Northern Indiana Public Service Company LLC

Cause No. 45967

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
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. 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.

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. 45772, NIPSCO's 2022 electric rate proceeding, Cause No. 45621, NIPSCO's 2021 gas rate proceeding, and Cause No. 45330-TDSIC-1, NIPSCO's semi-annual 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. 9701, 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 gas 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 13-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 - Gas LDC Group
Schedule 5	DCF Method - Combination Utility 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 gas utility operations is in the range of 10.45 to 10.95 percent, and that a point estimate at the midpoint of this range, or 10.70 percent, is the appropriate cost of equity to apply in the instant proceeding. Therefore, based upon the Company's proposed cost of equity of 10.70 percent, I have also determined that the Company's weighted average cost of capital is 7.48

percent**,** which is based on NIPSCO's forward test-year-end regulatory capital structure as of December 31, 2024 as further outlined in Attachment 3-A-S2 (p. 5) of the testimony of NIPSCO Witness Weatherford. This resulting overall cost of capital, if adopted by the Commission, will provide NIPSCO the opportunity 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 gas utility operations. In total, I evaluated the market and financial data of 23 companies, including five companies comprising the Gas LDC Group, ten companies comprising the Combination Utility Group, and eight 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 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

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

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 6, 7, 8, 11 and 12, respectively.

Table 2
Indicated Cost of Equity for the Proxy Groups

Method/Model	Gas LDC Group	Combination Utility Group	Non-Regulated Group
DCF Method	10.50%	9.92%	10.50%
Traditional CAPM	10.55%	10.79%	10.47%
CAPM (w/size adj.)	11.12%	11.24%	10.21%
ECAPM	10.86%	11.04%	10.80%
Risk Premium Method	10.80%	10.90%	11.24%

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	10.50%
Average DCF Result	10.31%
Median CAPM Result	10.80%
Average CAPM Result	10.79%
Median RPM Result	10.90%
Average RPM Result	10.98%

Based upon the above results, I have concluded that a reasonable estimate of NIPSCO's cost of equity is in the range of 10.45 percent – 10.95 percent, and that the Commission should adopt a cost of equity at the midpoint of this range, or 10.70 percent, in the determination of a fair rate of return for NIPSCO's jurisdictional gas operations.

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

III. FUNDAMENTAL ANALYSIS

A. Background

Q14. What background information have you considered in evaluating NIPSCO's cost of common equity and overall required rate of return?

A14. NIPSCO provides both natural gas and electric distribution services across the northern third of Indiana. The Company serves approximately 859,000 residential, commercial, and industrial natural gas customers in northern Indiana. The Company also serves approximately 483,000 electric customers, and maintains vertically-integrated electric operations incorporating generation, transmission and distribution services. 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 traditional and renewable electric power generation, transmission, and distribution. NiSource's operating companies deliver energy to nearly 4.0 million gas and electric customers in six states.

Q15. How does the Company's significant level of gas throughput to non-residential customers affect its risk profile?

A15. The Company's business risk profile is significantly impacted by the volume of natural gas it delivers to non-residential customers, since commercial, industrial and transportation customers are generally more susceptible to downturns in the economic cycle as compared to residential customers. During 2022, NIPSCO's gas throughput to commercial, industrial and transportation customers constituted approximately 81 percent of the Company's total gas throughput, a level that is significantly higher than the average of the gas utility proxy group companies I evaluated. More specifically, while NIPSCO's gas throughput to commercial, industrial and transportation customers constituted 81 percent of the Company's overall gas throughput during 2022, the comparable average percentage for the Gas LDC Group companies was just 68.3 percent, thus reflecting NIPSCO's higher relative exposure to non-residential customer throughput volumes. Moreover, NIPSCO's top twenty gas customers accounted for over 1.88 billion therms of the Company's gas throughput during 2022, or 51.8 percent, thus reflecting an unusually high customer concentration level. Considering that these top twenty 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 activities, it is clear that NIPSCO's business risk profile is impacted by its high concentration of gas throughput to a relatively small number of industrial and transportation customers.

Overview of Current Economic and Capital Market Conditions

Q16. Please provide a brief overview of recent trends in the U.S. economy and capital markets.

A16. Notwithstanding the Fed's best efforts to cool down the U.S. economy, it nevertheless continued to expand at a robust pace during Q2, 2023, with the U.S. Bureau of Economic Analysis (the "BEA") recently reported that the real GDP growth rate for Q2, 2023 was 2.1 percent on an annualized basis, easily beating the 1.80 percent consensus forecast. Despite much discussion amongst market observers concerning the prospects of a looming U.S. economic recession, there was no indication of a looming recession in the Q2, 2023 GDP data. Furthermore, while the final report on the real GDP growth rate for Q3, 2023 will not be disseminated by the BEA until after NIPSCO files its case-in chief in the instant proceeding, the Atlanta Fed, through its GDPNow forecasting model, is currently estimating that the real GDP growth rate for Q3, 2023 will register a very robust 4.9 percent level.

With regard to the U.S. inflation rate, the U.S. Labor Department recently reported that for the period ending August 2023, the 12-month change in the Consumer Price Index (CPI) was 3.7 percent, while the 12-month change in the core CPI was 4.3 percent. Although the August 2023 inflation data did reflect some degree of moderation in the U.S. inflation rate as compared to the recently recorded 40-year high levels, Fed Chair Powell recently made clear that the Fed still has a lot of work to do with regard to the U.S. inflation rate. In this regard, Fed Chair Powell stated the following:

> We understand the hardship that high inflation is causing, and we remain strongly committed to bringing inflation back down to our 2 percent goal.
> …
> Inflation has moderated somewhat since the middle of last year, and longer-term inflation expectations appear to remain well anchored, as reflected in a broad range of surveys of households, businesses, and forecasters, as well as measures from financial markets. Nevertheless, the [progress] process of getting inflation sustainably down to 2 percent has a long way to go.[2]

Lastly, and once again despite the Fed's best efforts to cool the U.S. economy, the U.S. unemployment rate has continued to remain near 70-year historical low levels, registering a 3.8 percent rate during September 2023. Indeed, the

[2] Transcript of Chair Powell's Press Conference – September 20, 2023, at 1-2. https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20230920.pdf

continuing strength 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 4.2 percent on a year-over-year basis during September 2023.

Q17. What specific monetary policy actions has the Fed taken over the past 19 months (since March 2022), when the central bank began to implement its monetary policy shift towards a more restrictive stance?

A17. Since the Fed began to implement its monetary policy shift during March 2022, the central bank has increased the Federal Funds target rate on eleven occasions over a series of Federal Open Market Committee ("FOMC") meetings as follows:

- March 17, 2022 – 25 basis point increase.
- May 5, 2022 – 50 basis point increase.
- June 16, 2022 – 75 basis point increase.
- July 27, 2022 – 75 basis point increase.
- September 21, 2022 – 75 basis point increase.
- November 2, 2022 – 75 basis point increase.
- December 14, 2022 – 50 basis point increase.
- February 1, 2023 – 25 basis point increase.

- March 22, 2023 – 25 basis point increase.
- May 3, 2023 – 25 basis point increase.
- July 26, 2023 – 25 basis point increase.

In the aggregate, since the Fed began to implement its policy shift during March 2022, the central bank has raised the Fed Funds target rate by a cumulative amount of 525 basis points (from a starting point of 0.00-0.25 percent to the current level of 5.25-5.50 percent). Meanwhile, the Fed has continued to gradually liquidate its holdings of U.S. Treasury and mortgage-backed securities (at a combined amount of $95 billion per month), which further supports the Fed's recently-adopted stance of monetary policy normalization, and therefore continues to put upward pressure on long-term interest rates.

Q18. What actions did the Fed take at the July 25-26, 2023 FOMC meeting?

A18. Consistent with the Fed's recently adopted restrictive monetary policy stance, the Fed once again raised the Federal Funds target rate during its July 25-26, 2023 FOMC meeting, from the previous level of 5.00-5.25 percent to 5.25-5.50 percent. This was the eleventh time that the Fed raised the Federal Funds target rate since March 2022 in its continuing effort to rein-in the U.S. inflation rate. It is noteworthy that the Fed's recent tightening cycle over the past 16 months has

represented the most aggressive tightening cycle that the Fed has implemented over the past 40 years.

Q19. What monetary policy actions did the Fed take during the September 19-20, 2023 FOMC meeting?

A19. The Fed did not make any changes to the Federal Funds target rate during the September 19-20, 2023 FOMC meeting and indicated that the extent of additional monetary policy tightening would be determined by the Fed's "ongoing assessments of the incoming data and the evolving outlook and risks."[3]

Q20. Have intermediate and long-term interest rates trended upward over the past few years (and since the Company's 2021 gas rate case) as a result of the contributing factors discussed above?

A20. 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 290 basis points, from approximately 1.90 percent to approximately 4.80 percent as of early-October 2023. Meanwhile, the 10-year U.S. Treasury note yield has risen by

[3] Transcript of Chair Powell's Press Conference – September 20, 2023, at 1. https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20230920.pdf

approximately 320 basis points since the end of calendar-year 2021, from approximately 1.50 percent to approximately 4.70 percent as of early-October 2023.

Q21. Have long-term utility bond yields also trended materially upward since the end of calendar-year 2021?

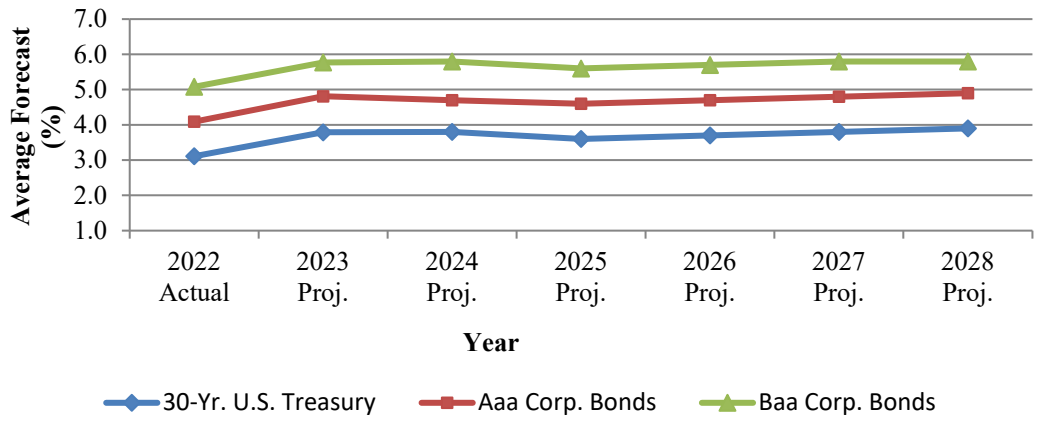
A21. Yes. The average "A-rated" long-term utility bond yield has increased from 3.13 percent during December 2021 to approximately 6.25 percent as of early-October 2023, thus reflecting an increase of 312 basis points. During this same period, the average "Baa-rated" long-term utility bond yield increased from 3.36 percent (December 2021) to approximately 6.55 percent as of early-October 2023, thus reflecting an increase of 319 basis points. This data indicates that long-term utility bond yields have increased by a wider margin than long-term 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.

Q22. Are U.S. economists forecasting that U.S. Treasury and corporate bond yields will remain near recent levels over the next 3-5 years?

A22. Yes. Prominent economists widely expect that intermediate and long-term interest rates will remain near recently recorded levels over the next 3-5 years. As reflected in Table 4 below, the consensus estimates of prominent economists, as reflected in

the Blue Chip Financial Forecasts,[4] are currently projecting that long-term interest rates will remain near recent levels over the 3-5 year horizon.

Table 4
Blue Chip Financial Forecasts
Interest Rate Projections for Long-Term Bonds



Therefore, considering that 30-year U.S. Treasury, corporate and utility bond yields are a widely-accepted proxy for long-term capital costs, it is reasonable to conclude that the cost of equity for regulated utilities, which has also increased over the past few years, will remain at these higher levels over the near-to-intermediate term horizon.

[4] *Blue Chip Financial Forecasts*, Volume 42, No. 6 (June 1, 2023).

B. Comparative Risk Assessment of Proxy Groups

Q23. Why is it necessary to analyze groups of proxy companies to estimate the cost of equity for NIPSCO?

A23. 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.[5] Nonetheless, it should be noted that when the

[5] 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.

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.

Q24. What general approach did you take in developing your utility proxy groups?

A24. In developing my utility proxy groups, my objective was to identify a group of publicly-traded utility companies with risk characteristics similar to NIPSCO. Considering that the instant proceeding concerns NIPSCO's gas distribution operations, I initially developed a proxy group of publicly-traded gas utility holding companies, which I will refer to herein as the Gas LDC 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 combination gas and electric proxy group in my cost of capital evaluation.[6] In my judgment, evaluating both of these utility proxy groups will ensure the best representation of the market's risk and

[6] Which I will refer to herein as the Combination Utility Group.

return expectations for NIPSCO's gas distribution operations. This is the case because an analysis of the Gas LDC Group provides an appropriate representation of NIPSCO's jurisdictional gas operations, while an analysis of the Combination Utility 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.

Q25. What criteria did you apply in selecting the companies included in your gas utility proxy group?

A25. In selecting a gas utility proxy group, my objective was to identify a group of publicly-traded gas utility companies with risk characteristics similar to NIPSCO, which is not a publicly-traded company. 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 (2018-2022); 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 five publicly-traded natural gas distribution companies:

Atmos Energy 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."

Q26. Why is it necessary to complete a comparative risk assessment between NIPSCO and the Gas LDC Group?

A26. Considering that market-derived information for the Gas LDC Group companies will be used to estimate NIPSCO's cost of equity, it is critical that the Gas LDC 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.

Q27. Do a utility's credit ratings provide insight into its risk profile, cost of debt, and cost of equity?

A27. 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.

Q28. How do the respective long-term bond ratings of the Company and the Gas LDC Group companies compare?

A28. Presently, Standard & Poor's (S&P) has assigned a long-term credit rating of

"BBB+" for NIPSCO and an average long-term rating of "A-" for the Gas LDC 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 Gas LDC Group companies. Both the S&P and Moody's ratings reflect the overall creditworthiness of the issuing company, rather than the risk of default for a specific debt issue. When compared to the average ratings of the Gas LDC 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 slightly higher relative level of investment risk for the Company. Additional information on the Gas LDC Group's average credit ratings can be found on page 7 of Schedule 4.

Q29. When evaluating NIPSCO versus the Gas LDC Group, how do their business and financial risk metrics compare?

A29. The results of my comparative risk assessment for NIPSCO and the Gas LDC Group is 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 five companies comprising the Gas LDC Group. Within this schedule, I have evaluated the five-year historical period of 2018-2022, 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 $7.8 billion, the NIPSCO consolidated entity book capitalization is significantly smaller than the average book capitalization of the Gas LDC Group ($10.4 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. Gas LDC 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 2018-2022, the standard deviation of achieved ROEs was 1.22 percent for NIPSCO, and 0.54 percent for the Gas LDC Group. For the same period, the coefficient of variation was 0.122 for NIPSCO and 0.057 for the Gas LDC Group. Both of these measures

reflect a significantly higher level of relative volatility in achieved ROEs for NIPSCO as compared to the Gas LDC 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 common equity capitalization ratio for NIPSCO was 58.5 percent based upon permanent capitalization, and 53.4 percent based upon total capitalization. The 5-year average equity capitalization ratio for the Gas LDC Group was 50.0 percent based upon permanent capitalization, and 44.3 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 2018-2022 was 7.90x for NIPSCO and 7.47x for the Gas LDC 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 2018-2022 was 23.6 percent for NIPSCO and 15.4 percent for the Gas LDC Group.

Q30. What conclusions have you drawn from your comparative risk assessment between NIPSCO and the Gas LDC Group?

A30. NIPSCO's investment risk metrics indicate that, on an overall basis, the Company has a similar risk profile as compared to the Gas LDC Group. On the one hand,

several of the business risk metrics I evaluated suggest that the Company has a higher risk profile as compared to the Gas LDC Group, as demonstrated by: (1) NIPSCO's significantly higher concentration of gas throughput volumes to commercial, industrial, and transportation customers as compared to the Gas LDC Group, which has the effect of increasing the Company's risk profile, as these customer volumes are more heavily impacted by the cyclicality of the U.S. economy; (2) the high concentration of gas throughput among the Company's top 20 industrial customers; (3) NIPSCO's significantly smaller size as compared to the average company in the Gas LDC Group; and (4) NIPSCO's significantly higher variability of book returns on equity as compared to the Gas LDC Group, as measured by both the standard deviation and the coefficient of variation. However, on the other hand, the *financial risk* metrics[7] that I evaluated suggest that NIPSCO has a slightly lower financial risk profile as compared to the Gas LDC Group.

Therefore, on an overall basis, the results of my comparative risk assessment suggests that NIPSCO's overall investment risk profile is similar to that of the Gas

[7] 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.

LDC 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.

Q31. Have you considered any other proxy groups in estimating the cost of equity for NIPSCO?

A31. Yes, I have. As previously stated, 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. The importance of evaluating complementary proxy groups has become particularly evident in recent years, as recent merger and acquisition activity in the regulated utility space has reduced the number of gas utility holding companies to select from in deriving a gas utility proxy group. Therefore, to ensure a robust sample size that will obviate any potential distortions caused by observation errors in the various financial model inputs, I have also evaluated a proxy group of 10 combination gas and electric utility companies, and a proxy group of eight non-rate-regulated companies (i.e., the Combination Utility Group and the Non-Regulated Group respectively). Both of these proxy groups have risk profiles which are similar to the Gas LDC 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 Gas LDC Group. In order to facilitate a comparison of the risk profiles of the Combination Utility 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.

Q32. Why is it appropriate to evaluate a proxy group of combination gas and electric utility companies?

A32. Considering the relatively small size of the Gas LDC Group, evaluating a proxy group of comparable-risk combination gas and electric utility companies ensures a higher level of confidence in the statistical reliability of the analytical results when estimating the cost of equity for a gas distribution company. This approach is also consistent with the comparable earnings standard established in *Hope* and *Bluefield*, since gas utilities are entitled to earn a rate of return commensurate with returns offered by other companies having "corresponding risks," including combination gas and electric utility companies.

Morin provides additional support for this approach in *Modern Regulatory Finance,*

where he argues that a proxy group of combination electric and gas utilities is a suitable complement to a proxy group of gas utilities, where he states:

> This procedure is reasonable given that the natural gas distribution business possesses an investment risk profile that is similar in risk to that of investment-grade combination electric and gas utilities. The latter possess economic characteristics similar to those of natural gas distribution utilities as they are both involved in the distribution of energy services products at regulated rates in a cyclical and weather-sensitive market. They both employ a capital-intensive network with similar physical characteristics. They are both subject to rate of return regulation.[8]

Accordingly, the Combination Utility Group that I have referenced represents an entirely reasonable and useful complement to the Gas LDC Group.

Q33. Can you provide any additional evidence that your proxy group of combination gas and electric utility companies possesses a risk profile which is comparable to a proxy group of gas-only utilities, and therefore represents a suitable complement to your Gas LDC Group in estimating NIPSCO's cost of equity?

A33. Yes. Substantial evidence suggests that to the extent combination gas and electric utilities are riskier than pure-play gas utilities, the risk differential is not significant. This is demonstrated by the average difference in authorized ROEs granted to gas versus electric utilities by state regulatory commissions over the

[8] Roger A. Morin, *Modern Regulatory Finance* (PUR Books LLC, 2021), at 445.

past 42 years (1981 to 2022), which have only been about 12 basis points[9] higher for electric utilities. More recently, during the past 10-year period (2012 to 2022), authorized ROEs for electric utilities (including vertically-integrated and distribution-only electric utilities) have only been about eight basis points[10] higher than authorized ROEs for gas utilities. However, in recent years, the authorized ROEs reported by Regulatory Research Associates for electric utilities include special surcharge and rider generation cases in Virginia, which allow ROE premiums of up to 200 basis points, suggesting that the actual difference between gas and electric utility ROEs, when stated on a comparable basis, is actually less than eight basis points. If state regulatory commissions nationwide believed that the risk differential between gas and electric utilities was more significant, this would have been demonstrated by a greater disparity in historically authorized ROEs between gas and electric utilities. Moreover, considering that the Combination Utility Group derives an average of 35 percent of its revenues from regulated gas distribution operations, it clearly possesses an even lower risk

[9] *The Cost of Capital – A Practitioner's Guide*, D. Parcell, Society of Utility and Regulatory Financial Analysts, (2020), quoting Regulatory Research Associates, at 93; and *RRA Regulatory Focus, Major Energy Rate Case Decisions in the U.S. - January-December 2022,* Regulatory Research Associates, S&P Global Market Intelligence, February 2023, at 3.

[10] *RRA Regulatory Focus, Major Energy Rate Case Decisions in the U.S. - January-December 2022,* Regulatory Research Associates, S&P Global Market Intelligence, February 2023, at 3.

profile than the typical electric utility.

Q34. What criteria did you use to select the companies included in your Combination Utility Group?

A34. In developing the Combination Utility Group, my objective was to identify a group of publicly-traded combination gas and electric utility companies with risk characteristics similar to the Gas LDC Group. Accordingly, I applied the following screening criteria in selecting companies for inclusion in the Combination Utility Group: (i) Value Line Investment Survey Industry Classification as an electric utility; (ii) Value Line Safety Rank of "1", "2" or "3;" (iii) S&P corporate credit rating no lower than "BBB-", and Moody's senior secured debt rating no lower than "Baa3"; (iv) company must have been engaged in both the natural gas distribution and electric distribution businesses for at least the past five years; (v) company must not currently operate nuclear power generation facilities, be a significant independent power producer, or have major gas transmission and storage operations; (vi) company must currently pay dividends and must not have discontinued or reduced their dividend payments during the previous five years (2018 to 2022); and (vii) company must not have recently been an acquisition target. Applying the above selection criteria yielded a proxy group consisting of the following ten publicly-traded combination gas and electric utility companies:

Alliant Energy Corp.
Avista Corp.
Black Hills Corp.
CMS Energy Corp.
Consolidated Edison, Inc.
Eversource Energy
MGE Energy, Inc.
Northwestern Corp.
Sempra Energy
WEC Energy Group

I will refer to this group throughout my testimony as the Combination Utility Group.

Q35. How does the Combination Utility Group compare on a total risk basis to the Gas LDC Group?

A35. 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 5 later in my testimony. Based upon my evaluation of the aforementioned risk measures, I have concluded that the Combination Utility Group has a very similar investment risk profile as compared to the Gas LDC Group. This conclusion is based upon the fact that the Combination Utility Group and the Gas LDC Group have equivalent risk ratings with respect to the Value Line Safety Ranking ("2") and their respective long-term credit ratings from both S&P (A-) and Moody's (Baa1). Although the Combination Utility Group's average Value Line beta (0.85) and Stock Price Stability Rating (90) indicate a slightly higher level of investment risk as compared to the Gas LDC Group's average Value Line beta (0.82) and Stock Price Stability Rating (91), this risk differential is largely offset by the lower level

of investment risk implied by the Combination Utility Group's higher average Value Line Financial Strength rating (A) as compared to the Gas LDC Group's average Financial Strength rating (B++). Based upon these findings, I have concluded that the Combination Utility Group and the Gas LDC Group are of comparable risk.

Q36. Why is it also appropriate to evaluate a proxy group of non-rate-regulated U.S. companies when estimating NIPSCO's cost of equity?

A36. 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.[11]

It is important to note that within its *Bluefield* opinion, the Supreme Court

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

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 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.[12]

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

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

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.

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 eight companies included in the Non-Regulated Group are lower-risk companies in the consumer staple, food and beverage, and chemicals processing 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 Gas LDC

Group, its use is consistent with the fair rate of return standards established in *Hope* and *Bluefield.*

Q37. What criteria did you use to select the companies included in the Non-Regulated Group?

A37. In selecting the Non-Regulated Group, my objective was to identify a group of publicly-traded domestic companies with a risk profile either equivalent to, or preferably lower than, the Gas LDC 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 0.90; (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 (2018-2022); 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 eight lower-risk companies which operate in the consumer staple, food and beverage, and chemicals processing sectors of the economy. The eight companies comprising the Non-Regulated Group are as follows:

Air Products and Chemicals, Inc.
Coca-Cola Co.
Hershey Company
McCormick & Co.
McDonald's Corp.
Mondelez International, Inc.
PepsiCo, Inc.
Procter and Gamble Co.

Q38. How does the Non-Regulated Group compare on a total risk basis to the Gas LDC Group?

A38. Based upon my evaluation of the aforementioned objective risk measures, and as summarized in Table 5 below, I have concluded that the Non-Regulated Group

has a lower overall investment risk profile as compared to the Gas LDC Group. This conclusion is based on the fact that five of the six objective risk measures I evaluated[13] each indicate that the Non-Regulated Group has a lower investment risk profile as compared to the Gas LDC Group, while the remaining risk indicator, S&P's long-term debt rating ("A-" long-term rating), indicates an equivalent investment risk profile for the Non-Regulated Group and the Gas LDC Group. Based upon these findings, I have further concluded that the Non-Regulated Group provides an entirely reasonable (and conservative) complementary basis for estimating the cost of equity for NIPSCO's jurisdictional gas operations.

[13] These five risk indicators include the Value Line Beta, Value Line Safety Rank, Value Line Financial Strength Rating, Value Line Stock Price Stability Rating and Moody's long-term debt rating.

Table 5 Comparative Risk Assessment of Proxy Groups			
Risk Measure	**Gas LDC Group**	**Combination Utility Group**	**Non-Reg. Group**
Value Line Beta	0.82	0.85	0.81
Value Line Safety Rank	2	2	1
Value Line Fin. Strength Rating	B++	A	A++
Value Line Stock Price Stability Rating	91	90	98
S&P Long-Term Debt Rating	A-	A-	A-
Moody's Long-Term Debt Rating	Baa1	Baa1	A2

C. Analysis of Regulatory Mechanisms

Q39. In view of the fact that in the instant proceeding, NIPSCO has proposed a sales reconciliation adjustment ("SRA") and an increase to the fixed charge component of customer rates, would it be appropriate to apply a downward adjustment to NIPSCO's cost of equity under the premise that such rate structures have risk-reducing effects on the Company's overall investment risk profile?

A39. No, it would not be appropriate. Considering that the majority of the utility proxy

group companies that I evaluated in my quantitative analyses already utilize similar revenue stabilization mechanisms, any theoretical risk reduction and/or theoretical reduction in the cost of equity resulting from these mechanisms would already be reflected within the market data of the proxy group companies. In other words, since investors are already aware of the revenue stabilization mechanisms that are widely employed by the proxy group companies, they have already incorporated these mechanisms into their risk perceptions and rate of return expectations. For this reason, a downward adjustment to NIPSCO's cost of equity is not necessary or appropriate, since on an overall basis, the extent to which the proxy group companies already employ revenue stabilization mechanisms is generally comparable to NIPSCO's proposed SRA and fixed charge rate structure. Accordingly, any theoretical reduction in investment risk and the cost of equity would already be reflected in the indicated cost of equity for each of the proxy group companies that I evaluated.

Q40. Have you completed a comparative evaluation to determine the extent to which the companies comprising your Gas LDC Group employ revenue stabilization and infrastructure cost recovery mechanisms?

A40. Yes, I have. My evaluation of the revenue stabilization and infrastructure cost recovery mechanisms employed by each of the companies comprising the Gas

LDC Group and the Combination Utility Group is presented within Schedule 3. Using information available primarily from Securities and Exchange Commission filings, my evaluation identified, for each state jurisdiction in which the Gas LDC Group companies have utility operations, the specific types of regulatory mechanisms employed in each of those jurisdictions.[14] 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.

Q41. Based upon your evaluation of the regulatory mechanisms employed by the Gas LDC Group companies, what specific conclusions have you drawn?

A41. As reflected in Schedule 3, I have determined that all five of the companies comprising the Gas LDC Group employ a wide range of revenue stabilization mechanisms, including revenue decoupling, weather normalization, straight-fixed-variable rate design, modified fixed-variable rate design, and lost

[14] Considering the ubiquitous nature of regulatory mechanisms utilized by gas distribution companies which ensure timely recovery of gas costs, bad debt expense and pension expense, I have focused my analysis strictly on revenue stabilization mechanisms and infrastructure cost recovery mechanisms.

revenue/lost margin recovery mechanisms. Schedule 3 demonstrates that, on balance, the revenue stabilization mechanisms employed by the proxy group companies share many of the same characteristics and are therefore generally comparable to NIPSCO's proposed SRA mechanism and fixed charge rate structure. As a result, my cost of equity evaluation, which relies upon the market and financial data of the proxy group companies, already incorporates the effects of revenue stabilization mechanisms on the risk perceptions and rate of return expectations of investors. For this reason, 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 was to actually occur, its effect on NIPSCO's cost of equity will have already been captured within the market data of the proxy group companies.

My evaluation further determined that four out of the five companies comprising the Gas LDC Group utilize infrastructure cost recovery mechanisms that are generally comparable to NIPSCO's TDSIC program. As such, the market-based data of the Gas LDC 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 infrastructure cost recovery mechanisms.

Furthermore, based on my analysis of the Combination Utility Group, I came to the same conclusion, as the clear majority of the Combination Group companies also employ revenue stabilization and infrastructure cost recovery mechanisms. For these reasons, it would be inappropriate to apply a downward adjustment to NIPSCO's proposed ROE due to the Company's proposed SRA and fixed charge rate structure, or due to the Company's TDSIC program, since any such adjustments would be redundant to the effects that are already reflected in the market data of the proxy group companies. Again, this has been clearly demonstrated in Schedule 3 to my direct testimony.

IV. COST OF EQUITY ESTIMATES

A. Cost of Equity - General Approach

Q42. Please describe the general approach you have taken in estimating the cost of equity for NIPSCO.

A42. 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 are 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.[15]

Parcell makes 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.[16]

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.

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

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

B. Discounted Cash Flow Analysis

Q43. Please provide an overview of the DCF approach used to estimate the cost of equity.

A43. 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.

Q44. 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?

A44. 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*,[17] 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.[18]

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 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

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

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.[19]

The DCF approach introduced by Williams included a general "long-form" equation, which reflected an ongoing series of dividend payments extending into

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

the indefinite future, and a simplified constant growth version of the equation, which was later refined by Gordon and Shapiro.[20]

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:

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

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).

Q45. What form of the DCF model is used to estimate the cost of common equity in utility regulatory proceedings?

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

A45. 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,[21] which are not always observed in reality.

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

[21] 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.

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.

Q46. What steps are involved in implementing the DCF constant growth model for estimating the cost of common equity?

A46. 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 is 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.

Q47. What cost of equity estimates are indicated for the Gas LDC Group under the DCF approach?

A47. A detailed presentation of the DCF results for the Gas LDC Group is presented on pages 1 and 2 of Schedule 4 and is also summarized in Table 6 below.

Table 6
Average DCF Estimates – Gas LDC Group

Calculation Method	Cost of Equity
Earnings Forecast	
Yahoo Finance	9.10%
Zacks	9.20%
Value Line	11.20%
Historical Earnings Growth Rate	11.70%
Unadjusted DCF Estimate	10.15%
Flotation Cost Adjustment (7 basis points)	x 1.0066%
Subtotal	10.22%
Add: Market Value-Book Value Financial Risk Adjustment	0.28%
Indicated DCF Estimate	= 10.50%

The average unadjusted DCF estimate for the Gas LDC Group ranged from 9.10 percent to 11.70 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 10.15 percent is indicated for the Gas LDC 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 10.50 percent for the Gas LDC Group.

Q48. What cost of equity estimates were indicated for the Combination Utility Group using the DCF approach?

A48. DCF estimates for each member of the Combination Utility Group are presented on pages 1 and 2 of Schedule 5 and are summarized in Table 7 below. The unadjusted DCF estimates for the Combination Utility Group range from 9.40 percent to 10.20 percent. On an overall basis, an unadjusted DCF estimate of 9.60 percent is indicated for the Combination Utility Group. After making the required financial leverage and flotation cost adjustments to the unadjusted DCF estimate, the results of my analysis indicate a cost of equity of 9.92 percent for the Combination Utility Group.

Table 7 **Average DCF Estimates -** **Combination Utility Group**	
Calculation Method	**Cost of Equity**
Earnings Forecast	
Yahoo Finance	9.40%
Zacks	9.70%
Value Line	9.50%
Historical Earnings Growth Rate	10.20%
Unadjusted DCF Estimate	9.60%
Flotation Cost Adjustment (6 basis points)	x 1.0066%
Subtotal	9.66%
Add: Market Value-Book Value Financial Risk Adjustment	0.26%
Indicated DCF Estimate	9.92%

Q49. What cost of equity estimates were indicated for the Non-Regulated Group using the DCF approach?

A49. 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 8 below. The unadjusted DCF estimates for the Non-Regulated Group ranged from 8.80 percent to 10.60 percent. On an overall basis, an unadjusted DCF estimate of 10.15 percent is indicated for the Non-Regulated Group. After making the required financial leverage and flotation cost adjustments to this estimate, the results of my DCF

analysis indicate a cost of equity of 10.50 percent for the Non-Regulated Group.

Table 8
Average DCF Estimates – Non-Regulated Group

Calculation Method	**Cost of Equity**
Earnings Forecast	
Yahoo Finance	10.10%
Zacks	10.10%
Value Line	10.60%
Historical Earnings Growth Rate	8.80%
Unadjusted DCF Estimate	10.15%
Flotation Cost Adjustment (7 basis points)	x 1.0066%
Subtotal	10.22%
Plus: Market Value-Book Value Financial Risk Adjustment	0.28%
Indicated DCF Estimate	= 10.50%

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 lower investment risk profile as compared to the two utility proxy groups, the DCF estimates for the Non-Regulated Group are comparable to the DCF estimates for the two utility proxy groups.

C. Capital Asset Pricing Model Analysis

Q50. Please provide an overview of the CAPM and the theoretical basis for using it to estimate a utility's cost of equity.

A50. 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").[22] 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. 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.

[22] 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 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.[23] Nonetheless, the model still possesses useful explanatory and predictive 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

[23] 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.

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.

Q51. Is the CAPM commonly used to estimate the cost of equity, and does it influence the return expectations of investors?

A51. 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.[24]

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

[24] *2016 Valuation Yearbook* (Duff & Phelps, John Wiley & Sons) at 2-11.

the CAPM.[25]

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.

Q52. What general approach did you take in applying the CAPM to estimate the cost of equity for NIPSCO's gas utility operations?

A52. As further detailed in Schedule 7, my CAPM analyses considered multiple variants of the CAPM and evaluated both historical and prospective measures of the expected market rate of return and market risk premium.

Q53. What approach did you take in estimating the prospective risk-free rate of return expectations of investors?

A53. 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

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

> 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[26]

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[27], 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 and 2023, over which time the U.S. inflation rate reached its highest level in the past 41 years (since 1981). Meanwhile, in an effort to rein-in the multi-decade high U.S. inflation rate, the Federal Reserve Board has raised the Federal Funds target rate on eleven occasions since March 2022 (from 0.00%-0.25% to

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

[27] 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.

5.25%-5.50%), and also continues to gradually liquidate its security holdings that were acquired under its quantitative easing initiatives.

Furthermore, 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 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 3.76 percent.

Q54. In structuring your CAPM analysis, what approach did you take in estimating the market risk premium expectations of investors?

A54. 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 *2023 SBBI Yearbook* for the 97-year period between 1926 and 2022.

Q55. What approach did you take in estimating the prospective market return expectations of investors?

A55. 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 Gas LDC Group, Combination Utility 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

1.71% (D/P) + 10.73% (g) = 12.44% (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

2.32% (D/P) + 10.33% (g) = 12.65% (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 12.55 percent ((12.44%+12.65%)/2=12.55%) 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 12.55 percent and a prospective risk-free rate of return assumption of 3.76 percent, a prospective market risk premium of 8.79% is indicated.

Q56. What average historical market risk premium is indicated by your analysis?

A56. Based upon historical returns data published in the *2023 SBBI Yearbook* for the period 1926-2022, a 7.10 percent historical market risk premium is indicated. This figure is derived from the 12.00 percent arithmetic average of total returns for large company stocks (S&P 500) for the period 1926-2022, and the 4.90 percent arithmetic average income return on long-term government bonds for the same period (12.00%-4.90%=7.10%).

Q57. Based upon your informed judgment, what level of market risk premium have you applied to your CAPM analysis?

A57. 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,[28] Harris

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

and Marston[29], and Maddox, Pippert and Sullivan[30] have shown that historically, 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,[31] 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.[32]

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

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

[30] 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.

[31] 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).

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

above studies imply, when long-term Treasury yields decline significantly below their historical averages, I would fully expect that the equity risk premium expectations of investors will increase by some fractional amount thereof. Considering that the prospective risk-free rate of return applied to my analysis (3.76 percent) is significantly lower than the historical average risk-free rate reported by the *2023 SBBI Yearbook* (4.90 percent), I would fully expect that, based upon my risk-free rate of return estimate, 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 (3.76 percent). As noted earlier, based upon a prospective market return of 12.55 percent and a prospective risk-free rate of return assumption of 3.76 percent, I determined that a prospective market risk premium of 8.79% 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 7.94 percent ((8.79% + 7.10%)/2 = 7.94%[33]). 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 7.64 percent. Therefore, the 7.94 percent expected market risk premium that I have incorporated into my CAPM analyses constitute a reasonable estimate of the prevailing market risk premium.

Q58. How did you derive the beta values employed within your CAPM analysis?

A58. 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 9 below, the average Value Line betas for the Gas LDC Group, Combination Utility Group and the Non-Regulated Group are 0.82, 0.85, and 0.81, respectively. However, published betas from sources such as Value Line should

[33] Subject to rounding differences.

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.[34]

Using the Hamada equation, I first "unlevered" the average Value Line beta by referencing the Gas LDC 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, 2024, thereby reintroducing an appropriate level of financial risk into the beta, consistent with the Company's forecasted capital structure. The Hamada equation

[34] 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.

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

Gas LDC Group

Value Line Beta 0.82 = 0.55761 [(1 + (36.5%/61.3%)(1-.27)) + (2.2%/61.3%)]

Re-Levered Beta 0.846 = 0.55761 [(1 + (41.49%/58.51%)(1-.27)]

Combination Utility Group

Value Line Beta 0.85 = 0.57801 [(1 + (36.5%/61.3%)(1-.27)) + (2.2%/61.3%)]

Re-Levered Beta 0.877 = 0.57801 [(1 + (41.49%/58.51%)(1-.27)]

Non-Regulated Group

Value Line Beta 0.81 = 0.55081 [(1 + (36.5%/61.3%)(1-.27)) + (2.2%/61.3%)]

Re-Levered Beta 0.836 = 0.55081 [(1 + (41.49%/58.51%)(1-.27)]

Table 9 Summary of Results – Hamada Method			
Beta Value	**Gas LDC Group**	**Combination Utility Group**	**Non-Regulated Group**
Value Line Beta	0.82	0.85	0.81
Unlevered Beta	0.55761	0.57801	0.55081
Re-Levered Beta	0.846	0.877[35]	0.836[36]

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.

[35] The magnitude of the difference between both the Combination Utility Group and Non-Regulated Group's average market-value capital structures and NIPSCO's book-value based structure (as based upon investor-supplied capital) is materially greater than the difference between the average market-value capital structure of the Gas LDC Group and NIPSCO's book-value capital structure. As such, under the Hamada equation, the required beta adjustment for the Combination Utility Group and the Non-Regulated Group would be significantly greater than that of the Gas LDC Group. To recognize this disparity and make the Hamada adjustment method relevant to a typical gas utility company capital structure, I have applied the Hamada equation to both the Combination Utility Group's and the Non-Regulated Group's average Value Line betas by referencing the average market-value capital structure ratio of the Gas LDC Group and NIPSCO's book-value based capital structure ratio, which yielded re-levered betas as reflected in Table 9 above. Employing this approach ensures a more conservative analysis.

[36] Id.

Q59. When applying the CAPM, what variants of the CAPM should be applied to fully reflect the return expectations of investors?

A59. Multiple academic studies have advocated the use of a size-premium adjustment to the traditional CAPM.[37] 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 *2023 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[38].

[37] *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.

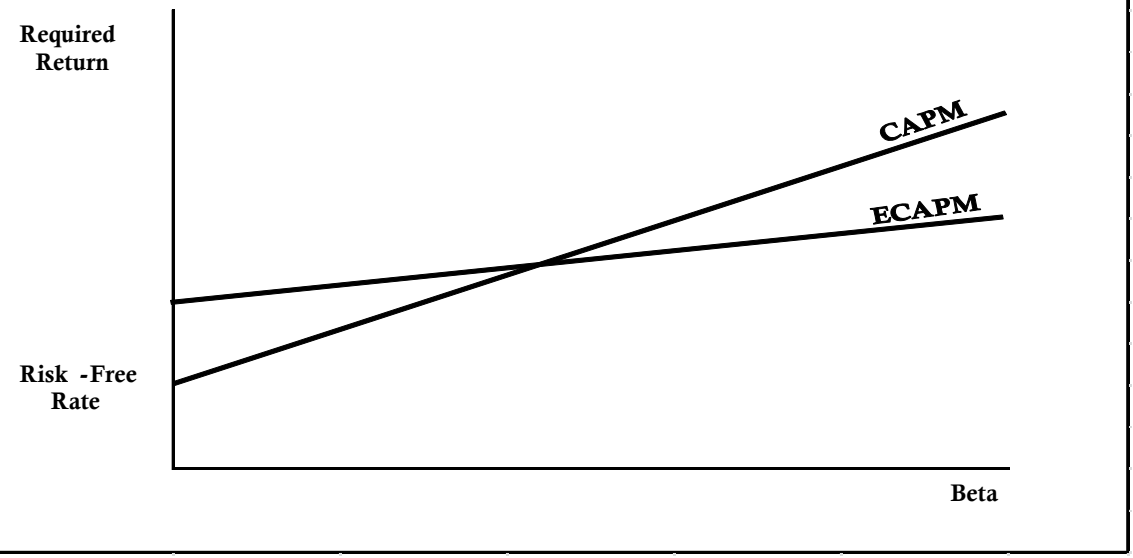
[38] *2023 SBBI Yearbook*, (Kroll LLC), at 143, 145 and 147.

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. As reflected in the *Cost of Capital Navigator,* based upon an average market capitalization of $7.7 billion, the Gas LDC Group would be classified as a Decile 3 portfolio and assigned a size premium of 0.57 percent. Based on an average market capitalization of $18.2 billion, the Combination Utility Group would be classified as a Decile 2 portfolio, and assigned an average size premium of 0.45 percent. Lastly, based upon an average market capitalization of $164.6 billion, the Non-Regulated Group would be classified as a large-cap, Decile 1 Portfolio, and assigned a size premium of *negative* -0.26 percent. In the absence of these size premium adjustments, the results indicated by the traditional CAPM for the Gas LDC Group and the Combination Utility Group would *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.

Q60. Have you considered any other variants of the CAPM?

A60. 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 10 below, is actually flatter than what is predicted by the traditional CAPM.

Table 10
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:[39]

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

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

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 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 Gas LDC Group, Combination Utility Group and Non-Regulated Group are presented within pages 2, 4 and 5 of Schedule 7, respectively, and are also summarized in Table 11 below.

Q61. What were the results of your application of the CAPM, including the variants of the model you evaluated?

A61. The results of my CAPM analyses are presented in Schedule 7 and are also summarized in Table 11 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 11 CAPM Results by Model Variant			
Model Variant	**Gas LDC Group**	**Combination Utility Group**	**Non-Regulated Group**
Traditional CAPM	10.48%	10.73%	10.40%
+ Flotation cost adj.	0.07%	0.06%	0.07%
Traditional CAPM	**10.55%**	**10.79%**	**10.47%**
Trad. CAPM (w/ size adj.)	11.05%	11.18%	10.14%
+ Flotation cost adj.	0.07%	0.06%	0.07%
Trad. CAPM (w/size adj.)	**11.12%**	**11.24%**	**10.21%**
Empirical CAPM	10.79%	10.98%	10.73%
+ Flotation cost adj.	0.07%	0.06%	0.07%
Empirical CAPM	**10.86%**	**11.04%**	**10.80%**

These results, which incorporate the appropriate flotation cost adjustments, indicate a CAPM-derived cost of equity having a central tendency of approximately 10.85 percent for the Gas LDC Group, 11.00 percent for the Combination Utility Group, and 10.50 percent the Non-Regulated Group.

D. Risk Premium Method (RPM) Analysis

Q62. Please provide an overview of the RPM and the theoretical basis for using it to estimate a utility's cost of equity.

A62. 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.

Q63. Is the RPM commonly used to estimate the cost of equity and does it influence the return expectations of investors?

A63. 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.[40]

Q64. How did you approach your RPM analysis?

A64. 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-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

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

cost of equity. My comprehensive RPM analysis is presented within Schedule 8, which is comprised of 10 pages. Summary results for the Gas LDC Group, Combination Utility Group, and Non-Regulated Group are presented on pages 1, 7 and 9 of Schedule 8, respectively. A detailed discussion of the RPM results for the Gas LDC Group is presented herein. Quantitative results for the Combination Utility Group and Non-Regulated Group are presented within pages 7-10 of Schedule 8.

Q65. How did you derive the 5.65 percent prospective bond yield for the Gas LDC Group?

A65. 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 Gas LDC 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 4.74 percent for the 2024-2028 period. An upward adjustment of 0.75 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 0.16 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 Gas LDC Group was derived by adding both of the aforementioned credit spread adjustments to the prospective Aaa corporate bond yield, which resulted in a 5.65 percent prospective bond yield.

Q66. What general approach have you taken in estimating the expected equity risk premium for the Gas LDC Group?

A66. 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.

Q67. In applying the total market approach to the Gas LDC Group, how did you arrive at the indicated equity risk premium of 5.80 percent?

A67. 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 97-year period (1926-2022) for which data is available from the *2023 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.[41]

Therefore, based upon the *SBBI Yearbook* holding period returns for the entire historical period for which data is available (from 1926 to 2022), 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 12.00 percent for large company stocks (S&P 500 Index), and the arithmetic average annual return of 6.10 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 *2023 SBBI Yearbook*, a widely-cited investment guide, which states the following:

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

> The equity risk premium data presented in this book are arithmetic average risk premiums as opposed to geometric average risk premiums. 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.[42]

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

[42] *2023 SBBI Yearbook* (Kroll, LLC), at 193.

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

1.71% (D/P) + 10.73% (g) = 12.44% (K) or (R_M)

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

2.32% (D/P) + 10.33% (g) = 12.65% (K) or (R_M)

Based upon these DCF results, a 12.55 percent ((12.44%+12.65%)/2=12.55%) 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 4.74 percent average yield for the 2024-2028 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 7.81 percent prospective equity risk premium is indicated (12.55% - 4.74% = 7.81%).

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 6.86 percent total market risk premium is indicated ((5.90%+7.81%)/2=6.86%).

Considering that this result must be adjusted to recognize the risk differential between the overall market index and the Gas LDC Group, I have applied a re-levered beta value of 0.846 to the indicated market risk premium to derive a risk premium which is applicable to the Gas LDC Group. Consistent with my findings in the preceding CAPM analysis, a re-levered beta of 0.846 is appropriate for the Gas LDC 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 Gas LDC Group under the Total Market Approach was determined to be 5.80 percent (6.86% x 0.846 = 5.80%).

Q68. In applying the public utility index approach to the Gas LDC Group, how did you arrive at the indicated equity risk premium of 4.37 percent?

A68. 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 97-year period covering 1926-2022, the average annual total return for this index was 10.81 percent. During this same period, the average annual

yield for long-term utility bonds bearing an "A" rating from Moody's was 6.23 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 4.57 percent[43] equity risk premium is indicated for the Gas LDC Group (10.81% - 6.23% = 4.57%).

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 9.46 percent. I then compared the recent yields on "A" rated utility bonds (5.29 percent) to the expected equity return, which yielded a currently-implied equity risk premium of 4.17 percent (9.46%-5.29%=4.17%). 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

[43] Subject to rounding differences.

currently-implied approach, which yielded an indicated equity risk premium of 4.37 percent ((4.57% +4.17%)/2 = 4.37%).

Q69. 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 Gas LDC Group?

A69. Consistent with established practices, I have placed equal emphasis on the total market approach and the public utility index approach and have concluded that 5.09 percent is a reasonable estimate of the investor-expected equity risk premium for the Gas LDC Group. Based upon an expected risk premium of 5.09 percent, and a 5.65 percent prospective long-term bond yield for the Gas LDC Group, I have also concluded that the unadjusted RPM-indicated cost of equity for the Gas LDC Group is 10.73 percent (5.65%+5.09%=10.73%)[44]. Consistent with the other market-based analytical models, to this result I added the required flotation cost adjustment of 0.07 percent, which yielded an adjusted RPM-indicated cost of equity of 10.80 percent for the Gas LDC Group.

Q70. Under the RPM, what cost of equity was indicated for the Combination Utility Group and the Non-Regulated Group?

[44] Subject to rounding differences.

A70. As reflected on page 7 of Schedule 8, the unadjusted RPM-indicated cost of equity for the Combination Utility Group was determined to be 10.84 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 10.90 percent for the Combination Utility 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 11.17 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 11.24 percent for the Non-Regulated Group.

The results of my RPM evaluation are summarized in Table 12 below.

Table 12
Risk Premium Method Results

Model Variant	Gas LDC Group	Combination Utility Group	Non-Regulated Group
Risk Premium Method	10.73%	10.84%	11.17%
+ Flotation cost adjust.	0.07%	0.06%	0.07%
Risk Premium Method	10.80%	10.90%	11.24%

Q71. 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?

A71. 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	Gas LDC Group	Combination Utility Group	Non-Regulated Group
DCF Method	10.50%	9.92%	10.50%
Traditional CAPM	10.55%	10.79%	10.47%
CAPM (w/size adj.)	11.12%	11.24%	10.21%
ECAPM	10.86%	11.04%	10.80%
Risk Premium Method	10.80%	10.90%	11.24%

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	10.50%
Average DCF Result	10.31%
Median CAPM Result	10.80%
Average CAPM Result	10.79%
Median RPM Result	10.90%
Average RPM Result	10.98%

Based upon these measures of central tendency, I have concluded that the cost of common equity for NIPSCO's jurisdictional gas utility operations is in the range of 10.45 to 10.95 percent], and that a point estimate at the midpoint of this range, or 10.70 percent, is the appropriate cost of equity to apply in the instant proceeding. As noted earlier, in developing my recommendations, I have placed primary emphasis on the cost of equity estimates derived for the Gas LDC Group and the Combination Utility 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.

Q72. Does this conclude your prepared direct testimony?

A72. 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: October 25, 2023

Vincent V. Rea, CRRA

Professional Qualifications and Expert Testimony Listing

Testimony and Regulatory Litigation Support

Mr. Rea has provided expert testimony in utility regulatory proceedings before state commissions and the Federal Energy Regulatory Commission in connection with rate cases, financing applications, and various other financing-related matters. His 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 matters, utility recapitalizations, and various other financial-related matters. Mr. Rea has 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. Mr. Rea currently serves as Managing Director, Regulatory Finance Associates, LLC, and independent financial and regulatory consulting firm serving the utility industry. He previously held the positions of Director, Regulatory Finance and Economics for NiSource Inc., and Assistant Treasurer and Director of Corporate Finance for NiSource Inc. A detailed listing of the docketed proceedings where testimony and/or subject matter support has been provided by Mr. Rea can be found in Attachment A.

Capital Markets Expertise

Mr. Rea acquired 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 six utility subsidiaries. Mr. Rea's extensive capital markets experience in the utility industry is a distinguishing factor that uniquely qualifies him to opine on the cost of capital for regulated utilities. In the capacity as Assistant Treasurer, Mr. Rea 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. Mr. Rea 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. He was 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 Mr. Rea's 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)

Vincent V. Rea, CRRA
Professional Qualifications and Testimony Listing

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

Vice President, Society of Utility and Regulatory Financial Analysts (SURFA) (2022-present)

Board of Directors, Society of Utility and Regulatory Financial Analysts (SURFA) (2014-2022)

Indiana Utility Regulatory Commission (IURC) Financial Roundtable

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 Massachusetts Department of Public Utilities (D.P.U.)			
NSTAR Electric Company d/b/a Eversource Energy	01/2022	D.P.U. 22-22 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
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
Bay State Gas Company, d/b/a Columbia Gas of Massachusetts	05/2011	D.P.U. 11-41 Financing Petition	Financing Authority ($100.0 million)
Bay State Gas Company	08/2004	D.T.E. 04-80 Financing Petition	Financing Authority ($120.0 million)
Bay State Gas Company	11/2002	D.T.E. 02-73 Financing Petition	Financing Authority ($50.0 million)
Bay State Gas Company	09/2001	D.T.E. 01-75 Participation in Intra-System Financing Vehicle	Participation in NiSource Money Pool System

Vincent V. Rea
Testimony in Utility Regulatory Proceedings

Applicant	Date	Docket/Type of Case	Subject
Testimony before the Connecticut Public Utilities Regulatory Authority (PURA)			
Connecticut Light and Power Co. d/b/a Eversource Energy	05/2021	Docket No. 17-12-03RE11 PURA Investigation into Dist. System Planning - New Rate Designs and Rates Review	Cost of Capital (ROE) Capital Structure
Testimony before the Indiana Utility Regulatory Commission (IURC)			
Northern Indiana Public Service Company	09/2022	Cause No. 45772 Base Rate Proceeding (Electric)	Cost of Capital (ROE)
Northern Indiana Public Service Company	09/2021	Cause No. 45621 Base Rate Proceeding (Gas)	Cost of Capital (ROE)
Northern Indiana Public Service Company	09/2021	Cause No. 45330-TDSIC-1 TDSIC Proceeding (Gas)	Cost of Capital (ROE) Capital Structure
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)
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)

Vincent V. Rea
Testimony in Utility Regulatory Proceedings

Applicant	Date	Docket/Type of Case	Subject
Testimony before the Indiana Utility Regulatory Commission (IURC) (continued)			
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 andTransfer 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 Kentucky Public Service Commission (PSC)			
Columbia Gas of Kentucky	05/2021	Case No. 2021-00183 Base Rate Proceeding (Gas)	Cost of Capital (ROE) Capital Structure
Testimony before the Maryland Public Service Commission (PSC)			
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

Vincent V. Rea
Testimony in Utility Regulatory Proceedings

Applicant	Date	Docket/Type of Case	Subject
Testimony before the Maryland Public Service Commission (PSC) (continued)			
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 New Hampshire and Maine Public Utility Commissions			
Northern Utilities, Inc.	03/2003	Docket No. 03-080 (NH) Case No. 2003-00222 (ME) Financing Petition	Financing Authority ($60.0 million)
Northern Utilities, Inc.	11/2002	Case No. 2002-00680 (ME) Financing Vehicle	Alternative Fuel Financing Arrangement
Northern Utilities, Inc.	09/2001	Case No. 2001-00646 (ME) Participation in Intra- System Financing Vehicle	Participation in a Funds Pooling Agreement
Testimony before the Virginia State Corporation Commission (SCC)			
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 Federal Energy Regulatory Commission (FERC)			
Northern Indiana Public Service Company	03/2012	Docket No. EL12-49-000 Transmission Rate Incentives for MVP Projects	Incentive Rate Treatment - CWIP andAbandoned Plant

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

Applicant	Date	Docket/Type of Case	Subject
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) - 2018-2022 and 5-Year Averages

Business & Other Hybrid Metrics	2022	2021	2020	2019	2018	5-Year Average
Relative Size Comparison - Total Capital						
Permanent Capitalization (excl. OCI)	$ 7,029,700	$ 6,335,300	$ 5,598,100	$ 5,004,200	$ 4,854,700	$ 5,764,400
Current Maturities and Short-Term Debt	820,200	426,600	434,100	601,000	468,100	550,000
Total Capitalization (excl. OCI)	$ 7,849,900	$ 6,761,900	$ 6,032,200	$ 5,605,200	$ 5,322,800	$ 6,314,400

Standard Deviation and Coefficient of Variation of Return on Book Equity	2022	2021	2020	2019	2018	5-Year Average
Return on Avg. Book Equity, incl. AFUDC (2)	8.5%	9.3%	9.3%	11.2%	11.6%	10.0%

	Average	Std. Dev.	Coff. Var.
Return on Avg. Book Equity, incl. AFUDC (2)	**10.00%**	**1.22%**	**0.122**

Financial Risk/Credit Quality Metrics	2022	2021	2020	2019	2018	5-Year Average
Permanent Capitalization Ratios						
Long-Term Debt	40.7%	39.5%	41.8%	42.3%	43.3%	41.5%
Preferred Stock	-	-	-	-	-	-
Common Equity (2)	59.3%	60.5%	58.2%	57.7%	56.7%	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)	46.9%	43.4%	46.0%	48.5%	48.3%	46.6%
Preferred Stock	-	-	-	-	-	-
Common Equity (2)	53.1%	56.6%	54.0%	51.5%	51.7%	53.4%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
EBITDA Interest Coverage (3)						
EBITDA Interest Cov. (incl. AFUDC ded.)	7.81	8.00	7.70	8.24	7.74	7.90
FFO to Adjusted Total Debt (4)						
FFO to Adj. Debt (incl. AFUDC ded.)	20.9%	24.5%	23.3%	25.0%	24.2%	23.6%

(1) Northern Indiana Public Service Company LLC standalone 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).

Gas LDC Group
Comparative Risk Assessment (1) - 2018-2022 and 5-Year Averages

Business & Hybrid Risk Metrics	2022	2021	2020	2019	2018	5-Year Average
Relative Size Comparison - Total Capital						
Permanent Capitalization (excl. OCI)	9,070,258	8,529,813	7,416,341	6,618,988	5,839,631	$ 7,495,006
Current Maturities and Short-Term Debt	1,283,727	926,039	410,592	755,085	890,838	$ 853,256
Total Capitalization (excl. OCI)	10,353,986	9,455,852	7,826,932	7,374,072	6,730,469	$ 8,348,262
Standard Deviation and Coefficient of Variation of Return on Book Equity						
Return on Avg. Book Equity (2)(incl. AFUDC)	9.30%	9.64%	9.28%	8.76%	9.44%	9.28%

	Average	Std. Dev.	Coeff. Var.
Return on Avg. Book Equity (2)(incl. AFUDC)	**9.28%**	**0.54%**	**0.057**

Financial Risk/Credit Quality Metrics	2022	2021	2020	2019	2018	5-Year Average
Permanent Capitalization Ratios						
Long-Term Debt	49.6%	52.2%	47.9%	44.8%	44.2%	47.8%
Preferred Stock	2.6%	2.8%	2.1%	2.3%	1.4%	2.2%
Common Equity (2)	47.7%	45.0%	50.0%	52.9%	54.4%	50.0%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Capitalization Ratios						
Total Debt (incl. CMD and STD)	56.2%	57.7%	52.5%	50.9%	51.4%	53.7%
Preferred Stock	2.3%	2.6%	2.0%	2.0%	1.2%	2.0%
Common Equity (2)	41.5%	39.7%	45.5%	47.1%	47.4%	44.3%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
EBITDA Interest Coverage (3)						
EBITDA Interest Cov. (incl. AFUDC deduction)	7.57	8.55	7.69	6.82	6.70	7.47
FFO to Adjusted Total Debt (4)						
FFO to Adj. Debt (incl. AFUDC deduction)	13.6%	13.8%	16.3%	16.5%	16.6%	15.4%

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

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

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

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

Source: 10-K filings of the proxy group companies.

Capital Structure Ratios - Permanent Capitalization Schedule 2
Gas LDC Group - 2018-2022 and 5-Year Average Page 3 of 4

	2022	2021	2020	2019	2018	5-Year Average
Atmos Energy Corp.						
Long-Term Debt	38.9%	38.6%	39.8%	37.6%	33.9%	37.8%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	61.1%	61.4%	60.2%	62.4%	66.1%	62.2%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
NiSource Inc.						
Long-Term Debt	55.6%	56.5%	60.9%	56.4%	55.1%	56.9%
Preferred Stock	9.0%	9.5%	5.8%	6.3%	6.8%	7.5%
Common Equity (1)	35.4%	34.0%	33.2%	37.3%	38.1%	35.6%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Northwest Natural Gas Co.						
Long-Term Debt	51.3%	52.5%	48.8%	47.9%	47.8%	49.7%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	48.7%	47.5%	51.2%	52.1%	52.2%	50.3%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
ONE Gas, Inc.						
Long-Term Debt	50.7%	61.0%	41.4%	37.6%	38.6%	45.9%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	49.3%	39.0%	58.6%	62.4%	61.4%	54.1%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Spire, Inc.						
Long-Term Debt	51.6%	52.5%	48.6%	44.7%	45.8%	48.7%
Preferred Stock	4.2%	4.3%	4.9%	5.2%	-	3.7%
Common Equity (1)	44.1%	43.1%	46.5%	50.1%	54.2%	47.6%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Average of Gas LDC Proxy Group						
Long-Term Debt	49.6%	52.2%	47.9%	44.8%	44.2%	47.8%
Preferred Stock	2.6%	2.8%	2.1%	2.3%	1.4%	2.2%
Common Equity (1)	47.7%	45.0%	50.0%	52.9%	54.4%	50.0%
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
Gas LDC Group - 2018-2022 and 5-Year Average

	2022	2021	2020	2019	2018	5-Year Average
Atmos Energy Corp.						
Total Debt (incl. CM and STD)	47.4%	48.3%	39.8%	40.5%	42.9%	43.8%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	52.6%	51.7%	60.2%	59.5%	57.1%	56.2%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
NiSource Inc.						
Total Debt (incl. CM and STD)	59.8%	58.1%	62.3%	61.3%	61.2%	60.5%
Preferred Stock	8.2%	9.2%	5.6%	5.6%	5.9%	6.9%
Common Equity (1)	32.1%	32.8%	32.1%	33.1%	32.9%	32.6%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Northwest Natural Gas Co.						
Total Debt (incl. CM and STD)	57.4%	60.2%	58.3%	54.0%	55.3%	57.0%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	42.6%	39.8%	41.7%	46.0%	44.7%	43.0%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
ONE Gas, Inc.						
Total Debt (incl. CM and STD)	55.6%	63.9%	47.2%	45.8%	43.6%	51.2%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	44.4%	36.1%	52.8%	54.2%	56.4%	48.8%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Spire, Inc.						
Total Debt (incl. CM and STD)	60.7%	58.0%	55.1%	52.7%	53.9%	56.1%
Preferred Stock	3.4%	3.8%	4.2%	4.4%	-	3.2%
Common Equity (1)	35.9%	38.2%	40.8%	42.9%	46.1%	40.8%
Total Capitalization	100.0%	100.0%	100.1%	100.0%	100.0%	100.0%
Average of Gas LDC Proxy Group						
Total Debt (incl. CM and STD)	56.2%	57.7%	52.5%	50.9%	51.4%	53.7%
Preferred Stock	2.3%	2.6%	2.0%	2.0%	1.2%	2.0%
Common Equity (1)	41.5%	39.7%	45.5%	47.1%	47.4%	44.3%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

(1) Excludes Other Comprehensive Income (Loss) component of Stockholders' Equity.
Abbreviations: "CM" denotes Current Maturities of Debt; "STD" denotes Short-Term Debt.

Regulatory Mechanisms by Jurisdiction
Atmos Energy Corp.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
CO	-	System Safety and Integrity Rider (SSIR)
KS	WNA and Modified Fixed-Variable Rate Design	Gas System Reliability Surcharge (GSRS)
KY	WNA and Modified Fixed-Variable Rate Design	Pipeline Replacement Program (PRP)
LA	WNA and Rate Stabilization Clause (RSC)	Safety and Reliability Deferral Mechanism (SIIP)
MS	WNA and Stable Rate Filing (SRF)	System Integrity Rider (SIR)
TN	WNA, Annual Rate Mechanism, and MFV	Annual Rate Mechanism (ARM)
TX (Mid)	WNA, Rate Review Mechanism, and MFV	Rule 8.209 System Safety and Reliability Capital Deferral Mechanism and Gas Reliability Infrastructure Program (GRIP)
TX (West)	WNA, Rate Review Mechanism, and MFV	Rule 8.209 System Safety and Reliability Capital Deferral Mechanism and Gas Reliability Infrastructure Program (GRIP)
VA	WNA	Steps to Advance Virginia Energy (SAVE)

Regulatory Mechanisms by Jurisdiction
NiSource Inc.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
IN	-	Transmission, Distribution and Storage System Improvement Charge (TDSIC) (Gas and Electric)
KY	Weather Normalization Adjustment (WNA)	Safety Modernization and Repl. Program (SMRP)
MD	Weather Normalization Adjustment (WNA) and Revenue Normalization Adjustment (RNA)	Strategic Infrastructure Development and Enhancement (STRIDE)
OH	Straight-Fixed Variable Rate Design	Capital Expenditure Rider (CEP) and Infrastructure Replacement Program (IRP)
PA	Weather Normalization Adjustment (WNA)	Distribution and Storage System Impr. Charge (DSIC)
VA	Weather Normalization Adjustment (WNA) and Revenue Normalization Adjustment (RNA)	Steps to Advance Virginia's Energy Plan (SAVE)

(1) Revenue stabilization mechanisms include the following four rate design approaches: (a) revenue decoupling mechanisms (incl. lost revenues adjustment mechanisms); (b) weather normalization adjustment (WNA) clauses; (c) straight-fixed variable (SFV) or modified fixed-variable (MFV) rate design; and (d) rate stabilization tariffs.

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

Regulatory Mechanisms by Jurisdiction
Northwest Natural Gas Co.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
OR	WNA (WARM) and Revenue Decoupling	-
WA	-	-

Regulatory Mechanisms by Jurisdiction
ONE Gas, Inc.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
KS	WNA Clause	Gas System Reliability Surcharge (GSRS)
OK	WNA (Temperature Adjustment Clause)	PBRC - Incremental Capital Investment
TX	WNA Clause	Gas Reliability Infrastructure Program (GRIP) and Cost of Service Adjustment (COSA)

(1) Revenue stabilization mechanisms include the following four rate design approaches: (a) revenue decoupling mechanisms (incl. lost revenues adjustment mechanisms); (b) weather normalization adjustment (WNA) clauses; (c) straight-fixed variable (SFV) or modified fixed-variable (MFV) rate design; and (d) rate stabilization tariffs.

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

Regulatory Mechanisms by Jurisdiction
Spire Inc.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
AL	WNA (Temperature Adjustment Rider) and Rate Stabilization & Equalization (RSE)	-
MO	WNA	Infrastructure System Replacement Surcharge (ISRS)
MS	WNA and Rate Stabilization Adjustment (RSA)	-

(1) Revenue stabilization mechanisms include the following four rate design approaches: (a) revenue decoupling mechanisms (incl. lost revenues adjustment mechanisms); (b) weather normalization adjustment (WNA) clauses; (c) straight-fixed variable (SFV) or modified fixed-variable (MFV) rate design; and (d) rate stabilization tariffs.

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

Regulatory Mechanisms by Jurisdiction
Alliant Energy Corp.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
IA	-	-
WI	-	-

Regulatory Mechanisms by Jurisdiction
Avista Corp.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
ID	Revenue Decoupling (Fixed Cost Adjustment)	-
OR	Revenue Decoupling	-
WA	Revenue Decoupling	-

Regulatory Mechanisms by Jurisdiction
Black Hills Corp.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
AR	WNA and Revenue Decoupling (Gas)	Safety and Integrity Rider (Gas)
CO	-	System Safety Integrity Rider - (SSIR) (Gas)
IA	-	System Safety and Maintenance Adjustment Rider (Gas)
KS	Weather Normalization Adjustment (WNA)	Gas System Reliability Surcharge (Gas)
MT	-	-
NE	-	Infrastructure Repl. Cost Recovery Surcharge (Gas) and System Safety and Integrity Rider (Gas)
SD	-	Transmission Facility Adjustment (TFA)
WY	Partial Decoupling	Integrity Rider

(1) Revenue stabilization mechanisms include the following four rate design approaches: (a) revenue decoupling mechanisms (incl. lost revenues adjustment mechanisms); (b) weather normalization adjustment (WNA) clauses; (c) straight-fixed variable (SFV) or modified fixed-variable (MFV) rate design; and (d) rate stabilization tariffs.

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

Regulatory Mechanisms by Jurisdiction
CMS Energy Corp.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
MI	Revenue Decoupling (Rate Adjustment Mech.) (Gas)	Forward Looking Test Year

Regulatory Mechanisms by Jurisdiction
Consolidated Edison, Inc.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
NY	WNA (Gas & Electric), Revenue Decoupling (Gas & Electric) and Fixed - Variable Rate Design (Gas & Electric)	Infrastructure Cost Recovery Mechanism (Limited: Gas)
NJ	WNA (Gas)	-

Regulatory Mechanisms by Jurisdiction
Eversource Energy

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
MA	Revenue Decoupling (Gas & Electric)	Gas System Enhancement Program (Gas)
CT	Revenue Decoupling) (Gas & Electric)	Electric System Improvements Charge (ESI), including System Resiliency Plan (Electric)
NH	Regulatory Reconciliation Adjustment (RRA)	-

(1) Revenue stabilization mechanisms include the following four rate design approaches: (a) revenue decoupling mechanisms (incl. lost revenues adjustment mechanisms); (b) weather normalization adjustment (WNA) clauses; (c) straight-fixed variable (SFV) or modified fixed-variable (MFV) rate design; and (d) rate stabilization tariffs.

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

Regulatory Mechanisms by Jurisdiction
MGE Energy Inc.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
WI	-	Limited Reopener Requests

Regulatory Mechanisms by Jurisdiction
Northwestern Corp.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
MT	Fixed Cost Recovery Mechanism (FCRM)	-
NE	-	-
SD	-	-

(1) Revenue stabilization mechanisms include the following four rate design approaches: (a) revenue decoupling mechanisms (incl. lost revenues adjustment mechanisms); (b) weather normalization adjustment (WNA) clauses; (c) straight-fixed variable (SFV) or modified fixed-variable (MFV) rate design; and (d) rate stabilization tariffs.

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

Regulatory Mechanisms by Jurisdiction
Sempra Energy

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
CA	Decoupling Mechanism	-

Regulatory Mechanisms by Jurisdiction
WEC Energy Group

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
IL	Revenue Decoupling (Gas) and Modified Fixed-Variable Rate Design (Gas)	Gas Pipeline Replacement Rider / Qualifying Infrastructure Plant Rider (Gas)
MI	-	Main Replacement Program Rider
MN	Revenue Decoupling (Gas)	Gas Utility Infrastructure Cost Rider Surcharge
WI	-	-

(1) Revenue stabilization mechanisms include the following four rate design approaches: (a) revenue decoupling mechanisms (incl. lost revenues adjustment mechanisms); (b) weather normalization adjustment (WNA) clauses; (c) straight-fixed variable (SFV) or modified fixed-variable (MFV) rate design; and (d) rate stabilization tariffs.

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

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	2.7%	7.8%	7.5%	7.0%	10.5%	10.2%	9.7%
Nisource Inc.	3.6%	6.7%	7.0%	9.5%	10.3%	10.6%	13.1%
Northwest Natural Gas Co.	4.4%	2.8%	3.7%	6.5%	7.2%	8.1%	10.9%
ONE Gas, Inc.	3.4%	5.0%	5.0%	6.5%	8.4%	8.4%	9.9%
Spire Inc.	4.4%	n/a	4.2%	8.0%	n/a	8.7%	12.4%
Average (6)	3.7%	5.6%	5.5%	7.5%	9.1%	9.2%	11.2%
Low-End and High-End Outlier Tests							
Low-End Threshold (7.00%) (6)					7.00%	7.00%	7.00%
Median Result (excluding negative values)(6)					9.3%	8.7%	10.9%
200% of Median Result (6)					18.7%	17.3%	21.7%
High-End Threshold - 200% of Median (average)					19.2%	19.2%	19.2%

(1) See page 3 of this Schedule.
(2) www.finance.yahoo.com. Consensus earnings estimates provided by Thomson Reuters (retrieved July 1, 2023).
(3) www.zacks.com (retrieved July 1, 2023).
(4) See page 5 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 7.00% 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 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). 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.	2.7%	9.0%	9.0%	9.0%	11.7%
NiSource Inc.	3.6%	15.0%	1.5%	8.3%	11.9%
Northwest Natural Gas Co.	4.4%	2.5%	-1.0%	0.8%	5.1%
ONE Gas, Inc.	3.4%	8.0%	n/a	8.0%	11.4%
Spire Inc.	4.4%	1.0%	2.5%	1.8%	6.2%
Average (6)	3.7%	7.1%	3.0%	5.6%	11.7%

Low-End and High-End Outlier Tests	
Low-End Threshold (7.00%) (6)	7.00%
Median Result (excluding negative values)(6)	11.4%
200% of Median Result (6)	22.7%
High-End Threshold - 200% of Median (average)	22.7%

(1) See page 3 of this Schedule.
(2) See page 5 of this Schedule.
(3) See page 5 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 7.00% 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 Stock Price Avg.	(b) Next 12-Mo. Dividends	(b)/(a) Dividend Yield
Atmos Energy Corp.	$ 115.57	$ 3.14	2.7%
NiSource Inc.	$ 27.50	$ 1.00	3.6%
Northwest Natural Gas Co.	$ 44.59	$ 1.95	4.4%
ONE Gas, Inc.	$ 79.50	$ 2.66	3.4%
Spire Inc.	$ 66.39	$ 2.94	4.4%
Average	-	-	3.7%

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

(b) Value Line Investment Survey, Summary and Index, July 7, 2023. Estimated dividends, next twelve months.

DCF Method
Gas LDC Group
30/60/90 Day Average Closing Stock Price Through July 5, 2023

Averages	Atmos Energy	NiSource Inc.	Northwest Natural Gas	ONE Gas, Inc.	Spire Inc.
30-Day Average	$ 116.10	$ 27.15	$ 43.13	$ 79.43	$ 64.74
60-Day Average	$ 115.98	$ 27.72	$ 44.94	$ 79.78	$ 66.77
90-Day Average	$ 114.62	$ 27.64	$ 45.69	$ 79.30	$ 67.68
30/60/90 Day Avg.	$ 115.57	$ 27.50	$ 44.59	$ 79.50	$ 66.39

Date	Atmos Energy	NiSource Inc.	Northwest Natural Gas	ONE Gas, Inc.	Spire Inc.
7/5/2023	118.59	27.88	42.89	76.87	63.65
7/3/2023	117.30	27.42	43.23	77.05	63.50
6/30/2023	116.34	27.35	43.05	76.81	63.44
6/29/2023	115.70	27.17	42.85	77.31	63.02
6/28/2023	115.26	27.13	42.50	76.45	62.58
6/27/2023	117.19	27.44	42.71	77.28	63.09
6/26/2023	116.35	27.25	42.34	76.96	62.98
6/23/2023	114.42	26.72	42.04	76.39	62.71
6/22/2023	115.95	27.15	42.61	77.73	63.82
6/21/2023	117.58	27.50	42.24	79.17	63.93
6/20/2023	115.91	27.22	42.33	78.38	63.00
6/16/2023	117.00	27.38	42.50	78.25	63.49
6/15/2023	117.49	27.34	42.54	77.78	63.69
6/14/2023	117.07	27.16	42.85	78.88	63.97
6/13/2023	117.57	27.05	43.57	80.14	66.11
6/12/2023	117.50	27.12	43.33	80.53	65.66
6/9/2023	117.33	27.09	43.48	82.22	66.09
6/8/2023	117.50	27.33	43.94	82.57	67.31
6/7/2023	117.14	27.40	44.31	83.62	68.01
6/6/2023	115.17	26.96	43.32	81.39	65.49
6/5/2023	114.60	26.77	42.66	79.97	64.64
6/2/2023	114.52	26.76	43.32	81.38	65.51
6/1/2023	112.07	26.67	42.13	79.63	63.59
5/31/2023	115.28	26.89	42.70	80.94	64.57
5/30/2023	114.43	26.60	42.83	81.42	64.88
5/26/2023	113.70	26.85	43.89	81.11	65.72
5/25/2023	114.84	27.01	43.80	79.65	65.65
5/24/2023	116.41	27.25	44.23	80.62	66.04
5/23/2023	116.40	27.36	45.04	81.64	68.03
5/22/2023	116.37	27.39	44.70	80.73	67.89
5/19/2023	116.56	27.36	44.67	80.30	68.00
5/18/2023	116.11	27.36	44.50	79.72	67.79
5/17/2023	116.78	27.43	44.90	79.90	68.05
5/16/2023	115.99	27.54	44.08	79.00	67.24
5/15/2023	117.59	28.04	45.00	80.57	68.03
5/12/2023	119.15	28.49	45.67	81.76	69.09
5/11/2023	118.10	28.16	45.96	81.16	68.61
5/10/2023	119.31	28.89	46.48	81.60	69.32
5/9/2023	118.50	28.45	46.30	80.91	68.44
5/8/2023	117.86	28.45	46.76	80.46	68.32
5/5/2023	117.56	28.54	47.05	80.74	69.56
5/4/2023	117.96	28.37	48.33	79.65	68.39
5/3/2023	112.91	28.12	46.14	79.75	67.70
5/2/2023	112.30	27.91	45.97	78.31	66.64
5/1/2023	114.55	28.51	46.85	77.29	67.64
4/28/2023	114.14	28.46	46.96	76.95	67.73
4/27/2023	114.94	28.55	47.27	78.20	68.74
4/26/2023	113.85	28.29	46.90	77.10	67.65
4/25/2023	116.27	28.65	47.79	80.06	69.83
4/24/2023	116.22	28.53	47.69	80.63	69.63
4/21/2023	115.38	28.64	47.72	80.71	69.91
4/20/2023	115.77	28.59	47.61	80.59	69.78
4/19/2023	114.74	28.55	47.62	80.67	69.95
4/18/2023	113.60	28.19	47.04	79.40	69.02
4/17/2023	114.10	28.30	47.52	80.64	69.66
4/14/2023	113.04	27.85	47.05	79.62	68.01
4/13/2023	114.34	28.34	47.59	81.29	69.31
4/12/2023	115.90	28.66	47.95	81.95	69.74
4/11/2023	116.37	28.64	48.48	82.41	71.07
4/10/2023	116.07	28.69	48.82	82.68	71.34
4/6/2023	115.42	28.82	48.81	82.19	71.09
4/5/2023	114.84	28.69	48.30	81.53	71.52
4/4/2023	111.15	27.76	46.91	78.95	69.57
4/3/2023	111.11	27.76	46.98	78.47	69.64
3/31/2023	112.36	27.96	47.56	79.23	70.14
3/30/2023	111.94	27.84	47.46	78.99	70.83
3/29/2023	111.53	27.60	47.37	78.91	70.28
3/28/2023	110.06	27.22	46.97	78.32	69.24
3/27/2023	110.25	27.05	46.84	77.89	69.28
3/24/2023	109.38	26.75	46.41	77.02	69.21
3/23/2023	106.52	25.98	44.90	74.80	66.82
3/22/2023	107.29	26.37	45.66	75.62	67.41
3/21/2023	110.21	26.98	46.80	77.58	68.88
3/20/2023	114.88	27.82	47.62	79.53	70.31
3/17/2023	114.69	27.47	47.30	78.41	70.01
3/16/2023	114.34	27.96	48.11	78.58	71.06
3/15/2023	113.78	27.85	48.09	77.14	69.54
3/14/2023	112.05	27.76	46.88	76.25	69.65
3/13/2023	110.53	27.33	46.10	74.89	67.89
3/10/2023	109.16	26.71	45.63	74.34	66.48
3/9/2023	110.53	27.38	46.35	75.97	67.23
3/8/2023	112.39	27.70	47.06	77.65	68.33
3/7/2023	111.20	27.31	46.96	77.83	68.04
3/6/2023	113.40	27.56	47.41	79.86	68.77
3/3/2023	112.73	27.70	48.27	80.99	69.98
3/2/2023	111.49	27.27	47.82	78.92	69.71
3/1/2023	110.54	26.83	47.04	79.40	70.45
2/28/2023	112.81	27.43	48.34	80.16	70.40
2/27/2023	114.90	27.49	47.75	80.87	71.23
2/24/2023	115.75	27.82	47.58	80.05	71.64

DCF Method
Gas LDC Group
Per Share Annual Growth Rates - Historical and Projected

	Past 5-Years Historical Growth Rates				Estimated '20-'22 to '26-'28 Growth Rates			
Gas LDC Group	EPS	DPS	BVPS	Average	EPS	DPS	BVPS	Average
Atmos Energy Corp.	9.0%	8.5%	12.0%	9.8%	7.0%	7.5%	5.0%	6.5%
NiSource Inc.	15.0%	3.5%	0.5%	6.3%	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.	8.0%	10.0%	4.0%	7.3%	6.5%	5.5%	6.5%	6.2%
Spire Inc.	1.0%	6.0%	4.0%	3.7%	8.0%	5.0%	6.5%	6.5%
Average	7.1%	5.7%	4.2%	5.7%	7.5%	4.6%	5.4%	5.8%

	Past 10-Years Historical Growth Rates			
Gas LDC Group	EPS	DPS	BVPS	Average
Atmos Energy Corp.	9.0%	6.5%	9.0%	8.2%
NiSource Inc.	1.5%	-0.5%	-3.0%	-0.7%
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.	2.5%	5.0%	6.5%	4.7%
Average	3.0%	3.1%	3.4%	3.2%

Source: Value Line Investment Survey, Ratings & Reports, May 26, 2023.

DCF Method - Gas LDC Group
Determination of "Low-End" Outlier Threshold for DCF Estimates

Schedule 4
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Recent Average between Moody's "A" Rated and "Baa" Rated 30-Year Utility Bond Yield (1)	5.46%
Market Risk Premium per CAPM Analysis (2)	7.94%
20% Weighting Factor per FERC Opinion No. 569 (3)	20.0%
Equity Risk Premium Factor to Apply to "A"/"Baa" Rated Bond Yield (3)(4)	1.59%
Low-End Outlier Threshold (3)(5)	7.05%

Footnotes:

(1) Average of "A" rated and "Baa" rated Utility Bond Yield. Source: Mergent Bond Record (July 2023 edition) for the April 2023-June 2023 period).

(2) See Mr. Rea's CAPM analysis (Schedule 7, p. 1).

(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, 20

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

(5) Sum of (1) and (4) above. The 7.05 percent low-end outlier estimate was rounded down to 7.00 percent in the interest of conservatism.

DCF Method
Gas LDC Group
Investment Risk Indicators

	Value Line Risk Indicators					Long-Term Credit Ratings				Market Cap
Gas LDC Group	Beta	Safety Rank	Financial Strength	Fin. Str. Weight	Stk Price Stability	S&P LT Rating	S&P Weight	Moody's LT Rating	Moody's Weight	Source: Value Line Billions ($)
Atmos Energy Corp.	0.85	1	A+	2	95	A-	7	A1	5	$ 17.00
Nisource Inc.	0.85	3	B+	5	95	BBB+	8	Baa2	9	11.60
Northwest Natural Gas Co.	0.80	3	A	3	85	A+	5	Baa1	8	1.60
ONE Gas, Inc.	0.80	2	B++	4	90	A-	7	A3	7	4.50
Spire Inc.	0.80	2	B++	4	90	A-	7	Baa2	9	3.60
Averages	0.82	2	B++	4	91	A-	7	Baa1	8	$ 7.66

Source: Value Line Investment Survey, Ratings & Reports, May 26, 2023. S&P and Moody's long-term credit ratings accessed June 15, 2023

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
Combination Utility Group
Projected Growth Rates and Cost of Equity Estimates

Combination Utility 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
Alliant Energy Corp.	3.4%	6.2%	6.5%	6.5%	9.6%	9.9%	9.9%
Avista Corp.	4.4%	6.3%	6.4%	6.5%	10.7%	10.8%	10.9%
Black Hills Corp.	4.0%	5.4%	2.2%	5.5%	9.4%	6.2%	9.5%
CMS Energy Corp.	3.3%	7.5%	7.5%	6.5%	10.8%	10.8%	9.8%
Consolidated Edison, Inc.	3.5%	6.1%	2.0%	5.5%	9.6%	5.5%	9.0%
Eversource Energy	3.8%	6.7%	6.3%	6.5%	10.5%	10.1%	10.3%
MGE Energy, Inc.	2.1%	5.4%	5.4%	6.5%	7.5%	7.5%	8.6%
Northwestern Corp.	4.4%	4.5%	6.8%	3.5%	8.9%	11.2%	7.9%
Sempra Energy	3.3%	4.1%	4.8%	6.0%	7.4%	8.1%	9.3%
WEC Energy Group	3.4%	5.9%	5.8%	6.0%	9.3%	9.2%	9.4%
Average (6)	3.6%	5.8%	5.4%	5.9%	9.4%	9.7%	9.5%

Low-End and High-End Outlier Tests			
Low-End Threshold (7.00%) (6)	7.00%	7.00%	7.00%
Median Result (excluding negative values)(6)	9.5%	9.5%	9.5%
200% of Median Result (6)	19.0%	19.1%	18.9%
High-End Threshold - 200% of Median (average)	19.0%	19.0%	19.0%

(1) See page 3 of this Schedule.
(2) www.yahoo.com (retrieved July 1, 2023).
(3) www.zacks.com (retrieved July 1, 2023).
(4) See page 5 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 7.00% 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 6 of Exhibit VVR-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).

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

Combination Utility 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
Alliant Energy Corp.	3.4%	8.0%	6.0%	7.0%	10.4%
Avista Corp.	4.4%	0.5%	2.5%	1.5%	5.9%
Black Hills Corp.	4.0%	5.5%	9.5%	7.5%	11.5%
CMS Energy Corp.	3.3%	6.0%	6.5%	6.3%	9.5%
Consolidated Edison, Inc.	3.5%	1.5%	2.0%	1.8%	5.2%
Eversource Energy	3.8%	5.5%	6.5%	6.0%	9.8%
MGE Energy, Inc.	2.1%	6.0%	5.0%	5.5%	7.6%
Northwestern Corp.	4.4%	1.0%	3.5%	2.3%	6.7%
Sempra Energy	3.3%	12.0%	7.0%	9.5%	12.8%
WEC Energy Group	3.4%	7.0%	6.5%	6.8%	10.2%
Average (6)	3.6%	5.3%	5.5%	5.4%	10.2%

Low-End and High-End Outlier Tests	
Low-End Threshold (7.00%) (6)	7.00%
Median Result (excluding negative values)(6)	9.6%
200% of Median Result (6)	19.3%
High-End Threshold - 200% of Median (average)	19.3%

(1) See page 3 of this Schedule.

(2) See page 5 of this Schedule.

(3) See page 5 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 7.00% 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 6 of Exhibit VVR-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).

DCF Method
Combination Utility Group
Dividend Yield Calculation

Combination Utility Group	(a) 30/60/90 Day Avg. Stock Price	(b) Next 12-Mo. Dividends	(b)/(a) Dividend Yield
Alliant Energy Corp.	$ 53.05	$ 1.81	3.4%
Avista Corp.	$ 41.62	$ 1.84	4.4%
Black Hills Corp.	$ 62.51	$ 2.50	4.0%
CMS Energy Corp.	$ 59.89	$ 1.95	3.3%
Consolidated Edison, Inc.	$ 94.17	$ 3.27	3.5%
Eversource Energy	$ 73.12	$ 2.74	3.8%
MGE Energy, Inc.	$ 76.37	$ 1.63	2.1%
Northwestern Corp.	$ 57.97	$ 2.57	4.4%
Sempra Energy	$ 148.42	$ 4.82	3.3%
WEC Energy Group	$ 90.96	$ 3.12	3.4%
Average			3.6%

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

(b) Value Line Investment Survey, Summary and Index, July 3, 2023. Estimated dividends during the next 12-months.

DCF Method
Combination Utility Group
30/60/90 Day Average Closing Stock Price through July 5, 2023

30-Day Average	$ 52.51	$ 40.59	$ 61.48	$ 59.22	$ 92.41	$ 70.59	$ 76.35	$ 57.61	$ 146.01	$ 88.81
60-Day Average	$ 53.56	$ 42.26	$ 63.26	$ 60.23	$ 95.39	$ 74.05	$ 76.81	$ 58.37	$ 149.93	$ 92.03
90-Day Average	$ 53.09	$ 42.01	$ 62.79	$ 60.21	$ 94.73	$ 74.71	$ 75.94	$ 57.92	$ 149.33	$ 92.04
30/60/90 Day Avg.	$ 53.05	$ 41.62	$ 62.51	$ 59.89	$ 94.17	$ 73.12	$ 76.37	$ 57.97	$ 148.42	$ 90.96

Date	Alliant Energy Corp.	Avista Corp.	Black Hills Corp.	CMS Energy Corp.	Consolidated Edison, Inc.	Eversource Energy	MGE Energy, Inc.	Northwestern Corp.	Sempra Energy	WEC Energy Group
7/5/2023	53.58	39.14	60.26	60.22	92.85	71.64	79.82	57.33	146.22	90.35
7/3/2023	53.08	39.09	60.39	59.80	91.05	71.05	79.67	57.23	145.18	89.32
6/30/2023	52.48	39.27	60.26	58.75	90.40	70.92	79.11	56.76	145.59	88.24
6/29/2023	51.79	39.44	60.33	58.41	89.57	69.72	78.61	56.79	144.89	87.25
6/28/2023	51.80	39.15	59.57	58.46	90.11	69.59	78.07	56.91	145.13	87.44
6/27/2023	52.82	39.07	60.30	59.64	91.98	71.31	79.28	57.53	146.27	88.70
6/26/2023	52.97	38.86	60.19	59.59	91.68	70.82	77.06	57.01	146.05	88.92
6/23/2023	51.83	38.42	59.48	58.59	90.74	69.73	75.87	56.13	143.75	87.90
6/22/2023	52.73	39.44	61.08	59.61	92.12	70.75	78.12	57.75	146.52	89.28
6/21/2023	53.27	40.00	61.34	60.35	92.92	71.23	78.46	58.61	148.50	90.69
6/20/2023	52.96	40.00	61.17	60.13	92.02	70.64	77.88	58.45	147.43	90.02
6/16/2023	53.74	40.38	62.57	60.74	92.97	72.08	78.97	58.73	148.20	91.43
6/15/2023	53.75	40.08	62.20	61.02	93.02	71.01	79.01	58.40	148.59	91.58
6/14/2023	53.13	39.93	61.82	60.42	92.39	69.90	76.95	58.04	147.29	90.53
6/13/2023	53.08	40.45	62.10	59.97	92.03	70.06	77.15	59.27	146.61	90.28
6/12/2023	53.26	41.00	62.54	60.09	92.63	70.23	76.83	59.03	147.17	89.81
6/9/2023	53.23	41.76	63.40	60.69	93.49	70.37	77.37	59.12	147.70	89.93
6/8/2023	53.47	42.15	64.04	60.98	94.00	71.59	77.43	59.13	149.09	90.37
6/7/2023	53.40	42.37	64.15	60.41	93.54	71.73	78.19	58.95	148.21	89.48
6/6/2023	52.31	41.25	62.86	59.29	92.41	70.00	74.72	57.54	145.07	87.53
6/5/2023	52.28	41.13	62.03	58.99	92.95	70.51	73.17	56.83	145.01	87.75
6/2/2023	51.98	41.57	62.30	58.36	91.76	70.01	73.43	57.63	144.57	87.08
6/1/2023	50.91	40.76	60.48	57.44	91.82	68.83	70.86	56.01	144.18	86.19
5/31/2023	51.46	41.35	60.95	57.98	93.30	69.23	71.76	56.59	143.53	87.35
5/30/2023	51.01	41.60	59.93	56.90	92.56	67.92	72.06	56.61	143.76	86.48
5/26/2023	50.97	41.34	60.60	57.10	92.69	68.69	72.62	56.12	143.85	86.90
5/25/2023	51.06	41.50	60.68	57.16	93.22	70.86	73.25	56.50	143.58	86.71
5/24/2023	51.95	42.00	61.92	58.06	93.50	71.80	74.34	57.62	145.72	88.08
5/23/2023	52.44	42.61	62.51	58.63	93.88	72.75	75.09	57.67	146.50	88.86
5/22/2023	52.59	42.51	62.83	58.90	94.65	72.75	75.44	58.01	146.08	89.88
5/19/2023	52.61	42.43	63.05	58.63	95.19	73.17	75.95	58.06	145.82	89.92
5/18/2023	52.64	42.52	63.19	58.74	95.36	73.62	75.80	58.37	147.11	89.34
5/17/2023	52.76	42.77	63.33	58.83	95.90	74.09	76.68	58.36	146.81	89.27
5/16/2023	53.27	43.03	64.02	59.36	96.50	74.52	76.20	58.46	145.50	90.10
5/15/2023	54.00	43.64	64.98	60.74	98.48	76.84	77.67	58.90	150.53	92.31
5/12/2023	55.03	44.02	65.59	61.72	99.52	77.08	77.87	59.36	153.29	93.89
5/11/2023	54.60	43.77	65.16	61.55	98.96	76.25	77.40	59.11	153.48	93.83
5/10/2023	55.16	44.44	65.96	61.86	99.41	76.98	77.97	59.70	155.59	95.45
5/9/2023	54.40	44.29	65.76	61.19	98.77	76.45	77.73	59.53	155.71	94.42
5/8/2023	54.76	44.39	66.07	61.19	99.01	76.75	77.65	59.58	154.93	95.03
5/5/2023	55.11	44.52	66.14	61.98	99.49	77.44	78.01	59.71	154.92	96.01
5/4/2023	54.80	44.23	65.87	61.29	98.52	76.72	77.96	59.33	153.49	95.35
5/3/2023	54.43	43.66	64.44	61.19	98.04	76.64	77.26	58.87	152.62	94.28
5/2/2023	54.54	43.63	64.17	61.49	98.57	76.44	77.02	58.22	153.20	95.25
5/1/2023	55.29	44.12	65.37	61.64	99.11	77.72	77.14	58.94	156.46	95.94
4/28/2023	55.14	44.07	65.29	62.26	98.47	77.61	76.61	58.62	155.49	96.17
4/27/2023	55.10	44.62	65.63	62.50	99.18	77.98	76.77	58.97	156.09	96.53
4/26/2023	54.70	43.69	63.95	61.72	99.14	77.51	76.30	58.12	154.33	95.79
4/25/2023	55.75	44.56	64.86	62.63	100.40	79.57	77.86	59.28	157.98	98.21
4/24/2023	55.54	44.69	65.15	62.26	99.84	79.34	77.66	59.58	157.85	97.75
4/21/2023	55.29	44.66	65.42	61.63	99.04	78.84	77.43	59.27	156.80	97.06
4/20/2023	55.03	44.23	64.96	61.36	98.66	78.61	77.48	59.21	156.94	96.85
4/19/2023	55.29	43.78	64.92	61.61	98.14	78.99	77.63	59.04	157.99	96.74
4/18/2023	54.34	43.62	64.25	60.52	97.52	78.38	76.07	58.74	156.02	95.74
4/17/2023	54.72	43.80	65.19	61.34	97.87	79.14	76.81	59.11	154.98	96.50
4/14/2023	54.36	43.24	65.06	60.79	96.68	78.46	76.10	58.59	153.03	96.84
4/13/2023	54.79	44.27	65.74	61.73	98.08	79.62	77.31	59.61	154.76	97.95
4/12/2023	54.74	44.54	65.66	61.44	98.69	79.77	77.43	60.16	153.95	98.15
4/11/2023	55.06	44.59	66.14	61.73	99.11	80.25	78.91	60.52	154.75	98.50
4/10/2023	54.92	44.02	66.09	61.95	99.21	80.46	79.31	60.83	155.29	98.35
4/6/2023	55.05	43.97	65.43	62.31	98.97	80.82	79.05	61.07	155.34	98.64
4/5/2023	54.82	43.62	65.10	62.12	98.51	80.52	78.49	59.99	153.14	98.34
4/4/2023	52.94	42.36	63.43	60.83	96.02	78.05	76.80	58.50	150.26	94.79
4/3/2023	52.72	42.19	62.59	61.04	95.09	77.41	76.53	57.39	149.58	94.27
3/31/2023	53.40	42.45	63.10	61.38	95.67	78.26	77.67	57.86	151.16	94.79
3/30/2023	52.91	42.28	62.88	61.19	94.72	78.11	77.47	57.42	149.56	94.45
3/29/2023	52.82	42.13	62.96	61.17	95.11	77.55	77.28	57.05	148.45	94.34
3/28/2023	51.97	41.56	61.95	60.43	94.39	76.18	77.14	56.42	145.45	93.22
3/27/2023	51.32	41.58	61.33	60.04	94.57	75.86	76.57	55.83	144.32	92.80
3/24/2023	51.83	41.13	60.97	60.43	95.07	75.73	75.80	55.17	142.78	93.22
3/23/2023	50.04	39.76	59.04	57.96	91.73	73.25	72.77	53.50	139.69	89.93
3/22/2023	50.65	40.39	60.01	58.71	92.10	73.52	73.54	54.90	142.00	90.63
3/21/2023	52.01	40.98	61.29	59.95	93.19	74.92	74.75	56.01	145.59	91.91
3/20/2023	53.76	42.18	62.25	61.89	96.91	76.18	77.86	57.24	147.51	94.55
3/17/2023	53.17	41.52	61.17	61.34	95.63	75.91	77.60	56.45	145.34	94.25
3/16/2023	53.49	41.71	61.76	61.92	96.30	76.80	77.18	57.20	148.69	94.86
3/15/2023	53.10	41.37	61.46	61.66	95.64	76.82	75.76	56.70	146.36	94.69
3/14/2023	52.06	41.31	61.54	60.12	94.01	75.93	74.01	56.52	146.85	92.43
3/13/2023	51.48	40.57	60.40	59.54	92.79	74.80	71.03	56.16	143.97	91.16
3/10/2023	50.19	40.32	59.88	58.08	90.62	72.88	69.59	55.84	144.11	87.57
3/9/2023	51.26	41.10	60.99	59.13	91.29	74.27	70.71	56.49	147.62	88.86
3/8/2023	51.57	41.33	61.35	59.76	91.69	74.92	70.83	57.26	148.62	89.25
3/7/2023	50.99	40.90	60.88	58.93	90.66	74.06	69.96	56.63	148.30	88.87
3/6/2023	51.96	41.32	61.80	59.88	91.63	75.69	71.95	57.64	151.06	89.84
3/3/2023	52.07	41.53	62.27	59.84	90.69	75.44	71.25	57.70	150.89	89.59
3/2/2023	51.59	41.25	61.64	58.89	89.61	74.15	70.48	57.42	148.69	88.02
3/1/2023	50.25	40.59	61.14	57.78	88.15	73.17	69.95	56.83	147.86	86.57
2/28/2023	51.27	41.12	61.41	58.97	89.35	75.36	70.78	57.78	149.96	88.66
2/27/2023	51.46	41.37	62.42	59.70	90.85	77.09	71.33	57.90	154.88	90.04
2/24/2023	52.72	41.43	62.73	60.42	91.26	77.38	72.20	57.73	155.28	91.02
90-Day Average	$ 53.09	$ 42.01	$ 62.79	$ 60.21	$ 94.73	$ 74.71	$ 75.94	$ 57.92	$ 149.33	$ 92.04

Source: finance.yahoo.com (accessed July 5, 2023).

DCF Method
Combination Utility Group
Per Share Annual Growth Rates - Historical and Projected

Combination Utility Group	Past 5-Years Historical Growth Rates EPS	DPS	BVPS	Average	Estimated '20-'22 to '26-'28 Growth Rates EPS	DPS	BVPS	Average
Alliant Energy Corp.	8.0%	6.5%	7.0%	7.2%	6.5%	6.0%	5.0%	5.8%
Avista Corp.	0.5%	4.0%	3.5%	2.7%	6.5%	4.0%	3.5%	4.7%
Black Hills Corp.	5.5%	6.0%	7.5%	6.3%	5.5%	5.0%	5.5%	5.3%
CMS Energy Corp.	6.0%	7.0%	7.5%	6.8%	6.5%	6.0%	7.0%	6.5%
Consolidated Edison, Inc.	1.5%	3.0%	4.0%	2.8%	5.5%	3.5%	3.0%	4.0%
Eversource Energy	5.5%	6.0%	4.5%	5.3%	6.5%	6.5%	4.5%	5.8%
MGE Energy, Inc.	6.0%	4.5%	6.0%	5.5%	6.5%	6.0%	7.0%	6.5%
Northwestern Corp.	1.0%	4.0%	4.5%	3.2%	3.5%	2.0%	3.5%	3.0%
Sempra Energy	12.0%	7.5%	9.0%	9.5%	6.0%	5.5%	5.5%	5.7%
WEC Energy Group	7.0%	6.5%	3.5%	5.7%	6.0%	7.0%	4.0%	5.7%
Average	5.3%	5.5%	5.7%	5.5%	5.9%	5.2%	4.9%	5.3%

Combination Utility Group	Past 10-Years Historical Growth Rates EPS	DPS	BVPS	Average
Alliant Energy Corp.	6.0%	6.5%	6.0%	6.2%
Avista Corp.	2.5%	4.5%	4.0%	3.7%
Black Hills Corp.	9.5%	4.5%	4.5%	6.2%
CMS Energy Corp.	6.5%	8.0%	6.0%	6.8%
Consolidated Edison, Inc.	2.0%	2.5%	4.0%	2.8%
Eversource Energy	6.5%	7.5%	5.5%	6.5%
MGE Energy, Inc.	5.0%	4.0%	6.0%	5.0%
Northwestern Corp.	3.5%	5.5%	6.0%	5.0%
Sempra Energy	7.0%	8.5%	7.0%	7.5%
WEC Energy Group	6.5%	10.0%	7.0%	7.8%
Average	5.5%	6.2%	5.6%	5.8%

Source: Value Line Investment Survey, Ratings & Reports, June 9, 2023, May 12, 2023 and April 21, 2023.
n/a = Data not published or not available.

DCF Method
Combination Utility Group
Investment Risk Indicators

Combination Utility Group	Value Line Risk Indicators: Beta	Safety Rank	Financial Strength	Fin. Str. Weight	Stk Price Stability	Long-Term Credit Ratings: S&P LT Rating	S&P Weight	Moody's LT Rating	Moody's Weight	Market Cap: Billions ($) per Value Line
Alliant Energy Corp. (LNT)	0.85	2	A	3	95	A-	7	Baa2	9	12.80
Avista Corp.	0.90	2	B++	4	75	BBB	9	Baa2	9	3.30
Black Hills Corp. (BKH)	0.95	2	A	3	85	BBB+	8	Baa2	9	4.40
CMS Energy Corp. (CMS)	0.80	2	A	3	95	BBB+	8	Baa2	9	16.70
Consolidated Edison, Inc. (ED)	0.75	1	A+	2	90	A-	7	Baa2	9	35.20
Eversource Energy (ES)	0.90	2	A	3	85	A-	7	Baa1	8	27.10
MGE Energy, Inc.	0.70	2	B++	4	100	AA-	4	A1	5	2.60
Northwestern Corp.	0.90	2	B++	4	90	BBB	9	Baa2	9	3.60
Sempra Energy (SRE)	0.95	2	A	3	90	BBB+	8	Baa2	9	48.80
WEC Energy Group (WEC)	0.80	1	A+	2	90	A-	7	Baa1	8	27.40
Averages	0.85	2	A	3	90	A-	7	Baa1	8	18.19

Source: Value Line Investment Survey, June 9, 2023, May 12, 2023, and April 21, 2023. S&P and Moody's ratings accessed on June 16, 2023.

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)		
Non-Regulated 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	2.5%	9.4%	9.5%	10.5%	11.8%	12.0%	13.0%
Coca-Cola Co.	KO	3.0%	6.0%	6.8%	7.5%	9.0%	9.8%	10.5%
Hershey Company	HSY	1.7%	9.4%	7.7%	8.5%	11.0%	9.4%	10.2%
McCormick & Co.	MKC	1.8%	7.4%	7.5%	4.5%	9.2%	9.3%	6.3%
McDonald's Corp.	MCD	2.2%	8.4%	8.6%	10.0%	10.5%	10.8%	12.2%
Mondelez International	MDLZ	2.1%	8.6%	8.0%	10.0%	10.7%	10.1%	12.1%
PepsiCo, Inc.	PEP	2.7%	7.8%	7.8%	5.5%	10.6%	10.6%	8.2%
Procter & Gamble Co.	PG	2.5%	5.4%	6.1%	5.5%	7.9%	8.7%	8.0%
Average (6)		2.3%	7.8%	7.8%	7.8%	10.1%	10.1%	10.6%
Low-End and High-End Outlier Tests								
Low-End Threshold (7.00%) (7)						7.00%	7.00%	7.00%
Median Result (excluding negative values)(7)						10.5%	9.9%	10.3%
200% of Median Result (7)						21.1%	19.9%	20.7%
High-End Threshold - 200% of Median (average)						20.5%	20.5%	20.5%

(1) See page 3 of this Schedule.

(2) Consensus estimates provided by Yahoo Finance (retrieved July 1, 2023).

(3) Consensus estimates provided by Zacks (retrieved July 1, 2023).

(4) Value Line Investment Survey, Ratings and Reports; June 16, 2023, May 19, 2023, April 28, 2023, and April 14, 2023.

(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 7.00% 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 6 of Exhibit 4 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
Non-Regulated Group
Historical EPS Growth Rates and Cost of Equity Estimates

Non-Regulated 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.	2.5%	6.5%	5.5%	6.0%	8.5%
Coca-Cola Co.	3.0%	3.0%	2.0%	2.5%	5.5%
Hershey Company	1.7%	10.0%	9.5%	9.8%	11.4%
McCormick & Co.	1.8%	8.0%	7.0%	7.5%	9.3%
McDonald's Corp.	2.2%	8.0%	5.5%	6.8%	8.9%
Mondelez International	2.1%	8.0%	4.0%	6.0%	8.1%
PepsiCo, Inc.	2.7%	4.5%	4.5%	4.5%	7.2%
Procter & Gamble Co.	2.5%	7.5%	4.0%	5.8%	8.3%
Average (6)	2.3%	6.9%	5.3%	6.1%	8.8%

Low-End and High-End Outlier Tests	
Low-End Threshold (7.00%) (6)	7.00%
Median Result (excluding negative values)(6)	8.4%
200% of Median Result (6)	16.7%
High-End Threshold - 200% of Median (average)	16.7%

(1) See page 3 of this Schedule.

(2) Value Line Investment Survey, Ratings and Reports; June 16, 2023, May 19, 2023, April 28, 2023, and April 14, 2023.

(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 7.00% 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 6 of Exhibit VVR-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 Group	Ticker	Dividend Next 12-Months (1)	30/60/90 Day Stock Price Average	Dividend Yield
Air Products and Chemicals, Inc.	APD	7.00	284.13	2.5%
Coca-Cola Co.	KO	1.84	61.50	3.0%
Hershey Company	HSY	4.34	258.68	1.7%
McCormick & Co.	MKC	1.56	87.53	1.8%
McDonald's Corp.	MCD	6.32	288.40	2.2%
Mondelez International	MDLZ	1.54	73.16	2.1%
PepsiCo, Inc.	PEP	5.06	184.82	2.7%
Procter & Gamble Co.	PG	3.76	148.81	2.5%
Average				2.3%

(1) Source: Value Line Investment Survey, Summary and Index, July 7, 2023.

DCF Method
Non-Regulated Group
Average Closing Stock Price Through July 5, 2023

Averages	Air Products	Coca-Cola	Hershey Co.	McCormick & Co.	McDonald's Corp.	Mondelez International	PepsiCo Inc.	Procter & Gamble
30-Day Average	$ 283.37	$ 60.73	$ 257.37	$ 89.75	$ 289.59	$ 73.60	$ 184.14	$ 147.45
60-Day Average	$ 285.01	$ 62.14	$ 262.14	$ 88.56	$ 291.26	$ 74.07	$ 186.83	$ 150.77
90-Day Average	$ 284.01	$ 61.62	$ 256.54	$ 84.27	$ 284.34	$ 71.81	$ 183.48	$ 148.20
30/60/90 Day Avg.	$ 284.13	$ 61.50	$ 258.68	$ 87.53	$ 288.40	$ 73.16	$ 184.82	$ 148.81

Date	Air Products	Coca-Cola	Hershey Co.	McCormick & Co.	McDonald's Corp.	Mondelez International	PepsiCo Inc.	Procter & Gamble
7/5/2023	287.97	61.03	248.81	87.07	296.90	73.22	186.58	152.24
7/3/2023	297.07	60.58	251.73	88.17	294.84	73.51	185.60	152.50
6/30/2023	299.53	60.22	249.70	87.23	298.41	72.94	185.22	151.74
6/29/2023	294.75	60.02	248.68	86.78	294.47	72.28	183.88	149.38
6/28/2023	291.32	60.52	249.59	91.85	291.74	73.22	183.70	149.99
6/27/2023	291.41	61.09	259.91	93.25	291.30	73.93	186.22	150.02
6/26/2023	286.39	61.22	259.53	93.29	289.09	73.23	184.89	148.61
6/23/2023	286.26	61.20	259.09	93.79	289.91	73.10	186.07	148.46
6/22/2023	288.01	61.85	260.31	93.75	293.30	73.74	187.35	149.95
6/21/2023	289.14	61.43	258.89	93.31	294.52	73.14	185.43	149.44
6/20/2023	289.30	61.26	258.46	92.94	293.04	73.26	185.31	148.16
6/16/2023	293.17	61.67	260.72	92.65	293.70	73.57	186.04	149.54
6/15/2023	290.76	61.23	260.86	91.98	292.61	73.46	185.71	148.45
6/14/2023	288.84	60.86	260.59	90.98	288.44	73.13	183.17	146.42
6/13/2023	284.85	60.45	257.73	90.34	288.55	72.72	181.54	145.06
6/12/2023	278.93	60.21	255.19	90.63	288.57	72.81	181.90	145.41
6/9/2023	278.59	60.47	255.82	90.67	286.79	72.97	182.35	146.56
6/8/2023	283.38	60.37	255.12	90.13	285.78	73.09	182.10	146.44
6/7/2023	282.42	60.22	253.20	90.75	281.90	72.19	180.11	144.80
6/6/2023	278.50	60.31	255.29	90.15	284.54	73.28	181.56	144.49
6/5/2023	279.78	60.75	259.48	88.76	288.43	74.29	184.19	145.94
6/2/2023	281.04	61.16	260.91	88.46	289.91	74.27	184.06	146.52
6/1/2023	273.17	60.00	259.66	87.58	287.87	73.61	182.19	143.96
5/31/2023	269.14	59.66	259.70	85.73	285.11	73.41	182.35	142.50
5/30/2023	274.07	59.78	256.37	85.42	284.92	72.37	181.61	143.18
5/26/2023	273.83	60.26	257.72	86.93	286.04	75.13	183.58	145.40
5/25/2023	272.12	60.41	260.38	87.21	285.52	75.18	183.80	145.39
5/24/2023	270.84	60.88	262.47	87.69	285.92	75.47	184.89	146.33
5/23/2023	271.50	61.40	262.42	87.29	286.37	75.65	186.07	147.55
5/22/2023	275.00	61.51	262.88	87.72	289.35	75.87	186.64	149.16
5/19/2023	278.91	62.83	266.04	88.92	295.55	77.06	191.84	153.17
5/18/2023	275.45	62.80	266.84	88.58	294.05	77.27	191.56	152.53
5/17/2023	276.20	63.15	267.50	88.78	293.46	77.23	192.06	155.08
5/16/2023	275.59	63.22	269.23	89.70	294.15	77.80	193.43	155.74
5/15/2023	279.29	63.94	270.46	90.85	295.90	77.73	194.27	156.01
5/12/2023	278.00	64.11	274.58	90.28	296.14	77.88	196.12	155.96
5/11/2023	276.55	63.86	274.78	89.51	294.79	78.36	195.34	154.39
5/10/2023	280.95	63.50	274.12	89.02	296.57	77.89	194.27	154.03
5/9/2023	279.94	63.39	274.08	88.45	296.66	77.89	194.14	153.71
5/8/2023	295.58	63.92	274.77	88.29	296.69	78.11	193.35	155.30
5/5/2023	296.70	64.02	275.33	88.95	296.60	77.56	194.27	156.03
5/4/2023	291.07	63.72	274.64	88.27	295.16	77.29	193.38	155.51
5/3/2023	293.89	63.65	274.21	87.92	295.22	77.02	192.18	156.23
5/2/2023	292.63	64.01	274.30	88.23	298.07	77.60	192.25	156.43
5/1/2023	296.18	64.30	276.35	88.41	297.58	77.22	191.68	156.57
4/28/2023	294.36	64.15	273.06	87.85	295.75	76.72	190.89	156.38
4/27/2023	291.38	63.68	273.33	87.40	294.72	73.82	189.69	156.47
4/26/2023	285.68	63.55	261.75	84.98	289.76	72.33	188.54	154.58
4/25/2023	289.94	63.85	262.98	85.84	291.51	72.50	189.71	156.39
4/24/2023	293.30	63.95	261.00	85.22	293.20	71.81	185.50	156.35
4/21/2023	290.57	64.05	260.85	85.68	292.06	71.32	185.41	156.07
4/20/2023	292.46	63.96	260.42	85.40	291.00	71.03	185.33	150.85
4/19/2023	290.50	63.68	257.30	85.26	291.27	70.36	184.72	151.24
4/18/2023	287.78	63.56	259.60	85.15	290.91	70.50	184.83	151.21
4/17/2023	286.20	63.46	259.03	85.52	289.31	70.26	184.45	151.05
4/14/2023	286.21	63.05	256.28	84.99	288.98	69.81	183.51	151.00
4/13/2023	288.14	63.15	258.00	86.47	289.07	70.44	184.38	151.77
4/12/2023	287.17	62.69	258.61	85.89	285.30	70.21	182.56	151.07
4/11/2023	285.33	62.58	259.14	86.11	284.48	70.31	182.92	150.66
4/10/2023	283.43	62.69	258.75	85.25	283.78	70.53	183.20	150.96
4/6/2023	282.00	62.84	259.87	85.80	282.89	71.05	184.36	152.22
4/5/2023	283.88	62.80	259.43	85.31	282.02	71.40	183.64	151.26
4/4/2023	285.25	62.21	258.07	85.14	282.28	70.52	181.85	150.23
4/3/2023	289.04	62.40	257.16	84.32	282.14	70.22	182.50	149.51
3/31/2023	287.21	62.03	254.41	83.21	279.61	69.72	182.30	148.69
3/30/2023	279.72	61.85	253.29	81.01	277.79	69.58	180.83	147.45
3/29/2023	276.33	61.86	252.60	81.20	277.44	70.37	180.67	146.81
3/28/2023	273.54	61.42	252.90	81.18	275.85	69.59	179.43	146.36
3/27/2023	270.19	61.35	250.90	74.06	273.84	69.16	179.49	145.95
3/24/2023	267.67	60.90	247.86	72.87	271.33	69.04	179.09	146.72
3/23/2023	266.94	59.92	243.98	71.20	269.62	67.20	175.65	143.79
3/22/2023	275.36	60.05	242.74	72.11	267.87	67.36	176.51	143.99
3/21/2023	278.81	60.32	243.19	72.79	270.21	67.83	178.01	144.08
3/20/2023	279.21	60.60	244.54	73.28	270.74	67.73	177.59	145.13
3/17/2023	274.74	60.02	243.15	72.62	267.20	66.40	175.13	142.93
3/16/2023	279.65	60.30	245.00	73.25	270.57	66.94	176.51	142.89
3/15/2023	277.04	60.43	244.42	72.92	266.34	66.40	176.63	141.83
3/14/2023	285.90	60.03	242.00	71.84	265.90	66.29	173.53	139.85
3/13/2023	280.99	59.81	240.57	72.12	263.08	65.54	173.71	138.14
3/10/2023	281.27	59.21	237.74	70.95	262.03	64.90	172.03	137.19
3/9/2023	284.08	59.46	238.62	72.00	261.63	64.76	171.80	136.57
3/8/2023	290.04	60.04	238.98	72.74	265.33	65.09	173.11	137.58
3/7/2023	291.39	60.01	238.35	72.13	267.13	64.81	172.64	137.56
3/6/2023	293.12	60.36	239.88	73.23	270.64	65.68	173.50	140.35
3/3/2023	294.78	59.44	238.40	72.90	269.07	65.71	173.15	140.95
3/2/2023	292.03	59.72	238.40	73.04	267.57	65.36	173.32	139.93
3/1/2023	288.28	58.86	236.65	72.97	262.72	64.19	171.33	137.66
2/28/2023	285.98	59.51	238.32	74.32	263.91	65.18	173.53	137.56
2/27/2023	285.42	59.82	239.22	75.01	264.78	65.64	175.91	139.14
2/24/2023	280.98	59.84	239.02	74.98	263.68	65.55	175.96	139.26
90-Day Average	284.01	61.62	256.54	84.27	284.34	71.81	183.48	148.20

Source: finance.yahoo.com (accessed July 5, 2023).

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	Stk 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	90	33.0%	A	6	A2	6	$	63.6
Coca-Cola Co.	0.85	1	A++	1	100	60.0%	A+	5	A1	5	$	270.0
Hershey Company	0.75	1	A+	2	100	50.0%	A	6	A1	5	$	52.5
McCormick & Co.	0.80	1	A+	2	95	46.0%	BBB	9	Baa2	9	$	22.6
McDonald's Corp.	0.90	1	A++	1	100	100.0%	BBB+	8	Baa1	8	$	217.0
Mondelez International, Inc.	0.85	1	A+	2	100	43.0%	BBB	9	Baa1	8	$	95.7
PepsiCo, Inc.	0.70	1	A++	1	100	68.0%	A+	5	A1	5	$	251.0
Procter & Gamble	0.70	1	A++	1	100	33.0%	AA-	4	Aa3	4	$	344.0
Averages	0.81	1	A++	1.4	98	54.1%	A-	7	A2	6	$	164.6

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		

Source: Value Line Investment Survey - Ratings & Reports - Various report dates between April 14, 2023 and June 16, 2023.

CAPM Method
Gas LDC Group - Cost of Equity Estimates

Prospective Market Return

DCF Approach - S&P 500 Index	
Dividend Yield (1)	1.71%
Growth Rate (2)	10.73%
DCF Market Return - S&P 500 (3)	12.44%
DCF Approach - Value Line 1,700 Stock Universe	
Dividend Yield (4)	2.32%
Growth Rate (5)	10.33%
DCF Market Return - Value Line 1,700 Stock Universe (6)	12.65%
Prospective Market Return (Average) (7)	12.55%

Prospective Risk-Free Rate of Return

Blue Chip Financial Forecasts - 30-Year U.S. Treasury Bond Yield Forecast (2024-2028 average) (8)	3.76%
Prospective Market Risk Premium (Average) (9)	8.79%

Historical Market Risk Premium (SBBI Yearbook)

SBBI Yearbook Annual Total Returns (1926-2022) (10)	12.00%
SBBI Yearbook LT Gov't Bond Annual Income Return (1926-2022) (11)	4.90%
Historical Average Market Risk Premium (1926-2022) (12)	7.10%

Currently-Implied Market Risk Premium (Supporting Information Only)

SBBI Yearbook LT Gov't Bond Annual Income Return (1926-2022) (11)	4.90%
Recent Average 30-Year U.S. Treasury Bond Yield (13)	3.83%
Historical Gov't Bond Income Return vs. Recent 30-Year Treasury Bond Yield (14)	1.07%
Implied Increase in Market Risk Premium Based on the Finance Literature (15)	0.54%
Currently-Implied Market Risk Premium (Supporting Information Only) (16)	7.64%
Indicated Market Risk Premium (17)	7.94%

CAPM Method
Gas LDC Group - Cost of Equity Estimates

Indicated Market Risk Premium (17)	7.94%
Gas LDC Group Beta Coefficient (18)	0.846
Gas LDC Group Risk Premium (19)	6.72%
Prospective Risk-Free Rate of Return (Average) (8)	3.76%
Traditional CAPM Result (20)	**10.48%**
Size Premium Adjustment (21)	0.57%
Implied Cost of Equity (CAPM with Size Adjustment) (22)	**11.05%**

Empirical CAPM Model (ECAPM)

Prospective Risk-Free Rate of Return (Average) (8)	3.76%
25% Weighting of Market Risk Premium (23)	1.99%
75% Weighting of Beta x Market Risk Premium (24)	5.04%
Implied Cost of Equity (ECAPM Model) (25)	**10.79%**

Footnotes:

(1) D/P = [$17.13 (cash dividends for Q2, 2023) x 4 (quarters) x (1+(.5) growth rate)]/[$4,215.28) (60 trading-day average closing price through July 3, 2023. Source: www.standardandpoors.com and www.finance.yahoo.com, respectively.

(2) Bloomberg Finance L.P. Average long-term consensus earnings growth estimates for the S&P 500 Index (10.73%).

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

(4) See page 6 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 (April 14, 2023 - July 7, 2023).

(5) See page 6 of this Schedule. The Value Line average median price appreciation potential 3 to 5 years hence is 63.46%. The annual expected price appreciation growth rate based upon the five-year average horizon is 10.33% [(1+.6346)^.20) - 1]. Source: Value Line Summary & Index; average of 13 consecutive weekly reports (April 14, 2023 - July 7, 2023).

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

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

CAPM Method
Gas LDC Group - Cost of Equity Estimates

Footnotes (continued)

(8) Interest rate forecasts from Blue Chip Financial Forecasts, Vol. 42, No. 6 (June 1, 2023).

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

(10) SBBI Yearbook (2023, Kroll, LLC), Arithmetic average of total returns for large company (S&P 500) stocks (1926-2022).

(11) SBBI Yearbook (2023, Kroll, LLC), Arithmetic average of the income return for long-term government bonds (1926-2022).

(12) (10) - (11).

(13) Average 30-Year U.S. Treasury Bond yield for the period between April 10, 2023 and July 5, 2023 (60 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) Relevered beta as per the Hamada method. See CAPM section of Mr. Rea's testimony.

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

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

(21) Kroll, LLC, Cost of Capital Navigator (accessed June 23, 2023). Size premium (return in excess of CAPM) for Decile 3 portfolios.

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

(23) (17) above x 25%.

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

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

CAPM Method
Combination Utility Group - Cost of Equity Estimates

Indicated Market Risk Premium (26)	7.94%
Combination Utility Group Beta Coefficient (27)	0.877
Combination Utility Group Risk Premium (28)	6.97%
Prospective Risk-Free Rate of Return (Average) (29)	3.76%
Traditional CAPM Result (30)	**10.73%**
Size Premium Adjustment (31)	0.45%
Implied Cost of Equity (CAPM with Size Adjustment) (32)	**11.18%**

Empirical CAPM Model (ECAPM)

Prospective Risk-Free Rate of Return (Average) (29)	3.76%
25% Weighting of Market Risk Premium (33)	1.99%
75% Weighting of Beta x Market Risk Premium (34)	5.23%
Implied Cost of Equity (ECAPM Model) (35)	**10.98%**

Footnotes:

(26) See pages 1-3 of this Schedule and footnotes 1-17 therein.
(27) Relevered beta as per the Hamada method. See CAPM section of Mr. Rea's testimony.
(28) (26) x (27) above.
(29) See pages 1-3 of this Schedule and footnote 8 therein.
(30) (28) + (29) above.
(31) Kroll, LLC, Cost of Capital Navigator (accessed June 23, 2023). Size premium (return in excess of CAPM) for Decile 2 portfolios.
(32) (30) + (31) above.
(33) (26) above x 25%.
(34) (26) x (27) above x 75%.
(35) (29) + (33) + (34) above.

CAPM Method
Non-Regulated Group - Cost of Equity Estimates

Indicated Market Risk Premium (36)	7.94%
Non-Regulated Group Beta Coefficient (37)	0.836
Non-Regulated Group Risk Premium (38)	6.64%
Prospective Risk-Free Rate of Return (Average) (39)	3.76%
Traditional CAPM Result (40)	**10.40%**
Size Premium Adjustment (41)	-0.26%
Implied Cost of Equity (CAPM with Size Adjustment) (42)	**10.14%**

Empirical CAPM Model (ECAPM)

Prospective Risk-Free Rate of Return (Average) (39)	3.76%
25% Weighting of Market Risk Premium (43)	1.99%
75% Weighting of Beta x Market Risk Premium (44)	4.98%
Implied Cost of Equity (ECAPM Model) (45)	**10.73%**

Footnotes:

(36) See pages 1-3 of this Schedule and footnotes 1-17 therein.
(37) Relevered beta as per the Hamada method. See CAPM section of Mr. Rea's testimony.
(38) (36) x (37) above.
(39) See pages 1-3 of this Schedule and footnote 8 therein.
(40) (38) + (39) above.
(41) Kroll, LLC, Cost of Capital Navigator (accessed June 23, 2023). Size premium (return in excess of CAPM) for Decile 1 portfolios.
(42) (40) + (41) above.
(43) (36) above x 25%.
(44) (36) x (37) above x 75%.
(45) (39) + (43) + (44) 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)
7/7/23	2.30%	65.00%
6/30/23	2.30%	60.00%
6/23/23	2.30%	60.00%
6/16/23	2.40%	65.00%
6/9/23	2.40%	65.00%
6/2/23	2.30%	65.00%
5/26/23	2.40%	65.00%
5/19/23	2.40%	65.00%
5/12/23	2.30%	65.00%
5/5/23	2.30%	65.00%
4/28/23	2.30%	60.00%
4/21/23	2.30%	65.00%
4/14/23	2.20%	60.00%
13-Week Average	2.32%	63.46%

Annual Appreciation Return (3-year realization)	17.80%
Annual Appreciation Return (4-year realization)	13.07%
Annual Appreciation Return (5-year realization)	10.33%

Source: Value Line Investment Survey, Summary & Index. Averages derived from 13 consecutive weekly reports, from April 14, 2023 to July 7, 2023.

(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 economic environment, 3 to 5 years hence.

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

Prospective "Aaa" Rated Corporate Bond Yield (1)	4.74%
Yield/Credit Spread Adjustment Between "Aaa" Rated Corporate Bond Yields and "A" Rated Public Utility Bond Yields (2)	0.75%
Prospective "A" Rated Public Utility Bond Yield (3)	5.49%
Yield/Credit Spread Adjustment Between "A" Rated Public Utility Bonds and A-/Baa1 Average Rating of the Gas LDC Group (4)	0.16%
Prospective Bond Yield for Gas LDC Group (5)	5.65%
Equity Risk Premium	
- Total Market Index Approach (6)	5.80%
- Public Utility Index Approach (7)	4.37%
Indicated Equity Risk Premium (8)	5.09%
Indicated Cost of Equity - Gas LDC Group (9)	10.73%

(1) See page 2 of this Schedule. Average prospective "Aaa" bond yield for the 2024-2028 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 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 Gas LDC Group, as reflected on page 3 of this Schedule. The 0.16% adjustment was derived via simple linear interpolation between the yield spread differential for the "Baa" rated and "A" rated public utility bonds, respectively ((1.06%-0.75%)/3*1.5) = 0.16%).

(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, subject to rounding.

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

Six Quarter Forecast (Q2, 2023 - Q3, 2024)

Quarter/Year	"Aaa" Rated Corp. Bonds	"Baa" Rated Corp. Bonds
Q2, 2023 (1)	4.80%	5.80%
Q3, 2023 (1)	4.80%	5.90%
Q4, 2023 (1)	4.80%	5.90%
Q1, 2024 (1)	4.70%	5.70%
Q2, 2024 (1)	4.60%	5.60%
Q3, 2024 (1)	4.60%	5.50%
Six-Quarter Avg.	4.72%	5.73%

Three and Five Year Forecasts

Year	"Aaa" Rated Corp. Bonds	"Baa" Rated Corp. Bonds
2024 (1)	4.70%	5.80%
2025 (1)	4.60%	5.60%
2026 (1)	4.70%	5.70%
2027 (1)	4.80%	5.80%
2028 (1)	4.90%	5.80%
2024-2026 Avg.	4.67%	5.70%
2024-2028 Avg.	4.74%	5.74%

(1) Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023.

Risk Premium Method (RPM)
Historical Corporate Bond Yield Spread Differentials (July 2022 - June 2023)
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.
Jul-22	4.06%	4.67%	5.21%	4.57%	4.78%	5.15%	0.51%	0.72%	1.09%
Aug-22	4.07%	4.65%	5.15%	4.54%	4.76%	5.09%	0.47%	0.69%	1.02%
Sep-22	4.59%	5.18%	5.69%	5.08%	5.28%	5.61%	0.49%	0.69%	1.02%
Oct-22	5.10%	5.74%	6.26%	5.68%	5.88%	6.18%	0.58%	0.78%	1.08%
Nov-22	4.90%	5.58%	6.07%	5.54%	5.75%	6.05%	0.64%	0.85%	1.15%
Dec-22	4.43%	5.12%	5.59%	5.06%	5.28%	5.57%	0.63%	0.85%	1.14%
Jan-23	4.40%	5.04%	5.50%	4.98%	5.20%	5.49%	0.58%	0.80%	1.09%
Feb-23	4.56%	5.16%	5.59%	5.12%	5.29%	5.54%	0.56%	0.73%	0.98%
Mar-23	4.60%	5.25%	5.71%	5.24%	5.39%	5.68%	0.64%	0.79%	1.08%
Apr-23	4.47%	5.02%	5.53%	5.00%	5.13%	5.47%	0.53%	0.66%	1.00%
May-23	4.67%	5.24%	5.77%	5.24%	5.36%	5.71%	0.57%	0.69%	1.04%
Jun-23	4.65%	5.24%	5.75%	5.26%	5.38%	5.73%	0.61%	0.73%	1.08%
12-Month Average	4.54%	5.16%	5.65%	5.11%	5.29%	5.61%	0.57%	0.75%	1.06%

Source: Mergent Bond Record, July 2023, Volume 89, No. 7. 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
Gas LDC Group

Historical Equity Risk Premium

Annual Total Returns for S&P 500 Composite Index, Arithmetic Average (1926-2022) (1)	12.00%
Annual Total Returns for Long-Term Corporate Bonds, Arithmetic Average (1926-2022) (2)	6.10%
Historical Equity Risk Premium - Total Market (3)	5.90%

Prospective Equity Risk Premium

Prospective Annual Market Return (Next 3-5 years) (4)	12.55%
Prospective "Aaa" Rated Corporate Bond Yield (5)	4.74%
Prospective Equity Risk Premium - Total Market (6)	7.81%
Indicated Equity Risk Premium - Total Market (7)	6.86%
Beta Coefficient - Gas LDC Group (8)	0.846
Equity Risk Premium (Gas LDC Group) (9)	5.80%

(1) Source: 2023 SBBI Yearbook (Kroll, LLC); arithmetic average of total returns for large company stocks (S&P 500 Index) (1926-2022).

(2) Source: 2023 SBBI Yearbook (Kroll, LLC), arithmetic average of total returns for long-term high-grade corporate bonds (1926-2022).

(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) Relevered beta as per the Hamada method. See CAPM section of Mr. Rea's testimony.

(9) (7) x (8) above.

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

Historical Equity Risk Premium - Public Utility Index Approach

Annual Holding Period Returns for S&P 500 Utilities Index, Arithmetic Average (1926-2022) (1)	10.81%
Annual Yield on Moody's "A" Rated Public Utility Bonds, Arithmetic Average (1926-2022) (2)	6.23%
Equity Risk Premium (Historical) - Public Utility Index Approach (3)	4.57%

Currently Implied Equity Risk Premium - Public Utility Index Approach

DCF Approach - S&P 500 Utilities Index	
Dividend Yield (4)	3.50%
Growth Rate (5)	5.96%
DCF Market Return - S&P Utilities Index (6)	9.46%
Recent 3-Month Average of Moody's "A" Rated Public Utility Bond Yields (7)	5.29%
Equity Risk Premium (Currently Implied) - S&P 500 Utilities (8)	4.17%
Indicated Equity Risk Premium - Public Utility Index Approach (9)	4.37%

(1) Source: S&P 500 Utilities Index historical data (currently comprised of 30 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 (June 30, 2023), adjusted upward by one-half of the expected dividend growth rate as reflected in footnote (5).

(5) Source: Bloomberg Finance LP. 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.

Risk Premium Method (RPM)
Historical Returns for Utility Indices (1926-2022)

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%
2022	1.57%	4.72%	5.03%
Average	10.81%	6.23%	6.75%

Risk Premium Method (RPM) Schedule 8
Combination Utility Group - Indicated Cost of Equity Page 7 of 10

Prospective "Aaa" Rated Corporate Bond Yield (1)	4.74%
Yield/Credit Spread Adjustment Between "Aaa" Rated Corporate Bond Yields and "A" Rated Public Utility Bond Yields (2)	0.75%
Prospective "A" Rated Public Utility Bond Yield (3)	5.49%
Yield/Credit Spread Adjustment Between "A" Rated Public Utility Bonds and A-/Baa1 Rating of the Combination Utility Group (4)	0.16%
Prospective Bond Yield for Combination Utility Group (5)	5.65%
Equity Risk Premium	
- Total Market Index Approach (6)	6.01%
- Public Utility Index Approach (7)	4.37%
Indicated Equity Risk Premium (8)	5.19%
Indicated Cost of Equity - Combination Utility Group (9)	10.84%

(1) See page 2 of this Schedule. Average prospective Aaa bond yield for the 2024-2028 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 Combination Utility Group, as reflected on page 3 of this Schedule. The 0.16% adjustment was derived via linear interpolation between the yield spread differential for the "A" rated and "Baa" rated Public Utility Bonds ((1.06% -0.75%)/3*1.5=0.16%).

(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
Combination Utility Group

Historical Equity Risk Premium

Annual Total Returns for S&P 500 Index, Arithmetic Average (1926-2022) (1)	12.00%
Annual Total Returns for Long-Term Corporate Bonds, Arithmetic Average (1926-2022) (2)	6.10%
Historical Equity Risk Premium - Total Market (3)	5.90%

Prospective Equity Risk Premium

Prospective Annual Market Return (Next 3-5 years) (4)	12.55%
Prospective Aaa Rated Corporate Bond Yield (5)	4.74%
Prospective Equity Risk Premium - Total Market (6)	7.81%
Indicated Equity Risk Premium - Total Market (7)	6.86%
Beta Coefficient - Combination Utility Group (8)	0.877
Equity Risk Premium (Combination Utility Group Beta) (9)	6.01%

(1) Source: 2023 SBBI Yearbook (Kroll, LLC); arithmetic average of total returns for large company stocks (S&P 500 Index) (1926-2022).

(2) Source: 2023 SBBI Yearbook (Kroll, LLC); arithmetic average of total returns for long-term high-grade corporate bonds (1926-2022).

(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) Relevered beta as per the Hamada method. 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)	4.74%
Yield/Credit Spread Adjustment Between "Aaa" Rated Corporate Bond Yield and Average "A- / A2" Rated Corp. Bond Yield of Non-Regulated Group (2)	0.70%
Prospective Bond Yield for Non-Regulated Group (3)	5.44%
Equity Risk Premium - Total Market Index Approach (4)	5.73%
Indicated Equity Risk Premium	5.73%
Indicated Cost of Equity - Non-Regulated Group (5)	11.17%

(1) See page 2 of this Schedule. Average prospective Aaa bond yield for the 2024-2028 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 (July 2023). Yield differential between "Aaa" corporate bonds and "A- / A2" 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 (1926-2022) (1)	12.00%
Annual Total Returns for Long-Term Corporate Bonds, Arithmetic Average (1926-2022) (2)	6.10%
Historical Equity Risk Premium - Total Market (3)	5.90%

Prospective Equity Risk Premium

Prospective Annual Market Return (Next 3-5 years) (4)	12.55%
Prospective Aaa Rated Corporate Bond Yield (5)	4.74%
Prospective Equity Risk Premium - Total Market (6)	7.81%
Indicated Equity Risk Premium - Total Market (7)	6.86%
Beta Coefficient - Non-Regulated Group (8)	0.836
Equity Risk Premium (Non-Regulated Group) (9)	5.73%

(1) Source: 2023 SBBI Yearbook (Kroll, LLC); arithmetic average of total returns for large company stocks (S&P 500 Index) (1926-2022).

(2) Source: 2023 SBBI Yearbook (Kroll, LLC), arithmetic average of total returns for long-term high-grade corporate bonds (1926-2022).

(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) Relevered beta as per the Hamada method. See CAPM section of Mr. Rea's testimony.

(9) (7) x (8) above.

Capital Structure Ratios - Book vs. Market Capitalization Ratios for Leverage Calculations
Gas LDC Group - 12/31/2022 or Fiscal Year End

$ in thousands	[Source is 10-K] Carrying Values (Book Value) Dollars 2022	Carrying Values (Book Value) Percentage 2022	[Source is 10-K and Yahoo Finance] Market Values (Fair Value) Dollars 2022	Market Values (Fair Value) Percentage 2022	Common Shares Outstanding at Fiscal Y/E	Closing Stock Price at Fiscal Year -End
Atmos Energy Corp.						
Long-Term Debt (1)	5,760,647	38.9%	4,719,490	24.7%	@ 9/30/2022	
Preferred Stock	-	-	-	-		
Common Equity (2)	9,049,979	61.1%	14,350,319	75.3%		
Total Permanent Capitalization	$ 14,810,626	100.0%	$ 19,069,809	100.0%	140,896.6	$ 101.85
NiSource Inc.						
Long-Term Debt (1)	9,523,600	55.6%	8,449,400	39.7%	@ 12/31/2022	
Preferred Stock	1,546,500	9.0%	1,546,500	7.3%		
Common Equity (2)	6,066,000	35.4%	11,300,950	53.1%		
Total Permanent Capitalization	$ 17,136,100	100.0%	$ 21,296,850	100.0%	412,142.6	$ 27.42
Northwest Natural Gas Co.						
Long-Term Debt (1)	1,246,167	51.3%	1,057,698	38.5%	@ 12/31/2022	
Preferred Stock	-	-	-	-		
Common Equity (2)	1,181,726	48.7%	1,690,635	61.5%		
Total Permanent Capitalization	$ 2,427,893	100.0%	$ 2,748,333	100.0%	35,525.0	$ 47.59
ONE Gas, Inc.						
Long-Term Debt (1)	2,661,743	50.7%	2,479,284	37.2%	@ 12/31/2022	
Preferred Stock	-	-	-	-		
Common Equity (2)	2,585,130	49.3%	4,191,102	62.8%		
Total Permanent Capitalization	$ 5,246,873	100.0%	$ 6,670,386	100.0%	55,350.0	$ 75.72
Spire, Inc.						
Long-Term Debt (1)	2,958,500	51.6%	2,570,600	42.2%	@ 9/30/2022	
Preferred Stock	242,000	4.2%	242,000	4.0%		
Common Equity (2)	2,529,300	44.1%	3,272,325	53.8%		
Total Permanent Capitalization	$ 5,729,800	100.0%	$ 6,084,925	100.0%	52,500.0	$ 62.33
Average of Gas LDC Proxy Group						
Long-Term Debt (1)	4,430,131	49.6%	3,855,294	36.5%		
Preferred Stock	357,700	2.7%	357,700	2.2%		
Common Equity (2)	4,282,427	47.7%	6,961,066	61.3%		
Total Permanent Capitalization	$ 9,070,258	100.0%	$ 11,174,061	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 short-term debt and current maturities), the difference between fair value and carrying value 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.

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 Gas LDC Group, Combination Utility Group and Non-Regulated Group were obtained from the Value Line Summary and Index, and serve as the expected dividend payment (D_1) within these respective DCF analyses.

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 some historical period, such as six to twelve 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 Gas LDC Group, Combination Utility 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.

Finally, to determine the expected dividend yield for the companies comprising the Gas LDC Group, Combination Utility Group and Non-Regulated Group, the

expected dividend (D_1) was simply divided by the current stock price (P_0) as defined above.

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 also be placed on forward-looking growth indicators. Therefore, consistent with accepted practices, I have evaluated both historical and forward-looking growth indicators for several key variables, including EPS, DPS, and BVPS. More specifically, with regard to historical growth rates, for each member of the Gas LDC Group and Combination Utility Group, I have completed a traditional analysis of the 5-year and 10-year average historical growth rates for EPS, DPS, and BVPS. All 5-year and 10-year historical growth rate information was sourced from the Value Line Investment Survey. The results of my historical growth rate analysis for EPS, DPS and BVPS for the Gas LDC Group and Combination Utility Group are presented on page 5 of Schedule 4 and Schedule 5, respectively.

With regard to projected growth rates, for each member of the Gas LDC Group and Combination Utility Group, I have analyzed forward-looking projections for EPS, DPS, and BVPS. Growth projections for each of these variables were derived

from the Value Line Investment Survey, which publishes 3-to-5 year growth rate projections. In addition, EPS consensus estimate growth rates were sourced from Yahoo/Thomson Reuters and Zacks, both of which publish 5-year earnings growth estimates. The results of my projected growth rate analyses for EPS, DPS and BVPS for the Gas LDC Group and Combination Utility Group are presented on pages 1 and 5 of Schedule 4 and Schedule 5, respectively.

With regard to the eight companies comprising the Non-Regulated Group, I have focused my analysis on projected growth rates for EPS, as well as historical EPS growth rates. Growth projections for EPS were sourced from the Value Line Investment Survey, while EPS consensus estimate growth rates were sourced from Yahoo/Thomson Reuters and Zacks. Historical EPS growth rates were sourced from Value Line. With respect to the Non-Regulated Group, the results of my projected growth rate analyses are presented within page 1 of Schedule 6, while the results of my historical EPS growth rate analysis are presented on page 2 of Schedule 6.

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

Notwithstanding the fact that the DCF model 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 place 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. 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

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

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].

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

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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.

> 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.

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

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

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, Zacks 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 and the corresponding cost of equity estimates for each member of the Gas LDC Group, Combination Utility Group and Non-Regulated Group 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 judgment, 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 Schedule 4 (p. 6), 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 7.00 percent.[6] 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[7], the FERC elected to modify this approach by instead referencing 200 percent of the median value of the initial proxy group results, and

[6] For simplicity purposes, and also to facilitate a more conservative analysis, this value was rounded down from 7.05 percent to 7.00 percent.

[7] *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).

the FERC subsequently reaffirmed this decision in yet another Order[8]. I have taken 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 judgment, this approach is appropriate in view of the relatively small number of regulated 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*,[9] the FERC determined that proxy group companies with DCF estimates in excess of 17.7 percent should be excluded from DCF analyses. Accordingly, as a further check on the high-end outlier threshold applied within my DCF analyses, I have also given some consideration to the 17.7 percent high-end threshold established in the *ISO New England* case. 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] *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).

[9] *ISO New England, Inc. et al.*, 109 FERC ¶ 61,147 at P 205 (November 3, 2004).

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. Multiple 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]

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

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

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 Gas LDC Group, the required financial risk or "leverage" adjustments was determined to be as reflected in Table C-1 below:

Table C-1

Required Financial Leverage Adjustments	
Gas LDC Group	0.28%
Combination Utility Group	0.26%
Non-Regulated Group	0.28%

[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.

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

Gas LDC Group

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

10.15% = 8.77601% + (8.77601% - 5.58%) (1-0.27)(36.5/61.3) + (8.77601% - 9.20%) (2.2/61.3)

10.43% = 8.77601% + (8.77601% - 5.58%) (1-0.27)(41.49/58.51)

Leverage adjustment = 10.43% - 10.15% = 0.28%

Combination Utility Group

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

9.60% = 8.402% + (8.402% - 5.58%) (1-0.27)(36.5/61.3) + (8.402% - 9.20%) (2.2/61.3)

9.86% = 8.402% + (8.402% - 5.58%) (1-0.27)(41.49/58.51)

Leverage adjustment = 9.86% - 9.60% = 0.26%

Non-Regulated Group

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

10.15% = 8.77601% + (8.77601% - 5.58%) (1-0.27)(36.5/61.3) + (8.77601% - 9.20%) (2.2/61.3)

10.43% = 8.77601% + (8.77601% - 5.58%) (1-0.27)(41.49/58.51)

Leverage adjustment = 10.43% - 10.15% = 0.28%

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 $1/10^{th}$, 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 2017-2022, NiSource issued additional shares of common stock under the company's "at-the market" (or "ATM") equity issuance program, which resulted in $1.4 billion of cumulative net proceeds during the 2017-2022 period. Recent public disclosures made by NiSource have indicated that the company does not expect to issue additional shares of common equity through its ATM program during the 2023-2024 period, and that NiSource may once again commence equity issuances under the ATM program beginning in 2025 and thereafter. 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 Prospectus 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 33 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 33 percent weighting, since the remaining 67 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 33 percent weighting to the 2.00 percent composite flotation cost value previously discussed, which yields a flotation cost factor of 0.66 percent (2.00% x 33% = 0.66%). To properly apply this level of flotation costs to NIPSCO's cost of equity under the "multiple of cost of equity" approach, the 0.66 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+.0066=1.0066%). Therefore, based upon the above approach, I have applied a 1.0066 percent multiple to the *pre-adjusted* indicated cost of equity for each of the proxy groups.