

BEFORE THE
NORTH CAROLINA UTILITIES COMMISSION
PUBLIC SERVICE COMPANY OF NORTH CAROLINA, INC.

DOCKET NO. G-5, SUB 632
DOCKET NO. G-5, SUB 634

REBUTTAL TESTIMONY
OF
JENNIFER E. NELSON

OCTOBER 7, 2021

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1 **I. WITNESS IDENTIFICATION, PURPOSE, AND SUMMARY**

2 Q. PLEASE STATE YOUR NAME, AFFILIATION, AND BUSINESS
3 ADDRESS.

4 A. My name is Jennifer E. Nelson. I am an Assistant Vice President at Concentric
5 Energy Advisors. My business address is 293 Boston Post Road West, Suite
6 500, Marlborough, Massachusetts.

7 Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

8 A. I am submitting this rebuttal testimony (“Rebuttal Testimony”) before the North
9 Carolina Utilities Commission (“Commission”) on behalf of Public Service
10 Company of North Carolina, Inc., d/b/a Dominion Energy North Carolina
11 (“PSNC” or the “Company”).

12 Q. ARE YOU THE SAME JENNIFER E. NELSON WHO FILED DIRECT
13 TESTIMONY IN THIS PROCEEDING?

14 A. Yes, I am.

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

16 A. The purpose of my Rebuttal Testimony is to respond to the testimonies of John
17 R. Hinton, on behalf of the Public Staff – North Carolina Utilities Commission
18 (“Public Staff”) and Kevin W. O’Donnell, on behalf of the Carolina Utility
19 Customers Association (“CUCA”, collectively, the “Opposing Witnesses”), as
20 their testimonies relate to the appropriate Return on Equity (“ROE”) and capital
21 structure for PSNC. I also respond to Brian C. Collins, who testifies on behalf
22 of Evergreen Packaging, LLC (“Evergreen”) and expresses a brief opinion

1 regarding the Company's requested ROE. Mr. Collins does not provide an
2 independent analysis regarding the Company's Cost of Equity; instead, he
3 recommends the Commission authorize an ROE no higher than the average
4 authorized ROE for natural gas utilities over the twelve months ended June 30,
5 2021 (*i.e.*, 9.55 percent).¹ Because his recommendation is not based on an
6 independent analysis relative to a group of risk-comparable proxy companies,
7 the majority of my testimony responds to Mr. Hinton and Mr. O'Donnell.
8 Please note that my silence in response on a particular issue should not be
9 regarded as agreement with that issue.

10 Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS REGARDING THE
11 APPROPRIATE ROE AND CAPITAL STRUCTURE FOR PSNC.

12 A. In my direct testimony, I concluded that an ROE in the range of 9.60 percent to
13 10.75 percent represents the range of equity investors' required return for
14 investment in a natural gas utility such as PSNC. Within that range, I
15 recommended the Commission authorize an ROE of 10.25 percent.² As to the
16 capital structure, I concluded that the Company's requested capital structure
17 consisting of 54.88 percent common equity, 1.33 percent short-term debt, and
18 43.79 percent long-term debt is consistent with the proxy group and is therefore
19 reasonable. In its supplemental filing on August 10, 2021, the Company
20 slightly modified its proposed capital structure to consist of 54.86 percent

¹ Direct Testimony of Brian C. Collins, at 16.

² Direct Testimony of Jennifer E. Nelson, at 3.

1 common equity, 1.34 percent short-term debt, and 43.80 percent long-term
2 debt, which is also reasonable and should be approved. As discussed
3 throughout my Rebuttal Testimony, my recommended ROE and conclusions
4 regarding the reasonableness of the Company's proposed capital structure
5 continue to hold based on my updated model results applying data as of
6 August 31, 2021, and additional analyses provided in response to the Opposing
7 Witnesses. As such, I maintain my recommendation regarding the ROE and
8 support the updated capital structure.

9 Q. PLEASE SUMMARIZE YOUR RESPONSE TO THE OPPOSING
10 WITNESSES REGARDING THE ROE AND CAPITAL STRUCTURE.

11 A. Quite simply, the Opposing Witnesses' analytical results and recommendations
12 (as summarized in Table 1 below) are below any reasonable measure of PSNC's
13 Cost of Equity and would likely be insufficient to maintain PSNC's credit
14 rating. Overall, it is my opinion that if adopted, the Opposing Witnesses'
15 recommendations would increase the Company's regulatory and financial risk,
16 diminish its ability to compete for capital, and have the counter-productive
17 effect of increasing its overall Cost of Capital, ultimately to the detriment of
18 customers.

1

Table 1: Summary of ROE Ranges and Recommendations

	PSNC Witness Nelson (Direct)	PSNC Witness Nelson (Rebuttal)	Public Staff Witness Hinton³	CUCA Witness O'Donnell⁴	Evergreen Witness Collins
DCF Results	9.47% - 11.14%	8.44% - 12.18%	9.15% - 9.84%	7.50% - 9.50%	-
CAPM Results	12.48%- 13.34%	13.08%- 14.26%	-	6.00% - 8.00%	-
Risk Premium Results	9.75% - 9.86%	9.76% - 9.85%	9.49%	-	-
Comparable Earnings Results	-	-	9.50% - 10.00%	9.00% - 10.00%	-
ROE Recommendation (Range)	10.25% (9.60% - 10.75%)	10.25% (9.60% - 10.75%)	9.48% (9.15% - 10.00%)	9.00% (6.00% - 10.00%)	≤ 9.55%

2 Q. WHAT ARE THE KEY ISSUES IN WHICH YOU DISAGREE WITH THE
3 OPPOSING WITNESSES' METHODS AND CONCLUSIONS
4 REGARDING THE COMPANY'S COST OF EQUITY AND CAPITAL
5 STRUCTURE?

6 A. Although there are several areas in which I disagree with the Opposing
7 Witnesses' methods and conclusions, the key issues are:

- 8 • The sufficiency of the Opposing Witnesses' recommendations to maintain
9 PSNC's credit profile and credit ratings. The Opposing Witnesses'
10 recommendations to reduce both the authorized ROE and equity ratio would
11 put further downward pressure on the Company's credit metrics that are already

³ Hinton Exhibit 10.

⁴ Direct Testimony of Kevin W. O'Donnell, at 80.

1 constrained, jeopardizing the Company's credit rating and investors'
2 perceptions of the regulatory environment in North Carolina to the detriment of
3 customers. As explained in the Rebuttal Testimony of Michael B. Phibbs,
4 Moody's has clearly stated in published reports that the Company would be at
5 risk of a downgrade if the Cash Flow from Operations (pre-working
6 capital)/Debt ("CFO pre-WC/Debt") financial metric remains below 15.00
7 percent, which it has been for the past three years. Moody's also stated that
8 PSNC's "Stable" outlook depends on a constructive outcome in this proceeding
9 that materially improves its CFO pre-WC to Debt ratio from approximately a
10 12.00 percent range to a 15-17 percent range.

11 • Flawed application of their ROE analytical models. Consistent with investor
12 and regulatory practice, the use of multiple generally accepted common equity
13 cost rate models adds reliability and accuracy when arriving at a recommended
14 common equity cost rate. While the Opposing Witnesses perform multiple Cost
15 of Equity analyses, certain of their inputs and assumptions bias their results
16 downward. Despite the fact that the Cost of Equity is forward-looking, the
17 Opposing Witnesses give undue weight to historical-based inputs in many of
18 their analyses. For example, Mr. Hinton does not consider forward-looking
19 projected bond yields in his Risk Premium analysis and Mr. O'Donnell's
20 CAPM-based estimates are based on the long-term average historical market
21 risk premia that do not reasonably reflect current or expected market conditions.
22 As a result, Mr. O'Donnell's Capital Asset Pricing Model ("CAPM")-based

1 ROE estimates are unreasonably low. Additionally, the Opposing Witnesses
2 exclude or largely dismiss forward-looking expected returns on book equity in
3 their Comparable Earnings Analysis. Lastly, Mr. O’Donnell includes negative
4 growth rates in his Discounted Cash Flow (“DCF”)-based results, violating
5 common sense financial principles. Correcting for the flaws in the Opposing
6 Witnesses’ analyses produces more reasonable ROE estimates.

7 • Improper imputation of a hypothetical capital structure. The Opposing
8 Witnesses each recommend the Commission impute a hypothetical capital
9 structure (a 50.90 percent common equity ratio by Mr. Hinton and a 50.00
10 percent common equity ratio by Mr. O’Donnell). Mr. Hinton’s and Mr.
11 O’Donnell’s hypothetical capital structure recommendations are not based on
12 PSNC’s specific risks and financing requirements, contrary to utility financing
13 practices. Their recommendations presume that utilities should be financed
14 with the same proportions of equity and debt as an “average” utility,
15 notwithstanding the fact that it is common for utility capital structures to vary
16 widely. Simply, neither Mr. Hinton nor Mr. O’Donnell has demonstrated that
17 the Company’s requested actual capital structure deviates substantially from
18 sound utility practice.

1 Q. MR. HINTON REFERS TO MOODY'S RECENT CREDIT OPINIONS FOR
2 THE COMPANY TO SUPPORT HIS CAPITAL STRUCTURE
3 RECOMMENDATION.⁵ DO YOU AGREE WITH HIS CONCLUSIONS?

4 A. No. Mr. Hinton's review is oversimplified and incomplete. Even though the
5 Company's current authorized 52.00 percent equity ratio has not been sufficient
6 to produce credit metrics within Moody's Baa1-rating thresholds as Mr. Phibbs
7 explains, Mr. Hinton recommends the Commission further reduce PSNC's
8 authorized equity ratio by 110 basis points. Specifically, Mr. Hinton's position
9 overlooks the following conclusions from Moody's (emphasis added):

- 10 ○ "PSNC's credit is constrained by the likelihood that weakened financial
11 metrics will remain lower for longer due to 1) increased leverage that has
12 helped fund the utility's capital program, 2) a base rate freeze through
13 November 2021, and 3) the negative cash flow impacts of federal tax
14 reform, once new rates are set in place for 2022." (Hinton Exhibit 3, pages
15 1, 9).
- 16 ○ "PSNC's stable outlook reflects our expectation that its CFO pre-WC to
17 debt ratio will improve to 15-17% beginning in 2022, following a general
18 rate case filing and what we expect to be supportive regulatory treatment
19 from the North Carolina Utilities Commission (NCUC)." (Hinton Exhibit
20 3, page 10).

⁵ Direct Testimony of John R. Hinton, at 20-21.

- 1 ○ “Factors that could lead to a downgrade: *If the North Carolina regulatory*
2 *environment were to become less credit supportive*” and “*CFO pre-WC to*
3 *debt metric remains below 15%*.” (Hinton Exhibit 3, page 10).
- 4 ○ “*PSNC’s financials are positioned weakly* versus select A3 and Baa1 LDC
5 Peers.” (Hinton Exhibit 3, page 4).
- 6 ○ “However, the revenue increase associated with the investment recovery
7 will be tempered by cash flow reductions that are commensurate with the
8 December 2017 Tax Cuts and Jobs Act (*i.e.*, loss of bonus depreciation for
9 utilities, federal tax rate reduction to 21% from 35% and the cash return of
10 excess deferred income taxes over a period of time). This will likely keep
11 CFO pre-WC to debt below 18%, *even when assuming a supportive general*
12 *rate case outcome*.” (Hinton Exhibit 3, page 12).

13 It is clear that Moody’s “Stable” outlook and projected credit metrics for the
14 Company depends on a constructive outcome in this proceeding. Instead, Mr.
15 Hinton’s (and Mr. O’Donnell’s) recommendation to reduce both PSNC’s
16 authorized ROE and equity ratio is contrary to Moody’s expectations and would
17 further constrain the Company’s financial profile, adversely affecting investors’
18 perceptions of the regulatory environment in North Carolina.

19 Q. MR. O’DONNELL AND MR. COLLINS REFERENCE AUTHORIZED
20 ROES FOR NATURAL GAS UTILITIES IN OTHER JURISDICTIONS.⁶ DO
21 YOU AGREE WITH THEIR CHARACTERIZATION OF THE TREND IN

⁶ Direct Testimony of Kevin W. O’Donnell, at 66-67; Direct Testimony of Brian C. Collins, at 16.

1 AUTHORIZED ROES AND THE RELEVANCE OF THE TREND ON
2 PSNC'S COST OF EQUITY?

3 A. No, I do not. National average returns must be placed in the proper context in
4 order to be useful. While I agree that investors consider authorized returns in
5 other states when assessing the reasonableness of the authorized ROE for
6 PSNC, I have several concerns with the nationwide average ROE information
7 presented by Mr. O'Donnell and Mr. Collins. First, annual average data
8 obscures variations in returns and does not address the number of cases nor the
9 jurisdictions issuing orders within a given year. For example, one year may
10 have fewer cases decided, and a relatively large portion of those cases decided
11 by a single jurisdiction. Nonetheless, as Mr. O'Donnell's Chart 5 shows, the
12 average authorized ROE for natural gas utilities has been relatively stable since
13 2013.⁷ As shown in Chart 1 (below), there has been no discernible downward
14 trend in authorized ROEs over the last five years. As such, I disagree with Mr.
15 O'Donnell's characterization of a downward trend.

16 Second, market conditions at the time the authorized returns were
17 established may be very different than conditions going forward. For example,
18 equity returns set when interest rates were very low in 2020 are not a reasonable
19 basis of comparison for evaluating the authorized ROE when bond yields have
20 increased and are projected to continue increasing as the economy recovers and
21 the Federal Reserve moves to a more neutral monetary policy.

⁷ Direct Testimony of Kevin W. O'Donnell, at 67.

1 Q. ARE THE OPPOSING WITNESSES' RECOMMENDATIONS
2 CONSISTENT WITH THOSE RECENTLY AUTHORIZED FOR NATURAL
3 GAS UTILITIES ELSEWHERE IN THE U.S.?

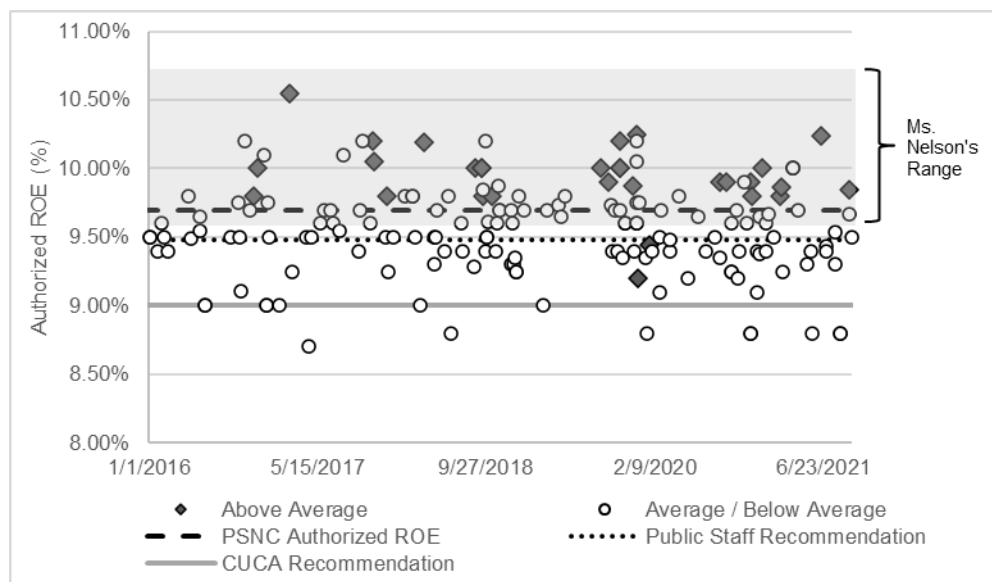
4 A. No, they are not. Mr. O'Donnell's 9.00 percent ROE recommendation falls in
5 the bottom 5th percentile of ROEs authorized for natural gas utilities between
6 2016 and 2021. In other words, 95.00 percent of ROEs authorized for natural
7 gas utilities over the last five years were above Mr. O'Donnell's 9.00 percent
8 recommendation. Mr. Hinton's 9.48 percent ROE recommendation falls in the
9 bottom 34th percentile of ROEs authorized for natural gas utilities over the last
10 five years (*i.e.*, 66.00 percent were above his recommendation).

11 The Opposing Witnesses' recommendations are even more unduly low
12 relative to ROEs authorized in jurisdictions that are ranked Average/1 and
13 higher by Regulatory Research Associates ("RRA") in terms of regulatory
14 constructiveness.⁸ RRA ranks the Commission as Average/1 and jurisdictions
15 ranked Average/1 and higher represent the top third of regulatory jurisdictions.
16 Utilities with a similar ranking should generally have similar regulatory risk,
17 making it reasonable to compare the returns available to utilities in jurisdictions
18 that are viewed as similar to North Carolina. As Chart 1 below shows, my

⁸ RRA maintains three principal rating categories, Above Average, Average, and Below Average, with Above Average indicating a relatively more constructive, lower-risk regulatory environment from an investor viewpoint, and Below Average indicating a less constructive, higher-risk regulatory climate from an investor viewpoint. Within the three principal rating categories, the numbers 1, 2, and 3 indicate relative position. The designation 1 indicates a stronger (more constructive) rating; 2, a mid-range rating; and 3, a weaker (less constructive) rating. We endeavor to maintain an approximately equal number of ratings above the average and below the average.

1 recommended ROE range is consistent with ROEs authorized in jurisdictions
 2 that are rated the same as, or better, than North Carolina in terms of regulatory
 3 constructiveness, whereas the Opposing Witnesses' recommendations are not.

4 **Chart 1: Authorized ROE (2016 – 2021) and Witness Recommendations⁹**



5 The difference in returns available to natural gas utilities in more
 6 constructive jurisdictions and those authorized in less constructive jurisdictions
 7 is unmistakable. Over the last five years, the average and median authorized
 8 ROE in jurisdictions ranked in the top third (*i.e.*, Average/1 and higher) was
 9 9.94 percent and 9.95 percent, respectively. In jurisdictions ranked Average/2
 10 and lower, the average and median authorized ROE was 9.52 percent and 9.50
 11 percent, respectively.

⁹ Source: Regulatory Research Associates. Authorized ROEs for natural gas utilities from January 1, 2016 through September 30, 2021. Excludes ROEs authorized in limited issue rate rider proceedings.

1 Q. WHAT ARE THE PRACTICAL IMPLICATIONS FOR PSNC OF A
2 RETURN THAT IS FAR BELOW THOSE AUTHORIZED FOR OTHER
3 UTILITIES?

4 A. The significant difference between the Opposing Witnesses' ROE and capital
5 structure recommendations and those available to other utilities raises very
6 practical concerns. First, PSNC must compete with other companies, including
7 utilities, for the long-term capital needed to provide utility service. Given the
8 choice between two similarly situated utilities, one with a return that falls far
9 below industry levels, and another whose authorized return more closely aligns
10 with those available to other utilities, investors will choose the latter.

11 In the end, the outcome of this proceeding will have important
12 implications on the Company's ability to maintain its financial profile. I
13 recognize the Commission must balance the interests of customers and
14 shareholders; however, it is important to remember that PSNC's ability to
15 access capital at reasonable terms to fund the investments necessary to provide
16 safe, reliable service depends on a strong financial profile. From that
17 perspective, customers benefit from a financially healthy utility and their
18 interests are aligned.

19 Q. HOW IS THE REMAINDER OF YOUR REBUTTAL TESTIMONY
20 ORGANIZED?

21 A. The remainder of my Rebuttal Testimony is organized as follows:

- 1 • Section II – Responds to the Opposing Witnesses’ capital structure
2 recommendations;
- 3 • Section III – Responds to the Opposing Witnesses’ interpretation of the
4 capital market environment;
- 5 • Section IV – Discusses the differences in the proxy groups used in our
6 respective ROE analyses;
- 7 • Section V – Responds to the Opposing Witnesses regarding the ROE
8 analytical approaches;
- 9 • Section VI – Updates my analyses of the economic conditions in North
10 Carolina;
- 11 • Section VII – Presents the results of my updated ROE analyses; and
- 12 • Section VIII – Summarizes my conclusions and recommendations.

13 **II. CAPITAL STRUCTURE**

14 Q. PLEASE SUMMARIZE THE OPPOSING WITNESSES’
15 RECOMMENDATIONS REGARDING THE APPROPRIATE CAPITAL
16 STRUCTURE FOR PSNC.

17 A. Both Mr. Hinton and Mr. O’Donnell recommend the Commission authorize
18 hypothetical capital structures that contain significantly less common equity
19 than the Company’s requested and current authorized capital structure (54.86
20 percent and 52.00 percent common equity, respectively), as summarized in
21 Table 2 below. Mr. Collins does not provide a recommendation with respect to
22 the Company’s capital structure.

1 **Table 2: Opposing Witnesses' Capital Structure Recommendations¹⁰**

Witness (Party)	Common Equity	Long-Term Debt	Short-Term Debt
Mr. Hinton (Public Staff)	50.90%	47.71%	1.39%
Mr. O'Donnell (CUCA)	50.00%	48.53%	1.47%

2 Mr. Hinton's recommended hypothetical equity ratio of 50.90 percent is based
 3 on the average capital structures authorized for natural gas Local Distribution
 4 Companies ("LDC") in general rate cases during 2020 and 2021.¹¹ Mr.
 5 O'Donnell's recommended hypothetical equity ratio of 50.00 percent is based
 6 on his review of (1) the actual and projected equity ratios at his proxy group
 7 consolidated holding company level, (2) the actual and projected equity ratio
 8 for PSNC's parent Dominion Energy Inc. ("Dominion Energy"), and
 9 (3) average authorized equity ratios by state utility regulatory commissions
 10 from 2006-2020.¹²

11 Q. DO YOU AGREE WITH MR. HINTON'S AND MR. O'DONNELL'S
 12 HYPOTHETICAL CAPITAL STRUCTURE RECOMMENDATIONS?

13 A. No, I do not. Importantly, as noted earlier and as Company witness Phibbs
 14 explains, Mr. Hinton's and Mr. O'Donnell's hypothetical capital structure
 15 recommendations are likely insufficient to support PSNC's current credit
 16 rating. As Moody's notes, and as Mr. Phibbs explains, the Company's current
 17 52.00 percent authorized equity ratio has not produced CFO pre-WC/Debt

¹⁰ Direct Testimony of John R. Hinton, at 5; Direct Testimony of Kevin W. O'Donnell, at 5.

¹¹ Direct Testimony of John R. Hinton, at 23.

¹² Direct Testimony of Kevin W. O'Donnell, at 40-41, Table 5.

1 ratios above the 15.00 percent threshold necessary to sustain a Baa1 rating in
2 the last three years. It therefore is unreasonable to expect that an authorized
3 equity ratio of approximately 50.00 percent to 51.00 percent would somehow
4 be sufficient, particularly when combined with a materially lower authorized
5 ROE as the Opposing Witnesses recommend. Moody's credit opinion quite
6 clearly emphasized that its rating and stable outlook for PSNC is based on its
7 expectation of a constructive outcome in this proceeding that materially
8 improves its CFO pre-WC to Debt ratio. The Opposing Witnesses'
9 recommendations to reduce PSNC's authorized ROE and equity ratio would do
10 the opposite, putting further downward pressure on the CFO pre-WC to Debt
11 ratio (all else equal), jeopardizing the Company's credit rating and investors'
12 perceptions of the regulatory environment in North Carolina.

13 Furthermore, Mr. Hinton's and Mr. O'Donnell's hypothetical capital
14 structure recommendations are not based on PSNC's specific risks and
15 financing requirements, contrary to utility financing practices. Their
16 recommendations presume that utilities should be financed with the same
17 proportions of equity and debt as an "average" utility, and that a utility with an
18 equity ratio above the average suggests an "unbalanced" capital structure to the
19 detriment of customers.¹³ However, as explained below, utility capital
20 structures vary widely based on the unique needs of each company. While I
21 agree that reviewing the actual and authorized capital structures in place at other

¹³ Direct Testimony of Kevin W. O'Donnell, at 32.

1 natural gas utilities provides insight into the reasonableness of a utility's capital
2 structure, and may be used as a benchmark, in my opinion it is inappropriate to
3 impute a hypothetical capital structure for ratemaking purposes based solely on
4 industry averages unless it is clearly demonstrated that the requested actual
5 capital structure deviates substantially from sound utility practice.¹⁴ As
6 discussed below, neither Mr. Hinton nor Mr. O'Donnell has satisfied that
7 burden.

8 As shown in Nelson Direct Exhibit 8 and Nelson Rebuttal Exhibit 8, the
9 Company's actual equity ratio of 54.86 percent is well within the range of the
10 capital structures in place at the proxy companies. Moreover, although I
11 disagree with certain of their capital structure analyses (as explained below),
12 Mr. Hinton and Mr. O'Donnell's data demonstrates that PSNC's actual capital
13 structure does not deviate substantially from sound utility practice. As shown
14 in Mr. O'Donnell's Table 4, the Company's actual equity ratio of 54.86 percent
15 is well within the range of his proxy group consolidated holding company
16 historical and projected capital structures (ranging from 32.90 percent to 62.30
17 percent). Hinton Exhibit 5 also shows that the range of authorized equity ratios
18 in 2020 and 2021 is between 46.26 percent and 60.12 percent. Here again,
19 54.86 percent is well within the range of recent authorized equity ratios for
20 natural gas distribution utilities. There simply is no basis to conclude that the

¹⁴ An example would be if an operating subsidiary was financed with 100 percent equity. *See also*, David C. Parcell, The Cost of Capital – A Practitioner's Guide, at 47 (2020 Edition).

1 Company's actual equity ratio of 54.86 percent deviates substantially from
2 sound utility practice. As such, the Commission should reject Mr. Hinton's and
3 Mr. O'Donnell's recommendations to impute a hypothetical capital structure
4 for ratemaking purposes.

5 Q. PLEASE EXPLAIN THE FACTORS UTILITIES GENERALLY CONSIDER
6 IN DEVELOPING THEIR CAPITAL STRUCTURES AND WHY IT IS
7 IMPORTANT TO REFLECT UTILITY-SPECIFIC FINANCING
8 REQUIREMENTS WHEN DETERMINING THE APPROPRIATE
9 RATEMAKING CAPITAL STRUCTURE.

10 A. Companies (including subsidiary companies) are financed in light of the
11 specific risks and funding requirements associated with their individual
12 operations. Therefore, capital structures vary widely, even among utility
13 companies. Capital structure management is dynamic and complex, looking to
14 satisfy multiple objectives subject to multiple constraints. Utilities must focus
15 on the nature of the assets providing utility service, and recognize the
16 constraints brought about by the obligation to serve. It therefore is important
17 to understand utility financing practice, including the principles and constraints
18 that drive financing decisions, and how that practice is reflected in the Cost of
19 Capital.

20 In many ways, the nature of regulation enables utilities to finance large,
21 essentially irreversible, investments that are recovered over decades. In
22 exchange for the obligation to serve, equity investors expect utilities to have the

1 opportunity to earn a fair return on prudent investments over the life of the
2 investments. Financing practices therefore must address the nature of
3 investments made under the regulatory compact.

4 It also is important to keep in mind that capital structures, and the
5 financial strength they support, are set not only to ensure capital access during
6 normal markets, but when markets are constrained as well. The reason is
7 straightforward: The obligation to serve is not contingent on capital market
8 conditions. When markets are constrained, only those utilities with sufficient
9 financial strength are able to attract capital at reasonable terms, which benefits
10 customers. That ability provides those utilities with critically important
11 financing flexibility. Relying more heavily on debt, as Mr. Hinton and Mr.
12 O'Donnell propose, increases the risk of refinancing maturing obligations
13 during less accommodating market environments at likely higher costs.

14 The requirement to access the capital markets in all market conditions
15 can be contrasted with the financial needs of other entities without the legal
16 obligation to serve. Because of that obligation, the financial flexibility brought
17 about by the access to both long-term capital and short-term liquidity is critical
18 for utilities' financial integrity, and their ability to continually attract capital.
19 Unregulated firms have options to choose whether, where, and when to make
20 investments; what services or products will be offered; whether to invest in
21 expansions; and whether to cease operations in a given location. That is,
22 unregulated companies may adjust the timing and amount of their major capital

1 expenditures to align with economic cycles, and to defer decisions and
2 investments to better match market conditions. Regulated companies have
3 limited options to do so. Ensuring the financial strength to access capital
4 because of the reduced spending flexibility therefore is critically important not
5 only to utilities and shareholders, but to customers as well.

6 As noted above, an appropriate capital structure is important not only to
7 ensure long-term financial integrity, it also is critical to enabling access to
8 capital during constrained markets, or when near-term liquidity is needed to
9 fund extraordinary requirements. In that important respect, the capital
10 structure, and the financial strength it engenders, must support both normal
11 circumstances and periods of market uncertainty. Although Mr. Hinton and Mr.
12 O'Donnell suggest otherwise, optimizing the capital structure is a very complex
13 process, which balances the need to maintain an appropriate financial profile
14 while ensuring reasonable capital cost rates. Therefore, I disagree with their
15 conclusion that a capital structure that contains more than 50 percent common
16 equity, or contains more equity than industry averages, is by definition
17 "unbalanced."

18 Q. WHAT IS YOUR RESPONSE TO MR. O'DONNELL'S ANALYSIS
19 REGARDING THE CAPITAL STRUCTURES IN PLACE FOR THE PROXY
20 GROUP AT THE CONSOLIDATED HOLDING COMPANY LEVEL AS A

1 MEASURE OF THE APPROPRIATE RATEMAKING CAPITAL
2 STRUCTURE FOR PSNC?

3 A. As Mr. Hinton and Mr. O'Donnell acknowledge,¹⁵ because capital at the
4 consolidated holding company level may finance unregulated operations,
5 comparisons to the parent company capital structure may lead to flawed and
6 misleading conclusions.

7 My capital structure analysis presented in Nelson Direct Exhibit 8 (and
8 updated in Nelson Rebuttal Exhibit 8), however, calculates the capital structures
9 in place for the proxy companies' *regulated* utility operations; therefore, it
10 provides an apples-to-apples assessment of the reasonableness of PSNC's
11 requested capital structure. As shown in Nelson Direct Exhibit 8, the
12 Company's requested equity ratio of 54.86 percent is within the range of the
13 proxy group's regulated equity ratio, demonstrating PSNC's financial risk is
14 consistent with the proxy group. My updated analysis presented in Nelson
15 Rebuttal Exhibit 8 continues to support the reasonableness of PSNC's requested
16 capital structure. As such, PSNC's requested capital structure is consistent with
17 the regulated capital structures in place at the proxy group.

18 Q. MR. HINTON ASSERTS YOUR PROXY GROUP CAPITAL STRUCTURE
19 ANALYSIS IS "MISLEADING" BECAUSE IT INCLUDES "NON-
20 REGULATED OPERATIONS AND OTHER CONCERNS THAT ARE NOT

¹⁵ Direct Testimony of John R. Hinton, at 23; Direct Testimony of Kevin W. O'Donnell, at 41.

1 NECESSARILY APPROPRIATE FOR REGULATED UTILITIES.”¹⁶

2 WHAT IS YOUR RESPONSE?

3 A. Mr. Hinton’s concern is misplaced. I understand Mr. Hinton’s concern to be
4 that capital structure data reported to the SEC may reflect capital that finances
5 non-regulated operations in the proxy group. His concern would be valid if I
6 used capital structure data for the consolidated holding company as Mr.
7 O’Donnell does. However, my analysis presents quarterly capital structure data
8 at the regulated operating company level for each of the utility operating
9 subsidiaries in which data is reported. For example, in Nelson Rebuttal
10 Exhibit 8, the capital structure data for South Jersey Industries in the top table
11 reflects the capital structure only for South Jersey Gas Company as shown in
12 the bottom table. Two companies, Atmos Energy Corporation and One Gas,
13 Inc. are 100 percent regulated, so these companies’ capital balances reflect only
14 regulated operations. In other words, I have not used the consolidated holding
15 company capital structure data in my analysis as Mr. O’Donnell has.

16 However, to respond to Mr. Hinton’s concern, I prepared another capital
17 structure analysis for the Combined Proxy Group using data reported on FERC
18 Form 2 filed annually with the public utility commissions, which would reflect
19 only regulated operations. I note FERC Form 2 data is reported annually, not
20 quarterly, so I reviewed data as of the end of each year in 2018-2020.¹⁷ The

¹⁶ Direct Testimony of John R. Hinton, at 23.

¹⁷ I note Spire Inc.’s fiscal year ends September 30, whereas the data reported for the other proxy companies use December 31.

1 results of that analysis are shown in Nelson Rebuttal Exhibit 9 and summarized
 2 in Table 3 below. As Table 3 shows, the Company's requested 54.86 percent
 3 equity ratio is highly consistent with the actual capital structures in place at the
 4 regulated operating companies within the Combined Proxy Group. As such,
 5 Mr. Hinton's concern is without merit.

6 **Table 3: Combined Proxy Group Regulated Equity Ratio**
 7 **Reported on FERC Form 2, 2018-2020¹⁸**

Company	2020	2019	2018	2018-2020 Average
ATO	58.31%	57.85%	58.35%	58.17%
CPK	NA	NA	NA	NA
MDU	48.89%	48.03%	71.31%	56.08%
NFG	58.99%	60.72%	58.39%	59.37%
NJR	55.13%	57.55%	58.86%	57.18%
NI	54.43%	54.33%	54.83%	54.53%
NWN	41.92%	45.77%	42.93%	43.54%
OGS	60.04%	63.28%	62.03%	61.78%
SJI	53.66%	54.52%	57.62%	55.26%
SWX	47.10%	46.35%	47.39%	46.94%
SR	52.90%	53.20%	54.54%	53.55%
UGI	47.44%	49.07%	47.63%	48.05%
MEAN	52.62%	53.70%	55.81%	54.04%
MEDIAN	53.66%	54.33%	57.62%	55.26%
HIGH	60.04%	63.28%	71.31%	61.78%
LOW	41.92%	45.77%	42.93%	43.54%

8 Q. MR. HINTON AND MR. O'DONNELL COMPARE PSNC'S REQUESTED
 9 EQUITY RATIO TO THE NATIONAL AVERAGE AUTHORIZED EQUITY

¹⁸ Sources: FERC Form 2 reported to public utility commissions in the annual LDC reports. See Nelson Rebuttal Exhibit 9. The regulated operating subsidiaries of Chesapeake Utilities Corp. are financed with 100 percent equity and therefore have been excluded from the analysis.

1 RATIOS FOR NATURAL GAS UTILITIES.¹⁹ PLEASE COMMENT ON
2 THAT COMPARISON.

3 A. As explained previously, the Company's proposed equity ratio is well within
4 the range of their data. In addition, the range of authorized equity ratios since
5 2019 has been between 46.26 percent to 60.18 percent.²⁰ PSNC's proposed
6 equity ratio of 54.86 percent is well within this range.

7 For another perspective, I also looked to the capital structures
8 authorized in jurisdictions ranked by RRA as Average/1 (the Commission's
9 ranking from RRA) and higher since 2019. As shown in Table 4 below, the
10 Company's requested equity ratio is within the range of those authorized in
11 jurisdictions that are rated equal to or better than the Commission in terms of
12 regulatory constructiveness.

13 **Table 4: Authorized Equity Ratios for Natural Gas Utilities**
14 **in Jurisdictions Ranked Average/1 and Higher (2019-2021)²¹**
15

	Authorized Equity %
Average	52.60%
Median	52.02%
High	59.64%
Low	48.00%

16 Lastly, I reviewed the current authorized equity ratios of the Combined
17 Proxy Group companies. Several proxy companies operate under a Formula

¹⁹ Direct Testimony of John R. Hinton, at 23 and Hinton Exhibit 5; Direct Testimony of Kevin W. O'Donnell, at 38, 40.

²⁰ Source: Regulatory Research Associates, excluding decisions in Arkansas, Florida, Indiana, and Michigan that include non-investor supplied capital.

²¹ Source: Regulatory Research Associates. Distribution rate cases completed through September 30, 2021, excluding decisions in Arkansas, Florida, Indiana, and Michigan that include non-investor supplied capital.

1 Rate Plan (“FRP”) framework in one or more jurisdictions (*i.e.*, Atmos Energy
2 Corp., ONE Gas, Inc., and Spire Energy). FRPs allow for streamlined annual
3 rate reviews that adjust rates annually if earnings are outside a specified target
4 ROE bandwidth. Utilities that operate under an FRP have less frequent general
5 rate cases where the ROE and capital structure are determined; therefore,
6 depending on the timeframe under review, those companies’ authorized capital
7 structures would not appear in the RRA rate case data set used by me and the
8 Opposing Witnesses.²² As such, the current authorized return provides relevant
9 data points as to the returns available to the companies that Mr. Hinton and Mr.
10 O’Donnell agree are comparable in risk to PSNC.

11 As shown in Table 5 below, PSNC’s 54.86 percent requested equity
12 ratio is consistent with the current authorized equity ratio for the Combined
13 Proxy Group.

²² For example, Spire Inc. has not had a general rate case since 1981 for Spire Alabama and 1995 for Spire Gulf, Inc.

1 **Table 5: Combined Proxy Group Current Authorized Equity Ratio²³**

Company	Average Current Authorized Equity Ratio
ATO	57.89%
CPK	57.41%
MDU	50.38%
NFG	42.90%
NI	49.61%
NJR	54.00%
NWN	49.50%
OGS	59.75%
SJI	52.75%
SWX	50.94%
SR	53.79%
UGI	NA
Average	52.63%
Median	52.75%
High	59.75%
Low	42.90%

2 Q. DO YOU HAVE ANY OTHER OBSERVATIONS REGARDING MR.
3 O'DONNELL'S ANALYSIS OF NATIONAL AVERAGE AUTHORIZED
4 EQUITY RATIOS FOR NATURAL GAS UTILITIES?²⁴

5 A. Yes, I do. Mr. O'Donnell's Chart 4 shows a clear upward trend in the average
6 authorized equity ratio in the last 15 years. Particularly important is the increase
7 since 2017, partly in recognition of the need to somewhat mitigate the effects

²³ Sources: Regulatory Research Associates; individual company 2020 10-Ks. None of UGI's operating companies published an equity ratio as part of its most recent rate cases. Represents the straight average current authorized equity ratio in each jurisdiction for each proxy company.

²⁴ Direct Testimony of Kevin W. O'Donnell, at 38-40.

1 of the Tax Cuts and Jobs Act (“TCJA”) on utilities’ cash flows and their credit
2 profiles.²⁵

3 Q. HAVE ANY CREDIT RATING AGENCIES COMMENTED ON THE
4 EFFECT OF THE TCJA ON PSNC’S CREDIT PROFILE?

5 A. Yes. In its January 2020 Credit Opinion for PSNC, Moody’s noted that the
6 Company’s credit is “constrained by the likelihood that weakened financial
7 metrics will remain lower for longer” due in part to increased leverage (*i.e.*,
8 more debt in the capital structure) and negative cash flow impacts of federal tax
9 reform.²⁶ Moody’s went on to note that any revenue increase associated with
10 the outcome of this proceeding will be “tempered by cash flow reductions that
11 are commensurate with the December 2017 Tax Cuts and Jobs Act”²⁷ Moody’s
12 reiterated these concerns in its February 2021 Credit Opinion update.²⁸

13 Q. MR. O’DONNELL SUGGESTS THAT THE COMPANY IS ENGAGING IN
14 DOUBLE LEVERAGE TO THE DETRIMENT OF CUSTOMERS.²⁹ WHAT
15 IS YOUR RESPONSE?

16 A. Mr. O’Donnell’s position violates widely accepted regulatory and financial
17 principles and should be dismissed. Turning first to the regulatory principles,

²⁵ See, e.g., Georgia Public Service Commission, Docket No. 42516, Short Order Adopting Settlement Agreement as Modified, at 7 (December 31, 2019). The ROE and capital structure were not resolved in the Settlement Agreement and therefore were determined by the Georgia PSC. The Georgia PSC determined a 56.00 percent capital structure was reasonable and appropriate, finding a “56% common equity level is just and reasonable considering all the evidence presented and is necessary to avoid a credit rating downgrade.”

²⁶ Hinton Exhibit 3, at 1.

²⁷ Hinton Exhibit 3, at 3.

²⁸ Hinton Exhibit 3, at 9, 12.

²⁹ Direct Testimony of Kevin W. O’Donnell, at 39-40.

1 under the standalone principle of ratemaking, as explained in my direct
2 testimony, each utility subsidiary is treated as its own company.³⁰ At issue in
3 this proceeding is the appropriate Cost of Capital for PSNC, not Dominion
4 Energy. Under the standalone principle, the Cost of Capital is based on the
5 subsidiary's capital structure and costs of debt and equity. The Cost of Equity
6 is estimated based on a determination of the subject company's standalone risk
7 profile by reference to a proxy group of firms of comparable risk.

8 With respect to financial principles, a widely accepted financial
9 principle is that the Cost of Capital is based on the use of funds, not on the
10 source of funds. In other words, a company's ownership structure or source of
11 capital does not affect its Cost of Capital. From an external investor's
12 perspective, the consolidated parent company must provide a return reflecting
13 the risks of the company's constituent parts. As such, investors value the
14 consolidated entity on a "sum-of-the-parts" basis, expecting each operating
15 segment to provide its appropriate risk-adjusted return, which is consistent with
16 the standalone regulatory principle explained above. In other words, under both
17 financial and regulatory principles, it is the subsidiary utility's operating risk
18 (*i.e.*, the use of funds) that defines the capital structure and Cost of Capital, not
19 the parent company or source of funds. The double leverage argument,
20 however, would require every affiliate within the corporate family to have the

³⁰ Direct Testimony of Jennifer E. Nelson, at 48.

1 same Cost of Capital, regardless of differences in risk. As Dr. Roger Morin
2 notes in his text New Regulatory Finance:

3 Just as individual investors require different returns from
4 different assets in managing their personal affairs, why should
5 regulation cause parent companies making investment decisions
6 on behalf of their shareholders to act any differently? A parent
7 company normally invests money in many operating companies
8 of varying sizes and varying risks. These operating subsidiaries
9 pay different rates for the use of investor capital, such as long-
10 term debt capital, because investors recognize the differences in
11 capital structure, risk, and prospects between the subsidiaries.
12 Yet, the double leverage calculation would assign the same
13 return to each activity, based on the parent's cost of capital.
14 Investors recognize that different subsidiaries are exposed to
15 different risks, as evidenced by the different bond ratings and
16 cost rates of operating subsidiaries. The same argument carries
17 over to common equity. If the cost rate for debt is different
18 because the risk is different, the cost rate for common equity is
19 also different, and the double leverage adjustment shouldn't
20 obscure this fact.³¹

21 Several financial texts support these principles. For example, in
22 Principles of Corporate Finance, Brealey, Myers, and Allen state:

23 In principle, each project should be evaluated at its own
24 opportunity cost of capital; the true cost of capital depends on
25 the use to which the capital is put. If we wish to estimate the cost
26 of capital for a particular project, it is project risk that counts.³²

27 Mr. O'Donnell's double leverage argument violates another financial principle:
28 the "law of one price," which states that in an efficient market, identical assets
29 would have the same value. As Dr. Roger Morin notes:

30 Carrying the double leverage standard to its logical conclusion
31 leads to even more unreasonable prescriptions. If the common
32 shares of a subsidiary were held by both the parent and by

³¹ Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., at 524-525 (2006).

³² Richard A. Brealey, Stewart C. Myers, Franklin Allen, Principles of Corporate Finance, McGraw-Hill Irwin, 8th Ed., 2006, at 234.

1 individual investors, the equity contributed by the parent would
2 have one cost under the double leverage computation, while the
3 equity contributed by the public would have another.³³

4 In an efficient market, identical assets have the same price, or value. If
5 they don't, the difference can be arbitrated away.

6 Lastly, several regulatory commissions have rejected double leverage
7 arguments. For example, the Maryland Public Service Commission has stated:

8 We reject People's Counsel's proposed capital structure
9 [reflecting a double leverage adjustment] because it suffers from
10 numerous flaws. First, it assumes that the rate of return depends
11 on the source of capital rather than the risks faced by the
12 capital.³⁴

13 The FERC also reiterated its position on double leverage stating in a
14 2016 order that "the motivations of a parent company are irrelevant"³⁵ so long
15 as the operating company passes the FERC's three-part test: (1) it issues its own
16 debt without guarantees; (2) it has its own bond rating; and (3) it has a capital
17 structure within the range of capital structures approved by the FERC.³⁶

18 Q. MR. O'DONNELL SUGGESTS THAT PSNC'S "RELATIVELY HIGHER
19 EQUITY PERCENTAGE WILL TRANSLATE INTO HIGHER COSTS TO

³³ Roger A. Morin, *New Regulatory Finance*, Public Utility Reports, Inc., at 523 (2006).

³⁴ Maryland Public Service Commission, Order No. 81517, Case No. 9092, In the Matter of the Application of Potomac Electric Power Company for Authority to Revise its Rate and Charges for Electric Service and for Certain Rate Design Changes, July 19, 2007, at 73. [Clarification added]

³⁵ See, 154 FERC ¶ 61,004, Docket No. ER15-945-001, at 15.

³⁶ *Ibid.* See also, Transcontinental Gas Pipe Line Corp., 80 FERC ¶ 61,157, Opinion No. 414 (1997).

1 PSNC'S CUSTOMERS WITHOUT ANY CORRESPONDING
2 IMPROVEMENT IN QUALITY OF SERVICE.”³⁷ DO YOU AGREE?

3 A. No, I do not. Mr. O'Donnell's position presumes that customers do not benefit
4 from a capital structure that contains more than 50.00 percent equity simply
5 because the cost of equity is greater than the cost of debt. However, a utility
6 with a capital structure that consists of less debt has less financial risk, and
7 therefore lower costs of both debt and equity, all else equal. Moreover, as
8 explained in my direct testimony, an overall rate of return that is adequate to
9 attract capital at reasonable terms when and as needed enables the utility to
10 make the necessary investments to provide safe, reliable natural gas service
11 while maintaining its financial integrity. In that respect, customers benefit, and
12 their interests are aligned with shareholders' interests.

13 Q. IS THERE A RECENT EXAMPLE THAT DEMONSTRATES THE
14 IMPORTANCE OF MAINTAINING A STRONG FINANCIAL PROFILE TO
15 CUSTOMERS' BENEFIT?

16 A. Yes, there is. In February of 2021, Winter Storm Uri hit Texas and the
17 midwestern U.S., knocking out electric power to millions of customers and
18 constraining natural gas supplies, which pushed customer demand and natural
19 gas commodity costs to record highs. In such situations, natural gas utilities
20 cannot delay or defer purchasing natural gas, as customers rely on natural gas
21 to heat their homes. Consequently, as Moody's noted, the surge in natural gas

³⁷ Direct Testimony of Kevin W. O'Donnell, at 30.

1 commodity costs “strained liquidity for utilities in Texas, Oklahoma, Kansas,
2 and neighboring states.”³⁸ Two of the proxy companies, Atmos Energy
3 Corporation and ONE Gas, Inc., each reported more than \$2 billion in natural
4 gas commodity costs attributed to the storm.³⁹ However, each were able to
5 issue more than \$2 billion in long-term debt at low costs⁴⁰ which may not have
6 been possible but for their A-rated credit ratings,⁴¹ strong balance sheets, and
7 expectation for constructive regulatory treatment in recovering the natural gas
8 commodity costs.⁴² In this situation, Atmos Energy Corporation’s and ONE
9 Gas’s customers benefited from these companies’ strong balance sheets, each
10 of which had approximately 58 percent to 60 percent equity in their regulated
11 operating company capital structures as of December 31, 2020 (*see* Nelson
12 Rebuttal Exhibit 9).

13 Adverse events can happen unpredictably (*see, e.g.*, Winter Storm Uri
14 and COVID-19), and it is important that utilities maintain a strong financial
15 profile that enables them to access capital when and as needed in all market
16 environments.

³⁸ S&P Capital IQ Pro, “Gas utilities ‘most severely affected’ by winter storm prices, Moody’s says,” March 8, 2021.

³⁹ S&P Capital IQ Pro, “Gas utilities ‘most severely affected’ by winter storm prices, Moody’s says,” March 8, 2021.

⁴⁰ S&P Capital IQ Pro, “Atmos Energy completes senior notes offering,” March 9, 2021; “One Gas to pay \$2.2B for gas purchases, secures \$2.5B term loan facility,” February 22, 2021.

⁴¹ Nonetheless, both companies were downgraded. S&P downgraded Atmos Energy Corporation from A to A- on February 22, 2021. S&P downgraded ONE Gas Inc. two notches from A to BBB+ on February 23, 2021.

⁴² *See, e.g.*, S&P Capital IQ Pro, “Gas utilities face multibillion-dollar financing needs after storm price surge,” February 22, 2021.

1 Q. WHAT IS YOUR CONCLUSION WITH REGARD TO PSNC'S PROPOSED
2 CAPITAL STRUCTURE?

3 A. PSNC'S requested capital structure reflects its specific financing requirements
4 and risk profile and is reasonable compared to the range of equity ratios for the
5 regulated operating companies held by the proxy group as well as to authorized
6 equity ratios for natural gas utilities in other jurisdictions. Neither Mr. Hinton
7 nor Mr. O'Donnell have demonstrated that PSNC's actual capital structure
8 deviates substantially from sound utility practice. Moody's has clearly
9 expressed that a constructive outcome in this proceeding will enable PSNC to
10 maintain its current credit rating. Lastly, PSNC's proposed capital structure
11 enables it to maintain its financial strength, which translates into favorable
12 access to capital for the benefit of customers. For these reasons, the proposed
13 capital structure for PSNC is appropriate and should be approved by the
14 Commission.

15 **III. CAPITAL MARKET ENVIRONMENT**

16 Q. PLEASE SUMMARIZE THE OPPOSING WITNESSES' REVIEW OF THE
17 CURRENT CAPITAL MARKET ENVIRONMENT.

18 A. Mr. Hinton reviews A-rated utility bond yields since 2016, concluding they
19 have declined, and along with them, so has the Cost of Capital.⁴³ Mr. Hinton

⁴³ Direct Testimony of John R. Hinton, at 12.

1 also notes that observed inflation rates have increased, but questions whether
2 the increases in inflation are transitory or temporary.⁴⁴

3 Mr. O'Donnell reviews changes in the 30-year Treasury yield since
4 2016, closing stock prices of the Dow Jones Utility Average and Dow Jones
5 Industrial Average, and statements by the Federal Reserve during this
6 summer.⁴⁵

7 Q. THE OPPOSING WITNESSES APPEAR TO DOWNPLAY THE
8 INFLATION RISK IN FINANCIAL MARKETS.⁴⁶ WHAT IS YOUR
9 RESPONSE?

10 A. The expectation for rising inflation that was discussed in my direct testimony
11 in April 2021 has persisted as evidenced by the U.S. Bureau of Labor Statistics'
12 announcement on September 14, 2021, that the Consumer Price Index for All
13 Urban Consumers increased at a 5.30 percent annual rate over the last 12
14 months.

15 While the U.S. Federal Reserve has commented that it views inflation
16 risk as likely being short-term and transitory, the Federal Reserve summarized
17 in its September 22, 2021 press release that "Overall financial conditions
18 remain accommodative, in part reflecting policy measures to support the
19 economy and the flow of credit to U.S. households and businesses." And "[t]he

⁴⁴ Direct Testimony of John R. Hinton, at 12-13.

⁴⁵ Direct Testimony of Kevin W. O'Donnell, at 7-19.

⁴⁶ Direct Testimony of John R. Hinton, at 12-13; Direct Testimony of Kevin W. O'Donnell, at 20-21.

1 path of the economy continues to depend on the course of the virus.” In terms
2 of its current posture, it indicated:

3 The Committee seeks to achieve maximum employment and
4 inflation at the rate of 2 percent over the longer run. With
5 inflation having run persistently below this longer-run goal, the
6 Committee will aim to achieve inflation moderately above 2
7 percent for some time so that inflation averages 2 percent over
8 time and longer-term inflation expectations remain well
9 anchored at 2 percent. The Committee expects to maintain an
10 accommodative stance of monetary policy until these outcomes
11 are achieved. The Committee decided to keep the target range
12 for the federal funds rate at 0 to 1/4 percent and expects it will
13 be appropriate to maintain this target range until labor market
14 conditions have reached levels consistent with the Committee's
15 assessments of maximum employment and inflation has risen to
16 2 percent and is on track to moderately exceed 2 percent for
17 some time. Last December, the Committee indicated that it
18 would continue to increase its holdings of Treasury securities by
19 at least \$80 billion per month and of agency mortgage-backed
20 securities by at least \$40 billion per month until substantial
21 further progress has been made toward its maximum
22 employment and price stability goals. Since then, the economy
23 has made progress toward these goals. If progress continues
24 broadly as expected, the Committee judges that a moderation in
25 the pace of asset purchases may soon be warranted. These asset
26 purchases help foster smooth market functioning and
27 accommodative financial conditions, thereby supporting the
28 flow of credit to households and businesses.⁴⁷

29 The Federal Reserve’s actions and statements are subject to
30 interpretation, but it is clear that the Federal Reserve is signaling a less
31 accommodative monetary policy and a willingness for inflation to exceed 2.00
32 percent in the near term. Following a recent sell-off in equity markets (“the
33 sharpest pullback since May”), *The Wall Street Journal* summarized:

⁴⁷ Board of Governors of the Federal Reserve System, Press Release, September 22, 2021.

1 Investors agree the economic outlook has improved significantly since
2 2020. But many wonder how well the market will be able to stand on its
3 own once the Fed begins to taper its monthly asset purchases—
4 especially since they credit much of the market’s rebound from its
5 pandemic low to extraordinary levels of monetary and fiscal support
6 from Washington. Some investors have also expressed concerns about
7 the economic outlook. Inflation has made a surprising comeback this
8 year, something some worry will start to cut into companies’ profit
9 margins.⁴⁸

10 With regard to whether inflation is short-term or transitory in nature,
11 several investment advisory firms and economists have expressed the view that
12 inflation will last longer than expected. For example, a June 25, 2021 Reuters
13 article indicated that Bank of America expects U.S. inflation to remain elevated
14 for an extended period:

15 BofA expects U.S. inflation to remain elevated for two to four
16 years, against a rising perception of it being transitory, and said
17 that only a financial market crash would prevent central banks
18 from tightening policy in the next six months. It was
19 “fascinating so many deem inflation as transitory when stimulus,
20 economic growth, asset/housing/commodity inflation are
21 deemed permanent,” the investment bank’s top strategist
22 Michael Hartnett said in a note on Friday. Hartnett thinks
23 inflation will remain in the 2%-4% range over the next 2- 4
24 years. U.S. inflation has averaged 3% in the last 100 years, 2%
25 in the 2010s, and 1% in 2020, but it has been annualizing at 8%
26 so far in 2021, BofA said in the note.⁴⁹

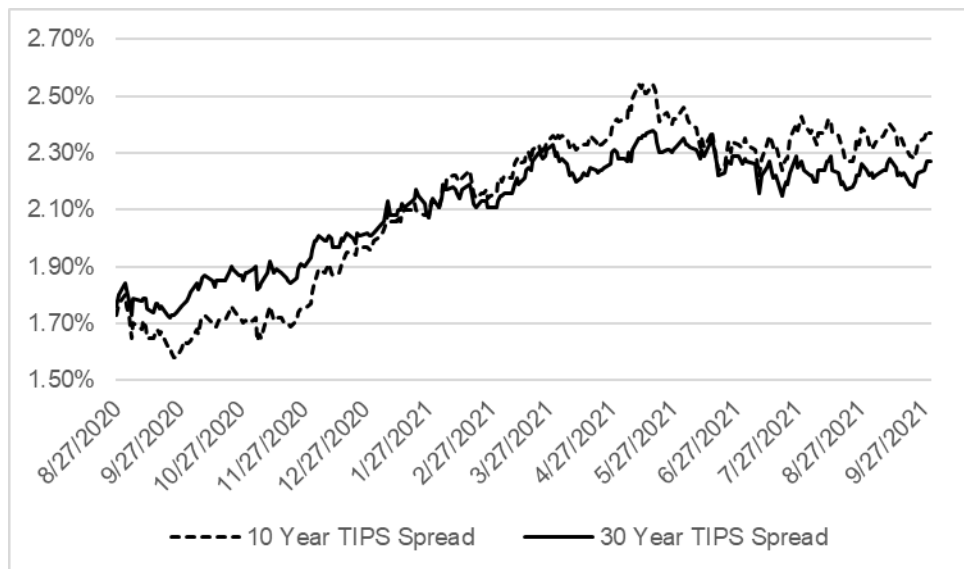
27 As shown in Chart 2 below (which updates Chart 12 in my direct
28 testimony), the breakeven inflation rate of 10-year and 30-year Treasury

⁴⁸ “Stocks Close Sharply Lower as Bond Yields Hit Three-Month High,” *The Wall Street Journal*, September 28, 2021.

⁴⁹ Reuters, U.S. Inflation likely to remain elevated for up to four years – BofA, at 2 (June 25, 2021).

1 securities⁵⁰ remains above the Federal Reserve's 2.00 percent inflation target
2 and within a narrow range since I filed my direct testimony.

3 **Chart 2: Breakeven Inflation Rate⁵¹**



4 Given these market-based indications of higher inflation expectations in
5 the future, it is reasonable to expect long-term Treasury yields to also increase,
6 supporting the use of projected interest rates.

7 Q. MR. O'DONNELL REFERS TO SEVERAL RECENT REPORTS BY
8 STANDARD & POOR'S ("S&P") CONCLUDING THAT THE CURRENT

⁵⁰ The 10-year breakeven inflation rate represents a measure of expected inflation derived from 10-Year Treasury Constant Maturity Securities and 10-Year Treasury Inflation-Indexed Constant Maturity Securities. The latest value implies what market participants expect inflation to be in the next 10 years, on average. The 30-year breakeven inflation rate represents a measure of expected inflation derived from 30-Year Treasury Constant Maturity Securities and 30-Year Treasury Inflation-Indexed Constant Maturity Securities. The latest value implies what market participants expect inflation to be in the next 30 years, on average. Source: Federal Reserve Bank of St. Louis FRED Economic Data.

⁵¹ Source: Federal Reserve Board of Governors H.15 interest rates, as of September 30, 2021.

1 OUTLOOK FOR REGULATED UTILITIES IS STABLE.⁵² DO YOU
2 AGREE?

3 A. No, I do not. Mr. O'Donnell reviews certain recent articles from S&P to suggest
4 that the outlook for regulated utilities is stable; however, he ignores a critical
5 finding that the industry performed poorly from a credit quality perspective. In
6 January 2021 S&P noted:

7 During the year, the utility industry performed poorly from a
8 credit quality perspective. The negative outlooks or CreditWatch
9 negative listings doubled and downgrades outpaced upgrades for
10 the first time in a decade by about 7 to 1.⁵³

11 Clearly, S&P's finding calls into question Mr. O'Donnell's view of the stability
12 of the utility industry. As explained throughout my Rebuttal Testimony, the
13 ability to maintain a strong credit profile is critical to utilities' ability to provide
14 safe, reliable service to the benefit of customers. That holds true for PSNC as
15 well.

16 Q. DO YOU AGREE WITH MR. O'DONNELL'S POSITION THAT UTILITIES
17 ARE "A SAFE HARBOR" DURING PERIODS OF MARKET
18 UNCERTAINTY?⁵⁴

19 A. While Mr. O'Donnell's position may have been true during prior periods of
20 market downturns, that has not been the case during the COVID-19 market
21 dislocation. As explained in my direct testimony, both the utility sector and the

⁵² Direct Testimony of Kevin W. O'Donnell, at 12-14.

⁵³ S&P Global Ratings, RatingsDirect, *North American Regulated Utilities' Negative Outlook Could See Modest Improvement*, January 20, 2021, at 2-3.

⁵⁴ Direct Testimony of Kevin W. O'Donnell, at 10.

1 S&P 500 lost approximately 34.00 percent of its value at the early part of the
2 pandemic.⁵⁵ Additionally, the returns from the companies in my proxy group
3 have been more volatile (*i.e.*, riskier) than the S&P 500. As shown in Chart 10
4 in my direct testimony, the proxy group's relative volatility ratio has been above
5 1.0 and has been increasing. As Chart 10 also demonstrates, the proxy group
6 companies' returns have been more correlated with returns of the S&P 500
7 Index. That is, the proxy companies have been trading in a more similar pattern
8 as the S&P 500 Index. Whereas Mr. O'Donnell's position may be based on
9 past conventional wisdom, the data does not support his conclusion. Simply,
10 utilities have been more volatile, and therefore riskier, than the broad market
11 since at least February 2020. That data supports an increase in the Cost of
12 Equity.

13 **IV. PROXY GROUP**

14 Q. DO MR. HINTON AND MR. O'DONNELL USE THE SAME PROXY
15 GROUP AS YOU TO PERFORM THEIR ROE ANALYSES?

16 A. No. While all of the companies included in my proxy group are included in
17 both Mr. Hinton's and Mr. O'Donnell's proxy groups, both witnesses include
18 additional companies, as summarized in Table 6 below, presumably because
19 they believe a proxy group of seven companies is too small. Mr. O'Donnell
20 includes all ten companies *Value Line* classifies as natural gas utilities.⁵⁶ Mr.

⁵⁵ Direct Testimony of Jennifer E. Nelson, at 61.

⁵⁶ Direct Testimony of Kevin W. O'Donnell, at 25.

1 Hinton excludes NiSource, Inc., but includes MDU Resources and National
 2 Fuel Gas, which *Value Line* classifies as natural gas diversified companies, but
 3 also have natural gas distribution operations.⁵⁷

4 **Table 6: Comparison of Witness Proxy Group Companies**

Company	Ticker	Ms. Nelson (PSNC)	Mr. Hinton (Public Staff)	Mr. O'Donnell (CUCA)
Atmos Energy Corporation	ATO	X	X	X
Chesapeake Utilities	CPK		X	X
MDU Resources	MDU		X	
National Fuel Gas	NFG		X	
New Jersey Resources Corp.	NJR	X	X	X
NiSource Inc.	NI			X
Northwest Natural Holding Co.	NWN	X	X	X
ONE Gas, Inc.	OGS	X	X	X
South Jersey Industries, Inc.	SJI	X	X	X
Southwest Gas Holdings, Inc.	SWX	X	X	X
Spire Inc.	SR	X	X	X
UGI Corporation	UGI		X	X

5

6 Q. IS A PROXY GROUP OF SEVEN COMPANIES TOO SMALL?

7 A. No. As explained in my direct testimony,⁵⁸ including companies whose
 8 fundamental comparability to the subject company is tenuous. Simply
 9 expanding the number of observations does not add relevant information to the
 10 analysis. Therefore, there is no reason to place more reliance on the range of
 11 results derived from a larger, but potentially less comparable proxy group
 12 simply by virtue of the larger number of observations.

⁵⁷ Direct Testimony of John R. Hinton, at 31-32.

⁵⁸ Direct Testimony of Jennifer E. Nelson, at 22.

1 Nonetheless, I have performed an additional set of DCF and CAPM
 2 analyses based on a proxy group of the 12 companies in Mr. Hinton’s, Mr.
 3 O’Donnell’s, and my proxy groups combined (the “Combined Proxy Group”)
 4 using data as of August 31, 2021.⁵⁹ The DCF and CAPM results based on the
 5 Combined Proxy Group continue to support my recommended range of 9.60
 6 percent to 10.75 percent with a point estimate of 10.25 percent (*see* Tables 11a
 7 and 11b in Section VII below).

8 **V. RESPONSE TO OPPOSING WITNESSES REGARDING THE ROE**
 9 **ANALYSES**

10 Q. PLEASE SUMMARIZE THE OPPOSING WITNESSES’ ROE ANALYSES
 11 AND HOW THEY DEVELOPED THEIR OVERALL ROE
 12 RECOMMENDATIONS.

13 A. Mr. Hinton’s 9.48 percent ROE recommendation was developed by giving
 14 three-fourths weight to his three DCF-based ROE estimates and one-fourth
 15 weight to his Risk Premium-based ROE estimate as shown in Table 7 below.

16 **Table 7: Mr. Hinton’s ROE Recommendation⁶⁰**

	ROE Estimate
DCF Method	
Historical Growth Rates	9.15%
Historical and Forecasted Growth Rates	9.44%
Forecasted Growth Rates	9.84%
Risk Premium Method	
LDC regression analysis	9.49%
Average	9.48%

⁵⁹ See Nelson Rebuttal Exhibits 3, 4, and 6.

⁶⁰ Hinton Exhibit 10.

1 Mr. Hinton also performs a Comparable Earnings Analysis (with proxy group
2 average and median results of 10.00 percent and 9.50 percent, respectively),
3 however he uses it only as a check on the reasonableness of his other model
4 results.⁶¹

5 Mr. O'Donnell's 9.00 percent recommendation is based primarily on the
6 results of his DCF analysis,⁶² though he also performs a Comparable Earnings
7 Analysis and a CAPM analysis.

8 **Table 8: Mr. O'Donnell's ROE Recommendation⁶³**

	Low	High
DCF Method	7.50%	9.50%
Comparable Earnings Analysis	9.00%	10.00%
CAPM	6.00%	8.00%
Overall Recommended ROE	9.00%	

9 I respond to their applications of each of these models below. I also respond to
10 their criticisms of my ROE analyses.

11 **A. Discounted Cash Flow Analysis**

12 Q. PLEASE SUMMARIZE MR. HINTON'S AND MR. O'DONNELL'S DCF
13 ANALYSES AND RESULTS.

14 A. Mr. Hinton applies his DCF analysis to the 11 companies selected in his proxy
15 group (*see* Table 6 above) to develop a DCF-based cost of common equity

⁶¹ Direct Testimony of John R. Hinton, at 36-38.

⁶² Direct Testimony of Kevin W. O'Donnell, at 47, 64-65.

⁶³ Direct Testimony of Kevin W. O'Donnell, at 80.

1 estimates ranging from of 9.15 percent to 9.84 percent.⁶⁴ He calculates the
2 dividend yield for each proxy company by dividing *Value Line's* estimate of
3 next year's dividend by the stock price reported in the *Value Line Summary &*
4 *Index* report over the 13-weeks ended September 10, 2021.⁶⁵

5 For the growth rate component, Mr. Hinton reviews the following
6 historical and forecasted growth rates:

- 7 • Five- and ten-year historical Earnings Per Share (“EPS”), Dividend Per
8 Share (“DPS”) and Book Value Per Share (“BVPS”) growth rates
9 reported by *Value Line*;
- 10 • Five-year projected EPS, DPS, and BVPS growth rates from *Value Line*;
- 11 and
- 12 • Projected EPS growth rates from Yahoo! Finance and CFRA.⁶⁶

13 Mr. O'Donnell calculates his dividend yields in the same manner as Mr.
14 Hinton, but also reviews four-week and one-week averages in addition to a 13-
15 week average.⁶⁷ Mr. O'Donnell also reviews the same historical and projected
16 growth rates from *Value Line* and projected EPS growth rates from CFRA. He
17 also reviews the long-term EPS growth rate from Charles Schwab, and
18 calculates a “plowback” growth rate for each of his proxy companies based on
19 *Value Line* data.⁶⁸

⁶⁴ Direct Testimony of John R. Hinton, at 34.

⁶⁵ Direct Testimony of John R. Hinton, at 32.

⁶⁶ Direct Testimony of John R. Hinton, at 33 and Hinton Exhibit 7.

⁶⁷ Direct Testimony of Kevin W. O'Donnell, at 52-53.

⁶⁸ Direct Testimony of Kevin W. O'Donnell, at 57-59.

1 Q. DO YOU HAVE ANY INITIAL OBSERVATIONS REGARDING THE
2 OPPOSING WITNESSES' DCF ANALYSES?

3 A. Yes, I do. Turning first to Mr. O'Donnell's analysis, his DCF analysis includes
4 negative growth rates, which is inconsistent with the model's underlying
5 assumptions. No investor would invest in a stock with negative growth
6 prospects in perpetuity. The inclusion of negative growth rates downwardly
7 biases his growth rates, and therefore his DCF results, on which his 9.00 percent
8 ROE recommendation primarily relies. If negative growth rates were excluded,
9 Mr. O'Donnell's DCF results based on his historical and forecasted growth
10 rates⁶⁹ for his proxy group would range from approximately 8.80 percent to
11 11.00 percent (*see* Table 9, below, and Nelson Rebuttal Exhibit 10). The
12 average and maximum corrected DCF-based ROE estimates largely overlap
13 with my recommended range.

14 **Table 9: Mr. O'Donnell's Historical and Forecasted DCF Results Excluding**
15 **Negative Growth Rates**

Natural Gas DCF Results: Mr. O'Donnell's Proxy Group			
	Minimum	Average	Maximum
<i>Value Line</i> Historical Growth Rate Averages + <i>Value Line</i> Div Yield Range	8.8%	9.5%	9.9%
Forecasted Growth Rate Averages + <i>Value Line</i> Div Yield Range	8.4%	9.7%	11.0%

16 Turning to Mr. Hinton's DCF analysis, after reviewing Hinton Exhibit
17 7 in its native Excel format, I observe that his average DCF result from both

⁶⁹ As discussed below, his DCF-results based on his "plowback" ratio growth rates should not be given any weight. Because they are substantially below his 9.00 ROE recommendation, it appears he has given them limited weight as well.

1 historical and forecasted growth rates (*i.e.*, 9.44 percent) excluded his proxy
2 group average DCF result from CFRA of 9.70 percent. As such, the corrected
3 DCF result using historical and forecasted growth rates is 9.46 percent, which
4 increases his overall ROE recommendation slightly to 9.49 percent (*see* Hinton
5 Exhibit 10).

6 Q. THE OPPOSING WITNESSES CRITICIZE YOUR RELIANCE ON
7 PROJECTED EARNINGS GROWTH RATES IN YOUR DCF ANALYSIS.⁷⁰
8 ARE HISTORICAL GROWTH RATES APPROPRIATE FOR USE IN THE
9 DCF MODEL?

10 A. No, they are not. Mr. O'Donnell and Mr. Hinton assert I have "ignored"
11 historical growth rates.⁷¹ Mr. Hinton further points to prior Commission orders
12 to criticize the reliance on projected growth rates.⁷² I respectfully disagree with
13 their positions.

14 As explained in my direct testimony⁷³ (and as Mr. Hinton
15 acknowledges⁷⁴), the Cost of Equity is forward-looking and the growth rate
16 component is the long-term annual growth rate *expected* in perpetuity.⁷⁵ As
17 such, investors' expected growth rates are the most appropriate for use in the
18 DCF model. By applying historical growth rates as the expected growth
19 component in the DCF model, Mr. Hinton and Mr. O'Donnell presume these

⁷⁰ Direct Testimony of Kevin W. O'Donnell, at 84; Direct Testimony of John R. Hinton, at 46-47.

⁷¹ Direct Testimony of Kevin W. O'Donnell, at 84; Direct Testimony of John R. Hinton, at 46-47.

⁷² Direct Testimony of John R. Hinton, at 47.

⁷³ Direct Testimony of Jennifer E. Nelson, at 70.

⁷⁴ Direct Testimony of John R. Hinton, at 28.

⁷⁵ Direct Testimony of Jennifer E. Nelson, at 24.

1 historical growth rates will persist in perpetuity. However, past performance is
2 not necessarily an indicator of future expectations. Further, historical growth
3 rates are likely factored into analysts' projections; therefore, placing any weight
4 on historical growth rates gives undue weight to historical growth estimates.
5 For example, Mr. Hinton develops Cost of Equity estimates using six historical
6 growth rate measures, but only five projected growth rate measures. Moreover,
7 the Opposing Witnesses' five-year historical growth rates are a subset of the
8 ten-year historical growth rates and are therefore double counted.

9 Lastly, I note that in Docket No. G-9, Sub 743 for Piedmont Natural Gas
10 ("Piedmont"), while the Commission noted its past findings regarding reliance
11 on earnings growth rate projections, it found Piedmont's ROE witness Mr.
12 Hevert's DCF results that relied on analysts' earnings growth rate projections
13 to be "credible, probative, and entitled to substantial weight."⁷⁶ Contrary to Mr.
14 O'Donnell's position,⁷⁷ the projected earnings growth rates I apply in my DCF
15 analysis are consistent with Mr. Hinton's and Mr. O'Donnell's historical
16 growth rates (excluding Mr. O'Donnell's negative growth rates).⁷⁸ Therefore,

⁷⁶ *In the Matter of Application of Piedmont Natural Gas Company, Inc., for an Adjustment of Rates, Charges, and Tariffs Applicable to Service in North Carolina, Continuation of its IMR Mechanism, Adoption of an EDIT Rider, and Other Relief*, NCUC Docket No. G-9, Sub 743, Order Approving Stipulation, Granting Partial Rate Increase, Line 434 Revenue Rider, EDIT Riders, Provisional Revenues Rider, and Requiring Customer Notice, at 41 (October 31, 2019).

⁷⁷ Direct Testimony of Kevin W. O'Donnell, at 87.

⁷⁸ In Nelson Direct Exhibit 2, the average and median of my proxy group DCF growth rates is 6.58 percent and 6.00 percent, respectively. Updated for more recent data in Nelson Rebuttal Exhibit 1, my proxy group average and median growth rates are 6.27 percent and 5.83 percent, respectively. Those growth rates are comparable to Mr. Hinton's proxy group average historical growth rates ranging from 4.80 percent to 6.60 percent, respectively (Hinton Exhibit 7), and Mr. O'Donnell's proxy group average historical growth rates ranging from 5.20 percent to 6.90 percent, excluding negative growth (Exhibit KWO-2, *see also* Nelson Rebuttal Exhibit 10).

1 projected EPS growth rates produce reasonable and reliable Cost of Equity
2 estimates.

3 Q. THE OPPOSING WITNESSES POINT TO LITERATURE TO SUPPORT
4 THEIR POSITION THAT ANALYSTS' EARNINGS FORECASTS ARE
5 OVERSTATED.⁷⁹ WHAT IS YOUR RESPONSE?

6 A. None of the literature cited by Mr. Hinton or Mr. O'Donnell is specific to our
7 proxy group companies or to the utility sector. As such, the Opposing
8 Witnesses have not demonstrated that the issue applies to utility companies. As
9 regulated companies, there is much more transparency into utility companies'
10 operations and the factors that affect future earnings (such as capital
11 expenditure plans and rate base growth) than there is for non-regulated firms.
12 Accordingly, utility equity analysts have more information from which to
13 develop their projections.

14 The 2003 study by Chan, *et. al* cited by both Mr. Hinton and Mr.
15 O'Donnell was performed prior to the 2003 Global Analysts Research
16 Settlement that required financial institutions to insulate investment banking
17 from analysis, prohibited analysts from participating in "road shows," and
18 required the settling financial institutions to fund independent third-party
19 research.

20 A 2010 article in Financial Analysts Journal found that analyst forecast
21 bias declined significantly or disappeared entirely after the Global Settlement:

⁷⁹ Direct Testimony of John R. Hinton, at 46; Direct Testimony of Kevin W. O'Donnell, at 85-86.

1 Introduced in 2002, the Global Settlement and related
2 regulations had an even bigger impact than Reg FD on analyst
3 behavior. After the Global Settlement, the mean forecast bias
4 declined significantly, whereas the median forecast bias
5 essentially disappeared. Although disentangling the impact of
6 the Global Settlement from that of related rules and regulations
7 aimed at mitigating analysts' conflicts of interest is impossible,
8 forecast bias clearly declined around the time the Global
9 Settlement was announced. These results suggest that the recent
10 efforts of regulators have helped neutralize analysts' conflicts of
11 interest.⁸⁰

12 In addition, analysts covering the common stock of the proxy companies certify
13 that their analyses and recommendations are not related, either directly or
14 indirectly, to their compensation.

15 Lastly, to the extent analysts' earnings growth rate projections are
16 persistently overstated, as the Opposing Witnesses suggest, investors likely are
17 aware and reflect this information in their stock buying decisions, which means
18 that stock prices already reflect this information.

19 In the end, my projected earnings growth rates are consistent with Mr.
20 Hinton and Mr. O'Donnell's historical growth rates. As such, there is no basis
21 to conclude that the projected earnings growth rates applied in our DCF
22 analyses, and the DCF-based ROE estimates that are based on them, are
23 overstated.

⁸⁰ Armen Hovakimian and Ekkachai Saenyasiri, *Conflicts of Interest and Analyst Behavior: Evidence from Recent Changes in Regulation*, Financial Analysts Journal, Volume 66, Number 4, July/August 2010, at 105.

1 Q. ARE ANALYSTS' EARNINGS GROWTH PROJECTIONS CONSISTENT
2 WITH THE MANAGEMENT GUIDANCE ISSUED RECENTLY IN THE
3 PROXY COMPANIES' INVESTOR PRESENTATIONS?
4 A. Yes. I reviewed the long-term projected EPS growth rate guidance provided by
5 the proxy companies' management teams in recent Investor Presentations to
6 assess analysts' long-term EPS growth rate projections relative to management
7 expectations. As shown in Table 10 below, of the proxy companies that provide
8 EPS growth guidance, analysts' EPS growth rate projections are generally
9 below (*i.e.*, more conservative) or within the range of managements' EPS
10 growth guidance for all but one proxy company. Market analysts carefully
11 monitor the accuracy of management forecasts and a "missed forecast" can lead
12 to both a sell-off in the company's stock and a black mark on the management
13 team's credibility with the market. These relationships reinforce discipline in
14 developing management guidance.

1 **Table 10: Analysts' Earnings Growth Rates vs. Management Guidance**⁸¹

Ticker	As of 2/28/2021			As of 8/31/2021			Average EPS	Management Guidance EPS range	Analysts' range relative to EPS guidance
	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth			
ATO	7.00%	7.10%	7.50%	7.00%	7.80%	7.40%	7%	6-8%	Within
CPK	8.50%	4.74%	NA	8.50%	4.74%	NA	7%	NA	NA
MDU	10.50%	NA	NA	10.50%	7.10%	6.90%	8%	5-8%	Within
NFG	19.00%	NA	NA	19.00%	8.50%	NA	9%	NA	NA
NJR	1.50%	6.00%	6.00%	2.00%	6.00%	7.10%	5%	6-10%	Below
NI	10.00%	4.37%	6.20%	9.50%	3.52%	6.20%	6%	7-9%	Below
NWN	5.50%	3.10%	NA	5.50%	5.50%	4.90%	5%	3-5%	Within
OGS	6.50%	5.00%	6.00%	6.50%	5.00%	5.00%	6%	5-7%	Within
SJI	10.50%	24.50%	24.50%	11.50%	4.80%	5.40%	7%	5-8%	Within
SWX	8.00%	4.00%	5.00%	8.00%	4.00%	5.50%	6%	NA	NA
SR	9.00%	5.70%	5.00%	10.00%	7.31%	5.50%	8%	5-7%	Above
UGI	5.50%	7.35%	8.00%	6.50%	7.75%	8.00%	7%	6-10%	Within

2 Q. DO YOU AGREE WITH THE OPPOSING WITNESSES' USE OF GROWTH
3 RATES OTHER THAN EARNINGS GROWTH?

4 A. No, I do not. As explained in my direct testimony, and as Mr. O'Donnell
5 acknowledges, over the long term, dividend growth can only be sustained by
6 earnings growth.⁸²

7 Importantly, when providing guidance to investors regarding the overall
8 total return targets in their investor presentations, companies define the total
9 return as the dividend yield plus *earnings* growth, not dividend growth.⁸³
10 Moreover, earnings growth projections are the only widely accepted and widely
11 published estimates of growth, which demonstrates that earnings growth is the
12 most meaningful measure of growth among the investment community.
13 Academic studies suggest that investors base their investment decisions on

⁸¹ Source: Investor Presentations released during August and September 2021.

⁸² Direct testimony of Jennifer E. Nelson, at 25-26; Direct Testimony of Kevin W. O'Donnell, at 53-54.

⁸³ See e.g., Dominion Energy Inc, May 5, 2021 Annual Meeting of Shareholders presentation, at 38.

1 analysts' expectations of growth in earnings.⁸⁴ I am not aware of any similar
2 findings regarding dividend- or book value-based growth estimates. In
3 addition, the only forward-looking growth rates that are available on a
4 consensus basis are analysts' EPS growth rate projections. The fact that
5 earnings growth projections are the only widely-accepted estimates of growth
6 further supports the finding that earnings growth is the most meaningful
7 measure of growth among the investment community.

8 Lastly, Mr. O'Donnell's sustainable growth rate (or "plowback ratio")
9 calculations rely on *Value Line's* return on book equity data for the proxy group
10 companies, which are the same estimates relied upon in his Comparable
11 Earnings Analysis that he believes produces less reliable ROE results. Those
12 projected ROEs are substantially higher than the results of the DCF model using
13 sustainable growth rates presented by Mr. O'Donnell and demonstrate that
14 investors expect to earn higher returns on equity from the proxy group
15 companies than what is produced by the DCF model using sustainable growth
16 rates. If Mr. O'Donnell believes his Comparable Earnings Analysis produces
17 "inferior" results,⁸⁵ it is inconsistent and inappropriate to give weight to his
18 "plowback ratio" growth estimates that rely on the primary input of his

⁸⁴ See, e.g., Harris and Marston, *Estimating Shareholder Risk Premia Using Analysts Growth Forecasts*, *Financial Management*, Summer 1992, at 65; and Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, *The Journal of Portfolio Management*, Spring 1988, at 81. Please note that while the original study was published in 1988, it was updated in 2004 under the direction of Dr. Vander Weide. The results of that updated study are consistent with Vander Weide and Carleton's original conclusions.

⁸⁵ Direct Testimony of Kevin W. O'Donnell, at 65.

1 Comparable Earnings-based results. Nonetheless, his DCF estimates based on
2 his “plowback” ratio growth rates are substantially below his 9.00 percent ROE
3 recommendation, so it appears Mr. O’Donnell has not given them much weight
4 either.

5 Q. MR. HINTON CRITICIZES YOUR QUARTERLY GROWTH DCF
6 ANALYSIS. WHAT IS YOUR RESPONSE?

7 A. Mr. Hinton’s criticism appears to be that the Quarterly Growth DCF results are
8 “above the required rate of return by investors”.⁸⁶ In my opinion, his position
9 is results-oriented and subjective based on his view of “the required rate of
10 return by investors,” which is an unobservable parameter. Mr. Hinton also
11 points to Commission orders from 15 or more years ago to support his position
12 that ratepayers should not “provide for that added or incremental return
13 associated with the quarterly payment of dividends they receive.”⁸⁷ As
14 discussed below, I respectfully disagree with that conclusion.

15 As a preliminary matter, the objective of the ROE witnesses’ testimony
16 this proceeding is to estimate the Cost of Capital, which is an input into the
17 Company’s revenue requirement and reflects a cost to the Company. Because
18 the Cost of Equity is unobservable, analysts must use multiple methodologies
19 to develop the best estimate with the data that is available. Since utilities pay
20 dividends on a quarterly basis, it is more accurate and consistent with the DCF

⁸⁶ Direct Testimony of John R. Hinton, at 48.

⁸⁷ Direct Testimony of John R. Hinton, at 48.

1 model's fundamental structure to use the quarterly DCF model to estimate the
2 market-required Cost of Equity.⁸⁸ The stock prices paid by investors (an input
3 in both the Constant Growth and Quarterly Growth DCF models) assume the
4 quarterly timing of dividend payments; therefore, an accurate DCF-based Cost
5 of Equity estimate must also reflect the actual timing of quarterly dividends.⁸⁹

6 As Dr. Roger Morin explains:

7 "[T]he quarterly DCF model rests on the same assumptions as
8 the annual DCF model except that the DCF model is refined to
9 reflect the actual corporate practice of paying dividends
10 quarterly rather than once per year."⁹⁰

11 That is, the only difference between these two variations of the DCF model is
12 the reflection of quarterly dividend payments.

13 As explained in my direct testimony, although the half-year dividend
14 growth adjustment applied in the Constant Growth DCF analysis is meant to
15 approximate the payment of quarterly dividends, it is a conservative,
16 simplifying assumption that does not fully reflect the quarterly receipt and
17 reinvestment of dividends.⁹¹ As such, it underestimates the Cost of Equity for
18 quarterly dividend paying companies such as utilities. In other words, the
19 Quarterly Growth DCF model does not add an "incremental" cost to customers
20 as Mr. Hinton suggests; it is a more precise estimate of the DCF-estimated Cost
21 of Equity, as the Constant Growth DCF model understates the Cost of Equity.

⁸⁸ Direct Testimony of Jennifer E. Nelson, at 30-31.

⁸⁹ Roger A. Morin, Ph.D., New Regulatory Finance, Public Utility Reports, Inc., at 344 (2006).

⁹⁰ Roger A. Morin, Ph.D., New Regulatory Finance, Public Utility Reports, Inc., at 343 (2006).

⁹¹ Direct Testimony of Jennifer E. Nelson, at 30.

1 Consequently, the Quarterly Growth DCF model provides an additional
2 perspective into an otherwise unobservable parameter and should be given
3 consideration.

4 Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE OPPOSING
5 WITNESSES' DCF ANALYSES?

6 A. I conclude that the Opposing Witnesses' DCF analyses give undue weight to
7 historical growth rates, which result in Cost of Equity estimates that understate
8 the Company's Cost of Equity. Because the Opposing Witnesses give primary
9 weight to their DCF results, their overall ROE recommendations are similarly
10 biased downward. There is substantial academic and practical evidence that
11 investors are concerned with expected growth in earnings, and as such, I
12 recommend the Commission place more weight on DCF results based on
13 projected earnings growth rates. Lastly, I believe the Quarterly Growth DCF
14 model is reliable, credible, and should be given weight by the Commission.

15 ***B. Capital Asset Pricing Model and Empirical Capital Asset Pricing***
16 ***Model***

17 Q. BEFORE RESPONDING TO THE OPPOSING WITNESSES' CRITICISMS
18 OF YOUR CAPM ANALYSIS, ARE THERE AREAS OF AGREEMENT
19 WITH RESPECT TO THE CAPM ANALYSIS?

20 A. Yes, there are. As a preliminary matter, Mr. Hinton did not perform a CAPM
21 analysis to develop his Cost of Equity estimate; however, he critiques my
22 application of the model, which I respond to below.

1 Mr. O'Donnell and I agree that the 30-year Treasury bond yield is
2 appropriate to use as the risk-free rate.⁹² Second, Mr. O'Donnell applies two
3 estimates of the risk-free rate above the current rate of 1.91 percent, suggesting
4 he believes that the current rate underestimates the expected risk-free rate.⁹³
5 Third, Mr. O'Donnell and I both rely on *Value Line* Beta coefficients.⁹⁴

6 Q. WHAT IS YOUR REPOSENSE TO THE OPPOSING WITNESSES' CONCERN
7 REGARDING THE FORWARD-LOOKING MARKET RISK PREMIUM
8 YOU APPLY IN YOUR CAPM ANALYSIS?⁹⁵

9 A. The use of a forward-looking or projected market risk premium is appropriate
10 because the historical average market risk premium does not reflect the inverse
11 relationship between interest rates and the market risk premium. The Ibbotson
12 data that is used to calculate the historical market risk premium of
13 approximately 7.20 percent indicates that the long-term average return on large
14 company stocks from 1926-2020 was 12.20 percent, while the average income-
15 only return on government bonds was 4.90 percent over the same period.⁹⁶ It
16 is therefore not reasonable to use the historical market risk premium when the
17 current 30-day average yield on the 30-year Treasury bond is 1.91 percent, or
18 approximately 300 basis points *lower* than the bond yield used to calculate the

⁹² Direct Testimony of Kevin W. O'Donnell, at 71.

⁹³ Direct Testimony of Kevin W. O'Donnell, at 71-73 and Exhibit KWO-7.

⁹⁴ Direct Testimony of Kevin W. O'Donnell, at 78.

⁹⁵ Direct Testimony of John R. Hinton, at 48-49; Direct Testimony of Kevin W. O'Donnell, at 89-91.

⁹⁶ Duff & Phelps, 2021 SBBY Yearbook, at 6-17.

1 historical market risk premium. With interest rates at these levels, the forward-
2 looking market risk premium should be *higher* than 7.20 percent.

3 Second, the current low interest rate environment is due to economic
4 weakness caused by the COVID-19 pandemic. The U.S. Congress has
5 supported the economy by providing fiscal stimulus, and the Federal Reserve
6 has reduced short-term interest rates and engaged in Quantitative Easing (*i.e.*,
7 bond-buying, asset purchases, etc.), which has caused long-term interest rates
8 to decline. Under these conditions, it is perfectly reasonable that projected
9 growth rates for the S&P 500 companies would be higher than the historical
10 average assuming that financial markets have confidence that the actions taken
11 to stimulate the economy will be successful and lead to ongoing economic
12 recovery, as Mr. O'Donnell appears to concede is occurring.⁹⁷

13 Mr. O'Donnell observes that the geometric mean and arithmetic mean
14 return on large company stocks from 1972 – 2019 is 10.7 percent and 12.1
15 percent, respectively,⁹⁸ asserting that the total market return used in my
16 forward-looking market risk premium calculation is not reasonable on that
17 basis. However, these averages obscure the wide variation in realized equity
18 returns from year to year. To demonstrate, I analyzed the annual performance
19 of the S&P 500 from 1926-2020. As shown in Chart 3 below, the actual return
20 on the S&P 500 Index has exceeded 15.00 percent⁹⁹ in nearly half (47 out of 95

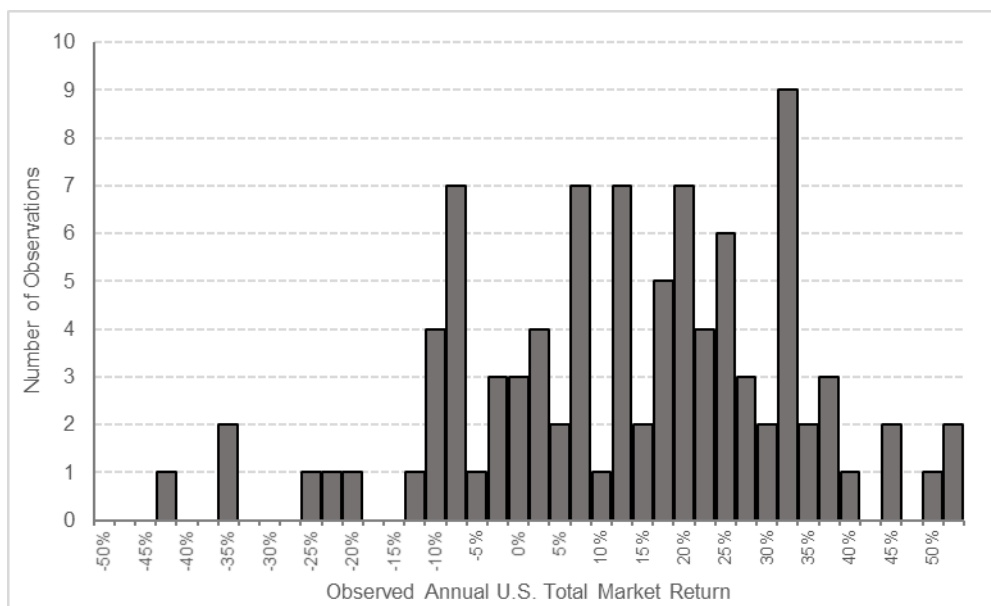
⁹⁷ Direct Testimony of Kevin W. O'Donnell, at 6.

⁹⁸ Direct Testimony of Kevin W. O'Donnell, at 74.

⁹⁹ The *Value Line*-based Market Return estimate in Nelson Direct Exhibit 4, page 7, is 14.34 percent; in Nelson Rebuttal Exhibit 5, page 1, the *Value Line*-based Market Return estimate is 15.05 percent.

1 years) of the time between 1926-2020. These data demonstrate that actual
 2 observed total returns for the broad market greater than 15.00 percent are not
 3 unrealistic, as Mr. Hinton and Mr. O'Donnell assert.

4 **Chart 3: Total Returns of S&P 500 Index – 1926-2020¹⁰⁰**



5 I conclude that my projected market return estimates are reasonable and
 6 consistent with historically observed market returns. Therefore, applying
 7 forward-looking inputs for the risk-free rate and market risk premium, along
 8 with current Beta coefficients from *Value Line*, the CAPM produces results that
 9 should be considered along with the results from the DCF and Bond Yield Plus
 10 Risk Premium models.

¹⁰⁰ Source: Duff & Phelps, 2021 SBBI Yearbook, Appendix A-1.

1 Q. IS THE ACCURACY OF BOND YIELD OR INTEREST RATE
2 FORECASTS RELEVANT IN ESTIMATING THE COST OF EQUITY AS
3 MR. HINTON AND MR. O'DONNELL ASSERT?¹⁰¹

4 A. No, it is not. As the FERC has found, the Cost of Equity depends on what the
5 market expects, not what ultimately happens.¹⁰² Nonetheless, neither Mr.
6 Hinton nor Mr. O'Donnell has demonstrated that current interest rates are any
7 more accurate at predicting future interest rates.

8 Lastly, in deference to the Commission's preference, I have presented
9 CAPM analyses using both current and projected bond yields in the CAPM
10 model. I conclude that it is reasonable and appropriate to use the projected 30-
11 year Treasury bond yield as the risk-free rate under current market conditions
12 when interest rates are forecast to increase by approximately 112 basis points
13 above current average yields on long-term government bonds.

14 Q. PLEASE SUMMARIZE MR. O'DONNELL'S APPLICATION OF THE
15 CAPM.

16 A. Mr. O'Donnell applies a historical U.S. 30-year Treasury yield as his risk-free
17 rate; *Value Line* Beta coefficients; and a market risk premium that is based on
18 historical total returns for large company stocks and long-term government
19 bonds, as well as certain investment professionals' forecasts for his market risk
20 premium, to produce his CAPM-based ROE range of 6.00 percent to 8.00

¹⁰¹ Direct Testimony of John R. Hinton, at 14-17; Direct Testimony of Kevin W. O'Donnell, at 71.

¹⁰² See, 147 FERC ¶ 61,234, Docket No. EL11-66-001, Opinion No. 531 Order on Initial Decision, at para. 88 (June 19, 2014).

1 percent.¹⁰³ As a principal matter, ROE estimates of 8.00 percent and lower are
2 far below any meaningful measure of the Company's Cost of Equity. As such,
3 I agree with Mr. O'Donnell's decision to not rely on his CAPM results.

4 Q. WHAT IS YOUR CONCERN WITH MR. O'DONNELL'S APPLICATION
5 OF THE CAPM?

6 A. Although I recognize Mr. O'Donnell has not relied substantially on his CAPM
7 analysis in determining his ROE recommendation, my primary concern is with
8 Mr. O'Donnell's market risk premium. He calculates the arithmetic and
9 geometric average historical market risk premium as the difference between the
10 total return on large company stocks and the total return on long-term
11 government bonds as reported by Duff & Phelps (formerly Ibbotson) over his
12 selected period of 1972 to 2020.¹⁰⁴ He also reviews surveys of certain
13 investment bank forecasts. From these reviews, he concludes that the market
14 risk premium ranges from 4.25 percent to 6.25 percent.¹⁰⁵

15 Turning first to his review of historical risk premia, the use of a
16 historical market risk premium is not appropriate under current market
17 conditions because it does not reflect the inverse relationship between interest
18 rates and the equity risk premium. When the current average yield on U.S.
19 Treasury bonds is well below the long-term historical average yield, it is
20 reasonable to expect that the market risk premium would be well above the

¹⁰³ Direct Testimony of Kevin W. O'Donnell, at 79.

¹⁰⁴ Direct Testimony of Kevin W. O'Donnell, at 74.

¹⁰⁵ Direct Testimony of Kevin W. O'Donnell, at 74-78.

1 historical average market risk premium. Consequently, the long-term average
2 historical market risk premium would be appropriate only if the expected risk-
3 free rate was consistent with the long-term historical risk-free rate, which it
4 currently is not.

5 Furthermore, the long-term historical average market risk premium Mr.
6 O'Donnell calculates is incorrect because he subtracts an average *total* return
7 on long-term government bonds from an average total return on large
8 capitalization stocks rather than the average *income* return on long-term
9 government bonds. As noted in Duff & Phelps' 2021 SBBI Yearbook
10 (emphasis added):

11 Another point to keep in mind when calculating the equity risk
12 premium is that the income return on the appropriate-horizon
13 Treasury security, rather than the total return, is used in the
14 calculation. The total return comprises three return components:
15 the income return, the capital appreciation return, and the
16 reinvestment return. The income return is defined as the portion
17 of the total return that results from a periodic cash flow, or in
18 this case, the bond coupon payment. The capital appreciation
19 return results from the price change of a bond over a specific
20 period. Bond prices generally change in reaction to unexpected
21 fluctuations in yields. Reinvestment return is the return on a
22 given month's investment income when reinvested into the same
23 asset class in the subsequent months of the year. **The income
24 return is thus used in the estimation of the equity risk
25 premium because it represents the truly riskless portion of
26 the return.**¹⁰⁶

¹⁰⁶ Duff & Phelps, 2021 SBBI Yearbook, at 10-22.

1 Lastly, Mr. O'Donnell's selected historical market return period is
2 subjective in nature and unrepresentative of long-term trends in market data.

3 As explained by Duff & Phelps:

4 The estimate of the equity risk premium depends on the length
5 of the data series studied. A proper estimate of the equity risk
6 premium requires a data series long enough to give a reliable
7 average without being unduly influenced by very good and very
8 poor short-term returns. When calculated using a long data
9 series, the historical equity risk premium is relatively stable.
10 Furthermore, because an average of the realized equity risk
11 premium is quite volatile when calculated using a short history,
12 using a long series makes it less likely that the analyst can justify
13 any number he or she wants.¹⁰⁷

14 As noted earlier, however, because the current average yield on 30-year
15 U.S. Treasury bonds (1.91 percent) is well below the long-term historical
16 average return (4.90 percent), it is reasonable to expect the market risk premium
17 to be well above the historical average market risk premium (7.20 percent).

18 Q. DO YOU AGREE WITH THE OPPOSING WITNESSES' REFERENCE TO
19 SURVEYS OF EXPECTED RETURNS?¹⁰⁸

20 A. No, I do not. As is the case with historical market risk premia, it is unclear
21 whether market risk premium estimates that are based on expected market
22 returns from surveys bear any relationship to the survey respondent's
23 expectations regarding interest rates. Therefore, it is unclear whether market
24 risk premium estimates calculated based on surveys reflect the inverse
25 relationship between interest rates and the market risk premium.

¹⁰⁷ Duff & Phelps, 2021 SBBI Yearbook, at 10-23.

¹⁰⁸ Direct Testimony of John R. Hinton, at 49-50; Direct Testimony of Kevin W. O'Donnell, at 74-76.

1 Additionally, Mr. Hinton and Mr. O'Donnell point to surveys of
2 *expected* returns, which are not the same as *required* returns. The task of
3 estimating the cost of equity is to estimate the investors' *required* return, not
4 investors' *expected* returns. Therefore, the Commission should not rely on
5 surveys to measure the expected market return applied in the CAPM.

6 Lastly, although Mr. O'Donnell and Mr. Hinton are concerned about the
7 accuracy of earnings growth rate and interest rate projections, they do not seem
8 to be concerned with the accuracy of the surveys' estimates of market returns.
9 As shown in Chart 3 above, the total return on large company stocks in the
10 range of the surveys reviewed by the Opposing Witnesses have occurred very
11 infrequently over the last 95 years.

12 Q. WHAT IS YOUR RESPONSE TO MR. O'DONNELL'S CRITICISMS OF
13 YOUR EMPIRICAL CAPM ("ECAPM") ANALYSIS?

14 A. Mr. O'Donnell suggests that the ECAPM method is a discretionary adjustment
15 "utilized when an analyst feels as though the weighted risk premium will help
16 to correct for returns that were too high or too low for stocks with low Betas
17 (*i.e.*, those stocks that are deemed to be less risky than the overall market) or
18 high Betas (*i.e.*, those stocks that are deemed to be more risky than the overall
19 market), respectively"¹⁰⁹ I disagree with his characterization.

20 As explained in my direct testimony, the ECAPM reflects published
21 research findings that confirm companies with lower Beta coefficients tend to

¹⁰⁹ Direct Testimony of Kevin W. O'Donnell, at 92.

1 have higher returns than those predicted by the CAPM, and those with higher
2 Beta coefficients tend to have lower returns than expected.¹¹⁰ Consequently, it
3 is a more precise application of the CAPM analysis, consistent with academic
4 literature.

5 Q. ARE YOU AWARE OF ANY ACADEMIC LITERATURE SUPPORTING
6 THE APPLICATION OF THE ECAPM TO THE UTILITY INDUSTRY?

7 A. Yes, I am. In a 2011 study by Stéphane Chrétien and Frank Coggins, the
8 authors studied the CAPM's ability to estimate the risk premium for the utility
9 industry in particular subgroups of utilities, including a group of U.S. natural
10 gas utilities.¹¹¹ The study considered the traditional CAPM approach, the
11 Fama-French three-factor model, and a model similar to the ECAPM I apply.
12 As Chrétien and Coggins show, the ECAPM significantly outperformed the
13 traditional CAPM model at predicting the observed risk premium for the
14 various utility subgroups. Their model showed that the CAPM underestimated
15 the risk premium for U.S. natural gas distribution utilities by as much as 7.39
16 percent and was statistically significant.

17 Q. HAS THE COMMISSION ACCEPTED THE ECAPM IN PRIOR
18 PROCEEDINGS?

19 A. Yes, it has. In its February 24, 2020 Order in Docket No. E-22, Sub 562 for
20 Dominion Energy North Carolina, the Commission found the ECAPM analysis

¹¹⁰ Direct Testimony of Jennifer E. Nelson, at 40-41.

¹¹¹ Stéphane Chrétien and Frank Coggins, *Cost Of Equity for Energy Utilities: Beyond The CAPM*, Energy Studies Review, Vol. 18, No. 2 (2011).

1 presented in that proceeding to be “credible, probative, and entitled to
2 substantial weight.”¹¹²

3 **C. Risk Premium Analysis**

4 Q. AS A PRELIMINARY MATTER, DO THE OPPOSING WITNESSES TAKE
5 ISSUE WITH YOUR BOND YIELD PLUS RISK PREMIUM ANALYSIS?

6 A. It does not appear so. Mr. O’Donnell does not appear to take issue with my
7 Bond Yield Plus Risk Premium model itself and Mr. Hinton does not comment
8 on it.

9 Q. PLEASE SUMMARIZE MR. HINTON’S RISK PREMIUM REGRESSION
10 ANALYSIS METHOD.

11 A. Mr. Hinton performs a Risk Premium regression analysis similar in concept to
12 my Bond Yield Plus Risk Premium analysis, except he uses Moody’s A-rated
13 utility bond yield instead of the 30-year Treasury bond yield as the independent
14 variable. We both agree that natural gas utility authorized ROEs represent a
15 reasonable proxy for the investor-required cost of equity and that there is a
16 statistically significant inverse relationship between the Equity Risk Premium
17 and bond yields.¹¹³

¹¹² *In the Matter of Application of Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina for Adjustment of Rates and Charges Applicable to Electric Service in North Carolina, Order Accepting Public Staff Stipulation In Part, Accepting CIGFUR Stipulation, Deciding Contested Issues, And Granting Partial Rate Increase, NCUC Docket No. E-22, Sub 562, at 40 (February 24, 2020).*

¹¹³ Direct Testimony of John R. Hinton, at 35-36; Direct Testimony of Jennifer E. Nelson, at 45.

1 Q. DO YOU HAVE ANY CONCERNS WITH MR. HINTON'S RISK
2 PREMIUM ANALYSIS?

3 A. Yes, my concern is that his analysis does not consider forward-looking
4 projections of bond yields. Because the Cost of Equity is forward-looking,
5 forward-looking bond yields should be used. If Mr. Hinton had used projected
6 yields, his result would have been 9.76 percent.

7 I calculated a projected Moody's A-rated utility bond yield by first
8 relying on a consensus forecast of 50 economists of the expected yield on
9 Moody's Baa-rated corporate bonds for the six calendar quarters ending with
10 the fourth calendar quarter of 2022, and *Blue Chip Financial Forecasts*' ("*Blue*
11 *Chip*") long-term projections for 2023 to 2027, and 2028 to 2032.¹¹⁴ According
12 to *Blue Chip*, the average expected yield on Moody's Baa-rated corporate bonds
13 is 4.72 percent. I then subtracted 13 basis points, which is equal to the average
14 daily spread in Moody's Baa-rated corporate bond yields and Baa-rated utility
15 bond yields over the last five years,¹¹⁵ for an expected yield on Moody's Baa-
16 rated utility bonds of 4.59 percent. Lastly, I subtracted another 33 basis points,
17 which represents the average spread between Moody's A-rated utility bonds
18 and Moody's Baa-rated utility bonds between March 2020 and August 2021
19 shown on page 27 of Mr. Hinton's direct testimony (*i.e.*, the "three-notch
20 spread"). Subtracting the recent 0.33 percent spread from the expected Moody's

¹¹⁴ See, *Blue Chip Financial Forecasts*, Vol. 40, No. 9 September 1, 2021, at 2 and Vol. 40, No. 6 June 1, 2021, at 14, consistent with my calculation of the projected 30-year Treasury yield from *Blue Chip*.

¹¹⁵ Sources: Federal Reserve Bank of St. Louis FRED Database, and Bloomberg Professional.

1 Baa-rated utility bond yield of 4.59 percent results in an expected Moody's A-
2 rated utility bond yield of 4.26 percent. Applying the projected A-rated utility
3 bond yield estimate of 4.26 percent to Mr. Hinton's Regression Analysis
4 coefficients produces a Risk Premium-based Cost of Equity estimate of 9.76
5 percent.¹¹⁶

6 Q. MR. O'DONNELL ASSERTS THE EQUITY RISK PREMIA INCLUDED IN
7 YOUR BOND YIELD PLUS RISK PREMIUM ANALYSIS ARE "MORE
8 THAN DOUBLE THE OVERALL HISTORICAL MARKET RETURNS" HE
9 PRESENTS IN HIS TABLE 8.¹¹⁷ IS HE CORRECT?

10 A. No, he is not. It is unclear what Mr. O'Donnell's argument is. The 7.04 percent
11 and 7.89 percent equity risk premia that result from my regression analysis are
12 *below* his historical market returns for large company stocks of 10.7 percent
13 (geometric average) and 12.1 percent (arithmetic average), not more than
14 double as he asserts. If his point is that my 7.04 percent and 7.89 percent equity
15 risk premia are "more than double" his resulting market risk premia of 2.7
16 percent (geometric average) and 3.4 percent (arithmetic average), the
17 discrepancy resides in Mr. O'Donnell's calculation of the market risk premium.

18 Putting aside the point that the equity risk premia estimated in my Bond
19 Yield Plus Risk Premium analysis is not based on historical returns on large
20 company stocks, as discussed earlier, the long-term historical average market

¹¹⁶ $9.76\% = 0.08679 + 0.25425 \times 4.26\%$.

¹¹⁷ Direct Testimony of Kevin W. O'Donnell, at 93.

1 risk premium Mr. O'Donnell calculates is incorrect because he subtracts an
2 average *total* return on long-term government bonds from an average total
3 return on large capitalization stocks rather than the average *income* return on
4 long-term government bonds.

5 Consequently, the equity risk premia estimated in my Bond Yield Plus
6 Risk Premium analysis is not inconsistent with historical data. Furthermore, it
7 reflects the inverse relationship between interest rates and risk premiums.

8 ***D. Comparable Earnings Analysis***

9 Q. PLEASE SUMMARIZE THE OPPOSING WITNESSES' COMPARABLE
10 EARNINGS ANALYSES.

11 A. Both Mr. Hinton and Mr. O'Donnell perform a Comparable Earnings Analysis;
12 however, neither rely substantially on it in determining their ROE
13 recommendation. Mr. Hinton's analysis is historical looking, reviewing the
14 earned return on book equity reported by *Value Line* for his proxy companies
15 for the years 2015 to 2020.¹¹⁸ From this data, he calculates a mean of 10.00
16 percent and a median of 9.50 percent, and concludes that his median value is
17 the appropriate Comparable Earnings-based Cost of Equity estimate due in part
18 to a 20.20 percent earned ROE for National Fuel Gas in 2018.¹¹⁹

19 In developing his Comparable Earnings-based Cost of Equity estimate,
20 Mr. O'Donnell first reviews the same earned return on book equity from *Value*

¹¹⁸ Hinton Exhibit 9.

¹¹⁹ Direct Testimony of John R. Hinton, at 37-38; Hinton Exhibit 9.

1 *Line* for his proxy companies in 2019 and 2020, but also reviews *Value Line's*
2 projected return on book equity for 2021 and the 2024-2026 period.¹²⁰ As a
3 second measure, Mr. O'Donnell reviews the average authorized ROE for LDCs
4 from 2006 to 2020. From this data, he concludes that a Comparable Earnings-
5 based Cost of Equity estimate is between 9.00 percent and 10.00 percent.¹²¹ As
6 explained earlier in Section II above, I do not believe Mr. O'Donnell's review
7 of the trend in the annual average authorized ROE is placed in the proper
8 context. Moreover, his 9.00 percent ROE recommendation is far removed from
9 the data he presents and would represent a significant departure from returns
10 expected for, or available to, other natural gas utilities.

11 Q. IN YOUR OPINION, IS THE COMPARABLE EARNINGS METHOD AN
12 APPROPRIATE METHOD TO ESTIMATE THE COST OF EQUITY IN
13 THIS PROCEEDING?

14 A. Although I have not performed a Comparable Earnings Analysis in this
15 proceeding, in my opinion, it is generally a reasonable approach as it satisfies
16 the *Hope* and *Bluefield* comparable return standard. However, because the Cost
17 of Equity is forward-looking, only projected ROE estimates from the analysis
18 should be given weight.

19 I disagree, however, with Mr. O'Donnell's position that the fact the
20 model is not a market-based approach renders it less reliable than other

¹²⁰ Direct Testimony of Kevin W. O'Donnell, at 65; Exhibit KWO-4.

¹²¹ Direct Testimony of Kevin W. O'Donnell, at 68.

1 methods.¹²² The authorized ROE established in this case will be applied to the
2 net book value of the Company's rate base, subject to certain regulatory
3 adjustments. In this regard, the Comparable Earnings approach is informative
4 because it provides a measure of the return on book value that is available to
5 investors through other investments with comparable risk to PSNC. As Dr.
6 Morin notes, "because the investment base for ratemaking purposes is
7 expressed in book value terms, a rate of return on book value, as is the case with
8 Comparable Earnings, is highly meaningful."¹²³

9 Q. WHAT WOULD MR. HINTON'S AND MR. O'DONNELL'S
10 COMPARABLE EARNINGS ANALYSIS-BASED RECOMMENDATIONS
11 BE IF THEY RELIED ONLY ON FORWARD-LOOKING ESTIMATES?

12 A. As shown in Nelson Rebuttal Exhibit 11, I updated Hinton Exhibit 9 to include
13 *Value Line's* five-year return on book equity projections for his proxy group.
14 The average and median expected return on book equity for his proxy group is
15 10.45 percent and 10.50 percent, respectively, for the years 2024-2026. As
16 Exhibit KWO-4 shows, Mr. O'Donnell's forward-looking Comparable
17 Earnings-based ROE estimates are each 9.70 percent. Because these estimates
18 are consistent with the prospective nature of the Cost of Equity, they are the
19 only ones that should be given weight.

¹²² Direct Testimony of Kevin W. O'Donnell, at 48.

¹²³ Roger A. Morin Ph.D., New Regulatory Finance, Public Utility Reports, Inc., at 394-395 (2006).

1 *E. Business Risks and Other Considerations*

2 Q. MR. HINTON SUGGESTS PSNC IS LESS RISKY ON ACCOUNT OF
3 CERTAIN OF ITS REGULATORY MECHANISMS. WHAT IS YOUR
4 RESPONSE?

5 A. Mr. Hinton references the Company’s Integrity Management Tracker (“IMT”) and Customer Utilization Tracker (“CUT”) to support his position that the
6 Company’s risk is reduced on account of these mechanisms, as well as for the
7 reasonableness of his 9.48 percent ROE recommendation.¹²⁴ Mr. Collins also
8 suggests the Commission “consider the IMR and any other mechanisms which
9 provide PSNC with additional cost recovery outside of a base rate case in setting
10 a reasonable ROE.”¹²⁵ However, Mr. Hinton’s and Mr. Collins’ positions do
11 not reflect the fact that 11 of the 12 Combined Proxy Group companies also
12 have similar mechanisms. As shown in Nelson Rebuttal Exhibit 12, 34 of the
13 47 operating companies within the Combined Proxy Group have a mechanism
14 to recover capital expenditures outside base rate cases. Additionally, 38 of the
15 same 47 operating companies have a mechanism to mitigate volumetric risk¹²⁶
16 akin to the Company’s CUT mechanism. Because the Cost of Equity is a
17 comparative exercise, as discussed below, the Company is no less risky than its
18 peers on account of its regulatory mechanisms.
19

¹²⁴ Direct Testimony of John R. Hinton, at 39-42.

¹²⁵ Direct Testimony of Brian D. Collins, at 16.

¹²⁶ *E.g.*, Weather normalization adjustment, lost revenue adjustment mechanisms, and decoupling mechanisms.

1 Developing the Cost of Equity necessarily is a comparative assessment,
2 as the analytical models are applied to a proxy group of comparable companies.
3 As such, even if it were the case that regulatory mechanisms mitigate “risk,”
4 they only would affect the Cost of Equity if: (1) the effect of the mechanism
5 was to reduce risk below the levels faced by the subject company’s peers in the
6 proxy group; and (2) investors knowingly reduced their return requirements for
7 the Company as a direct consequence of the mechanisms. Because capital cost
8 recovery and decoupling mechanisms are also employed by the Combined
9 Proxy Group companies as shown in Nelson Rebuttal Exhibit 12, PSNC is no
10 less risky than its peers.

11 The Company’s regulatory mechanisms simply render it more
12 comparable to its peers. Because such mechanisms are common among the
13 proxy group, to the extent these regulatory mechanisms reduce a utility’s risk,
14 any risk-reducing effects are reflected in the proxy group and, therefore, in the
15 market data and analytical results that underlie my recommended ROE range.
16 Consequently, my recommendation, and the analyses on which it is based,
17 reflect any effect of PSNC’s regulatory mechanisms on investors’ perceptions
18 of the Company’s risk.

- 1 Q. MR. HINTON ASSERTS YOU “RECOMMEND THAT THE COST OF
2 EQUITY INCLUDE AN ADDER OF 45 BASIS POINTS TO ACCOUNT
3 FOR PSNC’S SMALL SIZE.”¹²⁷ IS HE CORRECT?
- 4 A. No. My direct testimony is clear that I am not proposing an explicit adjustment
5 to account for PSNC’s small size relative to the proxy group; rather, I have
6 considered it in determining my overall recommendation.¹²⁸
- 7 Q. MR. O’DONNELL STATES A SIZE PREMIUM IS NOT WARRANTED
8 BECAUSE “PSNC IS A SUBSIDIARY OF A LARGER COMPANY,
9 DOMINION ENERGY.”¹²⁹ WHAT IS YOUR RESPONSE?
- 10 A. As explained in my direct testimony¹³⁰ (and noted earlier regarding the capital
11 structure), under the standalone principle of ratemaking, each utility subsidiary
12 is treated as its own company and are valued on a sum-of-the-parts basis.
13 Therefore, it is important that the authorized ROE reflects the risks and
14 prospects of the regulated utility’s operations and supports the regulated
15 utility’s financial integrity from a stand-alone perspective.

¹²⁷ Direct Testimony of John R. Hinton, at 4.

¹²⁸ Direct Testimony of Jennifer E. Nelson, at 50-51.

¹²⁹ Direct Testimony of Kevin W. O’Donnell, at 93.

¹³⁰ Direct Testimony of Jennifer E. Nelson, at 48-49.

1 **VI. ECONOMIC CONDITIONS IN NORTH CAROLINA**

2 Q. HAVE YOU UPDATED YOUR ANALYSES REGARDING THE CURRENT
3 ECONOMIC CONDITIONS IN NORTH CAROLINA?

4 A. Yes, I have updated the same analyses presented in my direct testimony to
5 reflect data available as of mid-September 2021. As discussed below, my
6 conclusion in my direct testimony that economic conditions in North Carolina
7 were highly correlated with the U.S. economy continues to hold. Specifically:

- 8 • Unemployment at both the state and county level continues to decline and
9 remains highly correlated with national rates of unemployment. The
10 unemployment rates in North Carolina (both statewide and for the counties
11 PSNC serves) continue to fall and remain below the national unemployment
12 rate (*see* Nelson Rebuttal Exhibits 13 and 14);
- 13 • Real Gross Domestic Product (“GDP”) grew year-over-year in North
14 Carolina and the U.S. in Q1 2021 and remains highly correlated with U.S.
15 real GDP growth (*see* Nelson Rebuttal Exhibit 15); and
- 16 • Median household income in North Carolina has grown at a rate consistent
17 with the rest of the U.S. and remains strongly correlated with national levels
18 (*see* Nelson Rebuttal Exhibit 16).

19 On balance, the correlations between statewide measures of economic
20 conditions noted by the Commission in Docket No. E-22, Sub 479 remain in
21 place and, as such, they continue to be reflected in the models used to estimate
22 the Cost of Equity.

1 Q. MR. O'DONNELL CITES TO NATIONAL UNEMPLOYMENT FIGURES,
2 CONCLUDING THAT UNEMPLOYMENT REMAINS ABOVE
3 HISTORICAL BENCHMARKS.¹³¹ HOW DO YOU RESPOND?

4 A. I agree that unemployment figures remain above those immediately preceding
5 the COVID-19 pandemic; however, the average unemployment rate in 2019
6 was the lowest annual average unemployment rate since 1969, whereas the
7 long-term average unemployment rate since 1948 has been approximately 5.80
8 percent.¹³² From that perspective, the current unemployment rate as of July
9 2021 for the U.S. (5.40 percent) and North Carolina (4.40 percent)¹³³ are below
10 the long-term average unemployment rate.

11 **VII. UPDATED ANALYTICAL RESULTS**

12 Q. PLEASE SUMMARIZE YOUR UPDATED ANALYTICAL RESULTS.

13 A. I have updated the Constant Growth DCF model, Quarterly Growth DCF,
14 CAPM, ECAPM, and Bond Yield Plus Risk Premium analyses based on data
15 through August 31, 2021, and applied to the same proxy group presented in my
16 direct testimony. I also prepared DCF and CAPM analyses using the Combined
17 Proxy Group. In my direct testimony, I removed three outlier growth rates from
18 my DCF analyses.¹³⁴ In my updated analyses, I excluded *Value Line's* 19.00

¹³¹ Direct Testimony of Kevin W. O'Donnell, at 18-19.

¹³² Source: U.S. Bureau of Labor Statistics, Unemployment Rate (Seasonally Adjusted), January 1948 – August 2021.

¹³³ Nelson Rebuttal Exhibit 13.

¹³⁴ Direct Testimony of Jennifer E. Nelson, at 28-29.

1 percent projected earnings growth rate for National Fuel Gas as it was excluded
 2 by Mr. Hinton.¹³⁵

3 The results of my updated analyses are summarized in Tables 11a and
 4 11b below.

5 **Table 11a: Summary of Updated DCF Results¹³⁶**

Constant Growth DCF Nelson Proxy Group	Low	Mean	High
30-Day Average	8.50%	9.60%	11.21%
90-Day Average	8.44%	9.62%	11.07%
180-Day Average	8.57%	9.73%	11.18%
Quarterly Growth DCF Nelson Proxy Group	Low	Mean	High
30-Day Average	8.69%	9.79%	11.50%
90-Day Average	8.63%	9.81%	11.34%
180-Day Average	8.77%	9.93%	11.46%
Constant Growth DCF Combined Proxy Group	Low	Mean	High
30-Day Average	8.78%	10.05%	12.00%
90-Day Average	8.73%	10.02%	12.02%
180-Day Average	8.86%	10.16%	12.18%
Quarterly Growth DCF Combined Proxy Group	Low	Mean	High
30-Day Average	9.00%	10.18%	11.73%
90-Day Average	8.94%	10.16%	11.69%
180-Day Average	9.09%	10.28%	11.83%

¹³⁵ See Hinton Exhibit 7.

¹³⁶ Nelson Rebuttal Exhibit 1 through Nelson Rebuttal Exhibit 4. Average of the proxy group mean and median results.

1 **Table 11b: Summary of Updated Risk Premium-based Results¹³⁷**

Bond Yield Plus Risk Premium		
Current 30-Year Treasury Yield (1.91%)	9.85%	
Projected 30-Year Treasury Yield (3.03%)	9.76%	
CAPM¹³⁸	Current 30-Year Treasury Yield (1.91%)	Projected 30-Year Treasury Yield (3.03%)
Nelson Proxy Group Average	13.74%	13.85%
Nelson Proxy Group Median	13.08%	13.25%
Combined Proxy Group Average	13.90%	14.00%
Combined Proxy Group Median	13.08%	13.25%
Empirical CAPM¹³⁹	Current 30-Year Treasury Yield (1.91%)	Projected 30-Year Treasury Yield (3.03%)
Nelson Proxy Group Average	14.07%	14.15%
Nelson Proxy Group Median	13.58%	13.70%
Combined Proxy Group Average	14.19%	14.26%
Combined Proxy Group Median	13.58%	13.70%

2 **VIII. CONCLUSIONS**

3 Q. WHAT IS YOUR CONCLUSION REGARDING THE ROE AND CAPITAL
4 STRUCTURE FOR PSNC?

5 A. As discussed throughout my Rebuttal Testimony, the outcome of this
6 proceeding will have important implications on the Company's ability to
7 maintain its financial profile necessary to provide safe, reliable service to the
8 benefit of customers. Based on the analyses discussed throughout my Rebuttal
9 Testimony, I continue to conclude that a reasonable and conservative range of

¹³⁷ Nelson Rebuttal Exhibits 5 to 7.

¹³⁸ Using the *Value Line*-based Market Risk Premium estimate and *Value Line* Beta coefficients.

¹³⁹ Using the *Value Line*-based Market Risk Premium estimate and *Value Line* Beta coefficients.

1 ROE estimates is from 9.60 percent to 10.75 percent, and within that range,
2 10.25 percent remains a reasonable and conservative estimate of PSNC's Cost
3 of Equity. The results of the DCF, CAPM, ECAPM, and Bond Yield Plus Risk
4 Premium analyses using data through August 31, 2021, for both my and the
5 Opposing Witnesses' proxy groups, continue to support the reasonableness of
6 my range of ROE estimates and my recommendation.

7 As to the capital structure, a capital structure including 54.86 percent
8 common equity, 1.34 percent short-term debt, and 43.80 percent long-term debt
9 is consistent with capital structures in place at the proxy companies and would
10 enable the Company to maintain its credit ratings and financial profile.
11 Therefore, I conclude it is reasonable and should be approved.

12 Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

13 A. Yes, although I reserve the right to supplement or amend my testimony before
14 or during the Commission's hearing in this proceeding.

Nelson Proxy Group Constant Growth Discounted Cash Flow Model with Half Year Growth Adjustment
30 Day Average Stock Price

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$2.50	\$99.40	2.52%	2.61%	7.40%	7.80%	7.00%	7.40%	9.60%	10.01%	10.41%
New Jersey Resources Corporation	NJR	\$1.33	\$38.32	3.47%	3.56%	7.10%	6.00%	2.00%	5.03%	5.51%	8.59%	10.69%
Northwest Natural Holding Company	NWN	\$1.92	\$52.51	3.66%	3.75%	4.90%	5.50%	5.50%	5.30%	8.65%	9.05%	9.26%
ONE Gas, Inc.	OGS	\$2.32	\$73.30	3.17%	3.25%	5.00%	5.00%	6.50%	5.50%	8.24%	8.75%	9.77%
South Jersey Industries, Inc.	SJI	\$1.21	\$25.13	4.81%	4.99%	5.40%	4.80%	11.50%	7.23%	9.73%	12.22%	16.59%
Southwest Gas Holdings, Inc.	SWX	\$2.38	\$70.89	3.36%	3.46%	5.50%	4.00%	8.00%	5.83%	7.42%	9.29%	11.49%
Spire Inc.	SR	\$2.60	\$70.50	3.69%	3.83%	5.50%	7.31%	10.00%	7.60%	9.29%	11.43%	13.87%
Proxy Group Mean				3.52%	3.63%	5.83%	5.77%	7.21%	6.27%	8.35%	9.91%	11.73%
Proxy Group Median				3.47%	3.56%	5.50%	5.50%	7.00%	5.83%	8.65%	9.29%	10.69%
Average of Mean and Median										8.50%	9.60%	11.21%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals indicated number of trading day average as of 08/31/2021

[3] Equals [1] / [2]

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

[5] Source: Zacks

[6] Source: Yahoo! Finance

[7] Source: Value Line

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

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

[10] Equals [4] + [8]

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

Nelson Proxy Group Constant Growth Discounted Cash Flow Model with Half Year Growth Adjustment
90 Day Average Stock Price

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$2.50	\$99.70	2.51%	2.60%	7.40%	7.80%	7.00%	7.40%	9.60%	10.00%	10.41%
New Jersey Resources Corporation	NJR	\$1.33	\$40.69	3.27%	3.35%	7.10%	6.00%	2.00%	5.03%	5.30%	8.38%	10.48%
Northwest Natural Holding Company	NWN	\$1.92	\$53.18	3.61%	3.71%	4.90%	5.50%	5.50%	5.30%	8.60%	9.01%	9.21%
ONE Gas, Inc.	OGS	\$2.32	\$74.94	3.10%	3.18%	5.00%	5.00%	6.50%	5.50%	8.17%	8.68%	9.70%
South Jersey Industries, Inc.	SJI	\$1.21	\$25.84	4.68%	4.85%	5.40%	4.80%	11.50%	7.23%	9.59%	12.09%	16.45%
Southwest Gas Holdings, Inc.	SWX	\$2.38	\$68.75	3.46%	3.56%	5.50%	4.00%	8.00%	5.83%	7.53%	9.40%	11.60%
Spire Inc.	SR	\$2.60	\$72.54	3.58%	3.72%	5.50%	7.31%	10.00%	7.60%	9.18%	11.32%	13.76%
Proxy Group Mean				3.46%	3.57%	5.83%	5.77%	7.21%	6.27%	8.28%	9.84%	11.66%
Proxy Group Median				3.46%	3.56%	5.50%	5.50%	7.00%	5.83%	8.60%	9.40%	10.48%
Average of Mean and Median										8.44%	9.62%	11.07%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals indicated number of trading day average as of 08/31/2021

[3] Equals [1] / [2]

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

[5] Source: Zacks

[6] Source: Yahoo! Finance

[7] Source: Value Line

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

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

[10] Equals [4] + [8]

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

Nelson Proxy Group Constant Growth Discounted Cash Flow Model with Half Year Growth Adjustment
180 Day Average Stock Price

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$2.50	\$96.52	2.59%	2.69%	7.40%	7.80%	7.00%	7.40%	9.68%	10.09%	10.49%
New Jersey Resources Corporation	NJR	\$1.33	\$39.48	3.37%	3.45%	7.10%	6.00%	2.00%	5.03%	5.40%	8.49%	10.59%
Northwest Natural Holding Company	NWN	\$1.92	\$51.15	3.75%	3.85%	4.90%	5.50%	5.50%	5.30%	8.75%	9.15%	9.36%
ONE Gas, Inc.	OGS	\$2.32	\$74.84	3.10%	3.19%	5.00%	5.00%	6.50%	5.50%	8.18%	8.69%	9.70%
South Jersey Industries, Inc.	SJI	\$1.21	\$24.70	4.90%	5.08%	5.40%	4.80%	11.50%	7.23%	9.82%	12.31%	16.68%
Southwest Gas Holdings, Inc.	SWX	\$2.38	\$66.56	3.58%	3.68%	5.50%	4.00%	8.00%	5.83%	7.65%	9.51%	11.72%
Spire Inc.	SR	\$2.60	\$70.29	3.70%	3.84%	5.50%	7.31%	10.00%	7.60%	9.30%	11.44%	13.88%
Proxy Group Mean				3.57%	3.68%	5.83%	5.77%	7.21%	6.27%	8.40%	9.95%	11.77%
Proxy Group Median				3.58%	3.68%	5.50%	5.50%	7.00%	5.83%	8.75%	9.51%	10.59%
Average of Mean and Median										8.57%	9.73%	11.18%

Notes:

- [1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals indicated number of trading day average as of 08/31/2021
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.5 x [8])
[5] Source: Zacks
[6] Source: Yahoo! Finance
[7] Source: Value Line
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])

Nelson Proxy Group Quarterly Discounted Cash Flow Model
30 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
		Dividend 1	Dividend 2	Dividend 3	Dividend 4	Expected Dividend 1	Expected Dividend 2	Expected Dividend 3	Expected Dividend 4	Stock Price	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$0.63	\$0.63	\$0.63	\$0.63	\$0.67	\$0.67	\$0.67	\$0.67	\$99.40	7.40%	7.80%	7.00%	7.40%	9.79%	10.20%	10.62%
New Jersey Resources Corporation	NJR	\$0.33	\$0.33	\$0.33	\$0.33	\$0.35	\$0.35	\$0.35	\$0.35	\$38.32	7.10%	6.00%	2.00%	5.03%	5.61%	8.80%	10.97%
Northwest Natural Holding Company	NWN	\$0.48	\$0.48	\$0.48	\$0.48	\$0.51	\$0.51	\$0.51	\$0.51	\$52.51	4.90%	5.50%	5.50%	5.30%	8.86%	9.28%	9.49%
ONE Gas, Inc.	OGS	\$0.54	\$0.58	\$0.58	\$0.58	\$0.57	\$0.61	\$0.61	\$0.61	\$73.30	5.00%	5.00%	6.50%	5.50%	8.37%	8.89%	9.93%
South Jersey Industries, Inc.	SJI	\$0.30	\$0.30	\$0.30	\$0.30	\$0.32	\$0.32	\$0.32	\$0.32	\$25.13	5.40%	4.80%	11.50%	7.23%	10.03%	12.63%	17.20%
Southwest Gas Holdings, Inc.	SWX	\$0.57	\$0.57	\$0.60	\$0.60	\$0.60	\$0.60	\$0.63	\$0.63	\$70.89	5.50%	4.00%	8.00%	5.83%	7.51%	9.43%	11.70%
Spire Inc.	SR	\$0.65	\$0.65	\$0.65	\$0.65	\$0.70	\$0.70	\$0.70	\$0.70	\$70.50	5.50%	7.31%	10.00%	7.60%	9.53%	11.74%	14.27%
Proxy Group Mean											5.83%	5.77%	7.21%	6.27%	8.53%	10.14%	12.03%
Proxy Group Median											5.50%	5.50%	7.00%	5.83%	8.86%	9.43%	10.97%
Average of Mean and Median															8.69%	9.79%	11.50%

Notes:

- [1] Source: Bloomberg Professional Service
- [2] Source: Bloomberg Professional Service
- [3] Source: Bloomberg Professional Service
- [4] Source: Bloomberg Professional Service
- [5] Equals Col. [1] x (1 + Col. [13])
- [6] Equals Col. [2] x (1 + Col. [13])
- [7] Equals Col. [3] x (1 + Col. [13])
- [8] Equals Col. [4] x (1 + Col. [13])
- [9] Source: Bloomberg Professional, equals indicated number of trading day average as of 08/31/2021
- [10] Source: Zacks
- [11] Source: Yahoo! Finance
- [12] Source: Value Line
- [13] Equals Average (Cols. [10], [11], [12])
- [14] Implied Low DCF
- [15] Implied Mean DCF
- [16] Implied High DCF

Nelson Proxy Group Quarterly Discounted Cash Flow Model
90 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
		Dividend 1	Dividend 2	Dividend 3	Dividend 4	Expected Dividend 1	Expected Dividend 2	Expected Dividend 3	Expected Dividend 4	Stock Price	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$0.63	\$0.63	\$0.63	\$0.63	\$0.67	\$0.67	\$0.67	\$0.67	\$99.70	7.40%	7.80%	7.00%	7.40%	9.78%	10.19%	10.61%
New Jersey Resources Corporation	NJR	\$0.33	\$0.33	\$0.33	\$0.33	\$0.35	\$0.35	\$0.35	\$0.35	\$40.69	7.10%	6.00%	2.00%	5.03%	5.40%	8.57%	10.74%
Northwest Natural Holding Company	NWN	\$0.48	\$0.48	\$0.48	\$0.48	\$0.51	\$0.51	\$0.51	\$0.51	\$53.18	4.90%	5.50%	5.50%	5.30%	8.81%	9.23%	9.44%
ONE Gas, Inc.	OGS	\$0.54	\$0.58	\$0.58	\$0.58	\$0.57	\$0.61	\$0.61	\$0.61	\$74.94	5.00%	5.00%	6.50%	5.50%	8.29%	8.81%	9.86%
South Jersey Industries, Inc.	SJI	\$0.30	\$0.30	\$0.30	\$0.30	\$0.32	\$0.32	\$0.32	\$0.32	\$25.84	5.40%	4.80%	11.50%	7.23%	9.89%	12.48%	17.04%
Southwest Gas Holdings, Inc.	SWX	\$0.57	\$0.57	\$0.60	\$0.60	\$0.60	\$0.60	\$0.63	\$0.63	\$68.75	5.50%	4.00%	8.00%	5.83%	7.62%	9.54%	11.82%
Spire Inc.	SR	\$0.65	\$0.65	\$0.65	\$0.65	\$0.70	\$0.70	\$0.70	\$0.70	\$72.54	5.50%	7.31%	10.00%	7.60%	9.41%	11.62%	14.15%
Proxy Group Mean											5.83%	5.77%	7.21%	6.27%	8.46%	10.07%	11.95%
Proxy Group Median											5.50%	5.50%	7.00%	5.83%	8.81%	9.54%	10.74%
Average of Mean and Median															8.63%	9.81%	11.34%

Notes:

- [1] Source: Bloomberg Professional Service
- [2] Source: Bloomberg Professional Service
- [3] Source: Bloomberg Professional Service
- [4] Source: Bloomberg Professional Service
- [5] Equals Col. [1] x (1 + Col. [13])
- [6] Equals Col. [2] x (1 + Col. [13])
- [7] Equals Col. [3] x (1 + Col. [13])
- [8] Equals Col. [4] x (1 + Col. [13])
- [9] Source: Bloomberg Professional, equals indicated number of trading day average as of 08/31/2021
- [10] Source: Zacks
- [11] Source: Yahoo! Finance
- [12] Source: Value Line
- [13] Equals Average (Cols. [10], [11], [12])
- [14] Implied Low DCF
- [15] Implied Mean DCF
- [16] Implied High DCF

Nelson Proxy Group Quarterly Discounted Cash Flow Model
180 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
		Dividend 1	Dividend 2	Dividend 3	Dividend 4	Expected Dividend 1	Expected Dividend 2	Expected Dividend 3	Expected Dividend 4	Stock Price	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$0.63	\$0.63	\$0.63	\$0.63	\$0.67	\$0.67	\$0.67	\$0.67	\$96.52	7.40%	7.80%	7.00%	7.40%	9.87%	10.29%	10.70%
New Jersey Resources Corporation	NJR	\$0.33	\$0.33	\$0.33	\$0.33	\$0.35	\$0.35	\$0.35	\$0.35	\$39.48	7.10%	6.00%	2.00%	5.03%	5.51%	8.69%	10.85%
Northwest Natural Holding Company	NWN	\$0.48	\$0.48	\$0.48	\$0.48	\$0.51	\$0.51	\$0.51	\$0.51	\$51.15	4.90%	5.50%	5.50%	5.30%	8.97%	9.39%	9.60%
ONE Gas, Inc.	OGS	\$0.54	\$0.58	\$0.58	\$0.58	\$0.57	\$0.61	\$0.61	\$0.61	\$74.84	5.00%	5.00%	6.50%	5.50%	8.29%	8.82%	9.86%
South Jersey Industries, Inc.	SJI	\$0.30	\$0.30	\$0.30	\$0.30	\$0.32	\$0.32	\$0.32	\$0.32	\$24.70	5.40%	4.80%	11.50%	7.23%	10.13%	12.73%	17.31%
Southwest Gas Holdings, Inc.	SWX	\$0.57	\$0.57	\$0.60	\$0.60	\$0.60	\$0.60	\$0.63	\$0.63	\$66.56	5.50%	4.00%	8.00%	5.83%	7.74%	9.67%	11.94%
Spire Inc.	SR	\$0.65	\$0.65	\$0.65	\$0.65	\$0.70	\$0.70	\$0.70	\$0.70	\$70.29	5.50%	7.31%	10.00%	7.60%	9.54%	11.75%	14.28%
Proxy Group Mean											5.83%	5.77%	7.21%	6.27%	8.58%	10.19%	12.08%
Proxy Group Median											5.50%	5.50%	7.00%	5.83%	8.97%	9.67%	10.85%
Average of Mean and Median															8.77%	9.93%	11.46%

Notes:

- [1] Source: Bloomberg Professional Service
- [2] Source: Bloomberg Professional Service
- [3] Source: Bloomberg Professional Service
- [4] Source: Bloomberg Professional Service
- [5] Equals Col. [1] x (1 + Col. [13])
- [6] Equals Col. [2] x (1 + Col. [13])
- [7] Equals Col. [3] x (1 + Col. [13])
- [8] Equals Col. [4] x (1 + Col. [13])
- [9] Source: Bloomberg Professional, equals indicated number of trading day average as of 08/31/2021
- [10] Source: Zacks
- [11] Source: Yahoo! Finance
- [12] Source: Value Line
- [13] Equals Average (Cols. [10], [11], [12])
- [14] Implied Low DCF
- [15] Implied Mean DCF
- [16] Implied High DCF

Combined Proxy Group Constant Growth Discounted Cash Flow Model with Half Year Growth Adjustment
30 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$2.50	\$99.40	2.52%	2.61%	7.40%	7.80%	7.00%	7.40%	9.60%	10.01%	10.41%
Chesapeake Utilities	CPK	\$1.92	\$127.42	1.51%	1.56%	NA	4.74%	8.50%	6.62%	6.28%	8.18%	10.07%
MDU Resources	MDU	\$0.85	\$32.23	2.64%	2.75%	6.90%	7.10%	10.50%	8.17%	9.63%	10.91%	13.28%
National Fuel Gas	NFG	\$1.82	\$51.70	3.52%	3.67%	NA	8.50%	19.00%	8.50%	12.17%	12.17%	22.85%
New Jersey Resources Corporation	NJR	\$1.33	\$38.32	3.47%	3.56%	7.10%	6.00%	2.00%	5.03%	5.51%	8.59%	10.69%
NiSource Inc.	NI	\$0.88	\$25.22	3.49%	3.60%	6.20%	3.52%	9.50%	6.41%	7.07%	10.01%	13.15%
Northwest Natural Holding Company	NWN	\$1.92	\$52.51	3.66%	3.75%	4.90%	5.50%	5.50%	5.30%	8.65%	9.05%	9.26%
ONE Gas, Inc.	OGS	\$2.32	\$73.30	3.17%	3.25%	5.00%	5.00%	6.50%	5.50%	8.24%	8.75%	9.77%
South Jersey Industries, Inc.	SJI	\$1.21	\$25.13	4.81%	4.99%	5.40%	4.80%	11.50%	7.23%	9.73%	12.22%	16.59%
Southwest Gas Holdings, Inc.	SWX	\$2.38	\$70.89	3.36%	3.46%	5.50%	4.00%	8.00%	5.83%	7.42%	9.29%	11.49%
Spire Inc.	SR	\$2.60	\$70.50	3.69%	3.83%	5.50%	7.31%	10.00%	7.60%	9.29%	11.43%	13.87%
UGI Corporation	UGI	\$1.38	\$46.60	2.96%	3.07%	8.00%	7.75%	6.50%	7.42%	9.56%	10.49%	11.08%
Proxy Group Mean				3.23%	3.34%	6.19%	6.00%	8.71%	6.75%	8.60%	10.09%	12.71%
Proxy Group Median				3.41%	3.51%	5.85%	5.75%	8.25%	6.93%	8.97%	10.01%	11.29%
Average of Mean and Median										8.78%	10.05%	12.00%

Notes:

- [1] Source: Bloomberg Professional
 - [2] Source: Bloomberg Professional, equals indicated number of trading day average as of 08/31/2021
 - [3] Equals [1] / [2]
 - [4] Equals [3] x (1 + 0.5 x [8])
 - [5] Source: Zacks
 - [6] Source: Yahoo! Finance
 - [7] Source: Value Line
 - [8] Equals Average ([5], [6], [7])
 - [9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])
 - [10] Equals [4] + [8]
 - [11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])
- Highlighted growth rates identified as outliers and excluded*

Combined Proxy Group Constant Growth Discounted Cash Flow Model with Half Year Growth Adjustment
90 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$2.50	\$99.70	2.51%	2.60%	7.40%	7.80%	7.00%	7.40%	9.60%	10.00%	10.41%
Chesapeake Utilities	CPK	\$1.92	\$121.72	1.58%	1.63%	NA	4.74%	8.50%	6.62%	6.35%	8.25%	10.14%
MDU Resources	MDU	\$0.85	\$32.57	2.61%	2.72%	6.90%	7.10%	10.50%	8.17%	9.60%	10.88%	13.25%
National Fuel Gas	NFG	\$1.82	\$52.03	3.50%	3.65%	NA	8.50%	19.00%	8.50%	12.15%	12.15%	22.83%
New Jersey Resources Corporation	NJR	\$1.33	\$40.69	3.27%	3.35%	7.10%	6.00%	2.00%	5.03%	5.30%	8.38%	10.48%
NiSource Inc.	NI	\$0.88	\$25.37	3.47%	3.58%	6.20%	3.52%	9.50%	6.41%	7.05%	9.99%	13.13%
Northwest Natural Holding Company	NWN	\$1.92	\$53.18	3.61%	3.71%	4.90%	5.50%	5.50%	5.30%	8.60%	9.01%	9.21%
ONE Gas, Inc.	OGS	\$2.32	\$74.94	3.10%	3.18%	5.00%	5.00%	6.50%	5.50%	8.17%	8.68%	9.70%
South Jersey Industries, Inc.	SJI	\$1.21	\$25.84	4.68%	4.85%	5.40%	4.80%	11.50%	7.23%	9.59%	12.09%	16.45%
Southwest Gas Holdings, Inc.	SWX	\$2.38	\$68.75	3.46%	3.56%	5.50%	4.00%	8.00%	5.83%	7.53%	9.40%	11.60%
Spire Inc.	SR	\$2.60	\$72.54	3.58%	3.72%	5.50%	7.31%	10.00%	7.60%	9.18%	11.32%	13.76%
UGI Corporation	UGI	\$1.38	\$46.05	3.00%	3.11%	8.00%	7.75%	6.50%	7.42%	9.59%	10.52%	11.12%
Proxy Group Mean				3.20%	3.30%	6.19%	6.00%	8.71%	6.75%	8.56%	10.06%	12.67%
Proxy Group Median				3.36%	3.46%	5.85%	5.75%	8.25%	6.93%	8.89%	9.99%	11.36%
Average of Mean and Median										8.73%	10.02%	12.02%

Notes:

- [1] Source: Bloomberg Professional
 - [2] Source: Bloomberg Professional, equals indicated number of trading day average as of 08/31/2021
 - [3] Equals [1] / [2]
 - [4] Equals [3] x (1 + 0.5 x [8])
 - [5] Source: Zacks
 - [6] Source: Yahoo! Finance
 - [7] Source: Value Line
 - [8] Equals Average ([5], [6], [7])
 - [9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])
 - [10] Equals [4] + [8]
 - [11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])
- Highlighted growth rates identified as outliers and excluded*

Combined Proxy Group Constant Growth Discounted Cash Flow Model with Half Year Growth Adjustment
180 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$2.50	\$96.52	2.59%	2.69%	7.40%	7.80%	7.00%	7.40%	9.68%	10.09%	10.49%
Chesapeake Utilities	CPK	\$1.92	\$115.68	1.66%	1.71%	NA	4.74%	8.50%	6.62%	6.44%	8.33%	10.23%
MDU Resources	MDU	\$0.85	\$30.74	2.77%	2.88%	6.90%	7.10%	10.50%	8.17%	9.76%	11.04%	13.41%
National Fuel Gas	NFG	\$1.82	\$48.93	3.72%	3.88%	NA	8.50%	19.00%	8.50%	12.38%	12.38%	23.07%
New Jersey Resources Corporation	NJR	\$1.33	\$39.48	3.37%	3.45%	7.10%	6.00%	2.00%	5.03%	5.40%	8.49%	10.59%
NiSource Inc.	NI	\$0.88	\$24.18	3.64%	3.76%	6.20%	3.52%	9.50%	6.41%	7.22%	10.16%	13.31%
Northwest Natural Holding Company	NWN	\$1.92	\$51.15	3.75%	3.85%	4.90%	5.50%	5.50%	5.30%	8.75%	9.15%	9.36%
ONE Gas, Inc.	OGS	\$2.32	\$74.84	3.10%	3.19%	5.00%	5.00%	6.50%	5.50%	8.18%	8.69%	9.70%
South Jersey Industries, Inc.	SJI	\$1.21	\$24.70	4.90%	5.08%	5.40%	4.80%	11.50%	7.23%	9.82%	12.31%	16.68%
Southwest Gas Holdings, Inc.	SWX	\$2.38	\$66.56	3.58%	3.68%	5.50%	4.00%	8.00%	5.83%	7.65%	9.51%	11.72%
Spire Inc.	SR	\$2.60	\$70.29	3.70%	3.84%	5.50%	7.31%	10.00%	7.60%	9.30%	11.44%	13.88%
UGI Corporation	UGI	\$1.38	\$42.48	3.25%	3.37%	8.00%	7.75%	6.50%	7.42%	9.85%	10.79%	11.38%
Proxy Group Mean				3.34%	3.45%	5.99%	5.84%	8.91%	6.69%	8.70%	10.20%	12.82%
Proxy Group Median				3.58%	3.68%	5.50%	5.50%	8.50%	6.62%	9.02%	10.12%	11.55%
Average of Mean and Median										8.86%	10.16%	12.18%

Notes:

- [1] Source: Bloomberg Professional
 - [2] Source: Bloomberg Professional, equals indicated number of trading day average as of 08/31/2021
 - [3] Equals [1] / [2]
 - [4] Equals [3] x (1 + 0.5 x [8])
 - [5] Source: Zacks
 - [6] Source: Yahoo! Finance
 - [7] Source: Value Line
 - [8] Equals Average ([5], [6], [7])
 - [9] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7])) + Minimum([5], [6], [7])
 - [10] Equals [4] + [8]
 - [11] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7])) + Maximum([5], [6], [7])
- Highlighted growth rates identified as outliers and excluded*

Combined Proxy Group Quarterly Discounted Cash Flow Model
30 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
		Dividend 1	Dividend 2	Dividend 3	Dividend 4	Expected Dividend 1	Expected Dividend 2	Expected Dividend 3	Expected Dividend 4	Stock Price	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$0.63	\$0.63	\$0.63	\$0.63	\$0.67	\$0.67	\$0.67	\$0.67	\$99.40	7.40%	7.80%	7.00%	7.40%	9.79%	10.20%	10.62%
Chesapeake Utilities	CPK	\$0.00	\$0.63	\$0.63	\$0.63	\$0.00	\$0.67	\$0.67	\$0.67	\$127.42	NA	4.74%	8.50%	6.62%	6.31%	8.22%	10.14%
MDU Resources	MDU	\$0.00	\$0.00	\$0.63	\$0.63	\$0.00	\$0.00	\$0.68	\$0.68	\$32.23	6.90%	7.10%	10.50%	8.17%	11.10%	12.42%	14.86%
National Fuel Gas	NFG	\$0.00	\$0.00	\$0.00	\$0.63	\$0.00	\$0.00	\$0.00	\$0.68	\$51.70	NA	8.50%	19.00%	8.50%	9.81%	9.81%	9.81%
New Jersey Resources Corporation	NJR	\$0.33	\$0.33	\$0.33	\$0.33	\$0.35	\$0.35	\$0.35	\$0.35	\$38.32	7.10%	6.00%	2.00%	5.03%	5.61%	8.80%	10.97%
NiSource Inc.	NI	\$0.00	\$0.33	\$0.33	\$0.33	\$0.00	\$0.35	\$0.35	\$0.35	\$25.22	6.20%	3.52%	9.50%	6.41%	7.69%	10.72%	13.98%
Northwest Natural Holding Company	NWN	\$0.48	\$0.48	\$0.48	\$0.48	\$0.51	\$0.51	\$0.51	\$0.51	\$52.51	4.90%	5.50%	5.50%	5.30%	8.86%	9.28%	9.49%
ONE Gas, Inc.	OGS	\$0.54	\$0.58	\$0.58	\$0.58	\$0.57	\$0.61	\$0.61	\$0.61	\$73.30	5.00%	5.00%	6.50%	5.50%	8.37%	8.89%	9.93%
South Jersey Industries, Inc.	SJI	\$0.30	\$0.30	\$0.30	\$0.30	\$0.32	\$0.32	\$0.32	\$0.32	\$25.13	5.40%	4.80%	11.50%	7.23%	10.03%	12.63%	17.20%
Southwest Gas Holdings, Inc.	SWX	\$0.57	\$0.57	\$0.60	\$0.60	\$0.60	\$0.60	\$0.63	\$0.63	\$70.89	5.50%	4.00%	8.00%	5.83%	7.51%	9.43%	11.70%
Spire Inc.	SR	\$0.65	\$0.65	\$0.65	\$0.65	\$0.70	\$0.70	\$0.70	\$0.70	\$70.50	5.50%	7.31%	10.00%	7.60%	9.53%	11.74%	14.27%
UGI Corporation	UGI	\$0.00	\$0.65	\$0.65	\$0.65	\$0.00	\$0.70	\$0.70	\$0.70	\$46.60	8.00%	7.75%	6.50%	7.42%	11.08%	12.04%	12.66%
Proxy Group Mean											6.19%	6.00%	8.71%	6.75%	8.81%	10.35%	12.14%
Proxy Group Median											5.85%	5.75%	8.25%	6.93%	9.19%	10.01%	11.33%
Average of Mean and Median															9.00%	10.18%	11.73%

Notes:

- [1] Source: Bloomberg Professional Service
 - [2] Source: Bloomberg Professional Service
 - [3] Source: Bloomberg Professional Service
 - [4] Source: Bloomberg Professional Service
 - [5] Equals Col. [1] x (1 + Col. [13])
 - [6] Equals Col. [2] x (1 + Col. [13])
 - [7] Equals Col. [3] x (1 + Col. [13])
 - [8] Equals Col. [4] x (1 + Col. [13])
 - [9] Source: Bloomberg Professional, equals indicated number of trading day average as of 08/31/2021
 - [10] Source: Zacks
 - [11] Source: Yahoo! Finance
 - [12] Source: Value Line
 - [13] Equals Average (Cols. [10], [11], [12])
 - [14] Implied Low DCF
 - [15] Implied Mean DCF
 - [16] Implied High DCF
- Highlighted growth rates identified as outliers and excluded

Combined Proxy Group Quarterly Discounted Cash Flow Model
90 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
		Dividend 1	Dividend 2	Dividend 3	Dividend 4	Expected Dividend 1	Expected Dividend 2	Expected Dividend 3	Expected Dividend 4	Stock Price	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$0.63	\$0.63	\$0.63	\$0.63	\$0.67	\$0.67	\$0.67	\$0.67	\$99.70	7.40%	7.80%	7.00%	7.40%	9.78%	10.19%	10.61%
Chesapeake Utilities	CPK	\$0.00	\$0.63	\$0.63	\$0.63	\$0.00	\$0.67	\$0.67	\$0.67	\$121.72	NA	4.74%	8.50%	6.62%	6.38%	8.30%	10.21%
MDU Resources	MDU	\$0.00	\$0.00	\$0.63	\$0.63	\$0.00	\$0.00	\$0.68	\$0.68	\$32.57	6.90%	7.10%	10.50%	8.17%	11.06%	12.38%	14.82%
National Fuel Gas	NFG	\$0.00	\$0.00	\$0.00	\$0.63	\$0.00	\$0.00	\$0.00	\$0.68	\$52.03	NA	8.50%	19.00%	8.50%	9.80%	9.80%	9.80%
New Jersey Resources Corporation	NJR	\$0.33	\$0.33	\$0.33	\$0.33	\$0.35	\$0.35	\$0.35	\$0.35	\$40.69	7.10%	6.00%	2.00%	5.03%	5.40%	8.57%	10.74%
NiSource Inc.	NI	\$0.00	\$0.33	\$0.33	\$0.33	\$0.00	\$0.35	\$0.35	\$0.35	\$25.37	6.20%	3.52%	9.50%	6.41%	7.67%	10.70%	13.95%
Northwest Natural Holding Company	NWN	\$0.48	\$0.48	\$0.48	\$0.48	\$0.51	\$0.51	\$0.51	\$0.51	\$53.18	4.90%	5.50%	5.50%	5.30%	8.81%	9.23%	9.44%
ONE Gas, Inc.	OGS	\$0.54	\$0.58	\$0.58	\$0.58	\$0.57	\$0.61	\$0.61	\$0.61	\$74.94	5.00%	5.00%	6.50%	5.50%	8.29%	8.81%	9.86%
South Jersey Industries, Inc.	SJI	\$0.30	\$0.30	\$0.30	\$0.30	\$0.32	\$0.32	\$0.32	\$0.32	\$25.84	5.40%	4.80%	11.50%	7.23%	9.89%	12.48%	17.04%
Southwest Gas Holdings, Inc.	SWX	\$0.57	\$0.57	\$0.60	\$0.60	\$0.60	\$0.60	\$0.63	\$0.63	\$68.75	5.50%	4.00%	8.00%	5.83%	7.62%	9.54%	11.82%
Spire Inc.	SR	\$0.65	\$0.65	\$0.65	\$0.65	\$0.70	\$0.70	\$0.70	\$0.70	\$72.54	5.50%	7.31%	10.00%	7.60%	9.41%	11.62%	14.15%
UGI Corporation	UGI	\$0.00	\$0.65	\$0.65	\$0.65	\$0.00	\$0.70	\$0.70	\$0.70	\$46.05	8.00%	7.75%	6.50%	7.42%	11.13%	12.10%	12.71%
Proxy Group Mean											6.19%	6.00%	8.71%	6.75%	8.77%	10.31%	12.10%
Proxy Group Median											5.85%	5.75%	8.25%	6.93%	9.11%	10.00%	11.28%
Average of Mean and Median															8.94%	10.16%	11.69%

Notes:

- [1] Source: Bloomberg Professional Service
 - [2] Source: Bloomberg Professional Service
 - [3] Source: Bloomberg Professional Service
 - [4] Source: Bloomberg Professional Service
 - [5] Equals Col. [1] x (1 + Col. [13])
 - [6] Equals Col. [2] x (1 + Col. [13])
 - [7] Equals Col. [3] x (1 + Col. [13])
 - [8] Equals Col. [4] x (1 + Col. [13])
 - [9] Source: Bloomberg Professional, equals indicated number of trading day average as of 08/31/2021
 - [10] Source: Zacks
 - [11] Source: Yahoo! Finance
 - [12] Source: Value Line
 - [13] Equals Average (Cols. [10], [11], [12])
 - [14] Implied Low DCF
 - [15] Implied Mean DCF
 - [16] Implied High DCF
- Highlighted growth rates identified as outliers and excluded

Combined Proxy Group Quarterly Discounted Cash Flow Model
180 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
		Dividend 1	Dividend 2	Dividend 3	Dividend 4	Expected Dividend 1	Expected Dividend 2	Expected Dividend 3	Expected Dividend 4	Stock Price	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$0.63	\$0.63	\$0.63	\$0.63	\$0.67	\$0.67	\$0.67	\$0.67	\$96.52	7.40%	7.80%	7.00%	7.40%	9.87%	10.29%	10.70%
Chesapeake Utilities	CPK	\$0.00	\$0.63	\$0.63	\$0.63	\$0.00	\$0.67	\$0.67	\$0.67	\$115.68	NA	4.74%	8.50%	6.62%	6.46%	8.38%	10.30%
MDU Resources	MDU	\$0.00	\$0.00	\$0.63	\$0.63	\$0.00	\$0.68	\$0.68	\$0.68	\$30.74	6.90%	7.10%	10.50%	8.17%	11.31%	12.63%	15.07%
National Fuel Gas	NFG	\$0.00	\$0.00	\$0.00	\$0.63	\$0.00	\$0.00	\$0.00	\$0.68	\$48.93	NA	8.50%	19.00%	8.50%	9.89%	9.89%	9.89%
New Jersey Resources Corporation	NJR	\$0.33	\$0.33	\$0.33	\$0.33	\$0.35	\$0.35	\$0.35	\$0.35	\$39.48	7.10%	6.00%	2.00%	5.03%	5.51%	8.68%	10.85%
NiSource Inc.	NI	\$0.00	\$0.33	\$0.33	\$0.33	\$0.00	\$0.35	\$0.35	\$0.35	\$24.18	6.20%	3.52%	9.50%	6.41%	7.87%	10.91%	14.17%
Northwest Natural Holding Company	NWN	\$0.48	\$0.48	\$0.48	\$0.48	\$0.51	\$0.51	\$0.51	\$0.51	\$51.15	4.90%	5.50%	5.50%	5.30%	8.97%	9.39%	9.60%
ONE Gas, Inc.	OGS	\$0.54	\$0.58	\$0.58	\$0.58	\$0.57	\$0.61	\$0.61	\$0.61	\$74.84	5.00%	5.00%	6.50%	5.50%	8.29%	8.82%	9.86%
South Jersey Industries, Inc.	SJI	\$0.30	\$0.30	\$0.30	\$0.30	\$0.32	\$0.32	\$0.32	\$0.32	\$24.70	5.40%	4.80%	11.50%	7.23%	10.13%	12.73%	17.31%
Southwest Gas Holdings, Inc.	SWX	\$0.57	\$0.57	\$0.60	\$0.60	\$0.60	\$0.60	\$0.63	\$0.63	\$66.56	5.50%	4.00%	8.00%	5.83%	7.74%	9.67%	11.94%
Spire Inc.	SR	\$0.65	\$0.65	\$0.65	\$0.65	\$0.70	\$0.70	\$0.70	\$0.70	\$70.29	5.50%	7.31%	10.00%	7.60%	9.54%	11.75%	14.28%
UGI Corporation	UGI	\$0.00	\$0.65	\$0.65	\$0.65	\$0.00	\$0.70	\$0.70	\$0.70	\$42.48	8.00%	7.75%	6.50%	7.42%	11.53%	12.50%	13.11%
Proxy Group Mean											6.19%	6.00%	8.71%	6.75%	8.93%	10.47%	12.26%
Proxy Group Median											5.85%	5.75%	8.25%	6.93%	9.25%	10.09%	11.40%
Average of Mean and Median															9.09%	10.28%	11.83%

Notes:

- [1] Source: Bloomberg Professional Service
- [2] Source: Bloomberg Professional Service
- [3] Source: Bloomberg Professional Service
- [4] Source: Bloomberg Professional Service
- [5] Equals Col. [1] x (1 + Col. [13])
- [6] Equals Col. [2] x (1 + Col. [13])
- [7] Equals Col. [3] x (1 + Col. [13])
- [8] Equals Col. [4] x (1 + Col. [13])
- [9] Source: Bloomberg Professional, equals indicated number of trading day average as of 08/31/2021
- [10] Source: Zacks
- [11] Source: Yahoo! Finance
- [12] Source: Value Line
- [13] Equals Average (Cols. [10], [11], [12])
- [14] Implied Low DCF
- [15] Implied Mean DCF
- [16] Implied High DCF

Highlighted growth rates identified as outliers and excluded

Expected Market Return
Market DCF Method Based - Value Line

[1]
S&P 500
Est. Required
Market Return
15.05%

Company	Ticker	[2] Market Capitalization	[3] Weight in Index	[4] Estimated Dividend Yield	[5] Long-Term Growth Est.	[6] DCF Result	[7] Weighted DCF Result
Agilent Technologies Inc	A	52,579.73	0.15%	0.45%	11.50%	11.98%	0.0174%
American Airlines Group Inc	AAL	13,046.04	N/A	0.00%	N/A	N/A	N/A
Advance Auto Parts Inc	AAP	13,477.03	0.04%	1.89%	11.00%	12.99%	0.0049%
Apple Inc	AAPL	2,456,388.00	6.81%	0.61%	14.50%	15.15%	1.0313%
AbbVie Inc	ABBV	212,749.90	0.59%	4.32%	6.50%	10.96%	0.0646%
AmerisourceBergen Corp	ABC	24,528.59	0.07%	1.54%	7.00%	8.59%	0.0058%
ABIOMED Inc	ABMD	16,245.78	0.05%	0.00%	9.50%	9.50%	0.0043%
Abbott Laboratories	ABT	221,141.20	0.61%	1.44%	11.50%	13.02%	0.0798%
Accenture PLC	ACN	211,718.10	0.59%	1.16%	10.00%	11.22%	0.0658%
Adobe Inc	ADBE	313,293.60	0.87%	0.00%	15.50%	15.50%	0.1345%
Analog Devices Inc	ADI	60,387.10	0.17%	1.68%	8.50%	10.25%	0.0171%
Archer-Daniels-Midland Co	ADM	33,707.70	0.09%	2.52%	8.50%	11.13%	0.0104%
Automatic Data Processing Inc	ADP	88,210.10	0.24%	1.93%	9.00%	11.02%	0.0269%
Autodesk Inc	ADSK	75,299.41	0.21%	0.00%	18.00%	18.00%	0.0375%
Ameren Corp	AEE	22,455.11	0.06%	2.60%	6.50%	9.18%	0.0057%
American Electric Power Co Inc	AEP	44,684.48	0.12%	3.45%	6.50%	10.06%	0.0125%
AES Corp/The	AES	16,165.17	0.04%	2.47%	17.50%	20.19%	0.0090%
Aflac Inc	AFL	38,377.35	0.11%	2.38%	8.50%	10.98%	0.0117%
American International Group Inc	AIG	46,961.20	0.13%	2.33%	31.50%	34.20%	0.0445%
Assurant Inc	AIZ	10,037.11	0.03%	1.56%	15.00%	16.68%	0.0046%
Arthur J Gallagher & Co	AJG	29,553.79	0.08%	1.34%	12.50%	13.92%	0.0114%
Akamai Technologies Inc	AKAM	18,458.64	0.05%	0.00%	9.50%	9.50%	0.0049%
Albemarle Corp	ALB	27,385.01	0.08%	0.67%	6.50%	7.19%	0.0055%
Align Technology Inc	ALGN	56,597.82	0.16%	0.00%	24.50%	24.50%	0.0384%
Alaska Air Group Inc	ALK	7,220.71	0.02%	0.00%	80.00%	80.00%	0.0160%
Allstate Corp/The	ALL	40,947.39	0.11%	2.35%	5.00%	7.41%	0.0084%
Allegion plc	ALLE	12,669.43	0.04%	1.02%	8.50%	9.56%	0.0034%
Applied Materials Inc	AMAT	121,397.50	0.34%	0.72%	16.00%	16.78%	0.0564%
Amcpr PLC	AMCR	19,734.99	N/A	3.67%	N/A	N/A	N/A
Advanced Micro Devices Inc	AMD	131,367.90	0.36%	0.00%	26.50%	26.50%	0.0964%
AMETEK Inc	AME	31,591.99	0.09%	0.59%	14.00%	14.63%	0.0128%
Amgen Inc	AMGN	126,217.70	0.35%	3.35%	5.50%	8.94%	0.0313%
Ameriprise Financial Inc	AMP	31,166.51	0.09%	1.66%	13.50%	15.27%	0.0132%
American Tower Corp	AMT	128,728.30	0.36%	1.91%	9.50%	11.50%	0.0410%
Amazon.com Inc	AMZN	1,669,385.00	4.62%	0.00%	30.00%	30.00%	1.3874%
Arista Networks Inc	ANET	28,681.91	0.08%	0.00%	4.50%	4.50%	0.0036%
ANSYS Inc	ANSS	31,900.74	0.09%	0.00%	8.00%	8.00%	0.0071%
Anthem Inc	ANTM	91,026.81	0.25%	1.26%	13.00%	14.34%	0.0362%
Aon PLC	AON	63,386.82	0.18%	0.73%	7.00%	7.76%	0.0136%
A O Smith Corp	AOS	11,500.61	0.03%	1.44%	9.50%	11.01%	0.0035%
APA Corp	APA	6,843.77	0.02%	0.55%	72.50%	73.25%	0.0139%
Air Products and Chemicals Inc	APD	59,584.81	0.17%	2.23%	12.00%	14.36%	0.0237%
Amphenol Corp	APH	45,278.55	0.13%	0.77%	10.50%	11.31%	0.0142%
Aptiv PLC	APTIV	42,583.37	0.12%	0.00%	15.50%	15.50%	0.0183%
Alexandria Real Estate Equities Inc	ARE	27,862.89	0.08%	2.20%	13.00%	15.34%	0.0118%
Atmos Energy Corp	ATO	12,750.42	0.04%	2.77%	7.00%	9.87%	0.0035%
Activision Blizzard Inc	ATVI	62,845.21	0.17%	0.64%	13.00%	13.68%	0.0238%
AvalonBay Communities Inc	AVB	31,011.27	0.09%	2.93%	1.00%	3.94%	0.0034%
Broadcom Inc	AVGO	198,198.10	0.55%	2.98%	27.00%	30.38%	0.1668%
Avery Dennison Corp	AVY	18,576.27	0.05%	1.25%	9.00%	10.31%	0.0053%
American Water Works Co Inc	AWK	32,828.82	0.09%	1.36%	8.00%	9.41%	0.0086%
American Express Co	AXP	132,611.60	0.37%	1.11%	9.50%	10.66%	0.0392%
AutoZone Inc	AZO	34,881.92	0.10%	0.00%	14.50%	14.50%	0.0140%
Boeing Co/The	BA	129,496.20	N/A	0.00%	N/A	N/A	N/A
Bank of America Corp	BAC	357,733.40	0.99%	1.99%	6.50%	8.55%	0.0848%
Baxter International Inc	BAX	36,889.30	0.10%	1.52%	8.50%	10.08%	0.0103%
Bath & Body Works Inc	BBWI	18,885.86	0.05%	0.88%	30.50%	31.51%	0.0165%
Best Buy Co Inc	BBY	30,521.26	0.08%	2.30%	7.50%	9.89%	0.0084%
Becton Dickinson and Co	BDX	70,935.93	0.20%	1.39%	7.50%	8.94%	0.0176%
Franklin Resources Inc	BEN	16,363.42	0.05%	3.44%	10.50%	14.12%	0.0064%
Brown-Forman Corp	BF/B	33,219.00	0.09%	1.08%	13.00%	14.15%	0.0130%
Biogen Inc	BIIB	51,104.02	0.14%	0.00%	3.00%	3.00%	0.0042%
Bio-Rad Laboratories Inc	BIO	23,774.63	0.07%	0.00%	9.00%	9.00%	0.0059%
Bank of New York Mellon Corp/The	BK	47,966.58	0.13%	2.45%	5.00%	7.51%	0.0100%
Booking Holdings Inc	BKNG	92,951.22	0.26%	0.00%	14.00%	14.00%	0.0361%
Baker Hughes Co	BKR	18,514.08	N/A	3.22%	N/A	N/A	N/A
BlackRock Inc	BLK	143,088.00	0.40%	1.76%	9.00%	10.84%	0.0430%
Ball Corp	BLL	30,932.14	0.09%	0.85%	22.00%	22.94%	0.0197%
Bristol-Myers Squibb Co	BMJ	150,214.90	0.42%	2.90%	56.00%	59.71%	0.2485%
Broadridge Financial Solutions Inc	BR	19,816.58	0.05%	1.50%	9.50%	11.07%	0.0061%
Berkshire Hathaway Inc	BRK/B	-	N/A	0.00%	N/A	N/A	N/A
Boston Scientific Corp	BSX	63,707.14	0.18%	0.00%	17.50%	17.50%	0.0309%
BorgWarner Inc	BWA	10,344.54	0.03%	1.58%	9.00%	10.65%	0.0031%
Boston Properties Inc	BXP	17,748.85	0.05%	3.56%	-2.00%	1.52%	0.0007%
Citigroup Inc	C	148,320.10	0.41%	2.79%	7.00%	9.89%	0.0406%

Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Conagra Brands Inc	CAG	15,771.06	0.04%	3.44%	5.00%	8.53%	0.0037%
Cardinal Health Inc	CAH	15,065.07	0.04%	3.79%	11.50%	15.51%	0.0065%
Carrier Global Corp	CARR	50,277.34	N/A	0.83%	N/A	N/A	N/A
Caterpillar Inc	CAT	117,574.90	0.33%	2.07%	9.00%	11.16%	0.0364%
Chubb Ltd	CB	81,899.69	0.23%	1.71%	12.50%	14.32%	0.0325%
Cboe Global Markets Inc	CBOE	13,392.79	0.04%	1.53%	12.00%	13.62%	0.0051%
CBRE Group Inc	CBRE	31,720.96	0.09%	0.00%	10.50%	10.50%	0.0092%
Crown Castle International Corp	CCI	82,209.59	0.23%	2.96%	8.50%	11.59%	0.0264%
Carnival Corp	CCL	23,478.90	N/A	0.00%	N/A	N/A	N/A
Cadence Design Systems Inc	CDNS	43,905.61	0.12%	0.00%	11.00%	11.00%	0.0134%
CDW Corp/DE	CDW	27,435.96	0.08%	0.81%	10.50%	11.35%	0.0086%
Celanese Corp	CE	17,678.40	0.05%	1.71%	6.50%	8.27%	0.0040%
Cerner Corp	CERN	22,913.21	0.06%	1.15%	11.00%	12.21%	0.0078%
CF Industries Holdings Inc	CF	9,823.07	0.03%	2.74%	19.50%	22.51%	0.0061%
Citizens Financial Group Inc	CFG	18,918.09	0.05%	3.60%	8.50%	12.25%	0.0064%
Church & Dwight Co Inc	CHD	20,207.19	0.06%	1.23%	8.00%	9.28%	0.0052%
CH Robinson Worldwide Inc	CHRW	11,933.11	0.03%	2.26%	8.00%	10.35%	0.0034%
Charter Communications Inc	CHTR	146,445.50	0.41%	0.00%	26.50%	26.50%	0.1075%
Cigna Corp	CI	71,895.23	0.20%	1.89%	10.00%	11.98%	0.0239%
Cincinnati Financial Corp	CINF	20,114.95	0.06%	2.02%	17.50%	19.70%	0.0110%
Colgate-Palmolive Co	CL	65,498.78	0.18%	2.32%	4.50%	6.87%	0.0125%
Clorox Co/The	CLX	20,237.83	0.06%	2.82%	6.00%	8.90%	0.0050%
Comerica Inc	CMA	10,073.24	0.03%	3.62%	2.50%	6.17%	0.0017%
Comcast Corp	CMCSA	272,997.60	0.76%	1.68%	11.00%	12.77%	0.0966%
CME Group Inc	CME	71,765.52	0.20%	1.80%	8.50%	10.38%	0.0206%
Chipotle Mexican Grill Inc	CMG	54,074.60	0.15%	0.00%	22.00%	22.00%	0.0330%
Cummins Inc	CMI	34,268.14	0.09%	2.43%	7.00%	9.52%	0.0090%
CMS Energy Corp	CMS	18,436.51	0.05%	2.73%	7.50%	10.33%	0.0053%
Centene Corp	CNC	37,055.61	0.10%	0.00%	9.50%	9.50%	0.0098%
CenterPoint Energy Inc	CNP	15,248.15	0.04%	2.53%	8.00%	10.63%	0.0045%
Capital One Financial Corp	COF	77,592.60	0.21%	1.38%	4.00%	5.41%	0.0116%
Cabot Oil & Gas Corp	COG	5,994.96	0.02%	3.20%	13.50%	16.92%	0.0028%
Cooper Cos Inc/The	COO	21,979.61	0.06%	0.01%	13.50%	13.51%	0.0082%
ConocoPhillips	COP	75,015.37	0.21%	3.07%	13.50%	16.78%	0.0349%
Costco Wholesale Corp	COST	199,507.30	0.55%	0.70%	10.50%	11.24%	0.0621%
Campbell Soup Co	CPB	13,278.53	0.04%	3.60%	5.00%	8.69%	0.0032%
Copart Inc	CPRT	34,049.23	0.09%	0.00%	15.00%	15.00%	0.0141%
Charles River Laboratories Internation	CRL	21,813.76	0.06%	0.00%	7.00%	7.00%	0.0042%
salesforce.com Inc	CRM	241,286.20	0.67%	0.00%	20.00%	20.00%	0.1337%
Cisco Systems Inc/Delaware	CSCO	250,160.30	0.69%	2.49%	6.00%	8.56%	0.0594%
CSX Corp	CSX	75,435.44	0.21%	1.11%	11.50%	12.67%	0.0265%
Cintas Corp	CTAS	40,808.56	0.11%	0.97%	12.50%	13.53%	0.0153%
Catalent Inc	CTLT	21,994.24	0.06%	0.00%	28.00%	28.00%	0.0171%
Cognizant Technology Solutions Corp	CTSH	40,682.25	0.11%	1.24%	6.50%	7.78%	0.0088%
Corteva Inc	CTVA	32,152.95	N/A	1.28%	N/A	N/A	N/A
Citrix Systems Inc	CTXS	12,623.97	0.03%	1.50%	8.50%	10.06%	0.0035%
CVS Health Corp	CVS	110,145.30	0.31%	2.39%	6.00%	8.46%	0.0258%
Chevron Corp	CVX	190,509.70	0.53%	5.44%	24.00%	30.09%	0.1588%
Caesars Entertainment Inc	CZR	N/A	N/A	0.00%	N/A	N/A	N/A
Dominion Energy Inc	D	63,514.74	0.18%	3.30%	12.00%	15.50%	0.0273%
Delta Air Lines Inc	DAL	26,428.49	0.07%	0.00%	49.00%	49.00%	0.0359%
DuPont de Nemours Inc	DD	39,364.04	N/A	1.65%	N/A	N/A	N/A
Deere & Co	DE	117,405.60	0.33%	0.96%	17.00%	18.04%	0.0587%
Discover Financial Services	DFS	39,699.50	0.11%	1.52%	16.00%	17.64%	0.0194%
Dollar General Corp	DG	55,446.76	0.15%	0.72%	10.50%	11.26%	0.0173%
Quest Diagnostics Inc	DGX	18,264.62	0.05%	1.66%	7.50%	9.22%	0.0047%
DR Horton Inc	DHI	34,795.43	0.10%	0.85%	14.50%	15.41%	0.0149%
Danaher Corp	DHR	228,044.80	0.63%	0.26%	20.50%	20.79%	0.1313%
Walt Disney Co/The	DIS	317,570.10	0.88%	0.00%	14.00%	14.00%	0.1232%
Discovery Inc	DISCA	14,542.44	0.04%	0.00%	13.50%	13.50%	0.0054%
DISH Network Corp	DISH	23,068.14	0.06%	0.00%	2.50%	2.50%	0.0016%
Digital Realty Trust Inc	DLR	44,462.40	0.12%	3.00%	7.00%	10.11%	0.0124%
Dollar Tree Inc	DLTR	24,644.98	0.07%	0.00%	9.50%	9.50%	0.0065%
Dover Corp	DOV	25,115.44	0.07%	1.15%	7.00%	8.19%	0.0057%
Dow Inc	DOW	47,632.46	N/A	4.54%	N/A	N/A	N/A
Domino's Pizza Inc	DPZ	18,874.41	0.05%	0.76%	15.00%	15.82%	0.0083%
Duke Realty Corp	DRE	18,465.07	0.05%	2.18%	-1.00%	1.17%	0.0006%
Darden Restaurants Inc	DRI	19,635.37	0.05%	2.93%	19.00%	22.21%	0.0121%
DTE Energy Co	DTE	23,401.37	0.06%	2.73%	6.00%	8.81%	0.0057%
Duke Energy Corp	DUK	81,037.23	0.22%	3.76%	7.00%	10.89%	0.0245%
DaVita Inc	DVA	13,812.58	0.04%	0.00%	16.50%	16.50%	0.0063%
Devon Energy Corp	DEV	19,795.48	0.05%	1.51%	20.00%	21.66%	0.0119%
DXC Technology Co	DXC	9,450.74	0.03%	0.00%	6.50%	6.50%	0.0017%
Dexcom Inc	DXCM	50,048.06	0.14%	0.00%	34.00%	34.00%	0.0471%
Electronic Arts Inc	EA	40,484.29	0.11%	0.51%	12.50%	13.04%	0.0146%
eBay Inc	EBAY	49,019.76	0.14%	1.03%	16.50%	17.61%	0.0239%
Ecolab Inc	ECL	64,109.29	0.18%	0.86%	9.00%	9.90%	0.0176%
Consolidated Edison Inc	ED	26,570.31	0.07%	4.19%	4.00%	8.27%	0.0061%
Equifax Inc	EFX	32,266.04	0.09%	0.59%	10.50%	11.12%	0.0099%
Edison International	EIX	22,166.59	0.06%	4.63%	23.50%	28.67%	0.0176%
Estee Lauder Cos Inc/The	EL	121,576.00	0.34%	0.68%	11.50%	12.22%	0.0412%
Eastman Chemical Co	EMN	15,458.89	0.04%	2.42%	10.50%	13.05%	0.0056%
Emerson Electric Co	EMR	62,311.60	0.17%	1.96%	10.50%	12.56%	0.0217%
Enphase Energy Inc	ENPH	23,268.67	0.06%	0.00%	36.00%	36.00%	0.0232%
EOG Resources Inc	EOG	40,128.63	0.11%	2.50%	16.00%	18.70%	0.0208%
Equinix Inc	EQIX	72,475.82	0.20%	1.49%	17.00%	18.62%	0.0374%
Equity Residential	EQR	30,513.88	N/A	2.94%	N/A	N/A	N/A
Eversource Energy	ES	31,044.35	0.09%	2.76%	6.50%	9.35%	0.0080%

Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Essex Property Trust Inc	ESS	20,666.43	0.06%	2.67%	-0.50%	2.16%	0.0012%
Eaton Corp PLC	ETN	67,845.70	0.19%	1.79%	9.00%	10.87%	0.0204%
Entergy Corp	ETR	22,866.44	0.06%	3.45%	3.00%	6.50%	0.0041%
Etsy Inc	ETSY	25,593.07	0.07%	0.00%	30.00%	30.00%	0.0213%
Evergy Inc	EVERG	15,789.32	0.04%	3.24%	8.00%	11.37%	0.0050%
Edwards Lifesciences Corp	EW	72,915.16	0.20%	0.00%	13.00%	13.00%	0.0263%
Exelon Corp	EXC	47,806.25	0.13%	3.13%	5.50%	8.72%	0.0115%
Expeditors International of Washington	EXPD	20,998.95	0.06%	0.94%	10.00%	10.99%	0.0064%
Expedia Group Inc	EXPE	22,249.29	N/A	0.00%	N/A	N/A	N/A
Extra Space Storage Inc	EXR	23,674.65	0.07%	2.77%	5.00%	7.84%	0.0051%
Ford Motor Co	F	54,155.04	0.15%	0.00%	47.50%	47.50%	0.0713%
Diamondback Energy Inc	FANG	13,580.48	N/A	2.40%	N/A	N/A	N/A
Fastenal Co	FAST	31,901.88	0.09%	2.02%	9.50%	11.62%	0.0103%
Facebook Inc	FB	1,041,070.00	2.88%	0.00%	18.50%	18.50%	0.5336%
Fortune Brands Home & Security Inc	FBHS	14,092.61	0.04%	1.02%	10.00%	11.07%	0.0043%
Freeport-McMoRan Inc	FCX	50,593.51	0.14%	0.85%	36.50%	37.51%	0.0526%
FedEx Corp	FDX	71,740.52	0.20%	1.11%	12.00%	13.18%	0.0262%
FirstEnergy Corp	FE	21,223.57	0.06%	4.08%	11.50%	15.81%	0.0093%
F5 Networks Inc	FFIV	12,414.96	0.03%	0.00%	8.00%	8.00%	0.0028%
Fidelity National Information Services I	FIS	80,346.19	0.22%	1.20%	34.50%	35.91%	0.0799%
Fiserv Inc	FISV	78,731.71	0.22%	0.00%	13.00%	13.00%	0.0284%
Fifth Third Bancorp	FITB	27,649.95	0.08%	3.05%	8.00%	11.17%	0.0086%
FleetCor Technologies Inc	FLT	21,663.84	0.06%	0.00%	11.00%	11.00%	0.0066%
FMC Corp	FMC	11,956.14	0.03%	2.11%	9.50%	11.71%	0.0039%
Fox Corp	FOXA	21,590.32	N/A	1.30%	N/A	N/A	N/A
First Republic Bank/CA	FRC	34,480.75	0.10%	0.46%	13.50%	13.99%	0.0134%
Federal Realty Investment Trust	FRT	9,175.78	0.03%	3.60%	-2.00%	1.56%	0.0004%
Fortinet Inc	FTNT	49,974.70	0.14%	0.00%	20.00%	20.00%	0.0277%
Fortive Corp	FTV	26,650.62	0.07%	0.38%	13.50%	13.91%	0.0103%
General Dynamics Corp	GD	55,712.52	0.15%	2.39%	5.00%	7.45%	0.0115%
General Electric Co	GE	114,925.30	0.32%	0.31%	14.50%	14.83%	0.0472%
Gilead Sciences Inc	GILD	89,548.15	0.25%	3.98%	15.50%	19.79%	0.0491%
General Mills Inc	GIS	35,343.84	0.10%	3.58%	3.00%	6.63%	0.0065%
Globe Life Inc	GL	9,925.14	0.03%	0.81%	7.00%	7.84%	0.0022%
Corning Inc	GLW	34,207.16	0.09%	2.35%	20.00%	22.59%	0.0214%
General Motors Co	GM	72,150.68	0.20%	0.00%	11.00%	11.00%	0.0220%
Generac Holdings Inc	GNRC	30,770.38	0.09%	0.00%	23.50%	23.50%	0.0200%
Alphabet Inc	GOOGL	N/A	N/A	0.00%	N/A	N/A	N/A
Genuine Parts Co	GPC	17,875.49	0.05%	2.61%	7.50%	10.21%	0.0051%
Global Payments Inc	GPN	48,534.42	0.13%	0.61%	16.50%	17.16%	0.0231%
Gap Inc/The	GPS	10,359.96	0.03%	1.75%	27.00%	28.99%	0.0083%
Garmin Ltd	GRMN	33,196.52	0.09%	1.67%	10.75%	10.75%	0.0099%
Goldman Sachs Group Inc/The	GS	139,335.50	0.39%	1.94%	8.50%	10.52%	0.0406%
WW Grainger Inc	GWV	22,694.89	0.06%	1.49%	5.50%	7.03%	0.0044%
Halliburton Co	HAL	17,931.13	0.05%	0.89%	7.00%	7.92%	0.0039%
Hasbro Inc	HAS	13,552.14	0.04%	2.76%	12.50%	15.43%	0.0058%
Huntington Bancshares Inc/OH	HBAN	23,108.12	0.06%	3.83%	8.50%	12.49%	0.0080%
Hanesbrands Inc	HBI	6,891.53	0.02%	3.04%	6.50%	9.64%	0.0018%
HCA Healthcare Inc	HCA	81,380.95	0.23%	0.77%	12.00%	12.82%	0.0289%
Home Depot Inc/The	HD	342,017.30	0.95%	2.13%	8.00%	10.22%	0.0968%
Hess Corp	HES	21,472.72	N/A	1.44%	N/A	N/A	N/A
Hartford Financial Services Group Inc/	HIG	23,683.00	0.07%	2.06%	6.50%	8.63%	0.0057%
Huntington Ingalls Industries Inc	HII	8,290.04	0.02%	2.21%	1.50%	3.73%	0.0009%
Hilton Worldwide Holdings Inc	HLT	35,482.18	0.10%	0.00%	26.50%	26.50%	0.0260%
Hologic Inc	HOLX	19,655.46	0.05%	0.00%	14.50%	14.50%	0.0079%
Honeywell International Inc	HON	159,247.70	0.44%	1.61%	10.00%	11.69%	0.0516%
Hewlett Packard Enterprise Co	HPE	19,705.53	0.05%	3.18%	6.50%	9.78%	0.0053%
HP Inc	HPQ	35,297.39	0.10%	2.65%	11.50%	14.30%	0.0140%
Hormel Foods Corp	HRL	24,483.88	0.07%	2.23%	9.00%	11.33%	0.0077%
Henry Schein Inc	HSIC	10,553.46	0.03%	0.00%	6.50%	6.50%	0.0019%
Host Hotels & Resorts Inc	HST	11,406.32	0.03%	0.00%	10.00%	10.00%	0.0032%
Hershey Co/The	HSY	36,177.82	0.10%	2.05%	5.50%	7.61%	0.0076%
Humana Inc	HUM	52,394.88	0.15%	0.69%	11.50%	12.23%	0.0178%
Howmet Aerospace Inc	HWM	14,128.36	0.04%	0.24%	10.50%	10.75%	0.0042%
International Business Machines Corp	IBM	125,359.30	0.35%	4.70%	1.50%	6.24%	0.0217%
Intercontinental Exchange Inc	ICE	66,039.90	0.18%	1.13%	8.00%	9.18%	0.0168%
IDEXX Laboratories Inc	IDXX	57,560.64	0.16%	0.00%	14.50%	14.50%	0.0231%
IDEX Corp	IEX	17,232.23	0.05%	0.95%	8.00%	8.99%	0.0043%
International Flavors & Fragrances Inc	IFF	37,773.57	0.10%	2.12%	7.50%	9.70%	0.0102%
Illumina Inc	ILMN	71,658.09	0.20%	0.00%	10.50%	10.50%	0.0208%
Incyte Corp	INCY	16,699.40	0.05%	0.00%	58.50%	58.50%	0.0271%
IHS Markit Ltd	INFO	47,433.40	0.13%	0.67%	10.50%	11.21%	0.0147%
Intel Corp	INTC	218,307.20	0.60%	2.58%	7.00%	9.67%	0.0585%
Intuit Inc	INTU	151,920.40	0.42%	0.49%	16.00%	16.53%	0.0696%
International Paper Co	IP	23,240.88	0.06%	3.45%	12.00%	15.66%	0.0101%
Interpublic Group of Cos Inc/The	IPG	14,606.72	0.04%	3.02%	12.00%	15.20%	0.0062%
IPG Photonics Corp	IPGP	9,208.65	0.03%	0.00%	17.00%	17.00%	0.0043%
IQVIA Holdings Inc	IQV	49,568.84	0.14%	0.00%	14.00%	14.00%	0.0192%
Ingersoll Rand Inc	IR	21,881.29	N/A	0.00%	N/A	N/A	N/A
Iron Mountain Inc	IRM	13,280.38	0.04%	5.41%	8.00%	13.63%	0.0050%
Intuitive Surgical Inc	ISRG	123,918.00	0.34%	0.00%	15.00%	15.00%	0.0515%
Gartner Inc	IT	25,846.35	0.07%	0.00%	18.50%	18.50%	0.0132%
Illinois Tool Works Inc	ITW	72,639.00	0.20%	2.12%	11.00%	13.24%	0.0266%
Invesco Ltd	IVZ	11,691.88	0.03%	2.92%	15.00%	18.14%	0.0059%
Jacobs Engineering Group Inc	J	17,640.37	0.05%	0.62%	15.00%	15.67%	0.0077%
JB Hunt Transport Services Inc	JBHT	18,431.39	0.05%	0.70%	8.00%	8.73%	0.0045%
Johnson Controls International plc	JCI	53,509.39	0.15%	1.44%	8.50%	10.00%	0.0148%
Jack Henry & Associates Inc	JKHY	12,882.65	0.04%	1.06%	9.50%	10.61%	0.0038%

Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Johnson & Johnson	JNJ	458,571.50	1.27%	2.43%	8.50%	11.03%	0.1402%
Juniper Networks Inc	JNPR	9,551.52	0.03%	2.78%	7.00%	9.88%	0.0026%
JPMorgan Chase & Co	JPM	480,853.90	1.33%	2.49%	6.50%	9.07%	0.1208%
Kellogg Co	K	21,817.18	0.06%	3.64%	3.50%	7.20%	0.0044%
KeyCorp	KEY	20,021.75	0.06%	3.65%	9.50%	13.32%	0.0074%
Keysight Technologies Inc	KEYS	32,221.08	0.09%	0.00%	12.00%	12.00%	0.0107%
Kraft Heinz Co/The	KHC	44,945.25	0.12%	4.35%	1.50%	5.88%	0.0073%
Kimco Realty Corp	KIM	9,515.42	0.03%	3.36%	-2.00%	1.33%	0.0003%
KLA Corp	KLAC	51,030.24	0.14%	1.26%	18.00%	19.37%	0.0274%
Kimberly-Clark Corp	KMB	45,724.07	0.13%	3.36%	5.50%	8.95%	0.0113%
Kinder Morgan Inc	KMI	37,298.05	0.10%	6.56%	19.00%	26.18%	0.0271%
CarMax Inc	KMX	20,754.13	0.06%	0.00%	12.50%	12.50%	0.0072%
Coca-Cola Co/The	KO	241,942.00	0.67%	3.00%	7.00%	10.11%	0.0677%
Kroger Co/The	KR	34,304.20	0.10%	1.83%	5.50%	7.38%	0.0070%
Kansas City Southern	KSU	26,685.96	0.07%	0.74%	10.50%	11.28%	0.0083%
Loews Corp	L	14,839.31	0.04%	0.44%	22.00%	22.49%	0.0092%
Leidos Holdings Inc	LDOS	13,860.62	0.04%	1.48%	9.00%	10.55%	0.0040%
Leggett & Platt Inc	LEG	6,560.98	0.02%	3.41%	10.00%	13.58%	0.0025%
Lennar Corp	LEN	33,801.96	0.09%	0.96%	9.00%	10.00%	0.0094%
Laboratory Corp of America Holdings	LH	29,421.94	0.08%	0.00%	5.50%	5.50%	0.0045%
L3Harris Technologies Inc	LHX	47,950.33	N/A	1.75%	N/A	N/A	N/A
Linde PLC	LIN	161,559.20	N/A	1.46%	N/A	N/A	N/A
LKQ Corp	LKQ	15,516.60	0.04%	0.00%	12.00%	12.00%	0.0052%
Eli Lilly & Co	LLY	252,533.60	0.70%	1.29%	11.00%	12.36%	0.0865%
Lockheed Martin Corp	LMT	99,343.62	0.28%	3.07%	7.50%	10.69%	0.0294%
Lincoln National Corp	LNC	13,251.43	0.04%	2.48%	9.00%	11.59%	0.0043%
Alliant Energy Corp	LNT	15,133.10	0.04%	2.66%	5.50%	8.23%	0.0035%
Lowe's Cos Inc	LOW	147,418.70	0.41%	1.55%	14.00%	15.66%	0.0639%
Lam Research Corp	LRCX	83,962.73	0.23%	0.88%	17.50%	18.46%	0.0429%
Lumen Technologies Inc	LUMN	13,549.58	0.04%	8.16%	2.50%	10.76%	0.0040%
Southwest Airlines Co	LUV	30,321.81	0.08%	0.00%	34.50%	34.50%	0.0290%
Las Vegas Sands Corp	LVS	33,035.36	0.09%	0.00%	17.50%	17.50%	0.0160%
Lamb Weston Holdings Inc	LW	9,651.72	0.03%	1.44%	2.50%	3.96%	0.0011%
LyondellBasell Industries NV	LYB	34,447.22	0.10%	4.39%	6.50%	11.03%	0.0105%
Live Nation Entertainment Inc	LYV	18,809.05	N/A	0.00%	N/A	N/A	N/A
Mastercard Inc	MA	354,790.80	0.98%	0.49%	12.50%	13.02%	0.1280%
Mid-America Apartment Communities	MAA	21,456.56	0.06%	2.19%	0.50%	2.70%	0.0016%
Marriott International Inc/MD	MAR	44,574.64	0.12%	0.00%	16.00%	16.00%	0.0198%
Masco Corp	MAS	15,263.28	0.04%	1.52%	9.00%	10.59%	0.0045%
McDonald's Corp	MCD	178,358.00	0.49%	2.24%	10.50%	12.86%	0.0635%
Microchip Technology Inc	MCHP	41,503.36	0.11%	1.16%	9.00%	10.21%	0.0117%
McKesson Corp	MCK	31,046.50	0.09%	0.94%	8.50%	9.48%	0.0082%
Moody's Corp	MCO	70,077.78	0.19%	0.66%	8.50%	9.19%	0.0178%
Mondelez International Inc	MDLZ	87,804.30	0.24%	2.23%	8.00%	10.32%	0.0251%
Medtronic PLC	MDT	181,023.70	0.50%	1.93%	9.00%	11.02%	0.0552%
MetLife Inc	MET	53,790.23	0.15%	3.07%	6.50%	9.67%	0.0144%
MGM Resorts International	MGM	20,497.51	N/A	0.02%	N/A	N/A	N/A
Mohawk Industries Inc	MHK	14,134.38	0.04%	0.00%	8.50%	8.50%	0.0033%
McCormick & Co Inc/MD	MKC	22,867.62	0.06%	1.61%	6.00%	7.66%	0.0049%
MarketAxess Holdings Inc	MKTX	17,952.32	0.05%	0.56%	14.00%	14.60%	0.0073%
Martin Marietta Materials Inc	MLM	24,092.02	0.07%	0.63%	6.00%	6.65%	0.0044%
Marsh & McLennan Cos Inc	MMC	78,741.80	0.22%	1.38%	11.00%	12.46%	0.0272%
3M Co	MMM	112,452.50	0.31%	3.05%	6.00%	9.14%	0.0285%
Monster Beverage Corp	MNST	51,367.88	0.14%	0.00%	11.50%	11.50%	0.0164%
Altria Group Inc	MO	89,773.22	0.25%	7.07%	6.00%	13.28%	0.0330%
Mosaic Co/The	MOS	12,285.77	0.03%	0.99%	33.50%	34.66%	0.0118%
Marathon Petroleum Corp	MPC	37,405.94	N/A	3.96%	N/A	N/A	N/A
Monolithic Power Systems Inc	MPWR	22,190.31	0.06%	0.50%	17.50%	18.04%	0.0111%
Merck & Co Inc	MRK	195,199.20	0.54%	3.37%	7.50%	11.00%	0.0595%
Moderna Inc	MRNA	160,341.60	N/A	0.00%	N/A	N/A	N/A
Marathon Oil Corp	MRO	9,310.20	0.03%	1.70%	69.00%	71.29%	0.0184%
Morgan Stanley	MS	194,536.40	0.54%	2.69%	10.50%	13.33%	0.0718%
MSCI Inc	MSCI	51,763.65	0.14%	0.67%	16.00%	16.72%	0.0240%
Microsoft Corp	MSFT	2,270,813.00	6.29%	0.74%	17.00%	17.80%	1.1200%
Motorola Solutions Inc	MSI	40,857.17	0.11%	1.18%	7.00%	8.22%	0.0093%
M&T Bank Corp	MTB	18,224.51	0.05%	3.11%	8.00%	11.23%	0.0057%
Mettler-Toledo International Inc	MTD	36,076.86	0.10%	0.00%	12.00%	12.00%	0.0120%
Micron Technology Inc	MU	82,924.79	0.23%	0.54%	11.50%	12.07%	0.0277%
Norwegian Cruise Line Holdings Ltd	NCLH	9,633.13	N/A	0.00%	N/A	N/A	N/A
Nasdaq Inc	NDAQ	33,707.14	0.09%	1.13%	6.50%	7.67%	0.0072%
NextEra Energy Inc	NEE	165,847.90	0.46%	1.92%	10.50%	12.52%	0.0575%
Newmont Corp	NEM	45,698.73	0.13%	3.87%	14.50%	18.65%	0.0236%
Netflix Inc	NFLX	242,356.70	0.67%	0.00%	23.50%	23.50%	0.1578%
NiSource Inc	NI	9,819.97	0.03%	3.52%	9.50%	13.19%	0.0036%
NIKE Inc	NIKE	268,177.30	0.74%	0.65%	25.00%	25.73%	0.1912%
NortonLifeLock Inc	NLOK	15,512.70	0.04%	1.87%	11.00%	12.97%	0.0056%
Nielsen Holdings PLC	NLSN	7,872.07	N/A	1.09%	N/A	N/A	N/A
Northrop Grumman Corp	NOC	58,164.86	0.16%	1.73%	7.50%	9.29%	0.0150%
NOV Inc	NOV	5,179.74	N/A	0.00%	N/A	N/A	N/A
ServiceNow Inc	NOW	123,055.70	0.34%	0.00%	44.50%	44.50%	0.1517%
NRG Energy Inc	NRG	11,161.74	0.03%	2.85%	-6.50%	-3.74%	-0.0012%
Norfolk Southern Corp	NSC	64,499.20	0.18%	1.67%	10.00%	11.75%	0.0210%
NetApp Inc	NTAP	18,346.21	0.05%	2.43%	6.50%	9.01%	0.0046%
Northern Trust Corp	NTRS	24,884.45	0.07%	2.35%	7.00%	9.43%	0.0065%
Nucor Corp	NUE	35,231.65	0.10%	1.35%	8.00%	9.40%	0.0092%
NVIDIA Corp	NVDA	554,436.50	1.54%	0.07%	15.50%	15.58%	0.2392%
NVR Inc	NVR	18,559.40	0.05%	0.00%	7.50%	7.50%	0.0039%
Newell Brands Inc	NWL	10,779.64	N/A	3.63%	N/A	N/A	N/A

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News Corp	NWSA	13,339.90	N/A	0.89%	N/A	N/A	N/A
NXP Semiconductors NV	NXPI	61,084.65	0.17%	1.03%	11.00%	12.09%	0.0205%
Realty Income Corp	O	25,627.22	0.07%	4.03%	6.50%	10.66%	0.0076%
Old Dominion Freight Line Inc	ODFL	33,128.61	0.09%	0.29%	9.50%	9.80%	0.0090%
Organon & Co	OGN	N/A	N/A	0.00%	N/A	N/A	N/A
ONEOK Inc	OKE	23,833.43	0.07%	7.22%	10.00%	17.58%	0.0116%
Omnicom Group Inc	OMC	15,557.37	0.04%	4.00%	6.00%	10.12%	0.0044%
Oracle Corp	ORCL	249,376.70	0.69%	1.44%	10.00%	11.51%	0.0795%
O'Reilly Automotive Inc	ORLY	41,968.57	0.12%	0.00%	13.50%	13.50%	0.0157%
Otis Worldwide Corp	OTIS	38,894.29	N/A	1.05%	N/A	N/A	N/A
Occidental Petroleum Corp	OXY	22,997.89	0.06%	0.65%	36.50%	37.27%	0.0237%
Paycom Software Inc	PAYC	28,039.84	0.08%	0.00%	19.50%	19.50%	0.0151%
Paychex Inc	PAYX	41,157.07	0.11%	2.38%	7.00%	9.46%	0.0108%
People's United Financial Inc	PBCT	7,050.14	0.02%	4.43%	2.50%	6.99%	0.0014%
PACCAR Inc	PCAR	28,458.35	0.08%	2.49%	6.00%	8.56%	0.0068%
Healthpeak Properties Inc	PEAK	18,968.01	0.05%	3.41%	-12.00%	-8.79%	-0.0046%
Public Service Enterprise Group Inc	PEG	32,311.44	0.09%	3.24%	3.50%	6.80%	0.0061%
Penn National Gaming Inc	PENN	12,530.42	0.03%	0.00%	30.00%	30.00%	0.0104%
PepsiCo Inc	PEP	214,486.40	0.59%	2.77%	6.50%	9.36%	0.0556%
Pfizer Inc	PFE	266,008.50	0.74%	3.28%	8.00%	11.41%	0.0841%
Principal Financial Group Inc	PFG	18,224.75	0.05%	3.72%	6.00%	9.83%	0.0050%
Procter & Gamble Co/The	PG	346,646.20	0.96%	2.44%	7.00%	9.53%	0.0915%
Progressive Corp/The	PGR	56,307.95	0.16%	0.42%	5.00%	5.43%	0.0085%
Parker-Hannifin Corp	PH	39,169.79	0.11%	1.36%	14.00%	15.46%	0.0168%
PulteGroup Inc	PHM	14,100.83	0.04%	1.07%	11.00%	12.13%	0.0047%
Packaging Corp of America	PKG	14,239.25	0.04%	2.67%	5.00%	7.74%	0.0031%
PerkinElmer Inc	PKI	20,726.86	0.06%	0.15%	11.00%	11.16%	0.0064%
Prologis Inc	PLD	96,511.40	0.27%	2.01%	8.50%	10.60%	0.0283%
Philip Morris International Inc	PM	157,790.60	0.44%	4.74%	7.00%	11.91%	0.0520%
PNC Financial Services Group Inc/The	PNC	81,655.25	0.23%	2.60%	10.00%	12.73%	0.0288%
Pentair PLC	PNR	13,111.47	0.04%	1.01%	12.00%	13.07%	0.0047%
Pinnacle West Capital Corp	PNW	8,773.47	0.02%	4.46%	5.50%	10.08%	0.0025%
Pool Corp	POOL	19,464.82	0.05%	0.66%	17.00%	17.72%	0.0096%
PPG Industries Inc	PPG	38,781.77	0.11%	1.44%	10.00%	11.51%	0.0124%
PPL Corp	PPL	22,486.66	0.06%	5.68%	-7.00%	-1.52%	-0.0009%
Perrigo Co PLC	PRGO	5,457.56	0.02%	2.40%	-2.00%	0.38%	0.0001%
Prudential Financial Inc	PRU	41,314.88	0.11%	4.31%	5.50%	9.93%	0.0114%
Public Storage	PSA	55,234.25	0.15%	2.56%	4.00%	6.61%	0.0101%
Phillips 66	PSX	31,614.04	0.09%	5.06%	20.50%	26.08%	0.0228%
PTC Inc	PTC	15,448.12	0.04%	0.00%	33.50%	33.50%	0.0143%
PVH Corp	PVH	7,877.85	0.02%	0.00%	13.50%	13.50%	0.0029%
Quanta Services Inc	PWR	14,224.64	0.04%	0.24%	12.50%	12.76%	0.0050%
Pioneer Natural Resources Co	PXD	36,386.48	0.10%	1.50%	20.00%	21.65%	0.0218%
PayPal Holdings Inc	PYPL	326,285.80	0.90%	0.00%	16.00%	16.00%	0.1446%
QUALCOMM Inc	QCOM	162,285.40	0.45%	1.89%	16.50%	18.55%	0.0834%
Qorvo Inc	QRVO	20,642.80	0.06%	0.00%	37.00%	37.00%	0.0212%
Royal Caribbean Cruises Ltd	RCL	21,243.86	N/A	0.00%	N/A	N/A	N/A
Everest Re Group Ltd	RE	10,912.49	0.03%	2.33%	11.00%	13.46%	0.0041%
Regency Centers Corp	REG	11,385.53	0.03%	3.55%	10.00%	13.73%	0.0043%
Regeneron Pharmaceuticals Inc	REGN	70,177.58	0.19%	0.00%	12.50%	12.50%	0.0243%
Regions Financial Corp	RF	19,977.98	0.06%	3.25%	9.50%	12.90%	0.0071%
Robert Half International Inc	RHI	11,576.58	0.03%	1.53%	7.50%	9.09%	0.0029%
Raymond James Financial Inc	RJF	19,194.63	0.05%	1.11%	10.50%	11.67%	0.0062%
Ralph Lauren Corp	RL	8,833.47	0.02%	2.29%	11.50%	13.92%	0.0034%
ResMed Inc	RMD	41,553.84	0.12%	0.59%	13.50%	14.13%	0.0163%
Rockwell Automation Inc	ROK	37,055.22	0.10%	1.36%	7.00%	8.41%	0.0086%
Rollins Inc	ROL	18,807.26	0.05%	0.84%	11.50%	12.39%	0.0065%
Roper Technologies Inc	ROP	50,550.81	0.14%	0.47%	8.00%	8.49%	0.0119%
Ross Stores Inc	ROST	44,275.36	0.12%	0.94%	14.00%	15.01%	0.0184%
Republic Services Inc	RSG	39,177.61	0.11%	1.50%	7.50%	9.06%	0.0098%
Raytheon Technologies Corp	RTX	129,270.40	0.36%	2.38%	2.00%	4.40%	0.0158%
SBA Communications Corp	SBAC	38,290.90	0.11%	0.72%	45.00%	45.88%	0.0487%
Starbucks Corp	SBUX	136,257.00	0.38%	1.73%	16.00%	17.87%	0.0674%
Charles Schwab Corp/The	SCHW	140,792.10	0.39%	1.01%	8.50%	9.55%	0.0373%
Sealed Air Corp	SEE	9,168.71	0.03%	1.31%	13.50%	14.90%	0.0038%
Sherwin-Williams Co/The	SHW	79,709.41	0.22%	0.76%	10.50%	11.30%	0.0250%
SVB Financial Group	SIVB	31,191.16	0.09%	0.00%	5.00%	5.00%	0.0043%
J M Smucker Co/The	SJM	13,789.39	0.04%	3.11%	4.00%	7.17%	0.0027%
Schlumberger NV	SLB	39,785.42	0.11%	1.76%	8.50%	10.33%	0.0114%
Snap-on Inc	SNA	12,212.02	0.03%	2.34%	5.00%	7.40%	0.0025%
Synopsys Inc	SNPS	49,595.55	0.14%	0.00%	13.00%	13.00%	0.0179%
Southern Co/The	SO	69,756.33	0.19%	4.04%	6.00%	10.16%	0.0196%
Simon Property Group Inc	SPG	43,538.46	0.12%	4.23%	1.50%	5.76%	0.0069%
S&P Global Inc	SPGI	105,521.80	0.29%	0.75%	10.50%	11.29%	0.0330%
Sempra Energy	SRE	41,450.85	0.11%	3.43%	10.00%	13.60%	0.0156%
STERIS PLC	STE	21,548.13	0.06%	0.80%	10.00%	10.84%	0.0065%
State Street Corp	STT	31,602.28	0.09%	2.48%	7.00%	9.57%	0.0084%
Seagate Technology Holdings PLC	STX	19,757.22	0.05%	3.08%	5.50%	8.66%	0.0047%
Constellation Brands Inc	STZ	41,252.95	0.11%	1.41%	7.00%	8.46%	0.0097%
Stanley Black & Decker Inc	SWK	34,351.02	0.10%	1.63%	9.00%	10.70%	0.0102%
Skyworks Solutions Inc	SWKS	29,896.31	0.08%	1.24%	13.50%	14.82%	0.0123%
Synchrony Financial	SYF	29,485.05	0.08%	1.71%	9.50%	11.29%	0.0092%
Stryker Corp	SYK	102,377.80	0.28%	0.93%	9.00%	9.97%	0.0283%
Sysco Corp	SYU	40,473.98	0.11%	2.38%	10.50%	13.00%	0.0146%
AT&T Inc	T	195,846.30	0.54%	7.58%	2.50%	10.17%	0.0552%
Molson Coors Beverage Co	TAP	10,722.26	0.03%	2.84%	41.00%	44.42%	0.0132%
TransDigm Group Inc	TDG	33,266.35	0.09%	0.00%	10.50%	10.50%	0.0097%
Teledyne Technologies Inc	TDY	21,346.49	0.06%	0.00%	14.50%	14.50%	0.0086%

Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Bio-Techne Corp	TECH	19,436.32	0.05%	0.26%	13.00%	13.28%	0.0071%
TE Connectivity Ltd	TEL	49,553.30	0.14%	1.33%	9.00%	10.39%	0.0143%
Teradyne Inc	TER	19,532.32	0.05%	0.34%	13.50%	13.86%	0.0075%
Truist Financial Corp	TFC	76,829.36	0.21%	3.34%	7.00%	10.46%	0.0223%
Teleflex Inc	TFX	18,024.56	0.05%	0.35%	14.50%	14.88%	0.0074%
Target Corp	TGT	124,593.80	0.35%	1.43%	14.00%	15.53%	0.0536%
TJX Cos Inc/The	TJX	91,456.20	0.25%	1.37%	19.50%	21.00%	0.0532%
Thermo Fisher Scientific Inc	TMO	215,625.10	0.60%	0.19%	14.50%	14.70%	0.0878%
T-Mobile US Inc	TMUS	174,534.20	0.48%	0.00%	8.50%	8.50%	0.0411%
Tapestry Inc	TPR	12,033.01	0.03%	2.32%	10.00%	12.44%	0.0041%
Trimble Inc	TRMB	23,703.24	0.07%	0.00%	14.00%	14.00%	0.0092%
T Rowe Price Group Inc	TROW	49,769.19	0.14%	1.97%	9.00%	11.06%	0.0152%
Travelers Cos Inc/The	TRV	40,563.71	0.11%	2.17%	8.00%	10.26%	0.0115%
Tractor Supply Co	TSCO	22,258.64	0.06%	1.10%	10.00%	11.16%	0.0069%
Tesla Inc	TSLA	699,820.80	N/A	0.00%	N/A	N/A	N/A
Tyson Foods Inc	TSN	28,729.15	0.08%	2.26%	6.00%	8.33%	0.0066%
Trane Technologies PLC	TT	47,508.99	N/A	1.18%	N/A	N/A	N/A
Take-Two Interactive Software Inc	TTWO	18,704.84	0.05%	0.00%	12.00%	12.00%	0.0062%
Twitter Inc	TWTR	51,203.87	0.14%	0.00%	39.00%	39.00%	0.0553%
Texas Instruments Inc	TXN	173,623.40	0.48%	2.17%	8.50%	10.76%	0.0518%
Textron Inc	TXT	16,493.55	0.05%	0.11%	8.00%	8.11%	0.0037%
Tyler Technologies Inc	TYL	22,909.30	0.06%	0.00%	12.50%	12.50%	0.0079%
Under Armour Inc	UA	11,298.13	0.03%	0.00%	33.00%	33.00%	0.0103%
United Airlines Holdings Inc	UAL	15,400.65	N/A	0.00%	N/A	N/A	N/A
UDR Inc	UDR	15,477.21	0.04%	2.82%	6.00%	8.90%	0.0038%
Universal Health Services Inc	UHS	12,899.44	0.04%	0.52%	11.00%	11.55%	0.0041%
Ulta Beauty Inc	ULTA	21,228.50	0.06%	0.00%	12.50%	12.50%	0.0074%
UnitedHealth Group Inc	UNH	395,814.80	1.10%	1.38%	11.50%	12.96%	0.1421%
Unum Group	UNM	5,478.62	0.02%	4.48%	3.00%	7.55%	0.0011%
Union Pacific Corp	UNP	144,492.40	0.40%	1.93%	10.00%	12.03%	0.0481%
United Parcel Service Inc	UPS	168,124.80	0.47%	2.13%	11.00%	13.25%	0.0617%
United Rentals Inc	URI	25,362.23	0.07%	0.00%	10.50%	10.50%	0.0074%
US Bancorp	USB	85,457.23	0.24%	3.19%	4.50%	7.76%	0.0184%
Visa Inc	V	452,154.90	1.25%	0.59%	12.00%	12.63%	0.1581%
VF Corp	VFC	30,255.45	0.08%	2.54%	9.50%	12.16%	0.0102%
ViacomCBS Inc	VIAC	26,466.62	0.07%	2.34%	7.00%	9.42%	0.0069%
Valero Energy Corp	VLO	27,121.45	0.08%	5.91%	13.00%	19.29%	0.0145%
Vulcan Materials Co	VMC	25,153.09	0.07%	0.78%	10.00%	10.82%	0.0075%
Vornado Realty Trust	VNO	7,988.09	0.02%	5.08%	-19.00%	-14.40%	-0.0032%
Verisk Analytics Inc	VRSK	32,032.20	0.09%	0.59%	8.00%	8.61%	0.0076%
VeriSign Inc	VRSN	23,739.73	0.07%	0.00%	8.50%	8.50%	0.0056%
Vertex Pharmaceuticals Inc	VRTX	52,167.42	0.14%	0.00%	17.00%	17.00%	0.0246%
Ventas Inc	VTR	20,652.19	0.06%	3.27%	4.50%	7.84%	0.0045%
Viatis Inc	VTRS	N/A	N/A	0.00%	N/A	N/A	N/A
Verizon Communications Inc	VZ	227,416.60	0.63%	4.62%	2.50%	7.18%	0.0452%
Westinghouse Air Brake Technologies	WAB	16,563.96	0.05%	0.55%	9.50%	10.08%	0.0046%
Waters Corp	WAT	25,028.91	0.07%	0.00%	11.00%	11.00%	0.0076%
Walgreens Boots Alliance Inc	WBA	42,076.51	0.12%	3.93%	7.50%	11.58%	0.0135%
Western Digital Corp	WDC	20,043.00	0.06%	0.00%	5.50%	5.50%	0.0031%
WEC Energy Group Inc	WEC	29,859.08	0.08%	2.96%	6.50%	9.56%	0.0079%
Welltower Inc	WELL	35,433.17	0.10%	2.97%	-1.50%	1.45%	0.0014%
Wells Fargo & Co	WFC	202,483.20	0.56%	1.62%	5.50%	7.16%	0.0402%
Whirlpool Corp	WHR	14,103.81	0.04%	2.50%	7.00%	9.59%	0.0037%
Willis Towers Watson PLC	WLTW	27,909.13	0.08%	1.48%	8.00%	9.54%	0.0074%
Waste Management Inc	WM	64,313.15	0.18%	1.51%	7.50%	9.07%	0.0162%
Williams Cos Inc/The	WMB	29,852.26	0.08%	6.67%	10.50%	17.52%	0.0145%
Walmart Inc	WMT	417,832.80	1.16%	1.48%	7.50%	9.04%	0.1046%
W R Berkley Corp	WRB	13,517.17	0.04%	0.68%	14.50%	15.23%	0.0057%
Westrock Co	WRK	13,675.96	0.04%	1.87%	8.00%	9.94%	0.0038%
West Pharmaceutical Services Inc	WST	32,894.48	0.09%	0.15%	16.50%	16.66%	0.0152%
Western Union Co/The	WU	8,852.25	0.02%	4.32%	7.00%	11.47%	0.0028%
Weyerhaeuser Co	WY	26,437.31	0.07%	1.93%	21.00%	23.13%	0.0169%
Wynn Resorts Ltd	WYNN	11,665.57	N/A	0.00%	N/A	N/A	N/A
Xcel Energy Inc	XEL	36,771.68	0.10%	2.77%	6.00%	8.85%	0.0090%
Xilinx Inc	XLNX	37,685.55	0.10%	0.00%	7.50%	7.50%	0.0078%
Exxon Mobil Corp	XOM	234,817.60	0.65%	6.31%	32.00%	39.32%	0.2558%
DENTSPLY SIRONA Inc	XRAY	13,243.29	0.04%	0.73%	11.50%	12.27%	0.0045%
Xylem Inc/NY	XYL	24,331.51	0.07%	0.83%	6.50%	7.36%	0.0050%
Yum! Brands Inc	YUM	39,794.24	0.11%	1.53%	10.50%	12.11%	0.0134%
Zimmer Biomet Holdings Inc	ZBH	31,386.40	0.09%	0.64%	8.50%	9.17%	0.0080%
Zebra Technologies Corp	ZBRA	31,193.23	0.09%	0.00%	12.50%	12.50%	0.0108%
Zions Bancorp NA	ZION	9,205.95	0.03%	2.68%	8.50%	11.29%	0.0029%
Zoetis Inc	ZTS	96,942.95	0.27%	0.49%	10.50%	11.02%	0.0296%
Total Market Capitalization:		36,096,487.93					15.05%

Notes:

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

Expected Market Return
Market DCF Method Based - Bloomberg

[1]
S&P 500
Est. Required
Market Return
18.17%

Company	Ticker	[2] Market Capitalization	[3] Weight in Index	[4] Estimated Dividend Yield	[5] Long-Term Growth Est.	[6] DCF Result	[7] Weighted DCF Result
Agilent Technologies Inc	A	53,167.41	0.13%	0.45%	16.35%	16.84%	0.0224%
American Airlines Group Inc	AAL	12,910.31	N/A	0.00%	N/A	N/A	N/A
Advance Auto Parts Inc	AAP	12,779.70	0.03%	1.66%	14.72%	16.50%	0.0053%
Apple Inc	AAPL	2,509,775.10	6.28%	0.57%	12.80%	13.41%	0.8423%
AbbVie Inc	ABBV	213,439.46	0.53%	4.24%	2.42%	6.71%	0.0359%
AmerisourceBergen Corp	ABC	25,393.66	0.06%	1.45%	10.09%	11.61%	0.0074%
ABIOMED Inc	ABMD	16,516.59	N/A	0.00%	N/A	N/A	N/A
Abbott Laboratories	ABT	224,030.93	0.56%	1.34%	11.47%	12.89%	0.0723%
Accenture PLC	ACN	213,748.00	0.54%	1.05%	10.70%	11.81%	0.0632%
Adobe Inc	ADBE	316,186.68	0.79%	0.00%	17.78%	17.78%	0.1408%
Analog Devices Inc	ADI	87,571.13	0.22%	1.65%	12.80%	14.56%	0.0319%
Archer-Daniels-Midland Co	ADM	33,561.99	0.08%	2.46%	5.86%	8.39%	0.0071%
Automatic Data Processing Inc	ADP	88,440.76	0.22%	1.86%	12.75%	14.73%	0.0326%
Autodesk Inc	ADSK	68,223.93	0.17%	0.00%	29.00%	29.00%	0.0495%
Ameren Corp	AEE	22,404.56	0.06%	2.49%	7.60%	10.18%	0.0057%
American Electric Power Co Inc	AEP	44,807.51	0.11%	3.33%	5.88%	9.31%	0.0104%
AES Corp/The	AES	15,906.01	0.04%	2.56%	8.33%	10.99%	0.0044%
Aflac Inc	AFL	38,017.62	N/A	2.33%	N/A	N/A	N/A
American International Group Inc	AIG	46,659.84	0.12%	2.36%	20.77%	23.37%	0.0273%
Assurant Inc	AIZ	10,004.78	0.03%	1.57%	17.92%	19.63%	0.0049%
Arthur J Gallagher & Co	AJG	29,693.44	0.07%	1.33%	14.29%	15.71%	0.0117%
Akamai Technologies Inc	AKAM	18,440.48	0.05%	0.00%	11.73%	11.73%	0.0054%
Albermarle Corp	ALB	27,686.71	0.07%	0.65%	19.41%	20.11%	0.0139%
Align Technology Inc	ALGN	56,019.18	0.14%	0.00%	26.56%	26.56%	0.0372%
Alaska Air Group Inc	ALK	7,180.84	N/A	0.08%	N/A	N/A	N/A
Allstate Corp/The	ALL	39,999.78	0.10%	2.32%	0.68%	3.00%	0.0030%
Allegion plc	ALLE	12,915.35	0.03%	0.99%	7.67%	8.70%	0.0028%
Applied Materials Inc	AMAT	122,012.73	0.31%	0.68%	20.67%	21.41%	0.0654%
Amcor PLC	AMCR	19,767.41	0.05%	3.79%	6.73%	10.64%	0.0053%
Advanced Micro Devices Inc	AMD	134,299.52	0.34%	0.00%	27.15%	27.15%	0.0913%
AMETEK Inc	AME	31,437.03	0.08%	0.58%	11.55%	12.17%	0.0096%
Amgen Inc	AMGN	128,067.74	0.32%	3.11%	6.96%	10.18%	0.0326%
Ameriprise Financial Inc	AMP	31,042.40	0.08%	1.64%	13.30%	15.04%	0.0117%
American Tower Corp	AMT	132,978.63	0.33%	1.78%	14.77%	16.69%	0.0556%
Amazon.com Inc	AMZN	1,757,748.69	4.40%	0.00%	28.88%	28.88%	1.2709%
Arista Networks Inc	ANET	28,349.10	0.07%	0.00%	12.19%	12.19%	0.0087%
ANSYS Inc	ANSS	31,878.58	0.08%	0.00%	10.93%	10.93%	0.0087%
Anthem Inc	ANTM	91,462.50	0.23%	1.18%	11.41%	12.66%	0.0290%
Aon PLC	ACN	64,757.83	0.16%	0.68%	16.00%	16.74%	0.0271%
A O Smith Corp	AOS	11,575.45	0.03%	1.48%	10.00%	11.55%	0.0033%
APA Corp	APA	7,363.86	0.02%	0.51%	5.19%	5.72%	0.0011%
Air Products and Chemicals Inc	APD	59,659.99	0.15%	2.15%	13.81%	16.10%	0.0241%
Amphenol Corp	APH	45,838.93	0.11%	0.85%	13.68%	14.59%	0.0167%
Aptiv PLC	APTIV	41,168.55	0.10%	0.11%	18.40%	18.52%	0.0191%
Alexandria Real Estate Equities Inc	ARE	31,443.15	0.08%	2.17%	7.44%	9.69%	0.0076%
Atmos Energy Corp	ATO	12,753.41	0.03%	2.55%	7.46%	10.10%	0.0032%
Activision Blizzard Inc	ATVI	64,059.84	0.16%	0.57%	13.63%	14.23%	0.0228%
AvalonBay Communities Inc	AVB	32,053.22	0.08%	2.77%	8.49%	11.38%	0.0091%
Broadcom Inc	AVGO	203,985.65	0.51%	2.88%	19.60%	22.77%	0.1163%
Avery Dennison Corp	AVY	18,681.00	0.05%	1.16%	7.20%	8.40%	0.0039%
American Water Works Co Inc	AWK	33,077.59	0.08%	1.29%	9.40%	10.76%	0.0089%
American Express Co	AXP	131,844.11	0.33%	1.06%	32.86%	34.09%	0.1125%
AutoZone Inc	AZO	33,376.05	0.08%	0.00%	11.61%	11.61%	0.0097%
Boeing Co/The	BA	128,660.34	N/A	0.00%	N/A	N/A	N/A
Bank of America Corp	BAC	351,322.24	0.88%	1.86%	15.10%	17.10%	0.1504%
Baxter International Inc	BAX	38,103.16	0.10%	1.37%	10.67%	12.11%	0.0116%
Bath & Body Works Inc	BBWI	17,865.24	N/A	0.82%	N/A	N/A	N/A
Best Buy Co Inc	BBY	28,657.29	0.07%	2.34%	1.20%	3.55%	0.0025%
Becton Dickinson and Co	BDX	72,285.77	0.18%	1.50%	7.74%	9.30%	0.0168%
Franklin Resources Inc	BEN	16,312.59	N/A	3.45%	N/A	N/A	N/A
Brown-Forman Corp	BF/B	32,943.35	0.08%	1.04%	5.53%	6.60%	0.0054%
Biogen Inc	BIIB	50,508.92	0.13%	0.00%	-1.90%	-1.90%	-0.0024%
Bio-Rad Laboratories Inc	BIO	23,748.56	0.06%	0.00%	12.50%	12.50%	0.0074%
Bank of New York Mellon Corp/The	BK	47,664.45	0.12%	2.36%	8.75%	11.21%	0.0134%
Booking Holdings Inc	BKNG	94,424.08	0.24%	0.00%	42.50%	42.50%	0.1005%
Baker Hughes Co	BKR	23,748.47	N/A	3.16%	N/A	N/A	N/A
BlackRock Inc	BLK	144,476.60	0.36%	1.74%	8.00%	9.80%	0.0355%
Ball Corp	BLL	31,341.66	0.08%	0.73%	8.40%	9.16%	0.0072%
Bristol-Myers Squibb Co	BMJ	148,570.51	0.37%	2.93%	3.80%	6.78%	0.0252%
Broadridge Financial Solutions Inc	BR	20,006.51	0.05%	1.47%	11.90%	13.45%	0.0067%
Berkshire Hathaway Inc	BRK/B	646,779.90	1.62%	0.00%	2.30%	2.30%	0.0372%
Boston Scientific Corp	BSX	64,286.95	0.16%	0.00%	16.85%	16.85%	0.0271%
BorgWarner Inc	BWA	10,234.24	0.03%	1.49%	19.70%	21.34%	0.0055%
Boston Properties Inc	BXP	17,645.56	0.04%	3.49%	-1.27%	2.20%	0.0010%
Citigroup Inc	C	145,746.12	0.36%	2.85%	19.53%	22.66%	0.0827%

Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Conagra Brands Inc	CAG	15,908.65	0.04%	3.54%	7.80%	11.48%	0.0046%
Cardinal Health Inc	CAH	15,245.27	0.04%	3.80%	4.03%	7.90%	0.0030%
Carrier Global Corp	CARR	49,979.60	0.13%	0.85%	17.30%	18.21%	0.0228%
Caterpillar Inc	CAT	115,445.31	0.29%	2.04%	15.45%	17.65%	0.0510%
Chubb Ltd	CB	80,693.07	0.20%	1.73%	17.70%	19.58%	0.0396%
Cboe Global Markets Inc	CBOE	13,450.50	N/A	1.36%	N/A	N/A	N/A
CBRE Group Inc	CBRE	32,331.42	0.08%	0.00%	14.85%	14.85%	0.0120%
Crown Castle International Corp	CCI	84,144.31	0.21%	2.78%	16.07%	19.07%	0.0402%
Carnival Corp	CCL	26,845.33	N/A	0.00%	N/A	N/A	N/A
Cadence Design Systems Inc	CDNS	45,247.99	0.11%	0.20%	11.56%	11.78%	0.0133%
CDW Corp/DE	CDW	27,582.97	0.07%	0.83%	13.10%	13.98%	0.0097%
Celanese Corp	CE	17,622.91	0.04%	1.71%	16.29%	18.14%	0.0080%
Cerner Corp	CERN	22,567.98	0.06%	1.12%	7.89%	9.05%	0.0051%
CF Industries Holdings Inc	CF	9,769.84	0.02%	2.64%	7.20%	9.94%	0.0024%
Citizens Financial Group Inc	CFG	18,658.18	0.05%	3.61%	28.76%	32.88%	0.0154%
Church & Dwight Co Inc	CHD	20,542.14	0.05%	1.21%	7.50%	8.76%	0.0045%
CH Robinson Worldwide Inc	CHRW	11,861.96	0.03%	2.35%	13.47%	15.98%	0.0047%
Charter Communications Inc	CHTR	170,228.28	0.43%	0.00%	36.01%	36.01%	0.1535%
Cigna Corp	CI	71,983.76	0.18%	2.13%	9.52%	11.75%	0.0212%
Cincinnati Financial Corp	CINF	19,889.97	N/A	2.01%	N/A	N/A	N/A
Colgate-Palmolive Co	CL	65,751.88	0.16%	2.39%	5.95%	8.41%	0.0138%
Clorox Co/The	CLX	20,638.74	0.05%	2.78%	5.00%	7.85%	0.0041%
Comerica Inc	CMA	9,898.30	0.02%	3.70%	21.98%	26.08%	0.0065%
Comcast Corp	CMCSA	278,505.26	0.70%	1.64%	14.44%	16.20%	0.1130%
CME Group Inc	CME	72,445.37	N/A	3.16%	N/A	N/A	N/A
Chipotle Mexican Grill Inc	CMG	53,473.81	0.13%	0.00%	26.05%	26.05%	0.0349%
Cummins Inc	CMI	33,888.42	0.08%	2.36%	12.20%	14.70%	0.0125%
CMS Energy Corp	CMS	18,575.53	0.05%	2.71%	5.87%	8.66%	0.0040%
Centene Corp	CNC	36,720.08	0.09%	0.00%	9.86%	9.86%	0.0091%
CenterPoint Energy Inc	CNP	14,564.64	0.04%	2.51%	3.57%	6.13%	0.0022%
Capital One Financial Corp	COF	74,041.50	0.19%	1.51%	50.65%	52.54%	0.0974%
Cabot Oil & Gas Corp	COG	6,350.66	0.02%	3.30%	43.37%	47.39%	0.0075%
Cooper Cos Inc/The	COO	22,196.54	0.06%	0.01%	11.07%	11.08%	0.0062%
ConocoPhillips	COP	74,359.23	0.19%	3.14%	1.50%	4.66%	0.0087%
Costco Wholesale Corp	COST	201,358.05	0.50%	0.64%	10.21%	10.88%	0.0548%
Campbell Soup Co	CPB	12,646.34	0.03%	3.48%	7.39%	11.00%	0.0035%
Copart Inc	CPRT	34,143.01	N/A	0.00%	N/A	N/A	N/A
Charles River Laboratories Internation	CRL	22,369.04	0.06%	0.00%	16.23%	16.23%	0.0091%
salesforce.com Inc	CRM	259,699.33	0.65%	0.00%	21.47%	21.47%	0.1396%
Cisco Systems Inc/Delaware	CSCO	248,722.36	0.62%	2.53%	6.33%	8.94%	0.0557%
CSX Corp	CSX	73,338.75	0.18%	1.17%	12.82%	14.06%	0.0258%
Cintas Corp	CTAS	40,751.35	0.10%	0.84%	9.34%	10.22%	0.0104%
Catalent Inc	CTLT	22,277.49	0.06%	0.00%	15.86%	15.86%	0.0088%
Cognizant Technology Solutions Corp	CTSH	40,108.32	0.10%	1.26%	12.00%	13.34%	0.0134%
Corteva Inc	CTVA	32,292.49	0.08%	1.24%	17.70%	19.05%	0.0154%
Citrix Systems Inc	CTXS	12,779.75	0.03%	1.43%	5.20%	6.67%	0.0021%
CVS Health Corp	CVS	113,998.06	0.29%	2.31%	6.23%	8.61%	0.0246%
Chevron Corp	CVX	187,144.66	0.47%	5.49%	-1.95%	3.48%	0.0163%
Caesars Entertainment Inc	CZR	21,690.85	N/A	0.00%	N/A	N/A	N/A
Dominion Energy Inc	D	62,932.65	0.16%	3.23%	6.99%	10.33%	0.0163%
Delta Air Lines Inc	DAL	25,878.16	N/A	0.00%	N/A	N/A	N/A
DuPont de Nemours Inc	DD	38,716.66	0.10%	1.63%	10.56%	12.28%	0.0119%
Deere & Co	DE	117,212.54	0.29%	0.88%	39.56%	40.62%	0.1192%
Discover Financial Services	DFS	38,397.84	0.10%	1.47%	55.73%	57.60%	0.0554%
Dollar General Corp	DG	52,007.18	0.13%	0.75%	10.74%	11.53%	0.0150%
Quest Diagnostics Inc	DGX	18,672.89	0.05%	1.59%	-4.79%	-3.24%	-0.0015%
DR Horton Inc	DHI	34,250.55	0.09%	0.84%	30.30%	31.26%	0.0268%
Danaher Corp	DHR	231,417.68	0.58%	0.28%	12.88%	13.18%	0.0763%
Walt Disney Co/The	DIS	329,445.05	0.82%	0.05%	64.46%	64.52%	0.5322%
Discovery Inc	DISCA	19,782.50	0.05%	0.00%	9.20%	9.20%	0.0046%
DISH Network Corp	DISH	23,010.69	0.06%	0.00%	7.27%	7.27%	0.0042%
Digital Realty Trust Inc	DLR	47,476.34	0.12%	2.83%	29.70%	32.95%	0.0392%
Dollar Tree Inc	DLTR	20,363.52	0.05%	0.00%	10.16%	10.16%	0.0052%
Dover Corp	DOV	25,101.03	0.06%	1.15%	13.60%	14.82%	0.0093%
Dow Inc	DOW	46,874.64	0.12%	4.45%	27.49%	32.56%	0.0382%
Domino's Pizza Inc	DPZ	19,049.57	0.05%	0.73%	13.15%	13.93%	0.0066%
Duke Realty Corp	DRE	19,866.65	0.05%	1.97%	4.99%	7.00%	0.0035%
Darden Restaurants Inc	DRI	19,632.78	0.05%	2.90%	11.70%	14.77%	0.0073%
DTE Energy Co	DTE	23,316.06	0.06%	3.41%	3.73%	7.21%	0.0042%
Duke Energy Corp	DUK	80,483.54	0.20%	3.76%	4.16%	8.00%	0.0161%
DaVita Inc	DVA	13,704.70	0.03%	0.00%	14.20%	14.20%	0.0049%
Devon Energy Corp	DVN	20,005.35	0.05%	3.74%	16.59%	20.64%	0.0103%
DXC Technology Co	DXC	9,249.92	0.02%	0.54%	27.62%	28.24%	0.0065%
Dexcom Inc	DXCM	51,220.80	0.13%	0.00%	15.20%	15.20%	0.0195%
Electronic Arts Inc	EA	41,324.12	0.10%	0.32%	15.70%	16.05%	0.0166%
eBay Inc	EBAY	49,885.28	0.12%	0.93%	10.38%	11.35%	0.0142%
Ecolab Inc	ECL	64,472.62	0.16%	0.89%	15.45%	16.41%	0.0265%
Consolidated Edison Inc	ED	26,662.66	0.07%	4.13%	3.30%	7.50%	0.0050%
Equifax Inc	EFX	33,171.42	0.08%	0.57%	15.71%	16.32%	0.0136%
Edison International	EIX	21,962.13	0.05%	4.60%	3.90%	8.59%	0.0047%
Estee Lauder Cos Inc/The	EL	123,014.69	0.31%	0.67%	15.00%	15.72%	0.0484%
Eastman Chemical Co	EMN	15,365.17	0.04%	2.42%	13.89%	16.47%	0.0063%
Emerson Electric Co	EMR	63,067.90	0.16%	1.92%	10.34%	12.36%	0.0195%
Enphase Energy Inc	ENPH	23,387.74	0.06%	0.00%	34.33%	34.33%	0.0201%
EOG Resources Inc	EOG	39,422.24	0.10%	3.63%	13.08%	16.94%	0.0167%
Equinix Inc	EQIX	75,699.81	0.19%	1.36%	23.55%	25.07%	0.0475%
Equity Residential	EQR	31,480.63	0.08%	2.87%	9.13%	12.13%	0.0096%
Eversource Energy	ES	31,178.75	0.08%	2.66%	7.77%	10.53%	0.0082%

Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Essex Property Trust Inc	ESS	21,509.61	0.05%	2.53%	8.04%	10.67%	0.0057%
Eaton Corp PLC	ETN	67,108.30	0.17%	1.82%	11.53%	13.45%	0.0226%
Entergy Corp	ETR	22,227.58	0.06%	3.50%	3.22%	6.78%	0.0038%
Etsy Inc	ETSY	27,373.50	0.07%	0.00%	20.50%	20.50%	0.0140%
Evergy Inc	EVRG	15,537.68	0.04%	3.14%	8.60%	11.87%	0.0046%
Edwards Lifesciences Corp	EW	73,041.56	0.18%	0.00%	15.67%	15.67%	0.0286%
Exelon Corp	EXC	47,880.78	0.12%	3.17%	0.93%	4.11%	0.0049%
Expeditors International of Washington	EXPD	21,175.23	0.05%	0.89%	11.40%	12.34%	0.0065%
Expedia Group Inc	EXPE	21,793.46	0.05%	0.00%	4.00%	4.00%	0.0022%
Extra Space Storage Inc	EXR	25,009.93	0.06%	2.20%	8.60%	10.90%	0.0068%
Ford Motor Co	F	52,051.78	0.13%	0.58%	48.35%	49.06%	0.0639%
Diamondback Energy Inc	FANG	13,966.48	0.03%	2.17%	16.04%	18.38%	0.0064%
Fastenal Co	FAST	32,099.20	0.08%	2.01%	7.85%	9.93%	0.0080%
Facebook Inc	FB	1,069,640.85	2.68%	0.00%	26.98%	26.98%	0.7224%
Fortune Brands Home & Security Inc	FBHS	13,425.27	0.03%	1.06%	11.60%	12.72%	0.0043%
Freeport-McMoRan Inc	FCX	53,422.86	N/A	0.78%	N/A	N/A	N/A
FedEx Corp	FDX	70,724.27	0.18%	1.13%	13.55%	14.76%	0.0261%
FirstEnergy Corp	FE	21,152.81	0.05%	4.01%	0.38%	4.40%	0.0023%
F5 Networks Inc	FFIV	12,277.77	0.03%	0.00%	14.78%	14.78%	0.0045%
Fidelity National Information Services I	FIS	78,922.34	0.20%	1.20%	13.10%	14.37%	0.0284%
Fiserv Inc	FISV	78,001.09	0.20%	0.00%	17.46%	17.46%	0.0341%
Fifth Third Bancorp	FITB	26,841.31	0.07%	2.92%	13.00%	16.11%	0.0108%
FleetCor Technologies Inc	FLT	21,748.01	0.05%	0.00%	15.04%	15.04%	0.0082%
FMC Corp	FMC	12,050.12	0.03%	2.11%	9.23%	11.44%	0.0035%
Fox Corp	FOXA	20,813.58	0.05%	1.31%	8.04%	9.40%	0.0049%
First Republic Bank/CA	FRC	35,562.42	0.09%	0.43%	17.17%	17.64%	0.0157%
Federal Realty Investment Trust	FRT	9,469.83	0.02%	3.50%	7.39%	11.02%	0.0026%
Fortinet Inc	FTNT	51,468.73	0.13%	0.00%	15.18%	15.18%	0.0196%
Fortive Corp	FTV	26,474.34	0.07%	0.39%	8.02%	8.42%	0.0056%
General Dynamics Corp	GD	55,994.94	0.14%	2.35%	8.66%	11.11%	0.0156%
General Electric Co	GE	115,704.64	0.29%	0.27%	94.85%	95.25%	0.2759%
Gilead Sciences Inc	GILD	91,252.25	0.23%	3.86%	10.49%	14.56%	0.0333%
General Mills Inc	GIS	35,048.89	0.09%	3.60%	6.35%	10.07%	0.0088%
Globe Life Inc	GL	9,772.30	N/A	0.82%	N/A	N/A	N/A
Corning Inc	GLW	34,152.74	0.09%	2.40%	20.23%	22.87%	0.0196%
General Motors Co	GM	71,148.98	0.18%	0.35%	12.90%	13.27%	0.0236%
Generac Holdings Inc	GNRC	27,582.48	0.07%	0.00%	6.50%	6.50%	0.0045%
Alphabet Inc	GOOGL	1,934,798.59	4.84%	0.00%	34.61%	34.61%	1.6766%
Genuine Parts Co	GPC	17,499.14	0.04%	2.67%	10.24%	13.04%	0.0057%
Global Payments Inc	GPN	47,775.19	0.12%	0.53%	18.26%	18.84%	0.0225%
Gap Inc/The	GPS	10,053.29	0.03%	2.25%	24.50%	27.02%	0.0068%
Garmin Ltd	GRMN	33,546.70	0.08%	1.50%	10.62%	10.62%	0.0089%
Goldman Sachs Group Inc/The	GS	145,431.01	0.36%	1.57%	12.40%	14.07%	0.0512%
WW Grainger Inc	GWV	22,584.65	0.06%	1.47%	12.40%	13.97%	0.0079%
Halliburton Co	HAL	17,792.18	0.04%	0.90%	43.83%	44.93%	0.0200%
Hasbro Inc	HAS	13,535.62	0.03%	2.78%	13.85%	16.82%	0.0057%
Huntington Bancshares Inc/OH	HBAN	22,930.94	0.06%	3.92%	22.96%	27.33%	0.0157%
Hanesbrands Inc	HBI	6,522.15	0.02%	3.24%	12.00%	15.44%	0.0025%
HCA Healthcare Inc	HCA	80,989.50	0.20%	0.65%	12.90%	13.60%	0.0276%
Home Depot Inc/The	HD	344,236.90	0.86%	2.03%	8.96%	11.09%	0.0955%
Hess Corp	HES	21,290.02	0.05%	1.46%	-5.23%	-3.81%	-0.0020%
Hartford Financial Services Group Inc/	HIG	23,337.82	0.06%	2.11%	7.00%	9.18%	0.0054%
Huntington Ingalls Industries Inc	HII	8,195.52	0.02%	2.27%	28.70%	31.30%	0.0064%
Hilton Worldwide Holdings Inc	HLT	34,796.73	0.09%	0.00%	44.00%	44.00%	0.0383%
Hologic Inc	HOLX	20,063.53	0.05%	0.00%	11.18%	11.18%	0.0056%
Honeywell International Inc	HON	160,110.49	0.40%	1.63%	13.20%	14.93%	0.0599%
Hewlett Packard Enterprise Co	HPE	20,189.64	0.05%	3.12%	5.93%	9.15%	0.0046%
HP Inc	HPQ	35,725.34	0.09%	2.63%	11.39%	14.16%	0.0127%
Hormel Foods Corp	HRL	24,686.09	0.06%	2.15%	5.25%	7.46%	0.0046%
Henry Schein Inc	HSIC	10,559.41	0.03%	0.00%	13.85%	13.85%	0.0037%
Host Hotels & Resorts Inc	HST	11,823.40	0.03%	0.00%	42.86%	42.86%	0.0127%
Hershey Co/The	HSY	36,613.23	0.09%	1.89%	7.60%	9.56%	0.0088%
Humana Inc	HUM	52,098.36	0.13%	0.68%	12.30%	13.03%	0.0170%
Howmet Aerospace Inc	HWM	13,617.96	0.03%	0.13%	36.05%	36.20%	0.0123%
International Business Machines Corp	IBM	125,789.56	0.31%	4.71%	9.58%	14.52%	0.0457%
Intercontinental Exchange Inc	ICE	67,313.94	0.17%	1.11%	8.90%	10.05%	0.0169%
IDEXX Laboratories Inc	IDXX	57,320.76	0.14%	0.00%	18.57%	18.57%	0.0266%
IDEX Corp	IEX	17,023.58	0.04%	0.93%	14.03%	15.03%	0.0064%
International Flavors & Fragrances Inc	IFF	37,733.30	0.09%	1.97%	32.02%	34.31%	0.0324%
Illumina Inc	ILMN	71,545.54	0.18%	0.00%	31.48%	31.48%	0.0564%
Incyte Corp	INCY	16,891.69	0.04%	0.00%	64.36%	64.36%	0.0272%
IHS Markit Ltd	INFO	48,072.64	0.12%	0.44%	11.60%	12.06%	0.0145%
Intel Corp	INTC	219,321.42	0.55%	2.57%	4.43%	7.05%	0.0387%
Intuit Inc	INTU	154,694.80	0.39%	0.46%	15.16%	15.65%	0.0606%
International Paper Co	IP	23,485.25	0.06%	3.41%	4.25%	7.73%	0.0045%
Interpublic Group of Cos Inc/The	IPG	14,654.48	0.04%	2.90%	7.57%	10.58%	0.0039%
IPG Photonics Corp	IPGP	9,130.86	N/A	0.00%	N/A	N/A	N/A
IQVIA Holdings Inc	IQV	49,767.47	0.12%	0.00%	22.70%	22.70%	0.0283%
Ingersoll Rand Inc	IR	22,276.61	0.06%	0.00%	15.00%	15.00%	0.0084%
Iron Mountain Inc	IRM	13,821.73	0.03%	5.22%	3.93%	9.25%	0.0032%
Intuitive Surgical Inc	ISRG	125,266.79	0.31%	0.00%	18.58%	18.58%	0.0583%
Gartner Inc	IT	25,825.71	0.06%	0.00%	13.50%	13.50%	0.0087%
Illinois Tool Works Inc	ITW	73,343.41	0.18%	1.98%	13.56%	15.68%	0.0288%
Invesco Ltd	IVZ	11,682.44	0.03%	2.65%	8.70%	11.47%	0.0034%
Jacobs Engineering Group Inc	J	17,587.23	0.04%	0.56%	15.05%	15.65%	0.0069%
JB Hunt Transport Services Inc	JBHT	18,661.78	0.05%	0.67%	14.65%	15.37%	0.0072%
Johnson Controls International plc	JCI	53,274.37	0.13%	1.44%	14.20%	15.74%	0.0210%
Jack Henry & Associates Inc	JKHY	13,054.59	0.03%	1.04%	12.47%	13.58%	0.0044%

Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Johnson & Johnson	JNJ	455,761.62	1.14%	2.41%	10.18%	12.71%	0.1450%
Juniper Networks Inc	JNPR	9,422.90	0.02%	2.75%	8.93%	11.81%	0.0028%
JPMorgan Chase & Co	JPM	477,955.45	1.20%	2.38%	9.70%	12.19%	0.1459%
Kellogg Co	K	21,523.10	0.05%	3.66%	4.24%	7.97%	0.0043%
KeyCorp	KEY	19,433.44	0.05%	3.73%	18.28%	22.35%	0.0109%
Keysight Technologies Inc	KEYS	33,041.05	0.08%	0.00%	13.01%	13.01%	0.0108%
Kraft Heinz Co/The	KHC	44,029.70	0.11%	4.45%	0.28%	4.73%	0.0052%
Kimco Realty Corp	KIM	13,354.88	0.03%	3.17%	13.09%	16.46%	0.0055%
KLA Corp	KLAC	51,924.52	0.13%	1.26%	9.05%	10.37%	0.0135%
Kimberly-Clark Corp	KMB	46,409.18	0.12%	3.25%	1.60%	4.88%	0.0057%
Kinder Morgan Inc	KMI	36,876.29	0.09%	6.64%	7.65%	14.54%	0.0134%
CarMax Inc	KMX	20,401.10	0.05%	0.00%	18.46%	18.46%	0.0094%
Coca-Cola Co/The	KO	243,068.80	0.61%	2.97%	9.42%	12.53%	0.0762%
Kroger Co/The	KR	34,395.37	0.09%	1.63%	7.11%	8.79%	0.0076%
Kansas City Southern	KSU	25,531.05	0.06%	0.77%	11.10%	11.91%	0.0076%
Loews Corp	L	14,373.84	N/A	0.00%	N/A	N/A	N/A
Leidos Holdings Inc	LDOS	13,888.96	0.03%	1.43%	10.69%	12.19%	0.0042%
Leggett & Platt Inc	LEG	6,450.33	N/A	3.43%	N/A	N/A	N/A
Lennar Corp	LEN	32,770.11	0.08%	0.93%	23.20%	24.24%	0.0199%
Laboratory Corp of America Holdings	LH	29,245.83	0.07%	0.00%	-9.41%	-9.41%	-0.0069%
L3Harris Technologies Inc	LHX	46,821.89	0.12%	1.75%	9.32%	11.15%	0.0131%
Linde PLC	LIN	162,189.18	0.41%	1.35%	12.28%	13.70%	0.0556%
LKQ Corp	LKQ	15,484.29	0.04%	0.00%	11.30%	11.30%	0.0044%
Eli Lilly & Co	LLY	247,075.28	0.62%	1.27%	14.13%	15.49%	0.0958%
Lockheed Martin Corp	LMT	99,634.55	0.25%	2.96%	3.88%	6.90%	0.0172%
Lincoln National Corp	LNC	12,900.94	0.03%	2.47%	29.54%	32.37%	0.0105%
Alliant Energy Corp	LNT	15,213.18	0.04%	2.66%	6.35%	9.10%	0.0035%
Lowe's Cos Inc	LOW	141,180.10	0.35%	1.45%	20.36%	21.96%	0.0776%
Lam Research Corp	LRCX	85,856.43	0.21%	0.93%	14.40%	15.39%	0.0331%
Lumen Technologies Inc	LUMN	13,594.36	0.03%	8.15%	-8.72%	-0.93%	-0.0003%
Southwest Airlines Co	LUV	29,452.07	N/A	0.00%	N/A	N/A	N/A
Las Vegas Sands Corp	LVS	34,081.58	N/A	0.78%	N/A	N/A	N/A
Lamb Weston Holdings Inc	LW	9,454.50	0.02%	1.49%	14.58%	16.17%	0.0038%
LyondellBasell Industries NV	LYB	33,568.62	0.08%	4.42%	8.00%	12.60%	0.0106%
Live Nation Entertainment Inc	LYV	18,986.44	N/A	0.00%	N/A	N/A	N/A
Mastercard Inc	MA	341,651.12	0.86%	0.48%	25.80%	26.35%	0.2254%
Mid-America Apartment Communities	MAA	22,318.75	0.06%	2.13%	3.00%	5.17%	0.0029%
Marriott International Inc/MD	MAR	44,009.20	0.11%	0.00%	74.63%	74.63%	0.0822%
Masco Corp	MAS	15,007.73	0.04%	1.40%	15.35%	16.86%	0.0063%
McDonald's Corp	MCD	177,334.86	0.44%	2.20%	11.87%	14.20%	0.0630%
Microchip Technology Inc	MCHP	43,122.96	0.11%	1.14%	13.04%	14.25%	0.0154%
McKesson Corp	MCK	31,575.27	0.08%	0.89%	1.70%	2.59%	0.0020%
Moody's Corp	MCO	70,899.37	0.18%	0.65%	11.00%	11.69%	0.0207%
Mondelez International Inc	MDLZ	86,762.53	0.22%	2.14%	7.33%	9.55%	0.0208%
Medtronic PLC	MDT	179,591.94	0.45%	1.80%	10.29%	12.19%	0.0548%
MetLife Inc	MET	53,127.64	0.13%	3.08%	5.63%	8.79%	0.0117%
MGM Resorts International	MGM	20,537.74	0.05%	0.02%	-19.00%	-18.98%	-0.0098%
Mohawk Industries Inc	MHK	13,651.22	N/A	0.00%	N/A	N/A	N/A
McCormick & Co Inc/MD	MKC	23,050.63	0.06%	1.57%	6.35%	7.97%	0.0046%
MarketAxess Holdings Inc	MKTX	18,085.14	N/A	0.55%	N/A	N/A	N/A
Martin Marietta Materials Inc	MLM	23,781.36	0.06%	0.60%	19.35%	20.01%	0.0119%
Marsh & McLennan Cos Inc	MMC	79,641.60	0.20%	1.26%	12.01%	13.35%	0.0266%
3M Co	MMM	112,684.01	0.28%	3.04%	9.45%	12.63%	0.0356%
Monster Beverage Corp	MNST	51,603.39	0.13%	0.00%	12.17%	12.17%	0.0157%
Altria Group Inc	MO	92,628.03	0.23%	7.05%	4.25%	11.45%	0.0265%
Mosaic Co/The	MOS	12,225.08	0.03%	0.79%	7.23%	8.05%	0.0025%
Marathon Petroleum Corp	MPC	37,826.24	0.09%	3.98%	-3.00%	0.92%	0.0009%
Monolithic Power Systems Inc	MPWR	22,727.19	0.06%	0.48%	24.85%	25.39%	0.0144%
Merck & Co Inc	MRK	193,118.58	0.48%	3.41%	6.19%	9.70%	0.0469%
Moderna Inc	MRNA	152,049.53	0.38%	0.00%	29.15%	29.15%	0.1110%
Marathon Oil Corp	MRO	9,263.69	0.02%	1.37%	2.33%	3.72%	0.0009%
Morgan Stanley	MS	190,538.91	0.48%	2.01%	3.81%	5.86%	0.0279%
MSCI Inc	MSCI	52,316.23	0.13%	0.55%	13.30%	13.88%	0.0182%
Microsoft Corp	MSFT	2,268,595.37	5.68%	0.78%	10.29%	11.12%	0.6313%
Motorola Solutions Inc	MSI	41,352.45	0.10%	1.18%	12.40%	13.65%	0.0141%
M&T Bank Corp	MTB	18,016.18	0.05%	3.17%	11.59%	14.95%	0.0067%
Mettler-Toledo International Inc	MTD	35,896.68	0.09%	0.00%	15.68%	15.68%	0.0141%
Micron Technology Inc	MU	82,968.04	0.21%	0.02%	19.53%	19.56%	0.0406%
Norwegian Cruise Line Holdings Ltd	NCLH	9,561.58	0.02%	0.00%	-99.44%	-99.44%	-0.0238%
Nasdaq Inc	NDAQ	32,735.17	0.08%	1.09%	7.40%	8.53%	0.0070%
NextEra Energy Inc	NEE	164,767.97	0.41%	1.83%	9.08%	10.98%	0.0453%
Newmont Corp	NEM	46,341.32	0.12%	3.80%	-6.70%	-3.03%	-0.0035%
Netflix Inc	NFLX	251,921.15	0.63%	0.00%	35.37%	35.37%	0.2230%
NiSource Inc	NI	9,672.92	0.02%	3.60%	5.81%	9.51%	0.0023%
NIKE Inc	NIKE	260,799.57	0.65%	0.71%	14.51%	15.27%	0.0997%
NortonLifeLock Inc	NLOK	15,449.51	0.04%	1.92%	16.20%	18.28%	0.0071%
Nielsen Holdings PLC	NLSN	7,699.85	N/A	1.12%	N/A	N/A	N/A
Northrop Grumman Corp	NOC	58,872.12	0.15%	1.66%	5.29%	6.99%	0.0103%
NOV Inc	NOV	5,145.57	N/A	0.10%	N/A	N/A	N/A
ServiceNow Inc	NOW	127,505.08	0.32%	0.00%	40.10%	40.10%	0.1280%
NRG Energy Inc	NRG	11,178.96	0.03%	2.85%	30.51%	33.79%	0.0095%
Norfolk Southern Corp	NSC	62,617.34	0.16%	1.59%	13.22%	14.92%	0.0234%
NetApp Inc	NTAP	19,921.64	0.05%	2.25%	10.70%	13.07%	0.0065%
Northern Trust Corp	NTRS	24,698.95	0.06%	2.41%	13.00%	15.56%	0.0096%
Nucor Corp	NUE	34,526.73	N/A	1.38%	N/A	N/A	N/A
NVIDIA Corp	NVDA	559,625.00	1.40%	0.08%	24.53%	24.62%	0.3449%
NVR Inc	NVR	18,460.18	0.05%	14.75%	19.00%	35.16%	0.0162%
Newell Brands Inc	NWL	10,809.41	N/A	3.62%	N/A	N/A	N/A

Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
News Corp	NWSA	13,188.39	0.03%	0.89%	11.60%	12.54%	0.0041%
NXP Semiconductors NV	NXPI	57,038.47	0.14%	1.06%	27.08%	28.27%	0.0404%
Realty Income Corp	O	28,121.62	0.07%	3.91%	6.17%	10.20%	0.0072%
Old Dominion Freight Line Inc	ODFL	33,436.69	0.08%	0.31%	20.88%	21.22%	0.0178%
Organon & Co	OGN	8,592.64	N/A	1.65%	N/A	N/A	N/A
ONEOK Inc	OKE	23,406.11	0.06%	7.16%	10.65%	18.19%	0.0107%
Omnicom Group Inc	OMC	15,698.93	0.04%	3.88%	11.84%	15.95%	0.0063%
Oracle Corp	ORCL	248,850.96	0.62%	1.42%	8.10%	9.58%	0.0597%
O'Reilly Automotive Inc	ORLY	40,962.85	0.10%	0.00%	10.92%	10.92%	0.0112%
Otis Worldwide Corp	OTIS	39,357.53	0.10%	1.12%	6.30%	7.45%	0.0073%
Occidental Petroleum Corp	OXY	23,987.64	N/A	0.85%	N/A	N/A	N/A
Paycom Software Inc	PAYC	29,380.15	0.07%	0.00%	28.45%	28.45%	0.0209%
Paychex Inc	PAYX	41,189.76	0.10%	2.30%	7.40%	9.78%	0.0101%
People's United Financial Inc	PBCT	7,031.30	N/A	4.43%	N/A	N/A	N/A
PACCAR Inc	PCAR	28,423.09	0.07%	2.49%	13.35%	16.01%	0.0114%
Healthpeak Properties Inc	PEAK	19,402.86	0.05%	3.33%	10.94%	14.46%	0.0070%
Public Service Enterprise Group Inc	PEG	32,326.60	0.08%	3.19%	4.67%	7.93%	0.0064%
Penn National Gaming Inc	PENN	12,715.61	N/A	0.00%	N/A	N/A	N/A
PepsiCo Inc	PEP	216,148.96	0.54%	2.71%	8.52%	11.35%	0.0614%
Pfizer Inc	PFE	258,300.13	0.65%	3.41%	-3.45%	-0.10%	-0.0006%
Principal Financial Group Inc	PFJ	17,931.41	0.04%	3.66%	15.19%	19.12%	0.0086%
Procter & Gamble Co/The	PG	345,767.87	0.87%	2.46%	6.40%	8.94%	0.0774%
Progressive Corp/The	PGR	56,387.80	0.14%	2.27%	-2.33%	-0.08%	-0.0001%
Parker-Hannifin Corp	PH	38,300.52	0.10%	1.39%	12.20%	13.67%	0.0131%
PulteGroup Inc	PHM	13,977.98	0.03%	1.04%	35.00%	36.23%	0.0127%
Packaging Corp of America	PKG	14,410.32	0.04%	2.65%	5.00%	7.71%	0.0028%
PerkinElmer Inc	PKI	20,718.69	0.05%	0.15%	-3.57%	-3.42%	-0.0018%
Prologis Inc	PLD	99,614.03	0.25%	1.87%	7.26%	9.20%	0.0229%
Philip Morris International Inc	PM	160,529.72	0.40%	4.73%	11.45%	16.45%	0.0661%
PNC Financial Services Group Inc/The	PNC	81,216.21	0.20%	2.53%	32.17%	35.11%	0.0714%
Pentair PLC	PNR	12,798.00	0.03%	1.04%	13.98%	15.09%	0.0048%
Pinnacle West Capital Corp	PNW	8,673.21	0.02%	4.36%	1.61%	6.01%	0.0013%
Pool Corp	POOL	19,821.84	0.05%	0.58%	17.00%	17.63%	0.0087%
PPG Industries Inc	PPG	37,870.24	0.09%	1.43%	5.75%	7.22%	0.0068%
PPL Corp	PPL	22,587.93	0.06%	5.51%	-4.45%	0.94%	0.0005%
Perrigo Co PLC	PRGO	5,475.62	N/A	2.44%	N/A	N/A	N/A
Prudential Financial Inc	PRU	40,869.68	0.10%	4.35%	6.83%	11.32%	0.0116%
Public Storage	PSA	56,705.61	0.14%	2.49%	9.62%	12.23%	0.0174%
Phillips 66	PSX	31,136.67	N/A	5.07%	N/A	N/A	N/A
PTC Inc	PTC	15,454.49	0.04%	0.00%	20.23%	20.23%	0.0078%
PVH Corp	PVH	7,477.79	0.02%	0.07%	38.06%	38.14%	0.0071%
Quanta Services Inc	PWR	14,207.45	0.04%	0.22%	14.00%	14.24%	0.0051%
Pioneer Natural Resources Co	PXD	36,513.35	0.09%	1.49%	20.00%	21.63%	0.0198%
PayPal Holdings Inc	PYPL	339,184.78	0.85%	0.00%	21.76%	21.76%	0.1848%
QUALCOMM Inc	QCOM	165,466.32	0.41%	1.82%	24.72%	26.76%	0.1109%
Qorvo Inc	QRVO	20,897.94	0.05%	0.00%	18.51%	18.51%	0.0097%
Royal Caribbean Cruises Ltd	RCL	21,070.85	N/A	2.83%	N/A	N/A	N/A
Everest Re Group Ltd	RE	10,562.31	0.03%	2.37%	67.43%	70.60%	0.0187%
Regency Centers Corp	REG	11,668.11	0.03%	3.47%	9.56%	13.20%	0.0039%
Regeneron Pharmaceuticals Inc	REGN	72,023.75	0.18%	0.00%	9.27%	9.27%	0.0167%
Regions Financial Corp	RF	19,501.24	0.05%	3.19%	29.15%	32.81%	0.0160%
Robert Half International Inc	RHI	11,577.70	0.03%	1.31%	13.90%	15.30%	0.0044%
Raymond James Financial Inc	RJF	19,193.18	0.05%	1.11%	15.00%	16.19%	0.0078%
Ralph Lauren Corp	RL	8,536.64	0.02%	2.33%	57.38%	60.38%	0.0129%
ResMed Inc	RMD	42,324.75	0.11%	0.58%	18.74%	19.38%	0.0205%
Rockwell Automation Inc	ROK	37,760.57	0.09%	1.32%	13.10%	14.50%	0.0137%
Rollins Inc	ROL	19,151.73	N/A	1.05%	N/A	N/A	N/A
Roper Technologies Inc	ROP	50,949.24	0.13%	0.46%	13.50%	14.00%	0.0179%
Ross Stores Inc	ROST	42,283.09	0.11%	0.97%	41.43%	42.61%	0.0451%
Republic Services Inc	RSG	39,518.63	0.10%	1.41%	8.30%	9.77%	0.0097%
Raytheon Technologies Corp	RTX	127,807.75	0.32%	2.35%	20.54%	23.14%	0.0740%
SBA Communications Corp	SBAC	39,326.40	0.10%	0.65%	8.00%	8.67%	0.0085%
Starbucks Corp	SBUX	138,532.46	0.35%	1.62%	22.97%	24.77%	0.0859%
Charles Schwab Corp/The	SCHW	137,540.99	0.34%	1.00%	20.50%	21.70%	0.0744%
Sealed Air Corp	SEE	9,147.96	0.02%	1.26%	8.30%	9.62%	0.0022%
Sherwin-Williams Co/The	SHW	79,957.06	0.20%	0.73%	1.80%	2.53%	0.0051%
SVB Financial Group	SIVB	31,755.71	0.08%	0.00%	7.00%	7.00%	0.0056%
J M Smucker Co/The	SJM	13,400.70	0.03%	3.09%	0.73%	3.83%	0.0013%
Schlumberger NV	SLB	39,212.06	0.10%	1.84%	46.62%	48.88%	0.0480%
Snap-on Inc	SNA	12,140.67	0.03%	2.14%	7.71%	9.94%	0.0030%
Synopsys Inc	SNPS	50,667.51	0.13%	0.00%	15.89%	15.89%	0.0202%
Southern Co/The	SO	69,651.54	0.17%	3.99%	4.60%	8.68%	0.0151%
Simon Property Group Inc	SPG	44,182.85	0.11%	4.17%	7.92%	12.25%	0.0136%
S&P Global Inc	SPGI	106,960.62	0.27%	0.69%	9.40%	10.12%	0.0271%
Sempra Energy	SRE	41,702.78	0.10%	3.34%	5.65%	9.09%	0.0095%
STERIS PLC	STE	21,449.17	0.05%	0.76%	12.00%	12.80%	0.0069%
State Street Corp	STT	31,914.87	0.08%	2.35%	9.50%	11.96%	0.0096%
Seagate Technology Holdings PLC	STX	19,792.93	0.05%	3.09%	5.26%	8.42%	0.0042%
Constellation Brands Inc	STZ	40,709.34	0.10%	1.45%	7.55%	9.05%	0.0092%
Stanley Black & Decker Inc	SWK	31,495.68	0.08%	1.55%	15.38%	17.05%	0.0134%
Skyworks Solutions Inc	SWKS	30,297.49	0.08%	1.11%	24.05%	25.29%	0.0192%
Synchrony Financial	SYF	28,342.53	0.07%	1.80%	35.60%	37.72%	0.0268%
Stryker Corp	SYK	104,493.38	0.26%	0.90%	12.33%	13.28%	0.0347%
Sysco Corp	SYYS	40,787.32	0.10%	2.38%	30.70%	33.45%	0.0342%
AT&T Inc	T	195,778.80	0.49%	7.61%	2.11%	9.80%	0.0480%
Molson Coors Beverage Co	TAP	10,437.85	0.03%	1.45%	4.09%	5.57%	0.0015%
TransDigm Group Inc	TDG	33,479.15	0.08%	0.21%	28.67%	28.90%	0.0242%
Teledyne Technologies Inc	TDY	21,596.59	0.05%	0.00%	14.10%	14.10%	0.0076%

Company	Ticker	Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
Bio-Techne Corp	TECH	19,506.16	0.05%	0.26%	20.28%	20.56%	0.0100%
TE Connectivity Ltd	TEL	49,271.70	0.12%	1.29%	12.58%	13.95%	0.0172%
Teradyne Inc	TER	20,034.35	N/A	0.32%	N/A	N/A	N/A
Truist Financial Corp	TFC	76,165.43	0.19%	3.26%	10.54%	13.97%	0.0266%
Teleflex Inc	TFX	18,507.98	0.05%	0.34%	9.50%	9.86%	0.0046%
Target Corp	TGT	120,535.89	0.30%	1.26%	19.33%	20.71%	0.0625%
TJX Cos Inc/The	TJX	87,448.65	0.22%	1.43%	67.90%	69.82%	0.1528%
Thermo Fisher Scientific Inc	TMO	218,327.82	0.55%	0.17%	10.87%	11.05%	0.0604%
T-Mobile US Inc	TMUS	170,996.34	0.43%	0.00%	20.40%	20.40%	0.0873%
Tapestry Inc	TPR	11,272.47	0.03%	2.48%	19.93%	22.65%	0.0064%
Trimble Inc	TRMB	23,707.63	0.06%	0.00%	10.00%	10.00%	0.0059%
T Rowe Price Group Inc	TROW	50,804.36	0.13%	2.79%	10.60%	13.54%	0.0172%
Travelers Cos Inc/The	TRV	39,846.51	0.10%	2.21%	8.63%	10.93%	0.0109%
Tractor Supply Co	TSCO	22,210.22	0.06%	1.06%	9.18%	10.29%	0.0057%
Tesla Inc	TSLA	737,020.26	1.85%	0.00%	40.27%	40.27%	0.7430%
Tyson Foods Inc	TSN	28,646.14	0.07%	2.29%	7.79%	10.17%	0.0073%
Trane Technologies PLC	TT	47,165.33	0.12%	1.18%	17.00%	18.28%	0.0216%
Take-Two Interactive Software Inc	TTWO	18,785.09	0.05%	0.00%	7.88%	7.88%	0.0037%
Twitter Inc	TWTR	51,468.84	0.13%	0.00%	39.00%	39.00%	0.0503%
Texas Instruments Inc	TXN	176,250.02	0.44%	2.19%	10.60%	12.90%	0.0569%
Texttron Inc	TXT	16,288.11	0.04%	0.11%	30.73%	30.85%	0.0126%
Tyler Technologies Inc	TYL	19,837.64	0.05%	0.00%	17.90%	17.90%	0.0089%
Under Armour Inc	UAA	10,027.74	0.03%	0.00%	26.42%	26.42%	0.0066%
United Airlines Holdings Inc	UAL	15,051.14	N/A	0.00%	N/A	N/A	N/A
UDR Inc	UDR	16,035.67	0.04%	2.68%	4.48%	7.22%	0.0029%
Universal Health Services Inc	UHS	12,948.49	0.03%	0.52%	6.52%	7.05%	0.0023%
Ulta Beauty Inc	ULTA	21,053.23	0.05%	0.00%	33.30%	33.30%	0.0176%
UnitedHealth Group Inc	UNH	392,508.21	0.98%	1.32%	11.97%	13.37%	0.1314%
Unum Group	UNM	5,440.96	0.01%	4.45%	4.89%	9.45%	0.0013%
Union Pacific Corp	UNP	141,406.34	0.35%	1.94%	11.10%	13.14%	0.0465%
United Parcel Service Inc	UPS	170,402.00	0.43%	2.11%	14.39%	16.65%	0.0710%
United Rentals Inc	URI	25,528.38	0.06%	0.00%	15.43%	15.43%	0.0099%
US Bancorp	USB	85,087.72	0.21%	3.07%	11.07%	14.30%	0.0305%
Visa Inc	V	503,338.86	1.26%	1.26%	19.60%	20.19%	0.2544%
VF Corp	VFC	30,025.08	0.08%	2.58%	22.50%	25.37%	0.0191%
ViacomCBS Inc	VIAC	26,982.70	0.07%	2.34%	0.78%	3.13%	0.0021%
Valero Energy Corp	VLO	27,109.08	0.07%	5.94%	-19.39%	-14.03%	-0.0095%
Vulcan Materials Co	VMC	24,668.87	0.06%	0.78%	22.60%	23.47%	0.0145%
Vornado Realty Trust	VNO	8,022.56	0.02%	5.06%	-2.07%	2.94%	0.0006%
Verisk Analytics Inc	VRSK	32,554.07	0.08%	0.57%	8.39%	8.99%	0.0073%
VeriSign Inc	VRSN	24,193.97	N/A	0.00%	N/A	N/A	N/A
Vertex Pharmaceuticals Inc	VRTX	51,960.91	0.13%	0.00%	37.95%	37.95%	0.0494%
Ventas Inc	VTR	21,276.92	0.05%	3.22%	7.29%	10.62%	0.0057%
Viatis Inc	VTRS	17,691.92	0.04%	3.21%	-5.51%	-2.39%	-0.0011%
Verizon Communications Inc	VZ	227,706.38	0.57%	4.61%	3.05%	7.72%	0.0440%
Westinghouse Air Brake Technologies	WAB	16,973.38	0.04%	0.54%	10.99%	11.55%	0.0049%
Waters Corp	WAT	25,405.67	0.06%	0.00%	10.76%	10.76%	0.0068%
Walgreens Boots Alliance Inc	WBA	43,898.11	0.11%	3.70%	2.53%	6.27%	0.0069%
Western Digital Corp	WDC	19,512.88	0.05%	0.00%	4.47%	4.47%	0.0022%
WEC Energy Group Inc	WEC	29,802.25	0.07%	2.87%	6.78%	9.74%	0.0073%
Welltower Inc	WELL	36,986.93	0.09%	2.80%	20.09%	23.17%	0.0215%
Wells Fargo & Co	WFC	187,662.96	0.47%	1.31%	37.06%	38.61%	0.1814%
Whirlpool Corp	WHR	13,890.71	0.03%	2.46%	8.12%	10.68%	0.0037%
Willis Towers Watson PLC	WLTW	28,482.09	0.07%	1.40%	13.00%	14.49%	0.0103%
Waste Management Inc	WM	65,316.66	0.16%	1.49%	11.44%	13.02%	0.0213%
Williams Cos Inc/The	WMB	29,997.33	0.08%	6.65%	6.70%	13.57%	0.0102%
Walmart Inc	WMT	414,997.81	1.04%	1.46%	7.23%	8.75%	0.0909%
W R Berkley Corp	WRB	13,369.78	0.03%	1.48%	21.50%	23.14%	0.0077%
Westrock Co	WRK	13,895.00	0.03%	1.67%	15.50%	17.30%	0.0060%
West Pharmaceutical Services Inc	WST	33,410.44	0.08%	0.15%	20.41%	20.57%	0.0172%
Western Union Co/The	WU	8,793.38	0.02%	4.35%	3.35%	7.78%	0.0017%
Weyerhaeuser Co	WY	26,992.22	N/A	1.89%	N/A	N/A	N/A
Wynn Resorts Ltd	WYNN	11,762.65	0.03%	0.00%	-115.01%	-115.01%	-0.0339%
Xcel Energy Inc	XEL	37,017.52	0.09%	2.66%	6.59%	9.33%	0.0086%
Xilinx Inc	XLNX	38,503.57	0.10%	0.99%	9.25%	10.28%	0.0099%
Exxon Mobil Corp	XOM	230,813.85	0.58%	6.40%	17.15%	24.10%	0.1392%
DENTSPLY SIRONA Inc	XRAY	13,484.57	0.03%	0.63%	22.21%	22.91%	0.0077%
Xylem Inc/NY	XYL	24,558.02	0.06%	0.82%	15.80%	16.69%	0.0103%
Yum! Brands Inc	YUM	38,738.57	0.10%	1.52%	14.55%	16.18%	0.0157%
Zimmer Biomet Holdings Inc	ZBH	31,420.05	0.08%	0.64%	16.11%	16.80%	0.0132%
Zebra Technologies Corp	ZBRA	31,356.62	0.08%	0.00%	14.60%	14.60%	0.0115%
Zions Bancorp NA	ZION	9,383.88	0.02%	2.42%	13.49%	16.07%	0.0038%
Zoetis Inc	ZTS	96,950.02	0.24%	0.48%	14.73%	15.24%	0.0370%
Total Market Capitalization:		39,943,939.44					18.17%

Notes:

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

Nelson Proxy Group
Ex Ante Capital Asset Pricing Model and Empirical Capital Asset Pricing Model Results
Using Value Line-derived Expected Market Required Return and Beta Coefficients

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Current 30- Year Treasury Yield	Value Line Beta Coefficient	Value Line Proj. Market Required Return	Traditional CAPM	Empirical CAPM
Atmos Energy Corporation	ATO	1.91%	0.80	15.05%	12.43%	13.08%
New Jersey Resources Corporation	NJR	1.91%	1.00	15.05%	15.05%	15.05%
Northwest Natural Holding Company	NWN	1.91%	0.85	15.05%	13.08%	13.58%
ONE Gas, Inc.	OGS	1.91%	0.80	15.05%	12.43%	13.08%
South Jersey Industries, Inc.	SJI	1.91%	1.05	15.05%	15.71%	15.55%
Southwest Gas Holdings, Inc.	SWX	1.91%	0.95	15.05%	14.40%	14.56%
Spire Inc.	SR	1.91%	0.85	15.05%	13.08%	13.58%
				Average:	13.74%	14.07%
				Median:	13.08%	13.58%
		[6]	[7]	[8]	[9]	[10]
Company	Ticker	Projected 30- Year Treasury Yield	Value Line Beta Coefficient	Value Line Proj. Market Required Return	Traditional CAPM	Empirical CAPM
Atmos Energy Corporation	ATO	3.03%	0.80	15.05%	12.65%	13.25%
New Jersey Resources Corporation	NJR	3.03%	1.00	15.05%	15.05%	15.05%
Northwest Natural Holding Company	NWN	3.03%	0.85	15.05%	13.25%	13.70%
ONE Gas, Inc.	OGS	3.03%	0.80	15.05%	12.65%	13.25%
South Jersey Industries, Inc.	SJI	3.03%	1.05	15.05%	15.65%	15.50%
Southwest Gas Holdings, Inc.	SWX	3.03%	0.95	15.05%	14.45%	14.60%
Spire Inc.	SR	3.03%	0.85	15.05%	13.25%	13.70%
				Average:	13.85%	14.15%
				Median:	13.25%	13.70%

Notes:

[1] Source: Bloomberg Professional Service; 30-day average

[2] Source: Value Line

[3] Nelson Rebuttal Exhibit 5, pages 1-6

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

[5] Equals Col. [1] + ((0.75 x (Col. [2] x (Col. [3] - Col. [1])) + 0.25 x (Col. [3] - Col. [1]))

[6] Source: Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021, at 14; Vol. 40, No. 9, September 1, 2021, at 2

[7] See Note [2]

[8] See Note [3]

[9] See Note [4]

[10] See Note [5]

Combined Proxy Group
Ex Ante Capital Asset Pricing Model and Empirical Capital Asset Pricing Model Results
Using Value Line-derived Expected Market Required Return and Beta Coefficients

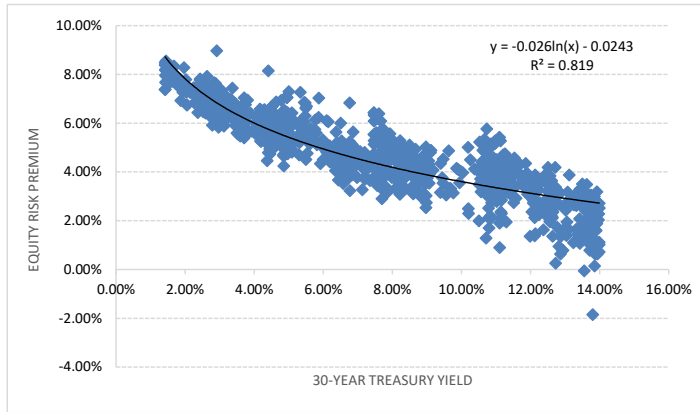
		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Current 30- Year Treasury Yield	Value Line Beta Coefficient	Value Line Proj. Market Required Return	Traditional CAPM	Empirical CAPM
Atmos Energy Corporation	ATO	1.91%	0.80	15.05%	12.43%	13.08%
Chesapeake Utilities	CPK	1.91%	0.80	15.05%	12.43%	13.08%
MDU Resources	MDU	1.91%	1.10	15.05%	16.37%	16.04%
National Fuel Gas	NFG	1.91%	0.85	15.05%	13.08%	13.58%
New Jersey Resources Corporation	NJR	1.91%	1.00	15.05%	15.05%	15.05%
NiSource Inc.	NI	1.91%	0.85	15.05%	13.08%	13.58%
Northwest Natural Holding Company	NWN	1.91%	0.85	15.05%	13.08%	13.58%
ONE Gas, Inc.	OGS	1.91%	0.80	15.05%	12.43%	13.08%
South Jersey Industries, Inc.	SJI	1.91%	1.05	15.05%	15.71%	15.55%
Southwest Gas Holdings, Inc.	SWX	1.91%	0.95	15.05%	14.40%	14.56%
Spire Inc.	SR	1.91%	0.85	15.05%	13.08%	13.58%
UGI Corporation	UGI	1.91%	1.05	15.05%	15.71%	15.55%
				Average:	13.90%	14.19%
				Median:	13.08%	13.58%
		[6]	[7]	[8]	[9]	[10]
Company	Ticker	Projected 30- Year Treasury Yield	Value Line Beta Coefficient	Value Line Proj. Market Required Return	Traditional CAPM	Empirical CAPM
Atmos Energy Corporation	ATO	3.03%	0.80	15.05%	12.65%	13.25%
Chesapeake Utilities	CPK	3.03%	0.80	15.05%	12.65%	13.25%
MDU Resources	MDU	3.03%	1.10	15.05%	16.26%	15.96%
National Fuel Gas	NFG	3.03%	0.85	15.05%	13.25%	13.70%
New Jersey Resources Corporation	NJR	3.03%	1.00	15.05%	15.05%	15.05%
NiSource Inc.	NI	3.03%	0.85	15.05%	13.25%	13.70%
Northwest Natural Holding Company	NWN	3.03%	0.85	15.05%	13.25%	13.70%
ONE Gas, Inc.	OGS	3.03%	0.80	15.05%	12.65%	13.25%
South Jersey Industries, Inc.	SJI	3.03%	1.05	15.05%	15.65%	15.50%
Southwest Gas Holdings, Inc.	SWX	3.03%	0.95	15.05%	14.45%	14.60%
Spire Inc.	SR	3.03%	0.85	15.05%	13.25%	13.70%
UGI Corporation	UGI	3.03%	1.05	15.05%	15.65%	15.50%
				Average:	14.00%	14.26%
				Median:	13.25%	13.70%

Notes:

- [1] Source: Bloomberg Professional Service; 30-day average
- [2] Source: Value Line
- [3] Nelson Rebuttal Exhibit 5, pages 1-6
- [4] Equals Col. [1] + ((Col. [2] x (Col. [3] - Col. [1]))
- [5] Equals Col. [1] + ((0.75 x (Col. [2] x (Col. [3] - Col. [1]))) + 0.25 x (Col. [3] - Col. [1]))
- [6] Source: Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021, at 14; Vol. 40, No. 9, September 1, 2021, at 2
- [7] See Note [2]
- [8] See Note [3]
- [9] See Note [4]
- [10] See Note [5]

Bond Yield Plus Risk Premium

[1]	[2]	[3]	[4]	[5]
Constant	Slope	30-Year Treasury Yield	Risk Premium	Return on Equity
-2.43%	-2.62%	1.91%	7.94%	9.85%
		3.03%	6.73%	9.76%



Notes:

- [1] Constant of regression equation
- [2] Slope of regression equation
- [3] Sources: Current = Bloomberg Professional, Projected = Average of near-term and long-term projected 30-year Treasury yield; Blue Chip Financial Forecasts, Vol. 40, No. 9, September 1, 2021, at 2 and Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021, at 14
- [4] Equals [1] + ln([3]) x [2]
- [5] Equals [3] + [4]
- [6] Source: S&P Capital IQ
- [7] Source: S&P Capital IQ
- [8] Source: Bloomberg Professional, equals 187-trading day average (i.e. lag period)
- [9] Equals [7] - [8]

Bond Yield Plus Risk Premium			
[6]	[7]	[8]	[9]
Date of Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
1/3/1980	12.55%	9.39%	3.16%
1/4/1980	13.75%	9.40%	4.35%
1/14/1980	13.20%	9.44%	3.76%
1/18/1980	14.00%	9.47%	4.53%
1/31/1980	12.61%	9.56%	3.05%
2/8/1980	14.50%	9.63%	4.87%
2/14/1980	13.00%	9.67%	3.33%
2/15/1980	13.00%	9.69%	3.31%
2/29/1980	14.00%	9.86%	4.14%
3/5/1980	14.00%	9.91%	4.09%
3/7/1980	13.50%	9.95%	3.55%
3/14/1980	14.00%	10.04%	3.96%
3/27/1980	12.69%	10.20%	2.49%
4/1/1980	14.75%	10.26%	4.49%
4/29/1980	12.50%	10.51%	1.99%
5/7/1980	14.27%	10.56%	3.71%
5/8/1980	13.75%	10.56%	3.19%
5/19/1980	15.50%	10.62%	4.88%
5/27/1980	14.60%	10.65%	3.95%
5/29/1980	16.00%	10.67%	5.33%
6/10/1980	13.78%	10.71%	3.07%
6/25/1980	14.25%	10.74%	3.51%
7/9/1980	14.51%	10.77%	3.74%
7/17/1980	12.90%	10.79%	2.11%
7/18/1980	13.80%	10.79%	3.01%
7/22/1980	14.10%	10.79%	3.31%
7/23/1980	14.19%	10.79%	3.40%
8/1/1980	12.50%	10.80%	1.70%
8/11/1980	14.85%	10.81%	4.04%
8/21/1980	13.03%	10.84%	2.19%
8/28/1980	13.61%	10.87%	2.74%
8/28/1980	14.00%	10.87%	3.13%
9/4/1980	14.00%	10.90%	3.10%
9/24/1980	15.00%	10.98%	4.02%
10/9/1980	14.50%	11.05%	3.45%
10/9/1980	14.50%	11.05%	3.45%
10/24/1980	14.00%	11.09%	2.91%
10/27/1980	15.20%	11.10%	4.10%
10/27/1980	15.20%	11.10%	4.10%
10/28/1980	12.00%	11.10%	0.90%
10/28/1980	13.00%	11.10%	1.90%
10/31/1980	14.50%	11.12%	3.38%
11/4/1980	15.00%	11.12%	3.88%
11/6/1980	14.35%	11.13%	3.22%
11/10/1980	13.25%	11.14%	2.11%
11/17/1980	15.50%	11.15%	4.35%
11/19/1980	13.50%	11.14%	2.36%
12/5/1980	14.60%	11.13%	3.47%
12/8/1980	16.40%	11.13%	5.27%
12/12/1980	15.45%	11.15%	4.30%
12/17/1980	14.20%	11.16%	3.04%
12/17/1980	14.40%	11.16%	3.24%
12/18/1980	14.00%	11.16%	2.84%
12/22/1980	13.45%	11.16%	2.29%
12/26/1980	14.00%	11.15%	2.85%
12/30/1980	14.50%	11.14%	3.36%
12/31/1980	14.56%	11.14%	3.42%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
1/7/1981	14.30%	11.13%	3.17%
1/12/1981	14.95%	11.14%	3.81%
1/26/1981	15.25%	11.20%	4.05%
1/30/1981	13.25%	11.23%	2.02%
2/11/1981	14.50%	11.33%	3.17%
2/20/1981	14.50%	11.40%	3.10%
3/12/1981	15.65%	11.60%	4.05%
3/25/1981	15.30%	11.74%	3.56%
4/1/1981	15.30%	11.82%	3.48%
4/9/1981	15.00%	11.91%	3.09%
4/29/1981	13.50%	12.12%	1.38%
4/29/1981	14.25%	12.12%	2.13%
4/30/1981	13.60%	12.14%	1.46%
4/30/1981	15.00%	12.14%	2.86%
5/21/1981	14.00%	12.37%	1.63%
6/3/1981	14.67%	12.46%	2.21%
6/22/1981	16.00%	12.57%	3.43%
6/25/1981	14.75%	12.60%	2.15%
7/2/1981	14.00%	12.64%	1.36%
7/10/1981	16.00%	12.69%	3.31%
7/14/1981	16.90%	12.71%	4.19%
7/21/1981	15.78%	12.78%	3.00%
7/27/1981	13.77%	12.82%	0.95%
7/27/1981	15.50%	12.82%	2.68%
7/31/1981	13.50%	12.86%	0.64%
7/31/1981	14.20%	12.86%	1.34%
8/12/1981	13.72%	12.93%	0.79%
8/12/1981	13.72%	12.93%	0.79%
8/12/1981	14.41%	12.93%	1.48%
8/25/1981	15.45%	13.02%	2.43%
8/27/1981	14.43%	13.04%	1.39%
8/28/1981	15.00%	13.05%	1.95%
9/23/1981	14.34%	13.24%	1.10%
9/24/1981	16.25%	13.26%	2.99%
9/29/1981	14.50%	13.31%	1.19%
9/30/1981	15.94%	13.32%	2.62%
10/2/1981	14.80%	13.36%	1.44%
10/12/1981	16.25%	13.43%	2.82%
10/20/1981	15.25%	13.50%	1.75%
10/20/1981	16.50%	13.50%	3.00%
10/20/1981	17.00%	13.50%	3.50%
10/23/1981	15.50%	13.54%	1.96%
10/26/1981	13.50%	13.56%	-0.06%
10/29/1981	16.50%	13.60%	2.90%
11/4/1981	15.33%	13.62%	1.71%
11/6/1981	15.17%	13.64%	1.53%
11/12/1981	15.00%	13.65%	1.35%
11/25/1981	15.25%	13.66%	1.59%
11/25/1981	16.10%	13.66%	2.44%
11/25/1981	16.10%	13.66%	2.44%
11/30/1981	16.75%	13.66%	3.09%
12/1/1981	15.70%	13.66%	2.04%
12/1/1981	16.00%	13.66%	2.34%
12/15/1981	15.81%	13.69%	2.12%
12/17/1981	14.75%	13.70%	1.05%
12/22/1981	15.70%	13.72%	1.98%
12/22/1981	16.00%	13.72%	2.28%
12/30/1981	16.00%	13.74%	2.26%
12/30/1981	16.25%	13.74%	2.51%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
1/4/1982	15.50%	13.75%	1.75%
1/14/1982	11.95%	13.80%	-1.85%
1/25/1982	16.25%	13.84%	2.41%
1/27/1982	16.84%	13.85%	2.99%
1/31/1982	14.00%	13.86%	0.14%
2/2/1982	16.24%	13.86%	2.38%
2/8/1982	15.50%	13.87%	1.63%
2/9/1982	14.95%	13.88%	1.07%
2/9/1982	15.75%	13.88%	1.87%
2/11/1982	16.00%	13.89%	2.11%
3/1/1982	15.96%	13.91%	2.05%
3/3/1982	15.00%	13.91%	1.09%
3/8/1982	17.10%	13.92%	3.18%
3/26/1982	16.00%	13.97%	2.03%
3/31/1982	16.25%	13.98%	2.27%
4/1/1982	16.50%	13.98%	2.52%
4/6/1982	15.00%	13.99%	1.01%
4/9/1982	16.50%	13.99%	2.51%
4/12/1982	15.10%	13.99%	1.11%
4/12/1982	16.70%	13.99%	2.71%
4/18/1982	14.70%	13.99%	0.71%
4/27/1982	15.00%	13.97%	1.03%
5/10/1982	14.57%	13.94%	0.63%
5/14/1982	15.80%	13.92%	1.88%
5/20/1982	15.82%	13.91%	1.91%
5/21/1982	15.50%	13.90%	1.60%
5/25/1982	16.25%	13.90%	2.35%
6/2/1982	14.50%	13.87%	0.63%
6/7/1982	16.00%	13.85%	2.15%
6/23/1982	15.50%	13.81%	1.69%
6/25/1982	16.50%	13.81%	2.69%
7/1/1982	15.55%	13.79%	1.76%
7/1/1982	16.00%	13.79%	2.21%
7/2/1982	15.10%	13.79%	1.31%
7/13/1982	16.80%	13.75%	3.05%
7/22/1982	14.50%	13.71%	0.79%
7/28/1982	16.10%	13.68%	2.42%
7/30/1982	14.82%	13.66%	1.16%
8/4/1982	15.58%	13.64%	1.94%
8/6/1982	16.50%	13.63%	2.87%
8/11/1982	17.11%	13.62%	3.49%
8/25/1982	16.00%	13.59%	2.41%
8/30/1982	16.25%	13.58%	2.67%
9/3/1982	15.50%	13.57%	1.93%
9/9/1982	16.04%	13.55%	2.49%
9/15/1982	16.04%	13.52%	2.52%
9/17/1982	15.25%	13.51%	1.74%
9/29/1982	14.50%	13.43%	1.07%
9/30/1982	14.74%	13.42%	1.32%
9/30/1982	15.50%	13.42%	2.08%
9/30/1982	16.50%	13.42%	3.08%
9/30/1982	16.70%	13.42%	3.28%
10/1/1982	16.50%	13.41%	3.09%
10/8/1982	15.00%	13.33%	1.67%
10/15/1982	15.90%	13.26%	2.64%
10/19/1982	15.90%	13.22%	2.68%
10/27/1982	17.00%	13.12%	3.88%
10/28/1982	14.75%	13.11%	1.64%
11/2/1982	16.25%	13.07%	3.18%
11/4/1982	15.75%	13.03%	2.72%
11/5/1982	14.73%	13.01%	1.72%
11/17/1982	16.00%	12.86%	3.14%
11/23/1982	15.50%	12.79%	2.71%
11/24/1982	14.50%	12.77%	1.73%
11/24/1982	16.02%	12.77%	3.25%
11/30/1982	12.98%	12.72%	0.26%
11/30/1982	15.50%	12.72%	2.78%
11/30/1982	15.50%	12.72%	2.78%
11/30/1982	15.65%	12.72%	2.93%
11/30/1982	16.00%	12.72%	3.28%
11/30/1982	16.10%	12.72%	3.38%
12/3/1982	15.33%	12.68%	2.65%
12/8/1982	15.75%	12.63%	3.12%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
12/13/1982	16.00%	12.58%	3.42%
12/14/1982	16.40%	12.57%	3.83%
12/17/1982	16.25%	12.52%	3.73%
12/20/1982	15.00%	12.51%	2.49%
12/21/1982	15.70%	12.49%	3.21%
12/28/1982	15.25%	12.42%	2.83%
12/28/1982	15.25%	12.42%	2.83%
12/29/1982	16.25%	12.41%	3.84%
12/29/1982	16.25%	12.41%	3.84%
1/11/1983	15.90%	12.26%	3.64%
1/12/1983	15.50%	12.24%	3.26%
1/18/1983	15.00%	12.18%	2.82%
1/24/1983	15.50%	12.13%	3.37%
1/24/1983	16.00%	12.13%	3.87%
1/28/1983	14.90%	12.08%	2.82%
1/31/1983	15.00%	12.07%	2.93%
2/10/1983	15.00%	11.97%	3.03%
2/25/1983	15.70%	11.84%	3.86%
3/2/1983	15.25%	11.79%	3.46%
3/16/1983	16.00%	11.62%	4.38%
3/21/1983	14.96%	11.57%	3.39%
3/23/1983	15.40%	11.53%	3.87%
3/23/1983	16.10%	11.53%	4.57%
3/24/1983	15.00%	11.51%	3.49%
4/12/1983	13.25%	11.30%	1.95%
4/29/1983	15.05%	11.09%	3.96%
5/3/1983	15.40%	11.06%	4.34%
5/9/1983	15.50%	11.00%	4.50%
5/19/1983	14.85%	10.90%	3.95%
5/31/1983	14.00%	10.84%	3.16%
6/2/1983	14.50%	10.82%	3.68%
6/7/1983	14.50%	10.80%	3.70%
6/9/1983	14.85%	10.79%	4.06%
6/20/1983	14.15%	10.74%	3.41%
6/20/1983	16.50%	10.74%	5.76%
6/27/1983	14.50%	10.71%	3.79%
6/30/1983	14.80%	10.70%	4.10%
6/30/1983	15.90%	10.70%	5.20%
7/1/1983	14.80%	10.70%	4.10%
7/5/1983	15.00%	10.69%	4.31%
7/8/1983	15.50%	10.69%	4.81%
7/19/1983	15.00%	10.70%	4.30%
7/19/1983	15.10%	10.70%	4.40%
8/18/1983	15.30%	10.81%	4.49%
8/19/1983	15.79%	10.82%	4.97%
8/29/1983	16.00%	10.85%	5.15%
8/31/1983	14.75%	10.87%	3.88%
8/31/1983	15.25%	10.87%	4.38%
9/8/1983	14.75%	10.89%	3.86%
9/16/1983	15.51%	10.93%	4.58%
9/26/1983	14.50%	10.96%	3.54%
9/28/1983	14.25%	10.97%	3.28%
9/30/1983	16.15%	10.98%	5.17%
9/30/1983	16.25%	10.98%	5.27%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
10/1/1983	16.25%	10.98%	5.27%
10/13/1983	15.52%	11.02%	4.50%
10/19/1983	15.20%	11.04%	4.16%
10/26/1983	14.75%	11.06%	3.69%
10/27/1983	14.88%	11.07%	3.81%
10/27/1983	15.33%	11.07%	4.26%
11/9/1983	14.82%	11.10%	3.72%
11/9/1983	16.51%	11.10%	5.41%
11/9/1983	16.51%	11.10%	5.41%
12/1/1983	14.50%	11.17%	3.33%
12/8/1983	15.90%	11.20%	4.70%
12/9/1983	15.30%	11.21%	4.09%
12/12/1983	14.50%	11.22%	3.28%
12/12/1983	15.50%	11.22%	4.28%
12/20/1983	15.40%	11.26%	4.14%
12/20/1983	16.00%	11.26%	4.74%
12/22/1983	15.75%	11.27%	4.48%
12/29/1983	15.00%	11.30%	3.70%
12/30/1983	15.00%	11.30%	3.70%
1/10/1984	15.90%	11.34%	4.56%
1/13/1984	15.50%	11.36%	4.14%
1/18/1984	15.53%	11.38%	4.15%
1/26/1984	15.90%	11.42%	4.48%
2/14/1984	14.25%	11.51%	2.74%
2/28/1984	14.50%	11.58%	2.92%
3/20/1984	16.00%	11.70%	4.30%
3/23/1984	15.50%	11.72%	3.78%
4/9/1984	15.20%	11.81%	3.39%
4/18/1984	16.20%	11.86%	4.34%
4/27/1984	15.85%	11.90%	3.95%
5/15/1984	13.35%	11.99%	1.36%
5/16/1984	15.00%	12.00%	3.00%
5/22/1984	14.40%	12.04%	2.36%
6/13/1984	15.50%	12.18%	3.32%
7/10/1984	16.00%	12.37%	3.63%
8/7/1984	16.69%	12.51%	4.18%
8/9/1984	15.33%	12.51%	2.82%
8/17/1984	14.82%	12.54%	2.28%
8/21/1984	14.64%	12.54%	2.10%
8/27/1984	14.52%	12.56%	1.96%
8/28/1984	14.75%	12.57%	2.18%
8/30/1984	15.60%	12.58%	3.02%
9/12/1984	15.60%	12.60%	3.00%
9/12/1984	15.90%	12.60%	3.30%
9/25/1984	16.25%	12.61%	3.64%
10/2/1984	14.80%	12.62%	2.18%
10/9/1984	14.75%	12.63%	2.12%
10/10/1984	15.50%	12.63%	2.87%
10/18/1984	15.00%	12.65%	2.35%
10/24/1984	15.50%	12.65%	2.85%
11/7/1984	15.00%	12.64%	2.36%
11/20/1984	15.92%	12.63%	3.29%
11/30/1984	15.50%	12.60%	2.90%
12/18/1984	15.00%	12.55%	2.45%
12/20/1984	15.00%	12.54%	2.46%
12/28/1984	15.75%	12.51%	3.24%
12/28/1984	16.25%	12.51%	3.74%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
1/2/1985	16.00%	12.50%	3.50%
1/31/1985	14.75%	12.37%	2.38%
2/7/1985	14.85%	12.33%	2.52%
2/15/1985	15.00%	12.27%	2.73%
2/20/1985	14.50%	12.25%	2.25%
2/22/1985	14.86%	12.25%	2.61%
3/14/1985	15.50%	12.16%	3.34%
3/28/1985	14.80%	12.08%	2.72%
4/9/1985	15.50%	12.02%	3.48%
4/16/1985	15.70%	11.96%	3.74%
6/10/1985	15.75%	11.58%	4.17%
6/26/1985	14.82%	11.46%	3.36%
7/9/1985	15.00%	11.38%	3.62%
7/26/1985	14.50%	11.26%	3.24%
8/29/1985	14.50%	11.11%	3.39%
8/30/1985	14.38%	11.11%	3.27%
9/12/1985	15.25%	11.07%	4.18%
9/23/1985	15.30%	11.03%	4.27%
9/25/1985	14.50%	11.02%	3.48%
9/26/1985	13.80%	11.02%	2.78%
9/26/1985	14.50%	11.02%	3.48%
10/25/1985	15.25%	10.91%	4.34%
11/8/1985	12.94%	10.85%	2.09%
11/20/1985	14.90%	10.81%	4.09%
11/25/1985	13.30%	10.79%	2.51%
12/6/1985	12.00%	10.71%	1.29%
12/11/1985	14.90%	10.68%	4.22%
12/20/1985	14.88%	10.59%	4.29%
12/20/1985	15.00%	10.59%	4.41%
12/20/1985	15.00%	10.59%	4.41%
12/30/1985	15.75%	10.53%	5.22%
12/31/1985	14.00%	10.51%	3.49%
12/31/1985	14.50%	10.51%	3.99%
1/17/1986	14.50%	10.38%	4.12%
2/11/1986	12.50%	10.20%	2.30%
2/12/1986	15.20%	10.19%	5.01%
3/11/1986	14.00%	9.98%	4.02%
4/2/1986	12.90%	9.76%	3.14%
4/28/1986	13.01%	9.47%	3.54%
5/21/1986	13.25%	9.18%	4.07%
5/28/1986	14.00%	9.12%	4.88%
5/29/1986	13.90%	9.10%	4.80%
6/2/1986	13.00%	9.08%	3.92%
6/11/1986	14.00%	8.97%	5.03%
6/13/1986	13.55%	8.94%	4.61%
6/27/1986	11.88%	8.77%	3.11%
7/14/1986	12.60%	8.59%	4.01%
7/30/1986	13.30%	8.38%	4.92%
8/14/1986	13.50%	8.22%	5.28%
9/5/1986	13.30%	8.02%	5.28%
9/23/1986	12.75%	7.91%	4.84%
10/30/1986	13.00%	7.67%	5.33%
10/31/1986	13.75%	7.66%	6.09%
11/10/1986	14.00%	7.61%	6.39%
11/19/1986	13.75%	7.56%	6.19%
11/25/1986	13.15%	7.54%	5.61%
12/22/1986	13.80%	7.47%	6.33%
12/30/1986	13.90%	7.47%	6.43%
1/20/1987	12.75%	7.47%	5.28%
1/23/1987	13.55%	7.47%	6.08%
1/27/1987	12.16%	7.47%	4.69%
2/13/1987	12.60%	7.47%	5.13%
2/24/1987	12.00%	7.47%	4.53%
3/30/1987	12.20%	7.46%	4.74%
3/31/1987	13.00%	7.47%	5.53%
5/5/1987	12.85%	7.60%	5.25%
5/28/1987	13.50%	7.73%	5.77%
6/15/1987	13.20%	7.80%	5.40%
6/30/1987	12.60%	7.85%	4.75%
7/10/1987	12.90%	7.88%	5.02%
7/27/1987	13.50%	7.93%	5.57%
8/25/1987	11.40%	8.09%	3.31%
9/18/1987	13.00%	8.27%	4.73%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
10/20/1987	12.60%	8.55%	4.05%
10/20/1987	12.98%	8.55%	4.43%
11/12/1987	12.75%	8.68%	4.07%
11/13/1987	12.75%	8.68%	4.07%
11/24/1987	12.50%	8.73%	3.77%
12/8/1987	12.50%	8.81%	3.69%
12/22/1987	12.00%	8.90%	3.10%
12/31/1987	12.85%	8.94%	3.91%
12/31/1987	13.25%	8.94%	4.31%
1/15/1988	13.15%	8.99%	4.16%
1/20/1988	12.75%	8.99%	3.76%
1/29/1988	13.20%	8.99%	4.21%
2/4/1988	12.60%	8.99%	3.61%
3/23/1988	13.00%	8.95%	4.05%
5/27/1988	13.18%	9.02%	4.16%
6/14/1988	13.50%	9.00%	4.50%
6/17/1988	11.72%	8.99%	2.73%
6/24/1988	11.50%	8.97%	2.53%
7/1/1988	12.75%	8.95%	3.80%
7/8/1988	12.00%	8.93%	3.07%
7/18/1988	12.00%	8.91%	3.09%
7/20/1988	13.40%	8.90%	4.50%
8/8/1988	12.74%	8.90%	3.84%
9/20/1988	12.90%	8.93%	3.97%
9/26/1988	12.40%	8.93%	3.47%
9/27/1988	13.65%	8.93%	4.72%
9/30/1988	13.25%	8.94%	4.31%
10/13/1988	13.10%	8.93%	4.17%
10/21/1988	12.80%	8.94%	3.86%
10/25/1988	13.25%	8.94%	4.31%
10/26/1988	13.50%	8.94%	4.56%
10/27/1988	12.95%	8.94%	4.01%
10/28/1988	13.00%	8.95%	4.05%
11/15/1988	12.00%	8.98%	3.02%
11/29/1988	12.75%	9.01%	3.74%
12/19/1988	13.00%	9.05%	3.95%
12/21/1988	12.90%	9.05%	3.85%
12/22/1988	13.50%	9.05%	4.45%
1/26/1989	12.60%	9.06%	3.54%
1/27/1989	13.00%	9.06%	3.94%
2/8/1989	13.37%	9.05%	4.32%
3/8/1989	13.00%	9.04%	3.96%
5/4/1989	13.00%	9.04%	3.96%
6/8/1989	13.50%	8.96%	4.54%
7/19/1989	11.80%	8.84%	2.96%
7/25/1989	12.80%	8.82%	3.98%
7/31/1989	13.00%	8.81%	4.19%
8/14/1989	12.50%	8.76%	3.74%
8/22/1989	12.80%	8.73%	4.07%
8/23/1989	12.90%	8.72%	4.18%
9/21/1989	12.10%	8.62%	3.48%
10/6/1989	13.00%	8.58%	4.42%
10/17/1989	12.41%	8.54%	3.87%
10/18/1989	13.25%	8.54%	4.71%
10/20/1989	12.90%	8.53%	4.37%
10/31/1989	13.60%	8.50%	5.10%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
11/3/1989	12.93%	8.48%	4.45%
11/5/1989	13.20%	8.48%	4.72%
11/9/1989	12.60%	8.45%	4.15%
11/9/1989	13.00%	8.45%	4.55%
11/28/1989	12.75%	8.37%	4.38%
12/7/1989	13.25%	8.32%	4.93%
12/15/1989	13.00%	8.28%	4.72%
12/20/1989	12.90%	8.26%	4.64%
12/21/1989	12.80%	8.25%	4.55%
12/21/1989	12.90%	8.25%	4.65%
12/27/1989	12.50%	8.23%	4.27%
1/9/1990	13.00%	8.19%	4.81%
1/18/1990	12.50%	8.16%	4.34%
1/26/1990	12.10%	8.14%	3.96%
3/21/1990	12.80%	8.15%	4.65%
3/28/1990	13.00%	8.16%	4.84%
4/5/1990	12.20%	8.17%	4.03%
4/12/1990	13.25%	8.19%	5.06%
4/30/1990	12.45%	8.24%	4.21%
5/31/1990	12.40%	8.31%	4.09%
6/15/1990	13.20%	8.33%	4.87%
6/27/1990	12.90%	8.34%	4.56%
6/29/1990	13.25%	8.35%	4.90%
7/6/1990	12.10%	8.36%	3.74%
7/19/1990	11.70%	8.38%	3.32%
8/31/1990	12.50%	8.53%	3.97%
8/31/1990	12.50%	8.53%	3.97%
9/13/1990	12.50%	8.58%	3.92%
9/18/1990	12.75%	8.60%	4.15%
9/20/1990	12.50%	8.61%	3.89%
10/2/1990	13.00%	8.65%	4.35%
10/17/1990	11.90%	8.68%	3.22%
10/31/1990	12.95%	8.70%	4.25%
11/9/1990	13.25%	8.70%	4.55%
11/19/1990	13.00%	8.70%	4.30%
11/21/1990	12.10%	8.70%	3.40%
11/21/1990	12.50%	8.70%	3.80%
11/28/1990	12.75%	8.70%	4.05%
11/29/1990	12.75%	8.70%	4.05%
12/18/1990	13.10%	8.68%	4.42%
12/20/1990	12.50%	8.67%	3.83%
12/21/1990	12.50%	8.67%	3.83%
12/21/1990	13.00%	8.67%	4.33%
12/21/1990	13.60%	8.67%	4.93%
1/3/1991	13.02%	8.66%	4.36%
1/16/1991	13.25%	8.63%	4.62%
1/25/1991	11.70%	8.61%	3.09%
2/15/1991	12.70%	8.56%	4.14%
2/15/1991	12.80%	8.56%	4.24%
4/3/1991	13.00%	8.51%	4.49%
4/30/1991	12.45%	8.48%	3.97%
4/30/1991	13.00%	8.48%	4.52%
6/25/1991	11.70%	8.34%	3.36%
6/28/1991	12.50%	8.34%	4.16%
7/1/1991	11.70%	8.34%	3.36%
7/19/1991	12.10%	8.31%	3.79%
7/19/1991	12.30%	8.31%	3.99%
7/22/1991	12.90%	8.30%	4.60%
8/15/1991	12.25%	8.28%	3.97%
8/29/1991	13.30%	8.26%	5.04%
9/27/1991	12.50%	8.23%	4.27%
9/30/1991	12.40%	8.23%	4.17%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
10/3/1991	11.30%	8.22%	3.08%
10/9/1991	11.70%	8.21%	3.49%
10/15/1991	13.40%	8.20%	5.20%
11/1/1991	12.90%	8.20%	4.70%
11/8/1991	12.75%	8.20%	4.55%
11/26/1991	11.60%	8.18%	3.42%
11/26/1991	12.00%	8.18%	3.82%
11/27/1991	12.70%	8.18%	4.52%
12/6/1991	12.70%	8.16%	4.54%
12/10/1991	11.75%	8.15%	3.60%
12/19/1991	12.60%	8.14%	4.46%
12/19/1991	12.80%	8.14%	4.66%
12/30/1991	12.10%	8.11%	3.99%
1/22/1992	12.84%	8.05%	4.79%
1/31/1992	12.00%	8.03%	3.97%
2/20/1992	13.00%	8.00%	5.00%
2/27/1992	11.75%	7.98%	3.77%
3/18/1992	12.50%	7.94%	4.56%
5/15/1992	12.75%	7.86%	4.89%
6/24/1992	12.20%	7.85%	4.35%
6/29/1992	11.00%	7.85%	3.15%
7/14/1992	12.00%	7.83%	4.17%
7/22/1992	11.20%	7.82%	3.38%
8/10/1992	12.10%	7.79%	4.31%
8/26/1992	12.43%	7.75%	4.68%
9/30/1992	11.60%	7.72%	3.88%
10/6/1992	12.25%	7.72%	4.53%
10/13/1992	12.75%	7.71%	5.04%
10/23/1992	11.65%	7.71%	3.94%
10/28/1992	12.25%	7.71%	4.54%
10/29/1992	12.75%	7.70%	5.05%
10/30/1992	11.40%	7.70%	3.70%
11/9/1992	10.60%	7.70%	2.90%
11/25/1992	11.00%	7.68%	3.32%
11/25/1992	12.00%	7.68%	4.32%
12/3/1992	11.85%	7.66%	4.19%
12/16/1992	11.90%	7.64%	4.26%
12/22/1992	12.30%	7.62%	4.68%
12/22/1992	12.40%	7.62%	4.78%
12/30/1992	12.00%	7.61%	4.39%
12/31/1992	12.00%	7.61%	4.39%
1/12/1993	12.00%	7.59%	4.41%
1/12/1993	12.00%	7.59%	4.41%
2/2/1993	11.40%	7.53%	3.87%
2/22/1993	11.60%	7.48%	4.12%
4/23/1993	11.75%	7.27%	4.48%
5/3/1993	11.50%	7.25%	4.25%
5/3/1993	11.75%	7.25%	4.50%
6/3/1993	12.00%	7.20%	4.80%
6/7/1993	11.50%	7.20%	4.30%
6/22/1993	11.75%	7.16%	4.59%
7/21/1993	11.78%	7.06%	4.72%
7/21/1993	11.90%	7.06%	4.84%
7/23/1993	11.50%	7.05%	4.45%
7/29/1993	11.50%	7.03%	4.47%
8/12/1993	10.75%	6.97%	3.78%
8/24/1993	11.50%	6.92%	4.58%
8/31/1993	11.90%	6.88%	5.02%
9/1/1993	11.25%	6.87%	4.38%
9/1/1993	11.47%	6.87%	4.60%
9/27/1993	10.50%	6.74%	3.76%
9/29/1993	11.00%	6.72%	4.28%
9/30/1993	11.60%	6.72%	4.88%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
10/8/1993	11.50%	6.67%	4.83%
10/14/1993	11.20%	6.65%	4.55%
10/15/1993	11.75%	6.64%	5.11%
10/25/1993	11.55%	6.60%	4.95%
10/28/1993	11.50%	6.58%	4.92%
10/29/1993	10.10%	6.57%	3.53%
10/29/1993	10.20%	6.57%	3.63%
10/29/1993	11.25%	6.57%	4.68%
11/2/1993	10.80%	6.56%	4.24%
11/12/1993	11.80%	6.53%	5.27%
11/23/1993	12.50%	6.51%	5.99%
11/26/1993	11.00%	6.50%	4.50%
12/1/1993	11.45%	6.49%	4.96%
12/16/1993	10.60%	6.45%	4.15%
12/16/1993	11.20%	6.45%	4.75%
12/21/1993	11.30%	6.44%	4.86%
12/22/1993	11.00%	6.44%	4.56%
12/23/1993	10.10%	6.44%	3.66%
1/5/1994	11.50%	6.41%	5.09%
1/10/1994	11.00%	6.40%	4.60%
1/25/1994	12.00%	6.37%	5.63%
2/2/1994	10.40%	6.35%	4.05%
2/9/1994	10.70%	6.34%	4.36%
4/6/1994	11.24%	6.35%	4.89%
4/25/1994	11.00%	6.39%	4.61%
6/16/1994	10.50%	6.63%	3.87%
6/23/1994	10.60%	6.67%	3.93%
7/19/1994	10.70%	6.83%	3.87%
9/29/1994	10.90%	7.20%	3.70%
9/29/1994	11.00%	7.20%	3.80%
10/7/1994	11.87%	7.26%	4.61%
10/18/1994	11.50%	7.32%	4.18%
10/18/1994	11.50%	7.32%	4.18%
10/24/1994	11.00%	7.35%	3.65%
11/22/1994	12.12%	7.52%	4.60%
11/29/1994	11.30%	7.55%	3.75%
12/1/1994	11.00%	7.56%	3.44%
12/8/1994	11.50%	7.59%	3.91%
12/8/1994	11.70%	7.59%	4.11%
12/12/1994	11.82%	7.60%	4.22%
12/14/1994	11.50%	7.61%	3.89%
12/19/1994	11.50%	7.62%	3.88%
4/19/1995	11.00%	7.72%	3.28%
9/11/1995	11.30%	7.16%	4.14%
9/15/1995	10.40%	7.13%	3.27%
9/29/1995	11.50%	7.06%	4.44%
10/13/1995	10.76%	6.98%	3.78%
11/7/1995	12.50%	6.86%	5.64%
11/8/1995	11.10%	6.85%	4.25%
11/8/1995	11.30%	6.85%	4.45%
11/17/1995	10.90%	6.81%	4.09%
11/20/1995	11.40%	6.80%	4.60%
11/27/1995	13.60%	6.77%	6.83%
12/14/1995	11.30%	6.68%	4.62%
12/20/1995	11.60%	6.65%	4.95%
1/31/1996	11.30%	6.45%	4.85%
3/11/1996	11.60%	6.40%	5.20%
4/3/1996	11.13%	6.41%	4.72%
4/15/1996	10.50%	6.41%	4.09%
4/17/1996	10.77%	6.40%	4.37%
4/26/1996	10.60%	6.40%	4.20%
5/10/1996	11.00%	6.40%	4.60%
5/13/1996	11.25%	6.41%	4.84%
7/3/1996	11.25%	6.49%	4.76%
7/22/1996	11.25%	6.54%	4.71%
10/3/1996	10.00%	6.77%	3.23%
10/29/1996	11.30%	6.84%	4.46%
11/26/1996	11.30%	6.86%	4.44%
11/27/1996	11.30%	6.86%	4.44%
11/29/1996	11.00%	6.86%	4.14%
12/12/1996	11.96%	6.85%	5.11%
12/17/1996	11.50%	6.85%	4.65%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
1/22/1997	11.30%	6.83%	4.47%
1/27/1997	11.25%	6.83%	4.42%
1/31/1997	11.25%	6.83%	4.42%
2/13/1997	11.00%	6.82%	4.18%
2/13/1997	11.80%	6.82%	4.98%
2/20/1997	11.80%	6.81%	4.99%
3/27/1997	10.75%	6.79%	3.96%
4/29/1997	11.70%	6.81%	4.89%
7/17/1997	12.00%	6.77%	5.23%
10/29/1997	10.75%	6.70%	4.05%
10/31/1997	11.25%	6.70%	4.55%
12/24/1997	10.75%	6.53%	4.22%
4/28/1998	10.90%	6.11%	4.79%
4/30/1998	12.20%	6.10%	6.10%
6/30/1998	11.00%	5.94%	5.06%
8/26/1998	10.93%	5.82%	5.11%
9/3/1998	11.40%	5.80%	5.60%
9/15/1998	11.90%	5.77%	6.13%
10/7/1998	11.06%	5.70%	5.36%
10/30/1998	11.40%	5.63%	5.77%
12/10/1998	12.20%	5.52%	6.68%
12/17/1998	12.10%	5.49%	6.61%
2/19/1999	11.15%	5.32%	5.83%
3/1/1999	10.65%	5.31%	5.34%
3/1/1999	10.65%	5.31%	5.34%
6/8/1999	11.25%	5.35%	5.90%
11/12/1999	10.25%	5.92%	4.33%
12/14/1999	10.50%	5.99%	4.51%
1/28/2000	10.71%	6.16%	4.55%
2/17/2000	10.60%	6.20%	4.40%
5/25/2000	10.80%	6.19%	4.61%
6/19/2000	11.05%	6.18%	4.87%
6/22/2000	11.25%	6.18%	5.07%
7/17/2000	11.06%	6.15%	4.91%
7/20/2000	12.20%	6.14%	6.06%
8/11/2000	11.00%	6.11%	4.89%
9/27/2000	11.25%	6.00%	5.25%
9/29/2000	11.16%	6.00%	5.16%
10/5/2000	11.30%	5.98%	5.32%
11/28/2000	12.90%	5.87%	7.03%
11/30/2000	12.10%	5.86%	6.24%
2/5/2001	11.50%	5.75%	5.75%
3/15/2001	11.25%	5.66%	5.59%
5/8/2001	10.75%	5.61%	5.14%
10/24/2001	10.30%	5.54%	4.76%
10/24/2001	11.00%	5.54%	5.46%
1/9/2002	10.00%	5.50%	4.50%
1/30/2002	11.00%	5.47%	5.53%
1/31/2002	11.00%	5.47%	5.53%
4/17/2002	11.50%	5.44%	6.06%
4/29/2002	11.00%	5.45%	5.55%
6/11/2002	11.77%	5.48%	6.29%
6/20/2002	12.30%	5.48%	6.82%
8/28/2002	11.00%	5.49%	5.51%
9/11/2002	11.20%	5.45%	5.75%
9/12/2002	12.30%	5.45%	6.85%
10/28/2002	11.30%	5.35%	5.95%
10/30/2002	10.60%	5.34%	5.26%
11/1/2002	12.60%	5.34%	7.26%
11/7/2002	11.40%	5.33%	6.07%
11/8/2002	10.75%	5.33%	5.42%
11/20/2002	10.00%	5.30%	4.70%
11/20/2002	10.50%	5.30%	5.20%
12/4/2002	10.75%	5.27%	5.48%
12/30/2002	11.20%	5.19%	6.01%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
1/6/2003	11.25%	5.16%	6.09%
2/28/2003	12.30%	5.01%	7.29%
3/7/2003	9.96%	4.99%	4.97%
3/12/2003	11.40%	4.97%	6.43%
3/20/2003	12.00%	4.95%	7.05%
4/3/2003	12.00%	4.92%	7.08%
5/2/2003	11.40%	4.88%	6.52%
5/15/2003	11.05%	4.87%	6.18%
6/26/2003	11.00%	4.80%	6.20%
7/1/2003	11.00%	4.80%	6.20%
7/29/2003	11.71%	4.78%	6.93%
8/22/2003	10.20%	4.81%	5.39%
9/17/2003	9.90%	4.85%	5.05%
9/25/2003	10.25%	4.85%	5.40%
10/17/2003	10.54%	4.87%	5.67%
10/22/2003	10.46%	4.87%	5.59%
10/22/2003	10.71%	4.87%	5.84%
10/30/2003	11.00%	4.88%	6.12%
10/31/2003	10.20%	4.88%	5.32%
10/31/2003	10.75%	4.88%	5.87%
11/10/2003	10.60%	4.89%	5.71%
12/9/2003	10.50%	4.93%	5.57%
12/18/2003	10.50%	4.94%	5.56%
12/19/2003	12.00%	4.94%	7.06%
12/19/2003	12.00%	4.94%	7.06%
1/13/2004	10.25%	4.95%	5.30%
1/13/2004	12.00%	4.95%	7.05%
2/9/2004	11.25%	4.98%	6.27%
3/16/2004	10.90%	5.05%	5.85%
3/16/2004	10.90%	5.05%	5.85%
5/25/2004	10.00%	5.06%	4.94%
6/2/2004	11.22%	5.07%	6.15%
6/30/2004	10.50%	5.10%	5.40%
7/8/2004	10.00%	5.10%	4.90%
7/22/2004	10.25%	5.10%	5.15%
8/26/2004	10.50%	5.10%	5.40%
8/26/2004	10.50%	5.10%	5.40%
9/9/2004	10.40%	5.10%	5.30%
9/21/2004	10.50%	5.09%	5.41%
9/27/2004	10.30%	5.09%	5.21%
9/27/2004	10.50%	5.09%	5.41%
10/20/2004	10.20%	5.08%	5.12%
11/30/2004	10.60%	5.08%	5.52%
12/8/2004	9.90%	5.09%	4.81%
12/21/2004	11.50%	5.09%	6.41%
12/22/2004	11.50%	5.09%	6.41%
12/28/2004	10.25%	5.09%	5.16%
2/18/2005	10.30%	4.95%	5.35%
3/29/2005	11.00%	4.86%	6.14%
4/13/2005	10.60%	4.84%	5.76%
4/28/2005	11.00%	4.80%	6.20%
5/17/2005	10.00%	4.77%	5.23%
6/8/2005	10.18%	4.71%	5.47%
6/10/2005	10.90%	4.71%	6.19%
7/6/2005	10.50%	4.65%	5.85%
7/19/2005	11.50%	4.63%	6.87%
8/11/2005	10.40%	4.60%	5.80%
9/19/2005	9.45%	4.53%	4.92%
9/30/2005	10.51%	4.52%	5.99%
10/4/2005	9.90%	4.52%	5.38%
10/4/2005	10.75%	4.52%	6.23%
10/14/2005	10.40%	4.52%	5.88%
10/31/2005	10.25%	4.53%	5.72%
11/2/2005	9.70%	4.53%	5.17%
11/30/2005	10.00%	4.53%	5.47%
12/9/2005	9.70%	4.53%	5.17%
12/12/2005	11.00%	4.53%	6.47%
12/20/2005	10.13%	4.53%	5.60%
12/21/2005	10.40%	4.52%	5.88%
12/21/2005	11.00%	4.52%	6.48%
12/22/2005	10.20%	4.52%	5.68%
12/22/2005	11.00%	4.52%	6.48%
12/28/2005	10.00%	4.52%	5.48%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
1/5/2006	11.00%	4.52%	6.48%
1/25/2006	11.20%	4.52%	6.68%
1/25/2006	11.20%	4.52%	6.68%
2/3/2006	10.50%	4.52%	5.98%
2/15/2006	9.50%	4.53%	4.97%
4/26/2006	10.60%	4.65%	5.95%
7/24/2006	9.60%	4.87%	4.73%
7/24/2006	10.00%	4.87%	5.13%
9/20/2006	11.00%	4.93%	6.07%
9/26/2006	10.75%	4.93%	5.82%
10/20/2006	9.80%	4.96%	4.84%
11/2/2006	9.71%	4.97%	4.74%
11/9/2006	10.00%	4.97%	5.03%
11/21/2006	11.00%	4.98%	6.02%
12/5/2006	10.20%	4.97%	5.23%
1/5/2007	10.40%	4.95%	5.45%
1/9/2007	11.00%	4.94%	6.06%
1/11/2007	10.90%	4.94%	5.96%
1/19/2007	10.80%	4.93%	5.87%
1/26/2007	10.00%	4.92%	5.08%
2/8/2007	10.40%	4.91%	5.49%
3/14/2007	10.10%	4.86%	5.24%
3/20/2007	10.25%	4.84%	5.41%
3/21/2007	11.35%	4.84%	6.51%
3/22/2007	10.50%	4.84%	5.66%
3/29/2007	10.00%	4.83%	5.17%
6/13/2007	10.75%	4.81%	5.94%
6/29/2007	9.53%	4.84%	4.69%
6/29/2007	10.10%	4.84%	5.26%
7/3/2007	10.25%	4.85%	5.40%
7/13/2007	9.50%	4.86%	4.64%
7/24/2007	10.40%	4.87%	5.53%
8/1/2007	10.15%	4.88%	5.27%
8/29/2007	10.50%	4.91%	5.59%
9/10/2007	9.71%	4.91%	4.80%
9/19/2007	10.00%	4.91%	5.09%
9/25/2007	9.70%	4.92%	4.78%
10/8/2007	10.48%	4.92%	5.56%
10/19/2007	10.50%	4.91%	5.59%
10/25/2007	9.65%	4.91%	4.74%
11/15/2007	10.00%	4.89%	5.11%
11/20/2007	9.90%	4.89%	5.01%
11/27/2007	10.00%	4.88%	5.12%
11/29/2007	10.90%	4.88%	6.02%
12/14/2007	10.80%	4.87%	5.93%
12/18/2007	10.40%	4.86%	5.54%
12/19/2007	9.80%	4.86%	4.94%
12/19/2007	9.80%	4.86%	4.94%
12/19/2007	10.20%	4.86%	5.34%
12/21/2007	9.10%	4.86%	4.24%
1/8/2008	10.75%	4.83%	5.92%
1/17/2008	10.75%	4.81%	5.94%
1/17/2008	10.75%	4.81%	5.94%
2/5/2008	9.99%	4.78%	5.21%
2/5/2008	10.19%	4.78%	5.41%
2/13/2008	10.20%	4.76%	5.44%
3/31/2008	10.00%	4.63%	5.37%
5/28/2008	10.50%	4.53%	5.97%
6/24/2008	10.00%	4.52%	5.48%
6/27/2008	10.00%	4.52%	5.48%
7/31/2008	10.70%	4.50%	6.20%
7/31/2008	10.82%	4.50%	6.32%
8/27/2008	10.25%	4.50%	5.75%
9/2/2008	10.25%	4.50%	5.75%
9/19/2008	10.70%	4.48%	6.22%
9/24/2008	10.68%	4.48%	6.20%
9/24/2008	10.68%	4.48%	6.20%
9/24/2008	10.68%	4.48%	6.20%
9/30/2008	10.20%	4.48%	5.72%

[6]	[7]	[8]	[9]
Date of Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
10/3/2008	10.30%	4.48%	5.82%
10/8/2008	10.15%	4.47%	5.68%
10/20/2008	10.06%	4.47%	5.59%
10/24/2008	10.60%	4.46%	6.14%
10/24/2008	10.60%	4.46%	6.14%
11/21/2008	10.50%	4.42%	6.08%
11/21/2008	10.50%	4.42%	6.08%
11/21/2008	10.50%	4.42%	6.08%
11/24/2008	10.50%	4.41%	6.09%
12/3/2008	10.39%	4.37%	6.02%
12/24/2008	10.00%	4.26%	5.74%
12/26/2008	10.10%	4.24%	5.86%
12/29/2008	10.20%	4.23%	5.97%
1/13/2009	10.45%	4.14%	6.31%
2/2/2009	10.05%	4.04%	6.01%
3/9/2009	10.30%	3.89%	6.41%
3/25/2009	10.17%	3.84%	6.33%
4/2/2009	10.75%	3.81%	6.94%
5/5/2009	10.75%	3.71%	7.04%
5/15/2009	10.20%	3.70%	6.50%
5/29/2009	9.54%	3.70%	5.84%
6/3/2009	10.10%	3.71%	6.39%
6/22/2009	10.00%	3.73%	6.27%
6/29/2009	10.21%	3.74%	6.47%
6/30/2009	9.31%	3.74%	5.57%
7/17/2009	9.26%	3.75%	5.51%
7/17/2009	10.50%	3.75%	6.75%
10/16/2009	10.40%	4.09%	6.31%
10/26/2009	10.10%	4.11%	5.99%
10/28/2009	10.15%	4.12%	6.03%
10/28/2009	10.15%	4.12%	6.03%
10/30/2009	9.95%	4.12%	5.83%
11/20/2009	9.45%	4.18%	5.27%
12/14/2009	10.50%	4.24%	6.26%
12/16/2009	10.75%	4.25%	6.50%
12/17/2009	10.30%	4.26%	6.04%
12/18/2009	10.40%	4.26%	6.14%
12/18/2009	10.40%	4.26%	6.14%
12/18/2009	10.50%	4.26%	6.24%
12/22/2009	10.20%	4.27%	5.93%
12/22/2009	10.40%	4.27%	6.13%
12/28/2009	10.85%	4.29%	6.56%
12/29/2009	10.38%	4.30%	6.08%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
1/11/2010	10.24%	4.34%	5.90%
1/21/2010	10.23%	4.37%	5.86%
1/21/2010	10.33%	4.37%	5.96%
1/26/2010	10.40%	4.37%	6.03%
2/10/2010	10.00%	4.39%	5.61%
2/23/2010	10.50%	4.40%	6.10%
3/9/2010	9.60%	4.40%	5.20%
3/24/2010	10.13%	4.42%	5.71%
3/31/2010	10.70%	4.43%	6.27%
4/1/2010	9.50%	4.43%	5.07%
4/2/2010	10.10%	4.44%	5.66%
4/8/2010	10.35%	4.44%	5.91%
4/29/2010	9.19%	4.46%	4.73%
4/29/2010	9.40%	4.46%	4.94%
4/29/2010	9.40%	4.46%	4.94%
5/17/2010	10.55%	4.46%	6.09%
5/24/2010	10.05%	4.46%	5.59%
6/3/2010	11.00%	4.46%	6.54%
6/16/2010	10.00%	4.46%	5.54%
6/18/2010	10.30%	4.46%	5.84%
8/9/2010	12.55%	4.41%	8.14%
8/17/2010	10.10%	4.40%	5.70%
9/16/2010	9.60%	4.31%	5.29%
9/16/2010	10.00%	4.31%	5.69%
9/16/2010	10.00%	4.31%	5.69%
9/16/2010	10.30%	4.31%	5.99%
10/21/2010	10.40%	4.20%	6.20%
11/2/2010	9.75%	4.17%	5.58%
11/2/2010	9.75%	4.17%	5.58%
11/3/2010	10.75%	4.17%	6.58%
11/19/2010	10.20%	4.15%	6.05%
12/1/2010	10.00%	4.13%	5.87%
12/6/2010	9.56%	4.12%	5.44%
12/6/2010	10.09%	4.12%	5.97%
12/9/2010	10.25%	4.12%	6.13%
12/14/2010	10.33%	4.11%	6.22%
12/17/2010	10.10%	4.11%	5.99%
12/20/2010	10.10%	4.11%	5.99%
12/23/2010	9.92%	4.10%	5.82%
1/6/2011	10.35%	4.09%	6.26%
1/12/2011	10.30%	4.09%	6.21%
1/13/2011	10.30%	4.09%	6.21%
3/10/2011	10.10%	4.16%	5.94%
3/31/2011	9.45%	4.20%	5.25%
4/18/2011	10.05%	4.23%	5.82%
5/26/2011	10.50%	4.32%	6.18%
6/21/2011	10.00%	4.36%	5.64%
6/29/2011	8.83%	4.38%	4.45%
8/1/2011	9.20%	4.41%	4.79%
9/1/2011	10.10%	4.33%	5.77%
11/14/2011	9.60%	3.93%	5.67%
12/13/2011	9.50%	3.76%	5.74%
12/20/2011	10.00%	3.72%	6.28%
12/22/2011	10.40%	3.70%	6.70%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
1/10/2012	9.06%	3.59%	5.47%
1/10/2012	9.45%	3.59%	5.86%
1/10/2012	9.45%	3.59%	5.86%
1/23/2012	10.20%	3.53%	6.67%
1/31/2012	10.00%	3.49%	6.51%
4/24/2012	9.50%	3.16%	6.34%
4/24/2012	9.75%	3.16%	6.59%
5/7/2012	9.80%	3.13%	6.67%
5/22/2012	9.60%	3.10%	6.50%
5/24/2012	9.70%	3.09%	6.61%
6/7/2012	10.30%	3.06%	7.24%
6/15/2012	10.40%	3.05%	7.35%
6/18/2012	9.60%	3.05%	6.55%
7/2/2012	9.75%	3.04%	6.71%
10/24/2012	10.30%	2.92%	7.38%
10/26/2012	9.50%	2.92%	6.58%
10/31/2012	9.30%	2.92%	6.38%
10/31/2012	9.90%	2.92%	6.98%
10/31/2012	10.00%	2.92%	7.08%
11/1/2012	9.45%	2.91%	6.54%
11/8/2012	10.10%	2.91%	7.19%
11/9/2012	10.30%	2.90%	7.40%
11/26/2012	10.00%	2.89%	7.11%
11/28/2012	10.40%	2.88%	7.52%
11/28/2012	10.50%	2.88%	7.62%
12/4/2012	10.00%	2.87%	7.13%
12/4/2012	10.50%	2.87%	7.63%
12/20/2012	9.50%	2.84%	6.66%
12/20/2012	10.10%	2.84%	7.26%
12/20/2012	10.25%	2.84%	7.41%
12/20/2012	10.30%	2.84%	7.46%
12/20/2012	10.40%	2.84%	7.56%
12/20/2012	10.50%	2.84%	7.66%
12/26/2012	9.80%	2.83%	6.97%
2/22/2013	9.60%	2.86%	6.74%
3/14/2013	9.30%	2.89%	6.41%
3/27/2013	9.80%	2.92%	6.88%
4/23/2013	9.80%	2.96%	6.84%
5/10/2013	9.25%	2.96%	6.29%
6/13/2013	9.40%	3.01%	6.39%
6/18/2013	9.28%	3.02%	6.26%
6/18/2013	9.28%	3.02%	6.26%
6/25/2013	9.80%	3.04%	6.76%
9/23/2013	9.60%	3.33%	6.27%
11/6/2013	10.20%	3.42%	6.78%
11/13/2013	9.84%	3.44%	6.40%
11/14/2013	10.25%	3.44%	6.81%
11/22/2013	9.50%	3.47%	6.03%
12/5/2013	10.20%	3.50%	6.70%
12/13/2013	9.60%	3.52%	6.08%
12/16/2013	9.73%	3.53%	6.20%
12/17/2013	10.00%	3.53%	6.47%
12/18/2013	9.08%	3.53%	5.55%
12/23/2013	9.72%	3.55%	6.17%
12/30/2013	10.00%	3.57%	6.43%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
1/21/2014	9.65%	3.66%	5.99%
1/22/2014	9.18%	3.66%	5.52%
2/20/2014	9.30%	3.71%	5.59%
2/21/2014	9.85%	3.72%	6.13%
2/28/2014	9.55%	3.73%	5.82%
3/16/2014	9.72%	3.74%	5.98%
4/21/2014	9.50%	3.73%	5.77%
4/22/2014	9.80%	3.73%	6.07%
5/8/2014	9.10%	3.71%	5.39%
5/8/2014	9.59%	3.71%	5.88%
6/6/2014	10.40%	3.66%	6.74%
6/12/2014	10.10%	3.66%	6.44%
6/12/2014	10.10%	3.66%	6.44%
6/12/2014	10.10%	3.66%	6.44%
7/7/2014	9.30%	3.63%	5.67%
7/25/2014	9.30%	3.60%	5.70%
7/31/2014	9.90%	3.59%	6.31%
9/4/2014	9.10%	3.50%	5.60%
9/24/2014	9.35%	3.46%	5.89%
9/30/2014	9.75%	3.44%	6.31%
10/29/2014	10.80%	3.37%	7.43%
11/6/2014	10.20%	3.35%	6.85%
11/14/2014	10.20%	3.33%	6.87%
11/14/2014	10.30%	3.33%	6.97%
11/26/2014	10.20%	3.30%	6.90%
12/3/2014	10.00%	3.29%	6.71%
1/13/2015	10.30%	3.16%	7.14%
1/21/2015	9.05%	3.13%	5.92%
1/21/2015	9.05%	3.13%	5.92%
4/9/2015	9.50%	2.88%	6.62%
5/11/2015	9.80%	2.82%	6.98%
6/17/2015	9.00%	2.79%	6.21%
8/21/2015	9.75%	2.78%	6.97%
10/7/2015	9.55%	2.82%	6.73%
10/13/2015	9.75%	2.83%	6.92%
10/15/2015	9.00%	2.84%	6.16%
10/30/2015	9.80%	2.87%	6.93%
11/19/2015	10.00%	2.89%	7.11%
12/3/2015	10.00%	2.91%	7.09%
12/9/2015	9.60%	2.92%	6.68%
12/11/2015	9.90%	2.92%	6.98%
12/18/2015	9.50%	2.94%	6.56%
1/6/2016	9.50%	2.97%	6.53%
1/6/2016	9.50%	2.97%	6.53%
1/28/2016	9.40%	2.97%	6.43%
2/10/2016	9.60%	2.95%	6.65%
2/16/2016	9.50%	2.94%	6.56%
2/29/2016	9.40%	2.92%	6.48%
4/29/2016	9.80%	2.83%	6.97%
5/5/2016	9.49%	2.82%	6.67%
6/1/2016	9.55%	2.80%	6.75%
6/3/2016	9.65%	2.79%	6.86%
6/15/2016	9.00%	2.77%	6.23%
6/15/2016	9.00%	2.77%	6.23%
9/2/2016	9.50%	2.56%	6.94%
9/23/2016	9.75%	2.52%	7.23%
9/27/2016	9.50%	2.51%	6.99%
9/29/2016	9.11%	2.50%	6.61%
10/13/2016	10.20%	2.48%	7.72%
10/28/2016	9.70%	2.47%	7.23%
11/9/2016	9.80%	2.47%	7.33%
11/18/2016	10.00%	2.49%	7.51%
12/9/2016	10.10%	2.51%	7.59%
12/15/2016	9.00%	2.53%	6.47%
12/15/2016	9.00%	2.53%	6.47%
12/20/2016	9.75%	2.53%	7.22%
12/22/2016	9.50%	2.54%	6.96%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
1/24/2017	9.00%	2.59%	6.41%
2/21/2017	10.55%	2.63%	7.92%
3/1/2017	9.25%	2.65%	6.60%
4/11/2017	9.50%	2.77%	6.73%
4/20/2017	8.70%	2.79%	5.91%
4/28/2017	9.50%	2.81%	6.69%
5/23/2017	9.60%	2.88%	6.72%
6/6/2017	9.70%	2.91%	6.79%
6/22/2017	9.70%	2.93%	6.77%
6/30/2017	9.60%	2.94%	6.66%
7/20/2017	9.55%	2.97%	6.58%
7/31/2017	10.10%	2.98%	7.12%
9/13/2017	9.40%	2.93%	6.47%
9/19/2017	9.70%	2.92%	6.78%
9/22/2017	11.88%	2.92%	8.96%
9/27/2017	10.20%	2.92%	7.28%
10/20/2017	9.60%	2.90%	6.70%
10/26/2017	10.20%	2.90%	7.30%
10/30/2017	10.05%	2.90%	7.15%
12/5/2017	9.50%	2.86%	6.64%
12/7/2017	9.80%	2.86%	6.94%
12/13/2017	9.25%	2.85%	6.40%
12/28/2017	9.50%	2.84%	6.66%
1/31/2018	9.80%	2.83%	6.97%
2/21/2018	9.80%	2.84%	6.96%
2/21/2018	9.80%	2.84%	6.96%
2/28/2018	9.50%	2.85%	6.65%
3/15/2018	9.00%	2.87%	6.13%
3/26/2018	10.19%	2.88%	7.31%
4/26/2018	9.50%	2.91%	6.59%
4/27/2018	9.30%	2.91%	6.39%
5/2/2018	9.50%	2.91%	6.59%
5/3/2018	9.70%	2.91%	6.79%
5/29/2018	9.40%	2.95%	6.45%
6/6/2018	9.80%	2.96%	6.84%

[6]	[7]	[8]	[9]
Date of Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
6/14/2018	8.80%	2.97%	5.83%
7/16/2018	9.60%	2.98%	6.62%
7/20/2018	9.40%	2.99%	6.41%
8/24/2018	9.28%	3.02%	6.26%
8/28/2018	10.00%	3.03%	6.97%
9/13/2018	10.00%	3.04%	6.96%
9/14/2018	10.00%	3.05%	6.95%
9/19/2018	9.85%	3.05%	6.80%
9/20/2018	9.80%	3.05%	6.75%
9/26/2018	9.40%	3.06%	6.34%
9/26/2018	10.20%	3.06%	7.14%
9/28/2018	9.50%	3.07%	6.43%
9/28/2018	9.50%	3.07%	6.43%
10/5/2018	9.61%	3.08%	6.53%
10/15/2018	9.80%	3.09%	6.71%
10/26/2018	9.40%	3.11%	6.29%
10/29/2018	9.60%	3.11%	6.49%
11/1/2018	9.87%	3.11%	6.76%
11/8/2018	9.70%	3.12%	6.58%
11/8/2018	9.70%	3.12%	6.58%
12/11/2018	9.70%	3.14%	6.56%
12/12/2018	9.30%	3.14%	6.16%
12/13/2018	9.60%	3.14%	6.46%
12/19/2018	9.30%	3.14%	6.16%
12/21/2018	9.35%	3.14%	6.21%
12/24/2018	9.25%	3.14%	6.11%
12/24/2018	9.25%	3.14%	6.11%
1/4/2019	9.80%	3.14%	6.66%
1/18/2019	9.70%	3.14%	6.56%
3/14/2019	9.00%	3.12%	5.88%
3/27/2019	9.70%	3.12%	6.58%
4/30/2019	9.73%	3.11%	6.62%
5/7/2019	9.65%	3.10%	6.55%
5/21/2019	9.80%	3.10%	6.70%
9/4/2019	10.00%	2.76%	7.24%
9/26/2019	9.90%	2.69%	7.21%
10/2/2019	9.73%	2.67%	7.06%
10/8/2019	9.40%	2.64%	6.76%
10/15/2019	9.70%	2.62%	7.08%
10/21/2019	9.40%	2.60%	6.80%
10/31/2019	9.70%	2.57%	7.13%
10/31/2019	10.00%	2.57%	7.43%
10/31/2019	10.00%	2.57%	7.43%
10/31/2019	10.20%	2.57%	7.63%
11/7/2019	9.35%	2.55%	6.80%
11/13/2019	9.60%	2.54%	7.06%
11/13/2019	9.60%	2.54%	7.06%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
12/6/2019	9.87%	2.47%	7.40%
12/11/2019	9.40%	2.46%	6.94%
12/17/2019	9.75%	2.44%	7.31%
12/18/2019	9.60%	2.44%	7.16%
12/18/2019	9.60%	2.44%	7.16%
12/19/2019	10.05%	2.44%	7.61%
12/19/2019	10.20%	2.44%	7.76%
12/19/2019	10.25%	2.44%	7.81%
12/20/2019	9.20%	2.44%	6.76%
12/26/2019	9.75%	2.42%	7.33%
1/15/2020	9.35%	2.37%	6.98%
1/16/2020	8.80%	2.37%	6.43%
1/24/2020	9.44%	2.35%	7.09%
2/3/2020	9.40%	2.32%	7.08%
2/24/2020	9.10%	2.27%	6.83%
2/25/2020	9.50%	2.27%	7.23%
2/28/2020	9.70%	2.25%	7.45%
3/25/2020	9.40%	2.15%	7.25%
3/26/2020	9.48%	2.14%	7.34%
4/21/2020	9.80%	2.02%	7.78%
5/19/2020	9.20%	1.94%	7.26%
6/16/2020	9.65%	1.86%	7.79%
7/8/2020	9.40%	1.80%	7.60%
8/4/2020	9.50%	1.70%	7.80%
8/20/2020	9.90%	1.64%	8.26%
8/21/2020	9.35%	1.64%	7.71%
9/10/2020	9.90%	1.57%	8.33%
9/23/2020	9.60%	1.53%	8.07%
9/25/2020	9.25%	1.52%	7.73%
9/25/2020	9.25%	1.52%	7.73%
10/7/2020	9.70%	1.49%	8.21%
10/12/2020	9.20%	1.48%	7.72%
10/16/2020	9.40%	1.46%	7.94%
10/30/2020	9.90%	1.44%	8.46%
11/7/2020	9.60%	1.43%	8.17%
11/19/2020	8.80%	1.42%	7.38%
11/19/2020	8.80%	1.42%	7.38%
11/19/2020	9.90%	1.42%	8.48%
11/24/2020	9.80%	1.42%	8.38%
12/9/2020	9.10%	1.43%	7.67%
12/10/2020	9.40%	1.43%	7.97%
12/16/2020	9.38%	1.44%	7.94%
12/16/2020	9.65%	1.44%	8.21%
12/23/2020	10.00%	1.45%	8.55%

[6] Date of Gas Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
1/6/2021	9.40%	1.47%	7.93%
1/6/2021	9.60%	1.47%	8.13%
1/13/2021	9.67%	1.49%	8.18%
1/26/2021	9.50%	1.51%	7.99%
2/16/2021	9.80%	1.56%	8.24%
2/19/2021	9.86%	1.57%	8.29%
2/24/2021	9.25%	1.57%	7.68%
3/25/2021	10.00%	1.67%	8.33%
3/25/2021	10.00%	1.67%	8.33%
3/25/2021	10.00%	1.67%	8.33%
4/9/2021	9.70%	1.73%	7.97%
5/5/2021	9.30%	1.83%	7.47%
5/18/2021	9.40%	1.87%	7.53%
5/19/2021	8.80%	1.88%	6.92%
6/17/2021	10.24%	1.97%	8.27%
6/30/2021	9.43%	2.00%	7.43%
7/1/2021	9.40%	2.00%	7.40%
7/27/2021	9.54%	2.03%	7.51%
7/30/2021	9.30%	2.04%	7.26%
8/12/2021	8.80%	2.05%	6.75%
8/12/2021	8.80%	2.05%	6.75%

of Cases: 1,199

Proxy Group Capital Structure

Company	Ticker	% Common Equity								
		2021Q1	2020Q4	2020Q3	2020Q2	2020Q1	2019Q4	2019Q3	2019Q2	Average
Atmos Energy Corporation	ATO	51.67%	58.46%	58.75%	57.55%	56.98%	57.36%	59.01%	60.21%	57.50%
New Jersey Resources Corporation	NJR	55.58%	53.82%	53.09%	57.64%	58.62%	56.85%	56.30%	58.00%	56.24%
Northwest Natural Holding Company	NWN	42.88%	40.43%	41.21%	42.17%	37.21%	45.83%	46.67%	48.60%	43.13%
ONE Gas, Inc.	OGS	33.64%	52.28%	53.79%	54.74%	55.42%	53.68%	55.04%	56.61%	51.90%
South Jersey Industries, Inc.	SJI	56.53%	53.87%	54.39%	51.10%	51.17%	48.95%	49.95%	51.71%	52.21%
Southwest Gas Holdings, Inc.	SWX	46.74%	47.21%	47.76%	47.15%	48.85%	46.45%	47.32%	49.17%	47.58%
Spire Inc.	SR	53.56%	53.40%	54.70%	56.39%	56.38%	54.27%	55.54%	58.24%	55.31%
Mean		48.66%	51.35%	51.95%	52.39%	52.09%	51.91%	52.83%	54.65%	51.98%
Median		51.67%	53.40%	53.79%	54.74%	55.42%	53.68%	55.04%	56.61%	52.21%
High		56.53%	58.46%	58.75%	57.64%	58.62%	57.36%	59.01%	60.21%	57.50%
Low		33.64%	40.43%	41.21%	42.17%	37.21%	45.83%	46.67%	48.60%	43.13%

Operating Company Capital Structure

Operating Company	Parent	% Common Equity								
		2021Q1	2020Q4	2020Q3	2020Q2	2020Q1	2019Q4	2019Q3	2019Q2	Average
Atmos Energy Corporation	ATO	51.67%	58.46%	58.75%	57.55%	56.98%	57.36%	59.01%	60.21%	57.50%
New Jersey Natural Gas Company	NJR	55.58%	53.82%	53.09%	57.64%	58.62%	56.85%	56.30%	58.00%	56.24%
Northwest Natural Gas Company	NWN	42.88%	40.43%	41.21%	42.17%	37.21%	45.83%	46.67%	48.60%	43.13%
ONE Gas, Inc.	OGS	33.64%	52.28%	53.79%	54.74%	55.42%	53.68%	55.04%	56.61%	51.90%
South Jersey Gas Company	SJI	56.53%	53.87%	54.39%	51.10%	51.17%	48.95%	49.95%	51.71%	52.21%
Southwest Gas Corporation	SWX	46.74%	47.21%	47.76%	47.15%	48.85%	46.45%	47.32%	49.17%	47.58%
Spire Alabama Inc.	SR	59.05%	56.71%	58.68%	60.56%	60.70%	58.76%	60.54%	63.20%	59.78%
Spire Missouri Inc.	SR	48.08%	50.10%	50.71%	52.23%	52.06%	49.77%	50.53%	53.29%	50.85%
Mean		49.27%	51.61%	52.30%	52.89%	52.63%	52.21%	53.17%	55.10%	52.40%
Median		49.87%	53.05%	53.44%	53.48%	53.74%	51.73%	52.79%	54.95%	52.05%
High		59.05%	56.71%	58.68%	60.56%	60.70%	58.76%	60.54%	63.20%	59.78%
Low		33.64%	40.43%	41.21%	42.17%	37.21%	45.83%	46.67%	48.60%	43.13%

Source: S&P Global Market Intelligence

Proxy Group Capital Structure

Company	Ticker	2021Q1	2020Q4	2020Q3	% Long-Term Debt					Average
					2020Q2	2020Q1	2019Q4	2019Q3	2019Q2	
Atmos Energy Corporation	ATO	48.33%	41.54%	41.25%	42.45%	41.21%	42.64%	36.22%	38.99%	41.58%
New Jersey Resources Corporation	NJR	44.42%	45.61%	46.91%	42.36%	41.38%	40.95%	43.70%	37.02%	42.79%
Northwest Natural Holding Company	NWN	48.59%	48.36%	51.11%	50.14%	43.26%	47.20%	50.67%	51.40%	48.84%
ONE Gas, Inc.	OGS	59.81%	37.93%	38.68%	39.50%	32.56%	33.29%	34.61%	35.52%	38.99%
South Jersey Industries, Inc.	SJI	43.47%	44.17%	40.97%	41.91%	42.55%	43.36%	41.85%	43.34%	42.70%
Southwest Gas Holdings, Inc.	SWX	48.01%	51.59%	52.24%	52.85%	48.91%	49.06%	51.95%	50.83%	50.68%
Spire Inc.	SR	37.04%	39.08%	35.80%	36.64%	36.66%	38.17%	32.48%	33.33%	36.15%
Mean		47.10%	44.04%	43.85%	43.69%	40.93%	42.09%	41.64%	41.49%	43.11%
Median		48.01%	44.17%	41.25%	42.36%	41.38%	42.64%	41.85%	38.99%	42.70%
High		59.81%	51.59%	52.24%	52.85%	48.91%	49.06%	51.95%	51.40%	50.68%
Low		37.04%	37.93%	35.80%	36.64%	32.56%	33.29%	32.48%	33.33%	36.15%

Operating Company Capital Structure

Operating Company	Parent	2021Q1	2020Q4	2020Q3	% Long-Term Debt					Average
					2020Q2	2020Q1	2019Q4	2019Q3	2019Q2	
Atmos Energy Corporation	ATO	48.33%	41.54%	41.25%	42.45%	41.21%	42.64%	36.22%	38.99%	41.58%
New Jersey Natural Gas Company	NJR	44.42%	45.61%	46.91%	42.36%	41.38%	40.95%	43.70%	37.02%	42.79%
Northwest Natural Gas Company	NWN	48.59%	48.36%	51.11%	50.14%	43.26%	47.20%	50.67%	51.40%	48.84%
ONE Gas, Inc.	OGS	59.81%	37.93%	38.68%	39.50%	32.56%	33.29%	34.61%	35.52%	38.99%
South Jersey Gas Company	SJI	43.47%	44.17%	40.97%	41.91%	42.55%	43.36%	41.85%	43.34%	42.70%
Southwest Gas Corporation	SWX	48.01%	51.59%	52.24%	52.85%	48.91%	49.06%	51.95%	50.83%	50.68%
Spire Alabama Inc.	SR	40.95%	41.49%	32.96%	33.46%	33.50%	36.53%	30.07%	30.85%	34.97%
Spire Missouri Inc.	SR	33.14%	36.68%	38.65%	39.82%	39.81%	39.81%	34.90%	35.81%	37.33%
Mean		45.84%	43.42%	42.85%	42.81%	40.40%	41.60%	40.50%	40.47%	42.24%
Median		46.21%	42.85%	41.11%	42.13%	41.30%	41.79%	39.04%	38.01%	42.14%
High		59.81%	51.59%	52.24%	52.85%	48.91%	49.06%	51.95%	51.40%	50.68%
Low		33.14%	36.68%	32.96%	33.46%	32.56%	33.29%	30.07%	30.85%	34.97%

Proxy Group Capital Structure

Company	Ticker	% Short-Term Debt								
		2021Q1	2020Q4	2020Q3	2020Q2	2020Q1	2019Q4	2019Q3	2019Q2	Average
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%	0.00%	1.81%	0.00%	4.77%	0.80%	0.92%
New Jersey Resources Corporation	NJR	0.00%	0.57%	0.00%	0.00%	0.00%	2.21%	0.00%	4.98%	0.97%
Northwest Natural Holding Company	NWN	8.52%	11.21%	7.67%	7.69%	19.52%	6.97%	2.66%	0.00%	8.03%
ONE Gas, Inc.	OGS	6.55%	9.79%	7.53%	5.76%	12.02%	13.02%	10.34%	7.87%	9.11%
South Jersey Industries, Inc.	SJI	0.00%	1.96%	4.64%	6.99%	6.28%	7.69%	8.20%	4.94%	5.09%
Southwest Gas Holdings, Inc.	SWX	5.26%	1.20%	0.00%	0.00%	2.24%	4.49%	0.74%	0.00%	1.74%
Spire Inc.	SR	9.39%	7.51%	9.50%	6.97%	6.96%	7.57%	11.98%	8.43%	8.54%
Mean		4.25%	4.61%	4.19%	3.91%	6.98%	5.99%	5.53%	3.86%	4.91%
Median		5.26%	1.96%	4.64%	5.76%	6.28%	6.97%	4.77%	4.94%	5.09%
High		9.39%	11.21%	9.50%	7.69%	19.52%	13.02%	11.98%	8.43%	9.11%
Low		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.92%

Operating Company Capital Structure

Operating Company	Parent	% Short-Term Debt								
		2021Q1	2020Q4	2020Q3	2020Q2	2020Q1	2019Q4	2019Q3	2019Q2	Average
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%	0.00%	1.81%	0.00%	4.77%	0.80%	0.92%
New Jersey Natural Gas Company	NJR	0.00%	0.57%	0.00%	0.00%	0.00%	2.21%	0.00%	4.98%	0.97%
Northwest Natural Gas Company	NWN	8.52%	11.21%	7.67%	7.69%	19.52%	6.97%	2.66%	0.00%	8.03%
ONE Gas, Inc.	OGS	6.55%	9.79%	7.53%	5.76%	12.02%	13.02%	10.34%	7.87%	9.11%
South Jersey Gas Company	SJI	0.00%	1.96%	4.64%	6.99%	6.28%	7.69%	8.20%	4.94%	5.09%
Southwest Gas Corporation	SWX	5.26%	1.20%	0.00%	0.00%	2.24%	4.49%	0.74%	0.00%	1.74%
Spire Alabama Inc.	SR	0.00%	1.80%	8.36%	5.98%	5.80%	4.71%	9.39%	5.96%	5.25%
Spire Missouri Inc.	SR	18.79%	13.22%	10.64%	7.95%	8.13%	10.42%	14.58%	10.90%	11.83%
Mean		4.89%	4.97%	4.86%	4.30%	6.97%	6.19%	6.33%	4.43%	5.37%
Median		2.63%	1.88%	6.09%	5.87%	6.04%	5.84%	6.49%	4.96%	5.17%
High		18.79%	13.22%	10.64%	7.95%	19.52%	13.02%	14.58%	10.90%	11.83%
Low		0.00%	0.57%	0.00%	0.00%	0.00%	2.21%	0.00%	0.00%	0.97%

CAPITAL STRUCTURE ANALYSIS

Proxy Group Company	Ticker	COMMON EQUITY RATIO [1]			
		2020	2019	2018	Average
Atmos Energy Corporation	ATO	58.31%	57.85%	58.35%	58.17%
Chesapeake Utilities Corporation	CPK	NA	NA	NA	NA
MDU Resources	MDU	48.89%	48.03%	71.31%	56.08%
National Fuel Gas	NFG	58.99%	60.72%	58.39%	59.37%
New Jersey Resources Corporation	NJR	55.13%	57.55%	58.86%	57.18%
NiSource Inc.	NI	54.43%	54.33%	54.83%	54.53%
Northwest Natural Gas Company	NWN	41.92%	45.77%	42.93%	43.54%
One Gas Inc.	OGS	60.04%	63.28%	62.03%	61.78%
South Jersey Industries, Inc.	SJI	53.66%	54.52%	57.62%	55.26%
Southwest Gas Corporation	SWX	47.10%	46.35%	47.39%	46.94%
Spire Inc.	SR	52.90%	53.20%	54.54%	53.55%
UGI Corporation	UGI	47.44%	49.07%	47.63%	48.05%
Proxy Group					
MEAN		52.62%	53.70%	55.81%	54.04%
MEDIAN		53.66%	54.33%	57.62%	55.26%
LOW		41.92%	45.77%	42.93%	43.54%
HIGH		60.04%	63.28%	71.31%	61.78%

Company Name	Ticker	COMMON EQUITY RATIO - UTILITY OPERATING COMPANIES			
		2020	2019	2018	Average
Atmos Energy Corporation	ATO	58.31%	57.85%	58.35%	58.17%
Florida Public Utilities Company	CPK	NA	NA	NA	NA
Florida Public Utilities Company Indiantown Division	CPK	NA	NA	NA	NA
Florida Public Utilities Company Fort Meade Division	CPK	NA	NA	NA	NA
Chesapeake Utilities Corporation Maryland Division	CPK	NA	NA	NA	NA
Intermountain Gas Co.	MDU	49.34%	50.16%	50.66%	50.05%
Cascade Natural Gas Corp.	MDU	47.03%	46.58%	49.11%	47.57%
Montana-Dakota Utilities Co.	MDU	49.56%	48.22%	76.49%	58.09%
National Fuel Gas Distribution Corp.	NFG	58.99%	60.72%	58.39%	59.37%
New Jersey Natural Gas Company	NJR	55.13%	57.55%	58.86%	57.18%
Columbia Gas of Maryland Inc.	NI	54.95%	52.38%	56.70%	54.68%
Columbia Gas of Pennsylvania, Inc.	NI	55.68%	55.59%	55.68%	55.65%
Columbia Gas of Kentucky, Inc.	NI	54.68%	54.23%	54.62%	54.51%
Columbia Gas of Virginia, Inc.	NI	43.69%	42.53%	42.71%	42.98%
Columbia Gas of Ohio, Inc.	NI	50.45%	53.00%	54.40%	52.62%
Northern Indiana Public Service Company	NI	58.01%	56.43%	56.37%	56.94%
Northwest Natural Gas Company	NWN	41.92%	45.77%	42.93%	43.54%
Kansas Gas Service Company, Inc.	OGS	60.33%	63.55%	62.20%	62.03%
Oklahoma Natural Gas Company	OGS	59.85%	63.10%	61.94%	61.63%
Texas Gas Service Company, Inc.	OGS	59.99%	63.23%	61.95%	61.72%
South Jersey Gas Company	SJI	53.66%	48.82%	50.01%	50.83%
Elizabethtown Gas	SJI	NA	60.90%	66.07%	63.49%
Southwest Gas Corporation	SWX	47.10%	46.35%	47.39%	46.94%
Spire Alabama Inc.	SR	58.95%	60.54%	63.49%	60.99%
Spire Gulf Inc.	SR	39.49%	37.18%	40.08%	38.92%
Spire Mississippi Inc.	SR	NA	45.95%	50.69%	48.32%
Spire Missouri Inc.	SR	50.65%	50.45%	50.72%	50.61%
UGI Utilities Inc.	UGI	48.33%	49.74%	47.37%	48.48%
Mountaineer Gas Inc.	UGI	40.33%	43.61%	49.91%	44.62%
Operating Company					
MEAN		52.02%	52.58%	54.68%	53.20%
MEDIAN		53.66%	52.38%	54.62%	54.51%
LOW		39.49%	37.18%	40.08%	38.92%
HIGH		60.33%	63.55%	76.49%	63.49%

Notes:

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

[2] Natural Gas operating subsidiaries where data was unable to be obtained for 2018-2020 were removed from the analysis.

[3] Chesapeake Utilities Corp operating utilities are financed with 100% equity and therefore excluded from the analysis

CAPITAL STRUCTURE ANALYSIS

Proxy Group Company	Ticker	LONG-TERM DEBT RATIO [1]			Average
		2020	2019	2018	
Atmos Energy Corporation	ATO	41.69%	41.16%	33.95%	38.93%
Chesapeake Utilities Corporation	CPK	NA	NA	NA	NA
MDU Resources	MDU	49.32%	51.97%	28.69%	43.33%
National Fuel Gas	NFG	30.04%	31.58%	31.49%	31.04%
New Jersey Resources Corporation	NJR	44.29%	40.21%	36.20%	40.23%
NiSource Inc.	NI	45.57%	45.67%	45.17%	45.47%
Northwest Natural Gas Company	NWN	46.45%	47.27%	44.10%	45.94%
One Gas Inc.	OGS	39.96%	36.72%	37.97%	38.22%
South Jersey Industries, Inc.	SJI	44.39%	38.97%	37.33%	40.23%
Southwest Gas Corporation	SWX	51.70%	49.17%	48.57%	49.81%
Spire Inc.	SR	37.51%	34.23%	31.04%	34.26%
UGI Corporation	UGI	41.77%	39.83%	34.93%	38.84%
Proxy Group					
MEAN		42.97%	41.53%	37.22%	40.57%
MEDIAN		44.29%	40.21%	36.20%	40.23%
LOW		30.04%	31.58%	28.69%	31.04%
HIGH		51.70%	51.97%	48.57%	49.81%

Company Name	Ticker	LONG-TERM DEBT RATIO - UTILITY OPERATING COMPANIES			Average
		2020	2019	2018	
Atmos Energy Corporation	ATO	41.69%	41.16%	33.95%	38.93%
Florida Public Utilities Company	CPK	NA	NA	NA	NA
Florida Public Utilities Company Indiantown Division	CPK	NA	NA	NA	NA
Florida Public Utilities Company Fort Meade Division	CPK	NA	NA	NA	NA
Chesapeake Utilities Corporation Maryland Division	CPK	NA	NA	NA	NA
Intermountain Gas Co.	MDU	50.66%	49.84%	49.34%	49.95%
Cascade Natural Gas Corp.	MDU	52.97%	53.42%	50.89%	52.43%
Montana-Dakota Utilities Co.	MDU	47.56%	51.78%	23.51%	40.95%
National Fuel Gas Distribution Corp.	NFG	30.04%	31.58%	31.49%	31.04%
New Jersey Natural Gas Company	NJR	44.29%	40.21%	36.20%	40.23%
Columbia Gas of Maryland Inc.	NI	45.05%	47.62%	43.30%	45.32%
Columbia Gas of Pennsylvania, Inc.	NI	44.32%	44.41%	44.32%	44.35%
Columbia Gas of Kentucky, Inc.	NI	45.32%	45.77%	45.38%	45.49%
Columbia Gas of Virginia, Inc.	NI	56.31%	57.47%	57.29%	57.02%
Columbia Gas of Ohio, Inc.	NI	49.55%	47.00%	45.60%	47.38%
Northern Indiana Public Service Company	NI	41.99%	43.57%	43.63%	43.06%
Northwest Natural Gas Company	NWN	46.45%	47.27%	44.10%	45.94%
Kansas Gas Service Company, Inc.	OGS	39.67%	36.45%	37.80%	37.97%
Oklahoma Natural Gas Company	OGS	40.15%	36.90%	38.06%	38.37%
Texas Gas Service Company, Inc.	OGS	40.01%	36.77%	38.05%	38.28%
South Jersey Gas Company	SJI	44.39%	43.51%	44.66%	44.19%
Elizabethtown Gas	SJI	NA	33.89%	29.19%	31.54%
Southwest Gas Corporation	SWX	51.70%	49.17%	48.57%	49.81%
Spire Alabama Inc.	SR	32.66%	30.07%	25.33%	29.35%
Spire Gulf Inc.	SR	57.90%	62.82%	48.38%	56.37%
Spire Mississippi Inc.	SR	NA	NA	NA	NA
Spire Missouri Inc.	SR	38.72%	34.99%	33.37%	35.69%
UGI Utilities Inc.	UGI	41.77%	39.10%	34.71%	38.52%
Mountaineer Gas Inc.	UGI	41.77%	45.76%	36.97%	41.50%
Operating Company					
MEAN		44.56%	43.77%	40.17%	42.65%
MEDIAN		44.32%	43.99%	40.68%	42.28%
LOW		30.04%	30.07%	23.51%	29.35%
HIGH		57.90%	62.82%	57.29%	57.02%

Notes:

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

[2] Natural Gas operating subsidiaries where data was unable to be obtained for 2018-2020 were removed from the analysis.

[3] Chesapeake Utilities Corp operating utilities are financed with 100% equity and therefore excluded from the analysis

CAPITAL STRUCTURE ANALYSIS

PREFERRED EQUITY RATIO [1]					
Proxy Group Company	Ticker	2020	2019	2018	Average
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%	0.00%
Chesapeake Utilities Corporation	CPK	0.00%	0.00%	0.00%	0.00%
MDU Resources	MDU	0.00%	0.00%	0.00%	0.00%
National Fuel Gas	NFG	0.00%	0.00%	0.00%	0.00%
New Jersey Resources Corporation	NJR	0.00%	0.00%	0.00%	0.00%
NiSource Inc.	NI	0.00%	0.00%	0.00%	0.00%
Northwest Natural Gas Company	NWN	0.00%	0.00%	0.00%	0.00%
One Gas Inc.	OGS	0.00%	0.00%	0.00%	0.00%
South Jersey Industries, Inc.	SJI	0.00%	0.00%	0.00%	0.00%
Southwest Gas Corporation	SWX	0.00%	0.00%	0.00%	0.00%
Spire Inc.	SR	0.00%	0.00%	0.00%	0.00%
UGI Corporation	UGI	0.00%	0.00%	0.00%	0.00%
Proxy Group					
MEAN		0.00%	0.00%	0.00%	0.00%
MEDIAN		0.00%	0.00%	0.00%	0.00%
LOW		0.00%	0.00%	0.00%	0.00%
HIGH		0.00%	0.00%	0.00%	0.00%

PREFERRED EQUITY RATIO - UTILITY OPERATING COMPANIES					
Company Name	Ticker	2020	2019	2018	Average
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%	0.00%
Florida Public Utilities Company	CPK	NA	NA	NA	NA
Florida Public Utilities Company Indiantown Division	CPK	NA	NA	NA	NA
Florida Public Utilities Company Fort Meade Division	CPK	NA	NA	NA	NA
Chesapeake Utilities Corporation Maryland Division	CPK	NA	NA	NA	NA
Intermountain Gas Co.	MDU	0.00%	0.00%	0.00%	0.00%
Cascade Natural Gas Corp.	MDU	0.00%	0.00%	0.00%	0.00%
Montana-Dakota Utilities Co.	MDU	0.00%	0.00%	0.00%	0.00%
National Fuel Gas Distribution Corp.	NFG	0.00%	0.00%	0.00%	0.00%
New Jersey Natural Gas Company	NJR	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Maryland Inc.	NI	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Pennsylvania, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Kentucky, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Virginia, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Columbia Gas of Ohio, Inc.	NI	0.00%	0.00%	0.00%	0.00%
Northern Indiana Public Service Company	NI	0.00%	0.00%	0.00%	0.00%
Northwest Natural Gas Company	NWN	0.00%	0.00%	0.00%	0.00%
Kansas Gas Service Company, Inc.	OGS	0.00%	0.00%	0.00%	0.00%
Oklahoma Natural Gas Company	OGS	0.00%	0.00%	0.00%	0.00%
Texas Gas Service Company, Inc.	OGS	0.00%	0.00%	0.00%	0.00%
South Jersey Gas Company	SJI	0.00%	0.00%	0.00%	0.00%
Elizabethtown Gas	SJI	0.00%	0.00%	0.00%	0.00%
Southwest Gas Corporation	SWX	0.00%	0.00%	0.00%	0.00%
Spire Alabama Inc.	SR	0.00%	0.00%	0.00%	0.00%
Spire Gulf Inc.	SR	0.00%	0.00%	0.00%	0.00%
Spire Mississippi Inc.	SR	0.00%	0.00%	0.00%	0.00%
Spire Missouri Inc.	SR	0.00%	0.00%	0.00%	0.00%
UGI Utilities Inc.	UGI	0.00%	0.00%	0.00%	0.00%
Mountaineer Gas Inc.	UGI	0.00%	0.00%	0.00%	0.00%
Operating Company					
MEAN		0.00%	0.00%	0.00%	0.00%
MEDIAN		0.00%	0.00%	0.00%	0.00%
LOW		0.00%	0.00%	0.00%	0.00%
HIGH		0.00%	0.00%	0.00%	0.00%

Notes:

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

[2] Natural Gas operating subsidiaries where data was unable to be obtained for 2018-2020 were removed from the analysis.

[3] Chesapeake Utilities Corp operating utilities are financed with 100% equity and therefore excluded from the analysis

CAPITAL STRUCTURE ANALYSIS

SHORT-TERM DEBT RATIO [1]					
Proxy Group Company	Ticker	2020	2019	2018	Average
Atmos Energy Corporation	ATO	0.00%	0.99%	7.70%	2.90%
Chesapeake Utilities Corporation	CPK	NA	NA	NA	NA
MDU Resources	MDU	1.79%	NA	NA	1.79%
National Fuel Gas	NFG	10.97%	7.69%	10.12%	9.59%
New Jersey Resources Corporation	NJR	0.58%	2.23%	4.94%	2.59%
NiSource Inc.	NI	NA	NA	NA	NA
Northwest Natural Gas Company	NWN	11.63%	6.96%	12.97%	10.52%
One Gas Inc.	OGS	NA	NA	NA	NA
South Jersey Industries, Inc.	SJI	1.95%	6.51%	5.05%	4.51%
Southwest Gas Corporation	SWX	1.20%	4.48%	4.04%	3.24%
Spire Inc.	SR	9.59%	12.57%	14.42%	12.19%
UGI Corporation	UGI	10.80%	11.10%	17.44%	13.11%
Proxy Group					
MEAN		5.39%	6.57%	9.58%	6.72%
MEDIAN		1.95%	6.73%	8.91%	4.51%
LOW		0.00%	0.99%	4.04%	1.79%
HIGH		11.63%	12.57%	17.44%	13.11%

SHORT-TERM DEBT RATIO - UTILITY OPERATING COMPANIES					
Company Name	Ticker	2020	2019	2018	Average
Atmos Energy Corporation	ATO	NA	0.99%	7.70%	4.35%
Florida Public Utilities Company	CPK	NA	NA	NA	NA
Florida Public Utilities Company Indiantown Division	CPK	NA	NA	NA	NA
Florida Public Utilities Company Fort Meade Division	CPK	NA	NA	NA	NA
Chesapeake Utilities Corporation Maryland Division	CPK	NA	NA	NA	NA
Intermountain Gas Co.	MDU	NA	NA	NA	NA
Cascade Natural Gas Corp.	MDU	NA	NA	NA	NA
Montana-Dakota Utilities Co.	MDU	2.88%	NA	NA	2.88%
National Fuel Gas Distribution Corp.	NFG	10.97%	7.69%	10.12%	9.59%
New Jersey Natural Gas Company	NJR	0.58%	2.23%	4.94%	2.59%
Columbia Gas of Maryland Inc.	NI	NA	NA	NA	NA
Columbia Gas of Pennsylvania, Inc.	NI	NA	NA	NA	NA
Columbia Gas of Kentucky, Inc.	NI	NA	NA	NA	NA
Columbia Gas of Virginia, Inc.	NI	NA	NA	NA	NA
Columbia Gas of Ohio, Inc.	NI	NA	NA	NA	NA
Northern Indiana Public Service Company	NI	NA	NA	NA	NA
Northwest Natural Gas Company	NWN	11.63%	6.96%	12.97%	10.52%
Kansas Gas Service Company, Inc.	OGS	NA	NA	NA	NA
Oklahoma Natural Gas Company	OGS	NA	NA	NA	NA
Texas Gas Service Company, Inc.	OGS	NA	NA	NA	NA
South Jersey Gas Company	SJI	1.95%	7.67%	5.33%	4.99%
Elizabethtown Gas	SJI	NA	5.21%	4.74%	4.97%
Southwest Gas Corporation	SWX	1.20%	4.48%	4.04%	3.24%
Spire Alabama Inc.	SR	8.40%	9.39%	11.19%	9.66%
Spire Gulf Inc.	SR	2.61%	NA	11.53%	7.07%
Spire Mississippi Inc.	SR	NA	54.05%	49.31%	51.68%
Spire Missouri Inc.	SR	10.63%	14.56%	15.91%	13.70%
UGI Utilities Inc.	UGI	9.91%	11.16%	17.92%	13.00%
Mountaineer Gas Inc.	UGI	17.90%	10.62%	13.12%	13.88%
Operating Company					
MEAN		7.15%	11.25%	12.99%	10.87%
MEDIAN		8.40%	7.68%	11.19%	8.33%
LOW		0.58%	0.99%	4.04%	2.59%
HIGH		17.90%	54.05%	49.31%	51.68%

Notes:

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

[2] Natural Gas operating subsidiaries where data was unable to be obtained for 2018-2020 were removed from the analysis.

[3] Chesapeake Utilities Corp operating utilities are financed with 100% equity and therefore excluded from the analysis

Mr. O'Donnell's Proxy Group
Corrected DCF Analysis Excluding Negative Growth Rates

	Value Line									CFRA			Schwab	
	10-Year Historical			5-Year Historical			Historical Average			Forecasted (Est'd '18-'20 to '24-'26)			3-Year Projected	LT Growth Rate 3-5 Yr
	EPS	DPS	BPS	EPS	DPS	BPS	EPS	DPS	BPS	EPS (4)	DPS (4)	BPS (4)	EPS CAGR	EPS
13-week Dividend Yield	8.5%	9.3%	9.7%	9.1%	10.2%	9.9%	8.8%	9.7%	9.8%	10.9%	8.4%	10.8%	9.2%	9.2%
4-week Dividend Yield	8.6%	9.3%	9.7%	9.2%	10.3%	10.0%	8.9%	9.8%	9.9%	10.9%	8.5%	10.8%	9.2%	9.2%
1-week (Current) Dividend Yield	8.6%	9.4%	9.8%	9.3%	10.3%	10.1%	9.0%	9.9%	9.9%	11.0%	8.5%	10.9%	9.3%	9.3%
							Minimum	Average	Maximum					
							8.8%	9.5%	9.9%					
							Forecasted Growth Rate Averages + Value Line Div Yield Range	8.4%	9.7%	11.0%				

Mr. O'Donnell's Growth Rates (Exhibit KWO-2)														
Company	Forecasted Annualized Dividend Yield			Value Line									CFRA	Schwab
	13-Wks	4-Wks	Current	10-Year			5-Year			Forecasted (Est'd '18-'20 to '24-'26)			3-Year Projected	LT Growth Rate 3-5 Years
				EPS	DPS	BPS	EPS	DPS	BPS	EPS	DPS	BPS	EPS CAGR	EPS
Atmos Energy	2.7%	2.7%	2.8%	8.0%	5.0%	7.5%	9.0%	7.5%	10.0%	7.0%	7.5%	10.5%	8.0%	7.8%
Chesapeake Utilities	1.6%	1.5%	1.5%	9.5%	6.5%	9.5%	9.0%	7.5%	11.0%	8.5%	8.0%	6.5%	4.4%	-
New Jersey Resources	3.4%	3.5%	3.6%	6.0%	7.0%	7.5%	5.5%	6.5%	8.5%	2.0%	5.5%	5.5%	8.0%	6.0%
NiSource Inc	3.5%	3.5%	3.6%	2.0%	-1.5%	-3.0%	0.5%	-3.0%	-5.0%	9.5%	4.5%	4.5%	5.0%	-
Northwest Natural	3.6%	3.7%	3.7%	-1.5%	1.5%	1.0%	1.5%	0.5%	-	5.5%	0.5%	8.5%	4.0%	5.5%
ONE Gas Inc	3.2%	3.3%	3.4%	-	-	-	10.0%	14.5%	3.0%	6.5%	7.0%	10.5%	5.0%	5.0%
South Jersey Inds	5.0%	5.2%	5.3%	1.5%	6.5%	5.5%	-1.5%	4.0%	2.5%	11.5%	4.5%	6.5%	6.0%	4.8%
Southwest Gas	3.5%	3.5%	3.5%	7.5%	8.5%	6.0%	5.5%	8.0%	7.0%	9.0%	4.5%	6.0%	6.0%	4.0%
Spire Inc	3.7%	3.8%	4.0%	1.5%	4.5%	7.0%	4.5%	6.0%	5.5%	10.0%	4.5%	9.0%	4.0%	-
UGI Corp	3.0%	3.0%	3.0%	5.5%	8.0%	7.0%	7.0%	7.5%	5.5%	6.0%	4.5%	7.0%	8.0%	7.8%
AVERAGE	3.3%	3.4%	3.4%	4.4%	5.1%	5.3%	5.1%	5.9%	5.3%	7.6%	5.1%	7.5%	5.8%	5.8%
Avg Excl Negative Growth Rates				5.2%	5.9%	6.4%	5.8%	6.9%	6.6%	7.6%	5.1%	7.5%	5.8%	5.8%

Source: Exhibit KWO-2 and Exhibit KWO-5

Mr. Hinton's Exhibit 9 with Value Line Projected Return on Common Equity

	2015	2016	2017	2018	2019	2020	2024-2026
1 Atmos Energy	9.9%	10.1%	9.8%	9.3%	8.9%	8.6%	7.5%
2 Chesapeake Utilities	11.2%	10.0%	9.0%	10.9%	10.9%	10.1%	12.0%
3 MDU Resources	7.3%	9.7%	11.7%	10.5%	11.8%	12.7%	13.0%
4 National Fuel Gas	NMF	NMF	16.6%	20.2%	14.2%	NMF	16.5%
5 New Jersey Resources	13.9%	11.8%	12.1%	16.9%	11.3%	10.6%	10.5%
6 Northwest Natural	6.9%	6.9%	NMF	8.8%	7.5%	7.9%	7.0%
7 ONE Gas Inc.	6.5%	7.4%	8.2%	8.4%	8.8%	8.8%	6.5%
8 South Jersey Inds.	9.5%	8.0%	8.2%	9.2%	7.2%	9.8%	13.0%
9 Southwest Gas	8.7%	9.1%	9.6%	8.1%	8.5%	8.7%	9.0%
10 Spire Inc.	8.7%	8.2%	8.1%	9.5%	7.9%	3.2%	7.5%
11 UGI Corp.	13.1%	12.6%	12.9%	13.2%	10.8%	13.6%	12.5%
Average	9.6%	9.4%	10.6%	11.4%	9.8%	9.4%	10.45%

	<u>Average</u>	<u>Median</u>
2024-2026 only	10.45%	10.50%

Sources:

1. Hinton Exhibit 9; Value Line Investment Survey, August 27, 2021.

Summary of Capital Investment and Volumetric Risk Adjustment Mechanisms

Atmos Energy Corporation	ATO	Volumetric Risk	Capital Investment
Atmos Energy	Colorado	None	System Safety and Integrity Rider
Atmos Energy	Kansas	Weather Normalization Adjustment	Gas System Reliability Surcharge; System Integrity Plan
Atmos Energy	Kentucky	Weather Normalization Adjustment	Pipeline Replacement Rider
Atmos Energy	Louisiana	Weather Normalization Adjustment; Rate Stabilization Clause	Rate Stabilization Charge includes recovery of System Integrity Management Program costs
Atmos Energy	Mississippi	Weather Normalization Adjustment; Stable Rate Adjustment Rider	System Integrity Plan Rider; Stable Rate Adjustment Rider
Atmos Energy	Tennessee	Weather Normalization Adjustment; Formula Rate Plan	Annual Review Mechanism
Atmos Energy	Texas	Weather Normalization Adjustment; Rate Review Mechanism	Gas Reliability Infrastructure Program; Rate Review Mechanism
Atmos Energy	Virginia	Weather Normalization Adjustment	Infrastructure Reliability and Replacement Adjustment
Chesapeake Utilities Corporation	CPK	Volumetric Risk	Capital Investment
Chesapeake Utilities	Delaware	None	Distribution System Improvement Charge
Chesapeake Utilities	Maryland	Revenue Normalization Adjustment	None
Elkton Gas Company	New Jersey	Revenue Normalization Adjustment	None
Florida Public Utilities Company	Florida	Competitive Rate Adjustment	Gas Reliability Infrastructure Program
Sandpiper Energy	Maryland	None	System Improvement Rate
MDU Resources Group, Inc.	MDU	Volumetric Risk	Capital Investment
Cascade Natural Gas Corporation	Oregon	Conservation Alliance Plan Mechanism	None
Cascade Natural Gas Corporation	Washington	Decoupling Mechanism	Cost Recovery Mechanism - Elevated Risk Pipeline Facility Replacements
Great Plains Natural Gas Company	Minnesota	Revenue Decoupling Mechanism	Gas Utility Infrastructure Cost Adjustment
Great Plains Natural Gas Company	North Dakota	None	None
Intermountain Gas Company	Idaho	None	None
Montana-Dakota Utilities Co.	Montana	Conservation Program Tracking Mechanism	None
Montana-Dakota Utilities Co.	North Dakota	Distribution Delivery Stabilization Mechanism	None
Montana-Dakota Utilities Co.	South Dakota	Distribution Delivery Stabilization Mechanism	None
Montana-Dakota Utilities Co.	Wyoming	Weather normalization Purchased Gas Cost Adj	None
National Fuel Gas	NFG	Volumetric Risk	Capital Investment
National Fuel Gas Distribution Corp.	New York	Weather Normalization Adjustment; Revenue Decoupling Mechanism	System Modernization Tracker
National Fuel Gas Distribution Corp.	Pennsylvania	None	None
New Jersey Resources Corp.	NJR	Volumetric Risk	Capital Investment
New Jersey Natural Gas	New Jersey	Conservation Incentive Program	Safety, Access, and Facility Enhancement ("SAFE") program; NJ Reinvestment in System Enhancement Program (RISE)

NiSource Inc.		NI	Volumetric Risk	Capital Investment
Columbia Gas of Kentucky, Incorporated	Kentucky		Weather Normalization Adjustment	Safety Modification and Replacement Program Rider
Columbia Gas of Maryland, Incorporated	Maryland		Weather Normalization Adjustment; Revenue Normalization Adjustment	Infrastructure Replacement and Improvement Surcharge
Columbia Gas of Ohio, Incorporated	Ohio		Straight Fixed Variable Rate design	Infrastructure Replacement Program Rider; Capital Expenditure Program Rider
Columbia Gas of Pennsylvania, Inc.	Pennsylvania		Weather Normalization Adjustment	Distribution System Improvement Charge
Columbia Gas of Virginia, Incorporated	Virginia		Weather Normalization Adjustment; Revenue Normalization Adjustment	Infrastructure Reliability and Replacement Adjustment
Northern Indiana Public Service Company	Indiana		Gas Demand Side Management Rider	Transmission, Distribution, and Storage System Improvement Charge; Federally Mandated Cost Adjustment Rider
Northwest Natural Holding Company		NWN	Volumetric Risk	Capital Investment
Northwest Natural Gas	Oregon		Partial Decoupling Mechanism; Weather Adjusted Rate Mechanism	None
Northwest Natural Gas	Washington		None	None
ONE Gas, Inc.		OGS	Volumetric Risk	Capital Investment
Kansas Gas Service	Kansas		Weather Normalization Adjustment	Gas System Reliability Surcharge
Oklahoma Natural Gas	Oklahoma		Temperature Adjustment Clause; Performance Based Rate Change Plan	Performance Based Rate Change Plan
Texas Gas Service	Texas		Weather Normalization Adjustment	Gas Reliability Infrastructure Program
South Jersey Industries, Inc.		SJI	Volumetric Risk	Capital Investment
Elizabethtown Gas	New Jersey		Weather Normalization Clause	Infrastructure Investment Program ("IIP")
South Jersey Gas Company	New Jersey		Conservation Incentive Program	Accelerated Infrastructure Replacement Program; Storm Hardening and Reliability Program ("SHARP")
Southwest Gas		SWX	Volumetric Risk	Capital Investment
Southwest Gas Corporation	Arizona		Delivery Charge Adjustment	Customer Owned Yard Line Replacement Program
Southwest Gas Corporation	California		Fixed Cost Adjustment Mechanism	Infrastructure Reliability & Replacement Adjustment Mechanism
Southwest Gas Corporation	Nevada		General Revenues Adjustment	Gas Infrastructure Replacement Rate
Spire, Inc.		SR	Volumetric Risk	Capital Investment
Spire Alabama (Alabama Gas Corporation)	Alabama		Temperature Adjustment Clause; Rate Stabilization Clause	Accelerated Infrastructure Modernization Program; Rate Stabilization Clause
Spire Gulf Inc. (Mobile Gas Corporation)	Alabama		Weather Impact Normalization Factor; Rate Stabilization Clause	Cast Iron Main Replacement Factor; Rate Stabilization Clause
Spire Missouri East (Laclede Gas)	Missouri		Weather Normalization Adjustment	Infrastructure System Replacement Surcharge
Spire Missouri West (Missouri Gas Energy)	Missouri		Weather Normalization Adjustment	Infrastructure System Replacement Surcharge
UGI Corporation		UGI	Volumetric Risk	Capital Investment
UGI Utilities	Maryland		None	None
UGI Utilities	Pennsylvania		None	Distribution System Improvement Charge
			Volumetric Risk	Capital Investment
Public Service of North Carolina	North Carolina		Customer Utilization Tracker	Infrastructure Modernization Tracker

Sources: Individual company tariffs; 2020 SEC Form 10-K Reports; S&P Capital IQ, RRA Regulatory Focus, *Adjustment Clauses: A State-by-State Overview*, November 19, 2019

Seasonally Adjusted Unemployment rate

Correlation 2005-2020	96.10%
Correlation 2009-2020	96.38%

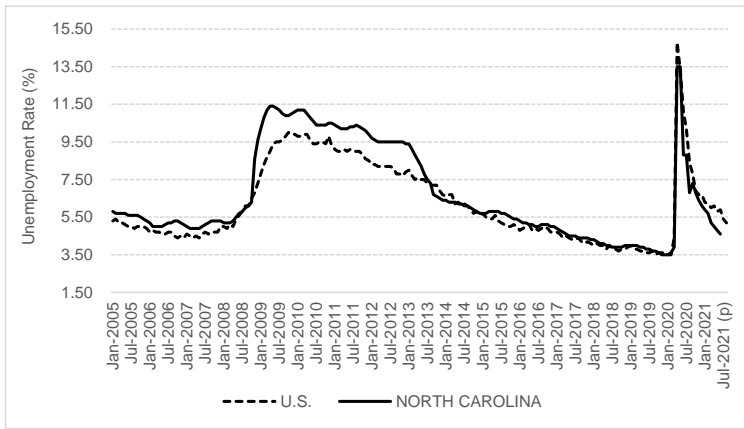
	U.S.	NORTH CAROLINA	NC - US
Jan-2005	5.30	5.80	0.50
Feb-2005	5.40	5.70	0.30
Mar-2005	5.20	5.70	0.50
Apr-2005	5.20	5.70	0.50
May-2005	5.10	5.70	0.60
Jun-2005	5.00	5.60	0.60
Jul-2005	5.00	5.60	0.60
Aug-2005	4.90	5.60	0.70
Sep-2005	5.00	5.60	0.60
Oct-2005	5.00	5.50	0.50
Nov-2005	5.00	5.40	0.40
Dec-2005	4.90	5.30	0.40
Jan-2006	4.70	5.20	0.50
Feb-2006	4.80	5.00	0.20
Mar-2006	4.70	5.00	0.30
Apr-2006	4.70	5.00	0.30
May-2006	4.60	5.00	0.40
Jun-2006	4.60	5.10	0.50
Jul-2006	4.70	5.20	0.50
Aug-2006	4.70	5.20	0.50
Sep-2006	4.50	5.30	0.80
Oct-2006	4.40	5.30	0.90
Nov-2006	4.50	5.20	0.70
Dec-2006	4.40	5.10	0.70
Jan-2007	4.60	5.00	0.40
Feb-2007	4.50	4.90	0.40
Mar-2007	4.40	4.90	0.50
Apr-2007	4.50	4.90	0.40
May-2007	4.40	4.90	0.50
Jun-2007	4.60	5.00	0.40
Jul-2007	4.70	5.10	0.40
Aug-2007	4.60	5.20	0.60
Sep-2007	4.70	5.30	0.60
Oct-2007	4.70	5.30	0.60
Nov-2007	4.70	5.30	0.60
Dec-2007	5.00	5.30	0.30
Jan-2008	5.00	5.20	0.20
Feb-2008	4.90	5.20	0.30
Mar-2008	5.10	5.20	0.10
Apr-2008	5.00	5.30	0.30
May-2008	5.40	5.50	0.10
Jun-2008	5.60	5.70	0.10
Jul-2008	5.80	5.80	-
Aug-2008	6.10	6.00	(0.10)
Sep-2008	6.10	6.10	-
Oct-2008	6.50	6.30	(0.20)
Nov-2008	6.80	8.60	1.80
Dec-2008	7.30	9.60	2.30
Jan-2009	7.80	10.20	2.40
Feb-2009	8.30	10.80	2.50
Mar-2009	8.70	11.20	2.50
Apr-2009	9.00	11.40	2.40
May-2009	9.40	11.40	2.00
Jun-2009	9.50	11.30	1.80
Jul-2009	9.50	11.20	1.70
Aug-2009	9.60	11.00	1.40
Sep-2009	9.80	10.90	1.10
Oct-2009	10.00	10.90	0.90
Nov-2009	9.90	11.00	1.10
Dec-2009	9.90	11.10	1.20
Jan-2010	9.80	11.20	1.40
Feb-2010	9.80	11.20	1.40
Mar-2010	9.90	11.20	1.30
Apr-2010	9.90	11.00	1.10
May-2010	9.60	10.80	1.20
Jun-2010	9.40	10.60	1.20

	U.S.	NORTH CAROLINA	NC - US
Jul-2010	9.40	10.40	1.00
Aug-2010	9.50	10.40	0.90
Sep-2010	9.50	10.40	0.90
Oct-2010	9.40	10.40	1.00
Nov-2010	9.80	10.50	0.70
Dec-2010	9.30	10.50	1.20
Jan-2011	9.10	10.40	1.30
Feb-2011	9.00	10.30	1.30
Mar-2011	9.00	10.20	1.20
Apr-2011	9.10	10.20	1.10
May-2011	9.00	10.20	1.20
Jun-2011	9.10	10.30	1.20
Jul-2011	9.00	10.30	1.30
Aug-2011	9.00	10.40	1.40
Sep-2011	9.00	10.30	1.30
Oct-2011	8.80	10.20	1.40
Nov-2011	8.60	10.10	1.50
Dec-2011	8.50	9.90	1.40
Jan-2012	8.30	9.70	1.40
Feb-2012	8.30	9.60	1.30
Mar-2012	8.20	9.50	1.30
Apr-2012	8.20	9.50	1.30
May-2012	8.20	9.50	1.30
Jun-2012	8.20	9.50	1.30
Jul-2012	8.20	9.50	1.30
Aug-2012	8.10	9.50	1.40
Sep-2012	7.80	9.50	1.70
Oct-2012	7.80	9.50	1.70
Nov-2012	7.70	9.50	1.80
Dec-2012	7.90	9.40	1.50
Jan-2013	8.00	9.40	1.40
Feb-2013	7.70	9.10	1.40
Mar-2013	7.50	8.80	1.30
Apr-2013	7.60	8.50	0.90
May-2013	7.50	8.20	0.70
Jun-2013	7.50	7.80	0.30
Jul-2013	7.30	7.50	0.20
Aug-2013	7.20	7.30	0.10
Sep-2013	7.20	6.70	(0.50)
Oct-2013	7.20	6.60	(0.60)
Nov-2013	6.90	6.50	(0.40)
Dec-2013	6.70	6.40	(0.30)
Jan-2014	6.60	6.40	(0.20)
Feb-2014	6.70	6.30	(0.40)
Mar-2014	6.70	6.30	(0.40)
Apr-2014	6.20	6.30	0.10
May-2014	6.30	6.20	(0.10)
Jun-2014	6.10	6.20	0.10
Jul-2014	6.20	6.10	(0.10)
Aug-2014	6.10	6.10	-
Sep-2014	5.90	6.00	0.10
Oct-2014	5.70	5.90	0.20
Nov-2014	5.80	5.80	-
Dec-2014	5.60	5.70	0.10
Jan-2015	5.70	5.70	-
Feb-2015	5.50	5.70	0.20
Mar-2015	5.40	5.80	0.40
Apr-2015	5.40	5.80	0.40
May-2015	5.60	5.80	0.20
Jun-2015	5.30	5.80	0.50
Jul-2015	5.20	5.70	0.50
Aug-2015	5.10	5.70	0.60
Sep-2015	5.00	5.60	0.60
Oct-2015	5.00	5.50	0.50
Nov-2015	5.10	5.40	0.30
Dec-2015	5.00	5.40	0.40
Jan-2016	4.80	5.30	0.50
Feb-2016	4.90	5.20	0.30
Mar-2016	5.00	5.20	0.20
Apr-2016	5.10	5.10	-

	U.S.	NORTH CAROLINA	NC - US
May-2016	4.80	5.10	0.30
Jun-2016	4.90	5.00	0.10
Jul-2016	4.80	5.00	0.20
Aug-2016	4.90	5.10	0.20
Sep-2016	5.00	5.10	0.10
Oct-2016	4.90	5.10	0.20
Nov-2016	4.70	5.00	0.30
Dec-2016	4.70	5.00	0.30
Jan-2017	4.70	4.90	0.20
Feb-2017	4.60	4.80	0.20
Mar-2017	4.40	4.70	0.30
Apr-2017	4.50	4.60	0.10
May-2017	4.40	4.50	0.10
Jun-2017	4.30	4.50	0.20
Jul-2017	4.30	4.50	0.20
Aug-2017	4.40	4.40	-
Sep-2017	4.20	4.40	0.20
Oct-2017	4.10	4.40	0.30
Nov-2017	4.20	4.40	0.20
Dec-2017	4.10	4.30	0.20
Jan-2018	4.00	4.30	0.30
Feb-2018	4.10	4.20	0.10
Mar-2018	4.00	4.10	0.10
Apr-2018	4.00	4.10	0.10
May-2018	3.80	4.00	0.20
Jun-2018	4.00	4.00	-
Jul-2018	3.80	3.90	0.10
Aug-2018	3.80	3.90	0.10
Sep-2018	3.70	3.90	0.20
Oct-2018	3.80	3.90	0.10
Nov-2018	3.80	4.00	0.20
Dec-2018	3.90	4.00	0.10
Jan-2019	4.00	4.00	-
Feb-2019	3.80	4.00	0.20
Mar-2019	3.80	4.00	0.20
Apr-2019	3.70	3.90	0.20
May-2019	3.70	3.90	0.20
Jun-2019	3.60	3.80	0.20
Jul-2019	3.60	3.80	0.20
Aug-2019	3.70	3.70	-
Sep-2019	3.50	3.70	0.20
Oct-2019	3.60	3.60	-
Nov-2019	3.60	3.50	(0.10)
Dec-2019	3.60	3.50	(0.10)
Jan-2020	3.50	3.50	-
Feb-2020	3.50	3.60	0.10
Mar-2020	4.40	3.90	(0.50)
Apr-2020	14.80	13.50	(1.30)
May-2020	13.30	13.50	0.20
Jun-2020	11.10	8.80	(2.30)
Jul-2020	10.20	8.80	(1.40)
Aug-2020	8.40	6.80	(1.60)
Sep-2020	7.80	7.30	(0.50)
Oct-2020	6.90	6.80	(0.10)
Nov-2020	6.70	6.40	(0.30)
Dec-2020	6.70	6.10	(0.60)
Jan-2021	6.30	5.90	(0.40)
Feb-2021	6.2	5.70	(0.50)
Mar-2021	6	5.20	(0.80)
Apr-2021	6.1	5.00	(1.10)
May-2021	5.8	4.80	(1.00)
Jun-2021	5.9	4.60	(1.30)
Jul-2021 (p)	5.4	4.4	\$ (1.00)
Aug-2021	5.2		

Notes:

Source: US. Bureau of Labor Statistics
<https://data.bls.gov/timeseries/LASST370000000000>
<https://apps.bea.gov/itable/itable.cfm?ReqID=70&s>
Accessed 09/10/2021



Not Seasonally Adjusted Unemployment Rate

Max	14.40	13.70	14.12
Jul 2021	5.70	4.60	4.53
Delta	(8.70)	(9.10)	(9.59)
		(0.66)	(0.68)

	US	NC
Correlation	94.81%	99.80%

	U.S.	North Carolina	PSNC Counties	NC - U.S.	NC - County	County - U.S.
Jan-2005	5.70	6.00	6.63	0.30	(0.63)	0.93
Feb-2005	5.80	6.20	6.82	0.40	(0.62)	1.02
Mar-2005	5.40	5.70	6.17	0.30	(0.47)	0.77
Apr-2005	4.90	5.40	5.64	0.50	(0.24)	0.74
May-2005	4.90	5.60	5.83	0.70	(0.23)	0.93
Jun-2005	5.20	5.90	6.01	0.70	(0.11)	0.81
Jul-2005	5.20	6.00	6.07	0.80	(0.07)	0.87
Aug-2005	4.90	5.60	5.77	0.70	(0.17)	0.87
Sep-2005	4.80	5.20	5.37	0.40	(0.17)	0.57
Oct-2005	4.60	5.20	5.38	0.60	(0.18)	0.78
Nov-2005	4.80	5.40	5.70	0.60	(0.30)	0.90
Dec-2005	4.60	5.10	5.43	0.50	(0.33)	0.83
Jan-2006	5.10	5.30	5.72	0.20	(0.42)	0.62
Feb-2006	5.10	5.40	5.82	0.30	(0.42)	0.72
Mar-2006	4.80	5.00	5.30	0.20	(0.30)	0.50
Apr-2006	4.50	4.70	4.93	0.20	(0.23)	0.43
May-2006	4.40	5.00	5.21	0.60	(0.21)	0.81
Jun-2006	4.80	5.30	5.45	0.50	(0.15)	0.65
Jul-2006	5.00	5.50	5.60	0.50	(0.10)	0.60
Aug-2006	4.60	5.30	5.37	0.70	(0.07)	0.77
Sep-2006	4.40	4.90	4.90	0.50	0.00	0.50
Oct-2006	4.10	4.80	4.82	0.70	(0.02)	0.72
Nov-2006	4.30	5.10	5.21	0.80	(0.11)	0.91
Dec-2006	4.30	4.90	5.01	0.60	(0.11)	0.71
Jan-2007	5.00	5.50	5.74	0.50	(0.24)	0.74
Feb-2007	4.90	5.30	5.53	0.40	(0.23)	0.63
Mar-2007	4.50	4.80	4.99	0.30	(0.19)	0.49
Apr-2007	4.30	4.80	5.03	0.50	(0.23)	0.73
May-2007	4.30	5.10	5.26	0.80	(0.16)	0.96
Jun-2007	4.70	5.20	5.27	0.50	(0.07)	0.57
Jul-2007	4.90	5.50	5.53	0.60	(0.03)	0.63
Aug-2007	4.60	5.20	5.23	0.60	(0.03)	0.63
Sep-2007	4.50	4.80	4.86	0.30	(0.06)	0.36
Oct-2007	4.40	4.90	4.89	0.50	0.01	0.49
Nov-2007	4.50	5.10	5.11	0.60	(0.01)	0.61
Dec-2007	4.80	5.20	5.32	0.40	(0.12)	0.52
Jan-2008	5.40	5.60	5.89	0.20	(0.29)	0.49
Feb-2008	5.20	5.50	5.79	0.30	(0.29)	0.59
Mar-2008	5.20	5.40	5.58	0.20	(0.18)	0.38
Apr-2008	4.80	5.00	5.22	0.20	(0.22)	0.42
May-2008	5.20	5.60	5.70	0.40	(0.10)	0.50
Jun-2008	5.70	5.90	5.93	0.20	(0.03)	0.23
Jul-2008	6.00	6.20	6.23	0.20	(0.03)	0.23
Aug-2008	6.10	6.10	6.16	0.00	(0.06)	0.06
Sep-2008	6.00	5.50	5.57	(0.50)	(0.07)	(0.43)
Oct-2008	6.10	5.70	5.84	(0.40)	(0.14)	(0.26)

	U.S.	North Carolina	PSNC Counties	NC - U.S.	NC - County	County - U.S.
Nov-2008	6.50	8.00	8.36	1.50	(0.36)	1.86
Dec-2008	7.10	9.10	9.71	2.00	(0.61)	2.61
Jan-2009	8.50	10.90	11.73	2.40	(0.83)	3.23
Feb-2009	8.90	11.60	12.41	2.70	(0.81)	3.51
Mar-2009	9.00	11.60	12.38	2.60	(0.78)	3.38
Apr-2009	8.60	11.30	12.12	2.70	(0.82)	3.52
May-2009	9.10	11.40	12.03	2.30	(0.63)	2.93
Jun-2009	9.70	11.50	11.99	1.80	(0.49)	2.29
Jul-2009	9.70	11.30	11.76	1.60	(0.46)	2.06
Aug-2009	9.60	11.00	11.37	1.40	(0.37)	1.77
Sep-2009	9.50	10.30	10.61	0.80	(0.31)	1.11
Oct-2009	9.50	10.30	10.61	0.80	(0.31)	1.11
Nov-2009	9.40	10.50	10.86	1.10	(0.36)	1.46
Dec-2009	9.70	10.80	11.35	1.10	(0.55)	1.65
Jan-2010	10.60	11.90	13.01	1.30	(1.11)	2.41
Feb-2010	10.40	12.00	13.04	1.60	(1.04)	2.64
Mar-2010	10.20	11.60	12.46	1.40	(0.86)	2.26
Apr-2010	9.50	10.80	11.44	1.30	(0.64)	1.94
May-2010	9.30	10.70	11.30	1.40	(0.60)	2.00
Jun-2010	9.60	10.70	11.27	1.10	(0.57)	1.67
Jul-2010	9.70	10.60	11.02	0.90	(0.42)	1.32
Aug-2010	9.50	10.40	10.74	0.90	(0.34)	1.24
Sep-2010	9.20	9.70	10.08	0.50	(0.38)	0.88
Oct-2010	9.00	9.80	10.15	0.80	(0.35)	1.15
Nov-2010	9.30	10.40	10.80	1.10	(0.40)	1.50
Dec-2010	9.10	10.30	10.88	1.20	(0.58)	1.78
Jan-2011	9.80	11.30	12.13	1.50	(0.83)	2.33
Feb-2011	9.50	10.70	11.46	1.20	(0.76)	1.96
Mar-2011	9.20	10.30	10.90	1.10	(0.60)	1.70
Apr-2011	8.70	9.80	10.23	1.10	(0.43)	1.53
May-2011	8.70	10.10	10.45	1.40	(0.35)	1.75
Jun-2011	9.30	10.60	10.90	1.30	(0.30)	1.60
Jul-2011	9.30	10.60	10.92	1.30	(0.32)	1.62
Aug-2011	9.10	10.50	10.76	1.40	(0.26)	1.66
Sep-2011	8.80	9.90	10.18	1.10	(0.28)	1.38
Oct-2011	8.50	9.90	10.20	1.40	(0.30)	1.70
Nov-2011	8.20	9.80	10.22	1.60	(0.42)	2.02
Dec-2011	8.30	9.80	10.36	1.50	(0.56)	2.06
Jan-2012	8.80	10.30	11.00	1.50	(0.70)	2.20
Feb-2012	8.70	10.00	10.69	1.30	(0.69)	1.99
Mar-2012	8.40	9.50	10.11	1.10	(0.61)	1.71
Apr-2012	7.70	9.00	9.43	1.30	(0.43)	1.73
May-2012	7.90	9.30	9.76	1.40	(0.46)	1.86
Jun-2012	8.40	9.70	10.08	1.30	(0.38)	1.68
Jul-2012	8.60	9.90	10.17	1.30	(0.27)	1.57
Aug-2012	8.20	9.80	10.01	1.60	(0.21)	1.81
Sep-2012	7.60	9.00	9.25	1.40	(0.25)	1.65
Oct-2012	7.50	9.20	9.47	1.70	(0.27)	1.97
Nov-2012	7.40	9.20	9.54	1.80	(0.34)	2.14
Dec-2012	7.60	9.40	9.87	1.80	(0.47)	2.27
Jan-2013	8.50	10.10	10.73	1.60	(0.63)	2.23
Feb-2013	8.10	9.40	9.97	1.30	(0.57)	1.87

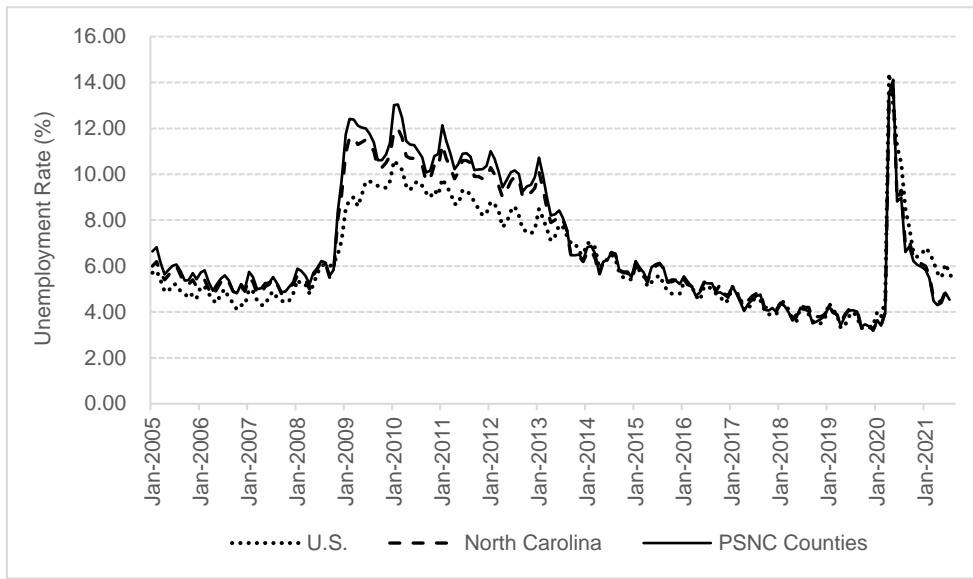
	U.S.	North Carolina	PSNC Counties	NC - U.S.	NC - County	County - U.S.
Mar-2013	7.60	8.50	8.98	0.90	(0.48)	1.38
Apr-2013	7.10	7.90	8.20	0.80	(0.30)	1.10
May-2013	7.30	8.00	8.26	0.70	(0.26)	0.96
Jun-2013	7.80	8.20	8.43	0.40	(0.23)	0.63
Jul-2013	7.70	8.00	8.09	0.30	(0.09)	0.39
Aug-2013	7.30	7.50	7.56	0.20	(0.06)	0.26
Sep-2013	7.00	6.40	6.47	(0.60)	(0.07)	(0.53)
Oct-2013	7.00	6.40	6.48	(0.60)	(0.08)	(0.52)
Nov-2013	6.60	6.40	6.50	(0.20)	(0.10)	(0.10)
Dec-2013	6.50	6.20	6.25	(0.30)	(0.05)	(0.25)
Jan-2014	7.00	6.60	6.82	(0.40)	(0.22)	(0.18)
Feb-2014	7.00	6.70	6.88	(0.30)	(0.18)	(0.12)
Mar-2014	6.80	6.30	6.53	(0.50)	(0.23)	(0.27)
Apr-2014	5.90	5.60	5.68	(0.30)	(0.08)	(0.22)
May-2014	6.10	6.20	6.20	0.10	0.00	0.10
Jun-2014	6.30	6.30	6.27	0.00	0.03	(0.03)
Jul-2014	6.50	6.60	6.59	0.10	0.01	0.09
Aug-2014	6.30	6.50	6.54	0.20	(0.04)	0.24
Sep-2014	5.70	5.80	5.84	0.10	(0.04)	0.14
Oct-2014	5.50	5.70	5.76	0.20	(0.06)	0.26
Nov-2014	5.50	5.70	5.77	0.20	(0.07)	0.27
Dec-2014	5.40	5.40	5.50	0.00	(0.10)	0.10
Jan-2015	6.10	6.00	6.22	(0.10)	(0.22)	0.12
Feb-2015	5.80	5.80	5.94	0.00	(0.14)	0.14
Mar-2015	5.60	5.60	5.72	0.00	(0.12)	0.12
Apr-2015	5.10	5.30	5.36	0.20	(0.06)	0.26
May-2015	5.30	5.90	5.96	0.60	(0.06)	0.66
Jun-2015	5.50	6.00	6.09	0.50	(0.09)	0.59
Jul-2015	5.60	6.10	6.14	0.50	(0.04)	0.54
Aug-2015	5.20	5.90	5.87	0.70	0.03	0.67
Sep-2015	4.90	5.30	5.29	0.40	0.01	0.39
Oct-2015	4.80	5.40	5.30	0.60	0.10	0.50
Nov-2015	4.80	5.40	5.37	0.60	0.03	0.57
Dec-2015	4.80	5.20	5.22	0.40	(0.02)	0.42
Jan-2016	5.30	5.40	5.55	0.10	(0.15)	0.25
Feb-2016	5.20	5.20	5.31	0.00	(0.11)	0.11
Mar-2016	5.10	5.10	5.09	0.00	0.01	(0.01)
Apr-2016	4.70	4.80	4.70	0.10	0.10	(0.00)
May-2016	4.50	4.90	4.86	0.40	0.04	0.36
Jun-2016	5.10	5.30	5.27	0.20	0.03	0.17
Jul-2016	5.10	5.30	5.25	0.20	0.05	0.15
Aug-2016	5.00	5.30	5.24	0.30	0.06	0.24
Sep-2016	4.80	4.90	4.83	0.10	0.07	0.03
Oct-2016	4.70	5.20	4.85	0.50	0.35	0.15
Nov-2016	4.40	4.80	4.76	0.40	0.04	0.36
Dec-2016	4.50	4.70	4.61	0.20	0.09	0.11
Jan-2017	5.10	5.10	5.12	0.00	(0.02)	0.02
Feb-2017	4.90	4.90	4.82	0.00	0.08	(0.08)
Mar-2017	4.60	4.50	4.44	(0.10)	0.06	(0.16)
Apr-2017	4.10	4.20	4.04	0.10	0.16	(0.06)
May-2017	4.10	4.50	4.35	0.40	0.15	0.25
Jun-2017	4.50	4.70	4.54	0.20	0.16	0.04

	U.S.	North Carolina	PSNC Counties	NC - U.S.	NC - County	County - U.S.
Jul-2017	4.60	4.80	4.69	0.20	0.11	0.09
Aug-2017	4.50	4.90	4.75	0.40	0.15	0.25
Sep-2017	4.10	4.20	4.10	0.10	0.10	(0.00)
Oct-2017	3.90	4.20	4.06	0.30	0.14	0.16
Nov-2017	3.90	4.30	4.17	0.40	0.13	0.27
Dec-2017	3.90	4.10	3.99	0.20	0.11	0.09
Jan-2018	4.50	4.40	4.36	(0.10)	0.04	(0.14)
Feb-2018	4.40	4.30	4.27	(0.10)	0.03	(0.13)
Mar-2018	4.10	4.00	3.99	(0.10)	0.01	(0.11)
April-2018	3.70	3.70	3.63	0.00	0.07	(0.07)
May-2018	3.60	3.90	3.77	0.30	0.13	0.17
Jun-2018	4.20	4.30	4.19	0.10	0.11	(0.01)
Jul-2018	4.10	4.20	4.10	0.10	0.10	0.00
Aug-2018	3.90	4.20	4.03	0.30	0.17	0.13
Sep-2018	3.60	3.70	3.50	0.10	0.20	(0.10)
Oct-2018	3.50	3.80	3.59	0.30	0.21	0.09
Nov-2018	3.50	3.80	3.69	0.30	0.11	0.19
Dec-2018	3.70	3.90	3.82	0.20	0.08	0.12
Jan-2019	4.40	4.30	4.26	(0.10)	0.04	(0.14)
Feb-2019	4.10	4.00	3.96	(0.10)	0.04	(0.14)
Mar-2019	3.90	3.90	3.88	0.00	0.02	(0.02)
April-2019	3.30	3.50	3.43	0.20	0.07	0.13
May-2019	3.40	3.90	3.80	0.50	0.10	0.40
Jun-2019	3.80	4.10	4.06	0.30	0.04	0.26
Jul-2019	4.00	4.10	4.07	0.10	0.03	0.07
Aug-2019	3.80	4.10	4.02	0.30	0.08	0.22
Sep-2019	3.30	3.40	3.35	0.10	0.05	0.05
Oct-2019	3.30	3.50	3.46	0.20	0.04	0.16
Nov-2019	3.30	3.50	3.38	0.20	0.12	0.08
Dec-2019	3.40	3.20	3.20	(0.20)	0.00	(0.20)
Jan-2020	4.00	3.60	3.64	(0.40)	(0.04)	(0.36)
Feb-2020	3.80	3.40	3.40	(0.40)	(0.00)	(0.40)
Mar-2020	4.50	4.00	3.96	(0.50)	0.04	(0.54)
April-2020	14.40	13.20	13.53	(1.20)	(0.33)	(0.87)
May-2020	13.00	13.70	14.12	0.70	(0.42)	1.12
Jun-2020	11.20	8.90	8.81	(2.30)	0.09	(2.39)
Jul-2020	10.50	9.30	8.98	(1.20)	0.32	(1.52)
Aug-2020	8.50	6.90	6.62	(1.60)	0.28	(1.88)
Sep-2020	7.70	7.10	6.84	(0.60)	0.26	(0.86)
Oct-2020	6.60	6.40	6.21	(0.20)	0.19	(0.39)
Nov-2020	6.40	6.30	6.06	(0.10)	0.24	(0.34)
Dec-2020	6.50	6.10	5.97	(0.40)	0.13	(0.53)
Jan-2021	6.80	6	5.84	(0.80)	0.16	(0.96)
Feb-2021	6.6	5.6	5.47	(1.00)	0.13	(1.13)
Mar-2021	6.2	4.6	4.49	(1.60)	0.11	(1.71)
Apr-21	5.7	4.4	4.30	(1.30)	0.10	(1.40)
May-2021	5.5	4.5	4.40	(1.00)	0.10	(1.10)
Jun-2021	6.1	4.9	4.84	(1.20)	0.06	(1.26)
Jul-2021	5.7	4.6	4.53	-1.1	0.07	(1.17)
Aug-2021	5.3					

Notes:

Source: US. Bureau of Labor Statistics, Federal Reserve Economic Data (St. Louis Federal Reserve Bank)
<https://fred.stlouisfed.org/series/UNRATENSA>

U.S. North Carolina PSNC Counties NC - U.S. NC - County County - U.S.
<https://fred.stlouisfed.org/series/NCURN>
Accessed: 09/10/2021



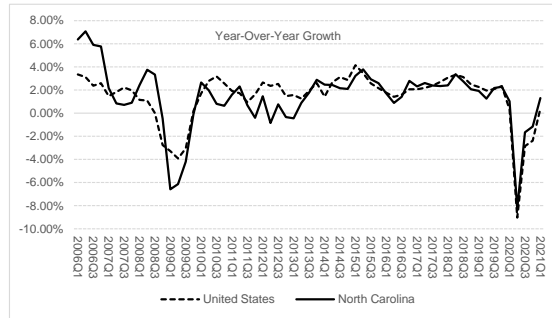
Real GDP by state (millions of chained 2012 dollars)
 Levels
 Bureau of Economic Analysis
 All Industry Total

Fips	Area	2005Q1	2005Q2	2005Q3	2005Q4	2006Q1	2006Q2	2006Q3	2006Q4	2007Q1	2007Q2	2007Q3	2007Q4
00000	United States	14,771,602	14,839,782	14,972,054	15,066,597	15,267,026	15,302,705	15,326,368	15,456,928	15,493,328	15,582,085	15,666,738	15,761,967
37000	North Carolina	402,903	403,129	407,392	411,752	428,580	431,655	431,467	435,482	437,892	435,257	434,524	439,397

Legend / Footnotes:

Note-- Real GDP is in millions of chained 2012 dollars. Industry detail is based on the 2012 North American Industry Classification System (NAICS).
 Last updated: June 25, 2021-- new statistics for 2021:Q1.

	2005Q1	2005Q2	2005Q3	2005Q4	2006Q1	2006Q2	2006Q3	2006Q4	2007Q1	2007Q2	2007Q3	2007Q4
United States					3.35%	3.12%	2.37%	2.59%	1.48%	1.83%	2.22%	1.97%
North Carolina					6.37%	7.08%	5.91%	5.76%	2.17%	0.83%	0.71%	0.90%
					1	1	1	1	1	0	0	0



Notes:

Source: <https://apps.bea.gov/itable/itable.cfm?ReqID=70&step=1&acrdn=1>
 Accessed: 09/13/2021

Area	2008Q1	2008Q2	2008Q3	2008Q4	2009Q1	2009Q2	2009Q3	2009Q4	2010Q1	2010Q2	2010Q3	2010Q4	2011Q1
United States	15,671,383	15,752,308	15,667,032	15,328,027	15,155,940	15,134,117	15,189,222	15,356,058	15,415,145	15,557,277	15,671,967	15,750,625	15,712,754
North Carolina	448,462	451,606	449,027	437,357	418,953	423,875	430,151	436,997	430,092	432,203	433,616	439,756	436,945

	2008Q1	2008Q2	2008Q3	2008Q4	2009Q1	2009Q2	2009Q3	2009Q4	2010Q1	2010Q2	2010Q3	2010Q4	2011Q1
United States	1.15%	1.09%	0.00%	-2.75%	-3.29%	-3.92%	-3.05%	0.18%	1.71%	2.80%	3.18%	2.57%	1.93%
North Carolina	2.41%	3.76%	3.34%	-0.46%	-6.58%	-6.14%	-4.20%	-0.08%	2.66%	1.96%	0.81%	0.63%	1.59%
	1	1	1	1	0	0	0	0	1	0	0	0	0

Area	2011Q2	2011Q3	2011Q4	2012Q1	2012Q2	2012Q3	2012Q4	2013Q1	2013Q2	2013Q3	2013Q4	2014Q1	2014Q2	2014Q3
United States	15,825,096	15,820,700	16,004,107	16,129,418	16,198,807	16,220,667	16,239,138	16,382,964	16,403,180	16,531,685	16,663,649	16,616,540	16,841,475	17,047,098
North Carolina	442,169	436,554	438,026	443,319	438,384	439,904	436,552	441,336	442,287	447,697	449,119	452,209	453,068	457,368

	2011Q2	2011Q3	2011Q4	2012Q1	2012Q2	2012Q3	2012Q4	2013Q1	2013Q2	2013Q3	2013Q4	2014Q1	2014Q2	2014Q3
United States	1.72%	0.95%	1.61%	2.65%	2.36%	2.53%	1.47%	1.57%	1.26%	1.92%	2.61%	1.43%	2.67%	3.12%
North Carolina	2.31%	0.68%	-0.39%	1.46%	-0.86%	0.77%	-0.34%	-0.45%	0.89%	1.77%	2.88%	2.46%	2.44%	2.16%
	1	0	0	0	0	0	0	0	0	0	1	1	0	0

Area	2014Q4	2015Q1	2015Q2	2015Q3	2015Q4	2016Q1	2016Q2	2016Q3	2016Q4	2017Q1	2017Q2	2017Q3	2017Q4	2018Q1
United States	17,143,038	17,305,752	17,422,845	17,486,021	17,514,062	17,613,264	17,668,203	17,764,388	17,876,179	17,977,299	18,054,052	18,185,636	18,359,432	18,530,483
North Carolina	458,537	466,770	470,195	470,785	470,394	474,711	474,388	477,450	483,548	485,660	486,751	488,842	494,854	497,315

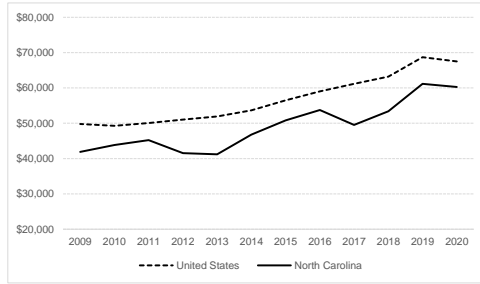
	2014Q4	2015Q1	2015Q2	2015Q3	2015Q4	2016Q1	2016Q2	2016Q3	2016Q4	2017Q1	2017Q2	2017Q3	2017Q4	2018Q1
United States	2.88%	4.15%	3.45%	2.57%	2.16%	1.78%	1.41%	1.59%	2.07%	2.07%	2.18%	2.37%	2.70%	3.08%
North Carolina	2.10%	3.22%	3.78%	2.93%	2.59%	1.70%	0.89%	1.42%	2.80%	2.31%	2.61%	2.39%	2.34%	2.40%
	0	0	1	1	1	0	0	0	1	1	1	1	0	0

Area	2018Q2	2018Q3	2018Q4	2019Q1	2019Q2	2019Q3	2019Q4	2020Q1	2020Q2	2020Q3	2020:Q4	2021:Q1
United States	18,654,383	18,752,355	18,813,923	18,950,347	19,020,599	19,141,744	19,253,959	19,010,848	17,302,511	18,596,521	18,794,426	19,086,375
North Carolina	503,156	502,255	505,095	506,882	509,507	513,147	516,624	512,066	467,579	504,659	510,654	518,767

	2018Q2	2018Q3	2018Q4	2019Q1	2019Q2	2019Q3	2019Q4	2020Q1	2020Q2	2020Q3	2020Q4	2021Q1
United States	3.33%	3.12%	2.48%	2.27%	1.96%	2.08%	2.34%	0.32%	-9.03%	-2.85%	-2.39%	0.40%
North Carolina	3.37%	2.74%	2.07%	1.92%	1.26%	2.17%	2.28%	1.02%	-8.23%	-1.65%	-1.16%	1.31%
	1	0	0	0	0	1	0	1	1	1	1	1
											Correlation	81.48%

Table H-8. Median Household Income by State: 1984 to 2019
 (Households as of March of the following year. Income in current and 2019 CPI-U-RS adjusted dollars (28). Beginning in 2010, standard errors were calculated using replicate weights)
 Current Dollars

		2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	COMPOUND ANNUAL GROWTH SINCE 2009	CORRELATION SINCE 2005
7	NOMINAL \$																		
	United States	67,521	68,703	63,179	61,136	59,039	56,516	53,657	51,939	51,017	50,054	49,276	49,777	50,303	50,233	48,201	46,326	2.81%	95.32%
41	North Carolina	60,266	61,159	53,369	49,547	53,764	50,797	46,784	41,208	41,553	45,206	43,830	41,906	42,930	43,513	39,797	42,056	3.36%	



Notes:

1. The source of these 2013 estimates is the portion of the CPS ASEC sample which received the income questions consistent with the 2013 CPS ASEC, approximately 68,000 addresses.
2. The 2017 estimates reflect the implementation of an updated data processing system, allowing users to evaluate the impact, and should be used to make comparisons to 2018 and subsequent years.

Sources: Tables H-8 <https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-income-households.html>
 Accessed: 09/13/2021