Northern Indiana Public Service Company LLC

Cause No. 45621

VERIFIED DIRECT TESTIMONY OF VINCENT V. REA

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VI. APPENDICES

ACRONYMS AND DEFINED TERMS

ACRONYM	DEFINED TERM
β	Beta
CAPM	Capital Asset Pricing Model
DCF	Discounted Cash Flow Model
EBITDA	Earnings before interest, taxes, depreciation and amortization
EPA	U.S. Environmental Protection Agency
FED	Federal Reserve Board
FFO	Funds from Operations
FOMC	Federal Open Market Committee
g	Growth Rate (perpetual)
GDP	Gross Domestic Product
IURC	Indiana Utility Regulatory Commission
M&M	Modigliani and Miller
NIPSCO	Northern Indiana Public Service Company LLC
PUHCA	Public Utility Holding Company Act of 2005
QE	Quantitative Easing
Rf	Risk-Free Rate of Return

ACRONYMS AND DEFINED TERMS (continued)

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

I. INTRODUCTION

Q1. Please state your name and business address.

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

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

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

Q3. Please describe your professional experience.

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

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

Q4. Please describe your educational background.

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

Q5. Do you hold any professional designations?

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

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

A6. Yes. I serve on the Board of Directors of the Society of Utility and Regulatory Financial Analysts, and am also a member of the American Institute of Certified Public Accountants.

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. 45330-TDSIC-1 in connection with NIPSCO's recent 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 for NiSource's utility subsidiaries, including Columbia Gas of

Maryland (Maryland Public Service Commission, Case No. 9664, Case No. 9644, Case No. 9609, Case No. 9480, Case No. 9447, Case No. 9417 and Case No. 9316); Columbia Gas of Kentucky (Kentucky Public Service Commission, Case No. 2021-00183); Columbia Gas of Virginia (Virginia State Corporation Commission, PUR-2018-00131, PUE-2016-00033 and PUE-2014-00020); and 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). 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., a former NiSource affiliate.

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 15-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 10.25 to 10.75 percent, and that a point estimate at the midpoint of this range, or 10.50 percent, is the appropriate cost of equity to apply in the instant proceeding. Based upon this finding, I have also determined that the Company's weighted

average cost of capital is 6.87 percent**,** which is based on NIPSCO's forward test-year-end regulatory capital structure as of December 31, 2022, as further outlined in Attachment 3-A-S2 (p. 5) of the testimony of Company witness Jeffrey D. Newcomb. This resulting overall cost of capital, if adopted by the Commission, will allow NIPSCO to earn the prevailing opportunity cost of capital, maintain its financial integrity, and attract capital at reasonable terms.

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

A11. To properly estimate NIPSCO's cost of equity, I have analyzed market-derived data and other financial information for each of the companies comprising three separate proxy groups. Considering that investors utilize this very same information in assessing risk and making investment decisions, it provides a reliable basis for estimating the cost of equity for NIPSCO's gas operations. In total, I evaluated the market and financial data of 27 companies, including seven companies comprising the Gas LDC Group, nine companies comprising the Combination Utility Group, and eleven companies comprising the Non-Regulated Group. I will discuss the selection criteria I utilized in developing each of these proxy groups later in my testimony.

During the course of 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. 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 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 are 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	10.30%	8.84%	11.30%
Traditional CAPM	10.40%	10.09%	10.25%
CAPM (w/size adj.)	11.15%	10.58%	10.03%
ECAPM	10.54%	10.30%	10.43%
Risk Premium Method	10.43%	10.35%	10.61%

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	10.30%
Average DCF Result	10.15%
Median CAPM Result	10.40%
Average CAPM Result	10.42%
Median RPM Result	10.43%
Average RPM Result	10.46%

Based upon the above results, I have concluded that a reasonable estimate of NIPSCO's cost of equity is in the range of 10.25 – 10.75 percent, and that the Commission should adopt a cost of equity of 10.50 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 to a lesser extent, 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. This perspective is essential in the cost of equity evaluation process, since these risk-comparable companies ultimately compete with the Company for investment capital in the financial markets.

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, and is the largest natural gas distribution company in the State. The Company serves approximately 850,000 residential, commercial, and industrial natural gas customers in northern Indiana. The Company also serves approximately 468,000 electric customers, and maintains vertically-integrated electric operations incorporating generation, transmission and distribution services. During 2020, the Company's total gas throughput was divided among the following customer classes: 16.4 percent residential; 7.3 percent commercial and industrial; and 76.3 percent transportation. NIPSCO sources its natural gas supplies from various producers and marketers and has delivery arrangements with various interstate pipeline companies. 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 located in Merrillville, Indiana, and its core operating companies engage in natural gas distribution, as well as electric power generation, transmission and distribution. NiSource's operating companies deliver energy to approximately 3.7 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 2020, NIPSCO's gas throughput to commercial, industrial and transportation customers constituted approximately 83.6 percent of the Company's total gas throughput, a level that is significantly higher than the average of the gas utility proxy group companies that I evaluated[1]. Moreover, NIPSCO's top twenty gas customers accounted for over 2.1 billion therms of the Company's gas throughput during 2020, or 59.0 percent

[1] Specifically, while NIPSCO's gas throughput to commercial, industrial and transportation customers constituted 83.6 percent of the Company's overall gas throughput during 2020, the comparable average percentage for the Gas LDC Group companies was just 61.3 percent.

of the Company's total throughput, 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 customers.

B. Current Economic and Capital Market Conditions

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

A16. As the U.S. continues to make steady progress towards putting the COVID-19 pandemic in the rearview mirror, there is mounting evidence that the U.S. economy is rebounding from the pandemic even faster than previously anticipated. Indeed, as I will discuss further herein, U.S. economic growth thus far during 2021 has been exceedingly robust. Nevertheless, the recent emergence of the Delta variant of the COVID-19 virus has cast some degree of uncertainty as to whether the strong U.S. economic recovery will continue into the fourth quarter of 2021. As of mid-September 2021, U.S. economic growth continues to be fueled

by a number of factors, including: (1) the reemergence of pent-up demand, which had been suppressed for over a year as a result of governmental lock-down orders, as well as a general apprehension among Americans of contracting or spreading the COVID-19 virus. Both of these impediments to robust consumer demand are gradually being addressed through the continuing roll-out of the COVID-19 vaccines in the U.S.; (2) actual or proposed stimulus measures that have been championed by the Biden administration, which thus far has included the $1.9 trillion American Rescue Plan, and could ultimately result in trillions of dollars of additional fiscal stimulus spending by the federal government in the coming years; and (3) the ongoing extraordinary monetary policy interventions of the Fed, which includes the Fed's targeting of short-term interest rates at essentially zero (i.e., the Federal Funds target rate), as well as the Fed's recent reinitiation of its quantitative easing or bond-buying programs, both of which are designed to stimulate U.S. economic growth.

As evidence mounts that the U.S. economy is now beginning to return to a more solid footing, the Fed has recently begun discussing the possibility of reducing or "tapering" the central bank's $120 billion of monthly purchases of U.S. Treasury and agency securities, quite possibly during the fourth quarter of 2021.

Specifically, at the FOMC's August 27, 2021 Jackson Hole Symposium, Fed Chairman Powell indicted the following:

> We have said that we would continue our asset purchases at the current pace until we see substantial further progress toward our maximum employment and price stability goals measured since last December, when we first articulated this guidance. My view is that the substantial further progress test has been met for inflation. There has also been clear progress toward maximum employment. At the FOMC's recent July meeting, I was of the view, as were most participants, that if the economy evolved broadly as anticipated, it could be appropriate to start reducing the pace of asset purchases this year. The intervening month has brought more progress in the form of a strong employment report for July, but also the further spread of the Delta variant. We will be carefully assessing incoming data and the evolving risks[2].

Consistent with Chairman Powell's comments at the Jackson Hole Symposium, and also depending upon how the effects of the Delta variant continue to unfold, there is a fairly high likelihood that the Fed will announce its decision to begin the process of tapering its bond-buying programs at one of the Fed's three upcoming FOMC meetings later in 2021, which are scheduled for September 21-22, November 2-3 and December 14-15. In the event that the Fed elects to begin the tapering process later this year, this would begin the process of removing the Fed's

[2] Link: Fed Chair Jerome Powell Jackson Hole Symposium Speech Transcript: Tapering Could Begin This Year - Rev

"artificial[3]" downward pressure on long-term interest rates, and for this reason, it is reasonable to conclude that long-term interest rates would then begin to trend upward. Meanwhile, the strong GDP growth rates and higher actual and anticipated inflation rates recently witnessed in the U.S. economy are expected to put additional upward pressure on long-term interest rates going forward, which is consistent with a higher cost of equity.

Q17. Can you please elaborate further on how the U.S. economic recovery from the earlier stages of the COVID-19 pandemic is now being reflected in key macroeconomic indicators?

A17. Yes. As noted earlier, the recent release of pent-up consumer demand, which is attributable to the largely successful COVID-19 vaccine roll-outs and the corresponding moderation of governmental restrictions has recently been a key contributor to robust U.S. economic growth. After a clearly challenging 2020, which registered negative real GDP growth rates during the first and second quarters of 2020, real GDP growth during the first two quarters of 2021 averaged

[3] "Artificial" from the standpoint that it has been demonstrated by the Fed's own economists that the Fed's recent monetary policy interventions have interfered with normal supply and demand dynamics in the U.S. debt capital markets.

a very healthy 6.45 percent[4]. Moreover, the *Blue Chip Financial Forecasts*[5] consensus projections currently reflect an average real GDP growth rate of 6.18 percent for the four quarters of calendar year 2021, which is a very robust growth rate by recent historical standards.

Meanwhile, as the U.S. economy continues to emerge from the worst of the COVID-19 pandemic, the U.S. unemployment rate, which reached a pandemic high level of 14.8 percent during April 2020, has continued to decline in recent months, and reached a new pandemic low of 5.2 percent during August 2021. The recent strengthening in the U.S. labor market is clearly manifested in the strong wage gains made by U.S. workers over the past year, as U.S. wages increased by 4.30 percent on a year-over year basis between August 2020 and August 2021. These strong wage gains, coupled with the release of pent-up consumer demand and supply chain disruptions as a result of COVID-19, have all contributed to the recent increases seen in both actual and anticipated U.S. inflation rates. Along these lines, the Wall Street Journal recently reported the following:

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4 *See, Blue Chip Financial Forecasts*, Volume 40, No. 9, September 1, 2021, at 2.

5 Id. at 2.

> Disrupted supply chains, temporary shortages and a rebound in travel have pushed inflation to its highest reading in decades. Core inflation, which excludes volatile food and energy prices, rose 3.6% in July from a year earlier, according to the Fed's preferred gauge. A difference gauge of overall prices, the consumer-price index, rose 5.3 percent in July[6].

Notably, in recent years leading up to the COVID-19 pandemic, the U.S. inflation rate had generally fluctuated at or below the Fed's targeted inflation rate of 2.0 percent. It is therefore clear that today's significantly higher U.S. inflation rate is unusual by recent historical standards and will therefore very likely put additional upward pressure on long-term interest rate over the near-to-intermediate term horizon.

Q18. Can you please summarize the key factors that you believe will have the effect of raising long-term interest rates over the near-to-intermediate term horizon?

A18. Yes. The key factors that will continue to put upward pressure on U.S. interest rates over the near-to-intermediate term horizon include: (1) robust U.S. economic growth, as reflected in the real GDP growth rates discussed earlier, which has the potential to put upward pressure on the real component of interest rates; (2) actual and anticipated rates of U.S. inflation, which are markedly higher than the "sub-

[6] *The Wall Street Journal Weekend*, August 28-29, 2021, at A2.

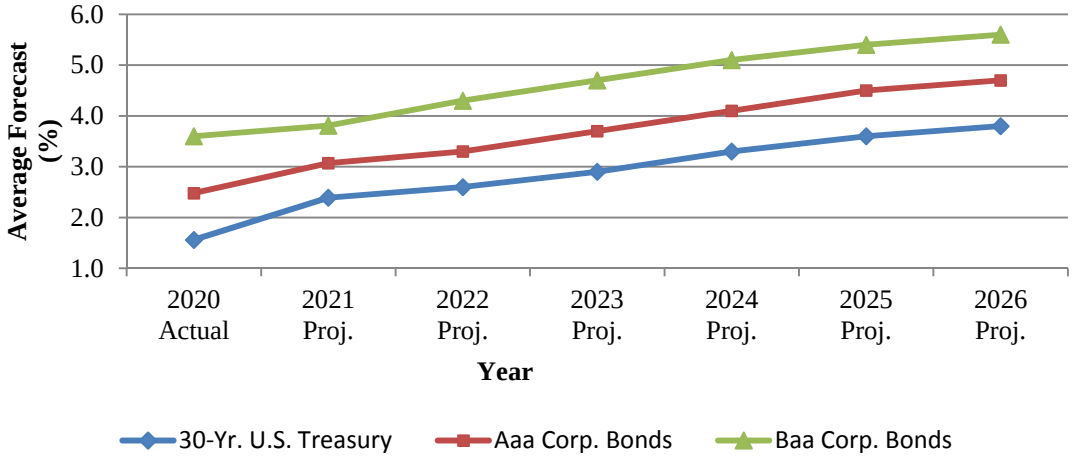
2.0 percent" inflation rates seen prior to the COVID-19 pandemic; (3) strong wage gains for U.S. workers over the past year as noted earlier, which has a significant influence on actual and anticipated rates of inflation, as reflected in item (2) above; (4) continued monetary policy stimulus from the Fed with regard to the Fed's zero interest rate policy (i.e. Federal Funds rate); (5) the increasingly likely tapering of the Fed's colossal bond-buying programs, which the Fed is currently preparing to commence, and which will have the effect of putting upward pressure on long-term interest rates; and (6) the large fiscal stimulus measures currently being proposed by the Biden Administration and Congress, which would exceed upwards of $5.0 trillion, and could potentially ignite even higher levels of inflation than is currently being witnessed in the U.S. economy. This in turn would also result in additional upward pressure on long-term interest rates.

Q19. Recognizing that multiple economic factors currently suggest that long-term interest rates will trend materially higher over the near-to-intermediate term, how do current U.S. Treasury and corporate bond yields compare to the corresponding yields forecasted over the next several years?

A19. Both prominent economists and capital market participants widely-expect that intermediate and longer-term interest rates will continue to trend higher over the

next several years, as the U.S. economy continues to expand in the post-COVID-19 environment. As reflected in Table 4 below, the consensus estimates of prominent economists, as reflected in the Blue Chip Financial Forecasts[7], are currently projecting material increases in long-term interest rates over the near-to-intermediate term horizon.

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



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

[7] *Blue Chip Financial Forecasts*, Volume 40, No. 6 (June 1, 2021).

community and therefore influence the investment decisions and valuation analyses of equity investors.

C. Comparative Risk Assessment of Proxy Groups

Q20. Why is it necessary to analyze groups of proxy companies to estimate the cost of equity for NIPSCO?

A20. 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.[8] Nonetheless, it should be noted that when

[8] 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

the various cost of equity models are applied to the market and financial data of proxy group companies, various model inputs and/or assumptions are required, which contributes to the risk of observation error. For this reason, when possible, the use of larger proxy groups or even multiple proxy groups is recommended to mitigate these effects and to ensure a higher level of confidence in the reliability of the analytical results.

Q21. What general approach did you take in developing your utility proxy groups?

A21. 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 utilities, which I will refer to herein as the Gas LDC Group. In my judgment, evaluating a proxy group of gas utility holding companies is appropriate for purposes of this proceeding, and also addresses the concerns raised by OUCC witness Lorton in the Company's last gas rate proceeding, where Mr. Lorton maintained that gas

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.

utilities should also be evaluated for purposes of NIPSCO's gas rate case proceedings[9].

At the same time, the Commission's past directive[10] with regard to rate proceedings for the gas distribution operations of integrated gas and electric utilities, such as NIPSCO, has been that combination gas and electric utilities should also be evaluated. For this reason, I have also developed a proxy group of combination gas and electric utility companies for purposes of my cost of capital evaluation, which I will refer to herein as the Combination Utility Group. In my judgment, evaluating both of these utility proxy groups will ensure the best representation of the market's risk and return expectations for NIPSCO's 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 recognizes that NIPSCO is an integrated gas and electric utility that reports it financial results, financial position, and capital structure on the basis of the consolidated NIPSCO entity.

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[9] *Testimony of Bradley E. Lorton,* Petition of Northern Indiana Public Service Company for (1) Authority to Modify its Rates and Charges for Gas Utility Service Through a Phase In of Rates….(Cause No. 44988), at 16-19.

[10] *See, Re Petition of Southern Indiana Gas and Electric Company;* Cause No. 43112 (IURC 08/01/2007) at 29.

Q22. What criteria did you apply in selecting the companies included in your gas utility proxy group?

A22. In selecting a gas utility proxy group, my objective was to identify a group of publicly-traded natural gas distribution companies with risk characteristics similar to NIPSCO, which is not a publicly-traded company. Accordingly, I applied the following selection criteria in making this determination: (i) Value Line Investment Survey Industry Classification as 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 (2016-2020); 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 seven publicly-traded natural gas distribution companies:

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

ONE Gas, Inc.
South Jersey Industries Inc.
Southwest Gas Corp.
Spire, Inc.

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

Q23. Why is it necessary to complete a comparative risk assessment between NIPSCO and the Gas LDC Group?

A23. 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.

Q24. Do a utility's credit ratings provide insight into its risk profile, cost of debt and cost of equity?

A24. 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.

Q25. How do the respective long-term bond ratings of the Company and the Gas LDC Group companies compare?

A25. Presently, Standard & Poor's (S&P) has assigned a corporate credit rating of "BBB+" for NIPSCO and an average corporate credit rating of "A-" for the Gas LDC companies. Moody's has assigned a long-term issuer rating of "Baa1" for NIPSCO and an average long-term issuer rating of "A3" for the Gas LDC Group companies. Both the S&P and Moody's ratings reflect the overall credit-

worthiness of the issuing company, rather than the risk of default for a specific debt issue. When compared to the average ratings of the Gas LDC Group, the Company's credit ratings are one notch lower under both the S&P and Moody's ratings methodologies, thus reflecting a higher relative level of investment risk. Additional information on the Gas LDC Group's average credit ratings can be found on page 7 of Schedule 4.

Q26. When evaluating NIPSCO versus the Gas LDC Group, how do their business and financial risk metrics compare?

A26. The results of my comparative risk assessment for NIPSCO and the Gas LDC Group are presented on pages 1 and 2 of Schedule 2, respectively. Pages 3 and 4 of Schedule 2 provide additional information on the capitalization ratios for each of the seven companies comprising the Gas LDC Group. Within this attachment, I have evaluated the five-year historical period of 2016-2020, along with the five-year historical averages. My findings are summarized by individual risk metric as presented below:

1. Relative Size

Based on a total book capitalization of $6.0 billion, the NIPSCO consolidated entity book capitalization is roughly the same size as the average book capitalization of the Gas LDC Group ($5.5 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 2016-2020, the standard deviation of achieved ROEs was 1.48 percent for NIPSCO, and 0.64 percent for the Gas LDC Group. For the same period, the coefficient of variation

was 0.152 for NIPSCO and 0.071 for the Gas LDC Group, reflecting a markedly higher relative volatility in achieved ROEs for NIPSCO.

3. Equity Capitalization Ratio

All else being equal, a company with a higher equity capitalization weighting has a lower level of financial risk, while a company with a lower equity capitalization weighting has a higher level of financial risk. This is because companies which rely more heavily on debt capital to finance their operations are subject to a higher level of contractual obligations in the form of periodic principal and interest payments. Increasing levels of fixed-payment obligations constrain a company's financial flexibility, especially during economic downturns, and therefore increase a company's financial risk profile. For this reason, the debt-to-capitalization ratio, which is the complement of the equity capitalization ratio, serves as an important financial metric that is routinely used by the rating agencies to assess a company's credit quality and overall financial risk profile. The 5-year average equity capitalization ratio for NIPSCO was 58.4 percent based upon permanent capitalization, and 53.0 percent based upon total capitalization. The 5-year average equity capitalization ratio for the Gas LDC Group was 53.6 percent

based upon permanent capitalization, and 48.0 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 enough 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 2016-2020 was 7.88x for NIPSCO and 6.87x 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 2016-2020 was 24.2 percent for NIPSCO and 17.2 percent for the Gas LDC Group.

Q27. What conclusions have you drawn from your comparative risk assessment

between NIPSCO and the Gas LDC Group?

A27. 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, the business risk metrics I evaluated suggest that the Company has a higher risk profile vs. the Gas LDC Group, as demonstrated by the Company's: (1) markedly higher variability of book returns on equity, as measured by both the standard deviation and the coefficient of variation; and (2) higher relative allocation of gas throughput to commercial, industrial and transportation customers, as well as its high customer concentration level among NIPSCO's top industrial customers. On the other hand, the financial risk metrics[11] 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 very similar to that of the Gas 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

[11] 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.

an additional risk adjustment to these estimates.

Q28. Have you considered any other proxy groups in estimating the cost of equity for NIPSCO?

A28. Yes. 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 potential distortions caused by observation errors in the various financial model inputs, I have also evaluated a proxy group of nine combination gas and electric utility companies, and a proxy group of 11 non-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.

Q29. Why is it appropriate to evaluate a proxy group of combination gas and electric utility companies?

A29. As noted earlier, it is appropriate to also evaluate a proxy group of combination gas and electric utility companies because NIPSCO is an integrated gas and electric utility that reports it financial results, including its statement of financial position and capital structure, on the basis of the consolidated NIPSCO entity, which includes the financial results of both the Company's gas and electric utility operations.

Moreover, 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 *New Regulatory Finance,* where he argues that a proxy group of *electric* utility companies is a suitable complement to a proxy group of gas utilities. In this regard, Morin observes:

> This procedure is reasonable given that the natural gas distribution business possesses an investment risk profile that is similar in risk to investment-grade electricity distribution 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[12].

Therefore, considering that the companies included in my proxy group of combination utilities are all engaged in significant gas distribution operations, as contrasted with the "all-electric" utility approach suggested by Morin, my Combination Utility Group represents an entirely reasonable complement to the Gas LDC Group.

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[12] Roger A. Morin, *New Regulatory Finance* (Public Utilities Reports, Inc., 2006) at 402.

Q30. 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 "pure-play" gas utilities, and therefore represents a suitable complement to your Gas LDC Group in estimating NIPSCO's cost of equity?

A30. 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 past 40 years (1981-2020), which have only been about 13 basis points[13] higher for electric utilities. More recently, during the past 10-year period (2011-2020), the difference in authorized ROEs has been about 15 basis points[14] higher for electric utilities. However, in recent years the authorized ROEs reported by Regulatory Research Associates for electric utilities include special surcharge and rider cases relating to electric generation in the Commonwealth of Virginia, which allow ROE premiums of up to 200 basis points. This suggests that the actual difference

[13] *The Cost of Capital – A Practitioner's Guide*, D. Parcell, Society of Utility and Regulatory Financial Analysts, (2010), quoting Regulatory Research Associates, at 91; and *RRA Regulatory Focus, Major Rate Case Decisions – January-December 2020,* Regulatory Research Associates, February 2, 2021, at 1.

[14] *RRA Regulatory Focus, Major Rate Case Decisions - January-December 2020,* Regulatory Research Associates, February 2, 2021, at 1.

between gas and electric utility ROEs, when stated on a comparable basis, is actually less than 15 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 the historically authorized ROEs between gas and electric utilities. Furthermore, considering that my Combination Utility Group derives an average of 30% of its consolidated revenues from regulated gas distribution operations, this further suggests that the Group's overall risk profile is actually lower than that of the typical electric utility.

Q31. What criteria did you use to select the companies included in your Combination Utility Group?

A31. 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, and by extension, NIPSCO. 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-, or Moody's long-term

issuer rating of 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 (2016-2020); and (vii) company must not have recently been an acquisition target. Applying the above selection criteria yielded a proxy group consisting of the following nine publicly-traded combination gas and electric utility companies:

Alliant Energy 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.

Q32. How does the Combination Utility Group compare on a total risk basis to the Gas LDC Group?

A32. 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 taken on an overall basis, 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 Rank ("2"), Value Line Financial Strength rating ("A") and their respective long-term credit ratings from S&P ("A-"). Although both the Combination Utility Group's average Value Line beta (0.86) and Stock Price Stability Rating (89) indicate a slightly lower level of investment risk when compared to the Gas LDC Group's average Value Line beta (0.90) and Stock Price Stability Rating (84), this risk differential is largely offset by the higher investment risk implied by the Combination Utility Group's lower average credit rating at Moody's ("Baa1") as compared to the Gas LDC Group's average rating of "A3". Based upon these findings, I have concluded that the Combination Utility Group and the Gas LDC Group are of comparable risk.

Q33. Why is it also appropriate to evaluate a proxy group of non-rate-regulated U.S. companies when estimating NIPSCO's cost of equity?

A33. 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[15].

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

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

> commensurate with returns on investments in other enterprises having corresponding risks.[16]

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

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.

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

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

Q34. What criteria did you use to select the companies included in the Non-Regulated Group?

A34. In selecting the Non-Regulated Group, my objective was to identify a large group

of publicly-traded domestic companies with a risk profile either equivalent to, or preferably lower than, the 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 0.75 and 0.95; (iii) Value Line Financial Strength Rating of "A+" or higher; (iv) S&P corporate credit rating that is no lower than BBB-, or Moody's long-term issuer rating of no lower than Baa3; (v) company shall not be in the gas and/or electric distribution business, and shall not be an investment, financial services, pharmaceutical, life sciences, medical technology, hardware/software, or defense contractor company; (vi) the company must currently pay dividends and must not have discontinued or reduced their dividend payments during the previous five years (2016-2020); 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

11 lower-risk companies which operate in the consumer staple, food and beverage, chemicals processing, transportation, and telecommunications sectors of the economy. The 11 companies comprising the Non-Regulated Group are as follows:

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

Q35. How does the Non-Regulated Group compare on a total risk basis to the Gas LDC Group?

A35. Based upon my evaluation of the aforementioned risk measures, and as summarized in Table 5 below, I have concluded that the Non-Regulated Group has a slightly lower overall risk profile as compared to the Gas LDC Group, thereby providing an appropriate and complementary basis for estimating the cost of equity for NIPSCO's jurisdictional gas operations.

Table 5 Comparative Risk Assessment of Proxy Groups			
Risk Measure	**Gas LDC Group**	**Comb. Utility Group**	**Non-Reg. Group**
Value Line Beta	0.90	0.86	0.88
Value Line Safety Rank	2	2	1
Value Line Fin. Strength Rating	A	A	A+
Value Line Stock Price Stability Rating	84	89	94
S&P Long-Term Debt Rating	A-	A-	A-
Moody's Long-Term Debt Rating	A3	Baa1	A3

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

Q36. Have you considered the manner in which revenue stabilization mechanisms and infrastructure cost recovery mechanisms may impact the relative risk profiles of NIPSCO and the Gas LDC Group?

A36. Yes, I have. As noted earlier, unlike the majority of the Gas LDC Group companies, NIPSCO's gas distribution operations do not currently benefit from the use of revenue stabilization mechanisms, which leaves the Company exposed

to fluctuations in customer usage patterns from both weather and non-weather related factors. In turn, greater fluctuations in customer usage patterns translate into greater variability in both the Company's revenues and operating earnings, which is consistent with a higher level of investment risk. Indeed, this finding is further supported by the conclusions of my comparative risk assessment, which determined that the historical variability in NIPSCO's earned returns has been significantly greater than that of the Gas LDC Group.

Q37. 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?

A37. Yes, I have. My evaluation of the revenue stabilization and infrastructure cost recovery mechanisms employed by each of the companies comprising both 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[17]. 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.

Q38. Based upon your evaluation of the regulatory mechanisms employed by the Gas LDC Group companies, what specific conclusions have you drawn?

A38. As reflected in Schedule 3, I have determined that all seven 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 revenue/lost margin recovery mechanisms. Again, NIPSCO's gas distribution operations do not benefit from these revenue stabilization mechanisms, and therefore, when compared to the Gas LDC Group companies, the Company is more vulnerable to variations in customer usage patterns.

[17] 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.

My evaluation further determined that six out of the seven 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 these infrastructure cost recovery mechanisms. 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 presence of the Company's TDSIC program, since such an adjustment would be redundant to the effects that would already be incorporated in the market data of the proxy group companies. This is particularly the case because the market and financial data of the Gas LDC Group and Combination Utility Group companies already incorporate any risk-reducing effects of revenue stabilization mechanisms, while again, NIPSCO does not currently benefit from any of these mechanisms.

IV. COST OF EQUITY ESTIMATES

A. Cost of Equity - General Approach

Q39. Please describe the general approach you have taken in estimating the cost of equity for NIPSCO.

A39. In order 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. On the basis of my comparative risk assessment, I concluded that the proxy groups provided an appropriate basis for estimating NIPSCO's cost of equity, thus indicating that no further risk adjustments were necessary.

Although the cost of equity cannot be directly observed, it can be estimated using a variety of analytical models, each of which attempt to explain and/or predict investor behavior. However, since investor expectations often differ and investors rely on a variety of different sources of information and financial models to make their investment decisions, no single analytical model can possibly capture the broader universe of investor expectations. Moreover, each financial model has its

own practical shortcomings, either in the form of rigid underlying assumptions or required model inputs which are dependent upon the subjective judgment of the analyst. For these reasons, in *The Cost of Capital - A Practitioner's Guide*, Parcell presents a compelling argument for the use of a variety of analytical methods in estimating a utility's cost of equity, and cautions against overreliance on any one particular model. In *The Cost of Capital*, Parcell maintains:

> …..no single model is so inherently precise that it can be relied upon 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.[18]

Consistent with the foregoing arguments articulated by Parcell, 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.

[18] David C. Parcell, *The Cost of Capital - A Practitioner's Guide* (Society of Utility and Regulatory Financial Analysts, 2010), at 84.

B. Discounted Cash Flow Analysis

Q40. Please provide an overview of the DCF approach used to estimate the cost of equity.

A40. 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.

Q41. 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?

A41. 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,*[19] 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.[20]

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*

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

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

> Let us define the investment value of a stock as the present worth of all the dividends to be paid upon it….
>
> …
>
> Most people will object at once to the foregoing formula for stocks by saying that it should be the present worth of future *earnings*, not future *dividends*. But should not earnings and dividends both give the same answer under the implicit assumptions of our critics? If earnings not paid out in dividends are all successfully reinvested at compound interest for the benefit of the stockholder, as the critics imply, then these earnings should produce dividends later; if not, then they are money lost….
>
> …
>
> On analysis, therefore, it will be seen that no contradiction really exists between our formula using dividends and the common precept regarding earnings. How to estimate the future dividends for use in our formula is, of course, the difficulty.[21]

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

The DCF approach introduced by Williams included a general "long-form" equation, which reflected an ongoing series of dividend payments extending into the indefinite future, and a simplified constant growth version of the equation, which was later refined by Gordon and Shapiro.[22]

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).

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

Q42. What form of the DCF model is used to estimate the cost of common equity in utility regulatory proceedings?

A42. 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,[23] 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

[23] 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.

components of the dividend yield (D_1 and P_0) can be readily observed through a variety of publicly-available sources, and that the investor expected growth rate can be estimated using a variety of approaches, the analyst can infer "K," the required return on common equity.

Q43. What steps are involved in implementing the DCF constant growth model for estimating the cost of common equity?

A43. A detailed discussion of the steps I took in implementing the DCF constant growth model can be found in Appendix A to my testimony. Additionally, Appendix B discusses the treatment of "outlier" DCF results which do not meet threshold tests of reasonableness and economic logic. Appendix C discusses the importance of applying a financial risk adjustment to DCF estimates whenever the market-value based equity capitalization level of the proxy group companies are materially different than the subject utility's book-value based equity capitalization level. In addition, Schedule 9 to my direct testimony provides the supporting capital structure ratio 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.

Q44. What cost of equity estimates are indicated for the Gas LDC Group under the

DCF approach?

A44. 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	8.90%
Zacks	9.20%
Value Line	11.80%
Historical Earnings Growth Rate	9.90%
Unadjusted DCF Estimate	10.00%
Flotation Cost Adjustment (7 basis points)	x 1.0068%
Subtotal	10.07%
Add: Market Value-Book Value Financial Risk Adjustment (1)	0.23%
Indicated DCF Estimate	= 10.30%

(1) This financial risk adjustment recognizes that the cost of equity estimates reflected above are based on the market value based capital structures of the proxy group companies, while these estimates will be applied to NIPSCO's book value based capital structure.

After eliminating low-end outlier results, the average unadjusted DCF estimate for the Gas LDC Group ranged from 8.90 percent to 11.80 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 expectations and valuation estimates 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 10.00 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 10.30 percent for the Gas LDC Group.

It is important to note, that in the recent anomalous capital markets environment, the DCF model very likely continues to understate the cost of equity. This is in large part attributable to the fact that the recent monetary policy interventions of the Fed have disrupted normal supply and demand dynamics in the capital markets, which has had the effect of putting additional downward pressure on long-term interest rates. Considering that investors often view dividend paying utility stocks as substitutes for fixed-income securities, which has the effect of causing utility dividend yields to closely track long-term interest rates, it is clear that the recent anomalous capital markets environment has played a role in

driving utility stock prices higher and dividend yields lower, which in turn results in DCF estimates which likely understate the cost of equity.

Q45. What cost of equity estimates were indicated for the Combination Utility Group using the DCF approach?

A45. 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 ranged from 8.40 percent to 8.80 percent. The three unadjusted DCF estimates based upon earnings growth forecasts demonstrate a central tendency of approximately 8.60 percent. The DCF estimate based upon the 5-year and 10-year historical average earnings growth rate indicates an unadjusted cost of equity of 8.50 percent. On an overall basis, an unadjusted DCF estimate of 8.55 percent is indicated for the Combination Utility Group. After making the required leverage and flotation cost adjustments to the unadjusted DCF estimate, the results of my analysis indicate a cost of equity of 8.84 percent for the Combination Utility Group.

Table 7 **Average DCF Estimates –** **Combination Utility Group**	
Calculation Method	**Cost of Equity**
Earnings Forecast	
Yahoo Finance	8.40%
Zacks	8.40%
Value Line	8.80%
Historical Earnings Growth Rate	8.50%
Unadjusted DCF Estimate	8.55%
Flotation Cost Adjustment (6 basis points)	x 1.0068%
Subtotal	8.61%
Plus: Market Value-Book Value Financial Risk Adjustment*	0.23%
Indicated DCF Estimate	= 8.84%

* This financial risk adjustment recognizes that the cost of equity estimates reflected above are based on the market-value based capital structure of the proxy group companies, while these estimates will actually be applied to a book-value based rate-setting capital structure, which reflects a materially higher level of financial risk.

Q46. What cost of equity estimates were indicated for the Non-Regulated Group using the DCF approach?

A46. 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. After eliminating high-end outlier results, the unadjusted DCF estimates for the Non-

Regulated Group ranged from 10.10 percent to 11.80 percent. The three unadjusted DCF estimates based upon earnings growth forecasts demonstrate a central tendency of approximately 11.30 percent to 11.40 percent. The DCF estimate based upon the 5-year and 10-year historical average earnings growth rate indicates an unadjusted cost of equity of 10.10 percent. On an overall basis, an unadjusted DCF estimate of 11.00 percent is indicated for the Non-Regulated Group. After making the required leverage and flotation cost adjustments to this estimate, the results of my DCF analysis indicate a cost of equity of 11.30 percent for the Non-Regulated Group.

Table 8 **Average DCF Estimates – Non-Regulated Group**	
Calculation Method	**Cost of Equity**
Earnings Forecast	
Yahoo Finance	11.60%
Zacks	11.80%
Value Line	10.50%
Historical Earnings Growth Rate	10.10%
Unadjusted DCF Estimate	11.00%
Flotation Cost Adjustment (7 basis points)	x 1.0068%
Subtotal	11.07%
Plus: Market Value-Book Value Financial Risk Adjustment*	0.23%
Indicated DCF Estimate	= 11.30%

* This financial risk adjustment recognizes that the cost of equity estimates reflected above are based on the market-value based capital structure of the proxy group companies, while these estimates will actually be applied to a book-value based rate-setting capital structure, which reflects a materially higher level of financial risk.

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

the two utility proxy groups, the DCF estimates for the Non-Regulated Group are nevertheless higher than the DCF estimates for the two utility proxy groups.

C. Capital Asset Pricing Model Analysis

Q47. Please provide an overview of the CAPM and the theoretical basis for using it to estimate a utility's cost of equity.

A47. 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").[24] Originally developed by Sharpe in the early 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.

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

The traditional CAPM equation is expressed as follows:

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

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

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

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

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

Much like other analytical models including the DCF model, the CAPM is premised upon strict underlying assumptions, which are not always observed in reality.[25] Nonetheless, the model still possesses useful explanatory and predictive

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

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

Q48. Is the CAPM commonly used to estimate the cost of equity, and does it influence the return expectations of investors?

A48. 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 *Ibbotson SBBI Valuation Yearbook*:

> The capital asset pricing model (CAPM) is a simple and elegant model

> that describes the expected (future) rate of return on any security or portfolio of securities. It is among the most widely used techniques to estimate the cost of equity.[26]

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

> Recent surveys found that the CAPM approach is by far the most widely used method. Although most firms use more than one method, almost 74% of respondents in one survey, and 85% in the other, used the CAPM.[27]

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.

Q49. What general approach did you take in applying the CAPM to estimate the cost of equity for NIPSCO's jurisdictional gas utility operations?

A49. 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.

Q50. What approach did you take in estimating the prospective risk-free rate of

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[26] *Ibbotson® SBBI® 2013 Valuation Yearbook* (Morningstar, Inc.) at 43.

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

return expectations of investors?

A50. When discussing appropriate proxies for the risk-free rate of return in *New Regulatory Finance*, a widely-accepted authoritative guide on utility cost of capital matters, Morin observes:

> At the conceptual level, given that ratemaking is a forward-looking process, interest rate forecasts are preferable. Moreover, the conceptual models used in the determination of the cost of equity, such as the CAPM, are prospective in nature, and require expectational inputs.[28]

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[29], 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 expansionary fiscal policy initiatives that are being pursued by the Biden Administration, which are widely-expected to result in more robust levels of GDP growth, higher inflation expectations, and higher long-term interest rates going forward.

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[28] Roger A. Morin, *New Regulatory Finance* (Public Utility Reports, Inc., 2006) at 172.

[29] 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.

Moreover, the use of interest rate forecasts appropriately synchronizes the time horizon of the expected risk-free rate of return with the prospective market return I have employed within my analysis. Therefore, as a proxy for the risk-free rate of 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 3.24 percent.

Q51. In structuring your CAPM analysis, what approach did you take in estimating the market risk premium expectations of investors?

A51. 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 *2021 SBBI Yearbook* for the 95-year period between 1926 and 2020.

Q52. What approach did you take in estimating the prospective market return expectations of investors?

A52. 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

1.53% (D/P) + 12.66% (g) = 14.19% (K) or (R_M)

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

g = long-term earnings growth rate estimate;

R_M = expected return of the market portfolio.

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

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

1.82% (D/P) + 6.38% (g) = 8.20% (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, an 11.20 percent ((14.19%+8.20%)/2=11.20%) prospective market rate of return is indicated, which I have applied to each of the respective proxy groups.

Q53. What average historical market risk premium is indicated by your analysis?

A53. Based upon historical returns data published in the *2021 SBBI Yearbook* for the period 1926-2020, a 7.30 percent historical market risk premium is indicated. This figure is derived from the 12.20 percent arithmetic average of total returns for large

company stocks (S&P 500) for the period 1926-2020, and the 4.90 percent arithmetic average income return on long-term government bonds for the same period (12.20%-4.90%=7.30%).

Q54. Based upon your informed judgment, what level of market risk premium have you applied to your CAPM analysis?

A54. 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,[30] Harris and Marston[31], and Maddox, Pippert and Sullivan[32] have shown that historically,

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

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

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

for every one percentage point (1.0 percent) increase in long-term Treasury bond yields, the equity risk premium has declined by 0.37% - 0.79% (with an average decline of 0.61 percent). Morin reported similar results in his 2005 rate of return testimony for Hydro-Quebec,[33] 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[34].

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

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[33] 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).

[34] Roger A. Morin, *New Regulatory Finance* (Public Utility Reports, Inc., 2006), at 129.

Considering that the prospective risk-free rate of return applied to my analysis (3.24 percent) is actually lower than the historical average risk-free rate reported by the *2021 SBBI Yearbook* (4.90 percent), I would fully expect that, based upon my risk-free rate assumption, investors would require a market risk premium in excess of the historical average risk premium. For this reason, I have also evaluated the prospective risk premium expectations of investors using the prospective risk-free rate assumption referenced above (3.24 percent). 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 7.63 percent ((7.96% + 7.30%)/2 = 7.63%). I further corroborated this value by also evaluating the currently-implied market risk premium, as based upon the aforementioned empirical studies that have demonstrated an inverse relationship between government interest rates (U.S. Treasury security yields) and the market risk premium. This supporting analysis, which can be found at the bottom of page 1 of Schedule 7, suggests that the currently-implied market risk premium is in the range of 8.60 percent. Therefore, the 7.63 percent expected market risk premium that I have incorporated into my CAPM analyses represents

a conservative assumption.

Q55. How did you derive the beta values employed within your CAPM analysis?

A55. 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 0.90, 0.86, and 0.88, respectively. However, published betas from sources such as Value Line should not be directly applied to the CAPM, unless the resulting cost of equity estimate will be applied to a market value based capital structure. This is because published betas are derived from the market value price movements of individual stocks and total market indices, and thus reflect the level of financial risk associated with a market value based capitalization. In the utility regulatory setting, published betas must be adjusted to reflect the higher relative financial risk associated with a book value capital structure, which is typically utilized for rate-setting purposes. In order to derive betas and a CAPM-based cost of equity that is relevant to NIPSCO's book value capital structure, I have utilized a beta-adjustment

technique known as the Hamada method.[35]

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, 2022, thereby reintroducing an appropriate level of financial risk into the beta, consistent with the Company's forecasted capital structure. The Hamada equation and results of my beta adjustment analysis are as follows:

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

Where: β_L = levered beta;
β_U = unlevered beta;
D = debt/capital ratio;
E = common equity/capital ratio;
P = preferred stock/capital ratio;
t = income tax rate (21% federal; 6% state)

Gas LDC Group

Value Line Beta 0.90 = 0.6045 (1 + (39.5%/60.0%)(1-.27) + (0.5%/60.0%))

[35] 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.

Re-Levered Beta 0.93 = 0.6045 (1 + (42.32%/57.68%)(1-.27)

Combination Utility Group

Value Line Beta 0.86 = 0.5776(1 + (39.5%/60.0%)(1-.27) + (0.5%/60.0%))

Re-Levered Beta 0.89 = 0.5776 (1 + (42.32%/57.68%)(1-.27)

Non-Regulated Group

Value Line Beta 0.88 = 0.5910 (1 + (39.5%/60.0%)(1-.27) + (0.5%/60.0%))

Re-Levered Beta 0.91 = 0.5910 (1 + (42.32%/57.68%)(1-.27)

Table 9
Summary of Results – Hamada Method

Beta Value	Gas LDC Group	Combination Utility Group	Non-Regulated Group
Value Line Beta	0.90	0.86	0.88
Unlevered Beta	0.605	0.578	0.591
Re-Levered Beta	0.93	0.89[36]	0.91[37]

[36] The magnitude of the difference between the Combination Utility Group's and the Non-Regulated Group's average market-value capital structure and NIPSCO's book-value based structure is significantly 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 electric utility company capital structure, I have applied the Hamada equation to the Combination Utility Group's and the Non-Regulated Group's average Value Line beta using the average market-value capital structure ratio of the Gas LDC Group and NIPSCO's book-value capital structure ratio, which yielded re-levered betas as reflected in Table 9 above. Employing this approach ensures a more conservative analysis.

[37] See footnote 34 above.

In order to derive cost of equity estimates which are relevant to NIPSCO's book value capital structure, I have applied the above re-levered betas to my CAPM analyses, as these betas reflect the higher level of financial risk associated with NIPSCO's book value capital structure. Specifically, I have applied re-levered betas of 0.93, 0.89 and 0.91 for the Gas LDC Group, Combination Utility Group and the Non-Regulated Group, respectively.

Q56. When applying the CAPM, what variants of the CAPM should be applied to fully reflect the return expectations of investors?

A56. Multiple academic studies have advocated the use of a size-premium adjustment to the traditional CAPM.[38] 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 *2021 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,

[38] *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.

> 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 period. 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[39].

Therefore, in order to correct for the inherent deficiencies of the CAPM relative to smaller capitalization stocks, another Duff & Phelps product offering, the *Cost of Capital Navigator,* reports size premiums, which can be used in conjunction with the CAPM to more accurately estimate the return expectations of investors relative to small and mid-capitalization stocks. According to the *Cost of Capital Navigator,* based upon an average market capitalization of $4.8 billion, the Gas LDC Group would be classified as a Decile 4 portfolio and assigned a size premium of 0.75 percent. Based on an average market capitalization of $18.9 billion, the Combination Utility Group would be classified as a Decile 2 portfolio, and assigned an average size premium of 0.49 percent. Finally, with an average market

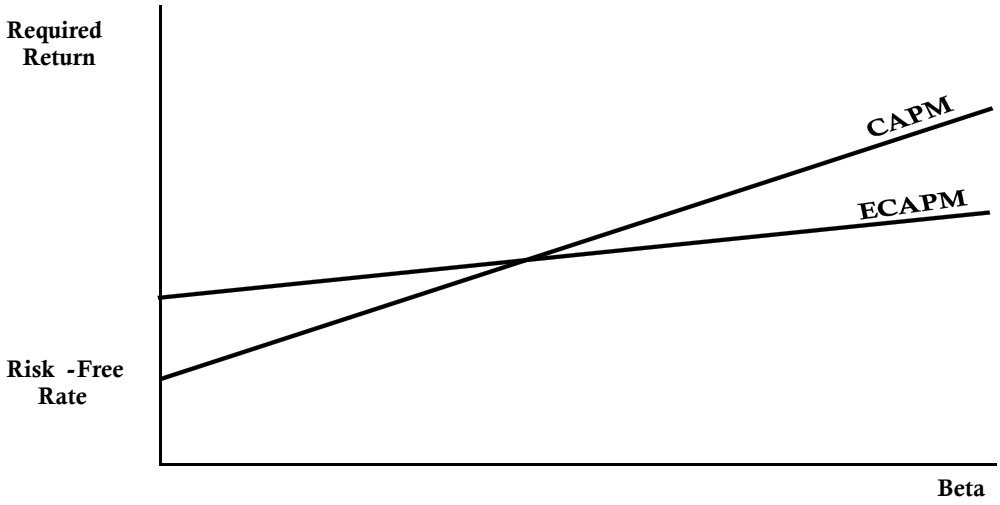
[39] *2021 SBBI Yearbook*, (Duff & Phelps, A Kroll Business), at 7-1, 7-3 and 7-5.

capitalization of $115.9 billion, the Non-Regulated Group would be classified as a large-cap, Decile 1 Portfolio, and assigned a size premium of *negative* -0.22 percent. In the absence of these size premium adjustments, the results indicated by the traditional CAPM for the Gas LDC Group and the Combination Utility Group will *understate* the return expectations of investors, while with respect to the Non-Regulated Group, the traditional CAPM would have the tendency to *overstate* the return expectations of investors.

Q57. Have you considered any other variants of the CAPM?

A57. 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:[40]

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

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

[40] Roger A. Morin, *New Regulatory Finance* (Public Utilities Reports, Inc., 2006), at 190.

public service commissions, including the 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.

Q58. What were the results of your application of the CAPM, including the variants of the model you evaluated?

A58. 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	10.33%	10.03%	10.18%
+ Flotation cost adj.	0.07%	0.06%	0.07%
Traditional CAPM	**10.40%**	**10.09%**	**10.25%**
Traditional CAPM (with size adj.)	11.08%	10.52%	9.96%
+ Flotation cost adj.	0.07%	0.06%	0.07%
Traditional CAPM (with size adj.)	**11.15%**	**10.58%**	**10.03%**
Empirical CAPM	10.47%	10.24%	10.36%
+ Flotation cost adj.	0.07%	0.06%	0.07%
Empirical CAPM	**10.54%**	**10.30%**	**10.43%**

These results, which incorporate the appropriate flotation cost adjustments, indicate a CAPM-derived cost of equity having a central tendency of approximately 10.70 percent for the Gas LDC Group, 10.30 percent for the Combination Utility Group, and 10.25 percent the Non-Regulated Group.

D. Risk Premium Method (RPM) Analysis

Q59. Please provide an overview of the RPM and the theoretical basis for using it to estimate a utility's cost of equity.

A59. 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.

Q60. Is the RPM commonly used to estimate the cost of equity and does it influence the return expectations of investors?

A60. 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[41].

Q61. How did you approach your RPM analysis?

A61. 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-

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

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

Q62. How did you derive the 4.69 percent prospective bond yield for the Gas LDC Group?

A62. The bond yields referenced in the RPM must appropriately reflect the forward-looking return expectations of investors. For this reason, 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 "A3" 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-/A3" 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 4.06 percent for the 2022-2026 period. An upward adjustment of 0.52 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 0.11 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 "A3" 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 4.69 percent[42] prospective bond yield.

Q63. What general approach have you taken in estimating the expected equity risk premium for the Gas LDC Group?

A63. 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.

[42] Subject to rounding differences.

Q64. In applying the total market approach to the Gas LDC Group, how did you arrive at the indicated equity risk premium of 5.68 percent?

A64. 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 95-year period (1926-2020) for which data is available from the *2021 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 *New Regulatory Finance* where he maintains:

> The historical risk premium approach assumes that the average realized return is an appropriate surrogate for expected return, or, in other words, that investor expectations are realized. However, realized returns can be substantially different from prospective returns anticipated by investors, especially when measured over short time periods. Therefore, an historical risk premium study should consider the longest possible period for which data are available…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[43].

Therefore, based upon the SBBI Yearbook holding period returns data for the period covering 1926-2020, a 5.70 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 12.20 percent for large company stocks (S&P 500 Index), and the arithmetic average annual return of 6.50 percent for high-grade, long-term corporate bonds. Use of the arithmetic average risk premium is appropriate since it better reflects the forward-looking risk premium expectations of investors and the potential variability of expected

[43] Roger A. Morin *New Regulatory Finance* (Public Utilities Reports, Inc., 2006), at 114.

returns. In contrast, the geometric mean is more suitable for reporting past investment performance, since it reflects a consistently compounded or "smoothed" rate of growth over a given historical period.

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

> The arithmetic average equity risk premium can be demonstrated to be most appropriate when discounting future cash flows. For use as the expected equity risk premium in either the CAPM or the building-block approach, the arithmetic mean or the simple difference of the arithmetic means of stock market returns and riskless rates is the relevant number. This is because both the CAPM and the building-block approach are additive models, in which the cost of capital is the sum of its parts. The geometric average is more appropriate for reporting past performance because it represents the compound average return[44].

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

[44] *2017 SBBI Yearbook* (Duff & Phelps, John Wiley & Sons, Inc.), at 10-22.

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

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

$$1.53\% (D/P) + 12.66\% (g) = 14.19\% (K) \text{ or } (R_M)$$

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

$$1.82\% (D/P) + 6.38\% (g) = 8.20\% (K) \text{ or } (R_M)$$

Based upon these DCF results, an 11.20 percent ((14.19% + 8.20%)/2 = 11.20%) 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 4.06 percent average yield for the 2022-2026 period, as further illustrated on pages 1 and 2 of Schedule 8. Based upon these

values, a 7.14 percent prospective total market equity risk premium is indicated (11.20% - 4.06% = 7.14%).

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 6.42 percent total market risk premium is indicated ((5.70%+7.14%)/2=6.42%)[45]. 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 0.93 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 0.93 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

[45] Subject to rounding differences.

premium for the Gas LDC Group under the Total Market Approach was determined to be 5.97 percent (6.42% x 0.93 = 5.97%).

Q65. In applying the public utility index approach to the Gas LDC Group, how did you arrive at the indicated equity risk premium of 5.38 percent?

A65. 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 95-year period covering 1926-2020, the average annual total return for this index was 10.83 percent. During this same period, the average annual yield for long-term utility bonds bearing an "A" rating from Moody's was 6.28 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 4.55 percent equity risk premium

is indicated for the Gas LDC Group (10.83% - 6.28% = 4.55%).

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 9.58 percent. I then compared the recent yields on "A" rated utility bonds (3.37 percent) to the expected equity return, which yielded a currently-implied equity risk premium of 6.21 percent (9.58%-3.37%=6.21%). Finally, to ensure a balanced estimate of the equity risk premium under the Public Utility Index Approach, I referenced the average of the equity risk premium estimates derived under the historical approach and the currently-implied approach, which yielded an indicated equity risk premium of 5.38 percent ((4.55% +6.21%)/2 = 5.38%).

Q66. 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?

A66. Consistent with established practices, I have placed equal emphasis on the total market approach and the public utility index approach, and have concluded that 5.68 percent is a reasonable estimate of the investor-expected equity risk premium

for the Gas LDC Group. Based upon an expected risk premium of 5.68 percent, and a 4.69 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 10.36 percent (5.68%+4.69%=10.36%[46]). 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 10.43 percent for the Gas LDC Group.

Q67. Under the RPM, what cost of equity was indicated for the Combination Utility Group and the Non-Regulated Group?

A67. As reflected on page 7 of Schedule 8, the unadjusted RPM-indicated cost of equity for the Combination Utility Group was determined to be 10.29 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 10.35 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 10.54 percent.

[46] Subject to rounding.

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 10.61 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	Comb. Utility Group	Non-Reg. Group
Risk Prem. Method	10.36%	10.29%	10.54%
+ Flotation cost adjust.	0.07%	0.06%	0.07%
Risk Premium Method	10.43%	10.35%	10.61%

Q68. 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?

A68. 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	10.30%	8.84%	11.30%
Traditional CAPM	10.40%	10.09%	10.25%
CAPM (w/size adj.)	11.15%	10.58%	10.03%
ECAPM	10.54%	10.30%	10.43%
Risk Premium Method	10.43%	10.35%	10.61%

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	10.30%
Average DCF Result	10.15%
Median CAPM Result	10.40%
Average CAPM Result	10.42%
Median RPM Result	10.43%
Average RPM Result	10.46%

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 10.25 to 10.75 percent, and that a point estimate at the midpoint of this range, or

10.50 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 to a lesser extent, 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.

Q69. Does this conclude your prepared direct testimony?

A69. Yes, it does. However, I reserve the right to submit rebuttal or other supplemental testimony in this proceeding.

VERIFICATION

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

Vincent V. Rea

Date: September 29, 2021

Vincent V. Rea, CRRA
Professional Qualifications and Testimony Listing

Testimony and Regulatory Litigation Support

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

Capital Markets Expertise

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

Professional Background

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

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

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

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

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

Educational Background

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

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

Certifications

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

Certified Public Accountant (CPA), State of Illinois

Series 65 Uniform Investment Adviser Law Examination

Seminars/Conferences

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

Vincent V. Rea, CRRA
Professional Qualifications and Testimony Listing

Memberships/Associations

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

American Institute of Certified Public Accountants (AICPA)

Indiana Utility Regulatory Commission (IURC) Financial Roundtable participant

Presentations

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

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

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

Vincent V. Rea
Testimony in Utility Regulatory Proceedings

Applicant	Date	Docket/Type of Case	Subject
Testimony Before the Indiana Utility Regulatory Commission			
Northern Indiana Public Service Company	08/2020	Cause No. 45330-TDSIC-1 TDSIC Investments	Cost of Capital (ROE) Pre-tax Return on TDSIC Investments
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)
Northern Indiana Public Service Company	11/2010	Cause No. 43969 Base Rate Proceeding (Electric)	Financing Activities Credit Ratings Cost of Debt
Northern Indiana Public Service Co., Kokomo Gas & Fuel Co., Northern Indiana Fuel & Light Co.	09/2010	Cause No. 43941 Merger Petition and Transfer of Franchise	Benefits of Proposed Merger
Northern Indiana Public Service Company	05/2010	Cause No. 43894 Base Rate Proceeding (Gas)	Financing Activities Credit Ratings Cost of Debt
Northern Indiana Public Service Company	08/2008	Cause No. 43563 Financing Petition	Financing Authority for CCGT Generation ($120.0 million)
Northern Indiana Public Service Company	06/2008	Cause No. 43526 Base Rate Proceeding (Electric)	Financing Activities Credit Ratings Cost of Debt
Northern Indiana Public Service Company	10/2007	Cause No. 43370 Financing Petition	Financing Authority ($160.0 million)
Northern Indiana Public Service Company	12/2004	Cause No. 42763 Financing Petition	Financing Authority ($350.0 million)

Vincent V. Rea
Testimony in Utility Regulatory Proceedings

Applicant	Date	Docket/Type of Case	Subject
Testimony Before the Maryland Public Service Commission			
Columbia Gas of Maryland	05/2021	Case No. 9664 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Maryland	05/2020	Case No. 9644 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Maryland	05/2019	Case No. 9609 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Maryland	04/2018	Case No. 9480 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Maryland	04/2017	Case No. 9447 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Maryland	04/2016	Case No. 9417 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Columbia Gas of Maryland	02/2013	Case No. 9316 Base Rate Proceeding	Cost of Capital (ROE) Capital Structure
Testimony Before the Massachusetts Department of Public Utilities			
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	09/2017	D.P.U. 17-142 Financing Petition	Financing Authority ($155.0 million)
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

Vincent V. Rea
Testimony in Utility Regulatory Proceedings

Applicant	Date	Docket/Type of Case	Subject
Testimony Before the Massachusetts Department of Public Utilities (continued)			
Bay State Gas Company, d/b/a Columbia Gas of Massachusetts	04/2012	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)
Testimony Before the Kentucky Public Service Commission			
Columbia Gas of Kentucky	05/2021	Case No. 2021-00183	Cost of Capital (ROE) Capital Structure
Testimony Before the Virginia State Corporation Commission			
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 Maine / New Hampshire Public Utilities Commissions			
Northern Utilities, Inc.	03/2003	Case No. 2003-00222 (ME) Docket No. 03-080 (NH) Financing Petition	Financing Authority ($60.0 million)
Northern Utilities, Inc.	11/2002	Case No. 2002-00680 Financing Vehicle	Alternative Fuel Financing Arrangement
Northern Utilities, Inc.	09/2001	Case No. 2001-00646 Participation in Intra-System Financing Vehicle	Participation in a Funds Pooling Agreement
Testimony Before the Federal Energy Regulatory Commission			
Northern Indiana Public Service Company	03/2012	Docket No. EL12-49-000 Transmission Rate Incentives for MVP Projects	Incentive Rate Treatment - CWIP and Abandoned Plant

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

Applicant	Date	Docket/Type of Case	Subject
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)
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)
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)

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)
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) - 2016-2020 and 5-Year Averages

Business & Other Hybrid Metrics	2020	2019	2018	2017	2016	5-Year Average
Relative Size Comparison - Total Capital						
Permanent Capitalization (excl. OCI)	$ 5,598,100	$ 5,004,200	$ 4,854,700	$ 4,190,000	$ 3,902,000	$ 4,709,800
Current Maturities and Short-Term Debt	434,100	601,000	468,100	608,600	266,400	$ 475,640
Total Capitalization (excl. OCI)	$ 6,032,200	$ 5,605,200	$ 5,322,800	$ 4,798,600	$ 4,168,400	$ 5,185,440

Standard Deviation and Coefficient of Variation of Return on Book Equity						
Return on Avg. Book Equity, incl. AFUDC (2)	9.3%	11.2%	11.6%	9.1%	7.6%	9.8%

	Average	Std. Dev.	Coff. Var.
Return on Avg. Book Equity, incl. AFUDC (2)	**9.78%**	**1.48%**	**0.152**

Financial Risk/Credit Quality Metrics	2019	2019	2018	2017	2016	5-Year Average
Permanent Capitalization Ratios						
Long-Term Debt	41.8%	42.3%	43.3%	40.4%	40.4%	41.6%
Preferred Stock	-	-	-	-	-	-
Common Equity (2)	58.2%	57.7%	56.7%	59.6%	59.6%	58.4%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Capitalization Ratios						
Total Debt (incl. CMD and STD)	46.0%	48.5%	48.3%	48.0%	44.2%	47.0%
Preferred Stock	-	-	-	-	-	-
Common Equity (2)	54.0%	51.5%	51.7%	52.0%	55.8%	53.0%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
EBITDA Interest Coverage (3)						
EBITDA Interest Cov. (incl. AFUDC ded.)	7.70	8.24	7.74	8.12	7.60	7.88
FFO to Adjusted Total Debt (4)						
FFO to Adj. Debt (incl. AFUDC ded.)	23.3%	25.0%	24.2%	24.4%	23.9%	24.2%

(1) NIPSCO 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).

Source: NIPSCO 2016-2020 Annual Reports and FERC Form No. 2.

Gas LDC Group
Comparative Risk Assessment (1) - 2016-2020 and 5-Year Averages

Business & Hybrid Risk Metrics	2020	2019	2018	2017	2016	5-Year Average
Relative Size Comparison - Total Capital						
Permanent Capitalization (excl. OCI)	5,149,304	4,381,382	$ 3,818,402	$ 3,413,943	$ 3,099,941	$ 3,972,594
Current Maturities and Short-Term Debt	366,554	532,402	555,993	373,513	389,724	$ 443,637
Total Capitalization (excl. OCI)	5,515,858	4,913,784	$ 4,374,395	$ 3,787,456	$ 3,489,665	$ 4,416,232
Standard Deviation and Coefficient of Variation of Return on Book Equity						
Return on Avg. Book Equity (2)(incl. AFUDC)	9.5%	8.8%	9.6%	9.4%	9.1%	9.3%

	Average	Std. Dev.	Coeff. Var.
Return on Avg. Book Equity (2)(incl. AFUDC)	**9.29%**	**0.64%**	**0.071**

Financial Risk/Credit Quality Metrics	2020	2019	2018	2017	2016	5-Year Average
Permanent Capitalization Ratios						
Long-Term Debt	49.3%	46.2%	45.9%	45.8%	43.4%	46.1%
Preferred Stock	0.7%	0.7%	0.0%	0.0%	0.0%	0.3%
Common Equity (2)	50.0%	53.1%	54.1%	54.2%	56.6%	53.6%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Capitalization Ratios						
Total Debt (incl. CMD and STD)	53.6%	52.0%	52.4%	51.6%	49.2%	51.7%
Preferred Stock	0.6%	0.6%	0.0%	0.0%	0.0%	0.2%
Common Equity (2)	45.8%	47.4%	47.6%	48.4%	50.8%	48.0%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
EBITDA Interest Coverage (3)						
EBITDA Interest Cov. (incl. AFUDC deduction)	7.07	6.17	6.49	6.81	7.80	6.87
FFO to Adjusted Total Debt (4)						
FFO to Adj. Debt (incl. AFUDC deduction)	15.7%	15.2%	16.6%	18.6%	19.7%	17.2%

(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
Gas LDC Group - 2016-2020 and 5-Year Average

	2020	2019	2018	2017	2016	5-Year Average
Atmos Energy Corp.						
Long-Term Debt	39.8%	37.6%	33.9%	43.4%	37.5%	38.4%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	60.2%	62.4%	66.1%	56.6%	62.5%	61.6%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
New Jersey Resources Corp.						
Long-Term Debt	54.5%	49.3%	45.2%	44.6%	47.4%	48.2%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	45.5%	50.7%	54.8%	55.4%	52.6%	51.8%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Northwest Natural Gas Co.						
Long-Term Debt	48.8%	47.9%	47.8%	47.6%	44.2%	47.3%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	51.2%	52.1%	52.2%	52.4%	55.8%	52.7%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
ONE Gas, Inc.						
Long-Term Debt	41.4%	37.6%	38.6%	37.8%	38.6%	38.8%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	58.6%	62.4%	61.4%	62.2%	61.4%	61.2%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
South Jersey Industries, Inc.						
Long-Term Debt	62.0%	58.7%	62.0%	47.7%	38.0%	53.7%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	38.0%	41.3%	38.0%	52.3%	62.0%	46.3%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Southwest Gas Corp.						
Long-Term Debt	50.0%	47.3%	47.8%	49.1%	47.5%	48.3%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	50.0%	52.7%	52.2%	50.9%	52.5%	51.7%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Spire, Inc.						
Long-Term Debt	48.6%	44.7%	45.8%	50.1%	50.8%	48.0%
Preferred Stock	4.9%	5.2%	-	-	-	2.0%
Common Equity (1)	46.5%	50.1%	54.2%	49.9%	49.2%	50.0%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Average of Gas LDC Proxy Group						
Long-Term Debt	49.3%	46.2%	45.9%	45.8%	43.4%	46.1%
Preferred Stock	0.7%	0.7%	-	-	-	0.3%
Common Equity (1)	50.0%	53.1%	54.1%	54.2%	56.6%	53.6%
Total Permanent Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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

Capital Structure Ratios - Total Capitalization
Gas LDC Group - 2016-2020 and 5-Year Average

Witness: Rea
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	2020	2019	2018	2017	2016	5-Year Average
Atmos Energy Corp.						
Total Debt (incl. CM and STD)	39.8%	40.5%	42.9%	46.7%	47.2%	43.4%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	60.2%	59.5%	57.1%	53.3%	52.8%	56.6%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
New Jersey Resources Corp.						
Total Debt (incl. CM and STD)	56.1%	50.0%	50.4%	53.5%	51.3%	52.3%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	43.9%	50.0%	49.6%	46.5%	48.7%	47.7%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Northwest Natural Gas Co.						
Total Debt (incl. CM and STD)	58.3%	54.0%	55.3%	52.6%	47.4%	53.5%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	41.7%	46.0%	44.7%	47.4%	52.6%	46.5%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
ONE Gas, Inc.						
Total Debt (incl. CM and STD)	47.2%	45.8%	43.6%	44.1%	41.4%	44.4%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	52.8%	54.2%	56.4%	55.9%	58.6%	55.6%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
South Jersey Industries, Inc.						
Total Debt (incl. CM and STD)	67.4%	69.9%	70.6%	55.5%	50.4%	62.8%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	32.6%	30.1%	29.4%	44.5%	49.6%	37.2%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Southwest Gas Corp.						
Total Debt (incl. CM and STD)	51.3%	51.1%	49.9%	52.3%	48.3%	50.6%
Preferred Stock	-	-	-	-	-	-
Common Equity (1)	48.7%	48.9%	50.1%	47.7%	51.7%	49.4%
Total Capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Spire, Inc.						
Total Debt (incl. CM and STD)	55.1%	52.7%	53.9%	56.4%	58.3%	55.3%
Preferred Stock	4.2%	4.4%	-	-	-	1.7%
Common Equity (1)	40.8%	42.9%	46.1%	43.6%	41.7%	43.0%
Total Capitalization	100.1%	100.0%	100.0%	100.0%	100.0%	100.0%
Average of Gas LDC Proxy Group						
Total Debt (incl. CM and STD)	53.6%	52.0%	52.4%	51.6%	49.2%	51.7%
Preferred Stock	0.6%	0.6%	-	-	-	0.2%
Common Equity (1)	45.8%	47.4%	47.6%	48.4%	50.8%	48.0%
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
New Jersey Resources Corp.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
NJ	Revenue Decoupling (Conservation Incentive Program (CIP), including WNA)	Safety Acceleration and Facility Enhancement Program (SAFE II), Reinvestment in System Enhancement (RISE) Program, Resiliency and Reliability Invest. (IIP).

(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
South Jersey Industries Inc.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
NJ	Decoupling (Conservation Incentive) and Weather Normalization Clause (WNC)	Accelerated Infrastructure Replacement Program (AIRP), Storm Hardening and Reliability Program (SHARP) and Infrastructure Investment Program (IIP)

Regulatory Mechanisms by Jurisdiction
Southwest Gas Corp.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
AZ	Decoupling (Delivery Charge Adjustment Mech.)	Customer Owned Yard Line (COYL) Program & Vintage Steel Pipe Replacement (VSP) Program
CA	Decoupling (Fixed Cost Adjustment Mech.)	Targeted Pipe Replacement Program and COYL program.
NV	Decoupling (General Revenues Adjustment Mech.)	Gas Infrastructure Replacement Program (GIR)

(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)	Accelerated Infrastructure Modernization Program (AIM) and Cast Iron Main Replacement Factor (CIMFR)
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
Black Hills Corp.

Jurisdiction	Revenue Stabilization Mechanisms (1)	Infrastructure Replacement Cost Recovery Mechanisms
AR	WNA and Revenue Decoupling (Gas)	Main Replacement Program Rider (Gas)
CO	-	System Safety Integrity Rider - (SSIR) (Gas)
IA	Modified Fixed-Variable Rate Design (Gas)	Capital Infrastructure Automatic Adjust. Mech. (Gas)
KS	WNA and Modified Fixed-Variable Rate Design	Gas System Reliability Surcharge (Gas)
MT	-	-
NE	Modified Fixed-Variable Rate Design	Infrastructure Repl. Cost Recovery Surcharge (Gas) and System Safety and Integrity Rider (Gas)
SD	-	Transmission Facility Adjustment (TFA)
WY	Partial Decoupling and Modified Fixed-Variable Rate Design	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)	Investment Recovery Mechanism (Gas)

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)	Accelerated Replacement Program (Gas) and Electric System Improvements Charge (ESI), including System Resiliency Plan (Electric)
NH	Modified Fixed Variable Rate Design	

(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	Modified Fixed-Variable Rate Design (Gas)	-

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	Revenue Requirement Attrition (Decoupling)	Pipeline Safety Enhancement Plan (PSEP)

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	-	-
MN	Revenue Decoupling (Gas)	Gas Utility Infrastructure Cost Rider Surcharge
WI	Fixed -Variable Rate Design (Gas & Electric)	-

(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

Vincent V. Rea

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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.	2.6%	7.2%	7.3%	7.0%	9.8%	10.0%	9.6%
New Jersey Resources Corp.	3.2%	6.0%	7.1%	2.0%	9.2%	10.3%	5.2%
Northwest Natural Gas Co.	3.5%	3.8%	3.9%	5.5%	7.3%	7.5%	9.0%
ONE Gas, Inc.	3.1%	5.0%	5.0%	6.5%	8.1%	8.1%	9.6%
South Jersey Industries Inc.	5.1%	4.8%	5.4%	11.5%	9.9%	10.5%	16.6%
Southwest Gas Corp.	3.5%	4.0%	5.5%	9.0%	7.5%	9.0%	12.5%
Spire Inc.	3.5%	7.3%	5.5%	10.0%	10.9%	9.0%	13.5%
Average (6)	3.5%	5.4%	5.7%	7.4%	8.9%	9.2%	11.8%
Low-End and High-End Outlier Tests							
Low-End Threshold (5.25%) (6)					5.25%	5.25%	5.25%
Median Result (excluding negative values)(6)					9.2%	9.0%	9.6%
200% of Median Result (6)					18.3%	18.1%	19.3%
High-End Threshold - 200% of Median (average)					18.5%	18.5%	18.5%

(1) See page 3 of this Schedule.
(2) www.finance.yahoo.com. Consensus earnings estimates provided by Thomson Reuters (retrieved June 1, 2021).
(3) www.zacks.com (retrieved June 1, 2021).
(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 5.25% 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).

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.	2.6%	9.0%	8.0%	8.5%	11.1%
New Jersey Resources Corp.	3.2%	5.5%	6.0%	5.8%	8.9%
Northwest Natural Gas Co.	3.5%	1.5%	-1.5%	0.0%	3.5%
ONE Gas, Inc.	3.1%	10.0%	n/a	10.0%	13.1%
South Jersey Industries Inc.	5.1%	-1.5%	1.5%	0.0%	5.1%
Southwest Gas Corp.	3.5%	5.5%	7.5%	6.5%	10.0%
Spire Inc.	3.5%	4.5%	1.5%	3.0%	6.5%
Average (6)	3.5%	4.9%	3.8%	4.8%	9.9%

Low-End and High-End Outlier Tests	
Low-End Threshold (5.25%) (6)	5.25%
Median Result (excluding negative values)(6)	8.9%
200% of Median Result (6)	17.8%
High-End Threshold - 200% of Median (average)	17.8%

(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 the 10-year historical EPS growth rate is unavailable, only the 5-year historical 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 5.25% 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

Vincent V. Rea

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Gas LDC Group	(a) 40-Day Avg. Stock Price	(b) Next 12-Mo. Dividends	(b)/(a) Dividend Yield
Atmos Energy Corp.	$ 100.70	$ 2.65	2.6%
New Jersey Resources Corp.	$ 42.25	$ 1.33	3.2%
Northwest Natural Gas Co.	$ 54.30	$ 1.92	3.5%
ONE Gas, Inc.	$ 77.70	$ 2.40	3.1%
South Jersey Industries Inc.	$ 25.13	$ 1.28	5.1%
Southwest Gas Corp.	$ 69.59	$ 2.42	3.5%
Spire Inc.	$ 75.13	$ 2.66	3.5%
Average	-	-	3.5%

(a) See page 4 of this Schedule; 40-day average closing stock price.

(b) Value Line Investment Survey, Summary and Index, May 28, 2021. Estimated dividends, next twelve months.

DCF Method
Gas LDC Group
40-Day Average Closing Stock Price Through May 28, 2021

Vincent V. Rea

Averages	Atmos Energy	New Jersey Resources	Northwest Natural Gas	ONE Gas, Inc.	South Jersey Indust.	Southwest Gas	Spire Inc.
10-Day Average	$ 98.59	$ 42.62	$ 53.46	$ 74.13	$ 26.10	$ 66.80	$ 72.75
20-Day Average	$ 100.36	$ 42.78	$ 53.99	$ 76.08	$ 25.81	$ 68.61	$ 74.28
40-Day Average	$ 100.70	$ 42.25	$ 54.30	$ 77.70	$ 25.13	$ 69.59	$ 75.13

Date	Atmos Energy	New Jersey Resources	Northwest Natural Gas	ONE Gas, Inc.	South Jersey Indust.	Southwest Gas	Spire Inc.
5/28/2021	99.17	42.72	52.88	74.32	26.66	66.01	71.66
5/27/2021	99.16	42.55	52.95	74.75	26.29	65.93	71.77
5/26/2021	98.62	42.64	53.31	74.94	26.36	66.57	72.35
5/25/2021	98.29	42.31	52.83	74.28	25.95	66.61	71.89
5/24/2021	98.43	43.29	53.48	74.30	26.47	66.56	73.13
5/21/2021	98.18	42.73	53.07	74.01	26.10	66.25	72.74
5/20/2021	98.32	42.49	53.64	73.61	25.97	66.97	72.92
5/19/2021	98.11	42.51	53.77	73.03	25.74	66.49	72.80
5/18/2021	99.14	42.34	54.49	73.85	25.75	67.75	73.72
5/17/2021	98.51	42.59	54.22	74.20	25.66	68.88	74.48
5/14/2021	100.46	43.17	54.67	75.80	25.75	69.86	75.47
5/13/2021	100.61	43.11	55.04	76.90	25.72	71.75	75.50
5/12/2021	99.25	41.80	53.28	75.67	24.89	68.89	73.99
5/11/2021	101.31	43.36	54.69	78.27	25.85	70.70	76.59
5/10/2021	103.51	43.43	55.28	79.15	25.79	71.90	77.29
5/7/2021	103.00	43.51	55.09	78.39	25.77	70.37	75.89
5/6/2021	103.35	43.00	54.67	78.10	25.45	70.18	76.41
5/5/2021	102.53	42.03	54.01	77.77	25.19	69.33	75.30
5/4/2021	103.55	42.86	54.04	79.78	25.33	70.26	75.88
5/3/2021	103.79	43.13	54.40	80.58	25.57	70.91	75.90
4/30/2021	103.59	41.95	53.92	80.47	24.75	69.72	75.34
4/29/2021	102.18	42.21	53.86	80.09	25.10	69.84	75.07
4/28/2021	100.30	41.58	53.77	78.95	24.87	69.28	74.46
4/27/2021	101.48	41.74	53.57	78.77	24.19	69.24	75.02
4/26/2021	102.41	42.23	54.47	80.05	24.43	70.90	75.49
4/23/2021	103.35	42.86	55.26	81.26	24.92	71.93	76.37
4/22/2021	103.40	42.37	55.71	81.16	24.77	71.92	76.71
4/21/2021	103.39	42.85	56.15	80.84	24.99	72.96	77.38
4/20/2021	104.59	42.80	56.39	81.37	24.62	72.90	77.48
4/19/2021	101.84	42.06	54.95	80.55	24.43	71.87	77.16
4/16/2021	101.82	42.11	55.48	80.62	24.65	72.38	77.26
4/15/2021	101.32	41.68	55.34	79.85	24.52	72.32	77.40
4/14/2021	100.13	41.43	54.70	78.21	24.21	70.65	76.19
4/13/2021	99.09	40.74	53.91	77.81	24.27	69.76	76.20
4/12/2021	99.36	41.15	54.72	78.38	24.24	69.84	76.79
4/9/2021	99.13	40.81	54.40	77.99	24.62	69.20	76.16
4/8/2021	98.32	41.53	54.22	77.85	24.61	69.37	75.73
4/7/2021	98.23	41.35	54.14	77.39	24.25	69.54	74.74
4/6/2021	98.26	40.70	53.72	77.32	23.64	68.96	74.48
4/5/2021	98.62	40.21	53.47	77.32	22.99	68.74	74.10
40-Day Average	100.70	42.25	54.30	77.70	25.13	69.59	75.13

Source: Yahoo Finance; accessed May 30, 2021.

	Past 5-Years Historical Growth Rates				Estimated '18-'20 to '24-'26 Growth Rates			
Gas LDC Group	EPS	DPS	BVPS	Average	EPS	DPS	BVPS	Average
Atmos Energy Corp.	9.0%	7.5%	10.0%	8.8%	7.0%	7.5%	10.5%	8.3%
New Jersey Resources	5.5%	6.5%	8.5%	6.8%	2.0%	5.5%	5.5%	4.3%
Northwest Natural Gas Co.	1.5%	0.5%	n/a	1.0%	5.5%	0.5%	8.5%	4.8%
ONE Gas, Inc.	10.0%	14.5%	3.0%	9.2%	6.5%	7.0%	10.5%	8.0%
South Jersey Industries Inc.	-1.5%	4.0%	2.5%	1.7%	11.5%	4.5%	6.5%	7.5%
Southwest Gas Corp.	5.5%	8.0%	7.0%	6.8%	9.0%	4.5%	6.0%	6.5%
Spire Inc.	4.5%	6.0%	5.5%	5.3%	10.0%	4.5%	9.0%	7.8%
Average	4.9%	6.7%	6.1%	5.7%	7.4%	4.9%	8.1%	6.8%

	Past 10-Years Historical Growth Rates			
Gas LDC Group	EPS	DPS	BVPS	Average
Atmos Energy Corp.	8.0%	5.0%	7.5%	6.8%
New Jersey Resources	6.0%	7.0%	7.5%	6.8%
Northwest Natural Gas Co.	-1.5%	1.5%	1.0%	0.3%
ONE Gas, Inc.	n/a	n/a	n/a	n/a
South Jersey Industries Inc.	1.5%	6.5%	5.5%	4.5%
Southwest Gas Corp.	7.5%	8.5%	6.0%	7.3%
Spire Inc.	1.5%	4.5%	7.0%	4.3%
Average	3.8%	5.5%	5.8%	5.0%

Source: Value Line Investment Survey, Ratings & Reports, May 28, 2021.

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

Vincent V. Rea

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Recent Baa (Moody's) 30-Year Utility Bond Yield (1)	3.72%
Indicated Equity Market Risk Premium per CAPM Analysis (2)	7.68%
20% Weighting Factor per FERC Opinion No. 569 (3)	20.0%
Equity Risk Premium Factor to Apply to Baa/BBB Bond Yield (3)(4)	1.54%
Low-End Outlier Threshold (3)(5)	5.26%

Footnotes:

(1) Mergent Bond Record, April 2021.

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

(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, 202

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

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

DCF Method
Gas LDC Group
Investment Risk Indicators

Vincent V. Rea

	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	Billions ($) 5/28/2021
Atmos Energy Corp.	0.80	1	A+	2	95	A-	7	A1	5	$ 12.90
New Jersey Resources Corp. (1)	1.00	2	A+	2	80	n/r	n/r	A1	5	4.10
Northwest Natural Gas Co.	0.85	3	A	3	85	A+	5	Baa1	8	1.70
ONE Gas, Inc.	0.80	2	B++	4	95	BBB+	8	A3	7	4.00
South Jersey Industries Inc. (2)	1.05	3	B++	4	60	BBB	9	A3	7	2.90
Southwest Gas Corp.	0.95	3	A	3	80	BBB+	8	Baa1	8	4.00
Spire Inc.	0.85	2	B++	4	90	A-	7	Baa2	9	3.80
Averages	0.90	2.3	A	3.1	84	A-	7.3	A3	7.0	$ 4.77

Source: Value Line Investment Survey, Ratings & Reports, May 28, 2021. S&P and Moody's long-term credit ratings accessed June 15, 2021. Market capitalization data from Yahoo Finance (accessed May 28, 2021).

Footnotes: (1) Moody's credit rating is for New Jersey Natural Gas Co.; (2) Moody's credit rating is for South Jersey Gas Co.
n/r - no credit rating.

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		

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.	2.9%	5.5%	5.6%	5.5%	8.4%	8.5%	8.4%
Black Hills Corp.	3.4%	4.7%	5.1%	5.0%	8.1%	8.5%	8.4%
CMS Energy Corp.	2.8%	7.2%	6.5%	7.5%	10.0%	9.3%	10.3%
Consolidated Edison, Inc.	4.0%	2.9%	2.0%	4.0%	6.9%	6.0%	8.0%
Eversource Energy	2.9%	6.9%	6.5%	5.5%	9.8%	9.4%	8.4%
MGE Energy Inc.	2.1%	5.8%	5.8%	4.5%	7.9%	7.9%	6.6%
Northwestern Corp.	3.8%	4.5%	4.9%	3.0%	8.3%	8.7%	6.8%
Sempra Energy	3.3%	4.3%	5.4%	10.0%	7.6%	8.7%	13.3%
WEC Energy Group	2.9%	6.2%	6.0%	6.5%	9.1%	8.9%	9.4%
Average (6)	3.1%	5.3%	5.3%	5.7%	8.4%	8.4%	8.8%

Low-End and High-End Outlier Tests			
Low-End Threshold (5.25%) (6)	5.25%	5.25%	5.25%
Median Result (excluding negative values)(6)	8.3%	8.7%	8.4%
200% of Median Result (6)	16.5%	17.3%	16.7%
High-End Threshold - 200% of Median (average)	16.9%	16.9%	16.9%

(1) See page 3 of this Schedule.
(2) www.yahoo.com (retrieved May 8, 2021).
(3) www.zacks.com (retrieved May 8, 2021).
(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 5.25% 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 Schedule 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
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.	2.9%	6.0%	6.0%	6.0%	8.9%
Black Hills Corp.	3.4%	5.0%	10.0%	7.5%	10.9%
CMS Energy Corp.	2.8%	7.0%	7.5%	7.3%	10.1%
Consolidated Edison, Inc.	4.0%	1.5%	2.5%	2.0%	6.0%
Eversource Energy	2.9%	5.5%	5.5%	5.5%	8.4%
MGE Energy Inc.	2.1%	3.0%	5.0%	4.0%	6.1%
Northwestern Corp.	3.8%	3.5%	5.5%	4.5%	8.3%
Sempra Energy	3.3%	5.0%	3.0%	4.0%	7.3%
WEC Energy Group	2.9%	7.5%	8.0%	7.8%	10.6%
Average (6)	3.1%	4.9%	5.9%	5.4%	8.5%

Low-End and High-End Outlier Tests	
Low-End Threshold (5.25%) (6)	5.25%
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) 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 5.25% 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 Schedule 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
Combination Utility Group
Dividend Yield Calculation

Vincent V. Rea

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Combination Utility Group	(a) 40-Day Avg. Stock Price	(b) Next 12-Mo. Dividends	(b)/(a) Dividend Yield
Alliant Energy Corp.	$ 56.27	$ 1.61	2.9%
Black Hills Corp.	$ 67.91	$ 2.32	3.4%
CMS Energy Corp.	$ 63.30	$ 1.77	2.8%
Consolidated Edison, Inc.	$ 77.46	$ 3.13	4.0%
Eversource Energy	$ 85.74	$ 2.45	2.9%
MGE Energy Inc.	$ 74.11	$ 1.54	2.1%
Northwestern Corp.	$ 66.38	$ 2.50	3.8%
Sempra Energy	$ 136.47	$ 4.44	3.3%
WEC Energy Group	$ 95.63	$ 2.76	2.9%
Average			3.1%

(a) See page 4 of this Schedule; 40-day average closing stock price.

(b) Value Line Investment Survey, Summary and Index, June 4, 2021. Estimated dividends during the next 12-months.

10-Day Average	$ 57.47	$ 65.79	$ 63.24	$ 78.01	$ 82.89	$ 74.89	$ 63.35	$ 136.46	$ 94.86
20-Day Average	$ 57.04	$ 66.80	$ 63.66	$ 78.21	$ 83.77	$ 74.59	$ 65.10	$ 136.96	$ 95.97
40-Day Average	$ 56.27	$ 67.91	$ 63.30	$ 77.46	$ 85.74	$ 74.11	$ 66.38	$ 136.47	$ 95.63

Date	Alliant Energy Corp.	Black Hills Corp.	CMS Energy Corp.	Consolidated Edison, Inc.	Eversource Energy	MGE Energy Inc.	Northwestern Corp.	Sempra Energy	WEC Energy Group
5/28/2021	57.15	65.79	62.74	77.24	81.19	75.02	63.35	135.49	93.91
5/27/2021	56.75	65.35	62.30	76.87	81.15	74.98	63.00	135.30	93.35
5/26/2021	57.51	65.65	62.95	78.00	81.50	74.88	63.15	137.03	93.99
5/25/2021	57.60	65.78	63.25	77.81	82.33	74.11	63.25	135.45	94.21
5/24/2021	58.06	66.04	63.77	78.38	83.30	75.69	63.79	137.76	95.36
5/21/2021	58.11	66.17	64.15	78.96	84.09	75.47	63.13	136.97	96.22
5/20/2021	57.76	66.21	63.74	78.42	83.76	74.91	63.31	135.74	95.52
5/19/2021	57.70	65.25	63.22	77.98	83.25	74.74	62.96	135.95	94.87
5/18/2021	57.60	65.59	63.30	77.74	84.27	74.59	63.55	137.35	95.40
5/17/2021	56.48	66.04	62.98	78.73	84.06	74.53	64.00	137.54	95.76
5/14/2021	56.76	67.61	63.50	78.97	85.12	74.90	65.10	138.11	96.20
5/13/2021	56.88	67.01	63.53	79.28	84.71	74.98	65.20	137.73	95.84
5/12/2021	55.81	65.32	62.46	77.90	82.68	72.31	64.29	135.21	95.02
5/11/2021	56.97	67.23	63.53	79.34	84.02	73.78	66.07	138.54	96.44
5/10/2021	57.95	68.86	64.91	79.85	85.45	74.49	68.31	139.02	99.26
5/7/2021	56.74	68.61	63.99	78.09	84.07	74.79	67.74	137.82	97.64
5/6/2021	56.57	68.40	64.43	77.86	84.33	74.21	68.48	136.61	97.95
5/5/2021	55.61	67.42	64.20	76.89	83.59	73.66	67.78	135.48	96.56
5/4/2021	56.54	68.65	65.20	78.12	86.12	74.58	67.66	137.98	97.86
5/3/2021	56.17	68.99	65.03	77.75	86.42	75.22	67.82	138.06	98.00
4/30/2021	56.17	68.98	64.39	77.41	86.22	74.81	68.03	137.57	97.17
4/29/2021	55.38	68.79	63.95	76.71	85.09	74.22	67.04	136.12	95.75
4/28/2021	55.30	68.16	63.05	76.21	85.45	73.12	65.89	134.92	94.66
4/27/2021	55.52	68.12	63.32	76.19	87.02	73.73	66.28	134.93	94.98
4/26/2021	56.24	69.23	63.95	76.87	87.77	74.61	67.24	136.49	95.80
4/23/2021	56.44	69.56	64.13	77.45	88.17	75.56	68.24	137.07	96.79
4/22/2021	56.85	69.86	64.51	78.11	88.22	75.04	69.21	137.45	97.16
4/21/2021	57.08	70.41	64.73	78.36	89.53	74.94	70.27	138.60	97.28
4/20/2021	57.42	71.09	65.27	79.35	90.58	74.80	70.33	139.86	99.15
4/19/2021	56.19	70.47	64.12	78.35	89.34	73.67	69.24	138.24	96.85
4/16/2021	56.16	70.59	64.08	78.21	89.69	74.02	69.53	138.14	96.96
4/15/2021	55.68	70.23	63.40	77.19	88.79	73.83	68.18	137.63	95.94
4/14/2021	54.88	69.50	62.18	76.16	88.16	73.53	67.74	135.44	93.99
4/13/2021	54.51	68.67	61.66	75.87	87.44	73.38	67.35	135.04	94.05
4/12/2021	54.21	68.85	60.76	75.32	86.41	72.59	67.69	133.29	92.95
4/9/2021	54.01	67.68	60.46	75.17	86.18	72.19	66.97	134.28	92.35
4/8/2021	54.15	67.38	60.60	75.12	87.24	72.22	66.22	133.15	92.86
4/7/2021	54.39	67.36	61.14	75.31	87.60	71.52	65.79	133.52	93.42
4/6/2021	54.82	67.79	61.71	75.69	87.68	72.32	65.91	134.24	93.80
4/5/2021	54.84	67.81	61.48	75.28	87.59	72.36	66.04	133.84	93.81
40-Day Average	56.27	67.91	63.30	77.46	85.74	74.11	66.38	136.47	95.63

Source: finance.yahoo.com (accessed May 30, 2021).

Combination Utility Group	Past 5-Years Historical Growth Rates EPS	DPS	BVPS	Average	Estimated '18-'20 to '24-'26 Growth Rates EPS	DPS	BVPS	Average
Alliant Energy Corp.	6.0%	7.0%	5.5%	6.2%	5.5%	6.0%	6.0%	5.8%
Black Hills Corp.	5.0%	5.5%	5.5%	5.3%	5.0%	5.5%	5.0%	5.2%
CMS Energy Corp.	7.0%	7.0%	5.5%	6.5%	7.5%	7.0%	8.0%	7.5%
Consolidated Edison, Inc.	1.5%	3.0%	4.5%	3.0%	4.0%	3.0%	3.0%	3.3%
Eversource Energy	5.5%	6.5%	4.0%	5.3%	5.5%	6.0%	4.5%	5.3%
MGE Energy Inc.	3.0%	4.5%	6.0%	4.5%	4.5%	5.5%	4.5%	4.8%
Northwestern Corp.	3.5%	6.5%	5.5%	5.2%	3.0%	3.5%	3.0%	3.2%
Sempra Energy	5.0%	8.0%	6.0%	6.3%	10.0%	6.0%	7.5%	7.8%
WEC Energy Group	7.5%	8.5%	8.0%	8.0%	6.5%	6.5%	4.0%	5.7%
Average	4.9%	6.3%	5.6%	5.6%	5.7%	5.4%	5.1%	5.4%

Combination Utility Group	Past 10-Years Historical Growth Rates EPS	DPS	BVPS	Average
Alliant Energy Corp.	6.0%	7.0%	4.5%	5.8%
Black Hills Corp.	10.0%	3.5%	3.5%	5.7%
CMS Energy Corp.	7.5%	11.5%	5.0%	8.0%
Consolidated Edison, Inc.	2.5%	2.5%	4.0%	3.0%
Eversource Energy	5.5%	8.5%	6.5%	6.8%
MGE Energy Inc.	5.0%	3.5%	5.5%	4.7%
Northwestern Corp.	5.5%	5.5%	6.0%	5.7%
Sempra Energy	3.0%	10.0%	5.5%	6.2%
WEC Energy Group	8.0%	13.5%	7.5%	9.7%
Average	5.9%	7.3%	5.3%	6.2%

Source: Value Line Investment Survey, May 14, 2021, April 23, 2021 and March 12, 2021.
n/a = Data not published or not applicable.

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	14.30
Black Hills Corp. (BKH)	1.00	2	A	3	85	BBB+	8	Baa2	9	4.30
CMS Energy Corp. (CMS)	0.80	2	B++	4	95	A-	7	Baa2	9	18.00
Consolidated Edison, Inc. (ED)	0.75	1	A+	2	85	A-	7	Baa2	9	27.00
Eversource Energy (ES)	0.90	1	A	3	85	A-	7	Baa1	8	30.00
MGE Energy Inc. (1) (MGEE)	0.75	1	A+	2	95	AA-	4	A1	5	2.70
Northwestern Corp.	0.95	2	B++	4	85	BBB	9	Baa2	9	3.40
Sempra Energy (SRE)	0.95	2	A	3	90	BBB+	8	Baa2	9	40.00
WEC Energy Group (WEC)	0.80	1	A+	2	85	A-	7	Baa1	8	30.00
Averages	0.86	1.6	A	3	89	A-	7	Baa1	8	18.86

Source: Value Line Investment Survey, May 14, 2021, April 23, 2021 and March 12, 2021. S&P and Moody's ratings accessed on May 8, 2021.
at www.standardandpoors.com and www.moodys.com.

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

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

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

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Schedule 6
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		(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	2.1%	12.3%	11.3%	12.0%	14.3%	13.4%	14.1%
Coca-Cola Co.	KO	3.1%	9.1%	7.6%	7.0%	12.2%	10.7%	10.1%
Comcast Corp.	CMCSA	1.8%	17.8%	13.9%	11.5%	19.6%	15.7%	13.3%
Hershey Company	HSY	2.0%	8.7%	7.7%	5.5%	10.6%	9.7%	7.5%
International Flavors & Fragrances, Inc.	IFF	2.2%	7.7%	9.8%	7.5%	10.0%	12.0%	9.7%
J.B. Hunt Transport Services	JBHT	0.7%	21.5%	15.0%	8.0%	22.2%	15.7%	8.7%
McCormick & Co.	MKC	1.5%	6.0%	6.7%	5.5%	7.5%	8.2%	7.0%
McDonald's Corp.	MCD	2.3%	20.4%	8.7%	10.0%	22.7%	10.9%	12.3%
PepsiCo, Inc.	PEP	3.0%	9.2%	8.0%	6.0%	12.2%	11.0%	9.0%
Sherwin-Williams Co.	SHW	0.8%	10.5%	11.0%	10.0%	11.3%	11.8%	10.8%
United Parcel Service	UPS	2.1%	12.4%	8.7%	10.5%	14.5%	10.8%	12.6%
Average (6)		2.0%	12.3%	9.8%	8.5%	11.6%	11.8%	10.5%

Low-End and High-End Outlier Tests			
Low-End Threshold (5.25%) (7)	5.25%	5.25%	5.25%
Median Result (excluding negative values)(7)	12.2%	11.0%	10.1%
200% of Median Result (7)	24.3%	21.9%	20.2%
High-End Threshold - 200% of Median (average)	22.1%	22.1%	22.1%

(1) See page 3 of this Schedule.

(2) Consensus estimates provided by Yahoo Finance (retrieved June 1, 2021).

(3) Consensus estimates provided by Zacks (retrieved June 1, 2021).

(4) Value Line Investment Survey, Ratings and Reports; multiple report dates between March 12, 2021 and May 28, 2021.

(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 5.25% 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 Schedule 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).

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.	2.1%	6.0%	5.5%	5.8%	7.8%
Coca-Cola Co.	3.1%	n/a	2.5%	2.5%	5.6%
Comcast Corp.	1.8%	13.5%	17.0%	15.3%	17.1%
Hershey Company	2.0%	8.0%	10.0%	9.0%	11.0%
International Flavors & Fragrances, Inc.	2.2%	4.0%	7.5%	5.8%	8.0%
J.B. Hunt Transport Services	0.7%	10.0%	14.0%	12.0%	12.7%
McCormick & Co.	1.5%	10.0%	8.5%	9.3%	10.8%
McDonald's Corp.	2.3%	7.5%	6.0%	6.8%	9.0%
PepsiCo, Inc.	3.0%	5.0%	4.5%	4.8%	7.7%
Sherwin-Williams Co.	0.8%	19.0%	18.5%	18.8%	19.6%
United Parcel Service	2.1%	9.0%	9.5%	9.3%	11.3%
Average (6)	2.0%	9.2%	9.4%	9.0%	10.1%

Low-End and High-End Outlier Tests	
Low-End Threshold (5.25%) (6)	5.25%
Median Result (excluding negative values)(6)	10.8%
200% of Median Result (6)	21.6%
High-End Threshold - 200% of Median (average)	21.6%

(1) See page 3 of this Schedule.

(2) Value Line Investment Survey, Ratings and Reports; multiple report dates between March 12, 2021 and May 28, 2021.

(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 5.25% 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 Schedule 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.,

DCF Method
Non-Regulated Group
Dividend Yield Calculations

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Non-Regulated Group	Ticker	Dividend Next 12-Mon. (1)	40-Day Stock Price Average	Dividend Yield
Air Products and Chemicals, Inc.	APD	6.00	291.81	2.1%
Coca-Cola Co.	KO	1.68	54.12	3.1%
Comcast Corp.	CMCSA	1.00	55.47	1.8%
Hershey Company	HSY	3.30	165.91	2.0%
International Flavors & Fragrance	IFF	3.16	141.92	2.2%
J.B. Hunt Transport Services	JBHT	1.22	171.58	0.7%
McCormick & Co.	MKC	1.37	89.76	1.5%
McDonald's Corp.	MCD	5.28	232.61	2.3%
PepsiCo, Inc.	PEP	4.30	145.00	3.0%
Sherwin-Williams Co.	SHW	2.30	273.89	0.8%
United Parcel Service	UPS	4.08	197.78	2.1%
Average				2.0%

(1) Source: Value Line Investment Survey, Summary and Index, June 4, 2021.

DCF Method
Non-Regulated Group
Average Closing Stock Price Through May 28, 2021

Averages	Air Products	Coca-Cola	Comcast Corp.	Hershey Co.	IFF, Inc.	J.B. Hunt	McCormick	McDonald's	PepsiCo	Sherwin Williams	UPS
10-Day Average	$ 299.08	$ 54.78	$ 55.77	$ 173.40	$ 141.63	$ 171.33	$ 89.79	$ 232.23	$ 147.03	$ 283.99	$ 213.66
20-Day Average	$ 296.81	$ 54.60	$ 56.50	$ 171.14	$ 142.00	$ 173.67	$ 89.92	$ 232.84	$ 146.23	$ 284.17	$ 214.15
40-Day Average	$ 291.81	$ 54.12	$ 55.47	$ 165.91	$ 141.92	$ 171.58	$ 89.76	$ 232.61	$ 145.00	$ 273.89	$ 197.78

Date	Air Products	Coca-Cola	Comcast Corp.	Hershey Co.	IFF, Inc.	J.B. Hunt	McCormick	McDonald's	PepsiCo	Sherwin Williams	UPS
5/28/2021	299.66	55.29	57.34	173.05	141.67	171.54	89.06	233.89	147.94	283.53	214.60
5/27/2021	298.28	55.49	57.34	173.45	142.84	172.26	88.70	234.86	146.51	285.77	212.80
5/26/2021	297.40	55.03	56.85	174.30	141.70	169.44	89.66	232.35	148.30	285.64	213.81
5/25/2021	301.05	54.79	55.70	174.72	141.62	167.67	90.30	232.14	148.30	285.59	211.49
5/24/2021	299.57	54.80	55.66	174.10	141.86	171.09	90.60	231.91	147.85	284.97	213.43
5/21/2021	298.19	54.62	55.08	173.76	140.54	170.69	90.60	231.24	147.10	283.13	211.87
5/20/2021	297.06	54.65	55.04	173.09	139.38	169.82	90.87	232.18	147.23	282.59	213.94
5/19/2021	298.27	54.17	54.24	172.28	141.92	171.28	89.81	230.15	145.43	281.27	214.35
5/18/2021	299.63	54.34	54.95	172.79	142.02	173.43	89.19	231.93	145.51	283.17	213.99
5/17/2021	301.65	54.64	55.46	172.49	142.75	176.07	89.14	231.68	146.17	284.23	216.29
5/14/2021	301.05	54.73	58.68	171.11	141.21	176.49	89.56	231.72	146.59	286.09	216.38
5/13/2021	299.78	54.51	57.39	171.60	138.65	175.99	90.26	229.77	146.37	285.81	215.67
5/12/2021	293.16	54.04	56.62	167.60	135.29	173.18	88.94	227.94	144.23	279.84	210.70
5/11/2021	300.74	54.32	57.50	168.92	138.68	176.44	89.72	233.86	145.65	285.84	214.33
5/10/2021	293.53	54.91	57.51	170.31	142.71	180.47	90.68	237.11	146.72	288.65	216.13
5/7/2021	290.55	54.51	58.11	168.49	146.45	178.27	89.33	234.84	145.56	287.23	217.50
5/6/2021	293.65	54.54	56.98	168.63	146.51	174.90	90.23	234.86	145.56	285.39	214.78
5/5/2021	292.59	54.00	56.41	168.36	144.67	173.65	90.46	235.04	143.89	283.28	214.52
5/4/2021	290.27	54.14	56.63	166.91	145.50	176.57	90.37	233.86	143.96	283.50	214.31
5/3/2021	290.19	54.48	56.57	166.74	144.12	174.10	90.90	235.56	145.79	277.91	212.20
4/30/2021	288.48	53.98	56.15	164.30	142.17	170.71	90.36	236.08	144.16	273.87	203.86
4/29/2021	292.30	54.26	56.40	164.22	144.13	172.02	90.60	235.21	143.94	273.44	203.72
4/28/2021	289.59	53.59	54.10	158.86	143.78	168.92	89.32	232.41	141.83	268.96	198.37
4/27/2021	289.79	53.58	54.30	158.71	142.59	169.64	89.87	234.98	142.89	269.49	194.13
4/26/2021	290.18	53.66	54.32	159.03	144.50	167.76	90.35	232.31	143.36	269.54	175.81
4/23/2021	290.30	54.47	54.39	161.43	144.54	169.20	91.47	234.58	145.83	273.92	178.96
4/22/2021	284.74	54.44	54.40	162.24	142.49	169.59	91.42	232.96	146.07	269.73	177.51
4/21/2021	288.63	54.61	54.66	162.94	143.86	166.78	91.92	232.26	146.98	270.96	178.57
4/20/2021	284.54	54.17	54.16	162.19	141.82	168.37	90.62	233.01	145.71	267.24	179.69
4/19/2021	284.40	54.00	54.14	160.98	142.92	166.93	88.85	231.81	144.75	265.60	178.06
4/16/2021	287.48	53.68	55.11	160.99	142.86	172.16	88.79	233.08	144.16	266.92	179.71
4/15/2021	287.15	53.33	54.14	160.90	141.89	169.77	88.48	231.28	142.31	257.14	179.64
4/14/2021	282.88	53.08	53.30	158.19	140.95	169.18	87.91	230.31	142.11	255.05	176.21
4/13/2021	285.11	53.09	53.88	158.82	140.79	170.41	88.02	231.32	143.05	257.41	179.42
4/12/2021	282.88	53.35	53.32	159.60	140.49	171.50	88.23	230.96	143.02	257.60	178.58
4/9/2021	284.36	53.18	53.57	159.50	140.28	169.51	88.11	231.48	142.57	255.29	175.94
4/8/2021	283.11	53.12	54.33	160.11	138.38	167.61	89.64	230.25	142.54	253.48	173.02
4/7/2021	282.49	53.28	54.60	160.57	138.50	169.31	89.16	232.61	143.41	251.70	171.95
4/6/2021	288.02	53.19	54.84	160.76	140.93	169.30	89.73	231.91	143.67	258.95	172.97
4/5/2021	289.51	52.81	54.80	159.35	139.00	171.07	89.08	228.85	143.16	255.90	171.95
40-Day Average	$ 291.81	$ 54.12	$ 55.47	$ 165.91	$ 141.92	$ 171.58	$ 89.76	$ 232.61	$ 145.00	$ 273.89	$ 197.78

Source: finance.yahoo.com (accessed May 31, 2021).

DCF Method
Non-Regulated Group
Investment Risk Indicators

Vincent V. Rea

	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	95	36.0%	A	6	A2	6	$	63.4
Coca-Cola Co.	0.90	1	A++	1	100	68.0%	A+	5	A1	5	$	227.0
Comcast Corp.	0.80	1	A+	2	100	54.0%	A-	7	A3	7	$	249.0
Hershey Company	0.85	1	A+	2	95	62.0%	A	6	A1	5	$	31.4
International Flavors & Fragrances, Inc.	0.95	1	A+	2	80	52.0%	BBB	9	Baa3	10	$	35.5
J.B. Hunt Transport Services	0.95	1	A+	2	90	32.0%	BBB+	8	Baa1	8	$	19.1
McCormick & Co.	0.80	1	A+	2	95	49.0%	BBB	9	Baa2	9	$	25.1
McDonald's Corp.	0.95	1	A++	1	95	100.0%	BBB+	8	Baa1	8	$	177.0
PepsiCo, Inc.	0.80	1	A++	1	100	75.0%	A+	5	A1	5	$	199.0
Sherwin-Williams Co.	0.95	1	A+	2	90	70.0%	BBB-	10	Baa2	9	$	61.7
United Parcel Service	0.80	1	A+	2	90	75.0%	A-	7	A2	6	$	187.0
Averages	0.88	1	A+	2	94	61.2%	A-	7	A3	7	$	115.9

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 March 12, 2021 and May 28, 2021.

CAPM Method
Gas LDC Group - Cost of Equity Estimates

Prospective Market Return

DCF Approach - S&P 500 Index	
Dividend Yield (1)	1.53%
Growth Rate (2)	12.66%
DCF Market Return - S&P 500 (3)	14.19%
DCF Approach - Value Line 1,700 Stock Universe	
Dividend Yield (4)	1.82%
Growth Rate (5)	6.38%
DCF Market Return - Value Line 1,700 Stock Universe (6)	8.20%
Prospective Market Return (Average) (7)	11.20%

Prospective Risk-Free Rate of Return

Blue Chip Financial Forecasts - 30-Year U.S. Treasury Bond Yield Forecast (2022-2026 average) (8)	3.24%
Prospective Market Risk Premium (Average) (9)	7.96%

Historical Market Risk Premium (SBBI Yearbook)

SBBI Yearbook Annual Total Returns (1926-2020) (10)	12.20%
SBBI Yearbook LT Gov't Bond Annual Income Return (1926-2020) (11)	4.90%
Historical Average Market Risk Premium (1926-2020) (12)	7.30%

Currently Implied Market Risk Premium (Supporting Information Only)

SBBI Yearbook LT Gov't Bond Annual Income Return (1926-2020) (11)	4.90%
Recent Average 30-Year U.S. Treasury Bond Yield (13)	2.32%
Historical Gov't Bond Income Return vs. Recent 30-Year Treasury Bond Yield (14)	2.58%
Implied Increase in Market Risk Premium Based on the Finance Literature (15)	1.29%
Currently Implied Market Risk Premium (Supporting Information Only) (16)	8.59%
Indicated Market Risk Premium (17)	7.63%

CAPM Method
Gas LDC Group - Cost of Equity Estimates

Indicated Market Risk Premium (17)	7.63%
Gas LDC Group Relevered Beta (18)	0.93
Gas LDC Group Risk Premium (19)	7.09%
Prospective Risk-Free Rate of Return (Average) (8)	3.24%
Unadjusted CAPM Result (20)	**10.33%**
Size Premium Adjustment (21)	0.75%
Implied Cost of Equity (CAPM with Size Adjustment) (22)	**11.08%**

Empirical CAPM Model (ECAPM)

Prospective Risk-Free Rate of Return (Average) (8)	3.24%
25% Weighting of Market Risk Premium (23)	1.91%
75% Weighting of Beta x Market Risk Premium (24)	5.32%
Implied Cost of Equity (ECAPM Model) (25)	**10.47%**

Footnotes:

(1) D/P = [$14.68 (cash dividends for Q1, 2021) x 4 (quarters) x (1+(.5) growth rate)]/[$4,084.34) (40-day average closing price through May 10, 2021. Source: www.standardandpoors.com and www.finance.yahoo.com, respectively.

(2) Bloomberg Finance L.P. (accessed June 7, 2021). Average long-term consensus earnings growth estimates for the S&P 500 Index (12.66%).

(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 (February 19, 2021 - May 14, 2021).

(5) See page 6 of this Schedule. The Value Line average median price appreciation potential 3 to 5 years hence is 28.08%. The annual expected price appreciation growth rate based upon the four-year average horizon is 6.38% [(1+.2808)^.25) - 1]. Source: Value Line Summary & Index; average of 13 consecutive weekly reports (February 19, 2021 - May 14, 2021).

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

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

Footnotes (continued)

(8) Interest rate forecasts from Blue Chip Financial Forecasts, Vol. 40, No. 6 (June 1, 2021).

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

(10) SBBI Yearbook (2021, Duff & Phelps), Arithmetic average of total returns for large company (S&P 500) stocks (1926-2020).

(11) SBBI Yearbook (2021, Duff & Phelps), Arithmetic average of the income return for long-term government bonds (1926-2020).

(12) (10) - (11).

(13) Average 30-Year U.S. Treasury Bond yield for the period between May 6, 2021 and June 3, 2021 (20 trading days).

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

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

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

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

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

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

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

(21) Duff & Phelps, Cost of Capital Navigator. Size premium (return in excess of CAPM) for Decile 4 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)	7.63%
Combination Utility Group Relevered Beta (27)	0.890
Combination Utility Group Risk Premium (28)	6.79%
Prospective Risk-Free Rate of Return (Average) (29)	3.24%
Unadjusted CAPM Result (30)	**10.03%**
Size Premium Adjustment (31)	0.49%
Implied Cost of Equity (CAPM with Size Adjustment) (32)	**10.52%**

Empirical CAPM Model (ECAPM)

Prospective Risk-Free Rate of Return (Average) (29)	3.24%
25% Weighting of Market Risk Premium (33)	1.91%
75% Weighting of Beta x Market Risk Premium (34)	5.09%
Implied Cost of Equity (ECAPM Model) (35)	**10.24%**

Footnotes:

(26) See pages 1-3 of this Schedule and footnotes 1-17 therein.
(27) See CAPM section of Mr. Rea's testimony. Beta adjusted for financial leverage differential using the Hamada equation.
(28) (26) x (27) above.
(29) See pages 1-3 of this Schedule and footnote 8 therein.
(30) (28) + (29) above.
(31) Duff & Phelps, Cost of Capital Navigator. 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)	7.63%
Non-Regulated Group Relevered Beta (37)	0.910
Non-Regulated Group Risk Premium (38)	6.94%
Prospective Risk-Free Rate of Return (Average) (39)	3.24%
Unadjusted CAPM Result (40)	**10.18%**
Size Premium Adjustment (41)	-0.22%
Implied Cost of Equity (CAPM with Size Adjustment) (42)	**9.96%**

Empirical CAPM Model (ECAPM)

Prospective Risk-Free Rate of Return (Average) (39)	3.24%
25% Weighting of Market Risk Premium (43)	1.91%
75% Weighting of Beta x Market Risk Premium (44)	5.21%
Implied Cost of Equity (ECAPM Model) (45)	**10.36%**

Footnotes:

(36) See pages 1-3 of this Schedule and footnotes 1-17 therein.
(37) See CAPM section of Mr. Rea's testimony. Beta adjusted for financial leverage differential using the Hamada equation.
(38) (36) x (37) above.
(39) See pages 1-3 of this Schedule and footnote 8 therein.
(40) (38) + (39) above.
(41) Duff & Phelps, Cost of Capital Navigator. 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)
5/14/21	1.70%	25.00%
5/7/21	1.80%	25.00%
4/30/21	1.80%	30.00%
4/23/21	1.80%	25.00%
4/16/21	1.80%	25.00%
4/9/21	1.80%	30.00%
4/2/21	1.80%	30.00%
3/26/21	1.80%	25.00%
3/19/21	1.80%	30.00%
3/12/21	1.90%	30.00%
3/5/21	1.90%	30.00%
2/26/21	1.90%	30.00%
2/19/21	1.90%	30.00%
13-Week Average	1.82%	28.08%

Annual Appreciation Return (3-year realization)	8.60%
Annual Appreciation Return (4-year realization)	6.38%
Annual Appreciation Return (5-year realization)	5.07%

Source: Value Line Investment Survey, Summary & Index. Averages derived from 13 consecutive weekly reports, from February 19, 2021 to May 14, 2021.

(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)	4.06%
Yield/Credit Spread Adjustment Between "Aaa" Rated Corporate Bond Yields and "A" Rated Public Utility Bond Yields (2)	0.52%
Prospective "A" Rated Public Utility Bond Yield (3)	4.58%
Yield/Credit Spread Adjustment Between "A" Rated Public Utility Bonds and A-/A3 Average Rating of the Gas LDC Group (4)	0.11%
Prospective Bond Yield for Gas LDC Group (5)	4.69%
Equity Risk Premium	
- Total Market Index Approach (6)	5.97%
- Public Utility Index Approach (7)	5.38%
Indicated Equity Risk Premium (8)	5.68%
Indicated Cost of Equity - Gas LDC Group (9)	10.36%

(1) See page 2 of this Schedule. Average prospective "Aaa" bond yield for the 2022-2026 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-"/"A3" rating of the Gas LDC Group, as reflected on page 3 of this Schedule. The 0.11% adjustment was derived via simple linear interpolation between the yield spread differential for the "Baa" rated and "A" rated public utility bonds, respectively ((0.84%-0.52%)/3) = 0.1067%).

(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, 2021 - Q3, 2022)

Quarter/Year	"Aaa" Rated Corp. Bonds	"Baa" Rated Corp. Bonds
Q2, 2021 (1)	3.00%	3.80%
Q3, 2021 (1)	3.10%	4.00%
Q4, 2021 (1)	3.30%	4.10%
Q1, 2022 (1)	3.30%	4.20%
Q2, 2022 (1)	3.30%	4.20%
Q3, 2022 (1)	3.40%	4.30%
Six-Quarter Avg.	3.23%	4.10%

Three and Five Year Forecasts

Year	"Aaa" Rated Corp. Bonds	"Baa" Rated Corp. Bonds
2022 (1)	3.30%	4.30%
2023 (1)	3.70%	4.70%
2024 (1)	4.10%	5.10%
2025 (1)	4.50%	5.40%
2026 (1)	4.70%	5.60%
2022-2024 Avg.	3.70%	4.70%
2022-2026 Avg.	4.06%	5.02%

(1) Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021 (long-range consensus forecast).

Risk Premium Method (RPM)
Historical Corporate Bond Yield Spread Differentials (May 2020 - April 2021)
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.
May-20	2.49%	3.12%	3.95%	2.89%	3.14%	3.63%	0.40%	0.65%	1.14%
Jun-20	2.44%	3.02%	3.64%	2.80%	3.07%	3.44%	0.36%	0.63%	1.00%
Jul-20	2.14%	2.69%	3.31%	2.46%	2.74%	3.09%	0.32%	0.60%	0.95%
Aug-20	2.25%	2.68%	3.27%	2.49%	2.73%	3.06%	0.24%	0.48%	0.81%
Sep-20	2.31%	2.79%	3.36%	2.62%	2.84%	3.17%	0.31%	0.53%	0.86%
Oct-20	2.35%	2.88%	3.44%	2.72%	2.95%	3.27%	0.37%	0.60%	0.92%
Nov-20	2.30%	2.79%	3.30%	2.63%	2.85%	3.17%	0.33%	0.55%	0.87%
Dec-20	2.26%	2.72%	3.16%	2.57%	2.77%	3.05%	0.31%	0.51%	0.79%
Jan-21	2.45%	2.84%	3.24%	2.73%	2.91%	3.18%	0.28%	0.46%	0.73%
Feb-21	2.70%	3.03%	3.42%	2.93%	3.09%	3.37%	0.23%	0.39%	0.67%
Mar-21	3.04%	3.37%	3.74%	3.27%	3.44%	3.72%	0.23%	0.40%	0.68%
Apr-21	2.90%	3.24%	3.60%	3.13%	3.30%	3.57%	0.23%	0.40%	0.67%
12-Month Average	2.47%	2.93%	3.45%	2.77%	2.99%	3.31%	0.30%	0.52%	0.84%

Source: Mergent Bond Record, May 2021, Volume 87, No. 5. Moody's Long-Term Corporate Bond Yield averages reference corporate and utility bonds with maturities as close as possible to 30 years.

Historical Equity Risk Premium

Annual Total Returns for S&P 500 Composite Index, Arithmetic Average (1926-2020) (1)	12.20%
Annual Total Returns for Long-Term Corporate Bonds, Arithmetic Average (1926-2020) (2)	6.50%
Historical Equity Risk Premium - Total Market (3)	5.70%

Prospective Equity Risk Premium

Prospective Equity Market Annual Return (Next 3-5 years) (4)	11.20%
Prospective "Aaa" Rated Corporate Bond Yield (5)	4.06%
Prospective Equity Risk Premium - Total Market (6)	7.14%

Indicated Equity Risk Premium - Total Market (7)	6.42%
Relevered Beta - Gas LDC Group (8)	0.930
Equity Risk Premium (with Relevered Beta) (9)	5.97%

(1) Source: 2021 SBBI Yearbook (Duff & Phelps); arithmetic average of total returns for large company stocks (S&P 500 Index) (1926-2020).
(2) Source: 2021 SBBI Yearbook (Duff & Phelps), arithmetic average of total returns for long-term high-grade corporate bonds (1926-2020).
(3) (1) - (2) above.
(4) From page 1 of Schedule 7.
(5) From pages 1 and 2 of this Schedule.
(6) (4) - (5) above.
(7) Average of (3) and (6) above.
(8) See CAPM section of Mr. Rea's testimony.
(9) (7) x (8) above.

Risk Premium Method (RPM)
Equity Risk Premium - Public Utility Index Approach
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 (1926-2020) (1)	10.83%
Annual Yield on Moody's "A" Rated Public Utility Bonds, Arithmetic Average (1926-2020) (2)	6.28%
Equity Risk Premium (Historical) - Public Utility Index Approach (3)	4.55%

Currently Implied Equity Risk Premium - Public Utility Index Approach

DCF Approach - S&P 500 Utilities Index	
Dividend Yield (4)	3.20%
Growth Rate (5)	6.38%
DCF Market Return - S&P Utilities Index (6)	9.58%
Most Recent 2-Month Average of Moody's "A" Rated Public Utility Bond Yields (7)	3.37%
Equity Risk Premium (Currently Implied) - S&P 500 Utilities (8)	6.21%
Indicated Equity Risk Premium - Public Utility Index Approach (9)	5.38%

(1) Source: S&P 500 Utilities Index historical data (currently comprised of 28 utility companies). See page 6 of this Schedule.
(2) Source: Moody's Public Utility Manual and Mergent Bond Record. Historical yields on "A" rated utility bonds, representing the midpoint of Moody's reported utility credit ratings (Aa/A/Baa). See page 6 of this Schedule.
(3) (1) - (2) above.
(4) Source: www.spindices.com. Recently reported dividend yield for S&P 500 Utilities Index companies (May 28, 2021).
(5) Source: Bloomberg Finance LP (accessed June 7, 2021). Average long-term consensus earnings growth estimate for the S&P 500 Utilities Index.
(6) (4) + (5) above.
(7) See page 3 of this Schedule.
(8) (6) - (7) above. Subject to rounding differences.
(9) Average of (3) and (8) above.

Year	S&P 500 Utilities Index	Moody's "A" Rated Utility Bond Yields	Moody's "Baa" Rated Utility Bond Yields
1926	5.38%	5.17%	5.67%
1927	28.99%	5.02%	5.46%
1928	56.94%	4.95%	5.33%
1929	11.98%	5.22%	5.76%
1930	-20.89%	5.06%	5.88%
1931	-34.45%	5.12%	6.90%
1932	-0.85%	6.46%	8.78%
1933	-20.30%	6.32%	9.38%
1934	-18.08%	5.55%	7.49%
1935	74.61%	4.61%	5.56%
1936	20.99%	4.08%	4.67%
1937	-35.64%	3.98%	5.09%
1938	21.92%	3.90%	5.26%
1939	11.71%	3.52%	4.50%
1940	-16.30%	3.24%	4.05%
1941	-30.50%	3.07%	3.84%
1942	14.25%	3.09%	3.73%
1943	47.07%	2.99%	3.58%
1944	18.23%	2.97%	3.52%
1945	53.66%	2.87%	3.39%
1946	2.66%	2.71%	3.03%
1947	-11.85%	2.78%	3.08%
1948	4.67%	3.02%	3.36%
1949	30.99%	2.90%	3.28%
1950	3.26%	2.79%	3.18%
1951	18.02%	3.11%	3.39%
1952	18.55%	3.24%	3.53%
1953	7.45%	3.49%	3.73%
1954	24.18%	3.16%	3.51%
1955	11.07%	3.22%	3.43%
1956	5.05%	3.56%	3.78%
1957	6.33%	4.24%	4.46%
1958	39.86%	4.20%	4.43%
1959	7.46%	4.78%	4.96%
1960	19.85%	4.78%	4.97%
1961	29.04%	4.62%	4.83%
1962	-2.61%	4.54%	4.75%
1963	12.26%	4.39%	4.67%
1964	15.69%	4.52%	4.74%
1965	4.67%	4.58%	4.78%
1966	-4.60%	5.39%	5.60%
1967	-0.59%	5.87%	6.15%
1968	5.45%	6.51%	6.87%
1969	-11.28%	7.54%	7.93%
1970	15.67%	8.69%	9.18%
1971	2.22%	8.16%	8.63%
1972	7.57%	7.72%	8.17%
1973	-17.59%	7.84%	8.17%
1974	-21.13%	9.50%	9.84%
1975	43.23%	10.09%	10.96%
1976	30.48%	9.29%	9.82%
1977	8.37%	8.61%	9.06%
1978	-3.53%	9.29%	9.62%
1979	13.27%	10.49%	10.96%
1980	14.27%	13.34%	13.95%
1981	11.19%	15.95%	16.60%
1982	24.90%	15.86%	16.45%
1983	19.47%	13.66%	14.20%
1984	24.47%	14.03%	14.53%
1985	31.64%	12.47%	12.96%
1986	28.08%	9.58%	10.00%
1987	-2.51%	10.10%	10.53%
1988	17.75%	10.49%	11.00%
1989	45.82%	9.77%	9.97%
1990	-2.83%	9.86%	10.06%
1991	13.98%	9.36%	9.55%
1992	7.64%	8.69%	8.86%
1993	14.38%	7.59%	7.91%
1994	-7.88%	8.31%	8.63%
1995	40.86%	7.89%	8.29%
1996	2.90%	7.75%	8.17%
1997	23.68%	7.60%	7.95%
1998	14.39%	7.04%	7.26%
1999	-8.67%	7.62%	7.88%
2000	58.55%	8.24%	8.36%
2001	-30.05%	7.76%	8.03%
2002	-29.99%	7.37%	8.02%
2003	26.26%	6.58%	6.84%
2004	24.28%	6.16%	6.40%
2005	16.84%	5.65%	5.92%
2006	20.99%	6.07%	6.32%
2007	19.38%	6.07%	6.33%
2008	-28.98%	6.52%	7.23%
2009	11.91%	6.05%	7.06%
2010	5.46%	5.45%	5.95%
2011	19.91%	5.04%	5.57%
2012	1.29%	4.13%	4.86%
2013	13.21%	4.48%	4.98%
2014	28.98%	4.28%	4.80%
2015	-4.85%	4.12%	5.03%
2016	16.29%	3.93%	4.68%
2017	12.11%	4.00%	4.38%
2018	4.11%	4.25%	4.67%
2019	26.35%	3.77%	4.19%
2020	0.48%	3.02%	3.39%
Average	10.83%	6.28%	6.81%

Prospective "Aaa" Rated Corporate Bond Yield (1)	4.06%
Yield/Credit Spread Adjustment Between "Aaa" Rated Corporate Bond Yields and "A" Rated Public Utility Bond Yields (2)	0.52%
Prospective "A" Rated Public Utility Bond Yield (3)	4.58%
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)	4.74%
Equity Risk Premium	
- Total Market Index Approach (6)	5.71%
- Public Utility Index Approach (7)	5.38%
Indicated Equity Risk Premium (8)	5.55%
Indicated Cost of Equity - Combination Utility Group (9)	10.29%

(1) See pages 2, 11 and 12 of this Schedule. Average prospective Aaa bond yield for the 2022-2026 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 ((0.84% -0.52%)/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.

Historical Equity Risk Premium

Annual Total Returns for S&P 500 Index, Arithmetic Average (1926-2020) (1)	12.20%
Annual Total Returns for Long-Term Corporate Bonds, Arithmetic Average (1926-2020) (2)	6.50%
Historical Equity Risk Premium - Total Market (3)	5.70%

Prospective Equity Risk Premium

Prospective Annual Market Return (Next 3-5 years) (4)	11.20%
Prospective Aaa Rated Corporate Bond Yield (5)	4.06%
Prospective Equity Risk Premium - Total Market (6)	7.14%

Indicated Equity Risk Premium - Total Market (7)	6.42%
Relevered Beta - Combination Utility Group (8)	0.890
Equity Risk Premium (with Relevered Beta) (9)	5.71%

(1) Source: 2021 SBBI Yearbook (Duff & Phelps); arithmetic average of total returns for large company stocks (S&P 500 Index) (1926-2020).
(2) Source: 2021 SBBI Yearbook (Duff & Phelps); arithmetic average of total returns for long-term high-grade corporate bonds (1926-2020).
(3) (1) - (2) above.
(4) From page 1 of Schedule x.
(5) From pages 1 and 2 of this Schedule.
(6) (4) - (5) above.
(7) Average of (3) and (6) above.
(8) See CAPM section of Mr. Rea's testimony.
(9) (7) x (8) above.

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

Prospective "Aaa" Rated Corporate Bond Yield (1)	4.06%
Yield/Credit Spread Adjustment Between "Aaa" Rated Corporate Bond Yield and Average "A- /A3" Rated Corp. Bond Yield of Non-Regulated Group (2)	0.64%
Prospective Bond Yield for Non-Regulated Group (3)	4.70%
Equity Risk Premium - Total Market Index Approach (4)	5.84%
Indicated Equity Risk Premium	5.84%
Indicated Cost of Equity - Non-Regulated Group (5)	10.54%

(1) See pages 2, 11 and 12 of this Schedule. Average prospective Aaa bond yield for the 2022-2026 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 (May 2021). Yield differential between "Aaa" corporate bonds and "A3" rated corporate bonds.

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

(4) See page 10 of this Schedule.

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

Historical Equity Risk Premium

Annual Total Returns for S&P 500 Index, Arithmetic Average (1926-2020) (1)	12.20%
Annual Total Returns for Long-Term Corporate Bonds, Arithmetic Average (1926-2020) (2)	6.50%
Historical Equity Risk Premium - Total Market (3)	5.70%

Prospective Equity Risk Premium

Prospective Annual Market Return (Next 3-5 years) (4)	11.20%
Prospective Aaa Rated Corporate Bond Yield (5)	4.06%
Prospective Equity Risk Premium - Total Market (6)	7.14%

Indicated Equity Risk Premium - Total Market (7)	6.42%
Relevered Beta - Non-Regulated Group (8)	0.910
Equity Risk Premium (with Relevered Beta) (9)	5.84%

(1) Source: 2021 SBBI Yearbook (Duff & Phelps); arithmetic average of total returns for large company stocks (S&P 500 Index) (1926-2020).
(2) Source: 2021 SBBI Yearbook (Duff & Phelps), arithmetic average of total returns for long-term high-grade corporate bonds (1926-2020).
(3) (1) - (2) above.
(4) From page 1 of Schedule 7.
(5) From pages 1 and 2 of this Schedule.
(6) (4) - (5) above.
(7) Average of (3) and (6) above.
(8) See CAPM section of Mr. Rea's testimony.
(9) (7) x (8) above.

Capital Structure Ratios - Book vs. Market Capitalization Ratios for Leverage Calculations
Gas LDC Group - 12/31/2020 or Fiscal Year End

Witness: Rea
Schedule 9
Page 1 of 1

$ in thousands	[Source is 10-K] Carrying Values (Book Value) Dollars 2020	Percentage 2020	[Source is 10-K and Yahoo Finance] Market Values (Fair Value) Dollars 2020	Percentage 2020	Common Shares Outstanding	Closing Stock Price 5/28/2021
Atmos Energy Corp.						
Long-Term Debt (1)	4,531,779	39.8%	5,568,962	30.1%	@ 3/31/2021	
Preferred Stock	-	-	-	-		
Common Equity (2)	6,848,792	60.2%	12,958,256	69.9%		
Total Permanent Capitalization	$ 11,380,571	100.0%	$ 18,527,218	100.0%	130,667.1	$ 99.17
New Jersey Resources Corp.						
Long-Term Debt (1)	2,259,466	54.5%	2,395,499	36.8%	@ 3/31/2021	
Preferred Stock	-	-	-	-		
Common Equity (2)	1,889,007	45.5%	4,112,313	63.2%		
Total Permanent Capitalization	$ 4,148,473	100.0%	$ 6,507,812	100.0%	96,262.0	$ 42.72
Northwest Natural Gas Co.						
Long-Term Debt (1)	860,081	48.8%	1,040,967	39.1%	@ 3/31/2021	
Preferred Stock	-	-	-	-		
Common Equity (2)	901,635	51.2%	1,621,036	60.9%		
Total Permanent Capitalization	$ 1,761,716	100.0%	$ 2,662,003	100.0%	30,655.0	$ 52.88
ONE Gas, Inc.						
Long-Term Debt (1)	1,582,428	41.4%	1,982,428	33.4%	@ 3/31/2021	
Preferred Stock	-	-	-	-		
Common Equity (2)	2,241,088	58.6%	3,957,168	66.6%		
Total Permanent Capitalization	$ 3,823,516	100.0%	$ 5,939,596	100.0%	53,245.0	$ 74.32
South Jersey Industries, Inc.						
Long-Term Debt (1)	2,776,400	62.0%	3,009,423	50.1%	@ 3/31/2021	
Preferred Stock	-	-	-	-		
Common Equity (2)	1,699,097	38.0%	2,997,155	49.9%		
Total Permanent Capitalization	$ 4,475,497	100.0%	$ 6,006,578	100.0%	112,421.4	$ 26.66
Southwest Gas Corp.						
Long-Term Debt (1)	2,732,200	50.0%	3,101,097	44.8%	@ 3/31/2021	
Preferred Stock	-	-	-	-		
Common Equity (2)	2,735,956	50.0%	3,828,290	55.2%		
Total Permanent Capitalization	$ 5,468,156	100.0%	$ 6,929,387	100.0%	57,995.6	$ 66.01
Spire, Inc.						
Long-Term Debt (1)	2,423,700	48.6%	2,848,200	41.9%	@ 3/31/2021	
Preferred Stock	242,000	4.9%	242,000	3.6%		
Common Equity (2)	2,321,500	46.5%	3,704,822	54.5%		
Total Permanent Capitalization	$ 4,987,200	100.0%	$ 6,795,022	100.0%	51,700.0	$ 71.66
Average of Gas LDC Proxy Group						
Long-Term Debt (1)	2,452,293	49.3%	2,849,511	39.5%		
Preferred Stock	34,571	0.7%	34,571	0.5%		
Common Equity (2)	2,662,439	50.0%	4,739,863	60.0%		
Total Permanent Capitalization	$ 5,149,304	100.0%	$ 7,623,945	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 d 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 (collectively, the "Proxy Groups") were obtained from the Value Line Summary and Index, and serve as the expected dividend payment (D_1) within my DCF analysis.

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

stock price (P_0) be used when calculating the dividend yield component, since the "P" and "K" components of the model are simultaneously determined upon reaching equilibrium, and thus have a time dependency on one another. Consistent with the semi-strong version of the Efficient Market Hypothesis, use of the current stock price is appropriate, since it incorporates all relevant publicly-available information and thus captures the current forward looking growth expectations of investors.

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

Notwithstanding these compelling arguments, simply referencing the most recent day's closing stock price can present a different challenge in the form of temporary price aberrations, which may be attributable to volatile market conditions, the unanticipated release of company information, or short-term supply and demand imbalances. Therefore, with respect to the companies comprising the Proxy Groups, I have defined the

current stock price (P_0) as the average closing stock price for the most recent forty trading days, or approximately two calendar months, ending May 28, 2021.

Using this approach mitigates the effects of short-term price aberrations for the companies comprising the Proxy Groups, while still recognizing the basic tenets of the Efficient Markets Hypothesis. Next, to determine the expected dividend yield for the companies comprising the Proxy Groups, the expected dividend (D_1) was simply divided by the current stock price (P_0) as defined above. Expected dividends, recent stock prices and the resulting dividend yield for each of the companies comprising the Proxy Groups are presented in Schedule 4, Schedule 5 and Schedule 6, respectively.

2. Growth Component – General Approach

There is no question that discerning the long-term growth expectations of investors is the most difficult and controversial aspect of implementing the DCF constant-growth model, as it requires the analyst to get inside the "collective psyche" of a large universe of investors. Considering that the DCF model is technically focused on the growth of dividends into perpetuity, a reliable forecast of sequential dividend payments into the distant future would provide an appropriate indication of investors' long-term growth expectations. However, dividend forecasts for multi-decade periods are simply not available, so to implement the DCF model, the analyst must rely upon other available indicators which are likely to influence the growth expectations of investors. As such, in

the initial stages of my DCF analysis, I evaluated a variety of historical and forward-looking growth indicators, each of which could potentially influence investor expectations.

Recognizing that historical growth trends can influence the future growth expectations of investors, rate of return analysts often consider historical trends when estimating the growth component of the DCF model. In so doing, the presumption is that investors extrapolate past growth patterns in forming their future expectations. In my judgment, evaluating historical growth indicators is a reasonable first step in the DCF growth rate evaluation process, particularly for companies with a history of stable performance. Nevertheless, while historical growth trends clearly provide a valuable point of reference, the analyst must guard against placing too much emphasis upon them, as they may no longer reflect the current growth expectations of investors. Indeed, the growth expectations of investors today may be very different from average growth rates realized in the past due to structural changes within the utility industry, changes in operating costs and expected profitability, and/or changes in general economic conditions. Also, it is often argued that historical growth trends are already factored into forward looking growth projections, including analyst earnings forecasts, and that care should therefore be taken to ensure that historical data is not inadvertently double-counted.

Lastly, when evaluating historical growth trends, the analyst generally finds that the strict assumptions required under constant growth theory have not held true or been

maintained, as is often reflected in differing historical growth rates between DPS, EPS and BVPS. Thus, while the analyst implicitly accepts the strict assumptions of the constant growth model on a prospective basis, this is rarely the case in retrospect, which may call into question the usefulness of historical indicators in deriving the constant growth rate assumption. Considering these multiple shortcomings, historical growth indicators should never be relied upon exclusively and significant emphasis should be placed on forward-looking growth indicators. Therefore, consistent with accepted practices, I initially evaluated both historical and forward-looking growth indicators for several key variables, including EPS, DPS, and BVPS.

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

Notwithstanding that DCF is conceptually a dividend-based model, in practice there exists a fundamental challenge in attempting to reference dividend forecasts to estimate the growth expectations of investors. Simply stated, dividend forecasts are not widely referenced by investors, and for this reason, they are only published by a limited number of information service providers. In contrast, earnings growth forecasts are widely-available from a variety of internet-based and print media sources. As I will discuss later, earnings forecasts are widely-referenced by investors and are available to the general public from a variety of sources. It should also be noted that even Williams, who originally developed the long-form and constant growth versions of the DCF model,

found "no contradiction" between his DCF formula which emphasized dividends, and the "common precept" that earnings constitute the source of value for stocks. Indeed, over the long-run, either valuation approach would be expected to produce the same end result. Lastly, Williams also recognized the challenges associated with developing long-term dividend forecasts, when he concluded in *The Theory of Investment Value:* "How to estimate the future dividends for use in our formula is, of course, the difficulty."[1]

4. Growth Component
The Importance of Earnings Growth Forecasts

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

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

decisions, cost and profitability trends, and infrastructure investment requirements. Substantial academic research has demonstrated that the earnings forecasts of equity analysts heavily influence the long-term growth expectations, and therefore investment decisions, of equity investors. For example, In "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return," Harris concludes:

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

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

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

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

> Because of the dominance of institutional investors and their influence on individual investors, analysts' forecasts of long-run growth rates provide a sound basis for estimating required returns. Financial analysts exert a strong influence on the expectations of many investors who do not possess the resources to make their own forecasts, that is, they are the cause of "g". Published studies in the academic literature

[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.

> 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 only.[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

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

[4] Roger A. Morin, *New Regulatory Finance* (Public Utility Reports, Inc., 2006), at 298.

summarize analyst earnings forecasts into "consensus estimates" for the benefit of investors. These information service providers include Thomson Reuters, I/B/E/S, and FactSet, each of which are widely-referenced by institutional investors.

Moreover, the availability of consensus estimates to the general public through freely-accessible websites, such as Yahoo Finance and Reuters.com, further demonstrates the pervasive influence that analyst forecasts have on market expectations, including those of individual investors. Lastly, it is important to note that, to date, investors have not demanded earnings forecasts for periods extending beyond five years. If investors had expressed a desire for such information, the robust information services marketplace would have certainly delivered longer-term forecasts by now. This strongly suggests that investors are reasonably confident that the 5-year earnings forecasts they presently utilize already provides a reasonably reliable longer-term growth estimate.

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

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

Appendix B

DCF Estimates - Determination of "Outlier" Results

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

[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).

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

As further described within page 6 of Schedule 4, after applying the FERC's revised low-end outlier methodology as outlined above, I have determined that a reasonable low-end outlier threshold to apply to my preliminary DCF results is 5.25 percent. I have therefore eliminated outlier estimates falling below this minimum threshold level. Consistent with the risk-and-return investment principle, investors cannot reasonably be expected to accept equity returns below this threshold, since on a risk-adjusted basis, fixed-income securities would likely offer investors a superior investment alternative.

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

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

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

the FERC subsequently reaffirmed this decision in yet another Order[7]. 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 judgement, this approach is appropriate in view of the relatively small number of gas utility holding companies to choose from in forming a utility proxy group, which is largely attributable to recent merger and acquisition activity in the utility industry.

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

[7] *Association of Businesses Advocating Tariff Equity, et al., v. Midcontinent Independent System Operator, Inc., et al.,* 173 FERC ¶ 61,159, Opinion No. 569-B, at P 140 (November 19, 2020).
[8] *ISO New England, Inc. et al.,* 109 FERC ¶ 61,147 at P 205 (November 3, 2004).
[9] *Southern California Edison*, 131 FERC ¶ 61,020 at P 57 (April 15, 2010).

analyses can be found on pages 1 and 2 of Schedule 4, Schedule 5 and Schedule 6, respectively.

Appendix C

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

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

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

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

referencing the stock prices of comparable risk companies as direct inputs into the DCF model. DCF estimates therefore reflect the return expectations of investors based upon the level of financial risk embedded within the corresponding market value capital structure, as indicated by the current stock price. Equity investors are predominately concerned with a firm's market value capital structure, since it reflects the current value of their investment and therefore provides the basis for assessing a company's financial risk profile. To the extent that a book value based capital structure will be utilized in the rate-setting process, equity investors will expect an additional return premium to be compensated for the additional financial risk inherent within a book value capital structure. A number of academic studies have demonstrated that a strong positive correlation exists between the amount of leverage in a firm's capital structure and its cost of equity capital, which Morin discusses in *New 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. Therefore, the capital structure used to estimate the cost of equity is an integral inseparable part of that estimate.[1]

[1] Roger A. Morin, *New Regulatory Finance* (Public Utility Reports, Inc., 2006), at 463-464.

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

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

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

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

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

Table C-1

Required Financial Leverage Adjustments	
Gas LDC Group	0.23%
Combination Utility Group	0.23%[3]
Non-Regulated Group	0.23%[4]

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

[3] For both the Combination Utility Group and the Non-Regulated Group, the magnitude of the difference between the average market value and book value capital structures is significantly greater than the difference between the market value and book value capital structures of the Gas LDC Group. As such, under the M&M equation, the required leverage 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 leverage adjustment relevant to a typical gas utility capital structure, I have applied the same adjustment that I applied to the Gas LDC Group (0.23%) to both the Combination Utility Group and the Non-Regulated Group. Utilizing this approach ensures a more conservative analysis.

[4] See footnote 3 above.

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)

10.00% = 7.843% + (7.843% - 3.39%) (1-0.27)(39.5/60.0) + (7.843% - 5.72%) (0.5/60.0)

10.23% = 7.843% + (7.843% - 3.39%) (1-0.27)(42.32/57.68)

Leverage adjustment = 10.23% - 10.00% = 0.23%

Appendix D

Flotation Costs

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

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

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

2. Flotation Costs – Multiple of Cost of Equity Approach

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

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

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

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

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

Furthermore, during the years 2017-2020, NiSource issued additional shares of common stock under the company's "at-the market" (or "ATM") equity issuance program, which resulted in $972.8 million of cumulative net proceeds during the 2017-2020 period. Recent public disclosures made by NiSource have indicated that the company intends to continue issuing approximately $200.0 million to $300.0 million of new common equity shares annually (through 2022) under NiSource's ATM equity issuance program. To date, the distribution fees payable to the equity distribution agents facilitating these "at-the-market" transactions have approximated 1.00 percent of the notional value of these transactions. Additional supporting details on NiSource's ATM and block equity transactions can be found within NiSource's SEC filings, including its 10-K, 10-Q and Prospective Supplement filings.

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

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

Considering that the contributed capital component of NIPSCO's common equity account has recently been in the range of 34 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 34 percent weighting, since the remaining 66 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 34 percent weighting to the 2.00 percent composite flotation cost value previously discussed, which yields a flotation cost factor of 0.680 percent (2.00% x 34% = 0.680%). To properly apply this level of flotation costs to NIPSCO's cost of equity under the "multiple of cost of equity" approach, the 0.680 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+.00680=1.00680%). Therefore, based upon the above approach, I have applied a 1.00680 percent multiple to the *pre-adjusted* indicated cost of equity for each of the proxy groups.