stock price.

(b) Value Line Investment Survey, Summary and Index, June 10, 2022. Estimated dividends, next twelve months.

Averages	Atmos Energy	New Jersey Resources	NiSource Inc.	Northwest Natural Gas	ONE Gas, Inc.	Spire Inc.
30-Day Average	$ 114.64	$ 44.85	$ 30.37	$ 51.31	$ 86.28	$ 75.73
60-Day Average	$ 116.41	$ 45.09	$ 30.78	$ 51.77	$ 86.90	$ 73.87
90-Day Average	$ 113.71	$ 43.91	$ 30.19	$ 50.99	$ 84.41	$ 71.16
30/60/90 Day Avg.	$ 114.92	$ 44.62	$ 30.44	$ 51.36	$ 85.86	$ 73.59

Date	Atmos Energy	New Jersey Resources	NiSource Inc.	Northwest Natural Gas	ONE Gas, Inc.	Spire Inc.
6/6/2022	116.76	46.69	31.76	55.45	87.44	78.28
6/3/2022	116.11	46.14	31.42	55.18	87.15	77.61
6/2/2022	116.60	46.57	31.41	55.72	86.74	78.20
6/1/2022	116.43	45.90	31.34	54.62	86.76	77.80
5/31/2022	116.31	45.92	31.45	54.29	87.02	78.30
5/27/2022	117.64	46.28	31.76	54.25	88.00	78.84
5/26/2022	116.74	46.19	31.54	54.73	88.21	78.32
5/25/2022	115.92	46.18	31.44	54.54	88.15	78.18
5/24/2022	116.03	46.03	31.24	55.11	88.63	77.93
5/23/2022	113.67	45.36	30.75	52.48	86.65	75.51
5/20/2022	111.70	44.91	30.28	51.78	85.69	75.36
5/19/2022	111.37	45.51	30.31	51.52	86.14	75.84
5/18/2022	111.85	45.54	30.56	51.07	87.37	76.72
5/17/2022	113.75	45.40	30.75	51.10	87.55	77.02
5/16/2022	113.16	44.63	30.43	50.78	85.96	75.39
5/13/2022	112.96	44.02	30.32	50.63	84.90	74.50
5/12/2022	112.09	43.66	29.61	50.14	85.34	74.75
5/11/2022	112.62	43.77	29.67	49.82	84.59	74.13
5/10/2022	113.11	43.85	29.32	49.24	84.68	74.45
5/9/2022	113.63	44.21	29.44	49.54	85.42	75.55
5/6/2022	114.90	43.76	29.49	49.34	85.13	73.95
5/5/2022	115.04	43.19	29.31	49.02	84.79	73.52
5/4/2022	115.31	44.60	29.67	49.16	85.82	74.35
5/3/2022	112.61	43.83	28.96	47.27	82.99	72.14
5/2/2022	111.76	42.79	28.73	47.29	82.63	72.79
4/29/2022	113.40	43.16	29.12	47.83	84.37	72.75
4/28/2022	116.81	44.16	30.06	48.74	87.57	74.67
4/27/2022	116.06	44.09	30.11	49.17	87.35	74.63
4/26/2022	117.05	44.63	30.20	49.64	87.77	75.23
4/25/2022	117.70	44.66	30.58	49.88	87.73	75.30
4/22/2022	118.70	45.85	30.87	51.08	88.39	77.00
4/21/2022	121.16	46.08	31.39	51.55	88.93	77.99
4/20/2022	122.69	46.79	32.10	51.50	89.20	78.07
4/19/2022	120.61	46.34	31.77	50.82	88.75	78.09
4/18/2022	119.60	45.82	31.74	50.19	88.43	76.55
4/14/2022	119.74	45.79	31.75	49.88	89.02	75.49
4/13/2022	119.90	45.26	31.68	49.77	89.50	74.82
4/12/2022	120.20	45.71	32.11	50.37	90.90	75.85
4/11/2022	120.51	45.83	31.89	50.72	90.57	75.80
4/8/2022	121.71	46.17	32.05	51.41	91.88	76.05
4/7/2022	120.86	46.01	32.11	51.57	90.46	74.62
4/6/2022	122.05	46.70	32.46	51.72	91.37	74.55
4/5/2022	120.23	45.88	31.86	51.29	89.11	73.20
4/4/2022	119.18	46.08	31.72	51.73	88.38	72.14
4/1/2022	121.41	47.17	32.08	51.91	89.53	72.63
3/31/2022	119.49	45.86	31.80	51.72	88.24	71.76

Date	Atmos Energy	New Jersey Resources	NiSource Inc.	Northwest Natural Gas	ONE Gas, Inc.	Spire Inc.
3/30/2022	120.37	46.36	31.61	51.34	88.50	71.76
3/29/2022	119.18	46.38	31.43	55.48	87.71	70.98
3/28/2022	117.79	45.89	31.05	54.59	87.20	69.47
3/25/2022	118.52	45.52	31.14	55.05	86.84	69.20
3/24/2022	115.67	44.26	30.54	53.14	84.20	67.13
3/23/2022	114.31	43.79	30.25	52.66	83.27	66.88
3/22/2022	114.16	44.18	30.22	52.64	83.56	67.27
3/21/2022	115.24	44.27	30.36	53.34	84.48	67.67
3/18/2022	112.73	43.46	30.09	52.68	82.50	66.35
3/17/2022	114.47	43.49	30.14	52.75	83.87	67.36
3/16/2022	114.35	43.57	30.09	53.18	83.45	67.09
3/15/2022	114.11	43.43	29.85	53.10	85.10	67.79
3/14/2022	112.86	43.54	29.61	54.56	85.83	67.93
3/11/2022	113.74	44.03	29.79	55.00	86.15	68.63
3/10/2022	113.29	44.62	29.92	56.40	86.07	68.23
3/9/2022	112.18	44.01	29.65	55.39	83.84	68.60
3/8/2022	113.40	45.55	29.61	56.27	88.47	70.21
3/7/2022	116.01	45.44	30.11	55.81	88.87	71.55
3/4/2022	116.15	45.25	30.48	55.98	87.36	70.79
3/3/2022	113.74	44.76	29.67	54.88	85.78	68.98
3/2/2022	111.14	43.53	29.19	53.89	84.14	67.13
3/1/2022	109.93	42.60	28.65	52.22	82.35	66.01
2/28/2022	109.81	43.62	28.93	52.01	83.09	67.11
2/25/2022	109.09	43.49	28.98	49.70	81.21	66.17
2/24/2022	104.75	41.45	28.33	46.97	77.61	64.55
2/23/2022	105.39	40.16	28.21	46.60	76.07	62.85
2/22/2022	106.26	40.51	28.36	47.08	77.36	63.84
2/18/2022	106.04	39.99	28.45	46.30	76.96	62.89
2/17/2022	106.66	40.41	28.57	47.24	76.98	63.84
2/16/2022	106.09	40.41	28.40	46.74	75.18	64.71
2/15/2022	105.53	40.35	28.26	46.43	74.31	64.01
2/14/2022	105.98	40.30	28.41	46.63	74.98	64.54
2/11/2022	106.68	40.16	28.76	46.83	75.30	65.14
2/10/2022	105.95	39.69	28.50	46.10	74.41	63.81
2/9/2022	108.85	40.49	29.02	47.44	76.24	64.13
2/8/2022	106.57	39.93	28.90	47.11	76.71	63.83
2/7/2022	105.94	40.24	28.79	46.94	76.60	63.66
2/4/2022	105.76	39.99	29.35	46.97	77.06	63.71
2/3/2022	106.78	40.23	29.74	47.56	78.29	64.68
2/2/2022	106.79	39.91	29.60	47.65	77.87	64.17
2/1/2022	106.28	40.05	28.83	47.61	77.69	66.31
1/31/2022	107.22	40.21	29.18	47.34	77.89	65.92
1/28/2022	106.11	39.92	29.27	47.51	77.50	65.68
1/27/2022	104.83	39.37	27.97	47.31	76.76	64.79
90-Day Average	113.71	43.91	30.19	50.99	84.41	71.16

Source: Yahoo Finance, accessed June 7, 2022.

	Past 5-Years Historical Growth Rates				Estimated '19-'21 to '25-'27 Growth Rates			
Gas LDC Group	EPS	DPS	BVPS	Average	EPS	DPS	BVPS	Average
Atmos Energy Corp.	8.5%	8.0%	11.0%	9.2%	7.5%	7.0%	7.5%	7.3%
New Jersey Resources Corp.	2.5%	6.5%	7.0%	5.3%	5.0%	5.0%	4.5%	4.8%
NiSource Inc.	4.0%	n/a	-2.5%	0.8%	9.5%	4.5%	5.0%	6.3%
Northwest Natural Gas Co.	2.5%	0.5%	0.5%	1.2%	6.5%	0.5%	4.0%	3.7%
ONE Gas, Inc.	9.5%	13.5%	3.5%	8.8%	6.5%	6.5%	9.5%	7.5%
Spire Inc.	2.5%	6.0%	4.5%	4.3%	9.0%	5.0%	7.0%	7.0%
Average	4.9%	6.9%	4.0%	4.9%	7.3%	4.8%	6.3%	6.1%

	Past 10-Years Historical Growth Rates			
Gas LDC Group	EPS	DPS	BVPS	Average
Atmos Energy Corp.	8.5%	5.5%	8.5%	7.5%
New Jersey Resources Corp.	5.0%	6.5%	7.5%	6.3%
NiSource Inc.	3.0%	-1.0%	-3.0%	-0.3%
Northwest Natural Gas Co.	-1.0%	1.5%	1.0%	0.5%
ONE Gas, Inc.	n/a	n/a	n/a	n/a
Spire Inc.	2.0%	4.5%	6.5%	4.3%
Average	3.5%	3.4%	4.1%	3.7%

Source: Value Line Investment Survey, Ratings & Reports, May 27, 2022.

Recent Moody's Average for "A" Rated and "Baa" Rated 30-Year Utility Bond Yields (1)	5.17%
Market Risk Premium per CAPM Analysis (2)	7.95%
20% Weighting Factor per FERC Opinion No. 569 (3)	20.0%
Equity Risk Premium Factor to Apply to Average of "A-"/"Baa1" Bond Yields (3)(4)	1.59%
Low-End Outlier Threshold (3)(5)	6.76%

Footnotes:

(1) Average Utility Bond Yield Between "A" rated and "Baa" rated Utility Bond Yield as of June 13, 2022 (Moody's Credit Trends, Moody's Analytics, Inc. (June 14, 2022).

(2) See Mr. Rea's CAPM analysis (Schedule 7, p. 1). Average of the historical average and prospective market risk premium estimates.

(3) See FERC Opinion No. 569, 169 FERC ¶ 61,129, at P. 387-389 (Nov. 21, 2019), and FERC Opinion No. 569-A, 171 FERC ¶ 61,154, at P.161-162 (May 21, 2020).

(4) Product of (2) x (3) above.

(5) Sum of (1) and (4) above.

Gas LDC Group	Value Line Risk Indicators: Beta	Safety Rank	Financial Strength	Fin. Str. Weight	Stk Price Stability	Long-Term Credit Ratings: S&P LT Rating (1)	S&P Weight (1)	Moody's LT Rating	Moody's Weight	Market Cap: Source: Value Line Billions ($)
Atmos Energy Corp.	0.80	1	A+	2	95	A-	7	A1	5	$ 15.70
New Jersey Resources Corp. (1)	0.95	2	A+	2	85	A-	7	n/a	n/a	4.30
Nisource Inc.	0.85	3	B+	5	100	BBB+	8	Baa2	9	12.40
Northwest Natural Gas Co.	0.80	3	A	3	85	A+	5	Baa1	8	1.60
ONE Gas, Inc.	0.80	2	B++	4	95	BBB+	8	A3	7	4.66
Spire Inc.	0.80	2	B++	4	90	A-	7	Baa2	9	3.90
Averages	0.83	2.2	A	3.3	92	A-	7	Baa1	8	$ 7.09

Source: Value Line Investment Survey, Ratings & Reports, May 27, 2022. S&P and Moody's long-term credit ratings accessed May 25, 2022.

Footnotes: (1) Long-term credit rating for New Jersey Natural Gas Co. is from Fitch Ratings.
n/r - no credit rating issued.

S&P Credit Rating Weightings		Moody's Credit Rating Weightings		Value Line Fin. Str. Weightings	
AAA	1	Aaa	1	A++	1
AA+	2	Aa1	2	A+	2
AA	3	Aa2	3	A	3
AA-	4	Aa3	4	B++	4
A+	5	A1	5	B+	5
A	6	A2	6	B	6
A-	7	A3	7	C++	7
BBB+	8	Baa1	8	C+	8
BBB	9	Baa2	9	C	9
BBB-	10	Baa3	10		
BB+	11	Ba1	11		
BB	12	Ba2	12		
BB-	13	Ba3	13		

DCF Method
Non-Regulated Group
Projected Growth Rates and Cost of Equity Estimates

		(1)	(2)	(3)	(4)	(5)	(5)	(5)
			Projected Growth Rates			Cost of Equity (COE) - Projected Growth Rates		
Non-Regulated Proxy Group	Ticker	Dividend Yield	Yahoo Finance EPS Growth	Zacks EPS Growth	Value Line EPS Growth	Yahoo Finance EPS COE	Zacks EPS COE	Value Line EPS COE
Air Products and Chemicals, Inc.	APD	2.7%	12.1%	13.1%	12.0%	14.8%	15.7%	14.7%
Coca-Cola Co.	KO	2.8%	6.6%	7.0%	7.5%	9.4%	9.8%	10.3%
Comcast Corp.	CMCSA	2.5%	13.5%	13.3%	9.5%	15.9%	15.7%	12.0%
Hershey Company	HSY	1.7%	9.5%	7.7%	6.5%	11.2%	9.3%	8.2%
J.B. Hunt Transport Services	JBHT	0.9%	23.0%	15.0%	11.5%	23.9%	15.9%	12.4%
McCormick & Co.	MKC	1.6%	7.0%	6.1%	6.0%	8.5%	7.6%	7.6%
McDonald's Corp.	MCD	2.3%	7.7%	8.0%	10.5%	10.0%	10.3%	12.8%
PepsiCo, Inc.	PEP	2.6%	7.5%	7.6%	6.0%	10.1%	10.2%	8.6%
Procter and Gamble Co.	PG	2.4%	5.4%	6.1%	6.5%	7.8%	8.4%	8.9%
Sherwin-Williams Co.	SHW	0.9%	14.7%	13.2%	11.5%	15.6%	14.1%	12.4%
United Parcel Service	UPS	3.2%	14.1%	9.0%	11.5%	17.3%	12.2%	14.7%
Average (6)		2.1%	11.0%	9.6%	9.0%	12.1%	11.8%	11.1%

Low-End and High-End Outlier Tests			
Low-End Threshold (6.75%) (6)	6.75%	6.75%	6.75%
Median Result (excluding negative values) (6)	11.2%	10.3%	12.0%
200% of Median Result (6)	22.3%	20.7%	23.9%
High-End Threshold - 200% of Median (average)	22.3%	22.3%	22.3%

(1) See page 3 of this Schedule.

(2) Consensus estimates provided by Yahoo Finance (retrieved June 10, 2022).

(3) Consensus estimates provided by Zacks (retrieved June 10, 2022).

(4) Value Line Investment Survey, Ratings and Reports; multiple report dates between April 15, 2022 and June 17, 2022.

(5) Sum of dividend yield and applicable projected growth rate.

(6) For cost of equity estimates, the average calculations exclude the highlighted data. DCF estimates below 6.75% were excluded from the estimated cost of equity. Also excluded were DCF results that were more than 200% of the median value of the DCF results for the entire proxy group prior to the elimination of any outlier results (with the exception of negative estimates). See Schedule 4 (p. 7) and FERC Opinion No. 569, 169 FERC ¶, 61,129, at P. 387 (Nov. 21, 2019), FERC Opinion No. 569-A, 171 FERC ¶ 61,154, at P.154 (May 21, 2020), and FERC Opinion No. 569-B, 173 FERC ¶ 61,159, at P.140 (Nov. 19, 2020). FERC's previous high-end outlier test of 17.7% was further applied where indicated (see ISO New England Inc., 109 FERC ¶ 61,147 at P 205 (November 3, 2004).

Non-Regulated Proxy Group	(1) Dividend Yield	(2) 5-Year Historical EPS Growth	(3) 10-Year Historical EPS Growth	(4) Average Historical EPS Growth	(5) Cost of Equity Historical EPS Growth
Air Products and Chemicals, Inc.	2.7%	5.0%	5.5%	5.3%	7.9%
Coca-Cola Co.	2.8%	1.5%	2.0%	1.8%	4.5%
Comcast Corp.	2.5%	13.0%	16.0%	14.5%	17.0%
Hershey Company	1.7%	8.5%	9.5%	9.0%	10.7%
J.B. Hunt Transport Services	0.9%	10.0%	13.5%	12.5%	13.4%
McCormick & Co.	1.6%	10.0%	8.0%	9.0%	10.6%
McDonald's Corp.	2.3%	8.5%	5.5%	7.0%	9.3%
PepsiCo, Inc.	2.6%	4.5%	4.0%	4.3%	6.9%
Procter and Gamble Co.	2.4%	5.0%	3.5%	4.3%	6.6%
Sherwin-Williams Co.	0.9%	17.0%	19.0%	18.0%	18.9%
United Parcel Service	3.2%	9.0%	9.5%	9.3%	12.5%
Average (6)	2.1%	8.4%	8.7%	8.6%	11.0%

Low-End and High-End Outlier Tests	
Low-End Threshold (6.75%) (6)	6.75%
Median Result (excluding negative values) (6)	10.6%
200% of Median Result (6)	21.1%
High-End Threshold - 200% of Median (average)	21.1%

(1) See page 3 of this Schedule.

(2) Value Line Investment Survey, Ratings and Reports; multiple report dates between April 15, 2022 and June 17, 2022.

(3) See (2) above.

(4) Average of (2) and (3) above.

(5) Sum of (1) and (4) above, which is the sum of the dividend yield and the average historical earnings growth rate.

(6) For cost of equity estimates, the average calculations exclude the highlighted data. DCF estimates below 6.75% were excluded from the estimated cost of equity. Also excluded were DCF results that were more than 200% of the median value of the DCF results for the entire proxy group prior to the elimination of any outlier results (with the exception of negative estimates). See Schedule 4 (p. 7) and FERC Opinion No. 569, 169 FERC ¶, 61,129, at P. 387 (Nov. 21, 2019), FERC Opinion No. 569-A, 171 FERC ¶ 61,154, at P.154 (May 21, 2020), and FERC Opinion No. 569-B, 173 FERC ¶ 61,159, at P.140 (Nov. 19, 2020). FERC's previous high-end outlier test of 17.7% was further applied where indicated (see ISO New England Inc.,

DCF Method
Non-Regulated Group
Dividend Yield Calculations

Non-Regulated Proxy Group	Ticker	Dividend Next 12-Mon. (1)	30/60/90-Day Stock Price Average	Dividend Yield
Air Products and Chemicals, Inc.	APD	6.48	242.17	2.7%
Coca-Cola Co.	KO	1.76	63.25	2.8%
Comcast Corp.	CMCSA	1.08	43.99	2.5%
Hershey Company	HSY	3.60	215.81	1.7%
J.B. Hunt Transport Services	JBHT	1.63	178.93	0.9%
McCormick & Co.	MKC	1.50	96.77	1.6%
McDonald's Corp.	MCD	5.68	246.00	2.3%
PepsiCo, Inc.	PEP	4.40	168.60	2.6%
Procter and Gamble Co.	PG	3.65	152.58	2.4%
Sherwin-Williams Co.	SHW	2.50	264.72	0.9%
United Parcel Service	UPS	6.08	189.60	3.2%
Average				2.1%

(1) Source: Value Line Summary and Index, June 17, 2022.

Averages	Air Products	Coca-Cola	Comcast Corp.	Hershey Co.	J.B. Hunt	McCormick	McDonald's	PepsiCo	Procter and Gamble	Sherwin Williams	UPS
30/60/90 - Day Avg.	$ 242.17	$ 63.25	$ 43.99	$ 215.81	$ 178.93	$ 96.77	$ 246.00	$ 168.60	$ 152.58	$ 264.72	$ 189.60
30-Day Average	$ 241.08	$ 63.75	$ 42.02	$ 216.66	$ 171.99	$ 94.79	$ 245.59	$ 168.84	$ 150.43	$ 269.50	$ 179.51
60-Day Average	$ 242.85	$ 63.41	$ 44.50	$ 217.61	$ 179.97	$ 97.47	$ 246.35	$ 169.05	$ 153.31	$ 261.97	$ 190.83
90-Day Average	$ 242.56	$ 62.60	$ 45.43	$ 213.16	$ 184.83	$ 98.04	$ 246.07	$ 167.92	$ 154.00	$ 262.69	$ 198.45

Date	Air Products	Coca-Cola	Comcast Corp.	Hershey Co.	J.B. Hunt	McCormick	McDonald's	PepsiCo	Procter and Gamble	Sherwin Williams	UPS
6/9/2022	253.62	61.80	42.18	209.45	166.06	87.36	242.16	162.78	142.49	261.99	176.55
6/8/2022	252.38	62.89	42.84	210.55	168.80	89.46	245.61	165.73	145.11	268.08	179.44
6/7/2022	260.79	63.25	42.63	211.77	176.57	89.65	248.94	166.56	146.94	277.23	185.51
6/6/2022	257.45	62.87	42.28	211.41	181.07	89.73	248.07	165.54	145.32	275.03	187.11
6/3/2022	252.27	62.97	42.93	209.18	179.40	89.85	248.36	164.85	145.89	268.88	185.49
6/2/2022	252.85	63.73	43.80	209.23	177.41	91.08	250.38	166.68	147.21	269.49	184.07
6/1/2022	243.51	63.07	43.93	209.69	172.91	90.72	249.28	166.49	145.64	265.26	180.23
5/31/2022	246.16	63.38	44.28	211.71	172.58	92.72	252.21	167.75	147.88	268.04	182.25
5/27/2022	250.65	64.68	44.16	212.61	174.86	92.94	251.87	171.77	148.72	276.35	182.53
5/26/2022	242.49	64.30	44.13	209.54	173.18	91.96	248.09	170.11	146.48	271.97	178.38
5/25/2022	236.42	64.07	43.70	211.43	167.20	93.41	244.01	168.97	145.21	265.12	173.86
5/24/2022	236.82	64.02	43.07	213.45	161.94	93.71	244.52	167.82	147.63	257.65	174.11
5/23/2022	237.95	62.86	42.88	209.25	165.92	91.62	238.00	165.60	145.05	259.27	174.39
5/20/2022	237.59	60.98	42.01	206.98	164.38	90.32	233.91	162.21	141.79	257.95	171.04
5/19/2022	234.22	60.00	42.02	205.12	160.62	89.44	229.00	161.20	141.70	259.37	167.39
5/18/2022	234.47	61.20	42.13	207.69	162.85	91.65	231.05	163.65	145.04	259.66	172.23
5/17/2022	239.58	65.78	42.84	225.41	178.97	101.01	241.63	174.46	154.68	269.26	183.14
5/16/2022	232.92	65.96	41.87	229.32	173.48	100.94	244.04	175.47	155.12	271.37	179.77
5/13/2022	233.71	65.72	41.48	225.91	176.44	100.27	245.04	173.72	153.62	273.33	178.04
5/12/2022	231.41	64.51	41.39	222.53	172.63	97.87	244.19	170.40	151.99	274.54	178.65
5/11/2022	232.89	64.31	39.84	224.63	169.60	98.14	244.43	170.66	152.61	264.67	177.46
5/10/2022	230.68	64.01	40.30	223.15	172.14	97.97	245.68	171.49	154.79	266.37	182.01
5/9/2022	233.22	64.61	39.76	223.20	172.50	98.52	247.49	171.70	155.61	276.97	181.43
5/6/2022	235.82	64.74	40.00	226.05	175.79	97.54	250.78	170.41	156.00	273.38	179.92
5/5/2022	235.98	64.51	40.38	223.84	175.67	96.44	248.92	170.39	154.46	276.95	179.79
5/4/2022	247.49	65.03	41.62	225.33	178.43	99.45	254.32	173.86	157.36	282.53	183.80
5/3/2022	239.10	63.08	40.37	220.07	172.70	97.73	245.87	167.99	156.21	269.37	178.12
5/2/2022	235.40	63.44	40.45	217.53	170.13	97.94	246.64	167.76	158.38	268.78	178.58
4/29/2022	234.07	64.61	39.76	225.77	170.85	100.57	249.16	171.71	160.55	274.96	179.98
4/28/2022	240.48	66.19	41.70	227.98	174.59	103.73	254.19	177.50	163.41	281.31	190.16
4/27/2022	238.25	65.56	44.45	222.24	171.80	101.95	247.14	174.85	159.36	279.38	186.40
4/26/2022	235.63	65.05	44.57	220.13	172.01	100.59	248.58	173.30	159.79	271.37	183.05
4/25/2022	242.76	65.94	45.71	224.98	174.05	102.37	252.88	173.74	162.55	248.02	189.64
4/22/2022	242.92	65.25	45.38	224.14	169.35	102.28	250.17	172.15	161.25	244.92	187.15
4/21/2022	251.14	66.21	46.94	228.79	171.34	104.28	255.25	174.84	162.61	251.61	188.80
4/20/2022	248.74	65.96	47.40	229.68	172.56	104.00	255.85	175.47	163.65	253.09	190.43
4/19/2022	249.57	65.07	48.11	226.98	173.88	101.53	255.40	172.90	159.41	252.25	190.69
4/18/2022	246.00	64.44	46.86	224.41	171.45	100.25	251.06	170.42	157.06	246.17	187.16
4/14/2022	246.84	65.02	47.58	225.98	172.01	101.57	250.51	171.90	158.57	252.90	188.02
4/13/2022	249.92	64.73	47.91	225.58	171.98	102.00	251.33	173.00	159.46	258.40	188.87
4/12/2022	247.78	64.56	47.25	226.02	168.23	102.04	249.17	173.30	159.01	256.95	187.89
4/11/2022	249.83	63.81	47.61	223.93	170.70	102.09	250.45	172.60	159.49	261.10	190.84
4/8/2022	251.20	63.83	47.42	223.72	173.18	102.12	251.46	173.13	160.10	263.76	190.97
4/7/2022	251.37	63.44	47.15	222.71	172.59	102.99	254.36	172.55	158.86	263.83	192.70
4/6/2022	250.10	63.10	47.73	221.75	170.71	102.52	251.46	172.39	156.83	262.63	194.39

30-Day / 60-Day /90-Day Average Closing Stock Price Through June 9, 2022

Date	Air Products	Coca-Cola	Comcast Corp.	Hershey Co.	J.B. Hunt	McCormick	McDonald's	PepsiCo	Procter and Gamble	Sherwin Williams	UPS
4/5/2022	251.68	62.47	47.87	218.41	173.08	102.79	248.51	169.50	154.62	257.97	197.21
4/4/2022	252.65	62.54	48.11	216.52	177.13	101.35	246.83	169.32	154.08	259.04	205.21
4/1/2022	248.99	62.87	47.70	218.77	181.51	101.92	249.25	169.76	155.09	255.21	206.64
3/31/2022	249.91	62.00	46.82	216.63	200.79	99.80	247.28	167.38	152.80	249.62	214.46
3/30/2022	253.16	62.21	47.69	216.65	206.26	97.26	249.03	167.96	154.39	253.01	220.20
3/29/2022	252.34	62.16	47.78	214.74	209.22	96.90	248.17	168.19	155.46	259.35	222.45
3/28/2022	248.31	61.92	47.53	214.65	209.54	97.62	242.94	165.73	153.88	250.58	219.55
3/25/2022	246.56	61.53	47.13	214.37	209.19	97.92	241.58	165.24	152.83	245.21	215.35
3/24/2022	242.41	60.98	46.80	211.24	208.44	96.65	240.26	164.47	151.08	249.93	214.66
3/23/2022	235.24	60.40	46.52	207.76	210.18	96.14	236.12	163.48	150.82	247.64	214.58
3/22/2022	236.54	60.80	47.22	208.30	213.85	96.78	238.12	164.34	151.88	250.17	218.42
3/21/2022	234.20	60.58	46.67	208.36	213.96	96.72	235.32	162.56	150.72	245.82	218.56
3/18/2022	231.67	60.10	46.91	206.73	215.07	96.24	238.92	162.79	150.15	251.53	219.78
3/17/2022	228.55	60.09	46.48	206.71	216.28	96.89	237.47	160.94	150.23	247.52	222.32
3/16/2022	224.60	59.46	46.23	205.70	218.06	96.83	238.14	159.70	149.76	244.38	217.90
3/15/2022	222.63	59.62	45.54	208.82	198.98	98.28	232.57	159.00	150.27	242.44	210.53
3/14/2022	218.27	58.54	44.97	206.71	195.35	98.20	226.18	155.89	145.05	237.63	204.30
3/11/2022	219.38	57.92	45.02	204.69	198.35	96.52	226.87	153.73	143.22	233.59	203.90
3/10/2022	227.60	57.88	45.39	205.14	201.88	97.94	222.00	154.51	144.94	237.55	207.18
3/9/2022	227.00	58.96	46.12	204.88	199.37	98.31	222.47	157.40	148.77	241.71	206.78
3/8/2022	218.77	58.66	46.13	204.01	193.88	97.55	222.79	157.87	146.79	239.85	203.41
3/7/2022	221.50	61.08	46.30	213.38	199.95	104.06	224.33	162.45	152.84	242.95	201.18
3/4/2022	228.43	62.57	47.21	212.82	203.85	103.41	235.81	165.75	155.14	258.49	210.39
3/3/2022	231.86	62.47	47.12	208.14	201.24	99.56	236.65	163.27	154.36	258.04	212.43
3/2/2022	233.33	62.43	46.38	208.03	202.72	97.33	240.94	164.52	153.79	260.22	211.46
3/1/2022	230.53	61.97	46.39	204.86	200.36	96.25	239.63	162.27	153.31	255.53	205.58
2/28/2022	236.30	62.24	46.76	202.26	202.93	95.17	244.77	163.74	155.89	263.13	210.42
2/25/2022	240.38	62.85	47.07	204.32	196.09	96.21	249.45	168.38	158.24	267.27	209.95
2/24/2022	235.13	60.51	46.01	196.81	188.91	94.12	245.03	163.79	151.76	258.94	207.19
2/23/2022	234.67	61.59	45.13	202.57	188.76	96.61	247.79	166.69	155.96	259.40	204.48
2/22/2022	238.11	62.28	46.94	202.03	189.15	96.97	252.70	168.35	157.93	261.58	208.97
2/18/2022	241.97	62.54	46.64	202.59	188.29	97.79	250.60	167.71	159.90	268.07	209.36
2/17/2022	240.61	62.12	46.77	202.03	187.84	98.08	250.93	166.75	159.82	267.22	210.71
2/16/2022	245.34	60.90	48.09	202.65	191.00	98.39	253.09	166.30	158.01	272.63	215.31
2/15/2022	247.83	60.91	48.05	202.88	193.01	100.12	253.81	165.96	156.82	271.57	217.26
2/14/2022	243.49	60.68	47.40	203.35	192.49	100.40	253.39	166.70	156.74	270.48	213.99
2/11/2022	244.39	60.29	47.62	205.19	189.97	100.75	255.16	168.58	156.29	273.10	213.49
2/10/2022	252.38	61.38	48.92	203.42	191.51	100.44	256.87	168.37	157.17	279.93	220.68
2/9/2022	259.36	61.04	49.77	203.64	194.39	102.30	259.86	171.94	159.60	286.62	225.07
2/8/2022	252.81	62.00	49.21	207.00	188.90	102.44	260.08	172.02	159.96	279.67	225.20
2/7/2022	254.38	61.60	48.86	204.71	186.56	101.89	259.85	171.81	160.32	279.22	225.06
2/4/2022	263.08	60.96	49.33	202.78	189.60	101.73	260.06	172.49	161.53	281.73	224.79
2/3/2022	280.88	61.61	49.64	203.92	193.31	102.90	260.64	175.37	164.14	287.83	228.69
2/2/2022	284.35	61.18	49.99	198.54	195.78	101.66	262.28	175.47	162.60	294.32	232.11
2/1/2022	284.63	60.56	49.94	195.73	192.15	100.49	258.99	172.34	159.74	293.09	230.69

DCF Method
Non-Regulated Group
Investment Risk Indicators

	Value Line Risk Indicators						Long-Term Credit Ratings				Market Cap.
Non-Regulated Group	Beta	Safety Rank	Financial Strength	Fin. Str. Weight	Stock Price Stability	Percent % Debt/Cap.	S&P LT Rating	S&P Weight	Moody's LT Rating	Moody's Weight	Billions ($) Value Line
Air Products and Chemicals, Inc.	0.90	1	A++	1	95	33.0%	A	6	A2	6	$ 54.5
Coca-Cola Co.	0.90	1	A++	1	100	62.0%	A+	5	A1	5	$ 270.0
Comcast Corp.	0.80	1	A+	2	100	51.0%	A-	7	A3	7	$ 198.0
Hershey Company	0.85	1	A+	2	100	60.0%	A	6	A1	5	$ 44.4
J.B. Hunt Transport Services	0.95	1	A+	2	80	23.0%	BBB+	8	Baa1	8	$ 18.1
McCormick & Co.	0.80	1	A+	2	95	47.0%	BBB	9	Baa2	9	$ 27.2
McDonald's Corp.	0.95	1	A++	1	95	100.0%	BBB+	8	Baa1	8	$ 183.0
PepsiCo, Inc.	0.75	1	A++	1	100	70.0%	A+	5	A1	5	$ 234.0
Procter and Gamble Co.	0.70	1	A++	1	100	34.0%	AA-	4	Aa3	4	$ 349.0
Sherwin-Williams Co.	0.90	1	A+	2	95	79.0%	BBB	9	Baa2	9	$ 71.5
United Parcel Service	0.80	1	A+	2	80	56.0%	A-	7	A2	6	$ 159.0
Averages	0.85	1	A+	2	95	55.9%	A-	7	A3	7	$ 146.2

S&P Credit Rating Weightings	
AAA	1
AA+	2
AA	3
AA-	4
A+	5
A	6
A-	7
BBB+	8
BBB	9
BBB-	10
BB+	11
BB	12
BB-	13

Moody's Credit Rating Weightings	
Aaa	1
Aa1	2
Aa2	3
Aa3	4
A1	5
A2	6
A3	7
Baa1	8
Baa2	9
Baa3	10
Ba1	11
Ba2	12
Ba3	13

Value Line Fin. Str. Weightings	
A++	1
A+	2
A	3
B++	4
B+	5
B	6
C++	7
C+	8
C	9

Source: Value Line Investment Survey - Ratings & Reports - Various report dates between April 15, 2022 and June 17, 2022. Credit ratings sourced from www.standardandpoors.com and www.moodys.com.

Prospective Market Return

DCF Approach - S&P 500 Index	
Dividend Yield (1)	1.63%
Growth Rate (2)	11.31%
DCF Market Return - S&P 500 (3)	12.94%
DCF Approach - Value Line 1,700 Stock Universe	
Dividend Yield (4)	1.99%
Growth Rate (5)	9.70%
DCF Market Return - Value Line 1,700 Stock Universe (6)	11.69%
Prospective Market Return (Average) (7)	12.32%

Prospective Risk-Free Rate of Return

Blue Chip Financial Forecasts - 30-Year U.S. Treasury Bond Yield Forecast (2023-2027 average) (8)	3.82%
Prospective Market Risk Premium (Average) (9)	8.50%

Historical Market Risk Premium (SBBI Yearbook)

SBBI Yearbook Annual Total Returns (1926-2021) (10)	12.30%
SBBI Yearbook LT Gov't Bond Annual Income Return (1926-2021) (11)	4.90%
Historical Average Market Risk Premium (1926-2021) (12)	7.40%

Currently Implied Market Risk Premium (Supporting Information Only)

SBBI Yearbook LT Gov't Bond Annual Income Return (1926-2021) (11)	4.90%
Recent Average 30-Year U.S. Treasury Bond Yield (13)	2.63%
Historical Gov't Bond Income Return vs. Recent 30-Year Treasury Bond Yield (14)	2.27%
Implied Increase in Market Risk Premium Based on the Finance Literature (15)	1.14%
Currently Implied Market Risk Premium (Supporting Information Only) (16)	8.54%
Indicated Market Risk Premium (17)	7.95%

Indicated Market Risk Premium (17)	7.95%
Electric Group Relevered Beta (18)	0.88
Electric Group Risk Premium (19)	7.00%
Prospective Risk-Free Rate of Return (Average) (8)	3.82%
Unadjusted CAPM Result (20)	**10.82%**
Size Premium Adjustment (21)	0.43%
Implied Cost of Equity (CAPM with Size Adjustment) (22)	**11.25%**

Empirical CAPM Model (ECAPM)

Prospective Risk-Free Rate of Return (Average) (8)	3.82%
25% Weighting of Market Risk Premium (23)	1.99%
75% Weighting of Beta x Market Risk Premium (24)	5.25%
Implied Cost of Equity (ECAPM Model) (25)	**11.06%**

Footnotes:

(1) D/P = [$16.25 (cash dividends for Q1, 2022) x 4 (quarters) x (1+(.5) growth rate)]/[$4,214.48) (30-day/60-day/90-day average closing price through June 7, 2022). Source: www.standardandpoors.com and www.finance.yahoo.com, respectively.

(2) Average long-term consensus earnings growth estimates for the S&P 500 Index (Bloomberg Finance L.P.), accessed May 17, 2022.

(3) (1) + (2) above.

(4) See page 5 of this Schedule. Median estimated dividend yield for the next 12 months for all dividend paying stocks. Value Line Summary & Index; average estimated dividend yield from 13 consecutive weekly reports (March 25, 2022 to June 17, 2022).

(5) See page 5 of this Schedule. The Value Line average median price appreciation potential 3 to 5 years hence is 58.85%. The annual expected price appreciation growth rate based upon the five-year average horizon is 9.70% [(1+0.5885)^.20) - 1]. Source: Value Line Summary & Index; average of 13 consecutive weekly reports (March 25, 2022 to June 17, 2022).

(6) (4) + (5) above.

(7) Average of (3) and (6) above.

Footnotes (continued)

(8) Interest rate forecasts from Blue Chip Financial Forecasts, Vol. 41, No. 6 (June 1, 2022).

(9) (7) - (8) above. Result may reflect rounding differences.

(10) SBBI Yearbook (2022, Kroll, LLC), Arithmetic average of total returns for large company (S&P 500) stocks (1926-2021).

(11) SBBI Yearbook (2022, Kroll, LLC), Arithmetic average of the income return for long-term government bonds (1926-2021).

(12) (10) - (11).

(13) Average 30-Year U.S. Treasury Bond yield for the period between January 26, 2022 - June 3, 2022 (90 trading days).

(14) (11) - (13) above.

(15) (14) x 50%. Reflects historically observed inverse relationship between government interest rates and the market (equity) risk premium, as documented in the finance literature. See the CAPM section of Mr. Rea's direct testimony, which addresses this topic in greater detail.

(16) (12) + (15) above. Supporting information only, not included in the determination of the indicated market risk premium in (17) below.

(17) Average of (9) and (12) above.

(18) See CAPM section of Mr. Rea's testimony. Beta adjusted for financial leverage differential in capital structure using the Hamada equation.

(19) (17) x (18) above.

(20) (19) + (8) above.

(21) Kroll Cost of Capital Navigator. Size premium (return in excess of CAPM) for Decile 2 portfolios.

(22) (20) + (21) above.

(23) (17) above x 25%.

(24) (17) x (18) above x 75%.

(25) (8) + (23) + (24) above.

Indicated Market Risk Premium (17)	7.95%
Gas LDC Group Beta Coefficient (26)	0.830
Gas LDC Group Risk Premium (27)	6.60%
Prospective Risk-Free Rate of Return (Average) (8)	3.82%
Unadjusted CAPM Result (28)	**10.42%**
Size Premium Adjustment (29)	0.54%
Implied Cost of Equity (CAPM with Size Adjustment) (30)	**10.96%**

Empirical CAPM Model (ECAPM)

Prospective Risk-Free Rate of Return (Average) (8)	3.82%
25% Weighting of Market Risk Premium (31)	1.99%
75% Weighting of Beta x Market Risk Premium (32)	4.95%
Implied Cost of Equity (ECAPM Model) (33)	**10.76%**

Footnotes:

(26) See CAPM section of Mr. Rea's testimony.
(27) (17) x (26) above.
(28) (27) + (8) above.
(29) Kroll Cost of Capital Navigator. Size premium (return in excess of CAPM) for Decile 4 portfolios.
(30) (28) + (29) above.
(31) (17) above x 25%.
(32) (17) above x (26) x 75%.
(33) (8) + (31) + (32) above.

CAPM Method
Non-Regulated Group - Cost of Equity Estimates

Indicated Market Risk Premium (17)	7.95%
Non-Regulated Group Relevered Beta (34)	0.910
Non-Regulated Group Risk Premium (35)	7.23%
Prospective Risk-Free Rate of Return (Average) (8)	3.82%
Unadjusted CAPM Result (36)	**11.05%**
Size Premium Adjustment (37)	-0.22%
Implied Cost of Equity (CAPM with Size Adjustment) (38)	**10.83%**

Empirical CAPM Model (ECAPM)

Prospective Risk-Free Rate of Return (Average) (8)	3.82%
25% Weighting of Market Risk Premium (39)	1.99%
75% Weighting of Beta x Market Risk Premium (40)	5.43%
Implied Cost of Equity (ECAPM Model) (41)	**11.24%**

Footnotes:

(34) See CAPM section of Mr. Rea's testimony. Beta adjusted for financial leverage differential using the Hamada equation.
(35) (17) x (34) above.
(36) (35) + (8) above.
(37) Kroll Cost of Capital Navigator. Size premium (return in excess of CAPM) for Decile 1 portfolios.
(38) (36) + (37) above.
(39) (17) above x 25%.
(40) (17) x (34) above x 75%.
(41) (8) + (39) + (40) above.

CAPM Method
Value Line Investment Survey
Median Estimated Dividend Yields and Price Appreciation Potential

Value Line Report Date	Median Estimated Dividend Yields (1)	Median Price Apprec. Potential (2)
6/17/22	2.00%	60.00%
6/10/22	2.00%	60.00%
6/3/22	2.10%	70.00%
5/27/22	2.10%	70.00%
5/20/22	2.10%	70.00%
5/13/22	2.00%	60.00%
5/6/22	2.00%	55.00%
4/29/22	1.90%	55.00%
4/22/22	2.00%	55.00%
4/15/22	1.90%	50.00%
4/8/22	1.90%	50.00%
4/1/22	1.90%	50.00%
3/25/22	2.00%	60.00%
13-Week Average	1.99%	58.85%

Annual Appreciation Return (3-year realization)	16.68%
Annual Appreciation Return (4-year realization)	12.26%
Annual Appreciation Return (5-year realization)	9.70%

(1) The Value Line median of estimated dividend yields (for the next 12 months) of all dividend paying stocks under review.

(2) The Value Line estimated median price appreciation potential of all 1,700 stocks in the hypothesized econ, environment, 3 to 5 years hence.

Source: Value Line Investment Survey, Summary & Index. Averages derived from 13 consecutive weekly reports, from March 25, 2022 to June 17, 2022.

Risk Premium Method (RPM)
Electric Group - Indicated Cost of Equity

Prospective "Aaa" Rated Corporate Bond Yield (1)	4.98%
Yield/Credit Spread Adjustment Between "Aaa" Rated Corporate Bond Yields and "A" Rated Public Utility Bond Yields (2)	0.44%
Prospective "A" Rated Public Utility Bond Yield (3)	5.42%
Yield/Credit Spread Adjustment Between "A" Rated Public Utility Bonds and A-/Baa1 Average Rating of the Electric Group (4)	0.13%
Prospective Bond Yield for Electric Group (5)	5.55%
Equity Risk Premium	
- Total Market Index Approach (6)	5.83%
- Public Utility Index Approach (7)	4.40%
Indicated Equity Risk Premium (8)	5.12%
Indicated Cost of Equity - Electric Group (9)	10.67%

(1) See page 2 of this Schedule. Average prospective "Aaa" bond yield for the 2023-2027 period from the Blue Chip Financial Forecasts (June 1, 2022 edition).

(2) See page 3 of this Schedule. Yield adjustment derived from historical corporate bond yield data (recent 12 months) found in the Mergent Bond Record.

(3) Sum of (1) and (2) above.

(4) Adjustment to reflect credit spread differential between "A" rated public utility bonds and A- / Baa1 rating of the Electric Group, as reflected on page 3 of this Schedule. The 0.13% adjustment was derived via simple linear interpolation between the yield spread differential for the "Baa" rated and "A" rated public utility bonds, respectively ((0.69%-0.44%)/3*1.5) = 0.13%).

(5) Sum of (3) and (4) above, subject to rounding.

(6) See page 4 of this Schedule.

(7) See page 5 of this Schedule.

(8) Average of (6) and (7) above.

(9) Sum of (5) and (8) above.

Risk Premium Method (RPM)
Blue Chip Financial Forecasts - Consensus Forecasts

Six Quarter Forecast (Q2, 2022 - Q3, 2023)

Quarter/Year	"Aaa" Rated Corp. Bonds	"Baa" Rated Corp. Bonds
Q2, 2022 (1)	4.10%	5.00%
Q3, 2022 (1)	4.50%	5.40%
Q4, 2022 (1)	4.70%	5.60%
Q1, 2023 (1)	4.80%	5.70%
Q2, 2023 (1)	4.90%	5.80%
Q3, 2023 (1)	4.90%	5.80%
Six-Quarter Avg.	4.65%	5.55%

Three and Five Year Forecasts

Year	"Aaa" Rated Corp. Bonds	"Baa" Rated Corp. Bonds
2023 (1)	5.00%	6.00%
2024 (1)	5.00%	5.90%
2025 (1)	4.90%	5.80%
2026 (1)	5.00%	5.90%
2027 (1)	5.00%	5.90%
2023-2025 Avg.	4.97%	5.90%
2023-2027 Avg.	4.98%	5.90%

(1) Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022 (six-quarter forecast and long-range forecast).

Risk Premium Method (RPM)
Historical Corporate Bond Yield Spread Differentials (June 2021 - May 2022)
Based on Moody's Long-Term Credit Ratings

	Corporate Bonds			Public Utility Bonds			Bond Yield Spread Differentials		
Period	"Aaa" Rated	"A" Rated	"Baa" Rated	"Aa" Rated	"A" Rated	"Baa" Rated	"Aa" (Pub. Util.) vs. "Aaa" Corp.	"A" (Pub. Util.) vs. "Aaa" Corp.	"Baa" (Pub. Util.) vs. "Aaa" Corp.
Jun-21	2.79%	3.10%	3.45%	3.01%	3.16%	3.41%	0.22%	0.37%	0.62%
Jul-21	2.57%	2.89%	3.24%	2.80%	2.95%	3.20%	0.23%	0.38%	0.63%
Aug-21	2.55%	2.89%	3.24%	2.82%	2.95%	3.19%	0.27%	0.40%	0.64%
Sep-21	2.53%	2.89%	3.23%	2.84%	2.96%	3.19%	0.31%	0.43%	0.66%
Oct-21	2.68%	3.02%	3.35%	2.99%	3.09%	3.32%	0.31%	0.41%	0.64%
Nov-21	2.62%	2.95%	3.28%	2.91%	3.02%	3.25%	0.29%	0.40%	0.63%
Dec-21	2.71%	3.04%	3.37%	3.01%	3.13%	3.36%	0.30%	0.42%	0.65%
Jan-22	3.07%	3.34%	3.69%	3.19%	3.33%	3.57%	0.12%	0.26%	0.50%
Feb-22	3.25%	3.60%	3.97%	3.56%	3.68%	3.95%	0.31%	0.43%	0.70%
Mar-22	3.43%	3.88%	4.29%	3.81%	3.98%	4.28%	0.38%	0.55%	0.85%
Apr-22	3.76%	4.23%	4.66%	4.10%	4.32%	4.61%	0.34%	0.56%	0.85%
May-22	4.13%	4.65%	5.12%	4.55%	4.75%	5.07%	0.42%	0.62%	0.94%
12-Month Average	3.01%	3.37%	3.74%	3.30%	3.44%	3.70%	0.29%	0.44%	0.69%

Source: Mergent Bond Record, June 1, 2022, Volume 88, No. 6. Moody's Long-Term Corporate Bond Yield averages reference corporate and utility bonds with maturities as close as possible to 30 years.

Risk Premium Method (RPM)
Equity Risk Premium Using Total Market Approach
Electric Group

Historical Equity Risk Premium

Annual Total Returns for S&P 500 Composite Index, Arithmetic Average (1926-2021) (1)	12.30%
Annual Total Returns for Long-Term Corporate Bonds, Arithmetic Average (1926-2021) (2)	6.40%
Historical Equity Risk Premium - Total Market (3)	5.90%

Prospective Equity Risk Premium

Prospective Equity Market Annual Return (Next 3-5 years) (4)	12.32%
Prospective "Aaa" Rated Corporate Bond Yield (5)	4.98%
Prospective Equity Risk Premium - Total Market (6)	7.34%
Indicated Equity Risk Premium - Total Market (7)	6.62%
Relevered Beta - Electric Group (8)	0.880
Equity Risk Premium (with Relevered Beta) (9)	5.83%

(1) Source: 2022 SBBI Yearbook (Kroll, LLC); arithmetic average of total returns for large company stocks (S&P 500 Index) (1926-2021).
(2) Source: 2022 SBBI Yearbook (Kroll, LLC), arithmetic average of total returns for long-term high-grade corporate bonds (1926-2021).
(3) (1) - (2) above.
(4) From page 1 of Schedule 7.
(5) From pages 1 and 2 of this Schedule.
(6) (4) - (5) above.
(7) Average of (3) and (6) above.
(8) See CAPM section of Mr. Rea's testimony.
(9) (7) x (8) above.

Risk Premium Method (RPM)
Equity Risk Premium - Public Utility Index Approach
Electric Group and Gas LDC Group

Historical Equity Risk Premium - Public Utility Index Approach

Annual Holding Period Returns for S&P 500 Utilities Index, Arithmetic Average (1926-2021) (1)	10.90%
Annual Yield on Moody's "A" Rated Public Utility Bonds, Arithmetic Average (1926-2021) (2)	6.25%
Equity Risk Premium (Historical) - Public Utility Index Approach (3)	4.65%

Currently Implied Equity Risk Premium - Public Utility Index Approach

DCF Approach - S&P 500 Utilities Index	
Dividend Yield (4)	2.96%
Growth Rate (5)	5.54%
DCF Market Return - S&P Utilities Index (6)	8.50%
Recent 3-Month Average Moody's "A" Rated Utility Bond Yields (7)	4.35%
Equity Risk Premium (Currently Implied) - S&P 500 Utilities (8)	4.15%
Indicated Equity Risk Premium - Public Utility Index Approach (9)	4.40%

(1) Source: S&P 500 Utilities Index historical data (currently comprised of 28 utility companies). See page 6 of this Schedule.
(2) Source: Moody's Public Utility Manual and Mergent Bond Record. Historical yields on "A" rated utility bonds, representing the midpoint of Moody's reported utility credit ratings (Aa/A/Baa). See page 6 of this Schedule.
(3) (1) - (2) above.
(4) Source: www.spindices.com. Recently reported dividend yield for S&P 500 Utilities Index companies (April 29, 2022).
(5) Source: Bloomberg Finance LP (accessed May 17, 2022). Average long-term consensus earnings growth estimate for the S&P 500 Utilities Index.
(6) (4) + (5) above.
(7) See page 3 of this Schedule.
(8) (6) - (7) above. Subject to rounding differences.
(9) Average of (3) and (8) above.

Year	S&P 500 Utilities Index	Moody's "A" Rated Utility Bond Yields	Moody's "Baa" Rated Utility Bond Yields
1926	5.38%	5.17%	5.67%
1927	28.99%	5.02%	5.46%
1928	56.94%	4.95%	5.33%
1929	11.98%	5.22%	5.76%
1930	-20.89%	5.06%	5.88%
1931	-34.45%	5.12%	6.90%
1932	-0.85%	6.46%	8.78%
1933	-20.30%	6.32%	9.38%
1934	-18.08%	5.55%	7.49%
1935	74.61%	4.61%	5.56%
1936	20.99%	4.08%	4.67%
1937	-35.64%	3.98%	5.09%
1938	21.92%	3.90%	5.26%
1939	11.71%	3.52%	4.50%
1940	-16.30%	3.24%	4.05%
1941	-30.50%	3.07%	3.84%
1942	14.25%	3.09%	3.73%
1943	47.07%	2.99%	3.58%
1944	18.23%	2.97%	3.52%
1945	53.66%	2.87%	3.39%
1946	2.66%	2.71%	3.03%
1947	-11.85%	2.78%	3.08%
1948	4.67%	3.02%	3.36%
1949	30.99%	2.90%	3.28%
1950	3.26%	2.79%	3.18%
1951	18.02%	3.11%	3.39%
1952	18.55%	3.24%	3.53%
1953	7.45%	3.49%	3.73%
1954	24.18%	3.16%	3.51%
1955	11.07%	3.22%	3.43%
1956	5.05%	3.56%	3.78%
1957	6.33%	4.24%	4.46%
1958	39.86%	4.20%	4.43%
1959	7.46%	4.78%	4.96%
1960	19.85%	4.78%	4.97%
1961	29.04%	4.62%	4.83%
1962	-2.61%	4.54%	4.75%
1963	12.26%	4.39%	4.67%
1964	15.69%	4.52%	4.74%
1965	4.67%	4.58%	4.78%
1966	-4.60%	5.39%	5.60%
1967	-0.59%	5.87%	6.15%
1968	5.45%	6.51%	6.87%
1969	-11.28%	7.54%	7.93%
1970	15.67%	8.69%	9.18%
1971	2.22%	8.16%	8.63%
1972	7.57%	7.72%	8.17%
1973	-17.59%	7.84%	8.17%
1974	-21.13%	9.50%	9.84%
1975	43.23%	10.09%	10.96%
1976	30.48%	9.29%	9.82%
1977	8.37%	8.61%	9.06%
1978	-3.53%	9.29%	9.62%
1979	13.27%	10.49%	10.96%
1980	14.27%	13.34%	13.95%
1981	11.19%	15.95%	16.60%
1982	24.90%	15.86%	16.45%
1983	19.47%	13.66%	14.20%
1984	24.47%	14.03%	14.53%
1985	31.64%	12.47%	12.96%
1986	28.08%	9.58%	10.00%
1987	-2.51%	10.10%	10.53%
1988	17.75%	10.49%	11.00%
1989	45.82%	9.77%	9.97%
1990	-2.83%	9.86%	10.06%
1991	13.98%	9.36%	9.55%
1992	7.64%	8.69%	8.86%
1993	14.38%	7.59%	7.91%
1994	-7.88%	8.31%	8.63%
1995	40.86%	7.89%	8.29%
1996	2.90%	7.75%	8.17%
1997	23.68%	7.60%	7.95%
1998	14.39%	7.04%	7.26%
1999	-8.67%	7.62%	7.88%
2000	58.55%	8.24%	8.36%
2001	-30.05%	7.76%	8.03%
2002	-29.99%	7.37%	8.02%
2003	26.26%	6.58%	6.84%
2004	24.28%	6.16%	6.40%
2005	16.84%	5.65%	5.92%
2006	20.99%	6.07%	6.32%
2007	19.38%	6.07%	6.33%
2008	-28.98%	6.52%	7.23%
2009	11.91%	6.05%	7.06%
2010	5.46%	5.45%	5.95%
2011	19.91%	5.04%	5.57%
2012	1.29%	4.13%	4.86%
2013	13.21%	4.48%	4.98%
2014	28.98%	4.28%	4.80%
2015	-4.85%	4.12%	5.03%
2016	16.29%	3.93%	4.68%
2017	12.11%	4.00%	4.38%
2018	4.11%	4.25%	4.67%
2019	26.35%	3.77%	4.19%
2020	0.48%	3.02%	3.39%
2021	17.67%	3.11%	3.36%
Average	10.90%	6.25%	6.77%

Prospective "Aaa" Rated Corporate Bond Yield (1)	4.98%
Yield/Credit Spread Adjustment Between "Aaa" Rated Corporate Bond Yields and "A" Rated Public Utility Bond Yields (2)	0.44%
Prospective "A" Rated Public Utility Bond Yield (3)	5.42%
Yield/Credit Spread Adjustment Between "A" Rated Public Utility Bonds and A- /Baa1 Rating of the Gas LDC Group (4)	0.13%
Prospective Bond Yield for Gas LDC Group (5)	5.55%
Equity Risk Premium	
- Total Market Index Approach (6)	5.50%
- Public Utility Index Approach (7)	4.40%
Indicated Equity Risk Premium (8)	4.95%
Indicated Cost of Equity - Gas LDC Group (9)	10.50%

(1) See page 2 of this Schedule. Average prospective Aaa bond yield for the 2023-2027 period from the Blue Chip Financial Forecasts.

(2) See page 3 of this Schedule. Yield adjustment derived from historical corporate bond yield data (recent 12 months) found in Mergent Bond Record Monthly Update.

(3) Sum of (1) and (2) above.

(4) Adjustment to reflect bond yield/credit spread differential between "A" rated Public Utility Bonds and "A-"/"Baa1" rating of the Gas LDC Group, as reflected on page 3 of this Exhibit. The 0.13% adjustment was derived via linear interpolation between the yield spread differential for the "A" rated and "Baa" rated Public Utility Bonds ((0.69% -0.44%)/3*1.5=0.13%).

(5) (3) + (4) above. May reflect rounding differences.

(6) See page 8 of this Schedule.

(7) See page 5 of this Schedule.

(8) Average of (6) and (7) above.

(9) Sum of (5) and (8) above.

Risk Premium Method (RPM)
Equity Risk Premium Using Total Market Approach
Gas LDC Group

Historical Equity Risk Premium

Annual Total Returns for S&P 500 Index, Arithmetic Average (1926-2021) (1)	12.30%
Annual Total Returns for Long-Term Corporate Bonds, Arithmetic Average (1926-2021) (2)	6.40%
Historical Equity Risk Premium - Total Market (3)	5.90%

Prospective Equity Risk Premium

Prospective Annual Market Return (Next 3-5 years) (4)	12.32%
Prospective Aaa Rated Corporate Bond Yield (5)	4.98%
Prospective Equity Risk Premium - Total Market (6)	7.34%
Indicated Equity Risk Premium - Total Market (7)	6.62%
Beta Coefficient - Gas LDC Group (8)	0.83
Equity Risk Premium (Gas LDC Group Beta) (9)	5.50%

(1) Source: 2022 SBBI Yearbook (Kroll, LLC); arithmetic average of total returns for large company stocks (S&P 500 Index) (1926-2021).
(2) Source: 2022 SBBI Yearbook (Kroll, LLC), arithmetic average of total returns for long-term high-grade corporate bonds (1926-2021).
(3) (1) - (2) above.
(4) From page 1 of Schedule 7.
(5) From pages 1 and 2 of this Schedule.
(6) (4) - (5) above.
(7) Average of (3) and (6) above.
(8) See CAPM section of Mr. Rea's testimony.
(9) (7) x (8) above.

Risk Premium Method (RPM)
Non-Regulated Group - Indicated Cost of Equity

Prospective "Aaa" Rated Corporate Bond Yield (1)	4.98%
Yield/Credit Spread Adjustment Between "Aaa" Rated Corporate Bond Yield and Average "A- /A3" Rated Corp. Bond Yield of Non-Regulated Group (2)	0.49%
Prospective Bond Yield for Non-Regulated Group (3)	5.47%
Equity Risk Premium - Total Market Index Approach (4)	6.02%
Indicated Equity Risk Premium	6.02%
Indicated Cost of Equity - Non-Regulated Group (5)	11.49%

(1) See page 2 of this Schedule. Average prospective Aaa bond yield for the 2023-2027 period from the Blue Chip Financial Forecasts.

(2) See page 3 of this Schedule. Yield adjustment derived from historical corporate bond yield data (recent 12 months) found in Mergent Bond Record (June 2022). Yield differential between "Aaa" corporate bonds and "A3" rated corporate bonds.

(3) (1) + (2) above.

(4) See page 10 of this Schedule.

(5) Sum of (3) and (4) above.

Risk Premium Method (RPM)
Equity Risk Premium Using Total Market Approach
Non-Regulated Group

Historical Equity Risk Premium

Annual Total Returns for S&P 500 Index, Arithmetic Average (1926-2021) (1)	12.30%
Annual Total Returns for Long-Term Corporate Bonds, Arithmetic Average (1926-2021) (2)	6.40%
Historical Equity Risk Premium - Total Market (3)	5.90%

Prospective Equity Risk Premium

Prospective Annual Market Return (Next 3-5 years) (4)	12.32%
Prospective Aaa Rated Corporate Bond Yield (5)	4.98%
Prospective Equity Risk Premium - Total Market (6)	7.34%

Indicated Equity Risk Premium - Total Market (7)	6.62%
Relevered Beta - Non-Regulated Group (8)	0.91
Equity Risk Premium (with Relevered Beta) (9)	6.02%

(1) Source: 2022 SBBI Yearbook (Kroll, LLC); arithmetic average of total returns for large company stocks (S&P 500 Index) (1926-2021).
(2) Source: 2022 SBBI Yearbook (Kroll, LLC), arithmetic average of total returns for long-term high-grade corporate bonds (1926-2021).
(3) (1) - (2) above.
(4) From page 1 of Schedule 7.
(5) From pages 1 and 2 of this Schedule.
(6) (4) - (5) above.
(7) Average of (3) and (6) above.
(8) See CAPM section of Mr. Rea's testimony.
(9) (7) x (8) above.

Capital Structure Ratios - Book vs. Market Capitalization Ratios for Leverage Calculations Schedule 9
Based on Permanent Capitalization Page 1 of 1
Electric Group - Stated as of 12/31/2021

$ in thousands	Carrying Values (Book Value) Dollars 2021	Carrying Values (Book Value) Percentage 2021	Market Values (Fair Value) Dollars 2021	Market Values (Fair Value) Percentage 2021	Common Shares Outstanding at @ 12/31/2021	Closing Stock Price (3)
Allete Inc.						
Long-Term Debt (1)	1,763,200	42.0%	1,969,400	39.3%	@ 12/31/2021	
Preferred Stock	-	-	-	-		
Common Equity (2)	2,436,900	58.0%	3,047,296	60.7%		
Total Permanent Capitalization	$ 4,200,100	100.0%	$ 5,016,696	100.0%	53,200.0	$ 57.28
Alliant Energy Corp.						
Long-Term Debt (1)	6,735,000	52.9%	7,697,000	35.9%	@ 12/31/2021	
Preferred Stock	-	0.0%	-	-		
Common Equity (2)	5,990,000	47.1%	13,713,480	64.1%		
Total Permanent Capitalization	$ 12,725,000	100.0%	$ 21,410,480	100.0%	250,474.5	$ 54.75
Ameren Corp.						
Long-Term Debt (1)	12,562,000	56.5%	14,016,000	40.1%	@ 12/31/2021	
Preferred Stock	-	-	-	-		
Common Equity (2)	9,687,000	43.5%	20,974,203	59.9%		
Total Permanent Capitalization	$ 22,249,000	100.0%	$ 34,990,203	100.0%	257,700.0	$ 81.39
American Electric Power						
Long-Term Debt (1)	31,300,700	58.4%	35,410,900	43.3%	@ 12/31/2021	
Preferred Stock	43,300.00	0.00	43,300.00	0.00		
Common Equity (2)	22,248,400	41.5%	46,363,634	56.7%		
Total Permanent Capitalization	53,592,400	100.0%	$ 81,817,834	100.0%	524,416.2	$ 88.41
CMS Energy Corp.						
Long-Term Debt (1)	12,046,000	64.3%	13,427,000	42.8%	@ 12/31/2021	
Preferred Stock	224,000.00	0.01	224,000.00	0.01		
Common Equity (2)	6,466,000	34.5%	17,724,168	56.5%		
Total Permanent Capitalization	18,736,000	100.0%	$ 31,375,168	100.0%	289,800.0	$ 61.16
MGE Energy Inc.						
Long-Term Debt (1)	614,211	37.4%	720,676	21.2%	@ 12/31/2021	
Preferred Stock	-	-	-	-		
Common Equity (2)	1,027,468	62.6%	2,686,577	78.8%		
Total Permanent Capitalization	1,641,679	100.0%	$ 3,407,253	100.0%	36,163.4	$ 74.29
OGE Energy Corp.						
Long-Term Debt (1)	4,496,400	52.4%	5,103,400	42.1%	@ 12/31/2021	
Preferred Stock	-	-	-	-		
Common Equity (2)	4,081,100	47.6%	7,009,066	57.9%		
Total Permanent Capitalization	$ 8,577,500	100.0%	$ 12,112,466	100.0%	200,201.8	$ 35.01
Otter Tail Corp.						
Long-Term Debt (1)	734,014	42.4%	848,289	24.8%	@ 12/31/2021	
Preferred Stock	-	-	-	-		
Common Equity (2)	997,301	57.6%	2,567,053	75.2%		
Total Permanent Capitalization	$ 1,731,315	100.0%	$ 3,415,342	100.0%	41,551.5	$ 61.78
WEC Energy Group						
Long-Term Debt (1)	13,523,700	55.3%	14,779,700	34.1%	@ 12/31/2021	
Preferred Stock	30,400	0.1%	30,300	0.1%		
Common Equity (2)	10,916,400	44.6%	28,505,816	65.8%		
Total Permanent Capitalization	24,470,500	100.0%	$ 43,315,816	100.0%	315,434.5	$ 90.37
Average of Electric Group						
Long-Term Debt (1)	9,308,358	51.3%	10,441,374	36.0%		
Preferred Stock	33,078	0.2%	33,067	0.1%		
Common Equity (2)	7,094,508	48.6%	15,843,477	64.0%		
Total Permanent Capitalization	$ 16,435,944	100.0%	$ 26,317,918	100.0%		-

(1) Long-term debt balances exclude the current portion of long-term debt and short-term debt. In cases where a company's SEC debt disclosure for fair value vs. carrying value only discloses total debt (including current maturities and/or short-term debt), the difference between fair value and carrying value reported was fully applied to the long-term debt balance.

(2) Includes common stock account and retained earnings account; excludes other comprehensive income (loss) and shares in a deferred compensation trust.

(3) Source: finance.yahoo.com. Closing stock price as of 6/17/2022.

Appendix A

DCF Analysis - Detailed Discussion

1. Determination of the Dividend Yield Component

Since the DCF model recognizes that investors value securities on the basis of prospective cash flows, it is essential that the analyst determine the amount of dividend payments (D_1) which are expected to be received over the next twelve months. Utilizing the current dividend amount (D_0) would not be appropriate under DCF principles, since current dividends are not forward looking and could potentially underestimate the cost of equity. For this reason, estimates of dividends to be paid over the next twelve months by each company comprising the Electric Group, Gas LDC Group and Non-Regulated Group (collectively, the proxy groups) were obtained from the Value Line Summary and Index, and serve as the expected dividend payment (D_1) within my DCF analysis.

In selecting the appropriate stock price (P_0) to utilize in calculating the dividend yield, it is important to remember that under the iterative market valuation process, price equilibrium only occurs when investors have realized their expected rate of return, or "K." In other words, the current stock price (P_0) has embedded within it the current forward looking return expectations of investors, although the latter cannot be directly observed. Therefore, to properly estimate the expected cost of equity, it is essential that the *current* stock price (P_0) be used when calculating the dividend yield component, since the "P" and

"K" components of the model are simultaneously determined upon reaching equilibrium, and thus have a time dependency on one another. Consistent with the semi-strong version of the Efficient Market Hypothesis, use of the current stock price is appropriate, since it incorporates all relevant publicly-available information and thus captures the current forward looking growth expectations of investors.

In contrast, using an average of stock prices over a longer historical period, such as 6-12 months, would reflect outdated market information and investor growth expectations, which would not be representative of current market conditions. Therefore, such an approach would be inconsistent with the core tenets of the Efficient Market Hypothesis. Moreover, using past averages of stock prices would also create a time period mismatch among the components of the DCF model, since the dividend yield component would be based upon past stock prices which reflect previous growth expectations, while the growth component ("g") of the model would reflect the current forward-looking growth expectations of investors.

Notwithstanding these compelling arguments, simply referencing the most recent day's closing stock price can present a different challenge in the form of temporary price aberrations, which may be attributable to volatile market conditions, the unanticipated release of company information, or short-term supply and demand imbalances. Therefore, with respect to the companies comprising the Electric Group, Gas LDC Group and Non-Regulated Group, I have defined the current stock price (P_0) as an average

closing stock price that is calculated on the basis of the composite average of the 30-day average, 60-day average and 90-day average stock prices. This approach places the most emphasis on the 30-day average stock price, but also provides some weighting to the 60-day average and 90-day average stock prices. More specifically, this approach places a one-half weighting on the 30-day average stock price, a one-third weighting on the 60-day average stock price, and a one-sixth weighting on the 90-day average stock price. Taking this approach mitigates the effects of short-term price aberrations for the companies comprising these three proxy groups, while still recognizing the basic tenets of the Efficient Markets Hypothesis.

Next, to determine the expected dividend yield for the companies comprising the proxy groups, the expected dividend (D_1) was simply divided by the current stock price (P_0) as defined above. Expected dividends, recent stock prices and the resulting dividend yield for each of the companies comprising the proxy groups are presented in Schedule 4, Schedule 5 and Schedule 6, respectively.

2. Growth Component – General Approach

There is no question that discerning the long-term growth expectations of investors is the most difficult and controversial aspect of implementing the DCF constant-growth model, as it requires the analyst to get inside the "collective psyche" of a large universe of investors. Considering that the DCF model is technically focused on the growth of

dividends into perpetuity, a reliable forecast of sequential dividend payments into the distant future would provide an appropriate indication of investors' long-term growth expectations. However, dividend forecasts for multi-decade periods are simply not available, so to implement the DCF model, the analyst must rely upon other available indicators which are likely to influence the growth expectations of investors. As such, in the initial stages of my DCF analysis, I evaluated a variety of historical and forward-looking growth indicators, each of which could potentially influence investor expectations.

Recognizing that historical growth trends can influence the future growth expectations of investors, rate of return analysts often consider historical trends when estimating the growth component of the DCF model. In so doing, the presumption is that investors extrapolate past growth patterns in forming their future expectations. In my judgment, evaluating historical growth indicators is a reasonable first step in the DCF growth rate evaluation process, particularly for companies with a history of stable performance. Nevertheless, while historical growth trends clearly provide a valuable point of reference, the analyst must guard against placing too much emphasis upon them, as they may no longer reflect the current growth expectations of investors. Indeed, the growth expectations of investors today may be very different from average growth rates realized in the past due to structural changes within the utility industry, changes in operating costs and expected profitability, and/or changes in general economic conditions. Also, it is

often argued that historical growth trends are already factored into forward looking growth projections, including analyst earnings forecasts, and that care should therefore be taken to ensure that historical data is not inadvertently double-counted.

Lastly, when evaluating historical growth trends, the analyst generally finds that the strict assumptions required under constant growth theory have not held true or been maintained, as is often reflected in differing historical growth rates between DPS, EPS and BVPS. Thus, while the analyst implicitly accepts the strict assumptions of the constant growth model on a prospective basis, this is rarely the case in retrospect, which may call into question the usefulness of historical indicators in deriving the constant growth rate assumption. Considering these multiple shortcomings, historical growth indicators should never be relied upon exclusively and significant emphasis should be placed on forward-looking growth indicators. Therefore, consistent with accepted practices, I initially evaluated both historical and forward-looking growth indicators for several key variables, including EPS, DPS, and BVPS.

3. Growth Component
Dividend Growth Forecasts vs. Earnings Growth Forecasts

Notwithstanding that DCF is conceptually a dividend-based model, in practice there exists a fundamental challenge in attempting to reference dividend forecasts to estimate the growth expectations of investors. Simply stated, dividend forecasts are not widely referenced by investors, and for this reason, they are only published by a limited number

of information service providers. In contrast, earnings growth forecasts are widely-available from a variety of internet-based and print media sources. As I will discuss later, earnings forecasts are widely-referenced by investors and are available to the general public from a variety of sources. It should also be noted that even Williams, who originally developed the long-form and constant growth versions of the DCF model, found "no contradiction" between his DCF formula which emphasized dividends, and the "common precept" that earnings constitute the source of value for stocks. Indeed, over the long-run, either valuation approach would be expected to produce the same end result. Lastly, Williams also recognized the challenges associated with developing long-term dividend forecasts, when he concluded in *The Theory of Investment Value:* "How to estimate the future dividends for use in our formula is, of course, the difficulty."[1]

4. Growth Component
The Importance of Earnings Growth Forecasts

Among the various forms of growth estimates I evaluated, I placed the greatest emphasis on the consensus earnings estimates of "sell-side" equity analysts, along with earnings forecasts published by the Value Line Investment Survey. Substantial academic research has demonstrated that equity analyst forecasts have a significant influence on the growth expectations of investors. By way of background, sell-side analysts compile investment research for the major brokerage firms and investment banks on behalf of their clients.

[1] John Burr Williams, *The Theory of Investment Value* (Cambridge, MA, Harvard University Press, 1938) at 58.

This research includes both earnings forecasts and buy/hold/sell recommendations, which the analyst develops based upon a thorough analysis of the company's past performance and future prospects, along with an element of informed judgment. Sell-side analysts typically possess expert knowledge of the industry they cover, and are typically well-versed in key matters affecting the company being evaluated, including recent regulatory decisions, cost and profitability trends, and infrastructure investment requirements. Substantial academic research has demonstrated that the earnings forecasts of equity analysts heavily influence the long-term growth expectations, and therefore investment decisions, of equity investors. For example, In "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return," Harris concludes:

> …a growing body of knowledge shows that analysts' earnings forecasts are indeed reflected in stock prices…..Notions of shareholder required rates of return and risk premia are based in theory on investors' expectations about the future. Research has demonstrated the usefulness of financial analysts' forecasts for such expectations.[2]

Similarly, in "Investor Growth Expectations: Analysts vs. History," Vander Weide and Carleton concluded:

> [First] we found overwhelming evidence that the consensus analysts' forecast of future growth is superior to historically oriented growth measures in predicting the firm's stock price. …Our results also are consistent with the hypothesis that investors use analysts' forecasts, rather than historically oriented growth calculations, in making stock buy-and-sell decisions.[3]

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[2] Robert S. Harris, "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return," *Financial Management*, (Spring 1986), at 59, 66.

[3] James H. Vander Weide and William T. Carleton, "Investor Growth Expectations: Analysts vs. History," *The Journal of Portfolio Management* (Spring 1988), at 4.

In *New Regulatory Finance*, Morin sums up the academic literature on this topic very effectively where he states:

> Because of the dominance of institutional investors and their influence on individual investors, analysts' forecasts of long-run growth rates provide a sound basis for estimating required returns. Financial analysts exert a strong influence on the expectations of many investors who do not possess the resources to make their own forecasts, that is, they are the cause of "g".
> ….
> Published studies in the academic literature demonstrate that growth forecasts made by security analysts represent an appropriate source of DCF growth rates, are reasonable indicators of investor expectations and are more accurate than forecasts based on historical growth. These studies show that investors rely on analysts' forecasts to a greater extent than on historic data.[4]

Clearly then, a substantial amount of academic research supports the use of analyst earnings forecasts as an appropriate proxy for the expected growth rate component of the DCF constant growth model. For these reasons, I have given considerable weight to the 5-year consensus earnings estimates available from Yahoo/Thomson Reuters and Zacks, along with Value Line's EPS growth forecasts, in deriving my estimates of long-term investor growth expectations.

[4] Roger A. Morin, *Modern Regulatory Finance* (PUR Books LLC, 2021), at 371, 373.

5. Growth Component – Market-Based Evidence
The Influence of Analyst Estimates on Investor Growth Expectations

Analyst earnings forecasts are widely available through a variety of sources and are frequently referenced by both institutional and individual investors and the financial press. Without question, a robust market exists for earnings estimates, which is driven by strong investor demand for such information. Considering that there is a significant monetary cost associated with producing these forecasts, investment firms would not continue to produce them if they were not valued by investors. This is further demonstrated by the ongoing success of the various information service providers who summarize analyst earnings forecasts into "consensus estimates" for the benefit of investors. These information service providers include Thomson Reuters, I/B/E/S, and FactSet, each of which are widely-referenced by institutional investors.

Moreover, the availability of consensus estimates to the general public through freely-accessible websites, such as Yahoo Finance and Reuters.com, further demonstrates the pervasive influence that analyst forecasts have on market expectations, including those of individual investors. Lastly, it is important to note that, to date, investors have not demanded earnings forecasts for periods extending beyond five years. If investors had expressed a desire for such information, the robust information services marketplace would have certainly delivered longer-term forecasts by now. This strongly suggests that

investors are reasonably confident that the 5-year earnings forecasts they presently utilize already provides a reasonably reliable longer-term growth estimate.

6. Growth Component
Earnings Growth Rates Currently Projected by Equity Analysts

Forecasts of EPS growth rates and the corresponding cost of equity estimates for each company comprising the proxy groups are presented on page 1 of Schedule 4, Schedule 5 and Schedule 6, respectively.

Appendix B

DCF Estimates - Determination of "Outlier" Results

1. General Approach in Determining the "Low-End" Threshold for Outlier Results

While applying the DCF constant-growth model to the individual proxy group companies, I found both "low-end" and "high-end" outlier results which did not pass fundamental tests of economic logic. Therefore, to ensure logical and credible analytical results, I have eliminated unreasonably high and unreasonably low DCF estimates from my analysis, as further discussed herein.

It is a well-established financial principle that when the risk profile of a given investment increases, investors will demand a commensurately higher rate of return. This classic "risk-and-return" relationship explains why investors demand a higher return for investing in common stocks versus investing in corporate debt securities. Indeed, equity investors are not only compensated for the default risk inherent in fixed-income securities, but they must also be compensated for the residual claim risk they bear. Residual claim risk arises for two primary reasons. First, since common stock is the lowest ranking or most junior capital within a firm's capital structure, common stock investors are always positioned "last in

line" behind fixed income investors and preferred stockholders to recover their investment in the event of a financial distress scenario. Second, common stock investors are also in a subordinated position relative to periodic cash distributions, since common stock dividends can only be paid after contractually-required debt service payments and preferred dividend payments have been made. Considering their junior position in the capital structure, common stock investors require additional compensation for bearing this residual claim risk, through what is known as an equity risk premium.

However, in those circumstances where the equity risk premium offered does not provide sufficient compensation for bearing the additional risks associated with common stocks, investors will seek a superior risk-return tradeoff elsewhere by either investing in the company's fixed-income securities, or in another company's common stock. Therefore, consistent with the risk-and-return investment principle and fundamental tests of economic logic, DCF estimates which are lower than, or only marginally higher than, yields available on corporate debt securities have been eliminated from my analysis. This is because investors cannot reasonably be expected to invest in common stocks if they are unable to earn a minimally sufficient equity risk premium as compensation for the additional risks they bear, vis-à-vis fixed income securities. Under these circumstances, investors

would clearly show a preference for either holding the company's fixed-income securities or another company's stock, making it difficult for the company to attract new equity capital.

2. Regulatory Precedents Establishing the Minimum Equity Risk Premium for Setting the "Low-End" Outlier Threshold

In recent years, the FERC has compared DCF estimates to yields available on long-term corporate bonds and has excluded proxy group companies whose DCF estimates did not exceed a company's bond yield by a sufficient margin. In *Pioneer Transmission* (2009), the FERC ruled that low-end ROEs falling within about 100 basis points of the cost of debt should be excluded from cost of equity estimates. Specifically, in its Pioneer order, the FERC stated:

> …..the Commission will exclude from the proxy group companies whose low-end ROE is within about 100 basis points above the cost of debt, taking into account the extent to which the excluded low-end ROE's are outliers from the low-end ROEs of other proxy group companies[1].

Previously, in Opinion 445, the Commission had determined that:

> …..investors generally cannot be expected to purchase stock if debt, which has less risk than stock, yields essentially the same return[2].

[1] *Pioneer Transmission, LLC,* 126 FERC ¶ 61,281 at P 94 (March 27, 2009).
[2] *Southern California Edison Co.*, 92 FERC ¶ 61,266 (2000) (Opinion No. 445).

Furthermore, in *Southern California Edison*, the FERC reaffirmed its previous decisions concerning the treatment of low-end outliers, by stating:

> We find that, consistent with *Pioneer*, it is reasonable to exclude any company whose low-end ROE fails to exceed the average bond yield by about 100 basis points or more[3].

Most recently, in *Opinion No. 569*, the FERC revised the methodology it employs in the determination of both low-end and high-end outlier estimates of the cost of equity under the DCF method. The FERC's revised low-end methodology no longer references a generic 100 basis point add-on to the cost of corporate debt, but instead now recognizes the dynamic nature of the equity risk premium, which is dependent upon ever-changing investor risk sentiments. The FERC will now reference Baa-rated corporate bond yields as the corporate bond component of the low-end outlier equation, but will now determine the minimally-required equity risk premium above the corporate bond yield by applying a 20 percent weighting factor to the market risk premium determined under the FERC's CAPM analysis. The FERC explained the rationale for these changes as follows:

> We will adjust the low-end outlier test to include a risk premium instead of the generic 100 basis points proposed in the Briefing Order, as discussed below. In particular, we will adopt a revised low-end outlier test that eliminates proxy group ROE results that are

[3] *Southern California Edison Co.*, 131 FERC ¶ 61020 at P 55 (April 15, 2010).

> less than the yields of generic corporate Baa bonds plus 20 percent of the CAPM risk premium.
>
> ….
>
> We find that 20 percent of the risk premium from the CAPM analysis described above is a reasonable risk premium to apply to the low-end outlier test. Because the risk premium that investors demand changes over time, it is imprecise to simply add 100 basis points to the bond yield. The methodology that we adopting in this order captures such changes because the risk premium from the CAPM analysis reflects investors' required risk premium under the prevailing market conditions[4].

In a subsequent Order[5], the FERC reaffirmed its approach of referencing 20 percent of the CAPM risk premium when conducting its low-end outlier evaluations.

In my judgement, the FERC's revised low-end outlier methodology for DCF estimates is an improvement over its previous approach, as it now better captures the dynamic nature of the market risk premium, thus enabling the cost of capital analyst to appropriately apply fundamental tests of economic logic to his/her preliminary DCF results.

3. Applying the FERC's Revised Approach in Determining the "Low-End" Outlier Threshold

[4] *Association of Businesses Advocating Tariff Equity, et al., v. Midcontinent Independent System Operator, Inc., et al.,* 169 FERC ¶ 61,129, Opinion No. 569, at P 387 and P 388 (November 21, 2019).

[5] *Association of Businesses Advocating Tariff Equity, et al., v. Midcontinent Independent System Operator, Inc., et al.,* 171 FERC ¶ 61,154, Opinion No. 569-A, at P 161-162 (May 21, 2020).

As further described within page 6 of Schedule 4, after applying the FERC's revised low-end outlier methodology as outlined above, I have determined that a reasonable low-end outlier threshold to apply to my preliminary DCF results is 6.75 percent. I have therefore eliminated outlier estimates falling below this minimum threshold level. Consistent with the risk-and-return investment principle, investors cannot reasonably be expected to accept equity returns below this threshold, since on a risk-adjusted basis, fixed-income securities would likely offer investors a superior investment alternative.

4. Regulatory Precedents for Determining the "High-End" Threshold for Outlier Results

In *Opinion No. 569*, the FERC also adopted a revised high-end outlier test, whereby companies having DCF estimates in excess of 150 percent of the median value of the initial proxy group results would be excluded from the final group. In a subsequent Order[6], the FERC elected to modify this approach by instead referencing 200 percent of the median value of the initial proxy group results, and the FERC subsequently reaffirmed this decision in yet another Order[7]. I have taken

[6] *Association of Businesses Advocating Tariff Equity, et al., v. Midcontinent Independent System Operator, Inc., et al.,* 171 FERC ¶ 61,154, Opinion No. 569-A, at P 154 (May 21, 2020).

[7] *Association of Businesses Advocating Tariff Equity, et al., v. Midcontinent Independent System Operator, Inc., et al.,* 173 FERC ¶ 61,159, Opinion No. 569-B, at P 140 (November 19, 2020).

a similar approach in identifying high-end outlier results in my DCF analyses, but have eliminated *individual* high-end estimates, rather than fully eliminating the company from the proxy group. In my judgement, this approach is appropriate in view of the relatively small number of utility holding companies to choose from in forming a utility proxy group, which is largely attributable to recent merger and acquisition activity in the utility industry.

To further screen my DCF results for high-end outlier estimates, I have also considered the FERC's previous high-end outlier methodology in my DCF analyses. Specifically, in *ISO New England*,[8] the FERC determined that proxy group companies with DCF estimates in excess of 17.7 percent should be excluded from DCF analyses. In *Southern California Edison*,[9] the FERC reaffirmed and further clarified its ruling in *ISO New England*. Accordingly, in establishing a high-end outlier threshold within my DCF analyses, I have also given some consideration to the precedents established in the *ISO New England* and *Southern California Edison* cases. The results of the high-end outlier screens for my DCF analyses can be found on pages 1 and 2 of Schedule 4, Schedule 5 and Schedule 6, respectively.

[8] *ISO New England, Inc. et al.*, 109 FERC ¶ 61,147 at P 205 (November 3, 2004).
[9] *Southern California Edison*, 131 FERC ¶ 61,020 at P 57 (April 15, 2010).

Appendix C

Financial Risk Adjustments to DCF Results
Recognizing Differences in Market Value vs. Book Value Capitalization Levels

1. Circumstances Under Which a Financial Risk Adjustment is Required for DCF Results

A financial risk or "leverage" adjustment to DCF results is required whenever the average market value equity capitalization of the proxy companies being analyzed is materially higher than the corresponding book value equity capitalization. Stated alternatively, a leverage adjustment is required whenever the average per-share market-to-book ratio of the group materially exceeds 1.0. Whenever a significant market-to-book value disparity exists for a utility, the level of financial risk implicit in the respective market value and book value capital structures can differ substantially. In particular, the market value based capital structure will reflect a higher relative equity capitalization, a lower relative debt capitalization, and therefore less financial risk as compared to the book value capital structure. In contrast, the book value capital structure will reflect a lower relative equity capitalization and a higher relative debt capitalization, thereby indicating a higher degree of financial risk.

To understand the need for a leverage adjustment, it must first be emphasized that DCF cost of equity estimates are market-based estimates which are derived by

referencing the stock prices of comparable risk companies as direct inputs into the DCF model. DCF estimates therefore reflect the return expectations of investors based upon the level of financial risk embedded within the corresponding market value capital structure, as indicated by the current stock price. Equity investors are predominately concerned with a firm's market value capital structure, since it reflects the current value of their investment and therefore provides the basis for assessing a company's financial risk profile. To the extent that a book value based capital structure will be utilized in the rate-setting process, equity investors will expect an additional return premium to be compensated for the additional financial risk inherent within a book value capital structure. A number of academic studies have demonstrated that a strong positive correlation exists between the amount of leverage in a firm's capital structure and its cost of equity capital, which Morin discusses in *Modern Regulatory Finance,* a widely-recognized authoritative guide on utility cost of capital matters, as follows:

> …..the one inescapable conclusion from the research is that debt affects the cost of equity and that a company has a different cost of equity at a different capital structure, with the cost of equity rising as leverage increases. Therefore, the capital structure used to estimate the cost of equity is an integral inseparable part of that estimate.[1]

[1] Roger A. Morin, *Modern Regulatory Finance* (PUR Books LLC, 2021), at 521.

Therefore, if market-based DCF estimates of the cost of equity are applied to a utility's book value capital structure in determining the utility's weighted average cost of capital, a leverage adjustment is required to recognize the increase in financial risk resulting from the use of the book value capital structure, rather than the market-value capital structure. It is clear that this adjustment is necessary, since as Morin explains above, *"a company has a different cost of equity at a different capital structure."* Absent this leverage adjustment, the DCF results will be incorrectly specified, since they will reflect the lower level of financial risk associated with a market value based capital structure, rather than the higher risk associated with the book value capital structure, to which the DCF results will be applied.

2. Regulatory Precedents Supporting the Use of Financial Risk Adjustments Based on Differences in Market-Value and Book-Value Capitalization Levels

On numerous occasions, the Pennsylvania Public Utility Commission has allowed upward adjustments to the cost of equity to recognize the difference in financial risk between market value based capital structures, which are the basis of DCF estimates, and the book value capital structures used for rate-setting purposes.

3. Determining the Appropriate Financial Risk or "Leverage" Adjustment Utilizing Modigliani and Miller's Classic Financial Theorems

In formulating my proposed leverage adjustments, I have referenced the classic financial theorems of Nobel laureates Modigliani and Miller (M&M), which demonstrated the relationship between a firm's capital structure, its valuation, and its cost of capital.[2] Based on the M&M equation for the cost of equity, and the respective market value and book value capital structure ratios for the Electric Group, the required financial risk or "leverage" adjustment was determined to be as reflected in Table C-1 below:

Table C-1

Required Financial Leverage Adjustments[3]	
Electric Group	0.35%
Non-Regulated Group	0.35%[4]

[2] Franco Modigliani and Merton H. Miller, "Taxes and the Cost of Capital: A Correction," *American Economic Review,* 53 (June 1963), 433-443; Franco Modigliani and Merton H. Miller, *The Cost of Capital, Corporation Finance and the Theory of Investments, American Economic Review* 48 (June 1958) at 261-297.

[3] Based upon my analysis of the market value based average capital structure ratio of the Gas LDC Group versus NIPSCO's proposed rate-setting capital structure in the instant proceeding, I determined that it was not necessary to apply a financial risk adjustment to the DCF results for the Gas LDC Group.

[4] The magnitude of the difference between the average market value capital structure of the Non-Regulated Group and NIPSCO's book value based capital structure is significantly greater than the difference between the market value based capital structure of the Electric Group and NIPSCO's book value capital structure. Therefore, under the M&M equation, the required leverage adjustment for the Non-Regulated Group would be significantly greater than that of the Electric Group. To recognize this disparity and make the financial risk adjustment relevant to a typical electric utility capital structure, I have applied the same adjustment that I applied to the Electric Group (0.35%) to the Non-Regulated Group. Utilizing this approach ensures a more conservative analysis.

Supporting calculations for the recommended leverage adjustment is as follows:

$K_e = p + (p-i)\ (1-T)\ (B/S) + (p-d)\ P/S$ (Equation C.1)

Where:

K_e = Estimated cost of equity

p = Cost of equity for a firm financed with 100% equity capital

i = Long-term debt borrowing cost

T = Marginal corporate income tax rate

B = Debt to total capitalization ratio

S = Common stock to total capitalization ratio

d = Preferred stock dividend yield

P = Preferred stock to total capitalization ratio

Electric Group

$K_e = p + (p-i)\ (1-T)\ (B/S) + (p-d)\ P/S$ (Equation C.1)

9.60% = 8.248% + (8.248% - 4.96%) (1-0.27)(36.0/64.0) + (8.248% - 6.77%) (0.1/64.0)

9.95% = 8.248% + (8.248% - 4.96%) (1-0.27)(41.48/58.52)

Leverage adjustment = 9.95% - 9.60% = 0.35%

Appendix D

Flotation Costs

1. Adjusting the "Bare Bones" Cost of Equity for Flotation Costs

When common equity is employed to finance a utility's rate base, it is either derived from new stock sales or from the retention of undistributed earnings. In cases where a utility or its parent company "floats" a new equity issuance, significant issuance or flotation costs may be incurred, including underwriting discounts, legal fees, accounting fees and printing costs. After subtracting these out-of-pocket costs from the transaction's gross proceeds, the company is left with net proceeds which are materially lower than the amount invested by the company's equity investors. Considering that only net proceeds can be invested into a company's rate base, the amount invested by equity investors which funds flotation related costs will never earn a fair return for those investors unless an appropriate adjustment is made to the cost of equity. As such, if a flotation cost adjustment is not applied to the "bare-bones" cost of equity determined by the various market-based analytical models, the company's equity investors will not earn a fair return on their entire investment, thereby understating the company's legitimate revenue requirement. This is contrary to established regulatory practice

for debt issuance costs, which are typically capitalized at the time of issuance and amortized over the life of the outstanding debt, therefore being fully recoverable through the cost of service ratemaking process.

2. Flotation Costs – Multiple of Cost of Equity Approach

Numerous adjustment methods have been proposed to incorporate equity issuance costs into rate proceedings, several of which have been accepted by state regulatory commissions, including the DCF formula approach, multiple of cost of equity approach, basis point approach, and the actual costs approach. For purposes of this proceeding, I have relied upon the "multiple of cost of equity" approach in determining the appropriate flotation cost adjustment for each of the three proxy groups.

In contrast to debt capital, equity capital is considered to have an infinite life, and it would therefore be inappropriate to amortize a company's flotation costs over a finite number of years. As such, rather than seeking a "return of" its flotation costs over some arbitrarily selected amortization period, it is more appropriate for a utility to seek a "return on" its flotation costs, as these costs constitute a permanent equity contribution by investors. NIPSCO's parent company, NiSource Inc., has completed a number of equity offerings over the past twenty years which have

benefitted NiSource's utility subsidiaries. Specifically, NiSource completed a $734.9 million equity offering during November, 2002 with an underwriting discount of 3.00 percent; a $348.0 million equity offering during September, 2010 with an underwriting discount of 3.25 percent; and a $606.0 million private placement of common equity during May 2018, with associated placement fees of approximately 1.00 percent.

In addition, on April 19, 2021, NiSource completed the sale of 8.625 million Series A Equity Units, initially consisting of Series A Corporate Units, each with a stated amount of $100. The equity offering generated net proceeds of $835.5 million, after underwriting and issuance expenses. Each Corporate Unit consists of a forward contract to purchase shares of NiSource common stock in the future and a 1/10th, or 10% undivided beneficial ownership interest in one share of NiSource Series C Mandatory Convertible Preferred Stock, par value $0.01 per share. The purchase contracts which are part of the Corporate Units are expected to settle on December 1, 2023 for a number of shares of common stock per purchase contract equal to $100 divided by the market value of the common stock determined during a period prior to settlement, but not to exceed 4.0800 shares. As noted earlier, while the purchase contracts for the common equity shares are expected to settle by December 1, 2023, NiSource received net proceeds of $835.5 million from the Series

A Equity Units offering during April 2021. The underwriting and issuance expenses associated with the transaction were approximately $27.0 million, which constitutes approximately 3.00 percent of the gross proceeds from the transaction.

Furthermore, during the years 2017-2021, NiSource issued additional shares of common stock under the company's "at-the market" (or "ATM") equity issuance program, which resulted in approximately $1.3 billion of cumulative net proceeds during the 2017-2021 period. Recent public disclosures made by NiSource have also indicated that the company intends to issue, under NiSource's ATM equity issuance program, between $200.0 million and $300.0 million of new common equity shares in 2022, and up to $150 million in new common equity shares during 2023. To date, the distribution fees payable to the equity distribution agents facilitating these "at-the-market" transactions have approximated 1.00 percent of the notional value of these transactions. Additional supporting details on NiSource's ATM and block equity transactions can be found within NiSource's SEC filings, including its 10-K, 10-Q and Prospective Supplement filings.

After considering both NiSource's past and future anticipated equity placements as discussed above, I have concluded that a reasonable overall flotation cost value to reference for purposes of the instant proceeding should be a composite of the

equity underwriting and placement fees paid by NiSource over the past twenty years, and have therefore referenced a composite value of 2.00 percent.

Considering that the contributed capital component of NIPSCO's common equity account has recently been in the range of 30 percent of the Company's total common equity balance, it is appropriate to apply a flotation cost adjustment to NIPSCO's cost of equity that is based on this 30 percent weighting, since the remaining 70 percent weighting allocated to undistributed retained earnings would not be subject to underwriting costs. Accordingly, in deriving my recommended flotation cost adjustment, I have applied a 30 percent weighting to the 2.00 percent composite flotation cost value previously discussed, which yields a flotation cost factor of 0.680 percent (2.00% x 30% = 0.60%). To properly apply this level of flotation costs to NIPSCO's cost of equity under the "multiple of cost of equity" approach, the 0.60 percent flotation cost factor must be added to 100 percent of NIPSCO's pre-adjusted cost of equity, which is derived in mathematical terms as follows: (1+.0060=1.0060%). Therefore, based upon the above approach, I have applied a 1.0060 percent multiple to the *pre-adjusted* indicated cost of equity for each of the proxy groups.