

**JOHN N. HUGHES**  
*Attorney at Law*  
Professional Service Corporation  
124 West Todd Street  
Frankfort, Kentucky 40601

Telephone: (502) 227-7270

[jnhughes@johnnhughespsc.com](mailto:jnhughes@johnnhughespsc.com)

November 18, 2021

Linda C. Bridwell  
Executive Director  
Public Service Commission  
211 Sower Blvd.  
Frankfort, KY 40601

Re: Atmos Energy Corporation  
Case No. 2021-00214

Dear Ms. Bridwell:

Atmos Energy Corporation submits its rebuttal testimony.

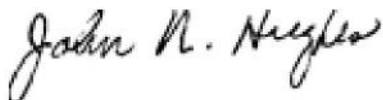
I certify that the electronic documents are true and correct copies of the original documents and that no party has been excused from electronic service.

If you have any questions about this filing, please contact me.

Submitted By:

Mark R. Hutchinson  
Wilson, Hutchinson and Littlepage  
611 Frederica St.  
Owensboro, KY 42301  
270 926 5011  
[randy@whplawfirm.com](mailto:randy@whplawfirm.com)

And



John N. Hughes  
124 West Todd St.  
Frankfort, KY 40601  
502 227 7270  
[jnhughes@johnnhughespsc.com](mailto:jnhughes@johnnhughespsc.com)

Attorneys for Atmos Energy Corporation

**BEFORE THE PUBLIC SERVICE COMMISSION**

**COMMONWEALTH OF KENTUCKY**

**APPLICATION OF ATMOS ENERGY )**  
**)**  
**CORPORATION FOR AN ADJUSTMENT ) Case No. 2021-00214**  
**)**  
**OF RATES AND TARIFF MODIFICATIONS )**

**REBUTTAL TESTIMONY OF JOE T. CHRISTIAN**

**November 18, 2021**

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1 **I. INTRODUCTON AND PURPOSE**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Joe T. Christian. My business address is 5420 LBJ Freeway, 1600  
4 Lincoln Centre, Dallas, TX 75240.

5 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

6 A. I am employed by Atmos Energy Corporation (“Atmos Energy” or “the Company”)  
7 as Director of Rates & Regulatory Affairs (Shared Services).

8 **Q. ARE YOU THE SAME JOE T. CHRISTIAN THAT FILED PREFILED**  
9 **TESTIMONY IN THIS PROCEEDING?**

10 A. Yes.

11 **Q. ARE YOU SPONSORING ANY EXHIBITS AS PART OF YOUR**  
12 **REBUTTAL TESTIMONY?**

13 A. Yes. I am sponsoring the following exhibits, which were prepared by me or under  
14 my direct supervision:

- 15 • Exhibit JTC-R-1 Select Updated Revenue Requirement Schedules
- 16 • Exhibit JTC-R-2 Key Financial Indicators
- 17 • Exhibit JTC-R-3 Moody’s Rating Methodology
- 18 • Exhibit JTC-R-4 Moody’s Report on Atmos Energy (12/2020)
- 19 • Exhibit JTC-R-5 O&M Base Period

20 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

21 A. The purpose of my testimony is to rebut the proposed adjustments to the Company’s  
22 proposed capital structure. The capital structure adjustments are recommended by

1 Attorney General's Office of Rate Intervention (OAG) witnesses Mr. Lane Kollen  
2 and Mr. Richard Baudino. I also rebut the proposed adjustments to the Company's  
3 cash working capital, the proposed adjustment to remove a regulatory asset related  
4 to rate case expense, the proposed adjustment to outside services and the proposed  
5 removal of American Gas Association (AGA) dues. These adjustments are all  
6 recommended by OAG witness Kollen. Finally, I rebut Mr. Kollen's rejection of  
7 our proposed bad debt expense tracker, his recommendation to change unprotected  
8 excess deferred income taxes (EDIT) amortization period from five years to three  
9 years, his rejection of our proposed changes to the PRP tariff.

10 **Q. ARE THEIR OTHER WITNESSES FILING REBUTTAL ON BEHALF OF**  
11 **THE COMPANY?**

12 A. Yes. In addition to myself the following witnesses are filing rebuttal on behalf of  
13 the Company:

- 14 • Ryan Austin is filing rebuttal testimony regarding the OAG's recommendations  
15 related to the Company's PRP tariff.
- 16 • Dylan D'Ascendis is filing rebuttal testimony regarding the OAG's  
17 recommendations regarding return on equity and the Company's proposed  
18 capitalization.
- 19 • Joel Multer, Vice-President of Tax, is filing rebuttal testimony regarding OAG's  
20 recommendations regarding accumulated deferred income tax rate base items  
21 as well as the amortization related to unprotected excess deferred income taxes  
22 from five years to three years.

1 **Q. DO YOU HAVE ANY OVERALL COMMENTS REGARDING THE OAG'S**  
2 **CASE BEFORE GETTING INTO THE SPECIFIC REBUTTAL ITEMS?**

3 A. Yes. As I noted in my direct testimony, the methods that I used to determine the  
4 Company's revenue requirement in this case are consistent with the Company's  
5 approach in prior cases before this Commission while recognizing and honoring the  
6 Commission's findings in the Final Order of Case No. 2017-00349 and Cases No.  
7 2018-00281<sup>1</sup>. The OAG's testimony, to the contrary, is not consistent with this  
8 Commission's prior orders and instead proposes several adjustments that, though  
9 individually small dollar adjustments, reflect an unreasonable chipping away at the  
10 overall regulatory balance found in the Commission's previous two orders.  
11 Moreover, the larger proposed adjustments to the Company's case related to capital  
12 structure and acceleration of excess deferred income taxes do not have any sound  
13 analysis provided to support the OAG's recommendation.

14 **Q. ARE THERE AREAS OF AGREEMENT BETWEEN THE OAG AND THE**  
15 **COMPANY?**

16 A. Yes, I do want to acknowledge the areas of no disagreement between the OAG's  
17 positions and the Company's positions, including:

- 18 • **Revenue at Present Rates, Depreciation Rates, Class Cost of Service –**  
19 OAG proposed no adjustments to the Company's revenue at present rates  
20 (Densman), depreciation rates (Watson), or class cost of service (Raab).

<sup>1</sup> *In the Matter of: Electronic Application of Atmos Energy Corporation for an Adjustment of Rates*, Direct Testimony and Exhibits of Joe Christian Direct at 9.

- 1           • **Exclusion of the Impact of Winter Storm Uri** – After reviewing the  
2           OAG’s discovery, the Company removed the impact of winter storm Uri on  
3           its deferred tax asset (DTA) net operating loss (NOL) related to regulated  
4           operations<sup>2</sup>.
- 5           • **Amortize Remaining Rate Case Expense from Case 2018-00281 Over**  
6           **Three Years** – The Company has updated its rate case amortization to  
7           reflect the OAG proposed adjustment.
- 8           • **Depreciation Regulatory Liability** – The Company proposed and OAG  
9           agrees that the Depreciation Regulatory Liability should be returned over a  
10          twelve month period beginning with the implementation of rates in this  
11          case.<sup>3</sup>
- 12          • **SSU Division 002 T-Lock Adjustment-Unrealized Gains Liability ADIT**  
13          – As more fully explained by Company witness Joel Multer, the Company  
14          has updated its revenue requirement to include deferred tax items in rate  
15          base related to long-term financing, subject to the corresponding amounts  
16          being reflected in the Company’s capital structure.
- 17          • **Other SSU Division 002 ADIT** – As more fully explained by Company  
18          witness Joel Multer, the Company has updated its revenue requirement to  
19          remove various deferred tax items from rate base related identified by the  
20          OAG.

<sup>2</sup> Company response to AG-20 subpart c. and Kollen Direct at 9. Please note that the Company had already removed the impact on its capital structure in its direct case, therefore a corresponding adjustment is necessary to properly synchronize with the accumulated deferred income taxes.

<sup>3</sup> Christian Direct at 43-4; *In the Matter of: Electronic Application of Atmos Energy Corporation for an Adjustment of Rates*, Direct Testimony and Exhibits of Mr. Lane Kollen at 4, however I do acknowledge that the AG’s one year recommendation is contingent on the overall resulting base rate change in this case.

1           • **Other Tariff Changes** – As more fully explained in Section VII, items 2. –  
2           7. in the direct testimony of Brannon Taylor, the Company has proposed a  
3           change to its PBR tariff and several tariff changes to its transportation terms  
4           and conditions.

5 **Q. ARE THERE OTHER ADJUSTMENTS THAT THE COMPANY HAS**  
6 **MADE TO ITS CASE THAT ARE MADE AS A RESULT OF THE AOG’S**  
7 **CASE?**

8 A. Yes, in preparing rebuttal the Company has made the following updates to reflect  
9 changes resulting from the OAG’s positions, but do not reflect full agreement:

10           • **DTA NOL ADIT beyond March 31, 2021** – In response to OAG’s  
11 adjustment the Company has updated the DTA NOL ADIT through the end  
12 of the base period (September 2021) based on the actual DTA NOL ADIT  
13 recorded on the Company’s books and records in September 2021. Mr.  
14 Multer discusses the deficiencies in Mr. Kollen’s partial fiscal year trending  
15 in more detail, the update through the end of the base period as well  
16 supporting no change for remaining three months prior to the start of the  
17 test period rather than the simplistic trending methodology proposed by Mr.  
18 Kollen<sup>4</sup>.

19 **Q. HAVE YOU REFLECTED THESE AREAS OF ALIGNMENT IN EXHIBIT**  
20 **JTC-R-1 ATTACHED TO YOUR TESTIMONY?**

21 A. Yes, these adjustments are reflected in Exhibit JTC-R-1 and change the Company’s

<sup>4</sup> Kollen Direct at 12.



1 requested base rate increase from \$16.390<sup>5</sup> million to \$15.131 million.

## 2 **II. SUMMARY OF TESTIMONY**

### 3 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS**

4 A. With regards to:

- 5 • **Capital Structure** – I reject Mr. Baudino and Mr. Kollen’s proposed  
6 adjustments to equity, short-term, and long-term debt as well as their  
7 adjustments to the cost of short-term and long-term debt and update the  
8 capital structure through September 2021 to reflect the changes to our  
9 capital structure and cost of debt through the end of the base period.
- 10 • **Rate Base Items** – I reject Mr. Mr. Kollen’s various adjustments to cash  
11 working capital and removal of the rate case expense regulatory asset.
- 12 • **Cost of Service Items** – I reject Mr. Kollen’s adjustments to outside  
13 services and AGA dues.
- 14 • **Bad Debt Regulatory Asset Tracker** – I clarify Mr. Kollen’s  
15 misunderstanding of our accounting vs. our requested level of bad debt  
16 expense, provide the accrued “per books” bad debt expense in comparison  
17 to our tracker proposal and address Commission requirements for  
18 establishment of a regulatory asset.
- 19 • **Unprotected Excess Deferred Income Tax Item** – I discuss the  
20 implications of changing the Company’s proposed five-year amortization  
21 on the financial metrics of the Company and continue to support five years  
22 as the appropriate time period for the Commission to authorize.

<sup>5</sup> The Company filed a revised base rate increase of \$15.052 million that reflected the removal of winter storm Uri from the DTA NOL ADIT as well as other minor changes.



1 term debt to 1% of the overall capital structure, characterizing the Company's  
2 proposed short-term debt as "inexplicably de minimis and unnecessarily and  
3 unreasonably increases the cost of capital and return on rate base<sup>10</sup>" Mr. Kollen also  
4 recommends that the Commission indicate an intention to transition to a minimum  
5 of 2% in the next base rate case proceeding<sup>11</sup>. Mr. Kollen moves the remainder of  
6 Mr. Baudino's recommendation on equity to long-term debt, using a 45.5% ratio  
7 for this case and that a complete transition be made to 48% in the next rate case<sup>12</sup>.  
8 Mr. Kollen's final recommendation is that the Commission scale down the  
9 commitment fees included in the base revenue requirement. In total, the OAG's  
10 recommendations result in a capital structure that has an overall weighted average  
11 cost of 6.65%<sup>13</sup>.

12 **Q. DID YOU PROACTIVELY RESPOND TO THE COMMISSION'S**  
13 **CONCERNS IN CASE NO. 2018-00218 IN YOUR DIRECT TESTIMONY?**

14 A. Yes<sup>14</sup>. In my direct testimony I did acknowledge the Commission's concerns and  
15 do appreciate the primary objection that OAG's witnesses raise -- equity capital  
16 costs more than debt capital. However, as I noted in Case No. 2018-00218, and  
17 reiterated in my direct testimony, the Company has analytically based reasons and  
18 has made business decisions in the best interest of all its stakeholders that result in  
19 a higher equity component as part of its capitalization. Atmos Energy's primary  
20 purpose in its capitalization strategy is to enable the Company to meet the need to

<sup>10</sup> Kollen at 38

<sup>11</sup> Kollen at 38. Mr. Kollen provided additional support for his 2% rational in response to Staff 1-3, comparing it to other utilities outcomes in Kentucky.

<sup>12</sup> Kollen at 39.

<sup>13</sup> Kollen at 43.

<sup>14</sup> Christian Direct at 52 – 57.

1 accelerate the modernization of its pipeline to effectively support the long-term  
2 safety of its system. This type of investment, which is contemplated and  
3 encouraged by the safety regulation governing our industry, results in an increased  
4 need to access the capital markets. To maintain our current credit rating assigned  
5 by the credit ratings agencies, we need the equity component of our capital structure  
6 to run in the upper end of our target range. The increase of the equity component  
7 in its overall capitalization allows the Company to access the debt markets at the  
8 lowest reasonable cost.

9 **Q. DID EITHER OF THE OAG’S WITNESSES PROVIDE ANY ANALYTICAL**  
10 **SUPPORT FOR THEIR CONCLUSIONS?**

11 A. No. Both Mr. Kollen and Mr. Baudino limit their analysis and recommendation to  
12 comparisons of the proxy group or other recent Commission outcomes involving  
13 Kentucky utilities. Neither Mr. Kollen nor Mr. Baudino performed analysis on the  
14 financial impact of their recommendations on the Company’s financial metrics.  
15 The primary concern of both witnesses is that the cost of equity as compared to the  
16 cost of debt<sup>15,16</sup>, and there is no acknowledgement given to the overall impact of  
17 implementing their recommendations on the Company’s ability to continue to raise  
18 external financing to continue making investment in its utility operations.

<sup>15</sup> Baudino at 29, “...and inflates the revenue requirement for Kentucky ratepayers.”

<sup>16</sup> Kollen at 36, “Common equity is by far and away the most expensive capital and it should be maintained at the lowest reasonable level, not the highest unreasonable level.”

1 **Q. HAVE YOU ANALYZED THE IMPACT OF THEIR PROPOSED CHANGES**  
2 **TO THE COMPANY'S CAPITAL STRUCTURE?**

3 A. Yes. Attached to my testimony as Exhibit JTC-R-2 is a comparison of the impact  
4 on the key financial indicators (KFIs) used by Standard & Poors Global Ratings  
5 (S&P). The comparison is between the Company's current long-term plan<sup>17</sup> for our  
6 Kentucky operations and the OAG's recommendations for our capital structure,  
7 return on equity, and acceleration of unprotected EDIT from five years to three  
8 years. While S&P evaluates Atmos Energy on a consolidated basis, the analysis is  
9 demonstrative of the impact OAG's recommendations would have if applied to the  
10 entire Company.

11 **Q. WHAT ARE THE RESULTS OF YOUR ANALYSIS?**

12 A. As shown in Exhibit JTC-R-2, the two primary core ratios (FFO/Debt and  
13 Debt/EBIDA) of Atmos Energy Corporation are in the Intermediate category which  
14 is the analytical basis for the Company's current debt rating<sup>18</sup>. Both KFIs are  
15 diminished from Intermediate to Significant when applying the recommendations  
16 of the OAG witnesses. In other words, if the Commission fully adopted OAG's  
17 recommendations the Kentucky operations would not pull the same weight in the  
18 generation of funds from operations or coverage of debt obligations as the  
19 Company's other utility operations. This decline would lead to a downgrade if  
20 Kentucky represented the entire Company, which in the long-term would drive  
21 higher financing costs for our utility customers.

<sup>17</sup> To be conservative, I used the current authorized return on equity of 9.65% to derive the KFIs.

<sup>18</sup> In order to exclude the short-term impact of winter storm Uri, I base exclude gas costs in deriving the KFIs and base my comments using S&P Global Ratings report on Atmos Energy dated October 29, 2020.

1 **Q. WHAT ELSE DOES EXHIBIT JTC-R-2 DEMONSTRATE?**

2 A. The KFIs demonstrate that the Company's proposed capital structure in this case  
3 produces funds from operations and debt coverage ratios that fall within the range  
4 of our consolidated capital structure. In other words, we are not proposing or  
5 requesting a capital structure with 57% equity to simply increase the Company's  
6 overall return for shareholders as implied by Mr. Baudino and Mr. Kollen.  
7 However, use of a hypothetical capital structure for ratemaking purposes with  
8 increased long-term debt as the OAG's witnesses suggest would negatively affect  
9 the Company's financial integrity and put the Company at risk of a credit rating  
10 downgrade and increases to the cost of debt financing, both of which adversely  
11 affect all of Atmos Energy's stakeholder groups, including its customers, its  
12 shareholders, and its bondholders.

13 **Q. DOES THE COMPANY'S PROPOSED CAPITAL STRUCTURE**  
14 **REPRESENT ITS ACTUAL COST OF DOING BUSINESS?**

15 A. Yes. As, as noted in my direct testimony, the Company uses its actual capital  
16 structure, which represents its actual costs. Mr. Kollen supports the use of a  
17 hypothetical capital structure by reiterating his claim that the Company's requested  
18 equity capitalization is "unreasonable and results in an excessive cost of capital"<sup>19</sup>.  
19 Neither Mr. Kollen or Mr. Baudino acknowledge that the Company has operated  
20 with a capital structure at its current capital structure since Case No. 2018-00281,  
21 thus further support for my arguments in Case No. 2018-00281 as well as this case  
22 that we have an analytical basis for our capital structure and have continued to have

<sup>19</sup> Kollen at 40.

1 a need to access the external capital market to support our capital investment in  
2 Kentucky as well as our other utility operations. This continued investment benefits  
3 our customers by enabling us to continue to provide safe and reliable service.

4 **Q. HAVE ANY OF THE INDUSTRY RATINGS AGENCY REPORTS ISSUED**  
5 **DRAWN THE CONTRAST BETWEEN ATMOS ENERGY’S STRONG**  
6 **BALANCE SHEET AND UTILITIES WITH WEAKER BALANCE**  
7 **SHEETS?**

8 A. Yes. On January 19, 2018, Moody’s Investors Service (“Moody’s”) revised  
9 downward its outlooks of 25 US regulated utilities due to the passage of the Tax  
10 Cuts and Jobs Act. Atmos Energy was not one of those 25 companies, primarily  
11 due to the Company’s strong credit metrics. On April 2, 2020 S&P noted in a  
12 comment that they were revising their assessment of the North America regulated  
13 utility industry to negative from stable and that many utilities with a stable outlook  
14 have minimal financial cushion at the current rating level. However, Atmos  
15 Energy’s business decisions that led to a healthy balance sheet have enabled it to  
16 continue to access the capital markets during the current market stress and continue  
17 with a stable outlook.

18 **Q. YOU DISCUSSED KFIs AND THE IMPACT ON ATMOS ENERGY OF THE**  
19 **OAG’S RECOMMENDATIONS, DO RATING AGENCIES PUBLISH**  
20 **REPORTS THAT PROVIDE TRANSPARENCY INTO HOW DEBT**  
21 **RATINGS ARE DERIVED AND THE IMPORTANCE OF KFIs ON THE**  
22 **DEBT RATING?**

1 A. Yes, both Moody's Investor Service and Standard and Poor's ("S&P") provide  
2 insight to investors regarding how debt ratings are assigned. Moody's issued an  
3 updated Rating Methodology for Regulated Electric and Gas Utilities on June 23,  
4 2017, and I have attached that to my testimony as Exhibit JTC-R-3 as an example  
5 of how Moody's assigns ratings.

6 **Q. HOW DOES MOODY'S INVESTOR SERVICE EVALUATE THE CREDIT**  
7 **RATING OF A UTILITY?**

8 A. As the opening Summary indicates, the rating methodology document explains  
9 Moody's approach to assessing credit risk for regulated electric and gas utilities  
10 globally in order to enable the reader to understand the qualitative considerations  
11 and financial information and ratios that are usually most important for ratings in  
12 the regulated electric and gas sector.

13 **Q. DOES THE MOODY'S REPORT DISCUSS HOW A REGULATORY**  
14 **DECISION IMPACTS RATING CONSIDERATIONS?**

15 A. Yes. Moody's indicates that an over-arching consideration for regulated utilities is  
16 the regulatory environment in which they operate. The report goes on to quantify  
17 the four factors that are considered when evaluating a utilities overall credit  
18 rating. These include, among others, Regulatory Framework (25%), Ability to  
19 Recover Costs and Earn Returns (25%), and Financial Strength, Key Financial  
20 Metrics (40%). The report describes all of the factors in detail, including why they  
21 are important and how they are evaluated.



1 **Q. WHY DOES MOODY’S SAY REGULATORY FRAMEWORK (25%) IS**  
2 **IMPORTANT?**

3 A. On Page 6 of the report under “Why It Matters” Moody’s states in part, “For rate-  
4 regulated utilities, which typically operate as a monopoly, the regulatory  
5 environment and how the utility adapts to that environment are the most important  
6 credit considerations.”

7 **Q. ARE THERE ANY KEY PASSAGES IN THIS SECTION THAT YOU**  
8 **WOULD LIKE TO HIGHLIGHT?**

9 A. Yes. Included in its more detailed description of Regulatory Framework, the report  
10 states, “A utility operating in a regulatory framework that, by statute or practice,  
11 allows the regulator to arbitrarily prevent the utility from recovering its costs or  
12 earning a reasonable return on prudently incurred investments, or where regulatory  
13 decisions may be reversed by politicians seeking to enhance their populist appeal  
14 will receive a much lower score.”

15 **Q. WHY DOES MOODY’S SAY ABILITY TO RECOVER COSTS AND EARN**  
16 **RETURNS (25%) IS IMPORTANT?**

17 A. On Page 12 of the report under “Why It Matters” Moody’s states in part, “The  
18 ability to recover prudently incurred costs on a timely basis and to attract debt and  
19 equity capital are crucial credit considerations.”

20 **Q. WHY DOES MOODY’S SAY FINANCIAL STRENGTH METRICS (40%)**  
21 **ARE IMPORTANT?**

22 A. On Page 20 of the report under “Why It Matters” Moody’s states, “Electric and gas  
23 utilities are regulated, asset-based businesses characterized by large investments in

1 long-lived property, plant, and equipment. Financial strength, including the ability  
2 to service debt and provide a return to shareholders, *is necessary for a utility to*  
3 *attract capital at a reasonable cost in order to invest* in its generation, transmission,  
4 and distribution assets, so that the utility can fulfill its service obligations at a  
5 reasonable cost to rate-payers.”(emphasis added)

6 **Q. HAS MOODY’S PROVIDED GUIDANCE AS WHAT CIRCUMSTANCES**  
7 **WOULD CAUSE MOODY’S TO DOWNGRADE THE COMPANY’S**  
8 **CREDIT RATING?**

9 A. Yes. In Moody’s Update to Credit Analysis of Atmos Energy dated December 11,  
10 2020, attached hereto as Exhibit JTC-R-4, Moody’s states that it “could consider a  
11 downgrade of Atmos’ rating should its regulatory constructs deteriorate as  
12 evidenced by lower earned returns or a weaker equity capitalization, management  
13 deviates materially from its balanced fiscal policy, or the company generates a CFO  
14 pre-WC to debt ratio below 23% on a sustained basis.” Moody’s also states  
15 that Atmos Energy’s rating outlook “reflects the company’s credit supportive  
16 regulatory construct and our expectation that management will continue to employ  
17 a balanced fiscal policy that will continue to result in consistent financial  
18 performance....”

19 **Q. ARE THERE OTHER WAYS THE COMPANY COULD INCREASE ITS**  
20 **FUNDS FROM OPERATIONS AND THUS SUPPORT CREDIT METRICS**  
21 **WITHOUT MAINTAINING AS HIGH AN EQUITY COMPONENT IN THE**  
22 **CAPITAL STRUCTURE?**

1 A. Yes, the Company could have proposed that its depreciation rates be based on the  
2 Equal Life Group (ELG) methodology, however the OAG advocated for and the  
3 Commission ordered in Case No. 2018-00281 that the Company utilize the Average  
4 Group Life (ALG) methodology. The ALG methodology had an approximate \$7.0  
5 million impact on the revenue requirement, which in turn lowers cash flow by \$7.0  
6 million annually. While the Commission delayed a portion of the impact on the  
7 Company's fund from operations, as can be seen in our proposed adjustment in this  
8 case we will be experiencing an outflow of \$9.9 million in the immediate twelve  
9 months following implementation of rates in this case<sup>20</sup>.

10 **Q. TURNING TO MR. KOLLEN'S SHORT-TERM AND LONG-TERM DEBT**  
11 **RECOMMENDATIONS, DO YOU AGREE THAT HIS 2% SHORT-TERM**  
12 **DEBT IS APPROPRIATE?**

13 A. No. The inverse of Mr. Kollen's argument that the equity component is too high,  
14 as mentioned above, is that short-term debt capitalization is inexplicably de  
15 minimis. He goes on to state that short-term debt is by far and away the least  
16 expensive capital and should be maintained at the highest reasonable level, not the  
17 lowest unreasonable level<sup>21</sup>. In response to Staff discovery request 1-3 Mr. Kollen  
18 expands on his recommendation by drawing comparisons to other Kentucky utility  
19 cases noting that 2% is the lower end of the mid-point of these utilities. Mr. Kollen  
20 simply plugs the difference in Mr. Baudino's equity percentage and the short-term

<sup>20</sup> I have excluded the impact of this one-time item from the KFIs to provide an unfiltered view of the OAG's recommendations on the Company's ability to finance its ongoing operations.

<sup>21</sup> Kollen at 37.

1 debt recommendation to arrive at the long-term debt percentage to utilize in this  
2 case so I will focus my rebuttal on his short-term arguments.

3 **Q. HAS THE COMPANY BEEN MORE ACTIVE IN THE DEBT CAPITAL**  
4 **MARKETS THE PAST FIVE YEARS?**

5 A. Yes. To fund a portion of our capital investment over the past four fiscal years<sup>22</sup>  
6 we have locked in historically low rates on \$3.250 billion, including \$2.675 billion  
7 incremental of long-term debt. In addition to improving the safety and reliability  
8 of our gas distribution system, the newer long-term debt has benefited our  
9 customers by lowering the weighted average cost of long-term debt from 5.2% to  
10 4.0%. Moreover, the Company has entered into forward starting interest rate swaps  
11 to effectively fix the Treasury yield component associated with \$1.850 billion of  
12 planned issuances over the next five fiscal years<sup>23</sup>.

13 **Q. IS THE MORE FREQUENT ACCESS TO THE CAPITAL MARKETS**  
14 **DONE TO MINIMIZE SHORT-TERM DEBT?**

15 A. No. In evaluating our issuances of long-term debt each year, the Company balances  
16 the need to carry short-term debt and the appeal of low short-term rates against the  
17 potential rise in interest rates, and consequently increased interest expense, against  
18 the certainty of locking in low interest rates available in the long-term debt markets.  
19 As highlighted by Mr. Kollen, other Kentucky utilities have a higher amount of  
20 short-term debt based on their needs. Higher or lower is not more or less correct in  
21 any utility's balance sheet management, simply different. This is a reflection of

<sup>22</sup> We have financed the remainder through issuances of additional equity and through reinvested funds from operations.

<sup>23</sup> Liquidity and Capital Resources section of 2021 10-K.

1 what each utility judges is best in regards to balancing the financing of ongoing  
2 operations, upcoming refinancing, short-term rates, and long-term rates available  
3 in the market.

4 **Q. DOES MR. KOLLEN'S RESPONSE TO STAFF'S REQUEST 1-3**  
5 **ACCOUNT FOR THE LEGAL ORGANIZATION OF OTHER KENTUCKY**  
6 **UTILITIES AND ATMOS ENERGY AND THE IMPACT ON HOW THE**  
7 **BALANCE SHEET IS MANAGED?**

8 A. No. I pointed out in my direct testimony that our Kentucky utility operations are  
9 within the consolidated entity of Atmos Energy Corporation, not a subsidiary under  
10 a holding company, and thus no separately issued or rated long-term debt. This is  
11 different than the holding company structure/subsidiary legal organization of the  
12 utilities cited in his answer. I do not know the specifics of how these utilities  
13 manage their balance sheet but am aware that often times there is a marked  
14 difference in the publicly traded holding company and the regulatory capital  
15 structure at the operating company level, thus introducing another layer of  
16 consideration when a holding company is managing its balance sheets (holding  
17 company and subsidiary) compared to the transparency of Atmos Energy's one  
18 consolidated balance sheet that is focused on maintaining one set of credit metrics  
19 while raising external financing and reinvesting over half its earnings back into its  
20 business in a balanced fashion.

1 **Q. BASED ON YOUR KNOWLEDGE, EXPERTISE, AND REVIEW OF**  
2 **FINANCIAL TREATISES, IS THERE SUCH A THING AS AN OPTIMAL**  
3 **CAPITAL STRUCTURE?**

4 A. No. See, for example, *New Regulatory Finance* by Roger A. Morin. After  
5 conducting a review of the various studies that have been performed and trade-offs  
6 involved in having a higher or lower debt ratio the author concludes, "...finance  
7 theory provides limited guidance on what a company's capital structure should be  
8 precisely. Capital structure decisions must be determined by managerial judgement  
9 and market data in contrast to the exact mathematical formulas resulting from the  
10 theories presented in this chapter. Financial theory provides benchmarks and useful  
11 data to assist management in capital structure decisions. Capital structure decisions  
12 depend critically on each company's own situation and level of business risk as  
13 well. The higher the business risk, the lower the debt ratio".<sup>24</sup>

14 **Q. HOW DOES THE SETTLED CAPITAL STRUCTURE/ROE AT THE**  
15 **SUBSIDIARY LEVEL COMPARE TO THE HOLDING COMPANY LEVEL**  
16 **OF SEPTEMBER 30, 2021?**

17 A. The capital structure and cost of capital components of Duke-Kentucky and  
18 Columbia Gas with the settled cost components applied to the parent company  
19 actual capital structure is:

<sup>24</sup> *New Regulatory Finance*, page 470.

	Duke-KY	Duke	Columbia	NiSource
Long-Term Debt Capitalization	46.039%	54.074%	44.250%	57.033%
Short-Term Debt Capitalization	2.617%	1.806%	3.110%	2.345%
Equity Capitalization	51.344%	44.119%	52.640%	40.623%
Total Capitalization	100.00%	100.00%	100.00%	100.00%
Applied to Holding Company				
Long-Term Debt Cost	1.683%	1.977%	1.934%	2.492%
Short-Term Debt Cost	0.044%	0.030%	0.040%	0.030%
Equity Rate Cost	4.814%	4.533%	4.922%	4.373%
Weighted Average Cost of Capital-HoldCo	6.540%	6.540%	6.896%	6.896%
1 Resulting ROE		<b>10.275%</b>		<b>10.765%</b>

2 **Q. WHAT DOES THIS COMPARISON DEMONSTRATE?**

3 A. This comparison demonstrates that by holding the weighted average cost of capital  
4 constant, applying the debt cost components derived at the subsidiary level to the  
5 consolidated total company debt and then backing into the weighted average equity  
6 cost results in an ROE, applied to the holding company equity, of 10.275% and  
7 10.765%. The consequences of the “lower” equity capitalization levels cited by  
8 Mr. Kollen actually result in a higher effective ROE at the holding company. I  
9 would argue that on an overall basis these companies are getting exactly what the  
10 Company is advocating for in this case – a reasonable opportunity to recovery of  
11 our actual cost of our capital financing costs.

12 **IV. RATE BASE**

13 **Q. PLEASE DESCRIBE MR. KOLLEN’S RECOMMENDATIONS AND**  
14 **ADJUSTMENTS TO RATE BASE.**

15 A. Mr. Kollen recommends three adjustments to cash working capital, including the  
16 addition of accounts payable related to construction<sup>25</sup>, a correction to depreciation  
17 expense lag<sup>26</sup>, and to flow through changes resulting from other OAG

<sup>25</sup> Kollen, Page 20

<sup>26</sup> Kollen, Page 26

1 recommendations.<sup>27</sup> Mr. Kollen also recommends removing the regulatory asset  
2 related to rate case expense from rate base<sup>28</sup> and adjusting rate base to reflect a three  
3 year amortization rather than five year amortization for the Company's proposed  
4 return of unprotected EDIT.<sup>29</sup>

5 **Q. DO YOU AGREE WITH MR. KOLLEN'S RATIONALE FOR MAKING AN**  
6 **ADDITION OF ACCOUNTS PAYABLE RELATED TO CONSTRUCTION**  
7 **TO CASH WORKING CAPITAL?**

8 A. No. As noted in my direct testimony, the Company has followed the same  
9 methodologies as was filed and approved in Case Nos. 2017-00349 and 2018-  
10 00281 as filed, despite items in the study being litigated by Mr. Kollen. He now  
11 introduces a new methodology that has not been included in the Company's  
12 previous lead/lag studies that results in a lowering of our requested rate base related  
13 to working capital.

14 **Q. ARE THERE ANY FLAWS IN HIS TESTIMONY REGARDING WHAT**  
15 **THE COMPANY INCLUDES/EXCLUDES IN ITS RATE BASE?**

16 A. Yes. In Case No. 2017-00349 Mr. Kollen recommended removing prepaids from  
17 rate base (page 36 of his testimony) and we agreed in rebuttal to remove prepaids  
18 (page 15 of my rebuttal) however on page 29 of his testimony in this case Mr.  
19 Kollen says that the accounts payable amounts related to capital expenditures must  
20 be considered separately and subtracted directly from rate base in the same manner

<sup>27</sup> Kollen, Page 27

<sup>28</sup> Kollen, Page 22

<sup>29</sup> Kollen, Page 30



1 that the materials and supplies and the prepayments are considered separately and  
2 added directly to rate base as components of the other working capital allowances.

3 **Q. DID THE COMPANY INCLUDE PREPAYMENTS AS A SEPARATE RATE**  
4 **BASE ITEM IN THIS CASE?**

5 A. No. As shown on FR 16(8)(b)4.1, Schedule B-4.1 F we have not changed  
6 methodologies since 2017-0034 regarding our rebuttal position and prepayments.

7 **Q. WAS MR. KOLLEN ABLE TO PROVIDE ANY OTHER SUPPORT FOR**  
8 **THIS NEW METHODOLOGY, THE REMOVAL OF ACCOUNTS**  
9 **PAYABLE RELATED TO CONSTRUCTION?**

10 A. In response to discovery, Mr. Kollen cited a similar adjustment being accepted in  
11 Case No. 2020-00174 and one other Kentucky utility accepting the approach as part  
12 of an overall settlement, however no other examples could be provided to support  
13 this change in methodology.

14 **Q. SHOULD THE COMMISSION BE CONSISTENT AMONG UTILITIES ON**  
15 **THIS PARTICULAR POINT?**

16 A. I am aware and have utilized a comprehensive balance sheet approach as required  
17 in a Virginia case<sup>30</sup>. There are other approaches that can be taken to arriving at a  
18 proper working capital allowance, however I do not think that it is appropriate to  
19 select a single item and add it to a methodology that has been accepted by this  
20 Commission in our previous two cases.

<sup>30</sup> Case No. PUE-2015-00119.

1 **Q. DO YOU AGREE WITH MR. KOLLEN'S RATIONALE FOR EXCLUDING**  
2 **DEPRECIATION EXPENSE FROM THE CASH WORKING CAPITAL**  
3 **STUDY?**

4 A. I addressed the rationale for inclusion of depreciation expense in my direct  
5 testimony<sup>31</sup>. The inclusion of depreciation expense in the study and assigning a  
6 zero payment lag, recognizes that the investor funding has occurred, but that it has  
7 not been recovered from the customer. Even though depreciation expense is  
8 recorded as a cost, the recovery is delayed for the duration of the billing lag, no  
9 double counting occurs in relation to the recording of depreciation expense as  
10 alleged by Mr. Kollen. The cumulative amount of depreciation expense  
11 (accumulated depreciation) is a measure of the total consumption of capital  
12 investment to date. As the expense is recorded, equal revenues are recoverable  
13 from customers as payment to investors and the accumulated provision is  
14 deducted from rate base. The recording of expense presumes recovery, but in fact  
15 it is offset with an entry to accounts receivable from customers. The expense is  
16 recorded in one period and the receipt of funds, the recovery, occurs in the  
17 subsequent month.

18 **Q. DO YOU AGREE WITH MR. KOLLEN'S RATIONALE FOR MAKING A**  
19 **CORRECTION RELATED TO DEPRECIATION EXPENSE LAG TO**  
20 **CASH WORKING CAPITAL?**

21 A. No. As illustrated in the previous response, Mr. Kollen's timing, as explained  
22 beginning on page 25 of his testimony, confuses the timing of the recordation of

<sup>31</sup> Christian, Page 70, 71.

1 expense and the subsequent collection from the customer. His suggestion that the  
2 Company earns a return on depreciation expense is a very novel concept. The  
3 recording may occur at the end of the month, but the provision of service received  
4 by the customer is throughout the month and payment is made subsequent to  
5 month end. His proposed solution of modifying the expense lag is incorrect and  
6 should be rejected.

7 **Q. DO YOU AGREE THAT ANY ADJUSTMENTS TO THE REVENUE**  
8 **REQUIREMENT MODEL SHOULD BE FLOWED THROUGH THE CASH**  
9 **WORKING CAPITAL MODEL?**

10 A. Yes, although I disagree with Mr. Kollen's proposed adjustments discussed above,  
11 I do agree that when we updated our model in August 2021 in response to Staff 1-  
12 55 (supplement), the impact of the change had not been flowed through the cash  
13 working capital study. I would note that the impact of changes to our rebuttal  
14 model, attached as JTC-R-1, do include a synchronization with the cash working  
15 capital model.

16 **Q. DO YOU AGREE WITH MR. KOLLEN'S EXCLUSION OF THE**  
17 **REGULATORY ASSET RELATED TO RATE CASE EXPENSE SHOULD**  
18 **BE EXCLUDED FROM RATE BASE?**

19 A. No. The Company's inclusion of a regulatory asset related to rate case expense is  
20 consistent with our previous cases.

1 **Q. IS MR. KOLLEN'S RATIONALE FOR EXCLUDING THIS RATE BASE**  
2 **ITEM REASONABLE?**

3 A. No. First, Mr. Kollen suggests that the customer does not receive a benefit from  
4 the regulatory asset. The very strong implication is that customers do not benefit  
5 from just and reasonable rates, which is incorrect. Next, Mr. Kollen suggests that  
6 the shareholder will benefit from a declining balance as the asset amortizes,  
7 however he neglects to mention that many, if not all, of the Company's other rate  
8 base items change balances after the test period end, including continued capital  
9 investments that can only be included in customer rates after a full rate case  
10 proceeding (non-PRP expenditures). Thus, by definition (to use his term) the  
11 Company will not recover these assets that are not included in rate base subsequent  
12 to the end of the test period. His concerns over the regulatory asset related to rate  
13 case expenses are misplaced.

14 **Q. DO YOU AGREE WITH MR. KOLLEN'S PROPOSED ADJUSTMENTS TO**  
15 **RATE BASE RELATED TO CHANGING THE LIFE OF UNPROTECTED**  
16 **EDIT AMORTIZATION PERIOD FROM THE PROPOSED FIVE YEARS**  
17 **DOWN TO THREE YEARS?**

18 A. I do agree with the premise that rate base does need to reflect an adjustment,  
19 however as discussed further in Section VI, I believe that the period should remain  
20 at the Company recommended five years.

1 **Q. ARE MR. KOLLEN'S ADJUSTMENTS ACCUMULATED DEFERRED**  
2 **INCOME TAXES ADDRESSED BY OTHER COMPANY WITNESSES?**

3 A. Yes. Mr. Multer addresses the proposed changes related to the proposed reduction  
4 related to the deferred tax asset NOL to reflect changes between April 1, 2021 –  
5 December 31, 2021, Mr. Kollen's proposed adjustments to Other SSU Division 002  
6 ADIT items, and his proposed adjustment to SSU Division 002 T-Lock Adjustment-  
7 Unrealized Gains Liability ADIT.

8 **V. COST OF SERVICE ADJUSTMENTS**

9 **Q. PLEASE DESCRIBE MR. KOLLEN'S RECOMMENDATIONS FOR COST**  
10 **OF SERVICE ADJUSTMENTS.**

11 A. Mr. Kollen recommends four adjustments to the cost of service items. First, he  
12 proposes a reduction to outside services expense to match the annualized actual  
13 expense during the base period<sup>32</sup>. He proposes a correction to the amortization of  
14 rate case expense<sup>33</sup> and the removal of AGA dues in accordance with Commission  
15 precedent unless the Company can provide the requisite affirmative proof<sup>34</sup>.  
16 Finally, he proposes three years for the amortization period of unprotected EDIT.<sup>35</sup>

17 **Q. DO YOU AGREE WITH MR. KOLLEN'S REDUCTION TO OUTSIDE**  
18 **SERVICES EXPENSE?**

19 A. No. Mr. Kollen has selected one category out of our overall expenses to propose  
20 an adjustment. A more reasonable approach is to look at the overall O&M in order

<sup>32</sup> Kollen at 29

<sup>33</sup> Kollen at 32

<sup>34</sup> Kollen at 36

<sup>35</sup> Kollen at 30

1 to include both budget categories that are higher and lower, not just one item that  
2 is higher by historical standards as Mr. Kollen's methodology relies upon.

3 **Q. HOW DO THE BASE PERIOD EXPENSES IN THE COMPANY'S**  
4 **ORIGINAL FILING, WHICH WAS 6 MONTHS ACTUAL PLUS 6 MONTHS**  
5 **BUDGET, COMPARE TO 12 MONTHS OF ACTUAL BASE PERIOD**  
6 **EXPENSE?**

7 A. Exhibit JTC-R-5 compares the overall O&M in the base period "as filed" of  
8 \$31.312 million to the actual base period amount of \$32.015 million or 2.25%  
9 higher than anticipated. Excluding bad debt expense the variance was .42% lower  
10 than anticipated. By looking at all of the categories and anticipating that cost  
11 pressures in an area, such as outside services, can be managed through and result  
12 in an overall O&M that comes in close to budget. I'll speak further to the bad debt  
13 expense in Section VI.

14 **Q. DO YOU AGREE WITH MR. KOLLEN'S REDUCTION TO RATE CASE**  
15 **EXPENSE?**

16 A. Yes. I have reviewed his adjustment and agree that we should have added the  
17 remaining unamortized amount for the prior case at December 31, 2021 to the  
18 forecast rate case expenses for this case. This change has been included in Exhibit  
19 JTC-R-1.

20 **Q. DO YOU AGREE WITH MR. KOLLEN'S REMOVAL OF AGA DUES?**

21 A. No. Mr. Kollen suggests that it is Commission precedent to remove these dues  
22 because Edison Electric Institute (EEI) dues have been removed in other cases

1 before the Commission suggesting that we are attempting to recover costs that do  
2 not provide a benefit to our customers.

3 **Q. HAS THE COMPANY REMOVED A PORTION OF AGA DUES RELATED**  
4 **TO LEGISLATIVE ADVOCACY?**

5 A. Yes. As provided in response to AG 1-02, subpart g., “For excluding a portion of  
6 AGA dues relating to lobbying activities, Atmos Energy looked at 2020 and 2021  
7 AGA dues invoices (please see Attachment 3 for 2020 and 2021 AGA invoices).  
8 The 2020 invoice indicates that 6.2% of AGA dues are allocable to lobbying  
9 whereas the 2021 invoice indicates that 3.8% of AGA dues are allocable to  
10 lobbying. To be conservative, Atmos Energy elected to use the 2020 percentage  
11 and excludes 6.2% of AGA dues from the forecasted test year revenue  
12 requirement.”

13 **Q. DOES THE COMPANY’S PARTICIPATION IN AGA, REPRESENTED BY**  
14 **THE NET REMAINING EXPENSE INCLUDED IN THE CASE, PROVIDE**  
15 **A BENEFIT TO CUSTOMERS?**

16 A. Yes. AGA's mission is to provide clear value to its membership and serve as the  
17 indispensable, leading voice and facilitator on its behalf in promoting the safe,  
18 reliable, and efficient delivery of natural gas to homes and businesses across the  
19 nation. Customers benefit from this advocacy as well as employee participation in  
20 AGA committee meetings that enable us to stay abreast of changes, implement best  
21 practices, and ensure that we are providing excellent customer service. In many  
22 respects our requisite benefit in AGA is similar to the benefits that Commissioners  
23 and Commission Staff receive through their membership and participation in the

1 National Association of Utility Regulatory Commissioners (NARUC) events and  
2 training.

3 **Q. DO YOU AGREE WITH MR. KOLLEN’S PROPOSED ADJUSTMENTS**  
4 **THE LIFE OF UNPROTECTED AMORTIZATION PERIOD FROM THE**  
5 **PROPOSED FIVE YEARS DOWN TO THREE YEARS?**

6 A. No, I discuss this more in Section VI.

7 **VI. POLICY ISSUES**

8 **Q. PLEASE DESCRIBE MR. KOLLEN’S REASONING FOR REJECTING**  
9 **THE COMPANY’S BAD DEBT EXPENSE TRACKER.**

10 A. Mr. Kollen describes the Company’s accounting for bad debt expense, which  
11 requires that the Company record estimated expense and record it to a reserve and  
12 then charge write-offs, net of recoveries, against this reserve. He suggests that  
13 establishing the Company’s proposed regulatory asset for bad debt expense would  
14 “overlay another deferral mechanism when one already exists”.<sup>36</sup>

15 **Q. IS MR. KOLLEN’S REASONING FLAWED?**

16 A. Yes. Mr. Kollen cites back to the Company’s response to AG 2-04; however, he  
17 fails to correctly interpret the response and therefore comes to an incorrect  
18 conclusion.

19 **Q. WHAT DOES MR. KOLLEN MISUNDERSTAND ABOUT THE**  
20 **COMPANY’S RESPONSE TO AG 2-04?**

21 A. We state in the response that the accounting is for GAAP purposes and go on to  
22 describe how it is recorded on the books and records of the Company. The response

<sup>36</sup> Kollen at 34



1 then goes on to explain the regulatory asset proposal and how it would interact with  
2 our GAAP expense but does not suggest that our recovery in this case is based on  
3 the higher than ordinary “per book” expense currently being experienced due to the  
4 COVID-19 Pandemic. When asked in discovery if his recommendation was to  
5 therefore use FERC account 9040 per books as our basis for bad debt expense  
6 (GAAP) in this case, he rejected the suggestion stating that he recommended no  
7 changes to our requested expense<sup>37</sup>. His response indicates a disconnect between  
8 his understanding of what we have included in our revenue requirement for bad  
9 debt expense (described in my direct testimony beginning at page 36) and what is  
10 recorded for GAAP purposes.

11 **Q. DOES THE COMMISSION HAVE CRITERIA WHEN CONSIDERING**  
12 **THE AUTHORIZATION OF A REGULATORY ASSET FOR A UTILITY?**

13 A. Yes. As I understand it, the Commission looks at four criteria when establishing a  
14 regulatory asset. The four criteria under which the Commission approves  
15 establishing a regulatory asset are: (1) an extraordinary, nonrecurring expense  
16 which could not have reasonably been anticipated or included in the utility's  
17 planning; (2) an expense resulting from a statutory or administrative directive; (3)  
18 an expense in relation to an industry-sponsored initiative; or (4) an extraordinary or  
19 nonrecurring expense that over time will result in a saving that fully offsets the cost.

<sup>37</sup> OAG Response to Atmos Energy 1-8.

1 **Q. HAS THE COMPANY'S REQUEST TO ESTABLISH A REGULATORY**  
2 **ASSET FOR BAD DEBT EXPENSE MET ANY OF THESE CRITERIA?**

3 A. Yes. As explained in my direct testimony<sup>38</sup>, the Commission criteria 1 and criteria  
4 2 from above are met because of the uncertainty surrounding COVID-19 Pandemic.  
5 In part due to the Commission action to suspend collections for a period of time  
6 and in part due to the uncertainty of our customer's ability to pay their bills resulting  
7 in the same overall level of write-off percentage (.5%). While these costs are  
8 expected to be extra-ordinary and non-recurring at a higher level for some period  
9 of time, long-term there will not be a full offset to future costs.

10 **Q. SHOULD THE COMMISSION HEED MR. KOLLEN'S**  
11 **RECOMMENDATION TO REJECT OUR REQUEST TO ESTABLISH A**  
12 **REGULATORY ASSET?**

13 A. No, Mr. Kollen's reasoning is flawed. The Company does meet criteria set for by  
14 the Commission, therefore the Commission should authorize that a regulatory asset  
15 be established for amounts above (or below) the benchmark established in this rate  
16 case. Any over or under will be evaluated and amortized in the Company's next  
17 case.

18 **Q. TURNING NOW TO THE UNPROTECTED EDIT AMORTIZATION**  
19 **PERIOD, PLEASE DESCRIBE MR. KOLLEN'S REASONING FOR**  
20 **PROPOSING A THREE YEAR AMORTIZATION FOR UNPROTECTED**  
21 **EDIT.**

<sup>38</sup> Christian direct at 36.

1 A. Mr. Kollen recommends that the Commission amortize the unprotected EDIT over  
2 three years which is consistent with rate case expenses.<sup>39</sup>

3 **Q. DOES THE COMMISSION HAVE THE DISCRETION TO SELECT THE**  
4 **AMORTIZATION PERIOD FOR UNPROTECTED EDIT?**

5 A. Yes. As I noted in my direct testimony, Revenue Procedure 2020-39 states that the  
6 appropriate amortization or other ratemaking treatment of timing differences  
7 unrelated to accelerated depreciation, such as unprotected plant or non-plant items,  
8 are to be determined by the regulator in a rate proceeding, consistent with the  
9 regulatory authority over the ratemaking treatment of all other elements of  
10 jurisdictional cost of service.

11 **Q. WHY DID THE COMPANY CHOOSE FIVE YEARS?**

12 A. The Company evaluated the overall amount of unprotected in the context of the  
13 Company's overall external financing needs and chose a period that, while driving  
14 higher financing needs, strikes an appropriate balance with consideration of overall  
15 financial metrics and would not be likely to result in a downgrade by either of the  
16 debt ratings agencies. However, some regulators have chosen a shorter period and  
17 the Company is complying with their orders and lowering rates to reflect the period  
18 chosen.

19 **Q. DOES THE CUSTOMER BENEFIT FROM AMORTIZATION OVER A**  
20 **LONGER PERIOD OF TIME?**

21 A. Yes. As demonstrated in the OAG's recommendation, to shorten the time period,  
22 this results in a higher rate base. In other words, the customer gets the benefit of

<sup>39</sup> Kollen at 30.

1 reduced rate base for a longer period of time under the Company’s proposal;  
2 therefore, there is a benefit in customer rates of a longer amortization period.

3 **Q. DID YOU INCLUDE THE IMPACT ON THE COMPANY’S KFIs OF THE**  
4 **THREE YEAR AMORTIZATION OF EDIT?**

5 A. Yes. Shortening the period from five to three years is reflected, and therefore a  
6 contributor to the reduction in KFIs shown in JTC-R-2.

7 **Q. TURNING NOW TO THE COMPANY’S PRP TARIFF CHANGE, PLEASE**  
8 **DESCRIBE MR. KOLLEN’S RECOMMENDATION RELATED TO**  
9 **ALDYL-A INCLUSION IN THE PRP RIDER?**

10 A. Mr. Kollen recommends that the Commission reject the Company’s proposed  
11 accelerated Aldyl-A replacement at this time and at any time in the future prior to  
12 the completion of the Company’s accelerated bare steel program. In arriving at his  
13 recommendation, he alleges that, “It certainly does not make sense to authorize  
14 Atmos to undertake an accelerated Aldyl-A replacement program without adequate  
15 regulatory controls in place to avoid a repeat of the problems that have plagued the  
16 accelerated bare steel replacement program.”<sup>40</sup>

17 **Q. DO YOU AGREE WITH MR. KOLLEN’S CHARACTERIZATION OF THE**  
18 **COMPANY’S EXISTING PRP PROGRAM?**

19 A. No. The existing PRP program has not been “plagued” with problems. When asked  
20 in discovery of examples of where the Commission has had to “step in”, Mr. Kollen

<sup>40</sup> Kollen at 46

1 could provide no examples of Commission direction outside of rate cases<sup>41</sup>. The  
2 appropriate time to review PRP projects and investment is both during its annual  
3 filing as well as in rate cases; thus, Mr. Kollen's characterization of Commission  
4 discovery within the context of a rate case is misplaced. To the extent that the PRP  
5 program has been extended through 2027, due to more progress being made and an  
6 estimated completion in 2023, the Commission extended the term of completion by  
7 limiting the amount of annual investment to approximately \$28 million in Case No.  
8 2017-00349<sup>42</sup>

9 **Q. WHAT ARE SOME OF THE POLICY BENEFITS OF THE PRP RIDER**  
10 **THAT WOULD SUPPORT INCLUSION OF THE PROPOSED**  
11 **ACCELERATED ALDYL-A REPLACEMENT?**

12 A. As the Commission noted in the Company's last order, the Commission  
13 affirmatively supports allowing the accelerated replacement of facilities that  
14 present safety or reliability issues.<sup>43</sup> The Company believes the PRP mechanism  
15 provides benefits to the customer by avoiding the costly and resource-intensive  
16 process necessary to review adjustments through the traditional rate case process  
17 replacing it instead with a simple, straightforward and financially transparent  
18 process. As an annual review, the PRP provides the Commission the opportunity

<sup>41</sup> Response to Atmos Energy Question 1-16

<sup>42</sup> Case No. 2017-00349, Final Order at 40-41.

<sup>43</sup> Case No. 2018-00281, Final Order at 14

1 to review each of the proposed projects in each filing before any Commission  
2 approval.

3 **Q. DOES EXCLUDING ALDYL-A FROM RECOVERY THROUGH THE PRP**  
4 **PRESENT OTHER CHALLENGES WITH REGARD TO CAPITAL**  
5 **SPENDING?**

6 A. Yes. In Case No. 2018-00281 the Commission directed the Company to spend no  
7 more than its five-year rolling average unless projects were clearly required because  
8 of DIMP or TIMP. If the overall non-PRP capital exceeded the five-year rolling  
9 average we were instructed to be prepared to provide supporting documentation  
10 showing how each project is consistent with DIMP or TIMP. When the  
11 Commission imposed this requirement, there was some inflationary pressures being  
12 experienced and, as has been widely reported in the news the past few months, those  
13 inflationary pressures have been magnified as the general economy has come out  
14 of COVID-19 restrictions and consumer behavior and overall economic behavior  
15 has attempted to return to normal. Moreover, the cap language in Case No. 2018-  
16 00281 encompasses all categories of investment outside of the bare steel projects  
17 recovered through PRP, which constrains investment associated with economic  
18 development and growth.

19 **Q. WOULD ALLOWING ALDYL-A PROJECTS AND RECOVERY**  
20 **THROUGH THE PRP SOLVE THE PROBLEM ASSOCIATED WITH THE**  
21 **CAP IMPOSED IN CASE NO. 2018-00281?**

22 A. No. As proposed by the Company the inflationary pressures on non-PRP capital  
23 would be partially alleviated. However, the Company would still potentially have

1 inadequate capital for non-PRP projects. This has a significant impact on future  
2 economic growth if the Company cannot install new or improve existing facilities  
3 to meet growth demand. As Mr. Austin discusses in his rebuttal testimony, two  
4 areas are already stressed, limiting the ability to offer service to new developments.  
5 Without flexibility to invest in growth opportunities above the current cap, the  
6 Company cannot address future growth and its additional revenue impact.

7 **Q. YOU MENTIONED CONSTRAINTS ON INVESTMENT ASSOCIATED**  
8 **WITH ECONOMIC DEVELOPMENT AND GROWTH. IS IT YOUR**  
9 **TESTIMONY THAT THE POSITION OF THE OAG IN THIS CASE**  
10 **COULD HAVE A NEGATIVE IMPACT ON THE COMPANY'S ABILITY**  
11 **TO SUPPORT ECONOMIC DEVELOPMENT IN KENTUCKY?**

12 A. Yes. It is my understanding that Kentucky, like many other states in which Atmos  
13 Energy operates, is actively pursuing growth of its economy through attracting  
14 industry to the state. A major element in successfully doing so will be the utility  
15 infrastructure that Kentucky has to offer. With a cap on investment outside of bare  
16 steel replacement, Atmos Energy does not have the flexibility in Kentucky to  
17 proactively and timely meet the growing needs of the industrial sector and the  
18 corresponding growing needs of the commercial and residential sectors that result  
19 from that expansion.

1 **Q. CAN THE COMPANY OFFER ANYTHING IN ADDITION TO THE**  
2 **CONTROLS CURRENTLY IMBEDDED IN THE EXISTING PRP TARIFF**  
3 **TO ALLEVIATE THE OAG’S EXPRESSED CONCERN REGARDING**  
4 **LACK OF ADEQUATE REGULATORY CONTROLS<sup>44</sup>?**

5 A. Yes. The Company supplied, in response to FR\_16(7)(b) our Kentucky direct  
6 capital budget for fiscal years 2023, 2024, and 2025. I would recommend that the  
7 Commission remove the existing cap language from the previous two cases related  
8 to PRP and non-PRP capital investment and require the Company, pending any  
9 changes in future rate cases and circumstances that cannot be reasonably  
10 anticipated, manage within its planned capital spending as outlined in response to  
11 FR\_16(7)(b). This would align the Company’s current assessment of capital  
12 investment needs with a cap on investment akin to what the Commission has  
13 ordered in these past cases. Given that no issues have been found in this case  
14 regarding prudence of investment, I do not believe raising the caps to meet current  
15 investment plans is unreasonable.

16 **VII. CONCLUSION**

17 **Q. DO YOU HAVE ANY CONCLUDING REMARKS?**

18 A. Yes. Financially this case revolves around the issue of return on equity, capital  
19 structure, and the appropriate time period to return unprotected excess deferred  
20 income taxes. As demonstrated in this rebuttal case, the Company has sound,  
21 analytically supported reasoning that supports our capital structure, cost of  
22 financing, and proposed five-year period for amortizing unprotected EDITL to

<sup>44</sup> Kollen at 46



1 customers. The Company has adopted several of the OAG positions related to  
2 ADIT however I would encourage the Commission to maintain the overall balance  
3 between the customer and the Company and not adopt OAG positions. Moreover,  
4 I urge the Commission to establish a bad debt tracker and to adopt our proposed  
5 changes to the pipeline replacement program to include Aldyl-A materials.

6 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

7 A. Yes, it does.

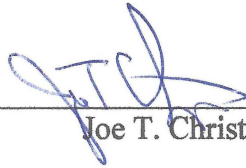
COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF )  
RATE APPLICATION OF ) Case No. 2021-00214  
ATMOS ENERGY CORPORATION )

CERTIFICATE AND AFFIDAVIT

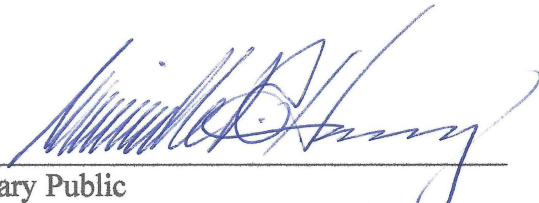
The Affiant, Joe T. Christian, being duly sworn, deposes and states that the prepared testimony attached hereto and made a part hereof, constitutes the prepared rebuttal testimony of this affiant in Case No. 2021-00214, in the Matter of the Rate Application of Atmos Energy Corporation, and that if asked the questions propounded therein, this affiant would make the answers set forth in the attached prepared rebuttal testimony.



Joe T. Christian

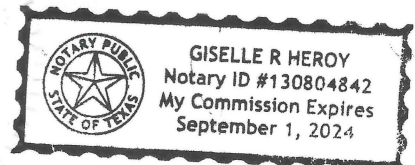
STATE OF TEXAS  
COUNTY OF DALLAS

SUBSCRIBED AND SWORN to before me by Joe T. Christian on this the 16<sup>th</sup> day of November, 2021.



Notary Public

My Commission Expires: 9/01/2024



Atmos Energy Corporation, Kentucky/Mid-States Division  
Kentucky Jurisdiction Case No. 2021-00214  
Overall Financial Summary  
Forecasted Test Period: Twelve Months Ended December 31, 2022

Data:  Base Period  Forecasted Period  
Type of Filing:  Original  Updated  Revised  
FR 16(8)(a)  
Schedule A  
Witness: Christian

Line No.	Description	Supporting Schedule Reference	Base Jurisdictional Revenue Requirement	Forecasted Jurisdictional Revenue Requirement	As Originally Filed	Change (Rebuttal LESS As Originally Filed)	Last As-Filed (8/17/21 Version)	Change (Rebuttal LESS Last As-Filed)
	(a)	(b)	(c)	(d)				
1	Rate Base	B-1	\$ 536,055,628	\$ 584,545,010	\$ 596,130,007	\$ (11,584,997)	\$ 583,089,824	\$ 1,455,186
2	Adjusted Operating Income	C-1	\$ 29,074,295	\$ 29,293,797	\$ 29,418,392	\$ (124,595)	\$ 29,416,838	\$ (123,041)
3	Earned Rate of Return (line 2 divided by line 1)	J-1.1	5.42%	5.01%	4.93%	0.08%	5.04%	-0.03%
4	Required Rate of Return	J-1	7.88%	7.63%	7.66%	-0.03%	7.66%	-0.03%
5	Required Operating Income (line 1 times line 4)	C-1	\$ 42,241,183	\$ 44,600,784	\$ 45,663,559	\$ (1,062,775)	\$ 44,664,681	\$ (63,897)
6	Operating Income Deficiency (line 5 minus line 2)	C-1	\$ 13,166,888	\$ 15,306,987	\$ 16,245,167	\$ (938,180)	\$ 15,247,843	\$ 59,144
7	Gross Revenue Conversion Factor	H	1.34184	1.34184	1.34184	-	1.34184	-
8	<b>Revenue Deficiency (line 6 times line 7)</b>	C-1	<b>\$ 17,667,844</b>	<b>\$ 20,539,512</b>	<b>\$ 21,798,399</b>	<b>\$ (1,258,887)</b>	<b>\$ 20,460,151</b>	<b>\$ 79,361</b>
9	Rate Strike Difference			(1,558)	(1,855)	297	(1,558)	0
10	Amortization of Excess ADIT	WP B.5 B1, WP B.5 F1	(1,463,766)	(5,406,740)	(5,406,740)	0	(5,406,740)	0
11	<b>Subtotal (line 8 plus line 9 plus line 10)</b>		<b>\$ 16,204,078</b>	<b>\$ 15,131,215</b>	<b>\$ 16,389,804</b>	<b>\$ (1,258,590)</b>	<b>\$ 15,051,854</b>	<b>\$ 79,361</b>
12	Amortization of COS and Depreciation Reserves	F-12		(9,862,441)	(9,862,441)	0	(9,862,441)	0
13	<b>Revenue Increase Requested</b>	C-1		<b>\$ 5,268,773</b>	<b>\$ 6,527,363</b>	<b>\$ (1,258,590)</b>	<b>\$ 5,189,412</b>	<b>\$ 79,361</b>
14	Adjusted Operating Revenues	C-1		\$ 173,466,923	\$ 173,466,923	\$ -	\$ 173,466,923	\$ -
15	<b>Revenue Requirements (line 12 plus line 13)</b>	C-1		<b>\$ 178,735,696</b>	<b>\$ 179,994,286</b>	<b>\$ (1,258,590)</b>	<b>\$ 178,656,335</b>	<b>\$ 79,361</b>

Atmos Energy Corporation, Kentucky/Mid-States Division  
 Kentucky Jurisdiction Case No. 2021-00214  
 Jurisdictional Rate Base Summary  
 Forecasted Test Period: Twelve Months Ended December 31, 2022

Data: \_\_\_\_\_ Base Period  Forecasted Period  
 Type of Filing: \_\_\_\_\_ Original  Updated  Revised  
 Workpaper Reference No(s).

FR 16(8)(b)1  
 Schedule B-1  
 Witness: Christian

Line No.	Rate Base Component	Supporting Schedule Reference	Forecasted Test Period Ending Balance	Forecasted Test Period 13 Month Average
1	Plant in Service	B-2 F	\$ 888,768,712	\$ 869,694,856
2	Construction Work in Progress	B-2 F	0	0
3	Accumulated Depreciation and Amortization	B-3 F	<u>(191,219,418)</u>	<u>(186,973,043)</u>
4	Property Plant and Equipment, Net (Sum Line 1 Thru 3)		\$ 697,549,293	\$ 682,721,813
5	Cash Working Capital Allowance	B-4.2 F	\$ (3,062,527)	\$ (3,062,527)
6	Other Working Capital Allowances (Inventory & Prepays)	B-4.1 F	17,069,502	8,617,141
7	Customer Advances For Construction	B-6 F	(683,775)	(683,775)
8	Regulatory Assets / Liabilities	WP B-5 F1; F-6	(24,723,421)	(27,451,624)
9	Deferred Income Taxes and Investment Tax Credits	B-5 F	<u>(76,170,010) *</u>	<u>(75,596,018)</u>
10	Rate Base (Sum Line 4 Thru 8)		<u>\$ 609,979,063</u>	<u>\$ 584,545,010</u>

*\*Test Period ending ADIT balance does not include forecasted change in NOLC.  
 Forecasted change in NOLC is calculated on B.5F on a 13 month average basis only  
 and included in rate base and revenue requirement.*

Atmos Energy Corporation, Kentucky/Mid-States Division  
Kentucky Jurisdiction Case No. 2021-00214  
Operating Income Summary  
Forecasted Test Period: Twelve Months Ended December 31, 2022

Data:  Base Period  Forecasted Period  
Type of Filing:  Original  Updated  Revised  
Workpaper Reference No(s). \_\_\_\_\_  
FR 16(8)(c)1  
Schedule C-1  
Witness: Christian, Densman

Line No.	Description	Base Return at Current Rates	Forecasted Return at Current Rates	Proposed Increase	Forecasted Return at Proposed Rates
1	Operating Revenue	\$ 166,354,706	\$ 173,466,923	\$ 20,539,512	\$ 194,006,435
2	Operating Expenses				
3	Purchased Gas Cost	70,283,866	77,873,656		77,873,656
4	Other O & M Expenses	31,311,659	28,956,040	102,698	29,058,737
5	Depreciation Expense	19,295,729	20,611,032		20,611,032
6	Taxes Other than Income	9,574,126	10,232,556	41,079	10,273,635
7					
8	State & Federal Income Taxes	6,815,031	6,499,842	5,088,736	11,588,578
9	Total Operating Expenses	\$ 137,280,411	\$ 144,173,126	\$ 5,232,513	\$ 149,405,639
10	Operating Income	<u>\$ 29,074,295</u>	<u>\$ 29,293,797</u>	<u>\$ 15,306,999</u>	<u>\$ 44,600,796</u>
11	Rate Base	536,055,628	584,545,010		584,545,010
12	Rate of Return	5.42%	5.01%		7.63%

Atmos Energy Corporation, Kentucky/Mid-States Division  
 Kentucky Jurisdiction Case No. 2021-00214  
 13 Month Average Capital Structure  
 Base Period: Twelve Months Ended September 30, 2021  
 Forecasted Test Period: Twelve Months Ended December 31, 2022

Data:  Base Period  Forecasted Period  
 Type of Filing:  Original  Updated  Revised  
 Workpaper Reference No(s): \_\_\_\_\_

FR 16(8)(j)  
 Schedule J-1  
 Witness: Christian

**PROPOSED RATES**

Line No.	Class of Capital	Workpaper Reference (A)	Base Period			Forecasted Period				
			Amount (B) \$000	Percent of Total (C) %	Cost Rate (D) %	Weighted Cost (E) %	Amount (F) \$000	Percent of Total (G) %	Cost Rate (H) %	Weighted Cost (I) %
1	SHORT-TERM DEBT		6,705	0.05%	80.94%	0.04%	6,705	0.05%	80.94%	0.04%
2	LONG-TERM DEBT		<u>5,117,724</u>	<u>39.27%</u>	3.97%	1.56%	<u>5,717,724</u>	<u>42.36%</u>	3.84%	1.63%
3	Total DEBT		5,124,429	39.32%		1.60%	5,724,429	42.41%		1.67%
4	PREFERRED STOCK		0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%
5	COM. EQ. Before Int. Rate Swaps Unrealized Gains/(Losses)		7,906,889				7,906,889			
6	ADJUST - Int. Rate Swaps Unrealized Gains/(Losses)						(131,981)			
7	COMMON EQUITY (Forecast Period Adjusted for Swap Unreal. Gain/(Loss))		<u>7,906,889</u>	60.68%	10.35%	6.28%	<u>7,774,908</u>	57.59%	10.35%	5.96%
8	Other Capital		<u>0</u>	<u>0.00%</u>	0.00%	0.00%	<u>0</u>	<u>0.00%</u>	0.00%	0.00%
9	Total Capital		<u>13,031,318</u>	<u>100.0%</u>		<u>7.88%</u>	<u>13,499,337</u>	<u>100.0%</u>		<u>7.63%</u>

**CURRENT RATES**

Line No.	Class of Capital	Workpaper Reference (A)	Base Period			Forecasted Period				
			Amount (B) \$000	Percent of Total (C) %	Cost Rate (D) %	Weighted Cost (E) %	Amount (F) \$000	Percent of Total (G) %	Cost Rate (H) %	Weighted Cost (I) %
8	SHORT-TERM DEBT		6,705	0.05%	80.94%	0.04%	6,705	0.05%	80.94%	0.04%
9	LONG-TERM DEBT		<u>5,117,724</u>	<u>39.27%</u>	3.97%	1.56%	<u>5,717,724</u>	<u>42.36%</u>	3.84%	1.63%
10	Total DEBT		5,124,429	39.32%		1.60%	5,724,429	42.41%		1.67%
11	PREFERRED STOCK		0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%
12	COMMON EQUITY (Forecast Period Adjusted for Swap Unreal. Gain/(Loss))		7,906,889	60.68%	6.30%	3.82%	7,774,908	57.59%	5.80%	3.34%
13	Other Capital		<u>0</u>	<u>0.00%</u>	0.00%	0.00%	<u>0</u>	<u>0.00%</u>	0.00%	0.00%
14	Total Capital		<u>13,031,318</u>	<u>100.0%</u>		<u>5.42%</u>	<u>13,499,337</u>	<u>100.0%</u>		<u>5.01%</u>

Standard & Poors Report Corporate Methodology  
 Table 18 - Core ratios and Supplementary coverage ratios  
 Cash Flow/Leverage Analysis Ratios--Medial Volatility

	--Core ratios--		--Supplementary coverage ratios--	
	FFO/debt (%)	Debt/EBITDA (x)	FFO/cash interest (x)	EBITDA/interest (x)
Minimal	50+	less than 1.75	10.5+	14+
Modest	35-50	1.75-2.5	7.5-10.5	9-14
<b>Intermediate</b>	<b>23-35</b>	2.5-3.5	<b>5-7.5</b>	<b>5-9</b>
Significant	13-23	<b>3.5-4.5</b>	3-5	2.75-5
Aggressive	9-13	4.5-5.5	1.75-3	1.75-2.75
Highly leveraged	Less than 9	Greater than 5.5	Less than 1.75	Less than 1.75

	FFO/debt (%)	Debt/EBITDA (x)	FFO/cash interest (x)	EBITDA/interest (x)
<b>Actual / Projected Capital Structure</b>				

	Significant/ Intermediate	Significant/ Intermediate	Intermediate	Intermediate
Year 1 - Actual	24%	3.6	5.7	6.7
Year 2 - Actual	21%	4.0	5.3	6.3
Year 3 - Test Period	21%	4.0	5.2	6.2
Year 4	22%	3.9	5.7	6.7
Year 5	25%	3.5	6.4	7.4
Year 6	25%	3.5	6.5	7.5
Year 7	25%	3.4	6.5	7.5

#### Hypothetical Capital Structure 52.0 D / 48.0 E

	Significant	Significant	Significant/ Intermediate	Intermediate
Year 1	20%	4.1	4.9	5.9
Year 2	16%	5.1	4.0	5.0
Year 3	19%	4.4	4.5	5.5
Year 4	19%	4.5	4.8	5.8
Year 5	21%	4.0	5.5	6.5
Year 6	19%	4.4	4.8	5.8
Year 7	22%	3.9	5.6	6.6

Standard & Poors, October 29, 2020:

Under our base-case scenario, we expect that Atmos will continue to effectively manage regulatory risk, resulting in **funds from operations (FFO) to debt** in the **22%-24%** range through 2022. The stable outlook reflects our expectation that the company will continue to execute on its strategy focused around safety and reliability of its regulated utility operations.

#### Large equity issuances in 2018 and 2019 demonstrate commitment to credit quality

We consider this balanced financing as positive for credit quality, as lower leverage benefits credit health.

RATING  
METHODOLOGY

Regulated Electric and Gas Utilities

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ABOUT THIS RATING METHODOLOGY	4
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Analyst Contacts:

NEW YORK +1.212.553.1653

Michael G. Haggarty +1.212.553.7172  
Associate Managing Director  
michael.haggarty@moodys.com

Jim Hempstead +1.212.553.4318  
Managing Director – Utilities  
james.hempstead@moodys.com

Walter Winrow +1.212.553.7943  
Managing Director - Global Project and Infrastructure Finance  
walter.winrow@moodys.com

Jeffrey Cassella +1.212.553.1665  
Vice President - Senior Analyst  
jeffrey.cassella@moodys.com

Natividad Martel +1.212.553.4561  
Vice President - Senior Analyst  
natividad.martel@moodys.com

» contacts continued on the last page

This rating methodology replaces "Regulated Electric and Gas Utilities" last revised on December 23, 2013. We have updated some outdated links and removed certain issuer-specific information.

Summary

This rating methodology explains our approach to assessing credit risk for regulated electric and gas utilities globally. This document does not include an exhaustive treatment of all factors that are reflected in our ratings but should enable the reader to understand the qualitative considerations and financial information and ratios that are usually most important for ratings in this sector.<sup>1</sup>

This report includes a detailed rating grid which is a reference tool that can be used to approximate credit profiles within the regulated electric and gas utility sector in most cases. The grid provides summarized guidance for the factors that are generally most important in assigning ratings to companies in the regulated electric and gas utility industry. However, the grid is a summary that does not include every rating consideration. The weights shown for each factor in the grid represent an approximation of their importance for rating decisions but actual importance may vary substantially. In addition, the grid in this document uses historical results while ratings are based on our forward-looking expectations. As a result, the grid-indicated rating is not expected to match the actual rating of each company.

THIS RATING METHODOLOGY WAS UPDATED ON SEPTEMBER 27, 2017. WE REMOVED A DUPLICATE FOOTNOTE THAT WAS PLACED IN THE MIDDLE OF THE TEXT ON PAGE 7.

<sup>1</sup> This update may not be effective in some jurisdictions until certain requirements are met.



The grid contains four key factors that are important in our assessment for ratings in the regulated electric and gas utility sector:

1. Regulatory Framework
2. Ability to Recover Costs and Earn Returns
3. Diversification
4. Financial Strength

Some of these factors also encompass a number of sub-factors. There is also a notching factor for holding company structural subordination.

This rating methodology is not intended to be an exhaustive discussion of all factors that our analysts consider in assigning ratings in this sector. We note that our analysis for ratings in this sector covers factors that are common across all industries such as ownership, management, liquidity, corporate legal structure, governance and country related risks which are not explained in detail in this document, as well as factors that can be meaningful on a company-specific basis. Our ratings consider these and other qualitative considerations that do not lend themselves to a transparent presentation in a grid format. The grid used for this methodology reflects a decision to favor a relatively simple and transparent presentation rather than a more complex grid that might map grid-indicated ratings more closely to actual ratings.

Highlights of this report include:

- » An overview of the rated universe
- » A summary of the rating methodology
- » A discussion of the key rating factors that drive ratings
- » Comments on the rating methodology assumptions and limitations, including a discussion of rating considerations that are not included in the grid

The Appendices show the full grid (Appendix A), our approach to ratings within a utility family (Appendix B), a description of the various types of companies rated under this methodology (Appendix C), key industry issues over the intermediate term (Appendix D), regional and other considerations (Appendix E), and treatment of power purchase agreements (Appendix F).

This methodology describes the analytical framework used in determining credit ratings. In some instances our analysis is also guided by additional publications which describe our approach for analytical considerations that are not specific to any single sector. Examples of such considerations include but are not limited to: the assignment of short-term ratings, the relative ranking of different classes of debt and hybrid securities, how sovereign credit quality affects non-sovereign issuers, and the assessment of credit support from other entities. A link to documents that describe our approach to such cross-sector credit rating methodological considerations can be found in the Related Research section of this report.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on [www.moodys.com](http://www.moodys.com) for the most updated credit rating action information and rating history.

## About the Rated Universe

The Regulated Electric and Gas Utilities rating methodology applies to rate-regulated<sup>2</sup> electric and gas utilities that are not Networks<sup>3</sup>. Regulated Electric and Gas Utilities are companies whose predominant<sup>45</sup> business is the sale of electricity and/or gas or related services under a rate-regulated framework, in most cases to retail customers. Also included under this methodology are rate-regulated utilities that own generating assets as any material part of their business, utilities whose charges or bills to customers include a meaningful component related to the electric or gas commodity, utilities whose rates are regulated at a sub-sovereign level (e.g. by provinces, states or municipalities), and companies providing an independent system operator function to an electric grid. Companies rated under this methodology are primarily rate-regulated monopolies or, in certain circumstances, companies that may not be outright monopolies but where government regulation effectively sets prices and limits competition.

This rating methodology covers regulated electric and gas utilities worldwide. These companies are engaged in the production, transmission, coordination, distribution and/or sale of electricity and/or natural gas, and they are either investor owned companies, commercially oriented government owned companies or, in the case of independent system operators, not-for-profit or similar entities. As detailed in Appendix C, this methodology covers a wide variety of companies active in the sector, including vertically integrated utilities, transmission and distribution utilities with retail customers and/or sub-sovereign regulation, local gas distribution utility companies (LDCs), independent system operators, and regulated generation companies. These companies may be operating companies or holding companies.

**An over-arching consideration for regulated utilities is the regulatory environment in which they operate.**

While regulation is also a key consideration for networks, a utility's regulatory environment is in comparison often more dynamic and more subject to political intervention. The direct relationship that a regulated utility has with the retail customer, including billing for electric or gas supply that has substantial price volatility, can lead to a more politically charged rate-setting environment. Similarly, regulation at the sub-sovereign level is often more accessible for participation by interveners, including disaffected customers and the politicians who want their votes. Our views of regulatory environments evolve over time in accordance with our observations of regulatory, political, and judicial events that affect issuers in the sector.

This methodology pertains to regulated electric and gas utilities and excludes the following types of issuers, which are covered by separate rating methodologies: Regulated Networks, Unregulated Utilities and Power Companies, Public Power Utilities, Municipal Joint Action Agencies, Electric Cooperatives, Regulated Water Companies and Natural Gas Pipelines.<sup>5</sup>

The Regulated Electric and Gas Utility sector is predominantly investment grade, reflecting the stability generally conferred by regulation that typically sets prices and also limits competition, such that defaults have been lower than in many other non-financial corporate sectors. However, the nature of regulation can

<sup>2</sup> Companies in many industries are regulated. We use the term rate-regulated to distinguish companies whose rates (by which we also mean tariffs or revenues in general) are set by regulators.

<sup>3</sup> Regulated Electric and Gas Networks are companies whose predominant business is purely the transmission and/or distribution of electricity and/or natural gas without involvement in the procurement or sale of electricity and/or gas; whose charges to customers thus do not include a meaningful commodity cost component; which sell mainly (or in many cases exclusively) to non-retail customers; and which are rate-regulated under a national framework.

<sup>4</sup> We generally consider a company to be predominantly a regulated electric and gas utility when a majority of its cash flows, prospectively and on a sustained basis, are derived from regulated electric and gas utility businesses. Since cash flows can be volatile (such that a company might have a majority of utility cash flows simply due to a cyclical downturn in its non-utility businesses), we may also consider the breakdown of assets and/or debt of a company to determine which business is predominant.

<sup>5</sup> A link to credit rating methodologies covering these and other sectors can be found in the Related Research section of this report.

vary significantly from jurisdiction to jurisdiction. Most issuers at the lower end of the ratings spectrum operate in challenging regulatory environments.

## About this Rating Methodology

This report explains the rating methodology for regulated electric and gas utilities in six sections, which are summarized as follows:

### 1. Identification and Discussion of the Rating Factors in the Grid

The grid in this rating methodology focuses on four rating factors. The four factors are comprised of sub-factors that provide further detail:

#### Factor / Sub-Factor Weighting - Regulated Utilities

Broad Rating Factors	Broad Rating Factor Weighting	Rating Sub-Factor	Sub-Factor Weighting
Regulatory Framework	25%	Legislative and Judicial Underpinnings of the Regulatory Framework	12.5%
		Consistency and Predictability of Regulation	12.5%
Ability to Recover Costs and Earn Returns	25%	Timeliness of Recovery of Operating and Capital Costs	12.5%
		Sufficiency of Rates and Returns	12.5%
Diversification	10%	Market Position	5%*
		Generation and Fuel Diversity	5%**
Financial Strength, Key Financial Metrics	40%	CFO pre-WC + Interest / Interest	7.5%
		CFO pre-WC / Debt	15.0%
		CFO pre-WC – Dividends / Debt	10.0%
		Debt/Capitalization	7.5%
Total	100%		100%
Notching Adjustment			
Holding Company Structural Subordination			0 to -3

\*10% weight for issuers that lack generation; \*\*0% weight for issuers that lack generation

### 2. Measurement or Estimation of Factors in the Grid

We explain our general approach for scoring each grid factor and show the weights used in the grid. We also provide a rationale for why each of these grid components is meaningful as a credit indicator. The information used in assessing the sub-factors is generally found in or calculated from information in company financial statements, derived from other observations or estimated by our analysts.<sup>6</sup> All of the quantitative credit metrics incorporate Moody's standard adjustments to income statement, cash flow statement and balance sheet amounts for restructuring, impairment, off-balance sheet accounts, receivable securitization programs, under-funded pension obligations, and recurring operating leases.<sup>7</sup>

<sup>6</sup> For definitions of our most common ratio terms, please see "Moody's Basic Definitions for Credit Statistics, User's Guide," a link to which may be found in the Related Research section of this report.

<sup>7</sup> Our standard adjustments are described in "Financial Statement Adjustments in the Analysis of Non-Financial Corporations". A link to this and other sector and cross-sector credit rating methodologies can be found in the Related Research section of this report.

Our ratings are forward-looking and reflect our expectations for future financial and operating performance. However, historical results are helpful in understanding patterns and trends of a company's performance as well as for peer comparisons. We utilize historical data (in most cases, an average of the last three years of reported results) in the rating grid. However, the factors in the grid can be assessed using various time periods. For example, rating committees may find it analytically useful to examine both historic and expected future performance for periods of several years or more, or for individual twelve month periods.

### 3. Mapping Factors to the Rating Categories

After estimating or calculating each sub-factor, the outcomes for each of the sub-factors are mapped to a broad Moody's rating category (Aaa, Aa, A, Baa, Ba, B, or Caa).

### 4. Assumptions, Limitations and Rating Considerations Not Included in the Grid

This section discusses limitations in the use of the grid to map against actual ratings, some of the additional factors that are not included in the grid but can be important in determining ratings, and limitations and assumptions that pertain to the overall rating methodology.

### 5. Determining the Overall Grid-Indicated Rating<sup>8</sup>

To determine the overall grid-indicated rating, we convert each of the sub-factor ratings into a numeric value based upon the scale below.

Aaa	Aa	A	Baa	Ba	B	Caa	Ca
1	3	6	9	12	15	18	20

The numerical score for each sub-factor is multiplied by the weight for that sub-factor with the results then summed to produce a composite weighted-factor score. The composite weighted factor score is then mapped back to an alphanumeric rating based on the ranges in the table below.

#### Grid-Indicated Rating

Grid-Indicated Rating	Aggregate Weighted Total Factor Score
Aaa	$x < 1.5$
Aa1	$1.5 \leq x < 2.5$
Aa2	$2.5 \leq x < 3.5$
Aa3	$3.5 \leq x < 4.5$
A1	$4.5 \leq x < 5.5$
A2	$5.5 \leq x < 6.5$
A3	$6.5 \leq x < 7.5$
Baa1	$7.5 \leq x < 8.5$
Baa2	$8.5 \leq x < 9.5$
Baa3	$9.5 \leq x < 10.5$

<sup>8</sup> In general, the grid-indicated rating is oriented to the Corporate Family Rating (CFR) for speculative-grade issuers and the senior unsecured rating for investment-grade issuers. For issuers that benefit from ratings uplift due to parental support, government ownership or other institutional support, the grid-indicated rating is oriented to the baseline credit assessment. For an explanation of baseline credit assessment, please refer to our rating methodology on government-related issuers. Individual debt instrument ratings also factor in decisions on notching for seniority level and collateral. The documents that provide broad guidance for these notching decisions are our rating methodologies on loss given default for speculative grade non-financial companies and for aligning corporate instrument ratings based on differences in security and priority of claim. The link to these and other sector and cross-sector credit rating methodologies can be found in the Related Research section of this report.

## Grid-Indicated Rating

Grid-Indicated Rating	Aggregate Weighted Total Factor Score
Ba1	$10.5 \leq x < 11.5$
Ba2	$11.5 \leq x < 12.5$
Ba3	$12.5 \leq x < 13.5$
B1	$13.5 \leq x < 14.5$
B2	$14.5 \leq x < 15.5$
B3	$15.5 \leq x < 16.5$
Caa1	$16.5 \leq x < 17.5$
Caa2	$17.5 \leq x < 18.5$
Caa3	$18.5 \leq x < 19.5$
Ca	$x \geq 19.5$

For example, an issuer with a composite weighted factor score of 11.7 would have a Ba2 grid-indicated rating.

## 6. Appendices

The Appendices present a full grid and provide additional commentary and insights on our view of credit risks in this industry.

### Discussion of the Grid Factors

Our analysis of electric and gas utilities focuses on four broad factors:

- » Regulatory Framework
- » Ability to Recover Costs and Earn Returns
- » Diversification
- » Financial Strength

There is also a notching factor for holding company structural subordination.

### Factor 1: Regulatory Framework (25%)

#### Why It Matters

For rate-regulated utilities, which typically operate as a monopoly, the regulatory environment and how the utility adapts to that environment are the most important credit considerations. The regulatory environment is comprised of two rating factors - the Regulatory Framework and its corollary factor, the Ability to Recover Costs and Earn Returns. Broadly speaking, the Regulatory Framework is the foundation for how all the decisions that affect utilities are made (including the setting of rates), as well as the predictability and consistency of decision-making provided by that foundation. The Ability to Recover Costs and Earn Returns relates more directly to the actual decisions, including their timeliness and the rate-setting outcomes.

Utility rates<sup>9</sup> are set in a political/regulatory process rather than a competitive or free-market process; thus, the Regulatory Framework is a key determinant of the success of utility. The Regulatory Framework has many components: the governing body and the utility legislation or decrees it enacts, the manner in which regulators are appointed or elected, the rules and procedures promulgated by those regulators, the judiciary that interprets the laws and rules and that arbitrates disagreements, and the manner in which the utility manages the political and regulatory process. In many cases, utilities have experienced credit stress or default primarily or at least secondarily because of a break-down or obstacle in the Regulatory Framework – for instance, laws that prohibited regulators from including investments in uncompleted power plants or plants not deemed “used and useful” in rates, or a disagreement about rate-making that could not be resolved until after the utility had defaulted on its debts.

#### How We Assess Legislative and Judicial Underpinnings of the Regulatory Framework for the Grid

For this sub-factor, we consider the scope, clarity, transparency, supportiveness and granularity of utility legislation, decrees, and rules as they apply to the issuer. We also consider the strength of the regulator's authority over rate-making and other regulatory issues affecting the utility, the effectiveness of the judiciary or other independent body in arbitrating disputes in a disinterested manner, and whether the utility's monopoly has meaningful or growing carve-outs. In addition, we look at how well developed the framework is – both how fully fleshed out the rules and regulations are and how well tested it is – the extent to which regulatory or judicial decisions have created a body of precedent that will help determine future rate-making. Since the focus of our scoring is on each issuer, we consider how effective the utility is in navigating the regulatory framework – both the utility's ability to shape the framework and adapt to it.

A utility operating in a regulatory framework that is characterized by legislation that is credit supportive of utilities and eliminates doubt by prescribing many of the procedures that the regulators will use in determining fair rates (which legislation may show evidence of being responsive to the needs of the utility in general or specific ways), a long history of transparent rate-setting, and a judiciary that has provided ample precedent by impartially adjudicating disagreements in a manner that addresses ambiguities in the laws and rules will receive higher scores in the Legislative and Judicial Underpinnings sub-factor. **A utility operating in a regulatory framework that, by statute or practice, allows the regulator to arbitrarily prevent the utility from recovering its costs or earning a reasonable return on prudently incurred investments, or where regulatory decisions may be reversed by politicians seeking to enhance their populist appeal will receive a much lower score.**

In general, we view national utility regulation as being less liable to political intervention than regulation by state, provincial or municipal entities, so the very highest scoring in this sub-factor is reserved for this category. However, we acknowledge that states and provinces in some countries may be larger than small nations, such that their regulators may be equally “above-the-fray” in terms of impartial and technically-oriented rate setting, and very high scoring may be appropriate.

<sup>9</sup> In jurisdictions where utility revenues include material government subsidy payments, we consider utility rates to be inclusive of these payments, and we thus evaluate sub-factors 1a, 1b, 2a and 2b in light of both rates and material subsidy payments. For example, we would consider the legal and judicial underpinnings and consistency and predictability of subsidies as well as rates.

The relevant judicial system can be a major factor in the regulatory framework. This is particularly true in litigious societies like the United States, where disagreements between the utility and its state or municipal regulator may eventually be adjudicated in federal district courts or even by the US Supreme Court. In addition, bankruptcy proceedings in the US take place in federal courts, which have at times been able to impose rate settlement agreements on state or municipal regulators. As a result, the range of decisions available to state regulators may be effectively circumscribed by court precedent at the state or federal level, which we generally view as favorable for the credit- supportiveness of the regulatory framework.

Electric and gas utilities are generally presumed to have a strong monopoly that will continue into the foreseeable future, and this expectation has allowed these companies to have greater leverage than companies in other sectors with similar ratings. Thus, the existence of a monopoly in itself is unlikely to be a driver of strong scoring in this sub-factor. On the other hand, a strong challenge to the monopoly could cause lower scoring, because the utility can only recover its costs and investments and service its debt if customers purchase its services. There have been some instances of incursions into utilities' monopoly, including municipalization, self-generation, distributed generation with net metering, or unauthorized use (beyond the level for which the utility receives compensation in rates). Incursions that are growing significantly or having a meaningful impact on rates for customers that remain with the utility could have a negative impact on scoring of this sub-factor and on factor 2 - Ability to Recover Costs and Earn Returns.

The scoring of this sub-factor may not be the same for every utility in a particular jurisdiction. We have observed that some utilities appear to have greater sway over the relevant utility legislation and promulgation of rules than other utilities – even those in the same jurisdiction. The content and tone of publicly filed documents and regulatory decisions sometimes indicates that the management team at one utility has better responsiveness to and credibility with its regulators or legislators than the management at another utility.

While the underpinnings to the regulatory framework tend to change relatively slowly, they do evolve, and our factor scoring will seek to reflect that evolution. For instance, a new framework will typically become tested over time as regulatory decisions are issued, or perhaps litigated, thereby setting a body of precedent. Utilities may seek changes to laws in order to permit them to securitize certain costs or collect interim rates, or a jurisdiction in which rates were previously recovered primarily in base rate proceedings may institute riders and trackers. These changes would likely impact scoring of sub-factor 2b - Timeliness of Recovery of Operating and Capital Costs, but they may also be sufficiently significant to indicate a change in the regulatory underpinnings. On the negative side, a judiciary that had formerly been independent may start to issue decisions that indicate it is conforming its decisions to the expectations of an executive branch that wants to mandate lower rates.



## Factor 1a: Legislative and Judicial Underpinnings of the Regulatory Framework (12.5%)

Aaa	Aa	A	Baa
<p>Utility regulation occurs under a fully developed framework that is national in scope based on legislation that provides the utility a nearly absolute monopoly (see note 1) within its service territory, an unquestioned assurance that rates will be set in a manner that will permit the utility to make and recover all necessary investments, an extremely high degree of clarity as to the manner in which utilities will be regulated and prescriptive methods and procedures for setting rates. Existing utility law is comprehensive and supportive such that changes in legislation are not expected to be necessary; or any changes that have occurred have been strongly supportive of utilities credit quality in general and sufficiently forward-looking so as to address problems before they occurred. There is an independent judiciary that can arbitrate disagreements between the regulator and the utility should they occur, including access to national courts, very strong judicial precedent in the interpretation of utility laws, and a strong rule of law. We expect these conditions to continue.</p>	<p>Utility regulation occurs under a fully developed national, state or provincial framework based on legislation that provides the utility an extremely strong monopoly (see note 1) within its service territory, a strong assurance, subject to limited review, that rates will be set in a manner that will permit the utility to make and recover all necessary investments, a very high degree of clarity as to the manner in which utilities will be regulated and reasonably prescriptive methods and procedures for setting rates. If there have been changes in utility legislation, they have been timely and clearly credit supportive of the issuer in a manner that shows the utility has had a strong voice in the process. There is an independent judiciary that can arbitrate disagreements between the regulator and the utility, should they occur including access to national courts, strong judicial precedent in the interpretation of utility laws, and a strong rule of law. We expect these conditions to continue.</p>	<p>Utility regulation occurs under a well developed national, state or provincial framework based on legislation that provides the utility a very strong monopoly (see note 1) within its service territory, an assurance, subject to reasonable prudence requirements, that rates will be set in a manner that will permit the utility to make and recover all necessary investments, a high degree of clarity as to the manner in which utilities will be regulated, and overall guidance for methods and procedures for setting rates. If there have been changes in utility legislation, they have been mostly timely and on the whole credit supportive for the issuer, and the utility has had a clear voice in the legislative process. There is an independent judiciary that can arbitrate disagreements between the regulator and the utility, should they occur, including access to national courts, clear judicial precedent in the interpretation of utility law, and a strong rule of law. We expect these conditions to continue.</p>	<p>Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation that provides the utility a strong monopoly within its service territory that may have some exceptions such as greater self-generation (see note 1), a general assurance that, subject to prudence requirements that are mostly reasonable, rates will be set in a manner that will permit the utility to make and recover all necessary investments, reasonable clarity as to the manner in which utilities will be regulated and overall guidance for methods and procedures for setting rates; or (ii) under a new framework where independent and transparent regulation exists in other sectors. If there have been changes in utility legislation, they have been credit supportive or at least balanced for the issuer but potentially less timely, and the utility had a voice in the legislative process. There is either (i) an independent judiciary that can arbitrate disagreements between the regulator and the utility, including access to courts at least at the state or provincial level, reasonably clear judicial precedent in the interpretation of utility laws, and a generally strong rule of law; or (ii) regulation has been applied (under a well developed framework) in a manner such that redress to an independent arbiter has not been required. We expect these conditions to continue.</p>

Ba	B	Caa
<p>Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation or government decree that provides the utility a monopoly within its service territory that is generally strong but may have a greater level of exceptions (see note 1), and that, subject to prudence requirements which may be stringent, provides a general assurance (with somewhat less certainty) that rates will be set in a manner that will permit the utility to make and recover necessary investments; or (ii) under a new framework where the jurisdiction has a history of less independent and transparent regulation in other sectors. Either: (i) the judiciary that can arbitrate disagreements between the regulator and the utility may not have clear authority or may not be fully independent of the regulator or other political pressure, but there is a reasonably strong rule of law; or (ii) where there is no independent arbiter, the regulation has mostly been applied in a manner such redress has not been required. We expect these conditions to continue.</p>	<p>Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation or government decree that provides the utility monopoly within its service territory that is reasonably strong but may have important exceptions, and that, subject to prudence requirements which may be stringent or at times arbitrary, provides more limited or less certain assurance that rates will be set in a manner that will permit the utility to make and recover necessary investments; or (ii) under a new framework where we would expect less independent and transparent regulation, based either on the regulator's history in other sectors or other factors. The judiciary that can arbitrate disagreements between the regulator and the utility may not have clear authority or may not be fully independent of the regulator or other political pressure, but there is a reasonably strong rule of law. Alternately, where there is no independent arbiter, the regulation has been applied in a manner that often requires some redress adding more uncertainty to the regulatory framework. There may be a periodic risk of creditor-unfriendly government intervention in utility markets or rate-setting.</p>	<p>Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation or government decree that provides the utility a monopoly within its service territory, but with little assurance that rates will be set in a manner that will permit the utility to make and recover necessary investments; or (ii) under a new framework where we would expect unpredictable or adverse regulation, based either on the jurisdiction's history of in other sectors or other factors. The judiciary that can arbitrate disagreements between the regulator and the utility may not have clear authority or is viewed as not being fully independent of the regulator or other political pressure. Alternately, there may be no redress to an effective independent arbiter. The ability of the utility to enforce its monopoly or prevent uncompensated usage of its system may be limited. There may be a risk of creditor-unfriendly nationalization or other significant intervention in utility markets or rate-setting.</p>

Note 1: The strength of the monopoly refers to the legal, regulatory and practical obstacles for customers in the utility's territory to obtain service from another provider. Examples of a weakening of the monopoly would include the ability of a city or large user to leave the utility system to set up their own system, the extent to which self-generation is permitted (e.g. cogeneration) and/or encouraged (e.g. net metering, DSM generation). At the lower end of the ratings spectrum, the utility's monopoly may be challenged by pervasive theft and unauthorized use. Since utilities are generally presumed to be monopolies, a strong monopoly position in itself is not sufficient for a strong score in this sub-factor, but a weakening of the monopoly can lower the score.



### How We Assess Consistency and Predictability of Regulation for the Grid

For the Consistency and Predictability sub-factor, we consider the track record of regulatory decisions in terms of consistency, predictability and supportiveness. We evaluate the utility's interactions in the regulatory process as well as the overall stance of the regulator toward the utility.

In most jurisdictions, the laws and rules seek to make rate-setting a primarily technical process that examines costs the utility incurs and the returns on investments the utility needs to earn so it can make investments that are required to build and maintain the utility infrastructure - power plants, electric transmission and distribution systems, and/or natural gas distribution systems. When the process remains technical and transparent such that regulators can support the financial health of the utility while balancing their public duty to assure that reliable service is provided at a reasonable cost, and when the utility is able to align itself with the policy initiatives of the governing jurisdiction, the utility will receive higher scores in this sub-factor. When the process includes substantial political intervention, which could take the form of legislators or other government officials publicly second-guessing regulators, dismissing regulators who have approved unpopular rate increases, or preventing the implementation of rate increases, or when regulators ignore the laws/rules to deliver an outcome that appears more politically motivated, the utility will receive lower scores in this sub-factor.

As with the prior sub-factor, we may score different utilities in the same jurisdiction differently, based on outcomes that are more or less supportive of credit quality over a period of time. We have observed that some utilities are better able to meet the expectations of their customers and regulators, whether through better service, greater reliability, more stable rates or simply more effective regulatory outreach and communication. These utilities typically receive more consistent and credit supportive outcomes, so they will score higher in this sub-factor. Conversely, if a utility has multiple rapid rate increases, chooses to submit major rate increase requests during a sensitive election cycle or a severe economic downturn, has chronic customer service issues, is viewed as frequently providing incomplete information to regulators, or is tone deaf to the priorities of regulators and politicians, it may receive less consistent and supportive outcomes and thus score lower in this sub-factor.

In scoring this sub-factor, we will primarily evaluate the actions of regulators, politicians and jurists rather than their words. Nonetheless, words matter when they are an indication of future action. We seek to differentiate between political rhetoric that is perhaps oriented toward gaining attention for the viewpoint of the speaker and rhetoric that is indicative of future actions and trends in decision-making.

**Factor 1b: Consistency and Predictability of Regulation (12.5%)**

Aaa	Aa	A	Baa
<p>The issuer's interaction with the regulator has led to a strong, lengthy track record of predictable, consistent and favorable decisions. The regulator is highly credit supportive of the issuer and utilities in general. We expect these conditions to continue.</p>	<p>The issuer's interaction with the regulator has led to a considerable track record of predominantly predictable and consistent decisions. The regulator is mostly credit supportive of utilities in general and in almost all instances has been highly credit supportive of the issuer. We expect these conditions to continue.</p>	<p>The issuer's interaction with the regulator has led to a track record of largely predictable and consistent decisions. The regulator may be somewhat less credit supportive of utilities in general, but has been quite credit supportive of the issuer in most circumstances. We expect these conditions to continue.</p>	<p>The issuer's interaction with the regulator has led to an adequate track record. The regulator is generally consistent and predictable, but there may be some evidence of inconsistency or unpredictability from time to time, or decisions may at times be politically charged. However, instances of less credit supportive decisions are based on reasonable application of existing rules and statutes and are not overly punitive. We expect these conditions to continue.</p>
Baa	B	Caa	
<p>We expect that regulatory decisions will demonstrate considerable inconsistency or unpredictability or that decisions will be politically charged, based either on the issuer's track record of interaction with regulators or other governing bodies, or our view that decisions will move in this direction. The regulator may have a history of less credit supportive regulatory decisions with respect to the issuer, but we expect that the issuer will be able to obtain support when it encounters financial stress, with some potentially material delays. The regulator's authority may be eroded at times by legislative or political action. The regulator may not follow the framework for some material decisions.</p>	<p>We expect that regulatory decisions will be largely unpredictable or even somewhat arbitrary, based either on the issuer's track record of interaction with regulators or other governing bodies, or our view that decisions will move in this direction. However, we expect that the issuer will ultimately be able to obtain support when it encounters financial stress, albeit with material or more extended delays. Alternately, the regulator is untested, lacks a consistent track record, or is undergoing substantial change. The regulator's authority may be eroded on frequent occasions by legislative or political action. The regulator may more frequently ignore the framework in a manner detrimental to the issuer.</p>	<p>We expect that regulatory decisions will be highly unpredictable and frequently adverse, based either on the issuer's track record of interaction with regulators or other governing bodies, or our view that decisions will move in this direction. Alternately, decisions may have credit supportive aspects, but may often be unenforceable. The regulator's authority may have been seriously eroded by legislative or political action. The regulator may consistently ignore the framework to the detriment of the issuer.</p>	

## Factor 2: Ability to Recover Costs and Earn Returns (25%)

### Why It Matters

This rating factor examines the ability of a utility to recover its costs and earn a return over a period of time, including during differing market and economic conditions. While the Regulatory Framework looks at the transparency and predictability of the rules that govern the decision-making process with respect to utilities, the Ability to Recover Costs and Earn Returns evaluates the regulatory elements that directly impact the ability of the utility to generate cash flow and service its debt over time. **The ability to recover prudently incurred costs on a timely basis and to attract debt and equity capital are crucial credit considerations.** The inability to recover costs, for instance if fuel or purchased power costs ballooned during a rate freeze period, has been one of the greatest drivers of financial stress in this sector, as well as the cause of some utility defaults. In a sector that is typically free cash flow negative (due to large capital expenditures and dividends) and that routinely needs to refinance very large maturities of long-term debt, investor concerns about a lack of timely cost recovery or the sufficiency of rates can, in an extreme scenario, strain access to capital markets and potentially lead to insolvency of the utility (as was the case when "used and useful" requirements threatened some utilities that experienced years of delay in completing nuclear power plants in the 1980s). While our scoring for the Ability to Recover Costs and Earn Returns may primarily be influenced by our assessment of the regulatory relationship, it can also be highly impacted by the management and business decisions of the utility.

### How We Assess Ability to Recover Costs and Earn Returns

The timeliness and sufficiency of rates are scored as separate sub-factors; however, they are interrelated. Timeliness can have an impact on our view of what constitutes sufficient returns, because a strong assurance of timely cost recovery reduces risk. Conversely, utilities may have a strong assurance that they will earn a full return on certain deferred costs until they are able to collect them, or their generally strong returns may allow them to weather some rate lag on recovery of construction-related capital expenditures. The timeliness of cost recovery is particularly important in a period of rapidly rising costs. During the past five years, utilities have benefitted from low interest rates and generally decreasing fuel costs and purchased power costs, but these market conditions could easily reverse. For example, fuel is a large component of total costs for vertically integrated utilities and for natural gas utilities, and fuel prices are highly volatile, so the timeliness of fuel and purchased power cost recovery is especially important.

While Factors 1 and 2 are closely inter-related, scoring of these factors will not necessarily be the same. We have observed jurisdictions where the Regulatory Framework caused considerable credit concerns – perhaps it was untested or going through a transition to de-regulation, but where the track record of rate case outcomes was quite positive, leading to a higher score in the Ability to Recover Costs and Earn Returns. Conversely, there have been instances of strong Legislative and Judicial Underpinnings of the Regulatory Framework where the commission has ignored the framework (which would affect Consistency and Predictability of Regulation as well as Ability to Recover Costs and Earn Returns) or has used extraordinary measures to prevent or defer an increase that might have been justifiable from a cost perspective but would have caused rate shock.

One might surmise that Factors 2 and 4 should be strongly correlated, since a good Ability to Recover Costs and Earn Returns would normally lead to good financial metrics. However, the scoring for the Ability to Recover Costs and Earn Returns sub-factor places more emphasis on our expectation of timeliness and sufficiency of rates over time; whereas financial metrics may be impacted by one-time events, market conditions or construction cycles - trends that we believe could normalize or even reverse.

### How We Assess Timeliness of Recovery of Operating and Capital Costs for the Grid

The criteria we consider include provisions and cost recovery mechanisms for operating costs, mechanisms that allow actual operating and/or capital expenditures to be trued-up periodically into rates without having to file a rate case (this may include formula rates, rider and trackers, or the ability to periodically adjust rates for construction work in progress) as well as the process and timeframe of general tariff/base rate cases – those that are fully reviewed by the regulator, generally in a public format that includes testimony of the utility and other stakeholders and interest groups. We also look at the track record of the utility and regulator for timeliness. For instance, having a formula rate plan is positive, but if the actual process has included reviews that are delayed for long periods, it may dampen the benefit to the utility. In addition, we seek to estimate the lag between the time that a utility incurs a major construction expenditures and the time that the utility will start to recover and/or earn a return on that expenditure.

### How We Assess Sufficiency of Rates and Returns for the Grid

The criteria we consider include statutory protections that assure full cost recovery and a reasonable return for the utility on its investments, the regulatory mechanisms used to determine what a reasonable return should be, and the track record of the utility in actually recovering costs and earning returns. We examine outcomes of rate cases/tariff reviews and compare them to the requests submitted by the utility, to prior rate cases/tariff reviews for the same utility and to recent rate/tariff decisions for a peer group of comparable utilities. In this context, comparable utilities are typically utilities in the same or similar jurisdiction. In cases where the utility is unique or nearly unique in its jurisdiction, comparison will be made to other peers with an adjustment for local differences, including prevailing rates of interest and returns on capital, as well as the timeliness of rate-setting. We look at regulatory disallowances of costs or investments, with a focus on their financial severity and also on the reasons given by the regulator, in order to assess the likelihood that such disallowances will be repeated in the future.

**Factor 2a: Timeliness of Recovery of Operating and Capital Costs (12.5%)**

Aaa	Aa	A	Baa
<p>Tariff formulas and automatic cost recovery mechanisms provide full and highly timely recovery of all operating costs and essentially contemporaneous return on all incremental capital investments, with statutory provisions in place to preclude the possibility of challenges to rate increases or cost recovery mechanisms. By statute and by practice, general rate cases are efficient, focused on an impartial review, quick, and permit inclusion of fully forward-looking costs.</p>	<p>Tariff formulas and automatic cost recovery mechanisms provide full and highly timely recovery of all operating costs and essentially contemporaneous or near-contemporaneous return on most incremental capital investments, with minimal challenges by regulators to companies' cost assumptions. By statute and by practice, general rate cases are efficient, focused on an impartial review, of a very reasonable duration before non-appealable interim rates can be collected, and primarily permit inclusion of forward-looking costs.</p>	<p>Automatic cost recovery mechanisms provide full and reasonably timely recovery of fuel, purchased power and all other highly variable operating expenses. Material capital investments may be made under tariff formulas or other rate-making permitting reasonably contemporaneous returns, or may be submitted under other types of filings that provide recovery of cost of capital with minimal delays. Instances of regulatory challenges that delay rate increases or cost recovery are generally related to large, unexpected increases in sizeable construction projects. By statute or by practice, general rate cases are reasonably efficient, primarily focused on an impartial review, of a reasonable duration before rates (either permanent or non-refundable interim rates) can be collected, and permit inclusion of important forward-looking costs.</p>	<p>Fuel, purchased power and all other highly variable expenses are generally recovered through mechanisms incorporating delays of less than one year, although some rapid increases in costs may be delayed longer where such deferrals do not place financial stress on the utility. Incremental capital investments may be recovered primarily through general rate cases with moderate lag, with some through tariff formulas. Alternately, there may be formula rates that are untested or unclear. Potentially greater tendency for delays due to regulatory intervention, although this will generally be limited to rates related to large capital projects or rapid increases in operating costs.</p>
Baa	B	Caa	
<p>There is an expectation that fuel, purchased power or other highly variable expenses will eventually be recovered with delays that will not place material financial stress on the utility, but there may be some evidence of an unwillingness by regulators to make timely rate changes to address volatility in fuel, or purchased power, or other market-sensitive expenses. Recovery of costs related to capital investments may be subject to delays that are somewhat lengthy, but not so pervasive as to be expected to discourage important investments.</p>	<p>The expectation that fuel, purchased power or other highly variable expenses will be recovered may be subject to material delays due to second-guessing of spending decisions by regulators or due to political intervention. Recovery of costs related to capital investments may be subject to delays that are material to the issuer, or may be likely to discourage some important investment.</p>	<p>The expectation that fuel, purchased power or other highly variable expenses will be recovered may be subject to extensive delays due to second-guessing of spending decisions by regulators or due to political intervention. Recovery of costs related to capital investments may be uncertain, subject to delays that are extensive, or that may be likely to discourage even necessary investment.</p>	

Note: Tariff formulas include formula rate plans as well as trackers and riders related to capital investment.

**Factor 2b: Sufficiency of Rates and Returns (12.5%)**

Aaa	Aa	A	Baa
<p>Sufficiency of rates to cover costs and attract capital is (and will continue to be) unquestioned.</p>	<p>Rates are (and we expect will continue to be) set at a level that permits full cost recovery and a fair return on all investments, with minimal challenges by regulators to companies' cost assumptions. This will translate to returns (measured in relation to equity, total assets, rate base or regulatory asset value, as applicable) that are strong relative to global peers.</p>	<p>Rates are (and we expect will continue to be) set at a level that generally provides full cost recovery and a fair return on investments, with limited instances of regulatory challenges and disallowances. In general, this will translate to returns (measured in relation to equity, total assets, rate base or regulatory asset value, as applicable) that are generally above average relative to global peers, but may at times be average.</p>	<p>Rates are (and we expect will continue to be) set at a level that generally provides full operating cost recovery and a mostly fair return on investments, but there may be somewhat more instances of regulatory challenges and disallowances, although ultimate rate outcomes are sufficient to attract capital without difficulty. In general, this will translate to returns (measured in relation to equity, total assets, rate base or regulatory asset value, as applicable) that are average relative to global peers, but may at times be somewhat below average.</p>
Ba	B	Caa	
<p>Rates are (and we expect will continue to be) set at a level that generally provides recovery of most operating costs but return on investments may be less predictable, and there may be decidedly more instances of regulatory challenges and disallowances, but ultimate rate outcomes are generally sufficient to attract capital. In general, this will translate to returns (measured in relation to equity, total assets, rate base or regulatory asset value, as applicable) that are generally below average relative to global peers, or where allowed returns are average but difficult to earn. Alternately, the tariff formula may not take into account all cost components and/or remuneration of investments may be unclear or at times unfavorable.</p>	<p>We expect rates will be set at a level that at times fails to provide recovery of costs other than cash costs, and regulators may engage in somewhat arbitrary second-guessing of spending decisions or deny rate increases related to funding ongoing operations based much more on politics than on prudence reviews. Return on investments may be set at levels that discourage investment. We expect that rate outcomes may be difficult or uncertain, negatively affecting continued access to capital. Alternately, the tariff formula may fail to take into account significant cost components other than cash costs, and/or remuneration of investments may be generally unfavorable.</p>	<p>We expect rates will be set at a level that often fails to provide recovery of material costs, and recovery of cash costs may also be at risk. Regulators may engage in more arbitrary second-guessing of spending decisions or deny rate increases related to funding ongoing operations based primarily on politics. Return on investments may be set at levels that discourage necessary maintenance investment. We expect that rate outcomes may often be punitive or highly uncertain, with a marked negative impact on access to capital. Alternately, the tariff formula may fail to take into account significant cash cost components, and/or remuneration of investments may be primarily unfavorable.</p>	

### Factor 3: Diversification (10%)

#### Why It Matters

Diversification of overall business operations helps to mitigate the risk that economic cycles, material changes in a single regulatory regime or commodity price movements will have a severe impact on cash flow and credit quality of a utility. While utilities' sales volumes have lower exposure to economic recessions than many non-financial corporate issuers, some sales components, including industrial sales, are directly affected by economic trends that cause lower production and/or plant closures. In addition, economic activity plays a role in the rate of customer growth in the service territory and (absent energy efficiency and conservation) can often impact usage per customer. The economic strength or weakness of the service territory can affect the political and regulatory environment for rate increase requests by the utility. For utilities in areas prone to severe storms and other natural disasters, the utility's geographic diversity or concentration can be a key determinant for creditworthiness.

Diversity among regulatory regimes can mitigate the impact of a single unfavorable decision affecting one part of the utility's footprint.

For utilities with electric generation, fuel source diversity can mitigate the impact (to the utility and to its rate-payers) of changes in commodity prices, hydrology and water flow, and environmental or other regulations affecting plant operations and economics. We have observed that utilities' regulatory environments are most likely to become unfavorable during periods of rapid rate increases (which are more important than absolute rate levels) and that fuel diversity leads to more stable rates over time.

For that reason, fuel diversity can be important even if fuel and purchased power expenses are an automatic pass-through to the utility's ratepayers. Changes in environmental, safety and other regulations have caused vulnerabilities for certain technologies and fuel sources during the past five years. These vulnerabilities have varied widely in different countries and have changed over time.

#### How We Assess Market Position for the Grid

Market position is comprised primarily of the economic diversity of the utility's service territory and the diversity of its regulatory regimes. We also consider the diversity of utility operations (e.g., regulated electric, gas, water, steam) when there are material operations in more than one area.

Economic diversity is typically a function of the population, size and breadth of the territory and the businesses that drive its GDP and employment. For the size of the territory, we typically consider the number of customers and the volumes of generation and/or throughput. For breadth, we consider the number of sizeable metropolitan areas served, the economic diversity and vitality in those metropolitan areas, and any concentration in a particular area or industry. In our assessment, we may consider various information sources. For example, in the US, information sources on the diversity and vitality of economies of individual states and metropolitan areas may include Moody's Economy.com. We also look at the mix of the utility's sales volumes among customer types, as well as the track record of volume sales and any notable payment patterns during economic cycles. For diversity of regulatory regimes, we typically look at the number of regulators and the percentages of revenues and utility assets that are under the purview of each. While the highest scores in the Market Position sub-factor are reserved for issuers regulated in multiple jurisdictions, when there is only one regulator, we make a differentiation of regimes perceived as having lower or higher volatility.

Issuers with multiple supportive regulatory jurisdictions, a balanced sales mix among residential, commercial, industrial and governmental customers in a large service territory with a robust and diverse economy will generally score higher in this sub-factor. An issuer with a small service territory economy that



has a high dependence on one or two sectors, especially highly cyclical industries, will generally score lower in this sub-factor, as will issuers with meaningful exposure to economic dislocations caused by natural disasters.

For issuers that are vertically integrated utilities having a meaningful amount of generation, this sub-factor has a weighting of 5%. For electric transmission and distribution utilities without meaningful generation and for natural gas local distribution companies, this sub-factor has a weighting of 10%.

#### How We Assess Generation and Fuel Diversity for the Grid

Criteria include the fuel type of the issuer's generation and important power purchase agreements, the ability of the issuer economically to shift its generation and power purchases when there are changes in fuel prices, the degree to which the utility and its rate-payers are exposed to or insulated from changes in commodity prices, and exposure to Challenged Source and Threatened Sources (see the explanations for how we generally characterize these generation sources in the table below). A regulated utility's capacity mix may not in itself be an indication of fuel diversity or the ability to shift fuels, since utilities may keep old and inefficient plants (e.g., natural gas boilers) to serve peak load. For this reason, we do not incorporate set percentages reflecting an "ideal" or "sub-par" mix for capacity or even generation. In addition to looking at a utility's generation mix to evaluate fuel diversity, we consider the efficiency of the utility's plants, their placement on the regional dispatch curve, and the demonstrated ability/inability of the utility to shift its generation mix in accordance with changing commodity prices.

Issuers having a balanced mix of hydro, coal, natural gas, nuclear and renewable energy as well as low exposure to challenged and threatened sources of generation will score more highly in this sub-factor. Issuers that have concentration in one or two sources of generation, especially if they are threatened or challenged sources, will incur lower scores.

In evaluating an issuer's degree of exposure to challenged and threatened sources, we will consider not only the existence of those plants in the utility's portfolio, but also the relevant factors that will determine the impact on the utility and on its rate-payers. For instance, an issuer that has a fairly high percentage of its generation from challenged sources could be evaluated very differently if its peer utilities face the same magnitude of those issues than if its peers have no exposure to challenged or threatened sources. In evaluating threatened sources, we consider the utility's progress in its plan to replace those sources, its reserve margin, the availability of purchased power capacity in the region, and the overall impact of the replacement plan on the issuer's rates relative to its peer group. Especially if there are no peers in the same jurisdiction, we also examine the extent to which the utility's generation resources plan is aligned with the relevant government's fuel/energy policy.



## Factor 3: Diversification (10%)

Weighting 10%	Sub-Factor Weighting	Aaa	Aa	A	Baa
Market Position	5.00% *	A very high degree of multinational and regional diversity in terms of regulatory regimes and/or service territory economies.	Material operations in three or more regions or substantial geographic regions providing very good diversity of regulatory regimes and/or service territory economies.	Material operations in two to three nations, states, provinces or regions that provide good diversity of regulatory regimes and service territory economies. Alternately, operates within a single regulatory regime with low volatility, and the service territory economy is robust, has a very high degree of diversity and has demonstrated resilience in economic cycles.	May operate under a single regulatory regime viewed as having low volatility, or where multiple regulatory regimes are not viewed as providing much diversity. The service territory economy may have some concentration and cyclicality, but is sufficiently resilient that it can absorb reasonably foreseeable increases in utility rates.
Generation and Fuel Diversity	5.00% **	A high degree of diversity in terms of generation and/or fuel sources such that the utility and rate-payers are well insulated from commodity price changes, no generation concentration, and very low exposures to Challenged or Threatened Sources (see definitions below).	Very good diversification in terms of generation and/or fuel sources such that the utility and rate-payers are affected only minimally by commodity price changes, little generation concentration, and low exposures to Challenged or Threatened Sources.	Good diversification in terms of generation and/or fuel sources such that the utility and rate-payers have only modest exposure to commodity price changes; however, may have some concentration in a source that is neither Challenged nor Threatened. Exposure to Threatened Sources is low. While there may be some exposure to Challenged Sources, it is not a cause for concern.	Adequate diversification in terms of generation and/or fuel sources such that the utility and rate-payers have moderate exposure to commodity price changes; however, may have some concentration in a source that is Challenged. Exposure to Threatened Sources is moderate, while exposure to Challenged Sources is manageable.
Market Position	5.00% *	Operates in a market area with somewhat greater concentration and cyclicality in the service territory economy and/or exposure to storms and other natural disasters, and thus less resilience to absorbing reasonably foreseeable increases in utility rates. May show somewhat greater volatility in the regulatory regime(s).	Operates in a limited market area with material concentration and more severe cyclicality in service territory economy such that cycles are of materially longer duration or reasonably foreseeable increases in utility rates could present a material challenge to the economy. Service territory may have geographic concentration that limits its resilience to storms and other natural disasters, or may be an emerging market. May show decided volatility in the regulatory regime(s).	Operates in a concentrated economic service territory with pronounced concentration, macroeconomic risk factors, and/or exposure to natural disasters.	Challenged Sources are generation plants that face higher but not insurmountable economic hurdles resulting from penalties or taxes on their operation, or from environmental upgrades that are required or likely to be required. Some examples are carbon-emitting plants that incur carbon taxes, plants that must buy emissions credits to operate, and plants that must install environmental equipment to continue to operate, in each where the taxes/credits/upgrades are sufficient to have a material impact on those plants' competitiveness relative to other generation types or on the utility's rates, but where the impact is not so severe as to be likely require plant closure.

Generation and Fuel Diversity	5.00% **	Modest diversification in generation and/or fuel sources such that the utility or rate-payers have greater exposure to commodity price changes. Exposure to Challenged and Threatened Sources may be more pronounced, but the utility will be able to access alternative sources without undue financial stress.	Operates with little diversification in generation and/or fuel sources such that the utility or rate-payers have high exposure to commodity price changes. Exposure to Challenged and Threatened Sources may be high, and accessing alternate sources may be challenging and cause more financial stress, but ultimately feasible.	Operates with high concentration in generation and/or fuel sources such that the utility or rate-payers have exposure to commodity price shocks. Threatened Sources may be very high, and accessing alternate sources may be highly uncertain.	Threatened Sources are generation plants that are not currently able to operate due to major unplanned outages or issues with licensing or other regulatory compliance, and plants that are highly likely to be required to de-activate, whether due to the effectiveness of currently existing or expected rules and regulations or due to economic challenges. Some recent examples would include coal fired plants in the US that are not economic to retro-fit to meet mercury and air toxics standards, plants that cannot meet the effective date of those standards, nuclear plants in Japan that have not been licensed to re-start after the Fukushima Dai-ichi accident, and nuclear plants that are required to be phased out within 10 years (as is the case in some European countries).
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\* 10% weight for issuers that lack generation \*\*0% weight for issuers that lack generation

## Factor 4: Financial Strength (40%)

### Why It Matters

Electric and gas utilities are regulated, asset-based businesses characterized by large investments in long-lived property, plant and equipment. Financial strength, including the ability to service debt and provide a return to shareholders, is necessary for a utility to attract capital at a reasonable cost in order to invest in its generation, transmission and distribution assets, so that the utility can fulfill its service obligations at a reasonable cost to rate-payers.

### How We Assess It for the Grid

In comparison to companies in other non-financial corporate sectors, the financial statements of regulated electric and gas utilities have certain unique aspects that impact financial analysis, which is further complicated by disparate treatment of certain elements under US Generally Accepted Accounting Principles (GAAP) versus International Financial Reporting Standards (IFRS). Regulatory accounting may permit utilities to defer certain costs (thereby creating regulatory assets) that a non-utility corporate entity would have to expense. For instance, a regulated utility may be able to defer a substantial portion of costs related to recovery from a storm based on the general regulatory framework for those expenses, even if the utility does not have a specific order to collect the expenses from ratepayers over a set period of time. A regulated utility may be able to accrue and defer a return on equity (in addition to capitalizing interest) for construction-work-in-progress for an approved project based on the assumption that it will be able to collect that deferred equity return once the asset comes into service. For this reason, we focus more on a utility's cash flow than on its reported net income.

Conversely, utilities may collect certain costs in rates well ahead of the time they must be paid (for instance, pension costs), thereby creating regulatory liabilities. Many of our metrics focus on Cash Flow from Operations Before Changes in Working Capital (CFO Pre-WC) because, unlike Funds from Operations (FFO), it captures the changes in long-term regulatory assets and liabilities.

However, under IFRS the two measures are essentially the same. In general, we view changes in working capital as less important in utility financial analysis because they are often either seasonal (for example, power demand is generally greatest in the summer) or caused by changes in fuel prices that are typically a relatively automatic pass-through to the customer. We will nonetheless examine the impact of working capital changes in analyzing a utility's liquidity (see Other Rating Considerations – Liquidity).

Given the long-term nature of utility assets and the often lumpy nature of their capital expenditures, it is important to analyze both a utility's historical financial performance as well as its prospective future performance, which may be different from backward-looking measures. Scores under this factor may be higher or lower than what might be expected from historical results, depending on our view of expected future performance. Multi-year periods are usually more representative of credit quality because utilities can experience swings in cash flows from one-time events, including such items as rate refunds, storm cost deferrals that create a regulatory asset, or securitization proceeds that reduce a regulatory asset. Nonetheless, we also look at trends in metrics for individual periods, which may influence our view of future performance and ratings.

For this scoring grid, we have identified four key ratios that we consider the most consistently useful in the analysis of regulated electric and gas utilities. However, no single financial ratio can adequately convey the relative credit strength of these highly diverse companies. Our ratings consider the overall financial strength of a company, and in individual cases other financial indicators may also play an important role.

*CFO Pre-Working Capital Plus Interest/Interest or Cash Flow Interest Coverage*

The cash flow interest coverage ratio is an indicator for a utility's ability to cover the cost of its borrowed capital. The numerator in the ratio calculation is the sum of CFO Pre-WC and interest expense, and the denominator is interest expense.

*CFO Pre-Working Capital / Debt*

This important metric is an indicator for the cash generating ability of a utility compared to its total debt. The numerator in the ratio calculation is CFO Pre-WC, and the denominator is total debt.

*CFO Pre-Working Capital Minus Dividends / Debt*

This ratio is an indicator for financial leverage as well as an indicator of the strength of a utility's cash flow after dividend payments are made. Dividend obligations of utilities are often substantial, quasi-permanent outflows that can affect the ability of a utility to cover its debt obligations, and this ratio can also provide insight into the financial policies of a utility or utility holding company. The higher the level of retained cash flow relative to a utility's debt, the more cash the utility has to support its capital expenditure program. The numerator of this ratio is CFO Pre-WC minus dividends, and the denominator is total debt.

*Debt/Capitalization*

This ratio is a traditional measure of balance sheet leverage. The numerator is total debt and the denominator is total capitalization. All of our ratios are calculated in accordance with our standard adjustments<sup>10</sup>, but we note that our definition of total capitalization includes deferred taxes in addition to total debt, preferred stock, other hybrid securities, and common equity. Since the presence or absence of deferred taxes is a function of national tax policy, comparing utilities using this ratio may be more meaningful among utilities in the same country or in countries with similar tax policies. High debt levels in comparison to capitalization can indicate higher interest obligations, can limit the ability of a utility to raise additional financing if needed, and can lead to leverage covenant violations in bank credit facilities or other financing agreements<sup>11</sup>. A high ratio may result from a regulatory framework that does not permit a robust cushion of equity in the capital structure, or from a material write-off of an asset, which may not have impacted current period cash flows but could affect future period cash flows relative to debt.

There are two sets of thresholds for three of these ratios based on the level of the issuer's business risk – the Standard Grid and the Lower Business Risk (LBR) Grid. In our view, the different types of utility entities covered under this methodology (as described in Appendix E) have different levels of business risk.

Generation utilities and vertically integrated utilities generally have a higher level of business risk because they are engaged in power generation, so we apply the Standard Grid. We view power generation as the highest-risk component of the electric utility business, as generation plants are typically the most expensive part of a utility's infrastructure (representing asset concentration risk) and are subject to the greatest risks in both construction and operation, including the risk that incurred costs will either not be recovered in rates or recovered with material delays.

Other types of utilities may have lower business risk, such that we believe that they are most appropriately assessed using the LBR Grid, due to factors that could include a generally greater transfer of risk to customers, very strong insulation from exposure to commodity price movements, good protection from volumetric risks, fairly limited capex needs and low exposure to storms, major accidents and natural

<sup>10</sup> In certain circumstances, analysts may also apply specific adjustments.

<sup>11</sup> We also examine debt/capitalization ratios as defined in applicable covenants (which typically exclude deferred taxes from capitalization) relative to the covenant threshold level.

disasters. For instance, we tend to view many US natural gas local distribution companies (LDCs) and certain US electric transmission and distribution companies (T&Ds, which lack generation but generally retain some procurement responsibilities for customers), as typically having a lower business risk profile than their vertically integrated peers. In cases of T&Ds that we do not view as having materially lower risk than their vertically integrated peers, we will apply the Standard grid. This could result from a regulatory framework that exposes them to energy supply risk, large capital expenditures for required maintenance or upgrades, a heightened degree of exposure to catastrophic storm damage, or increased regulatory scrutiny due to poor reliability, or other considerations. The Standard Grid will also apply to LDCs that in our view do not have materially lower risk; for instance, due to their ownership of high pressure pipes or older systems requiring extensive gas main replacements, where gas commodity costs are not fully recovered in a reasonably contemporaneous manner, or where the LDC is not well insulated from declining volumes.

The four key ratios, their weighting in the grid, and the Standard and LBR scoring thresholds are detailed in the following table.

#### Factor 4: Financial Strength

Weighting 40%	Sub-Factor Weighting		Aaa	Aa	A	Baa	Ba	B	Caa
CFO pre-WC + Interest / Interest	7.50%		≥ 8.0x	6.0x - 8.0x	4.5x - 6.0x	3.0x - 4.5x	2.0x - 3.0x	1.0x - 2.0x	< 1.0x
CFO pre-WC / Debt	15.00%	Standard Grid	≥ 40%	30% - 40%	22% - 30%	13% - 22%	5% - 13%	1% - 5%	< 1%
		Low Business Risk Grid	≥ 38%	27% - 38%	19% - 27%	11% - 19%	5% - 11%	1% - 5%	< 1%
CFO pre-WC - Dividends / Debt	10.00%	Standard Grid	≥ 35%	25% - 35%	17% - 25%	9% - 17%	0% - 9%	(5%) - 0%	< (5%)
		Low Business Risk Grid	≥ 34%	23% - 34%	15% - 23%	7% - 15%	0% - 7%	(5%) - 0%	< (5%)
Debt / Capitalization	7.50%	Standard Grid	< 25%	25% - 35%	35% - 45%	45% - 55%	55% - 65%	65% - 75%	≥ 75%
		Low Business Risk Grid	< 29%	29% - 40%	40% - 50%	50% - 59%	59% - 67%	67% - 75%	≥ 75%

#### Notching for Structural Subordination of Holding Companies

##### Why It Matters

A typical utility company structure consists of a holding company ("HoldCo") that owns one or more operating subsidiaries (each an "OpCo"). OpCos may be regulated utilities or non-utility companies. A HoldCo typically has no operations – its assets are mostly limited to its equity interests in subsidiaries, and potentially other investments in subsidiaries that are structured as advances, debt, or even hybrid securities.

Most HoldCos present their financial statements on a consolidated basis that blurs legal considerations about priority of creditors based on the legal structure of the family, and grid scoring is thus based on consolidated ratios. However, HoldCo creditors typically have a secondary claim on the group's cash flows and assets after OpCo creditors. We refer to this as structural subordination, because it is the corporate legal structure, rather than specific subordination provisions, that causes creditors at each of the utility and non-utility subsidiaries to have a more direct claim on the cash flows and assets of their respective OpCo obligors. By contrast, the debt of the HoldCo is typically serviced primarily by dividends that are up-

streamed by the OpCos<sup>12</sup>. Under normal circumstances, these dividends are made from net income, after payment of the OpCo's interest and preferred dividends. In most non-financial corporate sectors where cash often moves freely between the entities in a single issuer family, this distinction may have less of an impact. However, in the regulated utility sector, barriers to movement of cash among companies in the corporate family can be much more restrictive, depending on the regulatory framework. These barriers can lead to significantly different probabilities of default for HoldCos and OpCos. Structural subordination also affects loss given default. Under most default<sup>13</sup> scenarios, an OpCo's creditors will be satisfied from the value residing at that OpCo before any of the OpCo's assets can be used to satisfy claims of the HoldCo's creditors. The prevalence of debt issuance at the OpCo level is another reason that structural subordination is usually a more serious concern in the utility sector than for investment grade issuers in other non-financial corporate sectors.

The grids for factors 1-4 are primarily oriented to OpCos (and to some degree for HoldCos with minimal current structural subordination; for example, there is no current structural subordination to debt at the operating company if all of the utility family's debt and preferred stock is issued at the HoldCo level, although there is structural subordination to other liabilities at the OpCo level). The additional risk from structural subordination is addressed via a notching adjustment to bring grid outcomes (on average) closer to the actual ratings of HoldCos.

#### How We Assess It

Grid-indicated ratings of holding companies may be notched down based on structural subordination. The risk factors and mitigants that impact structural subordination are varied and can be present in different combinations, such that a formulaic approach is not practical and case-by-case analyst judgment of the interaction of all pertinent factors that may increase or decrease its importance to the credit risk of an issuer are essential.

Some of the potentially pertinent factors that could increase the degree and/or impact of structural subordination include the following:

- » Regulatory or other barriers to cash movement from OpCos to HoldCo
- » Specific ring-fencing provisions
- » Strict financial covenants at the OpCo level
- » Higher leverage at the OpCo level
- » Higher leverage at the HoldCo level<sup>14</sup>
- » Significant dividend limitations or potential limitations at an important OpCo
- » HoldCo exposure to subsidiaries with high business risk or volatile cash flows

Strained liquidity at the HoldCo level

- » The group's investment program is primarily in businesses that are higher risk or new to the group

Some of the potentially mitigating factors that could decrease the degree and/or impact of structural subordination include the following:

<sup>12</sup> The HoldCo and OpCo may also have intercompany agreements, including tax sharing agreements, that can be another source of cash to the HoldCo.

<sup>13</sup> Actual priority in a default scenario will be determined by many factors, including the corporate and bankruptcy laws of the jurisdiction, the asset value of each OpCo, specific financing terms, inter-relationships among members of the family, etc.

<sup>14</sup> While higher leverage at the HoldCo does not increase structural subordination per se, it exacerbates the impact of any structural subordination that exists

- » Substantial diversity in cash flows from a variety of utility OpCos
- » Meaningful dividends to HoldCo from unlevered utility OpCos
- » Dependable, meaningful dividends to HoldCo from non-utility OpCos
- » The group's investment program is primarily in strong utility businesses
- » Inter-company guarantees - however, in many jurisdictions the value of an upstream guarantee may be limited by certain factors, including by the value that the OpCo received in exchange for granting the guarantee

Notching for structural subordination within the grid may range from 0 to negative 3 notches. Instances of extreme structural subordination are relatively rare, so the grid convention does not accommodate wider differences, although in the instances where we believe it is present, actual ratings do reflect the full impact of structural subordination.

A related issue is the relationship of ratings within a utility family with multiple operating companies, and sometimes intermediate holding companies. Some of the key issues are the same, such as the relative amounts of debt at the holding company level compared to the operating company level (or at one OpCo relative to another), and the degree to which operating companies have credit insulation due to regulation or other protective factors. Appendix B has additional insights on ratings within a utility family.

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### Rating Methodology Assumptions, Limitations, and Other Rating Considerations

The grid in this rating methodology represents a decision to favor simplicity that enhances transparency and to avoid greater complexity that might enable the grid to map more closely to actual ratings. Accordingly, the four rating factors and the notching factor in the grid do not constitute an exhaustive treatment of all of the considerations that are important for ratings of companies in the regulated electric and gas utility sector. In addition, our ratings incorporate expectations for future performance, while the financial information that is used in the grid in this document is mainly historical. In some cases, our expectations for future performance may be informed by confidential information that we can't disclose. In other cases, we estimate future results based upon past performance, industry trends, competitor actions or other factors. In either case, predicting the future is subject to the risk of substantial inaccuracy.

Assumptions that may cause our forward-looking expectations to be incorrect include unanticipated changes in any of the following factors: the macroeconomic environment and general financial market conditions, industry competition, disruptive technology, regulatory and legal actions.

Key rating assumptions that apply in this sector include our view that sovereign credit risk is strongly correlated with that of other domestic issuers, that legal priority of claim affects average recovery on different classes of debt, sufficiently to generally warrant differences in ratings for different debt classes of the same issuer, and the assumption that lack of access to liquidity is a strong driver of credit risk.

In choosing metrics for this rating methodology grid, we did not explicitly include certain important factors that are common to all companies in any industry such as the quality and experience of management, assessments of corporate governance and the quality of financial reporting and information disclosure. Therefore ranking these factors by rating category in a grid would in some cases suggest too much precision in the relative ranking of particular issuers against all other issuers that are rated in various industry sectors.



Ratings may include additional factors that are difficult to quantify or that have a meaningful effect in differentiating credit quality only in some cases, but not all. Such factors include financial controls, exposure to uncertain licensing regimes and possible government interference in some countries.

Regulatory, litigation, liquidity, technology and reputational risk as well as changes to consumer and business spending patterns, competitor strategies and macroeconomic trends also affect ratings. While these are important considerations, it is not possible precisely to express these in the rating methodology grid without making the grid excessively complex and significantly less transparent.

Ratings may also reflect circumstances in which the weighting of a particular factor will be substantially different from the weighting suggested by the grid.

This variation in weighting rating considerations can also apply to factors that we choose not to represent in the grid. For example, liquidity is a consideration frequently critical to ratings and which may not, in other circumstances, have a substantial impact in discriminating between two issuers with a similar credit profile. As an example of the limitations, ratings can be heavily affected by extremely weak liquidity that magnifies default risk. However, two identical companies might be rated the same if their only differentiating feature is that one has a good liquidity position while the other has an extremely good liquidity position.

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### Other Rating Considerations

We consider other factors in addition to those discussed in this report, but in most cases understanding the considerations discussed herein should enable a good approximation of our view on the credit quality of companies in the regulated electric and gas utilities sector. Ratings consider our assessment of the quality of management, corporate governance, financial controls, liquidity management, event risk and seasonality. The analysis of these factors remains an integral part of our rating process.

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### Liquidity and Access to Capital Markets

Liquidity analysis is a key element in the financial analysis of electric and gas utilities, and it encompasses a company's ability to generate cash from internal sources as well as the availability of external sources of financing to supplement these internal sources. Liquidity and access to financing are of particular importance in this sector. Utility assets can often have a very long useful life—30, 40 or even 60 years is not uncommon, as well as high price tags. Partly as a result of construction cycles, the utility sector has experienced prolonged periods of negative free cash flow—essentially, the sum of its dividends and its capital expenditures for maintenance and growth of its infrastructure frequently exceeds cash from operations, such that a portion of capital expenditures must routinely be debt financed. Utilities are among the largest debt issuers in the corporate universe and typically require consistent access to the capital markets to assure adequate sources of funding and to maintain financial flexibility. Substantial portions of capex are non-discretionary (for example, maintenance, adding customers to the network, or meeting environmental mandates); however, utilities were swift to cut or defer discretionary spending during the 2007-2009 recession. Dividends represent a quasi-permanent outlay, since utilities typically only rarely will cut their dividend. Liquidity is also important to meet maturing obligations, which often occur in large chunks, and to meet collateral calls under any hedging agreements.

Due to the importance of liquidity, incorporating it as a factor with a fixed weighting in the grid would suggest an importance level that is often far different from the actual weight in the rating. In normal circumstances most companies in the sector have good access to liquidity. The industry generally requires, and for the most part has, large, syndicated, multi-year committed credit facilities. In addition, utilities have demonstrated strong access to capital markets, even under difficult conditions. As a result, liquidity



generally has not been an issue for most utilities and a utility with very strong liquidity may not warrant a rating distinction compared to a utility with strong liquidity. However, when there is weakness in liquidity or liquidity management, it can be the dominant consideration for ratings.

Our assessment of liquidity for regulated utilities involves an analysis of total sources and uses of cash over the next 12 months or more, as is done for all corporates. Using our financial projections of the utility and our analysis of its available sources of liquidity (including an assessment of the quality and reliability of alternate liquidity such as committed credit facilities), we evaluate how its projected sources of cash (cash from operations, cash on hand and existing committed multi-year credit facilities) compare to its projected uses (including all or most capital expenditures, dividends, maturities of short and long-term debt, our projection of potential liquidity calls on financial hedges, and important issuer-specific items such as special tax payments). We assume no access to capital markets or additional liquidity sources, no renewal of existing credit facilities, and no cut to dividends. We examine a company's liquidity profile under this scenario, its ability to make adjustments to improve its liquidity position, and any dependence on liquidity sources with lower quality and reliability.

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### Management Quality and Financial Policy

The quality of management is an important factor supporting the credit strength of a regulated utility or utility holding company. Assessing the execution of business plans over time can be helpful in assessing management's business strategies, policies, and philosophies and in evaluating management performance relative to performance of competitors and our projections. A record of consistency provides us with insight into management's likely future performance in stressed situations and can be an indicator of management's tendency to depart significantly from its stated plans and guidelines.

We also assess financial policy (including dividend policy and planned capital expenditures) and how management balances the potentially competing interests of shareholders, fixed income investors and other stakeholders. Dividends and discretionary capital expenditures are the two primary components over which management has the greatest control in the short term. For holding companies, we consider the extent to which management is willing to stretch its payout ratio (through aggressive increases or delays in needed decreases) in order to satisfy common shareholders. For a utility that is a subsidiary of a parent company with several utility subsidiaries, dividends to the parent may be more volatile depending on the cash generation and cash needs of that utility, because parents typically want to assure that each utility maintains the regulatory debt/equity ratio on which its rates have been set. The effect we have observed is that utility subsidiaries often pay higher dividends when they have lower capital needs and lower dividends when they have higher capital expenditures or other cash needs. Any dividend policy that cuts into the regulatory debt/equity ratio is a material credit negative.

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### Size – Natural Disasters, Customer Concentration and Construction Risks

The size and scale of a regulated utility has generally not been a major determinant of its credit strength in the same way that it has been for most other industrial sectors. While size brings certain economies of scale that can somewhat affect the utility's cost structure and competitiveness, rates are more heavily impacted by costs related to fuel and fixed assets. Particularly in the US, we have not observed material differences in the success of utilities' regulatory outreach based on their size. Smaller utilities have sometimes been better able to focus their attention on meeting the expectations of a single regulator than their multi-state peers.

However, size can be a very important factor in our assessment of certain risks that impact ratings, including exposure to natural disasters, customer concentration (primarily to industrial customers in a single sector) and construction risks associated with large projects. While the grid attempts to incorporate the first two of

these into Factor 3, for some issuers these considerations may be sufficiently important that the rating reflects a greater weight for these risks. While construction projects always carry the risk of cost over-runs and delays, these risks are materially heightened for projects that are very large relative to the size of the utility.

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### Interaction of Utility Ratings with Government Policies and Sovereign Ratings

Compared to most industrial sectors, regulated utilities are more likely to be impacted by government actions. Credit impacts can occur directly through rate regulation, and indirectly through energy, environmental and tax policies. Government actions affect fuel prices, the mix of generating plants, the certainty and timing of revenues and costs, and the likelihood that regulated utilities will experience financial stress. While our evolving view of the impact of such policies and the general economic and financial climate is reflected in ratings for each utility, some considerations do not lend themselves to incorporation in a simple ratings grid.<sup>15</sup>

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### Diversified Operations at the Utility

A small number of regulated utilities have diversified operations that are segments within the utility company, as opposed to the more common practice of housing such operations in one or more separate affiliates. In general, we will seek to evaluate the other businesses that are material in accordance with the appropriate methodology and the rating will reflect considerations from such methodologies. There may be analytical limitations in evaluating the utility and non-utility businesses when segment financial results are not fully broken out and these may be addressed through estimation based on available information. Since regulated utilities are a relatively low risk business compared to other corporate sectors, in most cases diversified non-utility operations increase the business risk profile of a utility. Reflecting this tendency, we note that assigned ratings are typically lower than grid- indicated ratings for such companies.

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### Event Risk

We also recognize the possibility that an unexpected event could cause a sudden and sharp decline in an issuer's fundamental creditworthiness. Typical special events include mergers and acquisitions, asset sales, spin-offs, capital restructuring programs, litigation and shareholder distributions.

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### Corporate Governance

Among the areas of focus in corporate governance are audit committee financial expertise, the incentives created by executive compensation packages, related party transactions, interactions with outside auditors, and ownership structure.

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### Investment and Acquisition Strategy

In our credit assessment we take into consideration management's investment strategy. Investment strategy is benchmarked with that of the other companies in the rated universe to further verify its consistency. Acquisitions can strengthen a company's business. Our assessment of a company's tolerance for acquisitions at a given rating level takes into consideration (1) management's risk appetite, including the likelihood of further acquisitions over the medium term; (2) share buy-back activity; (3) the company's commitment to specific leverage targets; and (4) the volatility of the underlying businesses, as well as that of the business acquired. Ratings can often hold after acquisitions even if leverage temporarily climbs above normally acceptable ranges. However, this depends on (1) the strategic fit; (2) pro-forma capitalization/leverage

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<sup>15</sup> See also the cross-sector methodology "How Sovereign Credit Quality May Affect Other Ratings." A link to this and other sector and cross-sector credit rating methodologies can be found in the Related Research section of this report.

following an acquisition; and (3) our confidence that credit metrics will be restored in a relatively short timeframe.

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### Financial Controls

We rely on the accuracy of audited financial statements to assign and monitor ratings in this sector. Such accuracy is only possible when companies have sufficient internal controls, including centralized operations, the proper tone at the top and consistency in accounting policies and procedures.

Weaknesses in the overall financial reporting processes, financial statement restatements or delays in regulatory filings can be indications of a potential breakdown in internal controls.

## Appendix A: Regulated Electric and Gas Utilities Methodology Factor Grid

### Factor 1a: Legislative and Judicial Underpinnings of the Regulatory Framework (12.5%)

	Aaa	Aa	A	Baa
<p>Utility regulation occurs under a fully developed framework that is national in scope based on legislation that provides the utility a nearly absolute monopoly (see note 1, within its service territory, an unquestioned assurance that rates will be set in a manner that will permit the utility to make and recover all necessary investments, an extremely high degree of clarity as to the manner in which utilities will be regulated and prescriptive methods and procedures for setting rates. Existing utility law is comprehensive and supportive such that changes in legislation are not expected to be necessary; or any changes that have occurred have been strongly supportive of utilities credit quality in general and sufficiently forward-looking so as to address problems before they occurred.</p> <p>There is an independent judiciary that can arbitrate disagreements between the regulator and the utility should they occur, including access to national courts, very strong judicial precedent in the interpretation of utility laws, and a strong rule of law. We expect these conditions to continue.</p>	<p>Utility regulation occurs under a fully developed national, state or provincial framework based on legislation that provides the utility an extremely strong monopoly (see note 1) within its service territory, a strong assurance, subject to limited review, that rates will be set in a manner that will permit the utility to make and recover all necessary investments, a very high degree of clarity as to the manner in which utilities will be regulated and reasonably prescriptive methods and procedures for setting rates. If there have been changes in utility legislation, they have been timely and clearly credit supportive of the issuer in a manner that shows the utility has had a strong voice in the process. There is an independent judiciary that can arbitrate disagreements between the regulator and the utility, should they occur including access to national courts, strong judicial precedent in the interpretation of utility laws, and a strong rule of law. We expect these conditions to continue.</p>	<p>Utility regulation occurs under a well developed national, state or provincial framework based on legislation that provides the utility a very strong monopoly (see note 1) within its service territory, an assurance, subject to reasonable prudence requirements, that rates will be set in a manner that will permit the utility to make and recover all necessary investments, a high degree of clarity as to the manner in which utilities will be regulated, and overall guidance for methods and procedures for setting rates. If there have been changes in utility legislation, they have been mostly timely and on the whole credit supportive for the issuer, and the utility has had a clear voice in the legislative process. There is an independent judiciary that can arbitrate disagreements between the regulator and the utility, should they occur, including access to national courts, clear judicial precedent in the interpretation of utility law, and a strong rule of law. We expect these conditions to continue.</p>	<p>Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation or government decree that provides the utility a monopoly within its service territory, but with little assurance that rates will be set in a manner that will permit the utility to make and recover necessary investments; or (ii) under a new framework where we would expect unpredictable or adverse regulation, based either on the jurisdiction's history of in other sectors or other factors. The judiciary that can arbitrate disagreements between the regulator and the utility may not have clear authority or is viewed as not being fully independent of the regulator or other political pressure. Alternately, there may be no redress to an effective independent arbitrator. The ability of the utility to enforce its monopoly or prevent uncompensated usage of its system may be limited. There may be a risk of creditor-unfriendly nationalization or other significant intervention in utility markets or rate-setting.</p>	<p>Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation or government decree that provides the utility a strong monopoly within its service territory that may have some exceptions such as greater self-generation (see note 1), a general assurance that, subject to prudence requirements that are mostly reasonable, rates will be set in a manner that will permit the utility to make and recover all necessary investments, reasonable clarity as to the manner in which utilities will be regulated and overall guidance for methods and procedures for setting rates; or (ii) under a new framework where independent and transparent regulation exists in other sectors. If there have been changes in utility legislation, they have been credit supportive or at least balanced for the issuer but potentially less timely, and the utility had a voice in the legislative process. There is either (i) an independent judiciary that can arbitrate disagreements between the regulator and the utility, including access to courts at least at the state or provincial level, reasonably clear judicial precedent in the interpretation of utility laws, and a generally strong rule of law; or (ii) regulation has been applied (under a well developed framework) in a manner such that redress to an independent arbitrator has not been required. We expect these conditions to continue.</p>
<p>Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation or government decree that provides the utility a monopoly within its service territory that is generally strong but may have a greater level of exceptions (see note 1), and that, subject to prudence requirements which may be stringent, provides a general assurance (with somewhat less certainty) that rates will be set in a manner that will permit the utility to make and recover necessary investments; or (ii) under a new framework where the jurisdiction has a history of less independent and transparent regulation in other sectors. Either: (i) the judiciary that can arbitrate disagreements between the regulator and the utility may not have clear authority or may not be fully independent of the regulator or other political pressure, but there is a reasonably strong rule of law; or (ii) where there is no independent arbitrator, the regulation has mostly been applied in a manner such that redress has not been required. We expect these conditions to continue.</p>	<p>Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation or government decree that provides the utility a monopoly within its service territory that is reasonably strong but may have important exceptions, and that, subject to prudence requirements which may be stringent or at times arbitrary, provides more limited or less certain assurance that rates will be set in a manner that will permit the utility to make and recover necessary investments; or (ii) under a new framework where we would expect less independent and transparent regulation, based either on the regulator's history in other sectors or other factors. The judiciary that can arbitrate disagreements between the regulator and the utility may not be fully independent of the regulator or other political pressure, but there is a reasonably strong rule of law. Alternately, where there is no independent arbitrator, the regulation has been applied in a manner that often requires some redress adding more uncertainty to the regulatory framework. There may be a periodic risk of creditor-unfriendly government intervention in utility markets or rate-setting.</p>	<p>Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation or government decree that provides the utility a monopoly within its service territory, but with little assurance that rates will be set in a manner that will permit the utility to make and recover necessary investments; or (ii) under a new framework where we would expect unpredictable or adverse regulation, based either on the jurisdiction's history of in other sectors or other factors. The judiciary that can arbitrate disagreements between the regulator and the utility may not have clear authority or is viewed as not being fully independent of the regulator or other political pressure. Alternately, there may be no redress to an effective independent arbitrator. The ability of the utility to enforce its monopoly or prevent uncompensated usage of its system may be limited. There may be a risk of creditor-unfriendly nationalization or other significant intervention in utility markets or rate-setting.</p>	<p>Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation or government decree that provides the utility a monopoly within its service territory, but with little assurance that rates will be set in a manner that will permit the utility to make and recover necessary investments; or (ii) under a new framework where we would expect unpredictable or adverse regulation, based either on the jurisdiction's history of in other sectors or other factors. The judiciary that can arbitrate disagreements between the regulator and the utility may not have clear authority or is viewed as not being fully independent of the regulator or other political pressure. Alternately, there may be no redress to an effective independent arbitrator. The ability of the utility to enforce its monopoly or prevent uncompensated usage of its system may be limited. There may be a risk of creditor-unfriendly nationalization or other significant intervention in utility markets or rate-setting.</p>	<p>Utility regulation occurs (i) under a national, state, provincial or municipal framework based on legislation or government decree that provides the utility a monopoly within its service territory, but with little assurance that rates will be set in a manner that will permit the utility to make and recover necessary investments; or (ii) under a new framework where we would expect unpredictable or adverse regulation, based either on the jurisdiction's history of in other sectors or other factors. The judiciary that can arbitrate disagreements between the regulator and the utility may not have clear authority or is viewed as not being fully independent of the regulator or other political pressure. Alternately, there may be no redress to an effective independent arbitrator. The ability of the utility to enforce its monopoly or prevent uncompensated usage of its system may be limited. There may be a risk of creditor-unfriendly nationalization or other significant intervention in utility markets or rate-setting.</p>

Note 1: The strength of the monopoly refers to the legal, regulatory and practical obstacles for customers in the utility's territory to obtain service from another provider. Examples of a weakening of the monopoly would include the ability of a city or large user to leave the utility system to set up their own system, the extent to which self-generation is permitted (e.g. cogeneration) and/or encouraged (e.g. net metering, DSM generation). At the lower end of the ratings spectrum, the utility's monopoly may be challenged by pervasive theft and unauthorized use. Since utilities are generally presumed to be monopolies, a strong monopoly position in itself is not sufficient for a strong score in this sub-factor, but a weakening of the monopoly can lower the score.

\* 10% weight for issuers that lack generation \*\*0% weight for issuers that lack generation

**Factor 1b: Consistency and Predictability of Regulation (12.5%)**

Aaa	Aa	A	Baa
<p>The issuer's interaction with the regulator has led to a strong, lengthy track record of predictable, consistent and favorable decisions. The regulator is highly credit supportive of the issuer and utilities in general. We expect these conditions to continue.</p>	<p>The issuer's interaction with the regulator has led to a track record of largely predictable and consistent decisions. The regulator may be somewhat less credit supportive of utilities in general, but has been quite credit supportive of the issuer in most circumstances. We expect these</p>		<p>The issuer's interaction with the regulator has led to an adequate track record. The regulator is generally consistent and predictable, but there may be some evidence of inconsistency or unpredictability from time to time, or decisions may at times be politically charged. However, instances of less credit supportive decisions are based on reasonable application of existing rules and statutes and are not overly punitive. We expect these conditions to</p>
Ba	B	Caa	
<p>We expect that regulatory decisions will demonstrate considerable inconsistency or unpredictability or that decisions will be politically charged, based either on the issuer's track record of interaction with regulators or other governing bodies, or our view that decisions will move in this direction. The regulator may have a history of less credit supportive regulatory decisions with respect to the issuer, but we expect that the issuer will be able to obtain support when it encounters financial stress, with some potentially material delays. The regulator's authority may be eroded at times by legislative or political action. The regulator may not follow the framework for</p>	<p>We expect that regulatory decisions will be largely unpredictable or even somewhat arbitrary, based either on the issuer's track record of interaction with regulators or other governing bodies, or our view that decisions will move in this direction. However, we expect that the issuer will ultimately be able to obtain support when it encounters financial stress, albeit with material or more extended delays. Alternately, the regulator is untested, lacks a consistent track record, or is undergoing substantial change. The regulator's authority may be eroded on frequent occasions by legislative or political action. The regulator may more frequently ignore the framework in a manner detrimental to the issuer.</p>	<p>We expect that regulatory decisions will be highly unpredictable and frequently adverse, based either on the issuer's track record of interaction with regulators or other governing bodies, or our view that decisions will move in this direction. Alternately, decisions may have credit supportive aspects, but may often be unenforceable. The regulator's authority may have been seriously eroded by legislative or political action. The regulator may consistently ignore the framework to the detriment of the issuer.</p>	

**Factor 2a: Timeliness of Recovery of Operating and Capital Costs (12.5%)**

Aaa	Aa	A	Baa
<p>Tariff formulas and automatic cost recovery mechanisms provide full and highly timely recovery of all operating costs and essentially contemporaneous return on all incremental capital investments, with statutory provisions in place to preclude the possibility of challenges to rate increases or cost recovery mechanisms. By statute and by practice, general rate cases are efficient, focused on an impartial review, quick, and permit inclusion of fully forward-looking costs.</p>	<p>Tariff formulas and automatic cost recovery mechanisms provide full and highly timely recovery of all operating costs and essentially contemporaneous or near-contemporaneous return on most incremental capital investments, with minimal challenges by regulators to companies' cost assumptions. By statute and by practice, general rate cases are efficient, focused on an impartial review, of a very reasonable duration before non-appealable interim rates can be collected, and primarily permit inclusion of forward-looking costs.</p>	<p>Automatic cost recovery mechanisms provide full and reasonably timely recovery of fuel, purchased power and all other highly variable operating expenses. Material capital investments may be made under tariff formulas or other rate-making permitting reasonably contemporaneous returns, or may be submitted under other types of filings that provide recovery of cost of capital with minimal delays. Instances of regulatory challenges that delay rate increases or cost recovery are generally related to large, unexpected increases in sizeable construction projects. By statute or by practice, general rate cases are reasonably efficient, primarily focused on an impartial review, of a reasonable duration before rates (either permanent or non-refundable interim rates) can be collected, and permit inclusion of important forward-looking costs.</p>	<p>Fuel, purchased power and all other highly variable expenses are generally recovered through mechanisms incorporating delays of less than one year, although some rapid increases in costs may be delayed longer where such deferrals do not place financial stress on the utility. Incremental capital investments may be recovered primarily through general rate cases with moderate lag, with some through tariff formulas. Alternately, there may be formula rates that are untested or unclear.</p> <p>Potentially greater tendency for delays due to regulatory intervention, although this will generally be limited to rates related to large capital projects or rapid increases in operating costs.</p>
Baa	B	Caa	
<p>There is an expectation that fuel, purchased power or other highly variable expenses will eventually be recovered with delays that will not place material financial stress on the utility, but there may be some evidence of an unwillingness by regulators to make timely rate changes to address volatility in fuel, or purchased power, or other market-sensitive expenses. Recovery of costs related to capital investments may be subject to delays that are somewhat lengthy, but not so pervasive as to be expected to discourage important investments.</p>	<p>The expectation that fuel, purchased power or other highly variable expenses will be recovered may be subject to material delays due to second-guessing of spending decisions by regulators or due to political intervention. Recovery of costs related to capital investments may be subject to delays that are material to the issuer, or may be likely to discourage some important investment.</p>	<p>The expectation that fuel, purchased power or other highly variable expenses will be recovered may be subject to extensive delays due to second-guessing of spending decisions by regulators or due to political intervention. Recovery of costs related to capital investments may be uncertain, subject to delays that are extensive, or that may be likely to discourage even necessary investment.</p>	

Note: Tariff formulas include formula rate plans as well as trackers and riders related to capital investment.



**Factor 2b: Sufficiency of Rates and Returns (12.5%)**

Aaa	Aa	A	Baa
<p>Sufficiency of rates to cover costs and attract capital is (and will continue to be) unquestioned.</p>	<p>Rates are (and we expect will continue to be) set at a level that permits full cost recovery and a fair return on all investments, with minimal challenges by regulators to companies' cost assumptions. This will translate to returns (measured in relation to equity, total assets, rate base or regulatory asset value, as applicable) that are strong relative to global peers.</p>	<p>Rates are (and we expect will continue to be) set at a level that generally provides full cost recovery and a fair return on investments, with limited instances of regulatory challenges and disallowances.</p> <p>In general, this will translate to returns (measured in relation to equity, total assets, rate base or regulatory asset value, as applicable) that are generally above average relative to global peers, but may at times be average.</p>	<p>Rates are (and we expect will continue to be) set at a level that generally provides full cost recovery and a mostly fair return on investments, but there may be somewhat more instances of regulatory challenges and disallowances, although ultimate rate outcomes are sufficient to attract capital without difficulty. In general, this will translate to returns (measured in relation to equity, total assets, rate base or regulatory asset value, as applicable) that are average relative to global peers, but may at times be somewhat below average.</p>
<p>Rates are (and we expect will continue to be) set at a level that generally provides recovery of most operating costs but return on investments may be less predictable, and there may be decidedly more instances of regulatory challenges and disallowances, but ultimate rate outcomes are generally sufficient to attract capital. In general, this will translate to returns (measured in relation to equity, total assets, rate base or regulatory asset value, as applicable) that are generally below average relative to global peers, or where allowed returns are average but difficult to earn.</p> <p>Alternately, the tariff formula may not take into account all cost components and/or remuneration of investments may be unclear or at times unfavorable.</p>	<p>We expect rates will be set at a level that at times fails to provide recovery of costs other than cash costs, and regulators may engage in somewhat arbitrary second-guessing of spending decisions or deny rate increases related to funding ongoing operations based much more on politics than on prudence reviews. Return on investments may be set at levels that discourage investment. We expect that rate outcomes may be difficult or uncertain, negatively affecting continued access to capital.</p> <p>Alternately, the tariff formula may fail to take into account significant cost components other than cash costs, and/or remuneration of investments may be generally unfavorable.</p>	<p>We expect rates will be set at a level that often fails to provide recovery of material costs, and recovery of cash costs may also be at risk. Regulators may engage in more arbitrary second-guessing of spending decisions or deny rate increases related to funding ongoing operations based primarily on politics. Return on investments may be set at levels that discourage necessary maintenance investment. We expect that rate outcomes may often be punitive or highly uncertain, with a markedly negative impact on access to capital. Alternately, the tariff formula may fail to take into account significant cash cost components, and/or remuneration of investments may be primarily unfavorable.</p>	<p>We expect rates will be set at a level that often fails to provide recovery of material costs, and recovery of cash costs may also be at risk. Regulators may engage in more arbitrary second-guessing of spending decisions or deny rate increases related to funding ongoing operations based primarily on politics. Return on investments may be set at levels that discourage necessary maintenance investment. We expect that rate outcomes may often be punitive or highly uncertain, with a markedly negative impact on access to capital. Alternately, the tariff formula may fail to take into account significant cash cost components, and/or remuneration of investments may be primarily unfavorable.</p>

**Factor 3: Diversification (10%)**

Weighting	10%	Aaa	Aa	A	Baa
Market Position	5% * A very high degree of multinational and regional diversity in terms of regulatory regimes and/or service territory economies.	Material operations in three or more nations or substantial geographic regions providing very good diversity of regulatory regimes and/or service territory economies.	Material operations in two to three nations, states, provinces or regions that provide good diversity of regulatory regimes and service territory economies. Alternately, operates within a single regulatory regime with low volatility, and the service territory economy is robust, has a very high degree of diversity and has demonstrated resilience in economic cycles.		May operate under a single regulatory regime viewed as having low volatility, or where multiple regulatory regimes are not viewed as providing much diversity. The service territory economy may have some concentration and cyclical, but is sufficiently resilient that it can absorb reasonably foreseeable increases in utility rates.
Generation and Fuel Diversity	5% ** A high degree of diversity in terms of generation and/or fuel sources such that the utility and rate-payers are well insulated from commodity price changes, no generation concentration, and very low exposures to Challenged or Threatened Sources (see definitions below).	Very good diversification in terms of generation and/or fuel sources such that the utility and rate-payers are affected only minimally by commodity price changes, little generation concentration, and low exposures to Challenged or Threatened Sources.	Good diversification in terms of generation and/or fuel sources such that the utility and rate-payers have only modest exposure to commodity price changes; however, may have some concentration in a source that is neither Challenged nor Threatened. Exposure to Threatened Sources is low. While there may be some exposure to Challenged Sources, it is not a cause for concern.		Adequate diversification in terms of generation and/or fuel sources such that the utility and rate-payers have moderate exposure to commodity price changes; however, may have some concentration in a source that is Challenged. Exposure to Threatened Sources is moderate, while exposure to Challenged Sources is manageable.

Sub-Factor Weighting	Ba	B	Caa	Definitions
Market Position	5% * Operates in a market area with somewhat greater concentration and cyclical in the service territory economy and/or exposure to storms and other natural disasters, and thus less resilience to absorbing reasonably foreseeable increases in utility rates. May show somewhat greater volatility in the regulatory regime(s).	Operates in a limited market area with material concentration and more severe cyclical in service territory economy such that cycles are of materially longer duration or reasonably foreseeable increases in utility rates could present a material challenge to the economy. Service territory may have geographic concentration that limits its resilience to storms and other natural disasters, or may be an emerging market. May show decided volatility in the regulatory regime(s).	Operates in a concentrated economic service territory with pronounced concentration, macroeconomic risk factors, and/or exposure to natural disasters.	Challenged Sources are generation plants that face higher but not insurmountable economic hurdles resulting from penalties or taxes on their operation, or from environmental upgrades that are required or likely to be required. Some examples are carbon-emitting plants that incur carbon taxes, plants that must buy emissions credits to operate, and plants that must install environmental equipment to continue to operate, in each where the taxes/credits/upgrades are sufficient to have a material impact on those plants' competitiveness relative to other generation types or on the utility's rates, but where the impact is not so severe as to be likely require plant closure.

Generation and Fuel Diversity	5% ** Modest diversification in generation and/or fuel sources such that the utility or rate-payers have greater exposure to commodity price changes. Exposure to Challenged and Threatened Sources may be more pronounced, but the utility will be able to access alternative sources without undue financial stress.	Operates with little diversification in generation and/or fuel sources such that the utility or rate-payers have high exposure to commodity price changes. Exposure to Challenged and Threatened Sources may be high, and accessing alternate sources may be challenging and cause more financial stress, but ultimately feasible.	Operates with high concentration in generation and/or fuel sources such that the utility or rate-payers have exposure to commodity price shocks. Exposure to Challenged and Threatened Sources may be very high, and accessing alternate sources may be highly uncertain.	Threatened Sources are generation plants that are not currently able to operate due to major unplanned outages or issues with licensing or other regulatory compliance, and plants that are highly likely to be required to de-activate, whether due to the effectiveness of currently existing or expected rules and regulations or due to economic challenges. Some recent examples would include coal fired plants in the US that are not economic to retro-fit to meet mercury and air toxics standards, plants that cannot meet the effective date of those standards, nuclear plants in Japan that have not been licensed to re-start after the Fukushima Dai-ichi accident, and nuclear plants that are required to be phased out within 10 years (as is the case in some European countries).
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\* 10% weight for issuers that lack generation \*\*0% weight for issuers that lack generation



**Factor 4: Financial Strength**

Weighting 40%	Sub-Factor Weighting	Aaa							Aa							A							Baa							Ba							B							Caa						
		Aaa							Aa							A							Baa							Ba							B							Caa						
CFO pre-WC + Interest / Interest	7.5%	≥ 8x							6x - 8x							4.5x - 6x							3x - 4.5x							2x - 3x							1x - 2x							< 1x						
CFO pre-WC / Debt	15%	Standard Grid							30% - 40%							22% - 30%							13% - 22%							5% - 13%							1% - 5%							< 1%						
CFO pre-WC - Dividends / Debt	10%	Standard Grid							25% - 35%							17% - 25%							9% - 17%							0% - 9%							(5%) - 0%							< (5%)						
Debt / Capitalization	7.5%	Low Business Risk Grid							23% - 34%							15% - 23%							7% - 15%							0% - 7%							(5%) - 0%							< (5%)						
		Standard Grid							25% - 35%							35% - 45%							45% - 55%							55% - 65%							65% - 75%							≥ 75%						
		Low Business Risk Grid							29% - 40%							40% - 50%							50% - 59%							59% - 67%							67% - 75%							≥ 75%						

## Appendix B: Approach to Ratings within a Utility Family

### *Typical Composition of a Utility Family*

A typical utility company structure consists of a holding company ("HoldCo") that owns one or more operating subsidiaries (each an "OpCo"). OpCos may be regulated utilities or non-utility companies. Financing of these entities varies by region, in part due to the regulatory framework. A HoldCo typically has no operations – its assets are mostly limited to its equity interests in subsidiaries, and potentially other investments in subsidiaries or minority interests in other companies. However, in certain cases there may be material operations at the HoldCo level. Financing can occur primarily at the OpCo level, primarily at the HoldCo level, or at both HoldCo and OpCos in varying proportions. When a HoldCo has multiple utility OpCos, they will often be located in different regulatory jurisdictions. A HoldCo may have both levered and unlevered OpCos.

### *General Approach to a Utility Family*

In our analysis, we generally consider the stand-alone credit profile of an OpCo and the credit profile of its ultimate parent HoldCo (and any intermediate HoldCos), as well as the profile of the family as a whole, while acknowledging that these elements can have cross-family credit implications in varying degrees, principally based on the regulatory framework of the OpCos and the financing model (which has often developed in response to the regulatory framework).

In addition to considering individual OpCos under this (or another applicable) methodology, we typically<sup>16</sup> approach a HoldCo rating by assessing the qualitative and quantitative factors in this methodology for the consolidated entity and each of its utility subsidiaries. Ratings of individual entities in the issuer family may be pulled up or down based on the interrelationships among the companies in the family and their relative credit strength.

In considering how closely aligned or how differentiated ratings should be among members of a utility family, we assess a variety of factors, including:

- » Regulatory or other barriers to cash movement among OpCos and from OpCos to HoldCo
- » Differentiation of the regulatory frameworks of the various OpCos
- » Specific ring-fencing provisions at particular OpCos
- » Financing arrangements – for instance, each OpCo may have its own financing arrangements, or the sole liquidity facility may be at the parent; there may be a liquidity pool among certain but not all members of the family; certain members of the family may better be able to withstand a temporary hiatus of external liquidity or access to capital markets
- » Financial covenants and the extent to which an Event of Default by one OpCo limits availability of liquidity to another member of the family
- » The extent to which higher leverage at one entity increases default risk for other members of the family
- » An entity's exposure to or insulation from an affiliate with high business risk
- » Structural features or other limitations in financing agreements that restrict movements of funds, investments, provision of guarantees or collateral, etc.

<sup>16</sup> See paragraph at the end of this section for approaches to Hybrid HoldCos.

» The relative size and financial significance of any particular OpCo to the HoldCo and the family

See also those factors noted in Notching for Structural Subordination of Holding Companies.

Our approach to a Hybrid HoldCo (see definition in Appendix C) depends in part on the importance of its non-utility operations and the availability of information on individual businesses. If the businesses are material and their individual results are fully broken out in financial disclosures, we may be able to assess each material business individually by reference to the relevant Moody's methodologies to arrive at a composite assessment for the combined businesses. If non-utility operations are material but are not broken out in financial disclosures, we may look at the consolidated entity under more than one methodology. When non-utility operations are less material but could still impact the overall credit profile, the difference in business risks and our estimation of their impact on financial performance will be qualitatively incorporated in the rating.

#### ***Higher Barriers to Cash Movement with Financing Predominantly at the OpCos***

Where higher barriers to cash movement exist on an OpCo or OpCos due to the regulatory framework or debt structural features, ratings among family members are likely to be more differentiated. For instance, for utility families with OpCos in the US, where regulatory barriers to free cash movement are relatively high, greater importance is generally placed on the stand-alone credit profile of the OpCo.

Our observation of major defaults and bankruptcies in the US sector generally corroborates a view that regulation creates a degree of separateness of default probability. For instance, Portland General Electric (Baa1 RUR-up) did not default on its securities, even though its then-parent Enron Corp. entered bankruptcy proceedings. When Entergy New Orleans (Ba2 stable) entered into bankruptcy, the ratings of its affiliates and parent Entergy Corporation (Baa3 stable) were unaffected. PG&E Corporation (Baa1 stable) did not enter bankruptcy proceedings despite bankruptcies of two major subsidiaries - Pacific Gas & Electric Company (A3 stable) in 2001 and National Energy Group in 2003.

The degree of separateness may be greater or smaller and is assessed on a case by case basis, because situational considerations are important. One area we consider is financing arrangements. For instance, there will tend to be greater differentiation if each member of a family has its own bank credit facilities and difficulties experienced by one entity would not trigger events of default for other entities. While the existence of a money pool might appear to reduce separateness between the participants, there may be regulatory barriers within money pools that preserve separateness. For instance, non-utility entities may have access to the pool only as a borrower, only as a lender, and even the utility entities may have regulatory limits on their borrowings from the pool or their credit exposures to other pool members. If the only source of external liquidity for a money pool is borrowings by the HoldCo under its bank credit facilities, there would be less separateness, especially if the utilities were expected to depend on that liquidity source. However, the ability of an OpCo to finance itself by accessing capital markets must also be considered. Inter-company tax agreements can also have an impact on our view of how separate the risks of default are.

For a HoldCo, the greater the regulatory, economic, and geographic diversity of its OpCos, the greater its potential separation from the default probability of any individual subsidiary. Conversely, if a HoldCo's actions have made it clear that the HoldCo will provide support for an OpCo encountering some financial stress (for instance, due to delays and/or cost over-runs on a major construction project), we would be likely to perceive less separateness.

Even where high barriers to cash movement exist, onerous leverage at a parent company may not only give rise to greater notching for structural subordination at the parent, it may also pressure an OpCo's rating, especially when there is a clear dependence on an OpCo's cash flow to service parent debt.

While most of the regulatory barriers to cash movement are very real, they are not absolute. Furthermore, while it is not usually in the interest of an insolvent parent or its creditors to bring an operating utility into a bankruptcy proceeding, such an occurrence is not impossible.

The greatest separateness occurs where strong regulatory insulation is supplemented by effective ring-fencing provisions that fully separate the management and operations of the OpCo from the rest of the family and limit the parent's ability to cause the OpCo to commence bankruptcy proceedings as well as limiting dividends and cash transfers. Typically, most entities in US utility families (including HoldCos and OpCos) are rated within 3 notches of each other. However, it is possible for the HoldCo and OpCos in a family to have much wider notching due to the combination of regulatory imperatives and strong ring-fencing that includes a significant minority shareholder who must agree to important corporate decisions, including a voluntary bankruptcy filing.

#### *Lower Barriers to Cash Movement with Financing Predominantly at the OpCos*

Our approach to rating issuers within a family where there are lower regulatory barriers to movement of cash from OpCos to HoldCos (e.g., many parts of Asia and Europe) places greater emphasis on the credit profile of the consolidated group. Individual OpCos are considered based on their individual characteristics and their importance to the family, and their assigned ratings are typically banded closely around the consolidated credit profile of the group due to the expectation that cash will transit relatively freely among family entities.

Some utilities may have OpCos in jurisdictions where cash movement among certain family members is more restricted by the regulatory framework, while cash movement from and/or among OpCos in other jurisdictions is less restricted. In these situations, OpCos with more restrictions may vary more widely from the consolidated credit profile while those with fewer restrictions may be more tightly banded around the other entities in the corporate family group.

## Appendix C: Brief Descriptions of the Types of Companies Rated Under This Methodology

The following describes the principal categories of companies rated under this methodology:

**Vertically Integrated Utility:** Vertically integrated utilities are regulated electric or combination utilities (see below) that own generation, distribution and (in most cases) electric transmission assets. Vertically integrated utilities are generally engaged in all aspects of the electricity business. They build power plants, procure fuel, generate power, build and maintain the electric grid that delivers power from a group of power plants to end-users (including high and low voltage lines, transformers and substations), and generally meet all of the electric needs of the customers in a specific geographic area (also called a service territory). The rates or tariffs for all of these monopolistic activities are set by the relevant regulatory authority.

**Transmission & Distribution Utility:** Transmission & Distribution utilities (T&Ds) typically operate in deregulated markets where generation is provided under a competitive framework. T&Ds own and operate the electric grid that transmits and/or distributes electricity within a specific state or region.

T&Ds provide electrical transportation and distribution services to carry electricity from power plants and transmission lines to retail, commercial, and industrial customers. T&Ds are typically responsible for billing customers for electric delivery and/or supply, and most have an obligation to provide a standard supply or provider-of-last-resort (POLR) service to customers that have not switched to a competitive supplier. These factors distinguish T&Ds from Networks, whose customers are retail electric suppliers and/or other electricity companies. In a smaller number of cases, T&Ds rated under this methodology may not have an obligation to provide POLR services, but are regulated in sub-sovereign jurisdictions. The rates or tariffs for these monopolistic T&D activities are set by the relevant regulatory authority.

**Local Gas Distribution Company:** Distribution is the final step in delivering natural gas to customers. While some large industrial, commercial, and electric generation customers receive natural gas directly from high capacity pipelines that carry gas from gas producing basins to areas where gas is consumed, most other users receive natural gas from their local gas utility, also called a local distribution company (LDC). LDCs are regulated utilities involved in the delivery of natural gas to consumers within a specific geographic area. Specifically, LDCs typically transport natural gas from delivery points located on large-diameter pipelines (that usually operate at fairly high pressure) to households and businesses through thousands of miles of small-diameter distribution pipe (that usually operate at fairly low pressure). LDCs are typically responsible for billing customers for gas delivery and/or supply, and most also have the responsibility to procure gas for at least some of their customers, although in some markets gas supply to all customers is on a competitive basis. These factors distinguish LDCs from gas networks, whose customers are retail gas suppliers and/or other natural gas companies. The rates or tariffs for these monopolistic activities are set by the relevant regulatory authority.

**Integrated Gas Utility:** Integrated gas regulated utilities are regulated utilities that deliver gas to all end users in a particular service territory by sourcing the commodity; operating transport infrastructure that often combines high pressure pipelines with low pressure distribution systems and, in some cases, gas storage, re-gasification or other related facilities; and performing other supply-related activities, such as customer billing and metering. The rates or tariffs for the totality of these activities are set by the relevant regulatory authority. Many integrated gas utilities are national in scope.

**Combination Utility:** Combination utilities are those that combine an LDC or Integrated Gas Utility with either a vertically integrated utility or a T&D utility. The rates or tariffs for these monopolistic activities are set by the relevant regulatory authority.

**Regulated Generation Utility:** Regulated generation utilities (Regulated Gencos) are utilities that almost exclusively have generation assets, but their activities are generally regulated like those of vertically integrated utilities. In the US, this means that the purchasers of their output (typically other investor-owned, municipal or cooperative utilities) pay a regulated rate based on the total allowed costs of the Regulated Genco, including a return on equity based on a capital structure designated by the regulator (primarily FERC). Companies that have been included in this group include certain generation companies (including in Korea and China) that are not rate regulated in the usual sense of recovering costs plus a regulated rate of return on either equity or asset value. Instead, we have looked at a combination of governmental action with respect to setting feed-in tariffs and directives on how much generation will be built (or not built) in combination with a generally high degree of government ownership, and we have concluded that these companies are currently best rated under this methodology. Future evolution in our view of the operating and/or regulatory environment of these companies could lead us to conclude that they may be more appropriately rated under a related methodology (for example, Unregulated Utilities and Power Companies).

**Independent System Operator:** An Independent System Operator (ISO) is an organization formed in certain regional electricity markets to act as the sole chief coordinator of an electric grid. In the areas where an ISO is established, it coordinates, controls and monitors the operation of the electrical power system to assure that electric supply and demand are balanced at all times, and, to the extent possible, that electric demand is met with the lowest-cost sources. ISOs seek to assure adequate transmission and generation resources, usually by identifying new transmission needs and planning for a generation reserve margin above expected peak demand. In regions where generation is competitive, they also seek to establish rules that foster a fair and open marketplace, and they may conduct price-setting auctions for energy and/or capacity. The generation resources that an ISO coordinates may belong to vertically integrated utilities or to independent power producers. ISOs may not be rate-regulated in the traditional sense, but fall under governmental oversight. All participants in the regional grid are required to pay a fee or tariff (often volumetric) to the ISO that is designed to recover its costs, including costs of investment in systems and equipment needed to fulfill their function. ISOs may be for profit or not-for-profit entities.

In the US, most ISOs were formed at the direction or recommendation of the Federal Energy Regulatory Commission (FERC), but the ISO that operates solely in Texas falls under state jurisdiction. Some US ISOs also perform certain additional functions such that they are designated as Regional Transmission Organizations (or RTOs).

**Transmission-Only Utility:** Transmission-only utilities are solely focused on owning and operating transmission assets. The transmission lines these utilities own are typically high-voltage and allow energy producers to transport electric power over long distances from where it is generated (or received) to the transmission or distribution system of a T&D or vertically integrated utility. Unlike most of the other utilities rated under this methodology, transmission-only utilities primarily provide services to other utilities and ISOs. Transmission-only utilities in most parts of the world other than the US have been rated under the Regulated Networks methodology.

**Utility Holding Company (Utility HoldCo):** As detailed in Appendix B, regulated electric and gas utilities are often part of corporate families under a parent holding company. The operating subsidiaries of Utility Holdcos are overwhelmingly regulated electric and gas utilities.

**Hybrid Holding Company (Hybrid HoldCo):** Some utility families contain a mix of regulated electric and gas utilities and other types of companies, but the regulated electric and gas utilities represent the majority of the consolidated cash flows, assets and debt. The parent company is thus a Hybrid HoldCo.

## Appendix D: Key Industry Issues Over the Intermediate Term

### Political and Regulatory Issues

As highly regulated monopolistic entities, regulated utilities continually face political and regulatory risk, and managing these risks through effective outreach to key customers as well as key political and regulatory decision-makers is, or at least should be, a core competency of companies in this sector. However, larger waves of change in the political, regulatory or economic environment have the potential to cause substantial changes in the level of risk experienced by utilities and their investors in somewhat unpredictable ways.

One of the more universal risks faced by utilities currently is the compression of allowed returns. A long period of globally low interest rates, held down by monetary stimulus policies, has generally benefitted utilities, since reductions in allowed returns have been slower than reductions in incurred capital costs. Essentially all regulated utilities face a ratcheting down of allowed and/or earned returns. More difficult to predict is how regulators will respond when monetary stimulus reverses, and how well utilities will fare when fixed income investors require higher interest rates and equity investors require higher total returns and growth prospects.

The following global snapshot highlights that regulatory frameworks evolve over time. On an overall basis in the US over the past several years, we have noted some incremental positive regulatory trends, including greater use of formula rates, trackers and riders, and (primarily for natural gas utilities) de-coupling of returns from volumetric sales. In Canada, the framework has historically been viewed as predictable and stable, which has helped offset somewhat lower levels of equity in the capital structure, but the compression of returns has been relatively steep in recent years. In Japan, the regulatory authorities are working through the challenges presented by the decision to shut down virtually all of the country's nuclear generation capacity, leading to uncertainty regarding the extent to which increased costs will be reflected in rate increases sufficient to permit returns on capital to return to prior levels. China's regulatory framework has continued to evolve, with fairly low transparency and some time-to-time shifts in favored versus less-favored generation sources balanced by an overall state policy of assuring sustainability of the sector, adequate supply of electricity and affordability to the general public. Singapore and Hong Kong have fairly well developed and supportive regulatory frameworks despite a trend towards lower returns, whereas Malaysia, Korea and Thailand have been moving towards a more transparent regulatory framework. The Philippines is in the process of deregulating its power market, while Indian power utilities continue to grapple with structural challenges. In Latin America, there is a wide dispersion among frameworks, ranging from the more stable, long established and predictable framework in Chile to the decidedly unpredictable framework in Argentina. Generally, as Latin American economies have evolved to more stable economic policies, regulatory frameworks for utilities have also shown greater stability and predictability.

All of the other issues discussed in this section have a regulatory/political component, either as the driver of change or in reaction to changes in economic environments and market factors.

### Economic and Financial Market Conditions

As regulated monopolies, electric and gas utilities have generally been quite resistant to unsettled economic and financial market conditions for several reasons. Unlike many companies that face direct market-based competition, their rates do not decrease when demand decreases. The elasticity of demand for electricity and gas is much lower than for most products in the consumer economy.

When financial markets are volatile, utilities often have greater capital market access than industrial companies in competitive sectors, as was the case in the 2007-2009 recession. However, regulated electric and gas utilities are by no means immune to a protracted or severe recession.



Severe economic malaise can negatively affect utility credit profiles in several ways. Falling demand for electricity or natural gas may negatively impact margins and debt service protection measures, especially when rates are designed such that a substantial portion of fixed costs is in theory recovered through volumetric charges. The decrease in demand in the 2007-2009 recession was notable in comparison to prior recessions, especially in the residential sector. Poor economic conditions can make it more difficult for regulators to approve needed rate increases or provide timely cost recovery for utilities, resulting in higher cost deferrals and longer regulatory lag. Finally, recessions can coincide with a lack of confidence in the utility sector that impacts access to capital markets for a period of time. For instance, in the Great Depression and (to a lesser extent) in the 2001 recession, access for some issuers was curtailed due to the sector's generally higher leverage than other corporate sectors, combined with a concern over a lack of transparency in financial reporting.

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### Fuel Price Volatility and the Global Impact of Shale Gas

The ability of most utilities to pass through their fuel costs to end users may insulate a utility from exposure to price volatility of these fuels, but it does not insulate consumers. Consumers and regulators complained vociferously about utility rates during the run-up in hydro-carbon prices in 2005-2008 (oil, natural gas and, to a lesser extent, coal). The steep decline in US natural gas prices since 2009, caused in large part by the development of shale gas and shale oil resources, has been a material benefit to US utilities, because many have been able to pass through substantial base rate increases during a period when all-in rates were declining. Shale hydro-carbons have also had a positive impact, albeit one that is less immediate and direct, on non-US utilities. In much of the eastern hemisphere, natural gas prices under long-term contracts have generally been tied to oil prices, but utilities and other industrial users have started to have some success in negotiating to de-link natural gas from oil. In addition, increasing US production of oil has had a noticeable impact on world oil prices, generally benefitting oil and gas users.

Not all utilities will benefit equally. Utilities that have locked in natural gas under high-priced long-term contracts that they cannot re-negotiate are negatively impacted if they cannot pass through their full contracted cost of gas, or if the high costs cause customer dissatisfaction and regulatory backlash. Utilities with large coal fleets or utilities constructing nuclear power plants may also face negative impacts on their regulatory environment, since their customers will benefit less from lower natural gas prices.

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### Distributed Generation Versus the Central Station Paradigm

The regulation and the financing of electric utilities are based on the premise that the current model under which electricity is generated and distributed to customers will continue essentially unchanged for many decades to come. This model, called the central station paradigm (because electricity is generated in large, centrally located plants and distributed to a large number of customers, who may in fact be hundreds of miles away), has been in place since the early part of the 20<sup>th</sup> century. The model has worked because the economies of scale inherent to very large power plants has more than offset the cost and inefficiency (through power losses) inherent to maintaining a grid for transmitting and distributing electricity to end users.

Despite rate structures that only allow recovery of invested capital over many decades (up to 60 years), utilities can attract capital because investors assume that rates will continue to be collected for at least that long a period. Regulators and politicians assume that taxes and regulatory charges levied on electricity usage will be paid by a broad swath of residences and businesses and will not materially discourage usage of electricity in a way that would decrease the amount of taxes collected. A corollary assumption is that the number of customers taking electricity from the system during that period will continue to be high enough such that rates will be reasonable and generally more attractive than other alternatives. In the event that consumers were to switch en masse to alternate sources of generating or receiving power (for instance



distributed generation), rates for remaining customers would either not cover the utility's costs, or rates would need to be increased so much that more customers may be incentivized to leave the system. This scenario has been experienced in the regulated US copperwire telephone business, where rates have increased quite dramatically for users who have not switched to digital or wireless telephone service. While this scenario continues to be unlikely for the electricity sector, distributed generation, especially from solar panels, has made inroads in certain regions.

Distributed generation is any retail-scale generation, differentiated from self-generation, which generally describes a large industrial plant that builds its own reasonably large conventional power plant to meet its own needs. While some residential property owners that install distributed generation may choose to sever their connection to the local utility, most choose to remain connected, generating power into the grid when it is both feasible and economic to do so, and taking power from the grid at other times. Distributed generation is currently concentrated in roof-top photovoltaic solar panels, which have benefitted from varying levels of tax incentives in different jurisdictions.

Regulatory treatment has also varied, but some rate structures that seek to incentivize distributed renewable energy are decidedly credit negative for utilities, in particular net metering.

Under net metering, a customer receives a credit from the utility for all of its generation at the full (or nearly full) retail rate and pays only for power taken, also at the retail rate, resulting in a materially reduced monthly bill relative to a customer with no distributed generation. The distributed generation customer has no obligation to generate any particular amount of power, so the utility must stand ready to generate and deliver that customer's full power needs at all times. Since most utility costs, including the fixed costs of financing and maintaining generation and delivery systems, are currently collected through volumetric rates, a customer owning distributed generation effectively transfers a portion of the utility's costs of serving that customer to other customers with higher net usage, notably to customers that do not own distributed generation. The higher costs may incentivize more customers to install solar panels, thereby shifting the utility's fixed costs to an even smaller group of rate-payers. California is an example of a state employing net solar metering in its rate structure, whereas in New Jersey, which has the second largest residential solar program in the US, utilities buy power at a price closer to their blended cost of generation, which is much lower than the retail rate.

To date, solar generation and net metering have not had a material credit impact on any utilities, but ratings could be negatively impacted if the programs were to grow and if rate structures were not amended so that each customer's monthly bill more closely approximated the cost of serving that customer.

In our current view, the possibility that there will be a widespread movement of electric utility customers to sever themselves from the grid is remote. However, we acknowledge that new technologies, such as the development of commercially viable fuel cells and/or distributed electric storage, could disrupt materially the central station paradigm and the credit quality of the utility sector.

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### Nuclear Issues

Utilities with nuclear generation face unique safety, regulatory, and operational issues. The nuclear disaster at Fukushima Daiichi had a severely negative credit impact on its owner, Tokyo Electric Power Company, Incorporated, as well as all the nuclear utilities in the country. Japan previously generated about 30% of its power from 50 reactors, but all are currently either idled or shut down, and utilities in the country face materially higher costs of replacement power, a credit negative.

Fukushima Daiichi also had global consequences. Germany's response was to require that all nuclear power plants in the country be shut by 2022. Switzerland opted for a phase-out by 2031. (Most European nuclear plants are owned by companies rated under other the Unregulated Utilities and Power Companies methodology.) Even in countries where the regulatory response was more moderate, increased regulatory scrutiny has raised operating costs, a credit negative, especially in the US, where low natural gas prices have rendered certain primarily smaller nuclear plants uneconomic. Nonetheless, we view robust and independent nuclear safety regulation as a credit-positive for the industry.

Other general issues for nuclear operators include higher costs and lower reliability related to the increasing age of the fleet. In 2013, Duke Energy Florida, Inc. decided to shut permanently Crystal River Unit 3 after it determined that a de-lamination (or separation) in the concrete of the outer wall of the containment building was uneconomic to repair. San Onofre Nuclear Generating Station was closed permanently in 2013 after its owners, including Southern California Edison Company (A3, RUR-up) and San Diego Gas & Electric Company (A2, RUR-up), decided not to pursue a re-start in light of operating defects in two steam generators that had been replaced in 2010 and 2011.

Korea Hydro and Nuclear Power Company Limited and its parent, Korea Electric Power Corporation, faced a scandal related to alleged corruption and acceptance of falsified safety documents provided by its parts suppliers for nuclear plants. Korean prosecutors' widening probe into KHNP's use of substandard parts at many of its 23 nuclear power plants caused three plants to be shut down temporarily.

## Appendix E: Regional and Other Considerations

### Notching Considerations for US First Mortgage Bonds

In most regions, our approach to notching between different debt classes of the same regulated utility issuer follows the guidance in the publication "Updated Summary Guidance for Notching Bonds, Preferred Stocks and Hybrid Securities of Corporate Issuers," including a one notch differential between senior secured and senior unsecured debt.<sup>17</sup> However, in most cases we have two notches between the first mortgage bonds and senior unsecured debt of regulated electric and gas utilities in the US.

Wider notching differentials between debt classes may also be appropriate in speculative grade. Additional insights for speculative grade issuers are provided in the publication "Loss Given Default for Speculative-Grade Companies."<sup>18</sup>

First mortgage bond holders in the US generally benefit from a first lien on most of the fixed assets used to provide utility service, including such assets as generating stations, transmission lines, distribution lines, switching stations and substations, and gas distribution facilities, as well as a lien on franchise agreements. In our view, the critical nature of these assets to the issuers and to the communities they serve has been a major factor that has led to very high recovery rates for this class of debt in situations of default, thereby justifying a two notch uplift. The combination of the breadth of assets pledged and the bankruptcy-tested recovery experience has been unique to the US.

In some cases, there is only a one notch differential between US first mortgage bonds and the senior unsecured rating. For instance, this is likely when the pledged property is not considered critical infrastructure for the region, or if the mortgage is materially weakened by carve-outs, lien releases or similar creditor-unfriendly terms.

### Securitization

The use of securitization, a financing technique utilizing a discrete revenue stream (typically related to recovery of specifically defined expenses) that is dedicated to servicing specific securitization debt, has primarily been used in the US, where it has been quite pervasive in the past two decades. The first generation of securitization bonds were primarily related to recovery of the negative difference between the market value of utilities' generation assets and their book value when certain states switched to competitive electric supply markets and utilities sold their generation (so-called stranded costs). This technique was then used for significant storm costs (especially hurricanes) and was eventually broadened to include environmental related expenditures, deferred fuel costs, or even deferred miscellaneous expenses. States that have implemented securitization frameworks include Arkansas, California, Connecticut, Illinois, Louisiana, Maryland, Massachusetts, Mississippi, New Hampshire, New Jersey, Ohio, Pennsylvania, Texas and West Virginia. In its simplest form, a securitization isolates and dedicates a stream of cash flow into a separate special purpose entity (SPE). The SPE uses that stream of revenue and cash flow to provide annual debt service for the securitized debt instrument. Securitization is typically underpinned by specific legislation to segregate the securitization revenues from the utility's revenues to assure their continued collection, and the details of the enabling legislation may vary from state to state. The utility benefits from the securitization because it receives an immediate source of cash (although it gives up the opportunity to earn a return on the corresponding asset), and ratepayers benefit because the cost of the

<sup>17</sup> A link to this and other sector and cross-sector credit rating methodologies can be found in the Related Research section of this report.

<sup>18</sup> A link to this and other sector and cross-sector credit rating methodologies can be found in the Related Research section of this report.

securitized debt is lower than the utility's cost of debt and much lower than its all-in cost of capital, which reduces the revenue requirement associated with the cost recovery.

In the presentation of US securitization debt in published financial ratios, we make our own assessment of the appropriate credit representation but in most cases follows the accounting in audited statements under US Generally Accepted Accounting Principles (GAAP), which in turn considers the terms of enabling legislation. As a result, accounting treatment may vary. In most states utilities have been required to consolidate securitization debt under GAAP, even though it is technically non-recourse.

In general, we view securitization debt of utilities as being on-credit debt, in part because the rates associated with it reduce the utility's headroom to increase rates for other purposes while keeping all-in rates affordable to customers. Thus, where accounting treatment is off balance sheet, we seek to adjust the company's ratios by including the securitization debt and related revenues for our analysis. Where the securitized debt is on balance sheet, our credit analysis also considers the significance of ratios that exclude securitization debt and related revenues. Since securitization debt amortizes mortgage-style, including it makes ratios look worse in early years (when most of the revenue collected goes to pay interest) and better in later years (when most of the revenue collected goes to pay principal).

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### **Strong levels of government ownership in Asia Pacific (ex-Japan) provide rating uplift**

Strong levels of government ownership have dominated the credit profiles of utilities in Asia Pacific (excluding Japan), generally leading to ratings that are a number of notches above the Baseline Credit Assessment. Regulated electric and gas utilities with significant government ownership are rated using this methodology in conjunction with the Joint Default Analysis approach in our methodology for Government-Related Issuers.<sup>19</sup>

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### **Support system for large corporate entities in Japan can provide ratings uplift, with limits**

Our ratings for large corporate entities in Japan reflect the unique nature of the country's support system, and they are higher than they would otherwise be if such support were disregarded. This is reflected in the tendency for ratings of Japanese utilities to be higher than their grid implied ratings. However, even for large prominent companies, our ratings consider that support will not be endless and is less likely to be provided when a company has questionable viability rather than being in need of temporary liquidity assistance.

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<sup>19</sup> A link to this and other sector and cross-sector credit rating methodologies can be found in the Related Research section of this report.

## Appendix F: Treatment of Power Purchase Agreements ("PPAs")

Although many utilities own and operate power stations, some have entered into PPAs to source electricity from third parties to satisfy retail demand. The motivation for these PPAs may be one or more of the following: to outsource operating risks to parties more skilled in power station operation, to provide certainty of supply, to reduce balance sheet debt, to fix the cost of power, or to comply with regulatory mandates regarding power sourcing, including renewable portfolio standards. While we regard PPAs that reduce operating or financial risk as a credit positive, some aspects of PPAs may negatively affect the credit of utilities. The most conservative treatment would be to treat a PPA as a debt obligation of the utility as, by paying the capacity charge, the utility is effectively providing the funds to service the debt associated with the power station. At the other end of the continuum, the financial obligations of the utility could also be regarded as an ongoing operating cost, with no long-term capital component recognized.

Under most PPAs, a utility is obliged to pay a capacity charge to the power station owner (which may be another utility or an Independent Power Producer – IPP); this charge typically covers a portion of the IPP's fixed costs in relation to the power available to the utility. These fixed payments usually help to cover the IPP's debt service and are made irrespective of whether the utility calls on the IPP to generate and deliver power. When the utility requires generation, a further energy charge, to cover the variable costs of the IPP, will also typically be paid by the utility. Some other similar arrangements are characterized as tolling agreements, or long-term supply contracts, but most have similar features to PPAs and are thus we analyze them as PPAs.

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### PPAs are recognized qualitatively to be a future use of cash whether or not they are treated as debt-like obligations in financial ratios

The starting point of our analysis is the issuer's audited financial statements – we consider whether the utility's accountants determine that the PPA should be treated as a debt equivalent, a capitalized lease, an operating lease, or in some other manner. PPAs have a wide variety of operational and financial terms, and it is our understanding that accountants are required to have a very granular view into the particular contractual arrangements in order to account for these PPAs in compliance with applicable accounting rules and standards. However, accounting treatment for PPAs may not be entirely consistent across US GAAP, IFRS or other accounting frameworks. In addition, we may consider that factors not incorporated into the accounting treatment may be relevant (which may include the scale of PPA payments, their regulatory treatment including cost recovery mechanisms, or other factors that create financial or operational risk for the utility that is greater, in our estimation, than the benefits received). When the accounting treatment of a PPA is a debt or lease equivalent (such that it is reported on the balance sheet, or disclosed as an operating lease and thus included in our adjusted debt calculation), we generally do not make adjustments to remove the PPA from the balance sheet.

However, in relevant circumstances we consider making adjustments that impute a debt equivalent to PPAs that are off-balance sheet for accounting purposes.

Regardless of whether we consider that a PPA warrants or does not warrant treatment as a debt obligation, we assess the totality of the impact of the PPA on the issuer's probability of default. Costs of a PPA that cannot be recovered in retail rates creates material risk, especially if they also cannot be recovered through market sales of power.

## Additional considerations for PPAs

PPAs have a wide variety of financial and regulatory characteristics, and each particular circumstance may be treated differently by Moody's. Factors which determine where on the continuum we treat a particular PPA include the following:

- » Risk management: An overarching principle is that PPAs have normally been used by utilities as a risk management tool and we recognize that this is the fundamental reason for their existence. Thus, we will not automatically penalize utilities for entering into contracts for the purpose of reducing risk associated with power price and availability. Rather, we will look at the aggregate commercial position, evaluating the risk to a utility's purchase and supply obligations. In addition, PPAs are similar to other long-term supply contracts used by other industries and their treatment should not therefore be fundamentally different from that of other contracts of a similar nature.
- » Pass-through capability: Some utilities have the ability to pass through the cost of purchasing power under PPAs to their customers. As a result, the utility takes no risk that the cost of power is greater than the retail price it will receive. Accordingly we regard these PPA obligations as operating costs with no long-term debt-like attributes. PPAs with no pass-through ability have a greater risk profile for utilities. In some markets, the ability to pass through costs of a PPA is enshrined in the regulatory framework, and in others can be dictated by market dynamics. As a market becomes more competitive or if regulatory support for cost recovery deteriorates, the ability to pass through costs may decrease and, as circumstances change, our treatment of PPA obligations will alter accordingly.
- » Price considerations: The price of power paid by a utility under a PPA can be substantially above or below the market price of electricity. A below-market price will motivate the utility to purchase power from the IPP in excess of its retail requirements, and to sell excess electricity in the spot market. This can be a significant source of cash flow for some utilities. On the other hand, utilities that are compelled to pay capacity payments to IPPs when they have no demand for the power or at an above-market price may suffer a financial burden if they do not get full recovery in retail rates. We will focus particularly on PPAs that have mark-to-market losses, which typically indicates that they have a material impact on the utility's cash flow.
- » Excess Reserve Capacity: In some jurisdictions there is substantial reserve capacity and thus a significant probability that the electricity available to a utility under PPAs will not be required by the market. This increases the risk to the utility that capacity payments will need to be made when there is no demand for the power. We may determine that all of a utility's PPAs represent excess capacity, or that a portion of PPAs are needed for the utility's supply obligations plus a normal reserve margin, while the remaining portion represents excess capacity. In the latter case, we may impute debt to specific PPAs that are excess or take a proportional approach to all of the utility's PPAs.
- » Risk-sharing: Utilities that own power plants bear the associated operational, fuel procurement and other risks. These must be balanced against the financial and liquidity risk of contracting for the purchase of power under a PPA. We will examine on a case-by case basis the relative credit risk associated with PPAs in comparison to plant ownership.
- » Purchase requirements: Some PPAs are structured with either options or requirements to purchase the asset at the end of the PPA term. If the utility has an economically meaningful requirement to purchase, we would most likely consider it to be a debt obligation. In most such cases, the obligation would already receive on-balance sheet treatment under relevant accounting standards.
- » Default provisions: In most cases, the remedies for default under a PPA do not include acceleration of amounts due, and in many cases PPAs would not be considered as debt in a bankruptcy scenario and could potentially be cancelled. Thus, PPAs may not materially increase Loss Given Default for the utility.

In addition, PPAs are not typically considered debt for cross-default provisions under a utility's debt and liquidity arrangements. However, the existence of non-standard default provisions that are debt-like would have a large impact on our treatment of a PPA. In addition, payments due under PPAs are senior unsecured obligations, and any inability of the utility to make them materially increases default risk.

Each of these factors will be considered by our analysts and a decision will be made as to the importance of the PPA to the risk analysis of the utility.

## Methods for estimating a liability amount for PPAs

According to the weighting and importance of the PPA to each utility and the level of disclosure, we may approximate a debt obligation equivalent for PPAs using one or more of the methods discussed below. In each case we look holistically at the PPA's credit impact on the utility, including the ability to pass through costs and curtail payments, the materiality of the PPA obligation to the overall business risk and cash flows of the utility, operational constraints that the PPA imposes, the maturity of the PPA obligation, the impact of purchased power on market-based power sales (if any) that the utility will engage in, and our view of future market conditions and volatility.

- » Operating Cost: If a utility enters into a PPA for the purpose of providing an assured supply and there is reasonable assurance that regulators will allow the costs to be recovered in regulated rates, we may view the PPA as being most akin to an operating cost. Provided that the accounting treatment for the PPA is, in this circumstance, off-balance sheet, we will most likely make no adjustment to bring the obligation onto the utility's balance sheet.
- » Annual Obligation x 6: In some situations, the PPA obligation may be estimated by multiplying the annual payments by a factor of six (in most cases). This method is sometimes used in the capitalization of operating leases. This method may be used as an approximation where the analyst determines that the obligation is significant but cannot otherwise be quantified otherwise due to limited information.
- » Net Present Value: Where the analyst has sufficient information, we may add the NPV of the stream of PPA payments to the debt obligations of the utility. The discount rate used will be our estimate of the cost of capital of the utility.
- » Debt Look-Through: In some circumstances, where the debt incurred by the IPP is directly related to the off-taking utility, there may be reason to allocate the entire debt (or a proportional part related to share of power dedicated to the utility) of the IPP to that of the utility.
- » Mark-to-Market: In situations in which we believe that the PPA prices exceed the market price and thus will create an ongoing liability for the utility, we may use a net mark-to-market method, in which the NPV of the utility's future out-of-the-money net payments will be added to its total debt obligations.
- » Consolidation: In some instances where the IPP is wholly dedicated to the utility, it may be appropriate to consolidate the debt and cash flows of the IPP with that of the utility. If the utility purchases only a portion of the power from the IPP, then that proportion of debt might be consolidated with the utility.

If we have determined to impute debt to a PPA for which the accounting treatment is not on-balance sheet, we will in some circumstances use more than one method to estimate the debt equivalent obligations imposed by the PPA, and compare results. If circumstances (including regulatory treatment or market conditions) change over time, the approach that is used may also vary.

## Moody's Related Research

The credit ratings assigned in this sector are primarily determined by this credit rating methodology. Certain broad methodological considerations (described in one or more credit rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments in this sector. Potentially related sector and cross-sector credit rating methodologies can be found [here](#).

For data summarizing the historical robustness and predictive power of credit ratings assigned using this credit rating methodology, see [link](#).

Please refer to Moody's Rating Symbols & Definitions, which is available [here](#), for further information. Definitions of Moody's most common ratio terms can be found in "Moody's Basic Definitions for Credit Statistics, User's Guide", accessible via this [link](#).



» contacts continued from page 1

**Analyst Contacts:**

**BUENOS AIRES** +54.11.5129.260

Daniela Cuan +54.11.5129.261  
*Vice President - Senior Analyst*  
daniela.cuan@moodys.com

**TORONTO** +1.416.214.163

Gavin MacFarlane +1.416.214.386  
*Vice President - Senior Credit Officer*  
gavin.macfarlane@moodys.com

**LONDON** +44.20.7772.545

Douglas Segars +44.20.7772.158  
*Managing Director - Infrastructure Finance*  
douglas.segars@moodys.com

Helen Francis +44.20.7772.542  
*Vice President - Senior Credit Officer*  
helen.francis@moodys.com

**HONG KONG** +852.3551.307

Vivian Tsang +852.375.815.3  
*Associate Managing Director*  
vivian.tsang@moodys.com

**SINGAPORE** +65.6398.830

Ray Tay +65.6398.830  
*Vice President - Senior Credit Officer*  
ray.tay@moodys.com

**TOKYO** +81.3.5408.410

Mihoko Manabe +81.354.084.033  
*Associate Managing Director*  
mihoko.manabe@moodys.com

Mariko Semetko +81.354.084.20  
*Vice President - Senior Credit Officer*  
mariko.semetko@moodys.com

Report Number: 1072530

**Author**  
Michael G. Haggarty**Production Associate**  
Masaki Shiomi

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## CREDIT OPINION

11 December 2020

Update

 Rate this Research

### RATINGS

#### Atmos Energy Corporation

Domicile	Dallas, Texas, United States
Long Term Rating	A1
Type	Senior Unsecured - Dom Curr
Outlook	Stable

Please see the [ratings section](#) at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

### Contacts

Robert Petrosino CFA +1.212.553.1946  
VP-Senior Analyst  
robert.petrosino@moodys.com

Christopher Doyle +1.212.553.8843  
Associate Analyst  
christopher.doyle@moodys.com

Michael G. Haggarty +1.212.553.7172  
Associate Managing Director  
michael.haggarty@moodys.com

Jim Hempstead +1.212.553.4318  
MD - Global Infrastructure & Cyber Risk  
james.hempstead@moodys.com

### CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

# Atmos Energy Corporation

## Update to credit analysis

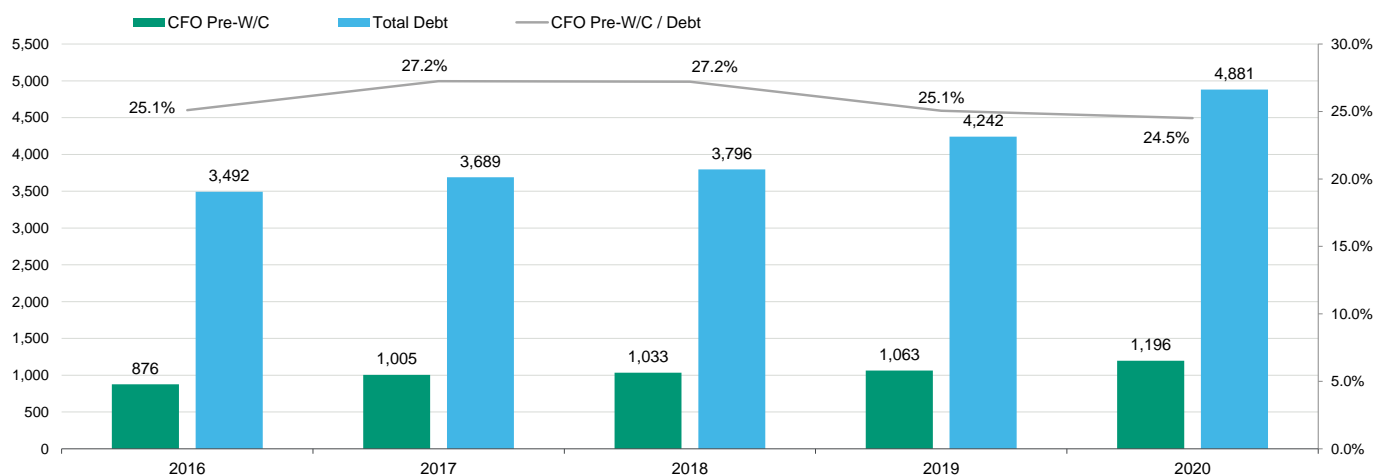
### Summary

Atmos Energy Corporation's (Atmos) credit profile is supported by its low risk natural gas local distribution company (LDC) and its pipeline and storage businesses which operate in constructive regulatory jurisdictions. Atmos' credit profile also reflects its scale and diversity operating across eight states where its LDC businesses and its pipeline and storage businesses generate approximately 66% and 34% of net income, respectively. Atmos continues to spend significant capital in its systems in the areas of safety, reliability and modernization. Atmos' balanced fiscal policy in funding its external capital needs and below sector average dividend payout are significant factors driving its stable and consistent financial measures including its cash flow from operations pre-working capital (CFO pre-WC) to debt ratio in the mid 20% range.

The rapid spread of the coronavirus outbreak, severe global economic shock, low oil prices and asset price volatility are creating a severe and extensive credit shock across many sectors, regions and markets. The combined credit effects of these developments are unprecedented. We regard the coronavirus outbreak as a social risk under our ESG framework, given the substantial implications for public health and safety. We expect Atmos to be relatively resilient to recessionary pressures related to the coronavirus because of its rate regulated business model and timely cost recovery mechanisms.

Nevertheless, we are watching for electricity and gas usage declines, utility bill payment delinquency, and the regulatory response to counter these effects on earnings and cash flow. As events related to the coronavirus continue, we are taking into consideration a wider range of potential outcomes, including more severe downside scenarios. The effects of the pandemic could result in financial metrics that are weaker than expected; however, we see these issues as temporary and not reflective of the long-term financial profile or credit quality of Atmos.

Exhibit 1

**Historical CFO Pre-WC, Total Debt and CFO Pre-WC to Debt (\$ MM)**

Source: Moody's Financial Metrics

**Credit Strengths**

- » Fully regulated and low business risk natural gas local distribution, pipeline and storage utility operations
- » Regulatory diversity across 8 states with rate design that is generally credit supportive
- » Balanced fiscal policy in funding capital needs and a below average dividend payout

**Credit Challenges**

- » Large capital expenditure plan with projected spending of approximately \$11 to \$12 billion over the next 5 years
- » Maintaining constructive regulatory relationships with capital plan projected to nearly double rate base
- » Exposed to carbon regulations and environmental agendas increasingly aimed at natural gas

**Rating Outlook**

The stable outlook reflects the company's credit supportive regulatory constructs and our expectation that management will continue to employ a balanced fiscal policy that will result in a consistent financial performance, including CFO pre-WC to debt ratio in the mid 20% range.

**Factors that Could Lead to an Upgrade**

- » We could consider an upgrade of Atmos' rating should its regulatory constructs improve and permit it to earn returns above industry averages and the company exhibits a CFO pre-WC to debt ratio above 26% on a sustained basis.

**Factors that Could Lead to a Downgrade**

- » We could consider a downgrade of Atmos' rating should its regulatory constructs deteriorate as evidenced by lower earned returns or a weaker equity capitalization, management deviates materially from its balanced fiscal policy, or the company generates a CFO pre-WC to debt ratio below 23% on a sustained basis.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on [www.moody's.com](http://www.moody's.com) for the most updated credit rating action information and rating history.

## Key Indicators

Exhibit 2

### Atmos Energy Corporation [1]

	Sep-16	Sep-17	Sep-18	Sep-19	Sep-20
CFO Pre-W/C + Interest / Interest	8.3x	9.0x	9.6x	10.2x	12.8x
CFO Pre-W/C / Debt	25.1%	27.2%	27.2%	25.1%	24.5%
CFO Pre-W/C – Dividends / Debt	20.1%	22.0%	21.5%	19.3%	18.7%
Debt / Capitalization	40.9%	39.0%	39.1%	37.7%	37.3%

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.

Source: Moody's Financial Metrics™

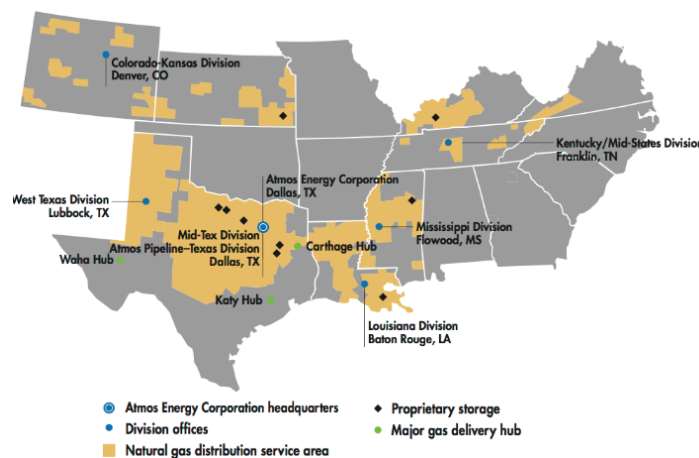
## Profile

Atmos Energy Corporation (Atmos, A1 stable), headquartered in Dallas, Texas, is a fully regulated natural gas distribution and natural gas pipeline and storage businesses. Atmos serves over 3 million customers with operations in eight states (Texas, Louisiana, Mississippi, Tennessee, Kansas, Colorado, Kentucky and Virginia).

Atmos' largest segment, its regulated natural gas local distribution company (LDC), accounted for approximately 66% of consolidated net income in 2020. The company's regulated pipeline and storage operations consist of approximately 5,700 miles of intra-state pipeline in Texas and 46 bcf of natural gas storage. The Atmos Pipeline Texas (APT) division is one of the largest intra-state pipeline operations in the state and transports natural gas to Atmos' Mid-Tex Division and other third parties. APT accounted for approximately 34% of net income in 2020.

Exhibit 3

### Atmos Energy Service Territory



Source: Company presentations

## Detailed Credit Considerations

### Diversified, generally supportive regulatory jurisdictions

Atmos has operations in eight states providing relative scale and diversity across generally credit supportive regulatory jurisdictions where the company has opportunities to recover its costs and earn reasonable returns on a timely basis. Approximately 71% of Atmos' asset base is located in Texas, where we view the regulatory environment to be constructive with a low cost and capital recovery lag with significant opportunities to invest in rate base. The regulatory environments in Louisiana and Mississippi, where it has its two next largest operations, also have credit supportive regulatory frameworks that include formula rates, infrastructure capital riders and weather normalization adjustments.

Atmos' rate design improvements have successfully increased and stabilized its contribution margin. Atmos has addressed much of its regulatory lag through consistent rate filings that have led to regular rate adjustments across most of its jurisdictions. Formula rate

plans and infrastructure rider mechanisms are attributable to 89% of its rate base and increase the certainty of obtaining timely rate relief while reducing the company's exposure to an adverse rate decision. As a result, approximately 90% of the company's annual capital spending begins to earn a return within 6 months and 99% within 12 months of assets being used and useful, with minimal rate increase requests through general rate cases. In the fiscal year ending 2020, Atmos completed regulatory ratemaking actions which resulted in an increase in annual operating income of \$160.2 million. Since its fiscal year end, Atmos has received regulatory approval that will lead to an additional \$106.6 million of annualized operating income beginning in its fiscal first quarter of 2021 (ending 31 December 2020).

### Low business risk natural gas utility and pipeline operations

Atmos' core business consists entirely of a low risk, regulated local distribution company with operations in eight states and tariff based intrastate pipeline and storage assets in Texas. Atmos benefits from having constructive rate making mechanisms across most of its jurisdictions, reducing uncertainty and providing transparency. For example, Atmos utilizes weather normalization adjustments (WNA), which mitigate the risks and costs the company may encounter due to weather that is above or below normal. This adjustment allows Atmos to either increase or decrease customer bills to offset the effect of gas usage due to abnormal weather.

Another example includes Atmos' Purchased Gas Adjustment mechanism (PGA), which allows the company to pass through purchased gas costs to its customers, insulating the company from gas price fluctuation risks. In fiscal year 2019, Atmos returned to customers an over collection of gas costs from 2018. Other mechanisms approved for Atmos include annual adjustment mechanisms in half of its states (mainly its larger service territories) and infrastructure enhancement mechanisms in 6 out of the 8 states. These mechanisms result in greater transparency in cash flows and accelerated recovery of capital spending, all credit positive. On average, Atmos' weighted average allowed ROE in its LDC businesses is 9.8% and 11.5% at APT. Below is a summary of the regulatory mechanisms afforded Atmos.

Exhibit 4

### Regulatory Mechanisms Provide Timely Recovery

Jurisdiction	Regulatory Mechanism		Recovery Method		Performance Based Rate			
	Infrastructure Program	Deferral / Forward-Looking	Annual Filing	General Case	Formula Rate	Program	Bad Debt Rider**	WNA Period
Texas								
Mid-Tex	8.209	Yes	RRM / DARR / GRIP	No	Yes	No	Yes	November-April
Pipeline	GRIP	No	GRIP	No	Yes	N/A	No	N/A
West Texas	8.209	Yes	RRM/GRIP	No	Yes	No	Yes	October-May
Louisiana	RSC	Yes	RSC	No	Yes	No	No	December - March
Mississippi	SIR	Yes	SRF / SIR	No	Yes	No	No	November-April
Kentucky	PRP	Yes	PRP	Yes	No	Yes	Yes	November-April
Tennessee	N/A	Yes	ARM	No	Yes	Yes	Yes	October - April
Kansas	GSRS	No	GSRS	Yes	No	Yes	Yes	October - May
Colorado	SSIR	Yes	SSIR	Yes	No	No	No	N/A
Virginia	SAVE	Yes	SAVE	Yes	No	No	Yes	January - December

\*\* The bad debt rider allows recovery from ratepayers of the gas cost portion of uncollectible accounts.

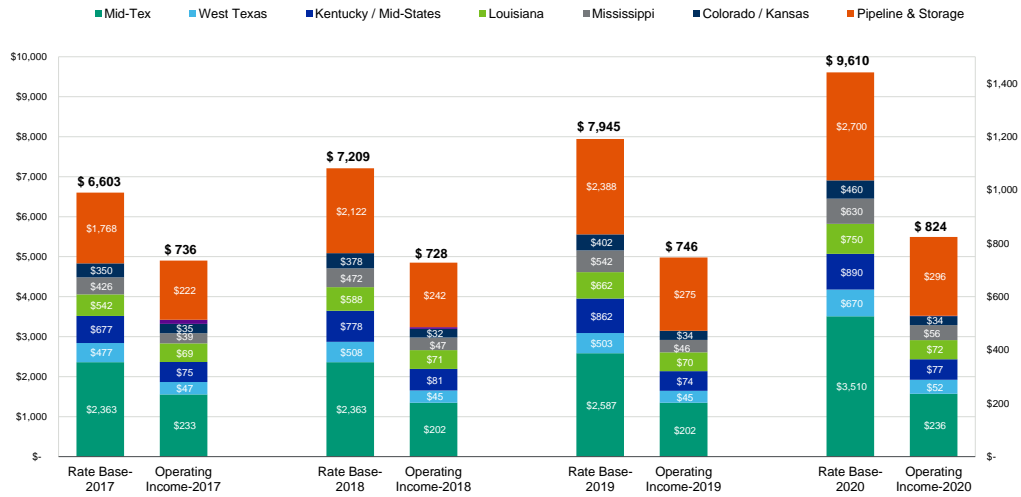
WNA - Weather Normalization Adjustment Clause; GRIP - Gas Reliability Infrastructure Program; RSC - Rate Stabilization Clause; SIR - System Integrity Rider; PRP - Pipeline Replacement Program; GSRS - Gas System Reliability Surcharge; RRM - Rate Review Mechanism; DARR - Dallas Annual Rate Review; SRF - Stable Rate Filing; ; ARM - Annual Rate Mechanism; SSIR - System Safety and Integrity Rider

Source: Atmos Energy, Moody's Investors Service

### Large capital expenditure plan over the next five years

In fiscal 2020, Atmos invested \$1.9 billion with approximately 88% of that spending related to system safety and reliability, which included system integrity, pipeline integrity, system modernization, and expansion. With the robust ongoing capital expenditure program, Atmos' fiscal year-end 2020 rate base was approximately \$9.6 billion. Operating income increased \$57 million for its LDC businesses and increased \$21 million for its pipeline and storage businesses in 2020 compared to 2019. The exhibit below depicts Atmos' rate base and operating income by its LDC jurisdictions and in its pipeline and storage business over the last four years.

Exhibit 5  
Steady Growth in Rate Base and Operating Income  
(\$ in millions)



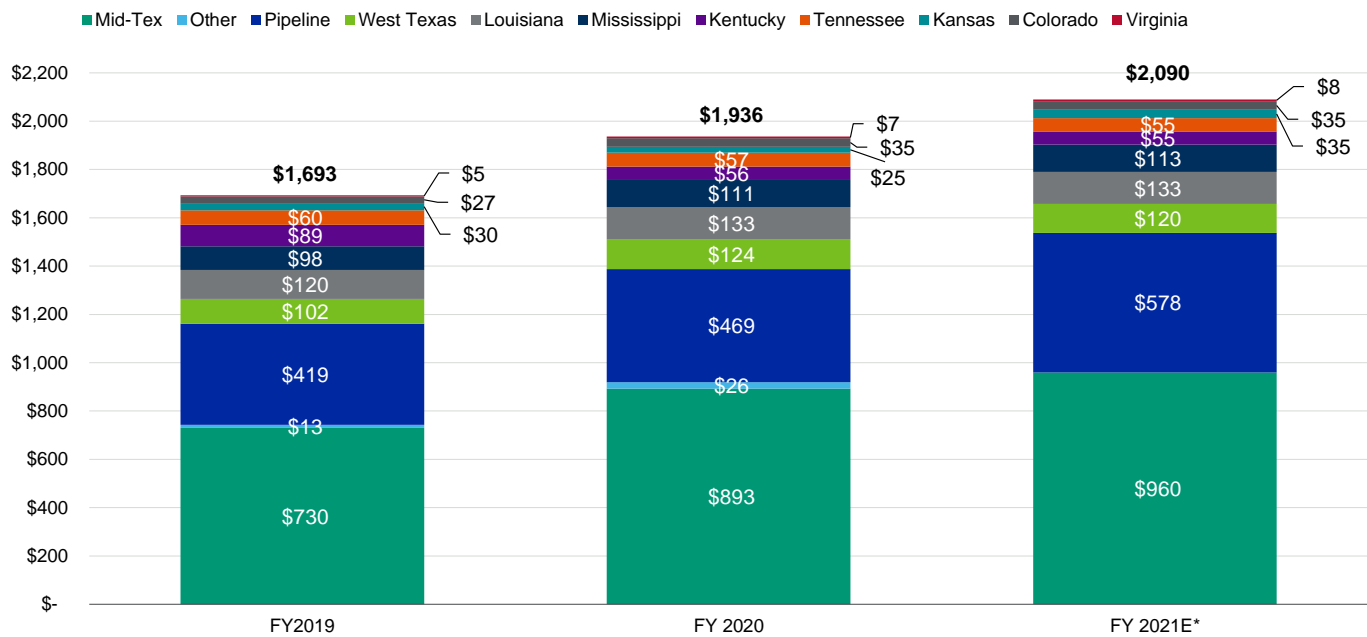
Source: Atmos Energy

In fiscal year 2021, Atmos expects to invest approximately \$2.0 to \$2.2 billion in consolidated capital expenditures, more than 80% of which will be related to safety and reliability. The company plans to utilize a combination of its regulatory mechanisms to recover costs associated with this capital expenditure program through 2025. Such mechanisms include the Gas Reliability Infrastructure Program (GRIP) and Rule 8.209, a capital deferral mechanism for capital expenditures related to system safety and reliability in Texas, and the Rate Stabilization Clause (RSC) in Louisiana, all which allow for timely recovery of capital invested for infrastructure safety and reliability.

Exhibit 6

**Atmos Energy capital expenditures are substantial**

\$ in millions



\*Capital expenditure for 2021 is estimated

Source: Atmos Energy, Moody's Investors Service

Longer term, Atmos is expected to invest about \$2.0 billion of capital annually from 2022 through 2025. The company plans to fund these capital expenditures with a balance of internally generated cash flow, long-term debt and equity to maintain its current capital structure. Atmos has demonstrated a balanced fiscal policy through common equity raised of \$644 million in fiscal year 2020 and \$713 million in fiscal year 2019 to repay short-term debt and for capital needs, maintaining its appropriate regulatory layer of equity capital.

**Consistent financial performance with stable credit metrics**

In addition to its balanced funding of external capital needs, Atmos has obtained sufficient rate increases to sustain stable credit metrics. In the fiscal year ended 30 September 2020, Atmos completed regulatory ratemaking actions which resulted in an increase in annual operating income of \$160.2 million and an additional \$106.6 million of operating income was approved in its fiscal first quarter of 2021. Atmos' cash flow from operations before working capital changes (CFO pre-WC) has been in the \$1.0 - \$1.2 billion range over the last three years. In its fiscal year end 30 September 2020, it generated CFO pre-WC of about \$1.2 billion, resulting in CFO pre-WC to debt of 24.5%. Based on the robust capital investment program and shorter regulatory lag, we expect the company's CFO pre-WC to be in the range of around \$1.2 billion to \$1.3 billion annually over the next two years.

**ESG considerations****Environmental**

Atmos is strongly positioned for carbon transition as an LDC. We view LDC's as having a lower level of carbon transition risk when compared to vertically integrated electric utilities, mainly due to their lack of ownership of generation assets. Longer term, Atmos is potentially exposed to an anticipated decline in demand for fossil fuels as consumer preferences may change or other initiatives reduce the use of fossil fuels.

**Social**

Atmos is reducing the level of methane emitted from its system through its cast-iron and steel pipe replacement programs. Atmos expects to replace all of its known cast-iron pipe by FY2021 reducing the operating risk and potential social risk emanating from a rare operating event such as a pipeline explosion which can result in casualties and property damage. We discuss these risks in "[LDC Utilities Exposed to Operational Hazards, But Sector Still Viewed as Low Risk](#)" (12 November 2018).



## Governance

We view management and governance of Atmos positively under our assessment criteria. We assess a high level of credibility to Atmos management as evidenced by the company's consistent financial results driven by its balanced fiscal policies, risk management practices and simple organizational structure while much of its annual capital investments are focused on improving safety and reliability. Moody's global governance considerations are discussed in ["ESG – Global Governance considerations are a key determinant of credit quality for all issuers" \(19 September 2019\)](#).

## Liquidity Analysis

We expect Atmos to maintain an adequate liquidity profile over the next 12 months. As of 30 September 2020, Atmos had approximately \$20.8 million of cash on hand. For the LTM ended 30 September 2020, Atmos had capital spending of about \$1.9 billion, primarily on reliability and safety, paid dividends of \$282 million and reported cash from operations of \$1.04 billion. Atmos will also receive \$345 million from forward equity commitments within the next 12 months.

Atmos Energy has a revolving credit agreement of \$1.5 billion, which expires in September 2023. Atmos also maintains a \$1.5 billion commercial paper program. The facility contains a \$250 million accordion feature and has a financial covenant stating that Atmos must maintain a total debt to capitalization ratio under 70%. Atmos was comfortably in compliance with the covenant at 30 September 2020, with a debt to capitalization ratio of 42%. At 30 September 2020 there were no amounts outstanding under its credit facility.

Additionally, in April 2020, Atmos executed three new 364-day credit facilities: two \$50 million unsecured revolving credit facilities and a \$600 million revolving credit facility to provide additional working capital funding. As of 30 September 2020, there was \$5.6 million in outstanding letters of credit, with the remainder of these facilities available.

## Rating methodology and scorecard factors

Exhibit 7

### Rating Factors

#### Atmos Energy Corporation

Regulated Electric and Gas Utilities Industry [1][2]	Current FY 9/30/2020		Moody's 12-18 Month Forward View As of Date Published [3]	
Factor 1 : Regulatory Framework (25%)	Measure	Score	Measure	Score
a) Legislative and Judicial Underpinnings of the Regulatory Framework	A	A	A	A
b) Consistency and Predictability of Regulation	Aa	Aa	Aa	Aa
Factor 2 : Ability to Recover Costs and Earn Returns (25%)				
a) Timeliness of Recovery of Operating and Capital Costs	Aa	Aa	Aa	Aa
b) Sufficiency of Rates and Returns	A	A	A	A
Factor 3 : Diversification (10%)				
a) Market Position	A	A	A	A
b) Generation and Fuel Diversity	N/A	N/A	N/A	N/A
Factor 4 : Financial Strength (40%)				
a) CFO pre-WC + Interest / Interest (3 Year Avg)	10.8x	Aaa	12x - 14x	Aaa
b) CFO pre-WC / Debt (3 Year Avg)	25.5%	A	24% - 26%	A
c) CFO pre-WC – Dividends / Debt (3 Year Avg)	19.7%	A	17% - 19%	A
d) Debt / Capitalization (3 Year Avg)	38.0%	Aa	35% - 37%	Aa
Rating:				
Scorecard-Indicated Outcome Before Notching Adjustment		A1		A1
HoldCo Structural Subordination Notching	0	0	0	0
a) Scorecard-Indicated Outcome		A1		A1
b) Actual Rating Assigned		A1		A1

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.

[2] As of FYE 9/30/2020

[3] This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.

Source: Moody's Financial Metrics

## Appendix

Exhibit 8

### Cash Flow and Credit Metrics [1]

CF Metrics	Sep-16	Sep-17	Sep-18	Sep-19	Sep-20
As Adjusted					
EBITDA	989	1,082	1,115	1,183	1,301
FFO	887	969	1,011	1,073	1,197
- Div	175	192	215	246	282
RCF	712	777	796	828	915
FFO	887	969	1,011	1,073	1,197
+/- ΔWC	-53	-109	113	-66	-133
WC	824	896	1,146	997	1,064
WC	876	1,005	1,033	1,063	1,196
+/- Other	-11	36	22	-10	-1
CFO	824	896	1,146	997	1,064
- Div	175	192	215	246	282
- Capex	1,116	1,166	1,489	1,721	1,961
FCF	-467	-462	-558	-970	-1,180
Debt / EBITDA	3.5x	3.4x	3.4x	3.6x	3.8x
EBITDA / Interest	8.2x	8.6x	9.3x	10.2x	12.9x
FFO / Debt	25.4%	26.3%	26.6%	25.3%	24.5%
RCF / Debt	20.4%	21.1%	21.0%	19.5%	18.7%
Revenue	2,455	2,760	3,116	2,902	2,821
Interest Expense	121	126	120	116	101
Net Income	353	398	599	503	593
Total Assets	10,141	10,880	12,003	13,530	15,351
Total Liabilities	6,699	7,000	7,254	7,816	8,603
Total Equity	3,442	3,881	4,748	5,714	6,748

[1] All figures and ratios are calculated using Moody's estimates and standard adjustments. Periods are Financial Year-End unless indicated. LTM = Last Twelve Months

Source: Moody's Financial Metrics

Exhibit 9

### Peer Comparison Table [1]

(in US millions)	Atmos Energy Corporation A1 (Stable)			ONE Gas, Inc A2 (Stable)			Southern California Gas Company A2 (Stable)			CenterPoint Energy Resources Corp. A3 (Stable)			DTE Gas Company A3 (Stable)		
	FYE Sep-18	FYE Sep-19	FYE Sep-20	FYE Dec-18	FYE Dec-19	LTM Sept-20	FYE Dec-18	FYE Dec-19	LTM Sept-20	FYE Dec-19	FYE Dec-19	LTM Sept-20	FYE Dec-18	FYE Dec-19	LTM Sept-20
	Revenue	3,116	2,902	2,821	1,634	1,653	1,499	3,962	4,525	4,630	7,343	6,570	6,332	1,415	1,462
CFO Pre-W/C	1,033	1,063	1,196	444	374	330	885	1,259	1,515	748	486	518	337	368	427
Total Debt	3,796	4,242	4,881	1,766	1,941	2,031	4,673	5,340	5,698	2,435	2,594	2,661	1,826	1,997	2,102
CFO Pre-W/C + Interest / Interest	9.6x	10.2x	12.8x	8.3x	6.2x	5.7x	6.4x	8.0x	8.9x	7.1x	5.2x	5.4x	5.5x	5.5x	6.1x
CFO Pre-W/C / Debt	27.2%	25.1%	24.5%	25.1%	19.3%	16.3%	18.9%	23.6%	26.6%	30.7%	18.7%	19.5%	18.5%	18.4%	20.3%
CFO Pre-W/C - Dividends / Debt	21.5%	19.3%	18.7%	19.7%	13.8%	10.7%	17.9%	20.7%	23.1%	15.9%	14.1%	5.7%	12.3%	12.3%	14.0%
Debt / Capitalization	39.1%	37.7%	37.3%	39.7%	41.0%	41.8%	46.4%	46.7%	46.9%	46.4%	45.7%	48.5%	43.9%	44.2%	44.0%

[1] All figures & ratios calculated using Moody's estimates & standard adjustments. FYE = Financial Year-End. LTM = Last Twelve Months. RUR\* = Ratings under Review, where UPG = for upgrade and DNG = for downgrade

Source: Moody's Financial Metrics

Exhibit 10

**Atmos Energy Sources & Uses**

(\$ in millions)

**Atmos Energy**

	FY 2017	FY 2018	FY2019	FY 2020
Sources:				
CFO	867	1,125	969	1,038
Debt Issued	885	-	1,045	999
Equity Issued	125	415	713	644
Other Financing	(212)	143	(213)	(463)
Asset Sales	-	-	-	-
<b>Total Sources:</b>	<b>1,665</b>	<b>1,682</b>	<b>2,514</b>	<b>2,218</b>
Uses:				
Capital Expenditures	(1,137)	(1,468)	(1,693)	(1,936)
Dividends	(192)	(215)	(246)	(282)
Debt Repayment	(250)	-	(575)	-
Acquisitions	(86)	-	-	-
<b>Total Uses:</b>	<b>(1,665)</b>	<b>(1,682)</b>	<b>(2,514)</b>	<b>(2,218)</b>

FCF	FY 2017	FY 2018	FY 2019	FY 2020
CFO	867	1,125	969	1,038
Assets sale	-	-	-	-
Capex	(1,137)	(1,468)	(1,693)	(1,936)
Dividends	(192)	(215)	(246)	(282)
Acquisitions	(86)	-	-	-
<b>Free Cash Flow</b>	<b>(548)</b>	<b>(558)</b>	<b>(970)</b>	<b>(1,180)</b>
Funded:				
Equity Issued	125	415	713	644
Debt issued	885	-	1,045	999
Other Financing	(212)	143	(213)	(463)
% Funded:				
Equity Issued	15.7%	74.3%	46.2%	54.6%
Debt issued	84.3%	25.7%	53.8%	45.4%
	100.0%	100.0%	100.0%	100.0%

Source: Moody's Investors Service

**Ratings**

Exhibit 11

Category	Moody's Rating
<b>ATMOS ENERGY CORPORATION</b>	
Outlook	Stable
Senior Unsecured	A1

Source: Moody's Investors Service

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REPORT NUMBER 1253058

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

## O&M by Cost Element

		Total Base Period O&M			
	(a)	<u>As Filed</u> (b)	<u>Updated</u> (c)	<u>Difference</u> (d)	(e)
1	<b>Labor</b>	\$ 11,197,925	\$ 10,742,198	\$ 455,728	
2	<b>Benefits</b>	3,665,718	3,612,327	53,391	
3	<b>Employee Welfare</b>	2,670,892	2,998,568	(327,676)	
4	<b>Insurance</b>	1,823,586	1,683,289	140,297	
5	<b>Rent, Maint., &amp; Utilities</b>	1,646,843	1,721,838	(74,995)	
6	<b>Vehicles &amp; Equip</b>	918,149	783,984	134,165	
7	<b>Materials &amp; Supplies</b>	884,984	898,025	(13,041)	
8	<b>Information Technologies</b>	1,668,145	1,666,678	1,467	
9	<b>Telecom</b>	503,912	475,554	28,358	
10	<b>Marketing</b>	315,625	492,403	(176,778)	
11	<b>Directors &amp; Shareholders &amp; PR</b>	325,323	310,078	15,245	
12	<b>Dues &amp; Donations</b>	196,997	197,536	(538)	
13	<b>Print &amp; Postages</b>	78,776	79,557	(781)	
14	<b>Travel &amp; Entertainment</b>	728,516	166,806	561,710	
15	<b>Training</b>	100,067	60,864	39,203	
16	<b>Outside Services</b>	7,011,578	7,845,862	(834,284)	
17	<b>Provision for Bad Debt</b>	1,995,339	2,822,569	(827,230)	
18	<b>Miscellaneous</b>	(4,420,716)	(4,542,929)	122,213	
19					
20	<b>Total O&amp;M Expenses</b>	<b>\$ 31,311,660</b>	<b>\$ 32,015,206</b>	<b>\$ (703,547)</b>	<b>-2.25%</b>
21					
22	<b>Total O&amp;M Expenses w/o Bad Debt</b>	<b>\$ 29,316,321</b>	<b>\$ 29,192,637</b>	<b>\$ 123,683</b>	<b>0.42%</b>



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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.**

3 A. My name is T. Ryan Austin. I am the Vice President of Technical Services for  
4 Atmos Energy Corporation’s Kentucky/Mid-States Division (hereinafter “Atmos  
5 Energy” or the “Company”). My business address is 3275 Highland Pointe Drive,  
6 Owensboro, KY 42303.

7 **Q. PLEASE BRIEFLY DESCRIBE YOUR CURRENT RESPONSIBILITIES,  
8 AND PROFESSIONAL AND EDUCATIONAL BACKGROUND.**

9 A. My current responsibilities for the Company include oversight of engineering,  
10 geographic information systems, measurement, compliance, safety, related  
11 information technology, and procurement. My department is responsible for  
12 execution of Projects within our Pipeline Integrity Plan, Annual DOT filings,  
13 Contracting, and Project Management for planned system growth, improvement,  
14 and replacement projects. I previously served as the Program Manager for the  
15 Kentucky Pipeline Replacement Program ("PRP") from 2015 through 2017.

16 **Q. HAVE YOU SUBMITTED DIRECT TESTIMONY IN THIS PROCEEDING?**

17 A. Yes.

18 **Q. HAVE YOU REVIEWED THE TESTIMONY OF THE OFFICE OF THE  
19 ATTORNEY GENERAL’S WITNESS LANE KOLLEN?**

20 A. Yes.

21

1                   **II. PURPOSE AND SUMMARY OF REBUTTAL TESTIMONY**

2   **Q.   WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

3   A.   The purpose of my rebuttal testimony is to address the issues raised and the  
4       conclusions and recommendations made in the testimony of Mr. Kollen. My  
5       rebuttal testimony will rebut Mr. Kollen’s rejection of the Company’s request for  
6       accelerated replacement of Aldyl-A pipe. I will explain why the Company’s request  
7       for accelerated replacement Aldyl-A is critical from a safety and reliability  
8       perspective.

9                   **III. REJECTION OF ACCELRTATED ALDYL-A IN PRP**

10 **Q.   PLEASE DESCRIBE MR. KOLLEN’S RECOMMENDATION RELATED**  
11 **TO ACCELERATED REPLACEMENT OF ALDYL-A PIPELINE.**

12 A.   Mr. Kollen recommends that the Kentucky Public Service Commission  
13       (“Commission”) reject the Company’s proposed accelerated Aldyl-A replacement  
14       at this time and at any time in the future prior to the completion of the Company’s  
15       accelerated bare steel program.<sup>1</sup>

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<sup>1</sup> Kollen direct at 46.

1 **Q. IS MR. KOLLEN’S RECOMMENDATION IN THIS CASE ON BEHALF OF**  
2 **THE ATTORNEY GENERAL CONSISTENT WITH THE ATTORNEY**  
3 **GENERAL’S POSITION IN OTHER CASES BEFORE THIS**  
4 **COMMISSION?**

5 A. No. Mr. Kollen’s testimony contains an unsubstantiated disapproval of safety  
6 investment in Aldyl-A replacement on Atmos Energy’s system, which is  
7 inconsistent with the Attorney General’s position in the pending rate case of  
8 Columbia Gas of Kentucky, Inc., as captured in the testimony of David Dittmore  
9 in Docket No. 2021-00183 filed on September 10, 2021. In that testimony, the  
10 Attorney General acknowledged that “the Company is in the best position to  
11 develop a rank-order of priorities for pipes to be replaced” and supported “giving  
12 the Company the discretion to prioritize pipe replacement based upon the results of  
13 its risk assessment.” The Attorney General further recommended “expanding the  
14 qualifying projects under [Columbia’s pipeline replacement program] to include the  
15 costs of Aldyl-A replacements made under the Company’s risk assessment results”  
16 while “requir[ing] the Company to establish the need for replacement by providing  
17 known leak rates, and any other objective criteria such as the results of in-line and  
18 other visual inspections of pipes the Company identifies for replacement.”<sup>2</sup>

---

<sup>2</sup> Testimony of David Dittmore, Docket No. 2021-00183, *Application of Columbia Gas of Kentucky, Inc. for an Adjustment of Rates*, at p. 41.

1 **Q. IS THE ATTORNEY GENERAL’S RECOMMENDATION IN DOCKET NO.**  
2 **2021-00183 CONSISTENT WITH THE INTEGRITY MANAGEMENT**  
3 **REQUIREMENTS OF FEDERALLY MANDATED PIPELINE SAFETY**  
4 **REQUIREMENTS CODIFIED IN 49 CFR PART 192?**

5 A. Yes. Part 192 sets “minimum safety requirements for pipeline facilities” and leaves  
6 to the discretion and expertise of the operators the decisions regarding  
7 implementation of the standards outlined therein.<sup>3</sup> Subpart P – Gas Distribution  
8 Pipeline Integrity Management requires that “an operator must demonstrate an  
9 understanding of its gas distribution system” and “evaluate the risks associated with  
10 its distribution pipeline” and then “identify and implement measures to address  
11 risks.” It further requires that “an operator must re-evaluate threats and risks on its  
12 entire pipeline and consider the relevance of threats in one location to other areas.”<sup>4</sup>

13 In my direct testimony, I describe the reasons that including a systematic  
14 replacement of Atmos Energy’s Aldyl-A pipe based upon our evaluation of relative  
15 risk is consistent with pipeline safety and the public interest. As Mr. Dittmore  
16 suggested in the above-cited testimony, this systematic approach is supported by  
17 objective criteria evaluating the relative risk associated with the segments of pipe  
18 recommended for replacement. As occurs now, the Commission will have the

---

<sup>3</sup> 49 C.F.R. Part 192.1.

<sup>4</sup> 49 C.F.R. Part 192.1007.

1 opportunity to review the proposed projects annually before approving them for  
2 completion and recovery through the PRP.

3 **Q. DO YOU AGREE WITH MR. KOLLEN’S RECOMMENDATION?**

4 A. No. Mr. Kollen states that “it does not make sense to embark on an accelerated  
5 program to replace all of the Aldyl-A pipeline and further increase customer rates  
6 at least until after the accelerated bare steel replacement program is completed and  
7 then only after a comprehensive review.” Further, Mr. Kollen makes a statement  
8 that attempts to justify denial of safety-related capital investment because of  
9 forecasts of “minimal customer and usage growth.”<sup>5</sup> In my direct testimony, I  
10 describe NARUC’s resolution encouraging state commissions to “consider  
11 adopting alternative rate recovery mechanisms as necessary to accelerate the  
12 modernization, replacement and expansion of the nation’s natural gas pipeline  
13 systems.” The point of such alternative rate recovery mechanisms like the PRP is  
14 to facilitate pipeline replacement investment that is not associated with growth or  
15 increases in usage.

16 **Q. MR. KOLLEN ASSERTS THAT YOU STATE IN YOUR DIRECT**  
17 **TESTIMONY THAT THERE IS NO IMMEDIATE NEED TO REPLACE**  
18 **ALL THE ALDYL-A PIPELINE. IS THAT A FAIR STATEMENT?**

19 A. No. That is a misleading statement. In my direct testimony, I state that it is not  
20 Atmos Energy’s recommendation to replace *all* Aldyl-A pipe *immediately*, as that

---

<sup>5</sup> See e.g. Kollen Direct at 43.

1 is not how the principles of Distribution Integrity Management (“DIM”) work.  
2 Rather, the Aldyl-A sections in our system are to be examined and prioritized in a  
3 comprehensive risk-based analysis using risk analysis tools, additional subject  
4 matter expert input, and other relevant data rather than arbitrarily excluding those  
5 projects from our pipeline replacement program simply because they are not bare  
6 steel. Such arbitrary exclusion from a systematic relative-risk-based replacement  
7 program based on pipe material is not consistent with DIM principles.

8 **Q. WHAT DOES MR. KOLLEN ASSERT ABOUT THE SCHEDULING AND**  
9 **COST ESTIMATION OF ACCELERATED ALDYL-A REPLACEMENT?**

10 A. Mr. Kollen states that “[a]t this point, if the Commission authorizes the accelerated  
11 replacement program as proposed by the Company, there is no schedule, no cost  
12 estimate, and no annual or aggregate limits to the costs that would be or could be  
13 included in the PRP Rider for this program”<sup>6</sup>

14 **Q. DO YOU AGREE WITH MR. KOLLEN’S STATEMENT?**

15 A. No. DIM risk assessment is not a static process. It is a dynamic, constantly  
16 evolving process that requires extensive evaluation and re-evaluation. In my direct  
17 testimony, I provide details on the projects targeted for inclusion in FY22 and  
18 FY23. The identification of these projects is based on currently available data and  
19 cost estimates. Atmos Energy is continuously acquiring and incorporating

---

<sup>6</sup> Kollen direct at 45.

1 additional data on its system and making appropriate updates to its risk analyses  
2 and cost projections. Atmos Energy's PRP program is an annual, forward-looking  
3 filing, and no project is begun until it is reviewed and approved by the Commission.

4 **Q. YOU MENTION THAT THE COMPANY CONTINUOUSLY OBTAINS**  
5 **ADDITIONAL DATA AND INFORMATION REGARDING ITS SYSTEM**  
6 **AND INCORPORATES THAT INTO ITS RISK ASSESSMENT. PLEASE**  
7 **EXPLAIN HOW THAT PROCESS IS REREPESENTED IN THE**  
8 **COMPANY'S RATE CASE WITH RESPECT TO ITS ALDYL-A**  
9 **REPLACEMENT PROPOSAL.**

10 A. When Atmos Energy's PRP program began, Atmos Energy was still in the process  
11 of determining how exactly to define ineffectively coated steel and was still in the  
12 process of accumulating and digitizing information on aged pipeline systems that  
13 had been acquired. As a result, the Company's estimates regarding the mileage that  
14 should be considered for its bare steel replacement program have been refined over  
15 time, along with additional information regarding risk.

16 Since 2009, we have had the opportunity to undertake efforts to refine the  
17 information we have to analyze the Aldyl-A pipe within our system. We completed  
18 an exercise for every office in Kentucky, reviewing the system maps extensively to  
19 identify the location of Aldyl-A pipe and its associated characteristics. Over the  
20 past four years, we have also undertaken significant O&M spending to review and

1 digitize historical records to significantly enhance the accuracy of our mapping and  
2 record system. Through this effort, we have the information necessary to identify  
3 Aldyl-A projects for replacement for the first two years of the program and a  
4 reasonable, refined estimate of the number of years necessary to replace the Aldyl-  
5 A inventory on our distribution system. Table TRA-4 in my direct testimony  
6 provides the mileage inventory of Aldyl-A pipe.

7 **Q. WHY IS IT IMPORTANT THAT THE ALDYL-A PROJECTS BE**  
8 **INCLUDED AS PART OF THE COMPANY'S ANNUAL PRP FILING?**

9 A. One of the benefits of an alternative mechanism for recovery of pipeline  
10 replacement investment is that it allows state regulatory bodies to receive each year  
11 a comprehensive look at the gas utility's proposal of projects, justification for those  
12 projects, and cost of the pipeline replacement program as a whole. The utility, in  
13 turn, is able to conduct an annual comprehensive review and proposal rather than a  
14 piecemeal approach that combines the cost and uncertainty of general rate cases  
15 with the methodical approach of a separate pipeline replacement program. The  
16 Company's PRP Rider is an annual filing. As part of that annual filing, all projects  
17 for that forecasted period are provided, as well as their estimated costs. These  
18 projects are listed on the K schedules of each filing. As part of each filing, the  
19 Commission may review and ask discovery, and potentially exclude projects for it  
20 determines there is insufficient objective data supporting their inclusion.



1 **Q. DOES MR. KOLLEN OFFER AN ALTERNATIVE TO ACCELERATED**  
2 **ALDYL-A REPLACEMENT OUTSIDE THE COMPANY’S PRP RIDER?**

3 A. Yes. Recovery through base rates.

4 **Q. DOES THE COMPANY AGREE WITH MR. KOLLEN’S ALTERNATIVE**  
5 **TO INCLUDE ACCELERATED ALDYL-A REPLACEMENT INCLUDED**  
6 **IN THE TEST PERIOD FOR THIS RATE CASE IN THE BASE REVENUE**  
7 **REQUIREMENT?**

8 A. No. From a safety and reliability perspective I am in favor of accelerated  
9 replacement of Aldyl-A pipeline in our system, in conjunction with our continued  
10 focus on bare steel replacement. Mr. Kollen’s recommendation of accelerated  
11 Aldyl-A replacement to be part of the Company’s non-PRP spending included in  
12 the base revenue requirement only is not a comprehensive solution.

13 **Q. DOES MR. KOLLEN ALTERNATIVE TO ACCELERATED ALDYL-A**  
14 **REPLACEMENT OUTSIDE THE COMPANY’S PRP RIDER HAVE ANY**  
15 **OTHER ISSUES?**

16 A. Yes. His recommendation also runs into the limitation on capital spending imposed  
17 by the Commission on the Company’s non-PRP spending in its last rate case on a  
18 going forward basis if Mr. Kollen’s expectation is that the Company continue  
19 accelerated replacement outside of its PRP Rider. In the Company’s 2018 case,  
20 2018-00281, the Commission stated that for Atmos “projected capital spending on

1 non-PRP projects should be limited to a 5-year 2014 through 2018 historical  
2 average of \$29.26 million” and that this would be a 5-year rolling average, in effect  
3 limiting Atmos Energy’s non-PRP capital spending to approximately \$29 million  
4 annually.<sup>7</sup> This amount encompasses all of the Company’s Kentucky capital  
5 spending outside what the Company is allowed for bare steel replacement only in  
6 its current PRP rider. Presumably, Mr. Kollen’s recommendation is that all  
7 accelerated Aldyl-A replacement even in years after what is included in this case  
8 also be part of the Company’s non-PRP spending. For the Company to be allowed  
9 accelerated replacement of Aldyl-A on the non-PRP side of capital spending, either  
10 this incremental amount would need to be in addition to the currently imposed cap  
11 on non-PRP capital, or other non-PRP capital projects would have to be eliminated  
12 to offset the allocation of funds to Aldyl-A replacement.

13 **Q. ARE THERE REGULATORY DEFICIENCIES IN MR. KOLLEN**  
14 **ALTERNATIVE TO ACCELERATED ALDYL-A REPLACEMENT**  
15 **OUTSIDE THE COMPANY’S PRP RIDER?**

16 A. Yes. There are regulatory concerns related to recovery of accelerated Aldyl-A  
17 replacement between the PRP and the base revenue requirement which are  
18 addressed by Company witness Joe Christian.

---

<sup>7</sup> 2018-00281, Final Order at 24.

1 **Q. DOES MR. KOLLEN'S ASSERTION THAT THERE IS NOT A**  
2 **REQUIREMENT OR AN URGENT NEED TO ADOPT AN ACCELERATED**  
3 **ALDYL-A REPLACEMENT PROGRAM AT THIS TIME PROPERLY**  
4 **CHARACTERIZE YOUR DIRECT TESTIMONY?**

5 A. No. Mr. Kollen's recommendation against the Company's proposed accelerated  
6 replacement of Aldyl-A is made in part because he believes there is not a  
7 requirement or urgent need to adopt such a program.<sup>8</sup> Mr. Kollen simply takes a  
8 piece of my testimony saying there is not an "immediate" need for replacement,  
9 and suggests the Company's intention to prioritize replacement by examining the  
10 facts of the Aldyl-A sections in its system is proof that a requirement or urgency  
11 does not exist.

12 **Q. WHY DO YOU DISAGREE WITH THIS ASSERTION?**

13 A. I disagree with Mr. Kollen because the Company's intention to prioritize  
14 replacement by examining the facts of the Aldyl-A systems is simply good prudence  
15 in allowing the Company to have a targeted approach to replacement over the  
16 lifecycle of the program, and not simply to spend as much capital on replacement  
17 as soon as that capital is available as suggested by Mr. Kollen.

---

<sup>8</sup> Kollen direct at 44.

1 **Q. IS THE COMPANY'S PROPOSED INCLUSION OF ALDYL-A SIMILAR**  
2 **TO OTHER PROPOSALS APPROVED BY THE COMMISSION?**

3 A. Yes. The Company's approach is in line with the Commission's guidance from the  
4 Company's last final order in Case No. 2018-00281 indicating the reasons for  
5 support of an Aldyl-A replacement program for Delta Natural Gas Company.  
6 Specifically, the Commission highlighted the fact that Delta Natural Gas Company,  
7 Inc. acknowledged that all Aldyl-A did not need to be replaced immediately, but  
8 rather indicated that it had identified specific section of Aldyl-A that should be  
9 targeted for replacement first, and then anticipating the remainder to be replaced  
10 over the course of several years.<sup>9</sup> The Company's proposed Aldyl-A replacement  
11 in this Case is no different. As mentioned in my direct testimony, we would target  
12 the sections of pipe that have a history of leaks and higher potential for third party  
13 damage starting with the town of Cadiz. We would continue to evaluate each year  
14 the priorities of each project to make sure we are making the best decision on which  
15 areas to replace while balancing the workload within project areas to minimize the  
16 impacts to local towns and other utilities not to overwhelm available resources.

---

<sup>9</sup> See 2018-00281, Final Order at 23

1 **Q. DO YOU BELIEVE MR. KOLLEN’S RECOMMENDATION REJECTING**  
2 **ACCELERATED ALDYL-A REPLACEMENT UNTIL THE COMPLETION**  
3 **OF ACCELERATED BARE STEEL REPLACEMENT IS PRUDENT?**

4 A. No. Utilities need to have appropriate replacement cycles for all of their pipeline  
5 infrastructure. Atmos Energy has approximately 4,300 miles of natural gas  
6 distribution and transmission pipeline (plus associated service lines) in Kentucky.  
7 If we were to replace 43 miles of pipe per year (1% per year), it would take 100  
8 years to renew the entire system...and future generations would be left with a  
9 pipeline system with 100-years-old segments. A prudent pipeline operator must  
10 consider the overall replacement cycle of its system. Mr. Kollen does not take this  
11 analysis into consideration in his proposal. His recommendation is not focused on  
12 public safety.

13 **Q. DOES DELAYING THE REPLACEMENT OF ALDYL A PIPE POSE ANY**  
14 **ADDITIONAL RISK?**

15 A. Yes. Since 2018, the Commission has been responsible for enforcing Kentucky’s  
16 Underground Facility Protection statute, commonly known as the call-before-you-  
17 dig law, as it pertains to natural gas and hazardous liquid pipelines. Over the past  
18 three years, the Commission has done an excellent job pursuing enforcement of this  
19 law through its oversight, investigation, and penalties. However, in order for this  
20 law to effectively protect Kentuckians from third-party damage to lines, the  
21 facilities of the natural gas operators must be locatable using best practices and

1 technology in the locating process. Unfortunately, this is often not the case with  
2 the Aldyl-A pipe we are asking to systematically replace because either there is no  
3 tracer wire or any tracer wire that once existed is no longer effective. In addition,  
4 with the anticipated growth and development in the areas in which these Aldyl-A  
5 projects are located, coupled with anticipated expansion of underground internet  
6 connectivity buildout, the number of locates in this area and potential for damage  
7 are likely to increase significantly in the coming years.

8 Replacing pipelines also reduces leaks and methane emissions. We track  
9 and report greenhouse gas emissions in accordance with the Environmental  
10 Protection Agency's (EPA) Greenhouse Gas Reporting Rule, which requires  
11 reporting of greenhouse gas data and other relevant information from large sources  
12 and suppliers in the United States. In addition, all of our operating divisions report  
13 to various state agencies that have environmental jurisdiction over our activities.  
14 Accelerated replacement of the Aldyl-A pipe identified in our risk analysis will  
15 contribute to reducing natural gas distribution's carbon footprint in Kentucky.

1 **Q. YOU MENTION ECONOMIC DEVELOPMENT AND GROWTH IN THE**  
2 **CONTEXT OF THIRD-PARTY DAMAGE. IN HIS REBUTTAL**  
3 **TESTIMONY, MR. CHRISTIAN DISCUSSES POTENTIAL**  
4 **CONSTRAINTS ON ECONOMIC DEVELOPMENT ACTIVITY CREATED**  
5 **BY THE CAP IMPOSED ON NON-PRP SPENDING. COULD YOU**  
6 **ELABORATE ON YOUR OPERATIONAL EXPERIENCE RELATED TO**  
7 **THAT ISSUE?**

8 A. Yes. By way of example, I can think of two thriving areas in our service territory  
9 that are outgrowing the capacity of our system, Bowling Green and Shelbyville. In  
10 both of these areas, it is our understanding that there is the potential for industrial  
11 projects that would bring investment and jobs to the region. However, if Atmos  
12 Energy needed to make capital investment in the region to support that growth, our  
13 budget would be limited by the cap on non-PRP spending and there is a high  
14 probability that the investment would not be possible given necessary system  
15 maintenance and safety projects that would have to take precedence. This has a  
16 potential to deter large industrial customers from locating in Atmos Energy's  
17 service territory, which has a revenue impact that adversely affects our existing  
18 customers.

1 **Q. PLEASE DESCRIBE THE COMPANY'S INTERACTION HISTORICALLY**  
2 **WITH THE PIPELINE SAFETY DIVISION OF THE COMMISSION WITH**  
3 **REGARD TO SAFETY COMPLIANCE.**

4 A. Atmos Energy's interactions with the Commission's Office of Pipeline Safety have  
5 always been open, transparent, and cooperative. We have always viewed our  
6 interactions with the Commission as a partnership to enhance safety which benefits  
7 the customers and the communities we serve across 38 counties in Kentucky.

8 **Q. DO YOU BELIEVE THAT THE INCLUSION OF THE ALDYL-A**  
9 **PROJECTS IN PRP WILL BE CONSISTENT WITH THE DIM PLAN**  
10 **REVIEWED AND APPROVED BY THE OFFICE OF PIPELINE SAFETY?**

11 A. Absolutely. The Office of Pipeline Safety is vigilant in protecting the short-term  
12 and long-term safety of the communities in Kentucky and has always been  
13 supportive of Atmos Energy's proactive approach to maintaining a safe system for  
14 the future of Kentucky and its residents.

15 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

16 A. Yes, it does.



COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF )  
RATE APPLICATION OF ) Case No. 2021-00214  
ATMOS ENERGY CORPORATION )

CERTIFICATE AND AFFIDAVIT

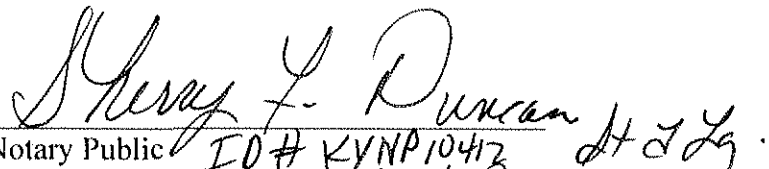
The Affiant, Timothy (Ryan) Austin, being duly sworn, deposes and states that the prepared testimony attached hereto and made a part hereof, constitutes the prepared rebuttal testimony of this affiant in Case No. 2021-00214, in the Matter of the Rate Application of Atmos Energy Corporation, and that if asked the questions propounded therein, this affiant would make the answers set forth in the attached prepared rebuttal testimony.



Timothy R. Austin

STATE OF KENTUCKY  
COUNTY OF DAVIESS

SUBSCRIBED AND SWORN to before me by Timothy R. Austin on this the 18<sup>th</sup> day of November, 2021.



Notary Public ID# KYNP10413  
My Commission Expires: 07/08/2024

**BEFORE THE PUBLIC SERVICE COMMISSION**

**COMMONWEALTH OF KENTUCKY**

**APPLICATION OF ATMOS ENERGY )**  
**)**  
**CORPORATION FOR AN ADJUSTMENT ) Case No. 2021-00214**  
**)**  
**OF RATES AND TARIFF MODIFICATIONS )**

**REBUTTAL TESTIMONY OF DYLAN W. D'ASCENDIS**

**RATE OF RETURN**

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Exhibit

Exhibit DWD-2

1                   **I. INTRODUCTION, PURPOSE, AND SUMMARY**

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

4   A. My name is Dylan W. D’Ascendis. I am employed by ScottMadden, Inc. as  
5   Partner. My business address is 3000 Atrium Way, Suite 241, Mount Laurel, NJ  
6   08054.

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

8   A. I am submitting this rebuttal testimony (referred to throughout as my Rebuttal  
9   Testimony) before the Kentucky Public Service Commission (“Commission”) on  
10   behalf of Atmos Energy Corporation (“Atmos Energy” or the “Company”).

11   **Q. DID YOU FILE DIRECT TESTIMONY IN THIS PROCEEDING?**

12   A. Yes, I did.

13   **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

14   A. The purpose of my Rebuttal Testimony is two-fold. First, I update my cost of  
15   common equity (“ROE”) analyses to reflect current data. Second, I respond to the  
16   direct testimony of Mr. Richard A. Baudino, witness for the Kentucky Office of the  
17   Attorney General, (“OAG”) as it relates to the Company’s ROE on its Kentucky  
18   jurisdictional rate base and the Company’s proposed capital structure.

19   **Q. HAVE YOU PREPARED SCHEDULES IN SUPPORT OF YOUR**  
20   **RECOMMENDATION?**

21   A. Yes. I have prepared Exhibit No. DWD-2, consisting of Schedules DWD-1 through  
22   DWD-11, which were prepared by me or under my direction.

1 **Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.**

2 A. Due to the passage of time since the analysis in my Direct Testimony, I have  
3 updated my ROE analyses as of September 30, 2021. Based on these updated  
4 analyses, my range of reasonable ROEs attributable to Atmos Energy is between  
5 9.76% and 12.88% (unadjusted) and 9.94% to 13.17% (adjusted). Therefore, my  
6 specific ROE recommendation of 10.35% for Atmos Energy in this case continues  
7 to be reasonable, if not conservative.

8 **Q. IN WHAT KEY AREAS ARE MR. BAUDINO'S ANALYSES AND**  
9 **RECOMMENDATIONS INCORRECT OR UNSUPPORTED?**

10 A. There are several areas including:

- 11 1. His sole reliance on and his application of the discounted cash flow  
12 ("DCF") model;
- 13 2. His application of the capital asset pricing model ("CAPM"); and
- 14 3. His exclusion of credit, size, and flotation cost adjustments.

15 **II. UPDATED ANALYSES**

16 **Q. HAVE YOU UPDATED YOUR COST OF COMMON EQUITY ANALYSES**  
17 **FOR YOUR REBUTTAL TESTIMONY?**

18 A. Yes, I have. Due to the passage of time since my Direct Testimony analysis (data  
19 as of May 28, 2021), I have updated my analysis using data as of September 30,  
20 2021.

21 **Q. HAVE YOU UPDATED YOUR UTILITY PROXY GROUP FOR YOUR**  
22 **UPDATED ANALYSES?**

23 A. No, I have not.

1 **Q. HAVE YOU APPLIED ANY OF YOUR ROE MODELS DIFFERENTLY IN**  
2 **YOUR UPDATED ANALYSES?**

3 A. No, I have not. The updated models follow the same techniques as were described  
4 in my Direct Testimony.

5 **Q. WHAT ARE THE RESULTS OF YOUR UPDATED ANALYSES?**

6 A. Using data available as of September 30, 2021, my updated results are presented in  
7 page 2 of Schedule DWD-1 and in Table 1, below.

8 **Table 1: Updated Cost of Common Equity Results**

Discounted Cash Flow Model	9.76%
Risk Premium Model	10.30%
Capital Asset Pricing Model	12.10%
Cost of Equity Models Applied to Comparable Risk, Non-Price Regulated Companies	<u>12.99%</u>
Indicated Range	9.76% - 12.99%
Size Adjustment	0.20%
Credit Risk Adjustment	-0.08%
Flotation Cost Adjustment	<u>0.06%</u>
Recommended Range	9.94% - 13.17%
Recommended Cost of Common Equity	<u>10.35%</u>

9  
10 In view of the unadjusted and adjusted ranges of ROE, I maintain my  
11 original ROE recommendation of 10.35%. Since my recommended ROE of  
12 10.35% is in the bottom half of my range of ROEs, it is a conservative measure of  
13 the Company's ROE at this time.

1 **III. RESPONSE TO WITNESS BAUDINO**

2 **Q. PLEASE SUMMARIZE MR. BAUDINO'S ROE RECOMMENDATIONS**  
3 **AS THEY RELATE TO THE COMPANY'S COST OF CAPITAL.**

4 A. Mr. Baudino recommends an ROE range of 8.40% to 9.40%, with a point estimate  
5 of 9.10%, based exclusively on the results of his Constant Growth DCF analyses  
6 applied to his proxy group of seven natural gas utilities.<sup>1</sup> Mr. Baudino also  
7 performs two CAPM analyses, although he does not give those results weight in  
8 arriving at his ROE recommendation.<sup>2</sup>

9 **A. Sole Reliance on the Discounted Cash Flow Model**

10 **Q. TO WHAT EXTENT DOES MR. BAUDINO'S RECOMMENDED ROE**  
11 **RELY ON HIS DCF MODEL?**

12 A. As previously stated, Mr. Baudino relies exclusively on his constant growth DCF  
13 model results to determine his recommended ROE. As discussed in my Direct  
14 Testimony, the use of multiple models adds reliability to the estimation of the  
15 common equity cost rate, with the prudence of using multiple cost of common  
16 equity models supported in both the financial literature and regulatory precedent.<sup>3</sup>

17 **Q. CAN YOU PLEASE PROVIDE SOME EXAMPLES FROM FINANCIAL**  
18 **LITERATURE WHICH SUPPORT THE USE OF MULTIPLE COST OF**  
19 **COMMON EQUITY MODELS IN DETERMINING THE INVESTOR-**  
20 **REQUIRED RETURN?**

21 A. Yes. In one example, Morin states:

22 Each methodology requires the exercise of considerable judgment

---

<sup>1</sup> Baudino Direct Testimony, at 3.

<sup>2</sup> *Ibid.*

<sup>3</sup> D'Ascendis Direct Testimony, at 15-16.

1 on the reasonableness of the assumptions underlying the  
2 methodology and on the reasonableness of the proxies used to  
3 validate a theory. The inability of the DCF model to account for  
4 changes in relative market valuation, discussed below, is a vivid  
5 example of the potential shortcomings of the DCF model when  
6 applied to a given company. Similarly, the inability of the CAPM  
7 to account for variables that affect security returns other than beta  
8 tarnishes its use.

9 **No one individual method provides the necessary level of**  
10 **precision for determining a fair return, but each method**  
11 **provides useful evidence to facilitate the exercise of an informed**  
12 **judgment.** Reliance on any single method or preset formula is  
13 inappropriate when dealing with investor expectations because of  
14 possible measurement difficulties and vagaries in individual  
15 companies' market data. (emphasis added)

16 \* \* \*

17 The financial literature supports the use of multiple methods.  
18 Professor Eugene Brigham, a widely respected scholar and finance  
19 academician, asserts<sup>(footnote omitted)</sup>:

20 Three methods typically are used: (1) the Capital Asset Pricing  
21 Model (CAPM), (2) the discounted cash flow (DCF) method,  
22 and (3) the bond-yield-plus-risk-premium approach. **These**  
23 **methods are not mutually exclusive – no method dominates**  
24 **the others,** and all are subject to error when used in practice.  
25 Therefore, when faced with the task of estimating a company's  
26 cost of equity, we generally use all three methods and then  
27 choose among them on the basis of our confidence in the data  
28 used for each in the specific case at hand. (emphasis added)

29 Another prominent finance scholar, Professor Stewart Myers, in an  
30 early pioneering article on regulatory finance, stated<sup>(footnote omitted)</sup>:

31 Use more than one model when you can. Because estimating  
32 the opportunity cost of capital is difficult, **only a fool throws**  
33 **away useful information.** That means you should not use any  
34 one model or measure mechanically and exclusively. Beta is  
35 helpful as one tool in a kit, to be used in parallel with DCF  
36 models or other techniques for interpreting capital market data.  
37 (emphasis added)

38 Reliance on multiple tests recognizes that no single methodology  
39 produces a precise definitive estimate of the cost of equity. As stated  
40 in Bonbright, Danielsen, and Kamerschen (1988), 'no single or



1 *group test or technique is conclusive.*’ Only a fool discards relevant  
2 evidence. (italics in original) (emphasis added)

3 \* \* \*

4 While it is certainly appropriate to use the DCF methodology to  
5 estimate the cost of equity, there is no proof that the DCF produces  
6 a more accurate estimate of the cost of equity than other  
7 methodologies. Sole reliance on the DCF model ignores the capital  
8 market evidence and financial theory formalized in the CAPM and  
9 other risk premium methods. **The DCF model is one of many tools  
10 to be employed in conjunction with other methods to estimate  
11 the cost of equity.** It is not a superior methodology that supplants  
12 other financial theory and market evidence. The broad usage of the  
13 DCF methodology in regulatory proceedings in contrast to its virtual  
14 disappearance in academic textbooks does not make it superior to  
15 other methods. The same is true of the Risk Premium and CAPM  
16 methodologies. (emphasis added)<sup>4</sup>

17 Finally, Brigham and Gapenski note:

18 In practical work, *it is often best to use all three methods – CAPM,*  
19 *bond yield plus risk premium, and DCF – and then apply judgment*  
20 *when the methods produce different results. People experienced in*  
21 *estimating equity capital costs recognize that both careful analysis*  
22 *and some very fine judgments are required. It would be nice to*  
23 *pretend that these judgments are unnecessary and to specify an easy,*  
24 *precise way of determining the exact cost of equity capital.*  
25 *Unfortunately, this is not possible. Finance is in large part a matter*  
26 *of judgment, and we simply must face this fact.* (italics in original)<sup>5</sup>

27 In the academic literature cited above, three methods are consistently  
28 mentioned: the DCF, CAPM, and the risk premium model (“RPM”), all of which I  
29 used in my analyses.

---

<sup>4</sup> Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 428-431.  
 (“Morin”)

<sup>5</sup> Eugene F. Brigham and Louis C. Gapenski, Financial Management – Theory and Practice, 4<sup>th</sup> Ed.  
 The Dryden Press, 1985 at 256.

1 **Q. IN ADDITION TO THE ABOVE, WHY IS SOLE RELIANCE ON THE DCF**  
2 **MODEL PROBLEMATIC AT THIS TIME?**

3 A. Traditional rate base/rate of return regulation, where a market-based common  
4 equity cost rate is applied to a book value rate base, presumes that market-to-book  
5 (“M/B”) ratios are at unity or 1.00. However, that is rarely the case. Morin states:

6 The third and perhaps most important reason for caution and  
7 skepticism is that application of the DCF model produces estimates  
8 of common equity cost that are consistent with investors’ expected  
9 return only when stock price and book value are reasonably similar,  
10 that is, when the M/B is close to unity. As shown below, application  
11 of the standard DCF model to utility stocks understates the  
12 investor’s expected return when the market-to-book (M/B) ratio of  
13 a given stock exceeds unity. This was particularly relevant in the  
14 capital market environment of the 1990s and 2000s where utility  
15 stocks were trading at M/B ratios well above unity and have been  
16 for nearly two decades. The converse is also true, that is, the DCF  
17 model overstates that investor’s return when the stock’s M/B ratio  
18 is less than unity. The reason for the distortion is that the DCF  
19 market return is applied to a book value rate base by the regulator,  
20 that is, a utility’s earnings are limited to earnings on a book value  
21 rate base.<sup>6</sup>

22 As he explains, DCF models assume an M/B ratio of 1.0 and therefore  
23 under- or over-states investors’ required return when market value exceeds or is  
24 less than book value, respectively. It does so because equity investors evaluate and  
25 receive their returns on the market value of a utility’s common equity, whereas  
26 regulators authorize returns on the book value of common equity. This means that  
27 the market-based DCF will produce the total annual dollar return expected by  
28 investors only when market and book values of common equity are equal, a very  
29 rare and unlikely situation.

---

<sup>6</sup> Morin, at 434.

1 **Q. WHY DO MARKET AND BOOK VALUES DIVERGE?**

2 A. Market values can diverge from book values for a myriad of reasons including, but  
3 not limited to, earnings per share (“EPS”) and dividends per share (“DPS”)  
4 expectations, merger / acquisition expectations, interest rates, etc. As noted by  
5 Phillips:

6 Many question the assumption that market price should equal book  
7 value, believing that 'the earnings of utilities should be sufficiently  
8 high to achieve market-to-book ratios which are consistent with  
9 those prevailing for stocks of unregulated companies.<sup>7</sup>

10  
11 In addition, Bonbright states:

12 In the first place, commissions cannot forecast, except within wide  
13 limits, the effect their rate orders will have on the market prices of  
14 the stocks of the companies they regulate. In the second place,  
15 *whatever the initial market prices may be, they are sure to change*  
16 *not only with the changing prospects for earnings, but with the*  
17 *changing outlook of an inherently volatile stock market.* In short,  
18 market prices are beyond the control, though not beyond the  
19 influence of rate regulation. Moreover, even if a commission did  
20 possess the power of control, any attempt to exercise it ... would  
21 result in harmful, uneconomic shifts in public utility rate levels.  
22 (italics added)<sup>8</sup>

23 **Q. CAN THE UNDER- OR OVER-STATEMENT OF INVESTORS’**  
24 **REQUIRED RETURN BY THE DCF MODEL BE DEMONSTRATED**  
25 **MATHEMATICALLY?**

26 A. Yes. Schedule DWD-2 demonstrates how a market-based DCF cost rate of 9.10%,  
27 when applied to a book value substantially below market value, will understate  
28 investors’ required return on market value. As shown, there is no realistic

---

<sup>7</sup> Charles F. Phillips, The Regulation of Public Utilities, Public Utilities Reports, Inc., 1993, at 395.

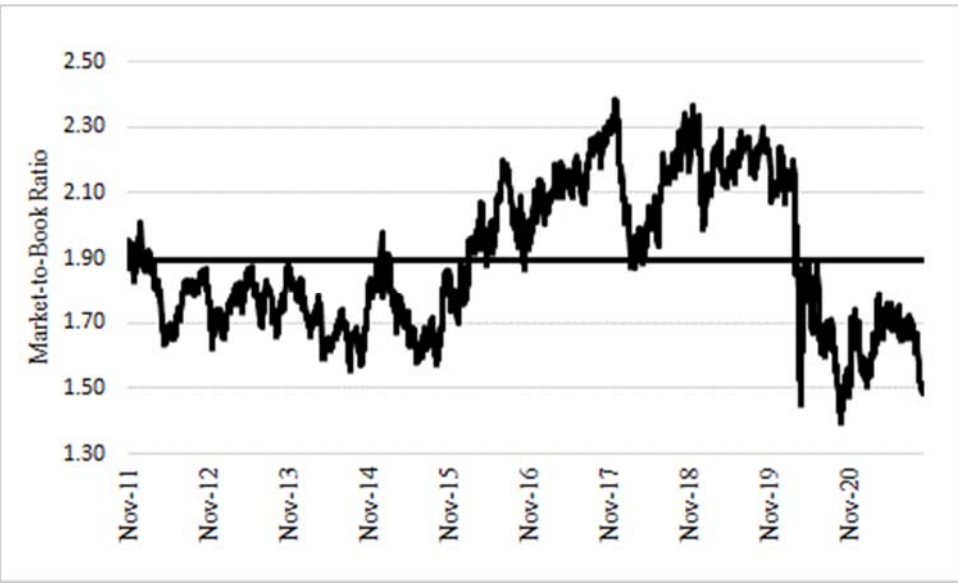
<sup>8</sup> James C. Bonbright, Albert L. Danielsen and David R. Kamerschen, Principles of Public Utility Rates (Public Utilities Reports, Inc., 1988), at 334.

1 opportunity to earn the expected market-based rate of return on book value. In  
2 Column [A], investors expect a 9.10% return on an average market price of \$61.16  
3 for Mr. Baudino’s proxy group. Column [B] shows that when Mr. Baudino’s 9.10%  
4 return rate is applied to a book value of \$35.97,<sup>9</sup> the total annual return opportunity  
5 is \$3.273. After subtracting dividends of \$2.148 the investor only has the  
6 opportunity for \$1.125 in market appreciation, or 1.84%. The magnitude of the  
7 understatement of investors’ required return on market value using Mr. Baudino’s  
8 9.10% cost rate is 3.75%, which is calculated by subtracting the market appreciation  
9 based on book value of 1.84% from Mr. Baudino’s expected growth rate of 5.59%.

10 **Q. HOW DO M/B RATIOS OF MR. BAUDINO’S PROXY GROUP COMPARE**  
11 **TO THEIR TEN-YEAR AVERAGE?**

12 A. The M/B ratio of the proxy group is somewhat below its ten-year average of  
13 approximately 1.89 times.

14 **Chart 1: M/B Ratios Compared with Ten-Year Average<sup>10</sup>**



15

<sup>9</sup> Representing a market-to-book ratio of 170.05%.  
<sup>10</sup> Source: S&P Global Market Intelligence.

1  
2 The significance of this is that the ten-year average M/B ratio has always  
3 been higher than 1.0x, which means that DCF model results have consistently  
4 understated the investor-required return.

5 **Q. IS THERE ANOTHER WAY TO QUANTIFY THE INACCURACY OF THE**  
6 **DCF MODEL WHEN M/B RATIOS ARE DIFFERENT THAN UNITY?**

7 A. Yes. One can quantify the inaccuracy of the DCF model when M/B ratios are not  
8 at unity by estimating the implied DCF model results (based on a market-value  
9 capital structure) to reflect a book-value capital structure. This can be measured by  
10 first calculating the market value of each proxy company's capital structure, which  
11 consists of the market value of the company's common equity (shares outstanding  
12 multiplied by price) and the fair value of the company's long-term debt and  
13 preferred stock. All of these measures, except for price, are available in each  
14 company's SEC Form 10-K.

15 Second, one must de-leverage the implied cost of common equity based on  
16 the DCF. This is derived using the Modigliani / Miller equation<sup>11</sup> as illustrated in  
17 Schedule DWD-3 and shown below:

$$18 \quad k_u = k_e - (((k_u - i)(1 - t)) D/E) - (k_u - d) P/E \text{ [Equation 1]}$$

19 Where:

20  $k_u$  = Unlevered (i.e., 100% equity) cost of common  
21 equity;  
22  $k_e$  = Market determined cost of common equity;  
23  $i$  = Cost of debt;  
24  $t$  = Income tax rate;

---

<sup>11</sup> The Modigliani / Miller theorem is an influential element of economic theory and forms the basis for modern theory on capital structure. See, F. Modigliani, and M. Miller, *The Cost of Capital, Corporation Finance and the Theory of Investment*, The American Economic Review, Vol. 48, No. 3, (June 1958), at 261-297.



1 common equity models, in conjunction with informed expert judgment, provides a  
2 more accurate and reliable picture of the investor-required ROE than does a narrow  
3 evaluation of the results of one model.

4 **B. Application of the Discounted Cash Flow Model**

5 **Q. PLEASE BRIEFLY DESCRIBE MR. BAUDINO'S CONSTANT GROWTH**  
6 **DCF ANALYSIS AND RESULTS.**

7 A. Mr. Baudino calculates an average dividend yield of 3.48% by dividing each proxy  
8 company's annualized dividend by its monthly stock price for the six-month period  
9 ending August 2021.<sup>12</sup> For the expected growth rate, Mr. Baudino relies on EPS  
10 growth rate projections from *Value Line*, Zacks, and Yahoo! Finance, as well as  
11 DPS growth rate projections from *Value Line*.<sup>13</sup> Mr. Baudino then calculates his  
12 DCF results based on the mean and median growth rate of the four sources noted  
13 above. Mr. Baudino refers to the DCF results produced using mean growth rates as  
14 "Method 1", and DCF results produced using median growth rates as "Method 2".  
15 The mean DCF results of his Method 1 and 2 were 9.49% and 9.20%,  
16 respectively.<sup>14</sup>

17 **Q. DO YOU HAVE ANY CONCERNS WITH MR. BAUDINO'S**  
18 **APPLICATION OF THE DCF MODEL?**

19 A. Yes, I do. On page 28 of his direct testimony, Mr. Baudino states that he arrived at  
20 his recommended ROE based on "the average Value Line dividend growth ROE  
21 and the consensus analysts' forecasted ROE results", disregarding his DCF results

---

<sup>12</sup> Baudino Direct Testimony, at 17.

<sup>13</sup> *Ibid.*, at 18.

<sup>14</sup> *Ibid.*, at 20.

1 based on Value Line earnings growth rate. As will be discussed below, there is a  
2 significant body of empirical evidence supporting the superiority of analysts' EPS  
3 growth rates in a DCF analysis, indicating that analysts' forecasts of earnings  
4 remain the best predictor of growth to use in the DCF model.

5 **Q. PLEASE DESCRIBE SOME OF THE EVIDENCE SUPPORTING THE**  
6 **RELIABILITY AND SUPERIORITY OF ANALYSTS' EPS GROWTH**  
7 **RATES IN A DCF ANALYSIS.**

8 A. As discussed in my Direct Testimony, over the long run there can be no growth in  
9 DPS without growth in EPS.<sup>15</sup> Security analysts' earnings expectations have a  
10 more significant, but not the only, influence on market prices than dividend  
11 expectations. Thus, the use of projected EPS growth rates in a DCF analysis  
12 provides a better match between investors' market price appreciation expectations  
13 and the growth rate component of the DCF, because they have a significant  
14 influence on market prices and the appreciation or "growth" experienced by  
15 investors.<sup>16</sup> This should be evident even to relatively unsophisticated investors by  
16 listening to financial news reports on radio, TV, or reading newspapers.

17 In addition, Myron Gordon, the "father" of the standard regulatory version  
18 of the DCF model widely utilized throughout the United States in rate base/rate of  
19 return regulation, recognized the significance of analysts' forecasts of growth in  
20 EPS in a speech he gave in March 1990 before the Institute for Quantitative  
21 Research and Finance<sup>17</sup>, stating on page 12:

---

<sup>15</sup> D'Ascendis Direct Testimony, at 18.

<sup>16</sup> Morin, at 298-303.

<sup>17</sup> Myron J. Gordon, *The Pricing of Common Stock*, Presented before the Spring 1990 Seminar, March 27, 1990 of the Institute for Quantitative Research in Finance, Palm Beach, FL.



1 We have seen that earnings and growth estimates by security  
2 analysts were found by Malkiel and Cragg to be superior to data  
3 obtained from financial statements for the explanation of variation  
4 in price among common stocks... estimates by security analysts  
5 available from sources such as IBES are far superior to the data  
6 available to Malkiel and Cragg.

7 \* \* \*

8 Eq (7) is not as elegant as Eq (4), but it has a good deal more intuitive  
9 appeal. It says that investors buy earnings, but what they will pay  
10 for a dollar of earnings increases with the extent to which the  
11 earnings are reflected in the dividend or in appreciation through  
12 growth.

13 Professor Gordon recognized that the total return is largely affected by the  
14 terminal price, which is mostly affected by earnings (hence price/earnings (P/E)  
15 multiples).

16 Cragg and Malkiel state:

17 Efficient market hypotheses suggest that valuation should reflect the  
18 information available to investors. Insofar as analysts' forecasts are  
19 more precise than other types we should therefore expect their  
20 differences from other measures to be reflected in the market. It is  
21 therefore noteworthy that our regression results do support the  
22 hypothesis that analysts' forecasts are needed even when calculated  
23 growth rates are available. As we noted when we described the data,  
24 security analysts do not use simple mechanical methods to obtain  
25 their evaluations of companies. The growth-rate figures we  
26 obtained were distilled from careful examination of all aspects of  
27 the companies' records, evaluation of contingencies to which they  
28 might be subject, and whatever information about their prospects the  
29 analysts could glean from the companies themselves or from other  
30 sources. It is therefore notable that the results of their efforts are  
31 found to be so much more relevant to the valuation than the various  
32 simpler and more "objective" alternatives that we tried.<sup>18</sup>

33 Morin states:

34 Because of the dominance of institutional investors and their  
35 influence on individual investors, analysts' forecasts of long-run  
36 growth rates provide a sound basis for estimating required returns.

---

<sup>18</sup> John G. Cragg and Burton G. Malkiel, Expectations and the Structure of Share Prices (University of Chicago Press, 1982) Chapter 4.

1 Financial analysts exert a strong influence on the expectations of  
2 many investors who do not possess the resources to make their own  
3 forecasts, that is, they are a cause of g. The accuracy of these  
4 forecasts in the sense of whether they turn out to be correct is not at  
5 issue here, as long as they reflect widely held expectations. As long  
6 as the forecasts are typical and/or influential in that they are  
7 consistent with current stock price levels, they are relevant. The use  
8 of analysts' forecasts in the DCF model is sometimes denounced on  
9 the grounds that it is difficult to forecast earnings and dividends for  
10 only one year, let alone for longer time periods. This objection is  
11 unfounded, however, because it is present investor expectations that  
12 are being priced; it is the consensus forecast that is embedded in  
13 price and therefore in required return, and not the future as it will  
14 turn out to be.

15 \* \* \*

16 Published studies in the academic literature demonstrate that growth  
17 forecasts made by security analysts represent an appropriate source  
18 of DCF growth rates, are reasonable indicators of investor  
19 expectations and are more accurate than forecasts based on  
20 historical growth. These studies show that investors rely on  
21 analysts' forecasts to a greater extent than on historic data only.<sup>19</sup>

22 However, while EPS is a significant factor influencing market prices, it is  
23 by no means the only factor that affects market prices, a fact recognized by  
24 Bonbright with regard to public utilities as discussed previously.

25 In addition, Vander Weide and Carleton conclude:

26 . . . our studies affirm the superiority of analyst's forecasts over  
27 simple historical growth extrapolations in the stock price formation  
28 process. Indirectly, this finding lends support to the use of valuation  
29 models whose input includes expected growth rates.<sup>20</sup>

30 Finally, Jeremy J. Siegel also supports the use of security analysts' EPS  
31 growth forecasts when he states:

32 For the equity holder, the source of future cash flows is the earnings

---

<sup>19</sup> Morin, at 298.

<sup>20</sup> James H. Vander Weide and Willard T. Carleton, *Investor Growth Expectations: Analysts vs. History* (The Journal of Portfolio Management, Spring 1988) 78-82.

1 of firms. (p. 90)

2 \* \* \*

3 Some people argue that shareholders most value stocks' cash  
4 dividends. But this is not necessarily true. (p. 91)

5 \* \* \*

6 Since the price of a stock depends primarily on the present  
7 discounted value of all expected future dividends, it appears that  
8 dividend policy is crucial to determining the value of the stock.  
9 However, this is not generally true. (p. 92)

10 \* \* \*

11 Since stock prices are the present value of future dividends, it would  
12 seem natural to assume that economic growth would be an important  
13 factor influencing future dividends and hence stock prices.  
14 However, this is not necessarily so. The determinants of stock prices  
15 are earnings and dividends on a *per-share* basis. Although  
16 economic growth may influence *aggregate* earnings and dividends  
17 favorably, economic growth does not necessarily increase the  
18 growth of per-share earnings of dividends. It is earnings per share  
19 (EPS) that is important to Wall Street because per-share data, not  
20 aggregate earnings or dividends, are the basis of investor returns.  
21 (italics in original) (pp. 93-94)<sup>21</sup>

22 **Q. HAVE YOU CONSIDERED WHETHER ANALYSTS' EPS GROWTH**  
23 **RATE PROJECTIONS ARE CONSISTENT WITH MANAGEMENT**  
24 **GUIDANCE?**

25 A. Yes, I have. Based on data from Company investor presentations, six of seven of  
26 the proxy group companies currently issue long-term earnings growth guidance.  
27 Looking at the sources of growth rates used by Mr. Baudino, of the 21 growth rate  
28 estimates for companies that also issue earnings guidance, only five exceeded the  
29 upper bound of management guidance. On the other hand, two were below the

---

<sup>21</sup> Jeremy J. Siegel, Stocks for the Long Run – The Definitive Guide to Financial Market Returns and Long-Term Investment Strategies, McGraw-Hill 2002, pp. 90-94.

1 guidance range; the remaining observations were within the range. Put another  
2 way, the majority of analysts' projections were within or below management  
3 guidance.

4 **Table 2: EPS Growth Rates and Management Guidance**

Company		Guidance Range <sup>22</sup>		Projected EPS Growth Rate <sup>23</sup>		
		Lower	Upper	Yahoo!	Value Line	Zacks
Atmos Energy	ATO	6.00	8.00	7.70	7.00	7.40
New Jersey Resources	NJR	6.00	10.00	6.00	2.00	7.10
Northwest Natural	NWN	3.00	5.00	5.50	5.50	4.90
ONE Gas Inc	OGS	5.00	7.00	5.00	6.50	5.00
South Jersey Ind	SJI	5.00	8.00	4.80	11.50	5.40
Southwest Gas	SWX	-	-	4.00	8.00	5.50
Spire Inc	SR	5.00	7.00	7.31	10.00	5.50

5 I understand seven companies constitute a relatively small sample for such  
6 an analysis. Nonetheless, the consistency between management guidance and  
7 analysts' projections suggests analysts' projected EPS growth rates are proper  
8 inputs to the DCF model.

9 **Q. IS THERE EMPIRICAL EVIDENCE THAT INVESTORS WOULD**  
10 **DISREGARD ANALYST ESTIMATES IN EPS GROWTH?**

11 A. No, there is not. The article, "Do Analyst Conflicts Matter? Evidence from Stock  
12 Recommendations," examines whether conflicts of interest with investment  
13 banking [IB] and brokerage businesses induced sell-side analysts to issue optimistic  
14 stock recommendations and whether investors were misled by such biases. The  
15 authors conclude, "Overall, our findings do not support the view that conflicted

---

<sup>22</sup> Source: Company investor presentations and Annual Reports.

<sup>23</sup> Source: Baudino Exhibit RAB-3.

1 analysts are able to systematically mislead investors with optimistic stock  
2 recommendations.”

3 Agrawal and Chen further state:

4 Overall, our empirical findings suggest that while analysts do  
5 respond to IB and brokerage conflicts by inflating their stock  
6 recommendations, the market discounts these recommendations  
7 after taking analysts’ conflicts into account. These findings are  
8 reminiscent of the story of the nail soup told by Brealey and Myers  
9 (1991), except that here analysts (rather than accountants) are the  
10 ones who put the nail in the soup and investors (rather than analysts)  
11 are the ones to take it out. Our finding that the market is not fooled  
12 by biases stemming from conflicts of interest echoes similar  
13 findings in the literature on conflicts of interest in universal banking  
14 (for example, Kroszner and Rajan, 1994, 1997; Gompers and Lerner  
15 1999) and on bias in the financial media (for examples,  
16 Bhattacharya et al. forthcoming; Reuter and Zitzewitz 2006).  
17 Finally, while we cannot rule out the possibility that some investors  
18 may have been naïve, our findings do not support the notion that the  
19 marginal investor was systematically misled over the last decade by  
20 analysts’ recommendations.<sup>24</sup>

21 In view of the above, given the overwhelming academic and empirical  
22 support regarding the superiority of security analysts’ EPS growth rate forecasts,  
23 all EPS growth rate projections, including ones from *Value Line* should be relied  
24 on by Mr. Baudino in his DCF analysis.

25 **Q. IN REVIEWING THE FINANCIAL LITERATURE, DID YOU DISCOVER**  
26 **ANY PUBLICATIONS THAT SUPPORTED THE USE OF PROJECTED**  
27 **DPS GROWTH RATES FOR USE IN A DCF MODEL?**

28 A. No, I did not.

---

<sup>24</sup> Anup Agrawal and Mark A. Chen, *Do Analysts’ Conflicts Matter? Evidence from Stock Recommendations*, *Journal of Law and Economics*, August 2008, Vol. 51.

1 **Q. LIKewise, ARE YOU AWARE OF ANY SOURCES OF DATA WHICH**  
2 **PROVIDE PROJECTED DPS GROWTH RATES TO INVESTORS?**

3 A. *Value Line* is the only widespread, readily available source of which I am aware  
4 that publishes projected DPS growth rates. If investors indeed valued projected  
5 DPS growth rates, there would be a market for those data. As they are not relied  
6 on by investors to determine their required returns on investments, there is not.  
7 Conversely, projected EPS growth rates are widely available to investors.

8 **Q. HAVE YOU UNDERTAKEN ANY ANALYSES TO DETERMINE WHICH**  
9 **MEASURES OF GROWTH ARE STATISTICALLY RELATED TO THE**  
10 **PROXY COMPANIES' STOCK VALUATION LEVELS?**

11 A. Yes, I have. My analysis is based on the methodological approach used by Carleton  
12 and Vander Weide, who compared the predictive capability of historical growth  
13 estimates and analysts' forecasts on the valuation levels of 65 utility companies.<sup>25</sup>  
14 I structured the analysis to understand whether projected earnings or dividend  
15 growth rates best explain utility stock valuations. In particular, my analysis  
16 examined the statistical relationship between the P/E ratios of the natural gas,  
17 electric, and water utilities as classified by *Value Line*, and the projected EPS and  
18 DPS growth rates as reported by *Value Line*. To determine which, if any, of those  
19 growth rates are statistically related to utility stock valuations, I performed a series  
20 of regression analyses in which the projected growth rates were explanatory  
21 variables and the P/E ratio was the dependent variable. The results of those  
22 analyses are presented in Schedule DWD-4.

---

<sup>25</sup> James H. Vander Weide and Willard T. Carleton, *Investor Growth Expectations: Analysts vs History*, The Journal of Portfolio Management (Spring 1988).

1                   In that analysis, I performed two separate regressions with the P/E as the  
2                   dependent variable, and projected EPS and DPS as the independent variable. I also  
3                   performed a separate regression with both growth rates as independent variables. I  
4                   then reviewed the T- and F-Statistics to determine whether the variables and  
5                   equations were statistically significant.<sup>26</sup>

6     **Q.     WHAT DID THOSE ANALYSES REVEAL?**

7     A.     As shown in Schedule DWD-4, the only growth rate that was statistically  
8                   significant and positively related to the P/E ratio was projected EPS. Because EPS  
9                   growth is the only growth rate that is both statistically and positively related to  
10                  utility valuation, projected earnings is the proper measure of growth in the constant  
11                  growth DCF model.

12    **Q.     WHAT WOULD MR. BAUDINO’S DCF RESULT BE HAD HE ONLY**  
13    **RELIED ON EPS GROWTH FORECASTS?**

14    A.     As shown on Schedule DWD-5, the DCF derived cost rate based on average EPS  
15                  growth forecasts is 9.85%, and the DCF derived cost rate based on median EPS  
16                  growth forecasts is 9.58%. These results should be viewed with caution, however,  
17                  as the DCF model tends to mis-specify the investor-required return, as previously  
18                  discussed.

---

<sup>26</sup> In general, a T-Statistic of 2.00 or greater indicates that the variable is likely to be different than zero, or “statistically significant.” The F-Statistic is used to determine whether the model as a whole has statistically significant predictive capability.

1           **C.     Application of the Capital Asset Pricing Model**

2     **Q.     PLEASE DESCRIBE MR. BAUDINO’S CAPM ANALYSIS AND RESULTS.**

3     A.     Mr. Baudino calculates two sets of CAPM results. The first set relies on forward-  
4           looking estimates in determining the market risk premium (“MRP”), for which he  
5           derives ROE estimates ranging from 8.69% to 8.73%. The second set relies on  
6           historical MRP estimates, for which he derives results ranging from 7.56% to  
7           9.07%.<sup>27</sup> Mr. Baudino notes that he did not rely on the results of his CAPM in  
8           determining his recommended ROE, noting that it is less reliable than the DCF.<sup>28</sup>

9     **Q.     MR. BAUDINO CITES THAT A DISADVANTAGE WITH THE CAPM**  
10           **ANALYSIS IS THAT THE ANALYST’S APPLICATION OF JUDGMENT**  
11           **CAN SIGNIFICANTLY INFLUENCE THE RESULTS OBTAINED BY THE**  
12           **CAPM.<sup>29</sup> WHAT IS YOUR RESPONSE?**

13    A.     All ROE models are only as good as their inputs, and all ROE models can be easily  
14           manipulated by changing those inputs. For example, the DCF model has a number  
15           of inputs and variations of inputs that can drastically alter results as shown on Table  
16           3:

---

<sup>27</sup> Baudino Direct Testimony, at 27.

<sup>28</sup> *Ibid.*, at 15.

<sup>29</sup> *Ibid.*, at 24.



1

**Table 3: Various Inputs to DCF Models**

<b>Input</b>	<b>Variations of Inputs</b>
Cash Flow Stream	Constant-Growth, Blended Growth, Multi-Stage Growth
Dividend Yield	Spot Dividend Yield, average dividend yield
Adjusted Dividend Yield	No adjustment, ½ g adjustment, full g adjustment, projected dividend
Growth Rates	Historical v. Projected v. Sustainable
Growth Measure	EPS, DPS, Book Value Per Share
Sources of Growth Rates	Value Line, Zacks, Yahoo, MorningStar, etc.

2 **Q. ARE ALL COST OF EQUITY MODELS SUBJECT TO LIMITING**  
3 **ASSUMPTIONS THAT DO NOT HOLD IN REALITY?**

4 A. Yes, they are. As discussed previously, all cost of equity models are subject to  
5 error when used in practice. To gain greater insight into the investor-required  
6 return, one must look to multiple models and not narrowly focus on the results of  
7 any one model, like Mr. Baudino has done.

8 **Q. DO FIRMS USE MULTIPLE COMMON EQUITY MODELS, INCLUDING**  
9 **THE CAPM IN THEIR INTERNAL ANALYSES?**

10 A. Yes, they do. Brigham and Daves state:

11 Recent surveys found that the CAPM approach is by far the most  
12 widely used method. Although most firms use more than one  
13 method, almost 74 percent of respondents in one survey, and 85  
14 percent in the other, used the CAPM.<sup>footnote omitted</sup> This is in sharp  
15 contrast to a 1982 survey which found that only 30 percent of  
16 respondents used the CAPM.<sup>footnote omitted</sup> Approximately 16 percent  
17 now use the CF, down from 31 percent in 1982. The bond yield plus  
18 risk premium is used primarily by companies that aren't publicly  
19 traded.

20 People experienced in estimating the cost of equity recognize that  
21 both careful analysis and sound judgment are required. It would be  
22 nice to pretend that judgment is unnecessary and to specify an easy,  
23 precise way of determining the exact cost of equity capital.

1                   Unfortunately, this is not possible – finance is in large part a matter  
2                   of judgment, and we simply must face that fact.<sup>30</sup>

3                   This excerpt establishes four points: (1) most firms use multiple models; (2)  
4                   the use of the CAPM is prevalent by firms in internal decision-making; (3) the  
5                   importance of the DCF model in the decision-making process for firms have waned  
6                   over time; and (4) regardless of which models one uses, judgment is the key  
7                   ingredient in determining the cost of equity capital. In view of the above, the  
8                   Commission should ignore Mr. Baudino’s concerns regarding the applicability of  
9                   the CAPM for cost of capital purposes.

10   **Q.   DO YOU HAVE ANY COMMENTS ON MR. BAUDINO’S APPLICATION**  
11   **OF HIS CAPM?**

12   A.   Yes, I do. Mr. Baudino’s indicated returns on common equity using the CAPM,  
13           ranging from 7.56% to 9.07%, are unreasonable. I would argue that the inputs used  
14           in his application of the CAPM are the driving factors for the unreasonableness of  
15           his CAPM results.

16   **Q.   WHICH INPUTS OF MR. BAUDINO’S CAPM ANALYSIS ARE FLAWED?**

17   A.   Mr. Baudino’s CAPM analysis is flawed in at least three respects. First, he has  
18           incorrectly relied on a historical, *i.e.*, recent, six-month average 30-year Treasury  
19           bond yield as his risk-free rate.<sup>31</sup> Second, he fails to consider several approaches,  
20           supported by his own testimony in this proceeding and in other proceedings, in  
21           calculating the MRP. Third, Mr. Baudino did not incorporate an empirical CAPM  
22           (“ECAPM”) analysis even though empirical evidence indicates that low-beta

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<sup>30</sup> Eugene F. Brigham, Phillip R. Daves, Intermediate Financial Management, Ninth Edition, Thomson Southwestern, 2007, at 332-333.

<sup>31</sup> Exhibit RAB-5.

1 securities, such as utilities, earn returns higher than the CAPM predicts and high-  
2 beta securities earn less.

3 **Q. WHY IS IT APPROPRIATE TO RELY ON PROJECTED INTEREST**  
4 **RATES IN THE CAPM MODEL?**

5 A. Using current measures, like interest rates, is inappropriate for cost of capital and  
6 ratemaking purposes because both cost of capital and ratemaking are prospective  
7 in nature. The cost of capital, including the cost rate of common equity, is  
8 expectational in that it reflects investors' expectations of future capital markets,  
9 including an expectation of interest rate levels, as well as future risks. As,  
10 Morningstar observes:

11 It is important to note that the expected equity risk premium, as it is  
12 used in discount rates and cost of capital analysis, is a forward-  
13 looking concept. That is, the equity risk premium that is used in the  
14 discount rate should be reflective of what investors think the risk  
15 premium will be going forward.<sup>32</sup>

16 Ratemaking is also prospective in that the rates set in this proceeding will  
17 be in effect for a period in the future. Mr. Baudino agrees with using projected  
18 measures in a cost of capital analysis, specifically the use of projected analyst  
19 growth rates in EPS in the DCF model, as he explains on page 19 of his direct  
20 testimony:

21 ROE analysis is a forward-looking process. Five-year or ten-year  
22 historical growth rates may not accurately represent investor  
23 expectations for future dividend growth. Analysts' forecasts for  
24 earnings and dividend growth provide better proxies for the  
25 expected growth component in the DCF model than historical  
26 growth rates.

---

<sup>32</sup> Morningstar, Inc., 2013 Ibbotson Stocks, Bonds, Bills and Inflation Valuation Yearbook, at 53.

1           As mentioned above, even though Mr. Baudino exclusively relies on  
2 projected growth rates in his DCF analyses, noting that growth in the DCF is  
3 expected,<sup>33</sup> he fails to apply that logic to selecting an appropriate interest rate in his  
4 CAPM analysis. Using projected interest rates in his CAPM analysis would be  
5 consistent with his above statement and his application of his DCF model.  
6 Additionally, Mr. Baudino relies on projected interest rates from the *Survey of*  
7 *Professional Forecasters* in supporting his views on the current capital markets.<sup>34</sup>  
8 In view of the above, the appropriate projected risk-free rate for Mr. Baudino's  
9 CAPM analysis is the average consensus forecast of 2.74%.<sup>35</sup>

10 **Q. ARE CURRENT INTEREST RATES ACCURATE PREDICTORS OF**  
11 **FUTURE INTEREST RATES?**

12 A. No, they are not. Current interest rates are not proven to be a better predictor of  
13 future interest rates. In Chart 2 (below) I compare actual monthly yields to the  
14 three-month yield average from 12 months prior. This chart demonstrates that  
15 current Treasury yields have not been accurate predictors of future yields. Those  
16 results make intuitive sense. With the recent market dislocation, Treasury yields  
17 have decreased significantly and have been volatile. As interest rates decreased,  
18 historical Treasury yields over-projected current yields. As interest rates  
19 subsequently increased, the opposite was true.

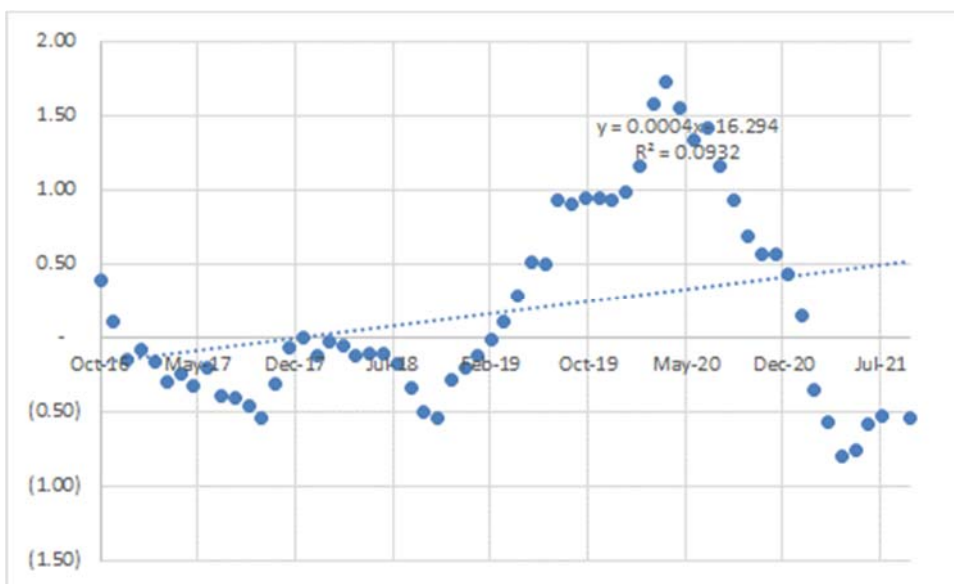
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<sup>33</sup> Baudino Direct Testimony, at 18.

<sup>34</sup> *Ibid.*, at 11.

<sup>35</sup> Based on approximately 50 economists from *Blue Chip* for 30-year Treasury bonds for the six quarters ending with the fourth quarter 2022, from the August 1, 2021 edition, and the long-range consensus forecasts from the June 1, 2021 edition for 2023-2027 and 2028-2032, or 2.74% as noted in Schedule 6.

1 **Chart 2: Forecast Error of Three-Month Average Treasury Yields<sup>36</sup>**



2  
3 **Q. WHAT IS YOUR POSITION ON THE 2.50% NORMALIZED RISK-FREE**  
4 **RATE QUOTED BY DUFF & PHELPS?**

5 A. The determination of the normalized risk-free rate as calculated by Duff & Phelps  
6 is not transparent, especially in view of the historical data presented in SBBI –  
7 2021, or the forecasts from other well-known sources of projections, such as *Blue*  
8 *Chip* or the *Survey of Professional Forecasters*. Further, the risk-free rate quoted  
9 by Duff & Phelps is based on a 20-year yield, which is not appropriate for cost of  
10 capital purposes.

11 **Q. WHY IS THE USE OF A 20-YEAR TREASURY YIELD NOT**  
12 **APPROPRIATE FOR COST OF CAPITAL PURPOSES?**

13 A. Mr. Baudino’s use of 20-year U.S. Treasury bonds is inappropriate for cost of  
14 capital purposes because, as discussed below, the tenor of the risk-free rate used in  
15 the CAPM should match the life (or duration) of the underlying investment. As

<sup>36</sup> Source: Federal Reserve Schedule H.15.

1 discussed in my Direct Testimony, both financial and academic literature find that  
2 the term of the risk-free rate used for cost of capital purposes should match the life  
3 of the underlying investment. Equity securities represent a perpetual claim on cash  
4 flows; 30-year Treasury bonds are the longest-maturity securities available to  
5 approximate that perpetual claim.<sup>37</sup> Thus, Mr. Baudino's use of a 20-year Treasury  
6 bond yield does not match the life of the assets being valued. The use of a 30-year  
7 Treasury bond yield is a more appropriate risk-free rate.

8 In view of the above, the appropriate risk-free rate available at the time of  
9 the preparation of Mr. Baudino's direct testimony is the average of the consensus  
10 forecasts of approximately 50 economists from *Blue Chip* for 30-year Treasury  
11 bonds for the six quarters ending with the fourth quarter 2022, from the August 3,  
12 2021 edition, and the long-range consensus forecasts from the June 1, 2021 edition  
13 for 2023-2027 and 2028-2032, or 2.74%, as noted above.<sup>38</sup>

14 **Q. DO YOU GENERALLY AGREE WITH MR. BAUDINO'S HISTORICAL**  
15 **LONG-TERM ARITHMETIC MEAN MRP OF 7.30% AND THREE- TO**  
16 **FIVE-YEAR PROJECTED MARKET RETURN OF 9.42%?**

17 A. Yes, I do. They are similar measures to what I use in the calculation of my average  
18 MRP.

19 **Q. DO YOU AGREE WITH MR. BAUDINO'S SUPPLY SIDE MRP OF 6.00%?**

20 A. No, I do not. The reason why I do not is because the MRP mismatches a projected  
21 return on the market with a historical bond yield. A more correct way to derive that  
22 MRP would be to use the projected return and subtract a projected risk-free rate.

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<sup>37</sup> D'Ascendis Direct Testimony, at 22.

<sup>38</sup> Both documents would have been available when Mr. Baudino conducted his rate of return.

1 On page 10-29 of the 2021 SBBI® Yearbook Stocks, Bonds, Bills, and Inflation,  
2 the Ibbotson and Chen supply side model produces a forward-looking geometric  
3 return on the market of 9.18%.<sup>39</sup> Converting the 9.18% geometric mean return to  
4 an arithmetic mean return results in an arithmetic, forward-looking market return  
5 of 11.11%.<sup>40</sup> Subtracting the applicable risk-free rate of 2.74% results in a forward-  
6 looking MRP of 8.37%.

7 **Q. HAS MR. BAUDINO CALCULATED AN ADDITIONAL MRP FROM HIS**  
8 **VALUE LINE INVESTMENT ANALYZER DATA IN PAST**  
9 **PROCEEDINGS?**

10 A. Yes, he has. In North Carolina Docket Nos. E-2, Sub 1219 and E-7, Sub 1214,  
11 concerning Duke Energy Progress, LLC and Duke Energy Carolinas, LLC, Mr.  
12 Baudino used the average dividend yield and median projected three- to five-year  
13 growth rates in EPS and book value per share (“BVPS”) to determine a projected  
14 market return.

15 **Q. WHAT WOULD BE THE PROJECTED RETURN ON THE MARKET**  
16 **USING MR. BAUDINO’S VALUE LINE INVESTMENT ANALYZER**  
17 **DATA AS OF HIS SPOT DATE USING AVERAGE DIVIDEND YIELD**  
18 **AND MEDIAN PROJECTED EPS GROWTH RATES?**

19 A. It would be 12.40%, as detailed in note 3 of Schedule DWD-6, page 1. Subtracting  
20 the appropriate risk-free rate results in a forward-looking MRP of 9.66%. I did not  
21 consider using the projected BVPS growth rates in the projected market return

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<sup>39</sup> SBBI – 2021, at 10-29.

<sup>40</sup> The conversion of a geometric mean return to an arithmetic mean return is shown in SBBI – 2021, at 10-30.  $11.11\% = 9.18\% + 19.67\%^2/2$

1 because projected EPS growth rates are the superior measure of growth in a DCF  
2 model as discussed previously.

3 **Q. WHAT IS THE AVERAGE MRP GIVEN THESE ADDITIONAL**  
4 **MEASURES?**

5 A. Averaging the four MRPs results in an average MRP of 8.00%.<sup>41</sup>

6 **Q. HAS MR. BAUDINO INCLUDED AN ECAPM ANALYSIS?**

7 A. No, he has not. In fact, numerous tests of the CAPM have confirmed the ECAPM's  
8 validity by showing that the empirical Security Market Line ("SML") described by  
9 the traditional CAPM is not as steeply sloped as the predicted SML. While the  
10 results of these tests support the notion that Beta coefficients are related to security  
11 returns, the empirical SML described by the CAPM formula is not as steeply sloped  
12 as the predicted SML,<sup>42</sup> as discussed on page 34 of my Direct Testimony.

13 **Q. IS THERE ADDITIONAL EVIDENCE THAT SUPPORTS THE VALIDITY**  
14 **OF THE ECAPM?**

15 A. Yes, there is. The empirical issues with the CAPM have been present since the  
16 presentation of the model, as noted by Dianna R. Harrington in her text Modern  
17 Portfolio Theory & the Capital Asset Pricing Model:

18 So far we have learned some very interesting things about the  
19 CAPM and reality. Some of the earliest work tested realized data  
20 (history) against data generated by simulated portfolios. Early  
21 studies by Douglas (1969) and Lintner (Douglas [1969]) showed  
22 discrepancies between what was expected on the basis of the CAPM  
23 and the actual relationships that were apparent in the capital  
24 markets. Theoretically, the minimal rate of return from the  
25 portfolios (the intercept) and the actual risk-free rate for the period  
26 should have been equal. They were not.

---

<sup>41</sup> 8.00% = (7.30% + 6.68% + 9.66% + 8.37%) / 4.

<sup>42</sup> Morin, at 175.



\* \* \*

Another study, now more famous than Lintner's was done by Black, Jensen, and Scholes (1972). Lintner had used what is called a cross-sectional method (looking at a number of stock returns during one time period), whereas Black, Jensen, and Scholes used a time-series method (using returns for a number of stocks over several time periods). To make their test, Black, Jensen, and Scholes assumed that what had happened in the past was a good proxy for the investor expectations (a frequent assumption in CAPM tests). Using historical data, they generated estimates using what we call the market model:

$$R_{jt} = \alpha_j + \beta_j (R_{mt}) + \varepsilon_j$$

Where:

R = total returns

$\beta$  = the slope of the line (the incremental return for risk)

$\alpha$  = the intercept or a constant (expected to be 0 over time and across all firms)

$\varepsilon$  = an error term (expected to be random, without information)

m = the market proxy

j = the firm or portfolio

t = the time period

Instead of using single stocks, they formed portfolios in an effort to wash out one source of error; because betas of single firms are quite unstable.

On the basis of the CAPM, they expected to find

1. That the intercept was equal to the risk-free rate (their proxy was the Treasury bill rate)
2. That the capital market line had a positive slope and that riskier (higher beta) securities provided higher return

Instead they found

1. That the intercept was different from the risk-free rate
2. That high-risk securities earned less and low-risk securities earned more than predicted by the model



1 would be too low for stocks with betas greater than one and too high  
2 for stocks with betas of less than one.<sup>44</sup>

3 As such, while I still find the CAPM to be appropriate, if Mr. Baudino is of  
4 the opinion that the CAPM is not reliable, he should have applied an ECAPM  
5 analysis. Further, as discussed below, the ECAPM is not simply a second  
6 adjustment to a company's Beta coefficient.

7 **Q. IS THE ECAPM AN ADJUSTMENT TO A COMPANY'S BETA**  
8 **COEFFICIENT AS ASSERTED BY MR. BAUDINO?**<sup>45</sup>

9 A. No, it is not. A common critique of the ECAPM is the claim that using adjusted  
10 betas in a CAPM analysis addresses the empirical issues with the CAPM (discussed  
11 above), by increasing the expected returns for low beta stocks and decreasing the  
12 returns for high beta stocks, concluding that there is no need to use the ECAPM.  
13 This is an incorrect understanding of the ECAPM. Using adjusted betas in a CAPM  
14 analysis is not equivalent to using the ECAPM, nor is it an unnecessary redundancy.

15 Betas are adjusted because of their general regression tendency to converge  
16 toward 1.0 over time, *i.e.*, over successive calculations of beta. As also noted  
17 above, numerous studies have determined that the SML described by the CAPM  
18 formula at any given moment in time is not as steeply sloped as the predicted SML.

19 Morin states:

20 Some have argued that the use of the ECAPM is inconsistent with  
21 the use of adjusted betas, such as those supplied by *Value Line* and  
22 Bloomberg. This is because the reason for using the ECAPM is to  
23 allow for the tendency of betas to regress toward the mean value of  
24 1.00 over time, and, since *Value Line* betas are already adjusted for  
25 such trend [sic], an ECAPM analysis results in double-counting.

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<sup>44</sup> Dianna R. Harrington, Modern Portfolio Theory & the Capital Asset Pricing Model – A User's Guide, Prentice-Hall, Inc. 1983, at 30-31.

<sup>45</sup> Baudino Direct Testimony, at 48.

1 This argument is erroneous. Fundamentally, the ECAPM is not an  
2 adjustment, increase or decrease, in beta. This is obvious from the  
3 fact that the expected return on high beta securities is actually lower  
4 than that produced by the CAPM estimate. The ECAPM is a formal  
5 recognition that the observed risk-return tradeoff is flatter than  
6 predicted by the CAPM based on myriad empirical evidence. The  
7 ECAPM and the use of adjusted betas comprised two separate  
8 features of asset pricing. Even if a company's beta is estimated  
9 accurately, the CAPM still understates the return for low-beta  
10 stocks. Even if the ECAPM is used, the return for low-beta  
11 securities is understated if the betas are understated. Referring back  
12 to Figure 6-1, the ECAPM is a return (vertical axis) adjustment and  
13 not a beta (horizontal axis) adjustment. Both adjustments are  
14 necessary.<sup>46</sup>

15 Moreover, the slope of the SML should not be confused with beta. As Brigham  
16 and Gapenski state:

17 The slope of the SML reflects the degree of risk aversion in the  
18 economy – the greater the average investor's aversion to risk, then  
19 (1) the steeper is the slope of the line, (2) the greater is the risk  
20 premium for any risky asset, and (3) the higher is the required rate  
21 of return on risky assets.<sup>12</sup>

22 Students sometimes confuse beta with the slope of the SML. This  
23 is a mistake. As we saw earlier in connection with Figure 6-8, and  
24 as is developed further in Appendix 6A, beta does represent the  
25 slope of a line, but *not* the Security Market Line. This confusion  
26 arises partly because the SML equation is generally written, in this  
27 book and throughout the finance literature, as  $k_i = R_F + b_i(k_M - R_F)$ ,  
28 and in this form  $b_i$  looks like the slope coefficient and  $(k_M - R_F)$  the  
29 variable. It would perhaps be less confusing if the second term were  
30 written  $(k_M - R_F)b_i$ , but this is not generally done.<sup>47</sup>

31 In addition, in Appendix 6A of Brigham and Gapenski's textbook entitled  
32 "Calculating Beta Coefficients," the authors demonstrate that beta, which accounts  
33 for regression bias, is not a return adjustment but rather is based on the slope of a  
34 different line.

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<sup>46</sup> Morin, at 191.

<sup>47</sup> Eugene F. Brigham and Louis C. Gapenski, Financial Management – Theory and Practice, 4<sup>th</sup> Ed. (The Dryden Press, 1985), at 201-204.

1           A 1980 study by Litzenberger, *et al.* found the CAPM underestimates the  
2 ROE for companies, such as public utilities, with betas less than 1.00.<sup>48</sup> In that  
3 study, the authors applied adjusted betas and still found the CAPM to underestimate  
4 the ROE for low-beta companies. Similarly, Brattle Group’s Risk and Return for  
5 Regulated Industries supports the use of adjusted betas in the ECAPM:

6           Note that the ECAPM and the Blume adjustment are attempting to  
7 correct for different empirical phenomena and therefore both may  
8 be applicable. It is not inconsistent to use both, as illustrated by the  
9 fact that the Litzenberger *et.al* (1980) study relied on Blume  
10 adjusted betas and estimated an alpha of 2% points in a short-term  
11 version of the ECAPM. This issue sometimes arises in regulatory  
12 proceedings.<sup>49</sup>

13           Hence, using adjusted betas does not address the previously discussed  
14 empirical issues with the CAPM. In view of the foregoing, using adjusted betas in  
15 both the traditional and empirical applications of the CAPM is neither incorrect nor  
16 inconsistent with the financial literature, and is not an unnecessary redundancy. In  
17 view of financial theory and practical research, it is therefore appropriate to include  
18 the ECAPM when estimating the cost of common equity.

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<sup>48</sup> Robert Litzenberger, Krishna Ramaswamy and Howard Sosin, On the CAPM Approach to the Estimation of A Public Utility’s Cost of Equity Capital, *The Journal of Finance*, Vol. XXXV, No. 2, May 1980.

<sup>49</sup> Bente Villadsen, *et. al*, *Risk and Return for Regulated Industries* (2017) at 95, endnote 147 of Chapter 4.

1 **Q. WHAT WOULD THE RESULTS OF MR. BAUDINO’S CAPM ANALYSIS**  
2 **BE IF CORRECTED TO USE A PROJECTED 30-YEAR TREASURY**  
3 **BOND YIELD, AN APPROPRIATE MRP, AND EMPLOY THE ECAPM AS**  
4 **DISCUSSED ABOVE?**

5 A. Schedule DWD-6 presents the results of the corrected applications of both the  
6 traditional CAPM and the ECAPM of 9.94% and 10.14%, respectively. These  
7 indicated cost rates do not reflect Atmos Energy’s risk profile, as they are not  
8 adjusted for the Company’s small relative size to the proxy group, its riskier bond  
9 rating, or flotation costs.

10 **Q. WHAT WOULD MR. BAUDINO’S COMMON EQUITY COST RATES BE**  
11 **BASED ON THE CORRECTIONS TO HIS DCF MODEL AND CAPM**  
12 **ANALYSES DISCUSSED ABOVE?**

13 A. The results of the corrections to Mr. Baudino’s DCF model and CAPM are provided  
14 in Table 4, below:

15 **Table 4: Summary of Baudino Corrected Results**

<b>Measure</b>	<b>Method 1</b>	<b>Method 2</b>
Discounted Cash Flow Model	9.85%	9.58%
	<b>CAPM</b>	<b>ECAPM</b>
Capital Asset Pricing Model	9.94%	10.14%

16 In view of these corrected results, Mr. Baudino’s reasonable range of ROEs  
17 would be from 9.58% to 10.14%. However, an indicated range of ROEs from  
18 9.58% to 10.14% still understates Atmos Energy’s ROE because it does not reflect  
19 its relative risks to the proxy group and flotation costs.

1           **D.     Adjustments to the Cost of Common Equity**

2       **Q.     DOES MR. BAUDINO CONSIDER A SIZE ADJUSTMENT IN HIS**  
3       **RECOMMENDED ROE?**

4       A.     No, he does not. Mr. Baudino claims that there is no consensus regarding the use  
5       of a size premium for utilities.

6       **Q.     HAVE YOU CONDUCTED AN ADDITIONAL STUDY COMPARING THE**  
7       **SIZE OF ATMOS ENERGY WITH THE AVERAGE PROXY COMPANY?**

8       A.     Yes, I have. Duff & Phelps’ (“D&P”) 2020 Cost of Capital: Annual U.S. Guidance  
9       and Examples Market Results Through 2019 (“D&P 2020”) presents a Size Study  
10      based on the relationship of various measures of size and return. Relative to the  
11      relationship between average annual return and the various measures of size, D&P  
12      state:

13                   **The size of a company is one of the most important risk elements**  
14                   **to consider when developing cost of equity estimates for use in**  
15                   **valuing a firm.** Traditionally, researchers have used market value  
16                   of equity (*i.e.*, “market capitalization” or simply “market cap”) as a  
17                   measure of size in conducting historical rate of return research. For  
18                   example, the Center for Research in Security Prices (CRSP)  
19                   “deciles” are developed by sorting U.S. companies by market  
20                   capitalization. Another example is the Fama-French “Small minus  
21                   Big” (SMB) series, which is the difference in return of “small”  
22                   stocks minus “big” (*i.e.*, large) stocks, as defined by market  
23                   capitalization. (emphasis added)<sup>50</sup>

24                   Schedule DWD-7 contains indicated small size risk premiums using various  
25                   measures of size as described by D&P 2020.<sup>51</sup> The measures are listed below:

- 26                   • Market Value of Common Equity;
- 27                   • Book Value of Common Equity;

---

<sup>50</sup>       D&P-2020, at p. 10-2.

<sup>51</sup>       *Ibid.*

- 1 • Five-Year Average Net Income;
- 2 • Market Value of Invested Capital;
- 3 • Total Assets;
- 4 • Five Year Average EBITDA;
- 5 • Total Sales; and
- 6 • Number of Employees.

7 As shown on Schedule DWD-7, in all measures, Atmos Energy is smaller  
8 than the proxy group presented in this proceeding with associated size premiums  
9 between 1.03% and 1.93%. In view of these indicated size premiums, an upward  
10 size adjustment of 0.20% to the indicated cost of common equity is extremely  
11 conservative.

12 **Q. HAVE YOU PERFORMED A STUDY FOR UTILITY COMPANIES THAT**  
13 **LINK SIZE AND RISK?**

14 A. Yes, I have. The study included the universe of electric, gas, and water companies  
15 included in *Value Line* Standard Edition. From each of the utilities' *Value Line*  
16 Ratings & Reports, I calculated the ten-year Coefficient of Variation ("CoV")<sup>52</sup> of  
17 net profit (a measure of risk) and current market capitalization (a measure of size)  
18 for each company. After ranking the companies by size (largest to smallest) and  
19 risk (least risky to most risky), I made a scatter plot of the data, as shown on Chart  
20 3, below:

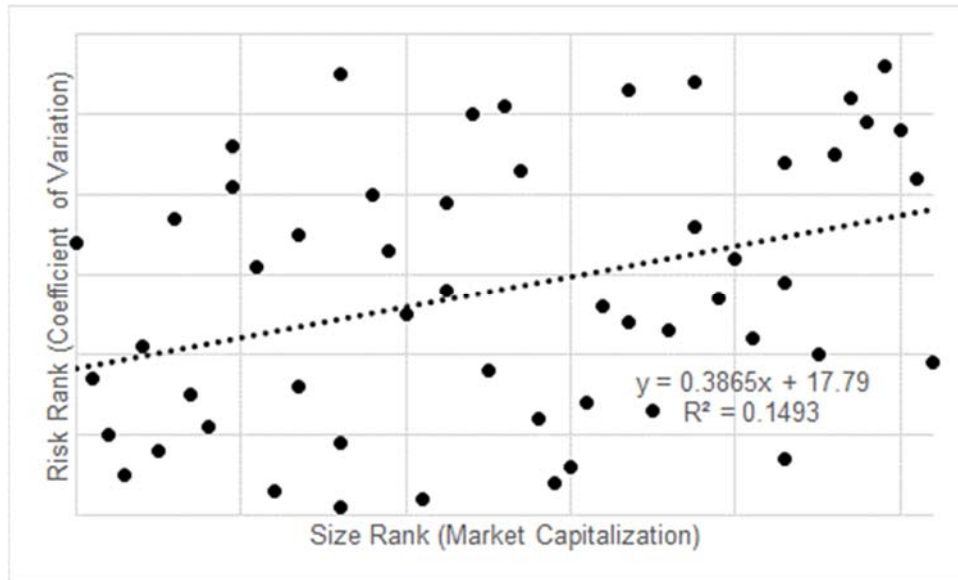
---

<sup>52</sup> The coefficient of variation is used by investors and economists to determine volatility.



1  
2

**Chart 3: Relationship Between Size and CoV of Net Profit for the Value Line Universe of Utility Companies<sup>53</sup>**



3  
4  
5  
6  
7  
8  
9

As shown in Chart 3 above, as company size decreases (increasing size rank), the CoV increases, linking size and risk for utilities, which is significant at 95.00% confidence level.

Another measure of total risk provided by *Value Line* is Safety Ranking.<sup>54</sup> Similar to the CoV of net profit, I made a scatterplot of the relationship between Safety Ranking and size rank:

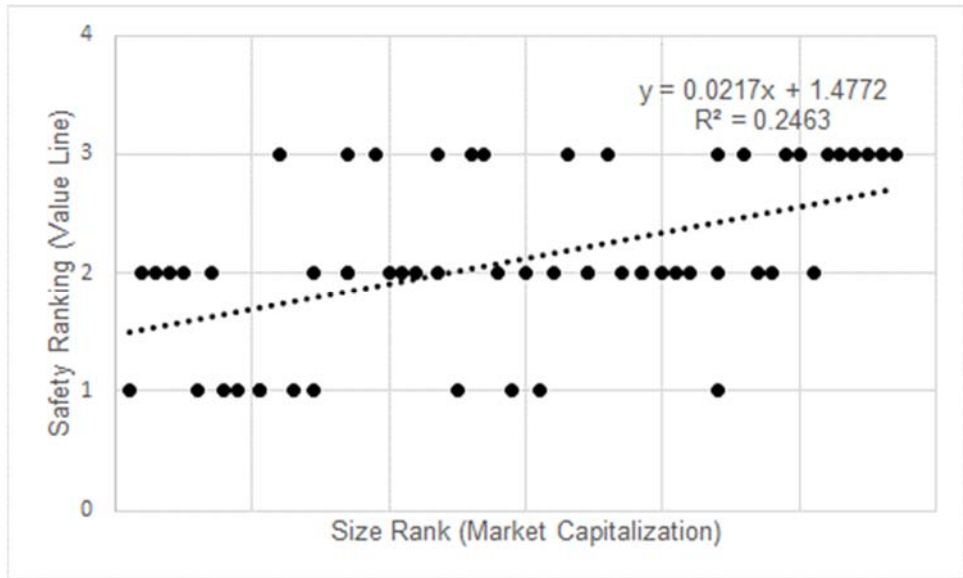
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<sup>53</sup> Source: *Value Line*.

<sup>54</sup> *Value Line* also ranks stocks for Safety by analyzing the total risk of a stock compared to the approximately 1,700 stocks in the *Value Line* universe. Each of the stocks tracked in the *Value Line Investment Survey* is ranked in relationship to each other, from 1 (the highest rank) to 5 (the lowest rank). Safety is a quality rank, not a performance rank, and stocks ranked 1 and 2 are most suitable for conservative investors; those ranked 4 and 5 will be more volatile. Volatility means prices can move dramatically and often unpredictably, either down or up. The major influences on a stock's Safety rank are the company's financial strength, as measured by balance sheet and financial ratios, and the stability of its price over the past five years.

1  
2

**Chart 4: Relationship Between Size and Safety Ranking for the Value Line Universe of Utility Companies<sup>55</sup>**



3

4

As shown on Chart 4, again, as company size rank increases, Safety Ranking degrades, indicating a link between size and risk for utilities, also significant at the 95.00% confidence level.

5

6

7

**Q. SINCE ATMOS ENERGY’S KENTUCKY GAS OPERATIONS ARE AN OPERATING DIVISION OF ATMOS ENERGY CORPORATION (“ATO”), WHY IS THE SIZE OF ATO NOT MORE APPROPRIATE TO USE WHEN DETERMINING THE SIZE ADJUSTMENT?**

8

9

10

11

**A.** As discussed in my Direct Testimony, the return derived in the proceeding will not apply to ATO’s operations as a whole, but only to Atmos Energy’s Kentucky operations.<sup>56</sup> As such, Atmos Energy’s operations should be considered a stand-alone company.

12

13

14

<sup>55</sup> Source: *Value Line*.

<sup>56</sup> D’Ascendis Direct Testimony, at 42-43.

1 **Q. WHY SHOULD THE COMMISSION CONSIDER ATMOS ENERGY AS A**  
2 **STAND-ALONE COMPANY?**

3 A. The Commission should consider Atmos Energy as a stand-alone company because  
4 it is Atmos Energy's rate base to which the overall rates of return set forth in this  
5 proceeding will be applied, as noted above. To do otherwise would be  
6 discriminatory, confiscatory, and inaccurate. It is also a basic financial precept that  
7 the use of the funds invested gives rise to the risk of the investment. As Brealey  
8 and Myers state:

9 The true cost of capital depends on the use to which the capital is  
10 put.

11 \*\*\*

12 *Each project should be evaluated at its own opportunity cost of*  
13 *capital; the true cost of capital depends on the use to which the*  
14 *capital is put.* (italics and bold in original)<sup>57</sup>

15 Morin confirms Brealey and Myers when he states:

16 Financial theory clearly establishes that the cost of equity is the risk-  
17 adjusted opportunity cost of the investors and not the cost of the  
18 specific capital sources employed by the investors. The true cost of  
19 capital depends on the use to which the capital is put and not on its  
20 source. The Hope and Bluefield doctrines have made clear that the  
21 relevant considerations in calculating a company's cost of capital  
22 are the alternatives available to investors and the returns and risks  
23 associated with those alternatives.<sup>58</sup>

24 Additionally, Levy and Sarnat state:

25 The firm's cost of capital is the discount rate employed to discount  
26 the firm's average cash flow, hence obtaining the value of the firm.  
27 It is also the weighted average cost of capital, as we shall see below.  
28 The weighted average cost of capital should be employed for project  
29 evaluation... only in cases where the risk profile of the new projects

---

<sup>57</sup> Richard A. Brealey and Stewart C. Myers, Principles of Corporate Finance, McGraw-Hill, Third Edition, 1988, at pp. 173, 198.

<sup>58</sup> Morin, at 523.

1 is a “carbon copy” of the risk profile of the firm<sup>59</sup>

2 Although Levy and Sarnat discuss a project’s cost of capital relative to a  
3 firm’s cost of capital, these principles apply equally to the use of a proxy group-  
4 based cost of capital. Each company must be viewed on its own merits, regardless  
5 of the source of its equity capital. As *Bluefield* clearly states:

6 A public utility is entitled to such rates as will permit it to earn a  
7 return on the value of the property which it employs for the  
8 convenience of the public equal to that generally being made at the  
9 same time and in the same general part of the country on investments  
10 in other business undertakings which are attended by corresponding  
11 risks and uncertainties;<sup>60</sup>

12 In other words, it is the “risks and uncertainties” surrounding the property  
13 employed for the “convenience of the public” which determines the appropriate  
14 level of rates. In this proceeding, the property employed “for the convenience of  
15 the public” is the Kentucky jurisdictional rate base of Atmos Energy. Thus, it is  
16 only the risk of investment in Atmos Energy that is relevant to the determination of  
17 the cost of common equity to be applied to the common equity-financed portion of  
18 that rate base.

19 Consistent with the financial principle of risk and return, and the stand-  
20 alone nature of ratemaking, an upward adjustment must be applied to the indicated  
21 cost of common equity derived from the cost of equity models of the proxy groups  
22 used in this proceeding.

---

<sup>59</sup> Haim Levy & Marshall Sarnat, Capital Investment and Financial Decisions, Prentice/Hall International, 1986, at 465.

<sup>60</sup> *Bluefield*, at 6.

1

2 **Q. MR. BAUDINO ARGUES THAT FLOTATION COSTS SHOULD NOT BE**  
3 **CONSIDERED BECAUSE, IN HIS OPINION, “IT IS LIKELY THAT**  
4 **FLOTATION COSTS ARE ALREADY ACCOUNTED FOR IN CURRENT**  
5 **STOCK PRICES”.<sup>61</sup> WHAT IS YOUR RESPONSE TO MR. BAUDINO ON**  
6 **THAT POINT?**

7 A. I disagree. The models used to estimate the appropriate ROE assume no “friction”  
8 or transaction costs, as these costs are not reflected in the market price (in the case  
9 of the DCF model) or risk premium (in the case of the Risk Premium and CAPM  
10 model). Mr. Baudino provides no support for his opinion that current stock prices  
11 account for flotation costs, and his position should be disregarded.

12 **Q. WHAT IS MR. BAUDINO’S RANGE OF ROES APPLICABLE TO ATMOS**  
13 **ENERGY AFTER ADJUSTMENT?**

14 A. Mr. Baudino’s corrected, adjusted results are summarized in Table 5, below:

15 **Table 5: Summary of Baudino Corrected Results with Adjustments<sup>62</sup>**

<b>Measure</b>	<b>Method 2</b>
Indicated Range of ROEs Before Adjustment	9.58% - 10.14%
Business Risk Adjustment	0.20%
Credit Risk Adjustment	-0.08%
Flotation Cost Adjustment	0.06%
Indicated Range of ROEs After Adjustment	9.76% - 10.32%

16 In view of these corrected and adjusted model results, Mr. Baudino’s initial  
17 range of ROEs from 8.40% to 9.40% significantly understates the ROE for Atmos  
18 Energy at this time.

<sup>61</sup> Baudino Direct Testimony, at 54.

<sup>62</sup> Corrected range is based on the range at the Schedules DWD-5 and 6.

1           **E.     Critiques on Company Testimony**

2   **Q.     DOES MR. BAUDINO HAVE CRITIQUES OF YOUR ROE ANALYSES?**

3   A.     Yes. Mr. Baudino’s critiques of my analyses are as follows:

- 4           1. The application of my RPM;
- 5           2. The application of my CAPM and ECAPM;
- 6           3. My use of a non-price regulated proxy group comparable in total risk to
- 7                     my utility proxy group;
- 8           4. My application of a size premium to my indicated ROE;
- 9           5. My application of a flotation cost adjustment to my indicated ROE.

10           I have already addressed critiques 4 and 5 previously in my Rebuttal

11   Testimony, so I will not address them again here. I will address the remaining

12   critiques in turn below.

13           **1.     Risk Premium Model**

14   **Q.     PLEASE SUMMARIZE MR. BAUDINO’S CRITIQUES OF YOUR RPM.**

15   A.     Mr. Baudino’s position is that “the bond yield plus risk premium approach is

16   imprecise and can only provide very general guidance on the current authorized

17   ROE for a regulated gas utility.”<sup>63</sup>

18   **Q.     DOES MR. BAUDINO PRESENT ANY EMPIRICAL EVIDENCE ON WHY**

19           **HE BELIEVES THAT YOUR RPM PRODUCES “UNREASONABLE”**

20           **RESULTS?<sup>64</sup>**

21   A.     No, he does not. He simply compares my results to historical commission-allowed

22   ROEs.

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<sup>63</sup> Baudino Direct Testimony, at 38.

<sup>64</sup> *Ibid.*, at 40.

1 **Q. WHAT IS YOUR RESPONSE TO MR. BAUDINO’S SUGGESTION THAT**  
2 **YOU SHOULD HAVE CONSIDERED CURRENT UTILITY BOND**  
3 **YIELDS FOR YOUR RISK PREMIUM ANALYSIS?**

4 A. I have already discussed why projected bond yields are the appropriate measures  
5 for ratemaking purposes above and will not repeat that discussion here.

6 **Q. MR. BAUDINO NOTES YOUR EQUITY RISK PREMIUM (“ERP”) OF**  
7 **8.03% USING YOUR BETA ADJUSTED APPROACH AND DEEMED IT**  
8 **TO BE UNREASONABLE.<sup>65</sup> DID YOU EXCLUSIVELY RELY ON YOUR**  
9 **BETA ADJUSTED ERP FOR YOUR RPM RESULT?**

10 A. No, I did not. I averaged my beta adjusted ERP (8.03%), my S&P Utility Index  
11 ERP (5.84%), and the authorized ROE ERP (5.64%) to arrive at my recommended  
12 ERP of 6.50%. Using multiple models and multiple inputs to those models gives  
13 greater insight into the cost of capital as previously and agreed to by Mr. Baudino  
14 when he states: “My past experience with the CAPM indicates that it is prudent to  
15 use a wide variety of data in estimating investor-required returns.”<sup>66</sup>

16 **Q. HOW DO YOUR RECOMMENDED ERPS OF 6.50% (DIRECT) AND**  
17 **6.59% (REBUTTAL) COMPARE TO THE HISTORICAL DISTRIBUTION**  
18 **OF ERPS FROM 1929-2020?**

19 A. The ERPs recommended in my Direct and updated analysis fall within the 52<sup>nd</sup> and  
20 53<sup>rd</sup> percentiles, respectively, of historical ERPs (as measured by the return on the  
21 S&P Utility Index less the yield on an A-rated utility bond). Mr. Baudino’s  
22 concerns regarding the level of my ERPs in my RPM should be dismissed.

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<sup>65</sup> *Ibid.*

<sup>66</sup> Baudino Direct Testimony, at 24.

1 **Q. MR. BAUDINO CLAIMS THAT YOU HAVE NOT PROVED THAT YOUR**  
2 **PREDICTIVE RISK PREMIUM MODEL (“PRPM”) IS RELIED ON BY**  
3 **INVESTORS.<sup>67</sup> PLEASE RESPOND.**

4 A. As discussed in my Direct Testimony, the PRPM is based on the research of Dr.  
5 Robert F. Engle, dating back to the early 1980s.<sup>68</sup> Dr. Engle discovered that the  
6 volatility of market prices, returns, and risk premiums clusters over time, making  
7 prices, returns, and risk premiums highly predictable. In 2003, he shared the Nobel  
8 Prize in Economics for this work, characterized as “methods of analyzing economic  
9 time series with time-varying volatility (ARCH).<sup>69</sup> Dr. Engle<sup>70</sup> noted that relative  
10 to volatility, “the standard tools have become the ARCH/GARCH<sup>71</sup> models.”  
11 Hence, the methodology is not exclusively used by me.

12 In addition, the GARCH methodology has been well tested by academia  
13 since Engle’s, et al. research was originally published in 1982, 39 years ago. I use  
14 the well-established GARCH methodology to estimate the PRPM model using a  
15 standard commercial and relatively inexpensive statistical package, Eviews,<sup>®</sup> to  
16 develop a means by which to estimate a predicted ERP which, when added to a  
17 bond yield, results in a cost of common equity.

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<sup>67</sup> *Ibid.*, at 43.

<sup>68</sup> D’Ascendis Direct Testimony, at 19-20.

<sup>69</sup> [www.nobelprize.org](http://www.nobelprize.org).

<sup>70</sup> Robert Engle, *GARCH 101: The Use of ARCH/GARCH Models in Applied Econometrics*, Journal of Economic Perspectives, Volume 15, No. 4, Fall 2001, at 157-168.

<sup>71</sup> Autoregressive Conditional Heteroskedasticity/Generalized Autoregressive Conditional Heteroskedasticity.

<sup>72</sup> In addition to Eviews,<sup>®</sup> the GARCH methodology can be applied and the PRPM derived using other standard statistical software packages such as SAS, RATS, S-Plus and JMulti, which are not cost-prohibitive. The software that I used in this proceeding, Eviews,<sup>®</sup> currently costs \$600 - \$700 for a single user commercial license. In addition, JMulti is a free downloadable software with GARCH estimation applications.



1           Also, the PRPM is in the public domain, having been published six times in  
2           academically peer-reviewed journals: *Journal of Economics and Business* (June  
3           2011 and April 2015),<sup>73</sup> *The Journal of Regulatory Economics* (December 2011),<sup>74</sup>  
4           *The Electricity Journal* (May 2013 and March 2020),<sup>75</sup> and *Energy Policy* (April  
5           2019).<sup>76</sup> Notably, none of these articles have been rebutted in the academic  
6           literature.

7           Additionally, the PRPM was presented to a number of utility  
8           industry/regulatory/academic groups including the following: The Edison Electric  
9           Institute Cost of Capital Working Group; The NARUC Staff Subcommittee on  
10          Accounting and Finance; The National Association of Electric Companies  
11          Finance/Accounting/Taxation and Rates and Regulations Committees; the NARUC  
12          Electric Committee; The Wall Street Utility Group; the Indiana Utility Regulatory  
13          Commission Cost of Capital Task Force; the Financial Research Institute of the  
14          University of Missouri Hot Topic Hotline Webinar; and the Center for Research  
15          and Regulated Industries Annual Eastern Conference on two occasions.

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<sup>73</sup> Eugene A. Pilotte and Richard A. Michelfelder, *Treasury Bond Risk and Return, the Implications for the Hedging of Consumption and Lessons for Asset Pricing*, *Journal of Economics and Business*, June 2011, 582-604. and Richard A. Michelfelder, *Empirical Analysis of the Generalized Consumption Asset Pricing Model: Estimating the Cost of Capital*, *Journal of Economics and Business*, April 2015, 37-50.

<sup>74</sup> Pauline M. Ahern, Frank J. Hanley, and Richard A. Michelfelder, *New Approach to Estimating the Cost of Common Equity Capital for Public Utilities*, *The Journal of Regulatory Economics*, December 2011, at 40:261-278.

<sup>75</sup> Richard A. Michelfelder, Pauline M. Ahern, Dylan W. D'Ascendis, and Frank J. Hanley, *Comparative Evaluation of the Predictive Risk Premium Model, the Discounted Cash Flow Model and the Capital Asset Pricing Model for Estimating the Cost of Common Equity*, *The Electricity Journal*, April 2013, at 84-89; and Richard A. Michelfelder, Pauline M. Ahern, and Dylan W. D'Ascendis, *Decoupling, Risk Impacts and the Cost of Capital*, *The Electricity Journal*, January 2020.

<sup>76</sup> Richard A. Michelfelder, Pauline M. Ahern, and Dylan W. D'Ascendis, *Decoupling Impact and Public Utility Conservation Investment*, *Energy Policy*, April 2019, 311-319.

1 **Q. MR. BAUDINO STATES THAT YOU HAVE NOT SHOWN THAT THE**  
2 **PRPM HAS BEEN ACCEPTED BY REGULATORY JURISDICTIONS.<sup>77</sup>**  
3 **PLEASE RESPOND.**

4 A. In Docket No. 2017-292-WS, the Public Service Commission of South Carolina  
5 (“PSC SC”) accepted Blue Granite Water Company’s entire requested ROE, which  
6 included the PRPM. The relevant portion states:

7 The Commission finds Mr. D’Ascendis’ arguments persuasive. He  
8 provided more indicia of market returns, by using more analytical  
9 methods and proxy group calculations. Mr. D’Ascendis’ use of  
10 analysts’ estimates for his DCF analysis is supported by consensus,  
11 as is his use of the arithmetic mean. The Commission also finds that  
12 Mr. D’Ascendis’ non-price regulated proxy group more accurately  
13 reflects the total risk faced [by] price regulated utilities and CWS.  
14 Furthermore, there is no dispute that CWS is significantly smaller  
15 than its proxy group counterparts, and, therefore, it may present a  
16 higher risk. An appropriate ROE for CWS is 10.45% to 10.95%. The  
17 Company used an ROE of 10.5% in computing its Application, a  
18 return on the low end of Mr. D’Ascendis’ range, and the  
19 Commission finds that ROE is supported by the evidence.<sup>78</sup>

20 It should also be noted that in the above passage the PSC SC also found my  
21 non-price regulated proxy group to be appropriate.

22 In addition, in Docket No. W-354, Subs 363, 364 and 365, the State of North  
23 Carolina Utilities Commission approved my RPM and CAPM analyses, which used  
24 PRPM analyses as presented in this proceeding. The relevant portion of the order  
25 states:

26 In doing so the Commission finds that the DCF (8.81%), Risk  
27 Premium (10.00%) and CAPM (9.29%) model results provided by  
28 witness D’Ascendis, as updated to use current rates in D’Ascendis  
29 Late-Filed Exhibit No. 1, as well as the risk premium (9.57%)  
30 analysis of witness Hinton, are credible, probative, and are entitled

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<sup>77</sup> Baudino Direct Testimony, at 43.

<sup>78</sup> PSC SC Docket No. 2017-292-WS, Order No. 2018-345, at 14 (May 17, 2018).

1 to substantial weight as set forth below.<sup>79</sup>

2 As detailed above, the PRPM is considered by investors and has been  
3 accepted in part, or in full by regulatory commissions. Mr. Baudino’s concerns  
4 regarding the PRPM should be dismissed.

5 **2. Capital Asset Pricing Model**

6 **Q. PLEASE RESPOND TO MR. BAUDINO’S CLAIM THAT YOUR**  
7 **PROJECTED MRPS BASED ON YOUR MARKET DCF ANALYSIS ARE**  
8 **“UNREASONABLY HIGH.”<sup>80</sup>**

9 A. Mr. Baudino finds my projected market returns of 14.32% to 16.34% to be  
10 overstated. Again, Mr. Baudino fails to consider the other four measures I have  
11 considered. The average implied market return for my Direct (12.34%) and  
12 Rebuttal Testimonies (12.69%) represent the approximately 48<sup>th</sup> percentile of  
13 actual returns observed from 1926 to 2020 as shown on Schedule DWD-8. As  
14 discussed above and as noted by Mr. Baudino, multiple measures gives greater  
15 insight into the investor-required return than a limited number of measures. The  
16 average implied market return for my Direct and Rebuttal Testimonies are 12.34%  
17 and 12.69%, respectively, which are comparable to the average historical market  
18 return of approximately 12.20%. Moreover, because market returns historically  
19 have been volatile, my market return estimates are statistically indistinguishable  
20 from the long-term arithmetic average market data on which Mr. Baudino relies.<sup>81</sup>

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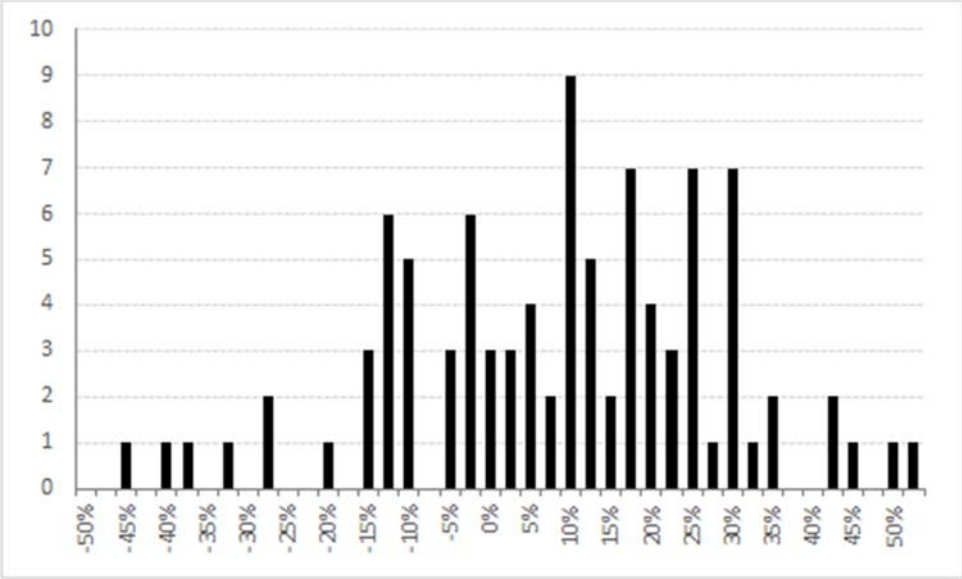
<sup>79</sup> NCUC Docket No. W-354, Sub 363, 364, 365, *Order Granting Partial Rate Increase and Requiring Customer Notice*, at PDF 72 (March 31, 2020).

<sup>80</sup> Baudino Direct Testimony, at 49.

<sup>81</sup> SBBI-2021, at Appendix A-1.

1           Recalling that Mr. Baudino includes historical data among the methods he  
 2 uses to estimate the MRP, I therefore produced a histogram of the annual MRPs  
 3 reported by Duff & Phelps. The results of that analysis, which are presented in  
 4 Chart 6 below, demonstrate average MRPs of 9.46% (Direct Testimony) to 9.93%  
 5 (Rebuttal Testimony) occur approximately 51.00% and 53.40% of the time,  
 6 respectively.

7           **Chart 6: Frequency Distribution of Observed Market Risk Premia,**  
 8           **1926-2020<sup>82</sup>**



9  
 10           Further, Mr. Baudino states that the growth rates underlying the projected  
 11 market returns “are not supportable when one further considers both historical and  
 12 forecasted gross domestic product (“GDP”) growth for the U.S.”<sup>83</sup> To that end, I  
 13 calculated the correlation coefficient between year-over-year GDP growth and  
 14 Large-Capitalization Stock returns since 1929 and found a correlation of 0.13,

<sup>82</sup> Schedule DWD-8.  
<sup>83</sup> Baudino Direct Testimony, at 48.

1 meaning there is little-to-no link between GDP and stock returns. In addition, the  
2 relationship between the two was not statistically significant.

3 **Q. DO YOU AGREE WITH MR. BAUDINO THAT THE MRP FALLS IN A**  
4 **RANGE OF 5% TO 8%?**

5 A. No, I do not. On page 49 of his direct testimony, Mr. Baudino cites to the eighth  
6 edition of “Principles of Corporate Finance” by Brealey, Myers, and Allen, which  
7 was published in 2006, to suggest that my MRP estimates are overstated. I do not  
8 agree that it is reasonable to compare generic estimates of the MRP from 15 years  
9 ago to current MRP estimates. As discussed in my Direct Testimony, my analysis  
10 of interest rates relative to the ERP, as well as published literature, support the  
11 finding that there is an inverse relationship between interest rates and the ERP.<sup>84</sup>  
12 That is, as interest rates fall, the ERP increases. Since 2006, the 30-year Treasury  
13 yield has decreased from approximately 5% to approximately 1.92%, as reported  
14 by Mr. Baudino.<sup>85</sup> Given the well documented inverse relationship, it is not  
15 surprising that my estimate of the MRP based on current data is higher than it was  
16 in 2006.

17 Adding the 2006 risk-free rate of approximately 5% to Mr. Baudino’s  
18 suggested 5% to 8% MRP implies a market return of 10% to 13%. As noted above,  
19 the implied market return in my CAPM is 12.34% (Direct) and 12.69% (Rebuttal).<sup>86</sup>  
20 That estimate of the market return falls within the range implied by Mr. Baudino.

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<sup>84</sup> D’Ascendis Direct Testimony, at 29.

<sup>85</sup> Exhibit RAB-4.

<sup>86</sup> As shown in Schedule DWD-8, an MRP of 9.93% plus projected risk-free rate of 2.76% equals an implied market return of 12.69%.

1                   **3. Non-Price Regulated Group**

2   **Q. PLEASE SUMMARIZE MR. BAUDINO’S CONCERNS WITH YOUR**  
3   **NON-PRICE REGULATED PROXY GROUP.**

4   A. Mr. Baudino’s concern is that non-utility companies face risks that lower risk gas  
5   companies like Atmos Energy do not face.<sup>87</sup>

6   **Q. DOES MR. BAUDINO DISCUSS THE IMPORTANCE OF DETERMINING**  
7   **COMPARATIVE LEVELS OF RISK IN MAKING INVESTMENT**  
8   **DECISIONS?**

9   A. Yes, he does. Mr. Baudino states the task of a rate of return analyst is to “estimate  
10   a return that is equal to the return being offered by other risk-comparable firms”,  
11   which he notes could be a “utility stock, a utility bond, a mutual fund, a money  
12   market fund, or any other number of investment vehicles.”<sup>88</sup> Mr. Baudino clearly  
13   recognizes that risk-comparable investments do not necessarily have to be utility  
14   based.

15   **Q. HAVE YOU SHOWN YOUR NON-PRICE REGULATED PROXY GROUP**  
16   **TO BE COMPARABLE IN RISK TO YOUR UTILITY PROXY GROUP?**

17   A. Yes, I have. As discussed in my Direct Testimony, the selection criteria for my  
18   non-regulated proxy group were based on a range of unadjusted Beta coefficients  
19   (a measure of systematic risk) and a range of standard errors of the regression (a  
20   measure of unsystematic risk), which gave rise to those Beta coefficients, and  
21   together measure total risk.<sup>89</sup>

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<sup>87</sup> Baudino Direct Testimony, at 51.

<sup>88</sup> *Ibid.*, at 5.

<sup>89</sup> D’Ascendis Direct Testimony, at 38.

1           As to the comparability of my Non-Price Regulated and Utility Proxy  
2 Groups, the selection criteria for my Non-Price Regulated Proxy Group was based  
3 on ranges of two measures of risk, the unadjusted beta of the proxy group, which  
4 measures systematic, or market risk, and the standard error of the regression, which  
5 gave rise to those betas, measuring non-systematic or diversifiable risk. Systematic  
6 plus non-systematic risk is one definition of total risk.<sup>90</sup> Mr. Baudino echoes this  
7 fact on pages 21-22 of his direct testimony.

8           Business and financial risks may vary between companies and proxy  
9 groups, but if the collective average betas and standard errors of the regression of  
10 the group are similar, then the total, or aggregate, non-diversifiable market risks  
11 and diversifiable risks are similar, as noted in “Comparable Earnings: New Life  
12 for an Old Precept” provided in Schedule DWD-9. Thus, because the non-price  
13 regulated companies are selected based on analyses of market data, they are  
14 comparable in total risk (even though individual risks may vary) to the Utility Proxy  
15 Group. This is demonstrated clearly on page 273 of Jack C. Francis’ Investments:  
16 Analysis and Management (page 3 of Schedule DWD-10), which shows that total  
17 risk can be “partitioned into its systematic and unsystematic components.”  
18 Essentially, companies that have similar betas and standard errors of regression  
19 have similar total investment risk.

---

<sup>90</sup> Business risk plus financial risk is a second definition of total risk.

1 **Q. IS THERE A SPECIFIC ADVANTAGE TO USING YOUR SELECTION**  
2 **CRITERIA, WHICH USES MEASURES OF SYSTEMATIC AND**  
3 **UNSYSTEMATIC RISK, INSTEAD OF USING THE COMBINATION OF**  
4 **BUSINESS AND FINANCIAL RISK?**

5 A. Yes. *Value Line* unadjusted Beta coefficients and the standard error of the  
6 regressions giving rise to those Beta coefficients are measurable objective values,  
7 whereas total business risk<sup>91</sup> and financial risk measures are more subjective. In  
8 view of all of the above, Mr. Baudino's concerns regarding my Non-Price  
9 Regulated Proxy Group should be dismissed by the Commission.

10 **Q. HAVE YOU CONDUCTED ANOTHER ANALYSIS TO DETERMINE**  
11 **WHETHER YOUR UTILITY PROXY GROUP AND NON-PRICE**  
12 **REGULATED PROXY GROUP ARE OF COMPARABLE RISK?**

13 A. Yes, I have. On page 23 of Mr. Baudino's direct testimony, he mentions that *Value*  
14 *Line's* Safety Ranking is a proxy for a company's total risk. I compared the average  
15 and median Safety Ranking for the Utility Proxy Group and Non-Price Regulated  
16 Proxy Group, as shown on Table 6, below:

---

<sup>91</sup> Business risk in excess of size risk, which is measurable, as discussed previously.



1 **Table 6: Comparison of Safety Rankings of Mr. D’Ascendis’ Utility Proxy**  
2 **Group and Non-Price Regulated Proxy Group**

<b>Group</b>	<b>Average Safety Ranking</b>	<b>Median Safety Ranking</b>
Utility Proxy Group	2.286	2.000
Non-Price Regulated Proxy Group	2.195	2.000

3 As shown, the Safety Rankings of the Utility Proxy Group and the Non-  
4 Price Regulated Proxy Group are comparable, indicating comparable total risk.  
5 This, in addition to all of the above should lead the Commission to consider the  
6 results of my Non-Price Regulated Proxy Group in its determination of Atmos  
7 Energy’s ROE in this proceeding.

8 **IV. CAPITAL STRUCTURE**

9 **Q. PLEASE SUMMARIZE THE COMPONENTS OF THE COMPANY’S**  
10 **RECOMMENDED CAPITAL STRUCTURE.**

11 A. The Company’s proposed capital structure includes 0.05% short-term debt, 42.36%  
12 long-term debt, and 57.59% common equity.

13 **Q. PLEASE SUMMARIZE MR. BAUDINO’S TESTIMONY AS IT RELATES**  
14 **TO THE COMPANY’S PROPOSED CAPITAL STRUCTURE.**

15 A. Mr. Baudino raises concern with the level of common equity in the Company’s  
16 capital structure and recommends that the Commission authorize a common equity  
17 ratio of 53.5%.<sup>92</sup>

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<sup>92</sup> Baudino Direct Testimony, at 31.

1 **Q. WHY IS IT IMPORTANT THAT THE COMPANY’S RECOMMENDED**  
2 **CAPITAL STRUCTURE BE AUTHORIZED IN THIS PROCEEDING?**

3 A. The use of an operating subsidiary’s capital structure is consistent with the FERC’s  
4 precedent, under which they use the applicant’s capital structure, where possible.<sup>93</sup>  
5 In particular, the FERC will use the utility operating company’s capital structure if  
6 it meets three criteria: (1) it issues its own debt without guarantees; (2) it has its  
7 own bond rating; and (3) it has a capital structure within the range of capital  
8 structures approved by the commission.<sup>94</sup> Although the Company is not organized  
9 as a holding company, the Company’s proposal to use its actual capital structure is  
10 appropriate because it meets all of these criteria.

11           Importantly, in order to provide safe, reliable, and affordable service to its  
12 customers, the Company must meet the needs and serve the interests of its various  
13 stakeholders, including customers, shareholders, and bondholders. The interests of  
14 these stakeholder groups are aligned when the Company maintains a healthy  
15 balance sheet, strong credit ratings, and a supportive regulatory environment,  
16 ensuring it has access to capital on reasonable terms in order to make necessary  
17 investments.

18           Safe and reliable service cannot be maintained at a reasonable cost if  
19 utilities do not have the financial flexibility and strength to access competitive  
20 financing markets on reasonable terms. The authorization of a capital structure that  
21 understates the Company’s actual common equity will weaken the financial  
22 condition of its operations and adversely impact the Company’s ability to address

---

<sup>93</sup> See, *Transcontinental Gas Pipe Line Corp*, 80 FERC ¶ 61,157, 61,657 (1997) (Opinion No. 414).

<sup>94</sup> 148 FERC ¶ 61,049 Docket No. EL14-12-000, at 190.

1 expenses and investment, to the detriment of customers and shareholders. Safe and  
2 reliable service for customers cannot be sustained over the long term if the interests  
3 of shareholders and bondholders are minimized such that the public interest is not  
4 optimized.

5 Consequently, the Company's recommended capital structure should be  
6 used to set rates in this proceeding.

7 **Q. HOW DOES THE COMPANY'S REQUESTED CAPITAL STRUCTURE**  
8 **COMPARE WITH ITS RECENT CAPITAL STRUCTURES?**

9 A. The requested test year capital structure is highly consistent with Atmos Energy's  
10 historical capital structures. As shown on page 1 of Schedule DWD-11, the  
11 common equity ratios for years 2016 through 2020 range from 51.44% to 59.98%,  
12 averaging 55.94%.

13 **Q. HOW DOES ATMOS ENERGY'S RECOMMENDED COMMON EQUITY**  
14 **RATIO OF 57.59% COMPARE WITH THE COMMON EQUITY RATIOS**  
15 **MAINTAINED BY THE UTILITY PROXY GROUP?**

16 A. The Company's requested ratemaking common equity ratio of 57.59% is somewhat  
17 above the range of common equity ratios maintained by the Utility Proxy Group  
18 (excluding ATO). In order to assess the reasonableness of the Company's  
19 requested ratemaking common equity ratio, I reviewed the actual common equity  
20 ratios maintained by the companies within the Utility Proxy Group. As shown on  
21 page 1 of Schedule DWD-11, common equity ratios of the utilities range from  
22 32.16% to 52.51% for fiscal year 2020 (excluding ATO). The Company's  
23 recommended equity ratio of 57.59% is somewhat above that range.

1 I also considered *Value Line's* projected capital structures for the Utility  
2 Proxy Group for 2024-2026. That analysis shows a range of projected common  
3 equity ratios between 38.50% and 57.00% (excluding ATO). Atmos Energy's  
4 proposed equity ratio is consistent with the high end of that range.

5 In addition to comparing the Company's ratemaking common equity ratio  
6 with common equity ratios currently and expected to be maintained by the Utility  
7 Proxy Group (i.e., at the holding company level), I also compared the Company's  
8 ratemaking common equity ratio with the equity ratios maintained by the operating  
9 subsidiaries of the Utility Proxy Group companies. As shown on page 3 of  
10 Schedule DWD-11, common equity ratios of the operating utility subsidiaries of  
11 the Utility Proxy Group range from 40.43% to 58.68% for fiscal year 2020  
12 (excluding ATO). Atmos Energy's proposed equity ratio of 57.59% falls within  
13 the range of common equity ratios maintained by the operating companies within  
14 the Utility Proxy Group.

15 **Q. HAVE YOU CONSIDERED THE CAPITAL STRUCTURES MAINTAINED**  
16 **BY THE OTHER NATURAL GAS UTILITIES IN KENTUCKY?**

17 A. Yes, I have. In particular, I reviewed the fiscal year 2020 capital structures of Duke  
18 Energy Kentucky and Louisville Gas & Electric.<sup>95</sup> I then compared the common  
19 equity ratio of those two operating companies to their parent companies (i.e., Duke  
20 Energy and PPL Corporation, respectively). As shown in Table 7, below, the equity  
21 ratios for the operating companies are higher than the parent companies. As shown

---

<sup>95</sup> Capital structure data was not available for Columbia Gas of Kentucky and Delta Natural Gas Company.

1 on pages 1 and 3 of Schedule DWD-11, that relationship is consistent with the  
2 companies in the Utility Proxy Group.

3 **Table 7: 2020 Common Equity Ratio**<sup>96</sup>

<b>Company</b>	<b>Equity Ratio</b>
Duke Energy Kentucky, Inc.	46.90%
Duke Energy Corporation	41.56%
Louisville Gas and Electric Company	56.28%
PPL Corporation	36.55%

4  
5 **Q. WHAT FACTORS SHOULD TYPICALLY BE CONSIDERED WHEN**  
6 **DETERMINING WHETHER TO USE AN ACTUAL OR HYPOTHETICAL**  
7 **CAPITAL STRUCTURE FOR RATEMAKING PURPOSES?**

8 A. The factors typically considered relative to the use of a regulated subsidiary's actual  
9 capital structure, or a hypothetical capital structure, are provided by David C.  
10 Parcell in The Cost of Capital – A Practitioner's Guide ("CRRA Guide") prepared  
11 for the Society of Utility and Regulatory Financial Analysts ("SURFA") and  
12 provided as the study guide to candidates for SURFA's Certified Rate of Return  
13 Certification Examination. The CRRA Guide notes that there are circumstances  
14 where a hypothetical capital structure is used in favor of an actual capital structure.  
15 They are:

- 16 (i) The utility's capital structure is deemed to be substantially different  
17 from the typical or "proper" capital structure; or

---

<sup>96</sup> See pages 2 and 4 of Schedule DWD-11.

1 (ii) The utility’s capital structure is funded as part of a diversified  
2 organization whose overall capital structure reflects its diversified  
3 nature rather than its utility operations only.<sup>97</sup>

4 Phillips echoes the CRRA Guide when he states:

5 Debt ratios began to rise in the late 1960s and early 1970s, and the  
6 financial condition of the public utility sector began to deteriorate.  
7 It became the common practice to use actual or expected  
8 capitalizations; actual where a historic test year is used, expected  
9 when a projected or future test year is used.<sup>83</sup> (footnote omitted)

10  
11 The objective, in short, shifted from minimization of the short-term  
12 cost of capital to protection of a utility’s ability “to raise capital at  
13 all times.” This objective requires that a public utility make every  
14 effort to keep indebtedness at a prudent and conservative level.”<sup>84</sup>  
15 (footnote omitted)

16  
17 *A hypothetical capital structure is used only where a utility’s actual*  
18 *capitalization is clearly out of line with those of other utilities in its*  
19 *industry or where a utility is diversified.*<sup>85</sup> (footnote omitted) (italics added)<sup>98</sup>

20 Although the Company’s proposed equity ratio is somewhat above the  
21 historical equity ratios of the holding companies in the Utility Proxy Group, it is  
22 consistent with the range of projected equity ratios from Value Line and historical  
23 operating company equity ratios. Further, the above literature supports the  
24 Company’s use of its actual capital structure. As such, the requested capital  
25 structure should be approved by the Commission.

---

<sup>97</sup> David C. Parcell, The Cost of Capital – A Practitioner’s Guide, Prepared for the Society of Utility and Regulatory Financial Analysts, 2010 Edition, p. 47.

<sup>98</sup> Charles F. Phillips, Jr., The Regulation of Public Utilities – Theory and Practice, 1993, Public Utility Reports, Inc., Arlington, VA, at 391.

1 **Q. IS THE COMPANY’S PROPOSED EQUITY RATIO OF 57.59%**  
2 **APPROPRIATE FOR RATEMAKING PURPOSES?**

3 A. Yes, it is. The Company’s proposed equity ratio of 57.59% is appropriate for  
4 ratemaking purposes in the current proceeding because it aligns with its historical  
5 capital structure and it is well within industry norms.

6 **V. CONCLUSION**

7 **Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY.**

8 A. In this Rebuttal Testimony I updated my ROE models with market data as of  
9 September 31, 2021. The results of the ROE models produced indicated ranges of  
10 ROEs from 9.76% to 12.99% (unadjusted) and from 9.94% to 13.17% (adjusted).<sup>99</sup>  
11 Given these ranges, I maintain my initial recommendation of 10.35%, which, in  
12 light of the current capital markets, is reasonable, if not conservative.

13           Regarding Mr. Baudino’s direct testimony, I discussed my disagreements  
14 with his analyses, which I supported with citations to the academic literature and  
15 empirical analyses. I also responded to any critiques to my Direct Testimony,  
16 again, supporting my responses with citations to the academic literature and  
17 empirical analyses.

---

<sup>99</sup> D’Ascendis Rebuttal Testimony, Schedule DWD-1, at 2.

1 **Q. SHOULD ANY OR ALL OF THE ARGUMENTS MADE BY MR. BAUDINO**  
2 **PERSUADE THE COMMISSION TO LOWER THE RETURN ON**  
3 **COMMON EQUITY IT APPROVES FOR ATMOS ENERGY BELOW**  
4 **YOUR RECOMMENDATION?**

5 A. No, they should not. My recommended cost of common equity of 10.35% is both  
6 reasonable and conservative. It will provide the Company with sufficient earnings  
7 to enable it to attract necessary new capital efficiently and at a reasonable cost, to  
8 the benefit of both customers and investors.

9 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

10 A. Yes, it does.



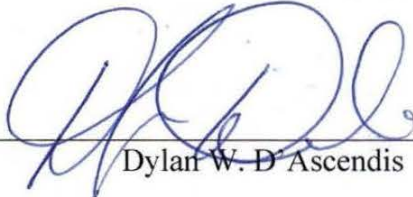
COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF )  
RATE APPLICATION OF ) Case No. 2021-00214  
ATMOS ENERGY CORPORATION )

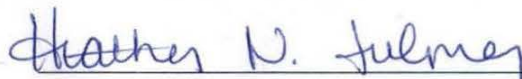
CERTIFICATE AND AFFIDAVIT

The Affiant, Dylan W. D'Ascendis, being duly sworn, deposes and states that the prepared testimony attached hereto and made a part hereof, constitutes the prepared rebuttal testimony of this affiant in Case No. 2021-00214, in the Matter of the Rate Application of Atmos Energy Corporation, and that if asked the questions propounded therein, this affiant would make the answers set forth in the attached prepared rebuttal pre-filed testimony.

  
Dylan W. D'Ascendis

STATE OF NEW JERSEY  
COUNTY OF BURLINGTON

SUBSCRIBED AND SWORN to before me by Dylan W. D'Ascendis on this the 15<sup>th</sup> day of November, 2021.

  
Notary Public

My Commission Expires:

HEATHER N. FULMER  
NOTARY PUBLIC OF NEW JERSEY  
Commission # 50115528  
My Commission Expires 10/25/2024



Atmos Energy Corporation  
Recommended Capital Structure and Cost Rates  
for Ratemaking Purposes

<u>Type Of Capital</u>	<u>Ratios (1)</u>	<u>Cost Rate</u>	<u>Weighted Cost Rate</u>
Long-Term Debt	42.36%	3.84% (1)	1.63%
Short-Term Debt	0.05%	80.94% (1)	0.04%
Common Equity	<u>57.59%</u>	10.35% (2)	<u>5.96%</u>
Total	<u>100.00%</u>		<u>7.63%</u>

Notes:

- (1) Company-provided.
- (2) From page 2 of this Schedule.

Atmos Energy Corporation  
Brief Summary of Common Equity Cost Rate

<u>Line No.</u>	<u>Principal Methods</u>	<u>Proxy Group of Seven Natural Gas Distribution Companies</u>
1.	Discounted Cash Flow Model (DCF) (1)	9.76%
2.	Risk Premium Model (RPM) (2)	10.30%
3.	Capital Asset Pricing Model (CAPM) (3)	12.10%
4.	Market Models Applied to Comparable Risk, Non-Price Regulated Companies (4)	<u>12.99%</u>
5.	Range of Common Equity Model Results	9.76% - 12.99%
6.	Size Risk Adjustment (5)	0.20%
7.	Credit Risk Adjustment (6)	-0.08%
8.	Flotation Cost Adjustment (7)	<u>0.06%</u>
9.	Indicated Range of Common Equity Cost Rates after Adjustment	<u>9.94% - 13.17%</u>
10.	Recommended Common Equity Cost Rate	<u><u>10.35%</u></u>

- Notes:
- (1) From page 3 of this Schedule.
  - (2) From page 11 of this Schedule.
  - (3) From page 24 of this Schedule.
  - (4) From page 29 of this Schedule.
  - (5) Adjustment to reflect the Company's greater business risk due to its smaller size relative to the Utility Proxy Group as detailed in Mr. D'Ascendis' direct testimony.
  - (6) Company-specific risk adjustment to reflect Atmos Energy's lower risk due to a higher long-term issuer rating relative to the proxy group as detailed in Mr. D'Ascendis' direct testimony.
  - (7) From page 37 of this Schedule.

Atmos Energy Corporation  
Indicated Common Equity Cost Rate Using the Discounted Cash Flow Model for the  
Proxy Group of Seven Natural Gas Distribution Companies

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Average Dividend Yield (1)	Value Line Projected Five Year Growth in EPS (2)	Zack's Five Year Projected Growth Rate in EPS	Bloomberg's Five Year Projected Growth Rate in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Average Projected Five Year Growth in EPS (3)	Adjusted Dividend Yield (4)	Indicated Common Equity Cost Rate (5)
2.59 %	7.00 %	7.40 %	7.70 %	7.80 %	7.47 %	2.69 %	10.16 %
3.85	2.00	7.10	7.55	6.00	5.66	3.96	9.62
3.76	5.50	4.90	4.93	5.50	5.21	3.86	9.07
3.26	6.50	5.00	5.00	5.00	5.38	3.35	8.73
4.93	11.50	5.40	3.38	4.80	6.27	5.08	11.35
3.40	8.00	5.50	5.17	4.00	5.67	3.50	9.17
3.81	10.00	5.50	6.00	7.31	7.20	3.95	11.15
						Average	9.89 %
						Median	9.62 %
						Average of Mean and Median	9.76 %

NA= Not Available  
NMF= Not Meaningful Figure

Notes:

- (1) Indicated dividend at 09/30/2021 divided by the average closing price of the last 60 trading days ending 09/30/2021 for each company.
- (2) From pages 4 through 10 of this Schedule.
- (3) Average of columns 2 through 5 excluding negative growth rates.
- (4) This reflects a growth rate component equal to one-half the conclusion of growth rate (from column 6) x column 1 to reflect the periodic payment of dividends (Gordon Model) as opposed to the continuous payment. Thus, for Atmos Energy Corporation,  $2.59\% \times (1 + (1/2 \times 7.47\%)) = 2.69\%$ .
- (5) Column 6 + column 7.

Source of Information:

Value Line Investment Survey  
www.zacks.com Downloaded on 09/30/2021  
www.yahoo.com Downloaded on 09/30/2021  
Bloomberg Professional Services







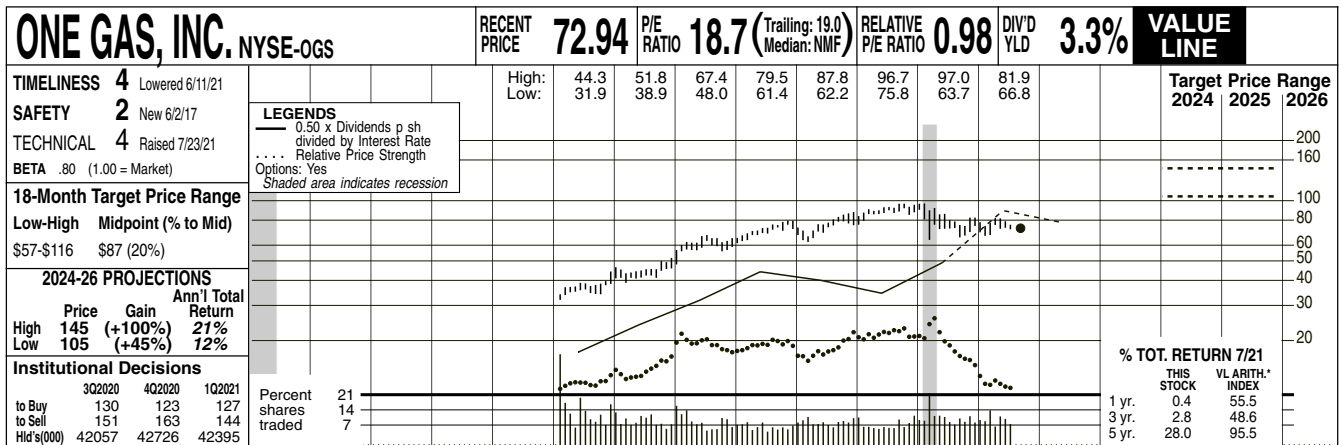
N.W. NATURAL NYSE-NWN				RECENT PRICE	53.04	P/E RATIO	20.2 (Trailing: 18.9; Median: 24.0)	RELATIVE P/E RATIO	1.06	DIV'D YLD	3.6%	VALUE LINE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
<b>TIMELINESS</b> 4 Lowered 6/11/21	High: 50.9	49.0	50.8	46.6	52.6	52.3	66.2	69.5	71.8	74.1	77.3	56.8	Target Price Range 2024 2025 2026																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
<b>SAFETY</b> 3 Lowered 3/19/21	Low: 41.1	39.6	41.0	40.0	40.1	42.0	48.9	56.5	51.5	57.2	42.3	41.7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
<b>TECHNICAL</b> 5 Lowered 8/13/21	<b>LEGENDS</b> 0.60 x Dividends p sh divided by Interest Rate . . . . Relative Price Strength Options: Yes Shaded area indicates recession																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
<b>BETA</b> .85 (1.00 = Market)	<b>18-Month Target Price Range</b> Low-High Midpoint (% to Mid) \$26-\$67 \$47 (-10%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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LLC</th> <th>24-26</th> </tr> </thead> <tbody> <tr> <td>Revenues per sh</td> <td>33.01</td> <td>37.20</td> <td>39.13</td> <td>39.16</td> <td>38.17</td> <td>30.56</td> <td>31.72</td> <td>27.14</td> <td>28.02</td> <td>27.64</td> <td>26.39</td> <td>23.61</td> <td>26.52</td> <td>24.45</td> <td>24.49</td> <td>25.29</td> <td>26.75</td> <td>27.75</td> <td>Revenues per sh</td> <td>31.10</td> </tr> <tr> <td>"Cash Flow" per sh</td> <td>4.34</td> <td>4.76</td> <td>5.41</td> <td>5.31</td> <td>5.20</td> <td>5.18</td> <td>5.00</td> <td>4.94</td> <td>5.04</td> <td>5.05</td> <td>4.91</td> <td>4.93</td> <td>1.04</td> <td>5.28</td> <td>5.15</td> <td>5.69</td> <td>5.85</td> <td>6.10</td> <td>"Cash Flow" per sh</td> <td>6.85</td> </tr> <tr> <td>Earnings per sh <sup>A</sup></td> <td>2.11</td> <td>2.35</td> <td>2.76</td> <td>2.57</td> <td>2.83</td> <td>2.73</td> <td>2.39</td> <td>2.22</td> <td>2.24</td> <td>2.16</td> <td>1.96</td> <td>2.12</td> <td>d1.94</td> <td>2.33</td> <td>2.19</td> <td>2.30</td> <td>2.60</td> <td>2.70</td> <td>Earnings per sh <sup>A</sup></td> <td>3.10</td> </tr> <tr> <td>Div'ds Decl'd per sh <sup>B</sup></td> <td>1.32</td> <td>1.39</td> <td>1.44</td> <td>1.52</td> <td>1.60</td> <td>1.68</td> <td>1.75</td> <td>1.79</td> <td>1.83</td> <td>1.85</td> <td>1.86</td> <td>1.87</td> <td>1.88</td> <td>1.89</td> <td>1.90</td> <td>1.91</td> <td>1.92</td> <td>1.93</td> <td>Div'ds Decl'd per sh <sup>B</sup></td> <td>1.96</td> </tr> <tr> <td>Cap'l Spending per sh</td> <td>3.48</td> <td>3.56</td> <td>4.48</td> <td>3.92</td> <td>5.09</td> <td>9.35</td> <td>3.76</td> <td>4.91</td> <td>5.13</td> <td>4.40</td> <td>4.37</td> <td>4.87</td> <td>7.43</td> <td>7.43</td> <td>7.95</td> <td>9.18</td> <td>8.40</td> <td>8.70</td> <td>Cap'l Spending per sh</td> <td>9.40</td> </tr> <tr> <td>Book Value per sh <sup>D</sup></td> <td>21.28</td> <td>22.01</td> <td>22.52</td> <td>23.71</td> <td>24.88</td> <td>26.08</td> <td>26.70</td> <td>27.23</td> <td>27.77</td> <td>28.12</td> <td>28.47</td> <td>29.71</td> <td>25.85</td> <td>26.41</td> <td>28.42</td> <td>29.05</td> <td>33.85</td> <td>37.10</td> <td>Book Value per sh <sup>D</sup></td> <td>45.30</td> </tr> <tr> <td>Common Shs Outst'g <sup>C</sup></td> <td>27.58</td> <td>27.24</td> <td>26.41</td> <td>26.50</td> <td>26.53</td> <td>26.58</td> <td>26.76</td> <td>26.92</td> <td>27.08</td> <td>27.28</td> <td>27.43</td> <td>28.63</td> <td>28.74</td> <td>28.88</td> <td>30.47</td> <td>30.59</td> <td>31.00</td> <td>31.00</td> <td>Common Shs Outst'g <sup>C</sup></td> <td>32.00</td> </tr> <tr> <td>Avg Ann'l P/E Ratio</td> <td>17.0</td> <td>15.9</td> <td>16.7</td> <td>18.1</td> <td>15.2</td> <td>17.0</td> <td>19.0</td> <td>21.1</td> <td>19.4</td> <td>20.7</td> <td>23.7</td> <td>26.9</td> <td>--</td> <td>26.6</td> <td>30.9</td> <td>25.0</td> <td>24.0</td> <td>24.0</td> <td>Avg Ann'l P/E Ratio</td> <td>24.0</td> </tr> <tr> <td>Relative P/E Ratio</td> <td>.91</td> <td>.86</td> <td>.89</td> <td>1.09</td> <td>1.01</td> <td>1.08</td> <td>1.19</td> <td>1.34</td> <td>1.09</td> <td>1.09</td> <td>1.19</td> <td>1.41</td> <td>--</td> <td>1.44</td> <td>1.65</td> <td>1.30</td> <td>1.30</td> <td>1.35</td> <td>Relative P/E Ratio</td> <td>1.35</td> </tr> <tr> <td>Avg Ann'l Div'd Yield</td> <td>3.7%</td> <td>3.7%</td> <td>3.1%</td> <td>3.3%</td> <td>3.7%</td> <td>3.6%</td> <td>3.9%</td> <td>3.8%</td> <td>4.2%</td> <td>4.1%</td> <td>4.0%</td> <td>3.3%</td> <td>3.0%</td> <td>3.0%</td> <td>2.8%</td> <td>3.3%</td> <td>3.3%</td> <td>2.6%</td> <td>Avg Ann'l Div'd Yield</td> <td>2.6%</td> </tr> <tr> <td colspan="4"><b>CAPITAL STRUCTURE as of 6/30/21</b></td> <td>848.8</td> <td>730.6</td> <td>758.5</td> <td>754.0</td> <td>723.8</td> <td>676.0</td> <td>762.2</td> <td>706.1</td> <td>746.4</td> <td>773.7</td> <td>830</td> <td>860</td> <td>Revenues (\$mill)</td> <td>995</td> </tr> <tr> <td colspan="4">Total Debt \$1215.8 mill. Due in 5 Yrs \$360.2 mill.</td> <td>63.9</td> <td>59.9</td> <td>60.5</td> <td>58.7</td> <td>53.7</td> <td>58.9</td> <td>d55.6</td> <td>67.3</td> <td>65.3</td> <td>70.3</td> <td>80.0</td> <td>85.0</td> <td>Net Profit (\$mill)</td> <td>100</td> </tr> <tr> <td colspan="4">LT Debt \$915.5 mill. LT Interest \$43.1 mill.</td> <td>40.4%</td> <td>42.4%</td> <td>40.8%</td> <td>41.5%</td> <td>40.0%</td> <td>40.9%</td> <td>--</td> <td>26.4%</td> <td>16.2%</td> <td>23.1%</td> <td>21.0%</td> <td>21.0%</td> <td>Income Tax Rate</td> <td>21.0%</td> </tr> <tr> <td colspan="4">(Total interest coverage: 3.1x)</td> <td>7.5%</td> <td>8.2%</td> <td>8.0%</td> <td>7.8%</td> <td>7.4%</td> <td>8.7%</td> <td>NMF</td> <td>9.5%</td> <td>8.8%</td> <td>9.1%</td> <td>9.6%</td> <td>9.9%</td> <td>Net Profit Margin</td> <td>10.1%</td> </tr> <tr> <td colspan="4">Pension Assets-12/20 \$373.9 mill.</td> <td>47.3%</td> <td>48.5%</td> <td>47.6%</td> <td>44.8%</td> <td>42.5%</td> <td>44.4%</td> <td>47.9%</td> <td>48.1%</td> <td>48.2%</td> <td>49.2%</td> <td>49.0%</td> <td>46.5%</td> <td>Long-Term Debt Ratio</td> <td>43.0%</td> </tr> <tr> <td colspan="4">Oblig. \$595.2 mill.</td> <td>52.7%</td> <td>51.5%</td> <td>52.4%</td> <td>55.2%</td> <td>57.5%</td> <td>55.6%</td> <td>52.1%</td> <td>51.9%</td> <td>51.8%</td> <td>50.8%</td> <td>51.0%</td> <td>53.5%</td> <td>Common Equity Ratio</td> <td>57.0%</td> </tr> <tr> <td colspan="4">Pfd Stock None</td> <td>1356.2</td> <td>1424.7</td> <td>1433.6</td> <td>1389.0</td> <td>1357.7</td> <td>1529.8</td> <td>1426.0</td> <td>1468.9</td> <td>1672.0</td> <td>1748.8</td> <td>2050</td> <td>2150</td> <td>Total Capital (\$mill)</td> <td>2550</td> </tr> <tr> <td colspan="4">Common Stock 30,670,722 shares as of 7/23/21</td> <td>1893.9</td> <td>1973.6</td> <td>2062.9</td> <td>2121.6</td> <td>2182.7</td> <td>2260.9</td> <td>2255.0</td> <td>2421.4</td> <td>2438.9</td> <td>2654.8</td> <td>2640</td> <td>2750</td> <td>Net Plant (\$mill)</td> <td>3105</td> </tr> <tr> <td colspan="4">MARKET CAP \$1.6 billion (Mid Cap)</td> <td>6.2%</td> <td>5.7%</td> <td>5.8%</td> <td>5.8%</td> <td>5.5%</td> <td>5.1%</td> <td>NMF</td> <td>5.8%</td> <td>5.2%</td> <td>5.2%</td> <td>4.0%</td> <td>4.0%</td> <td>Return on Total Cap'l</td> <td>4.0%</td> </tr> <tr> <td colspan="4">CURRENT POSITION</td> <td>8.9%</td> <td>8.2%</td> <td>8.1%</td> <td>7.6%</td> <td>6.9%</td> <td>6.9%</td> <td>NMF</td> <td>8.8%</td> <td>7.5%</td> <td>7.9%</td> <td>7.5%</td> <td>7.5%</td> <td>Return on Shr. Equity</td> <td>7.0%</td> </tr> <tr> <td colspan="4">2019</td> <td>8.9%</td> <td>8.2%</td> <td>8.1%</td> <td>7.6%</td> <td>6.9%</td> <td>6.9%</td> <td>NMF</td> <td>8.8%</td> <td>7.5%</td> <td>7.9%</td> <td>7.5%</td> <td>7.5%</td> <td>Return on Com Equity</td> <td>7.0%</td> </tr> <tr> <td colspan="4">2020</td> <td>2.4%</td> <td>1.6%</td> <td>1.5%</td> <td>1.1%</td> <td>.6%</td> <td>.9%</td> <td>NMF</td> <td>2.1%</td> <td>1.4%</td> <td>1.7%</td> <td>2.0%</td> <td>2.0%</td> <td>Retained to Com Eq</td> <td>2.5%</td> </tr> <tr> <td colspan="4">6/30/21</td> <td>73%</td> <td>80%</td> <td>81%</td> <td>85%</td> <td>92%</td> <td>87%</td> <td>NMF</td> <td>76%</td> <td>82%</td> <td>79%</td> <td>74%</td> <td>72%</td> <td>All Div'ds to Net Prof</td> <td>63%</td> </tr> <tr> <td colspan="4">Cash Assets</td> <td>9.6</td> <td>30.2</td> <td>20.1</td> <td colspan="12"><b>BUSINESS:</b> Northwest Natural Holding Co. distributes natural gas Pipeline system. Owns local underground storage. Rev. break-</td> </tr> <tr> <td colspan="4">Other</td> <td>284.1</td> <td>293.0</td> <td>253.7</td> <td colspan="12">down: residential, 37%; commercial, 22%; industrial, gas trans-</td> </tr> <tr> <td colspan="4">Current Assets</td> <td>293.7</td> <td>323.2</td> <td>273.8</td> <td colspan="12">portation, 41%. Employs 1,167. BlackRock Inc. owns 16.4% of</td> </tr> <tr> <td colspan="4">Accts Payable</td> <td>113.4</td> <td>97.9</td> <td>97.9</td> <td colspan="12">shares; State Street, 15.4%; Off./Dir., 1.03% (4/21 proxy). CEO:</td> </tr> <tr> <td colspan="4">Debt Due</td> <td>224.2</td> <td>399.9</td> <td>330.3</td> <td colspan="12">David H. Anderson. Inc.: Oregon. Address: 220 NW 2nd Ave., Port-</td> </tr> <tr> <td colspan="4">Other</td> <td>144.6</td> <td>129.3</td> <td>144.3</td> <td colspan="12">land, OR 97209. Tel.: 503-226-4211. Internet: www.nwnatural.com.</td> </tr> <tr> <td colspan="4">Current Liab.</td> <td>482.2</td> <td>627.1</td> <td>572.5</td> <td colspan="12"><b>Northwest Natural Holding recently posted better-than-expected June-quarter financial results.</b> To that point, revenues increased 10.3%, to \$148.9 million thanks to new rates in Oregon, additional customer accounts, and reduced economic headwinds from the COVID-19 pandemic. On the profitability front, total expenses declined 190 basis points, as a percentage of the top line. After accounting for a drop in interest expenses as well, NWN's share deficit was reduced by nearly 90%, to \$0.02. This was markedly above our call for a loss of \$0.10.</td> </tr> <tr> <td colspan="4">Fix. Chg. Cov.</td> <td>336%</td> <td>335%</td> <td>312%</td> <td colspan="12"><b>As a result, we have raised our earnings outlook for 2021 and 2022 by a nickel each, to \$2.60 and \$2.70, respectively.</b> In the current year, our revised figure would represent a share-net increase of approximately 13%. This ought to be supported by a nearly 7.5% rise in revenues, to \$830 million. The company has been quite successful at adding new customer meters despite the challenging operating environment. This is evident in the Natural Gas Distribution business gaining 12,000 new accounts over the past year. Additional benefits stemmed from an in-</td> </tr> <tr> <td colspan="4">ANNUAL RATES</td> <td>Past 10 Yrs.</td> <td>Past 5 Yrs.</td> <td>Est'd '18-'20 to '24-'26</td> <td colspan="12">crease in its base rate in Oregon that went into effect last November. Elsewhere, the NW Natural Water Company continues to grow through the acquisition of water and wastewater utilities. Those efforts are helping to expand that unit's geographic footprint while providing clean and reliable service to its customers.</td> </tr> <tr> <td colspan="4">of change (per sh)</td> <td>-3.5%</td> <td>-2.0%</td> <td>4.0%</td> <td colspan="12"><b>The balance sheet is in good shape.</b> Although cash reserves fell 33% so far this year, that financial cushion still sits at about \$20 million. Meanwhile, the long-term debt load receded a bit and sits at about 50% of total capital, which is on the lower end for this industry.</td> </tr> <tr> <td colspan="4">Revenues</td> <td>.5%</td> <td>1.5%</td> <td>4.0%</td> <td colspan="12"><b>Since our May review, these shares have fallen one notch in Timeliness.</b> At this point, our Ranking System suggests NWN stock will lag the broader market averages in the coming year. However, a near term correction may provide an attractive opportunity for income-seeking accounts. The stock does offer an above-average dividend yield. At the same time, the equity is also positioned for worthwhile recovery potential over the coming 3- to 5-year time frame.</td> </tr> <tr> <td colspan="4">"Cash Flow"</td> <td>-1.5%</td> <td>1.5%</td> <td>5.5%</td> <td colspan="12"><b>Bryan J. Fong</b> August 27, 2021</td> </tr> <tr> <td colspan="4">Earnings</td> <td>1.5%</td> <td>.5%</td> <td>.5%</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">Dividends</td> <td>1.0%</td> <td>--</td> <td>8.5%</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">Book Value</td> <td></td> <td></td> <td></td> <td colspan="12"></td> </tr> <tr> <td colspan="4">Cal-endar</td> <td colspan="4">QUARTERLY REVENUES (\$ mill.)</td> <td>Full Year</td> <td colspan="12"></td> </tr> <tr> <td colspan="4"></td> <td>Mar.31</td> <td>Jun.30</td> <td>Sep.30</td> <td>Dec.31</td> <td></td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2018</td> <td>264.7</td> <td>124.6</td> <td>91.2</td> <td>226.7</td> <td>706.1</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2019</td> <td>285.4</td> <td>123.4</td> <td>90.3</td> <td>247.3</td> <td>746.4</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2020</td> <td>285.2</td> <td>135.0</td> <td>93.3</td> <td>260.2</td> <td>773.7</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2021</td> <td>315.9</td> <td>148.9</td> <td>110</td> <td>255.2</td> <td>830</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2022</td> <td>320</td> <td>150</td> <td>120</td> <td>270</td> <td>860</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">Cal-endar</td> <td colspan="4">EARNINGS PER SHARE <sup>A</sup></td> <td>Full Year</td> <td colspan="12"></td> </tr> <tr> <td colspan="4"></td> <td>Mar.31</td> <td>Jun.30</td> <td>Sep.30</td> <td>Dec.31</td> <td></td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2018</td> <td>1.46</td> <td>d.01</td> <td>d.39</td> <td>1.27</td> <td>2.33</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2019</td> <td>1.50</td> <td>.07</td> <td>d.61</td> <td>1.26</td> <td>2.19</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2020</td> <td>1.58</td> <td>d.17</td> <td>d.61</td> <td>1.50</td> <td>2.30</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2021</td> <td>1.94</td> <td>d.02</td> <td>d.60</td> <td>1.28</td> <td>2.60</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2022</td> <td>1.96</td> <td>.01</td> <td>d.57</td> <td>1.30</td> <td>2.70</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">Cal-endar</td> <td colspan="4">QUARTERLY DIVIDENDS PAID <sup>B</sup></td> <td>Full Year</td> <td colspan="12"></td> </tr> <tr> <td colspan="4"></td> <td>Mar.31</td> <td>Jun.30</td> <td>Sep.30</td> <td>Dec.31</td> <td></td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2017</td> <td>.47</td> <td>.47</td> <td>.47</td> <td>.4725</td> <td>1.88</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2018</td> <td>.4725</td> <td>.4725</td> <td>.4725</td> <td>.475</td> <td>1.89</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2019</td> <td>.475</td> <td>.475</td> <td>.475</td> <td>.4775</td> <td>1.90</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2020</td> <td>.4775</td> <td>.4775</td> <td>.4775</td> <td>.48</td> <td>1.91</td> <td colspan="12"></td> </tr> <tr> <td colspan="4">2021</td> <td>.48</td> <td>.48</td> <td>.48</td> <td></td> <td></td> <td colspan="12"></td> </tr> </tbody> </table>														2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	© VALUE LINE PUB. LLC	24-26	Revenues per sh	33.01	37.20	39.13	39.16	38.17	30.56	31.72	27.14	28.02	27.64	26.39	23.61	26.52	24.45	24.49	25.29	26.75	27.75	Revenues per sh	31.10	"Cash Flow" per sh	4.34	4.76	5.41	5.31	5.20	5.18	5.00	4.94	5.04	5.05	4.91	4.93	1.04	5.28	5.15	5.69	5.85	6.10	"Cash Flow" per sh	6.85	Earnings per sh <sup>A</sup>	2.11	2.35	2.76	2.57	2.83	2.73	2.39	2.22	2.24	2.16	1.96	2.12	d1.94	2.33	2.19	2.30	2.60	2.70	Earnings per sh <sup>A</sup>	3.10	Div'ds Decl'd per sh <sup>B</sup>	1.32	1.39	1.44	1.52	1.60	1.68	1.75	1.79	1.83	1.85	1.86	1.87	1.88	1.89	1.90	1.91	1.92	1.93	Div'ds Decl'd per sh <sup>B</sup>	1.96	Cap'l Spending per sh	3.48	3.56	4.48	3.92	5.09	9.35	3.76	4.91	5.13	4.40	4.37	4.87	7.43	7.43	7.95	9.18	8.40	8.70	Cap'l Spending per sh	9.40	Book Value per sh <sup>D</sup>	21.28	22.01	22.52	23.71	24.88	26.08	26.70	27.23	27.77	28.12	28.47	29.71	25.85	26.41	28.42	29.05	33.85	37.10	Book Value per sh <sup>D</sup>	45.30	Common Shs Outst'g <sup>C</sup>	27.58	27.24	26.41	26.50	26.53	26.58	26.76	26.92	27.08	27.28	27.43	28.63	28.74	28.88	30.47	30.59	31.00	31.00	Common Shs Outst'g <sup>C</sup>	32.00	Avg Ann'l P/E Ratio	17.0	15.9	16.7	18.1	15.2	17.0	19.0	21.1	19.4	20.7	23.7	26.9	--	26.6	30.9	25.0	24.0	24.0	Avg Ann'l P/E Ratio	24.0	Relative P/E Ratio	.91	.86	.89	1.09	1.01	1.08	1.19	1.34	1.09	1.09	1.19	1.41	--	1.44	1.65	1.30	1.30	1.35	Relative P/E Ratio	1.35	Avg Ann'l Div'd Yield	3.7%	3.7%	3.1%	3.3%	3.7%	3.6%	3.9%	3.8%	4.2%	4.1%	4.0%	3.3%	3.0%	3.0%	2.8%	3.3%	3.3%	2.6%	Avg Ann'l Div'd Yield	2.6%	<b>CAPITAL STRUCTURE as of 6/30/21</b>				848.8	730.6	758.5	754.0	723.8	676.0	762.2	706.1	746.4	773.7	830	860	Revenues (\$mill)	995	Total Debt \$1215.8 mill. Due in 5 Yrs \$360.2 mill.				63.9	59.9	60.5	58.7	53.7	58.9	d55.6	67.3	65.3	70.3	80.0	85.0	Net Profit (\$mill)	100	LT Debt \$915.5 mill. LT Interest \$43.1 mill.				40.4%	42.4%	40.8%	41.5%	40.0%	40.9%	--	26.4%	16.2%	23.1%	21.0%	21.0%	Income Tax Rate	21.0%	(Total interest coverage: 3.1x)				7.5%	8.2%	8.0%	7.8%	7.4%	8.7%	NMF	9.5%	8.8%	9.1%	9.6%	9.9%	Net Profit Margin	10.1%	Pension Assets-12/20 \$373.9 mill.				47.3%	48.5%	47.6%	44.8%	42.5%	44.4%	47.9%	48.1%	48.2%	49.2%	49.0%	46.5%	Long-Term Debt Ratio	43.0%	Oblig. \$595.2 mill.				52.7%	51.5%	52.4%	55.2%	57.5%	55.6%	52.1%	51.9%	51.8%	50.8%	51.0%	53.5%	Common Equity Ratio	57.0%	Pfd Stock None				1356.2	1424.7	1433.6	1389.0	1357.7	1529.8	1426.0	1468.9	1672.0	1748.8	2050	2150	Total Capital (\$mill)	2550	Common Stock 30,670,722 shares as of 7/23/21				1893.9	1973.6	2062.9	2121.6	2182.7	2260.9	2255.0	2421.4	2438.9	2654.8	2640	2750	Net Plant (\$mill)	3105	MARKET CAP \$1.6 billion (Mid Cap)				6.2%	5.7%	5.8%	5.8%	5.5%	5.1%	NMF	5.8%	5.2%	5.2%	4.0%	4.0%	Return on Total Cap'l	4.0%	CURRENT POSITION				8.9%	8.2%	8.1%	7.6%	6.9%	6.9%	NMF	8.8%	7.5%	7.9%	7.5%	7.5%	Return on Shr. Equity	7.0%	2019				8.9%	8.2%	8.1%	7.6%	6.9%	6.9%	NMF	8.8%	7.5%	7.9%	7.5%	7.5%	Return on Com Equity	7.0%	2020				2.4%	1.6%	1.5%	1.1%	.6%	.9%	NMF	2.1%	1.4%	1.7%	2.0%	2.0%	Retained to Com Eq	2.5%	6/30/21				73%	80%	81%	85%	92%	87%	NMF	76%	82%	79%	74%	72%	All Div'ds to Net Prof	63%	Cash Assets				9.6	30.2	20.1	<b>BUSINESS:</b> Northwest Natural Holding Co. distributes natural gas Pipeline system. Owns local underground storage. Rev. break-												Other				284.1	293.0	253.7	down: residential, 37%; commercial, 22%; industrial, gas trans-												Current Assets				293.7	323.2	273.8	portation, 41%. Employs 1,167. BlackRock Inc. owns 16.4% of												Accts Payable				113.4	97.9	97.9	shares; State Street, 15.4%; Off./Dir., 1.03% (4/21 proxy). CEO:												Debt Due				224.2	399.9	330.3	David H. Anderson. Inc.: Oregon. Address: 220 NW 2nd Ave., Port-												Other				144.6	129.3	144.3	land, OR 97209. Tel.: 503-226-4211. Internet: www.nwnatural.com.												Current Liab.				482.2	627.1	572.5	<b>Northwest Natural Holding recently posted better-than-expected June-quarter financial results.</b> To that point, revenues increased 10.3%, to \$148.9 million thanks to new rates in Oregon, additional customer accounts, and reduced economic headwinds from the COVID-19 pandemic. On the profitability front, total expenses declined 190 basis points, as a percentage of the top line. After accounting for a drop in interest expenses as well, NWN's share deficit was reduced by nearly 90%, to \$0.02. This was markedly above our call for a loss of \$0.10.												Fix. Chg. Cov.				336%	335%	312%	<b>As a result, we have raised our earnings outlook for 2021 and 2022 by a nickel each, to \$2.60 and \$2.70, respectively.</b> In the current year, our revised figure would represent a share-net increase of approximately 13%. This ought to be supported by a nearly 7.5% rise in revenues, to \$830 million. The company has been quite successful at adding new customer meters despite the challenging operating environment. This is evident in the Natural Gas Distribution business gaining 12,000 new accounts over the past year. Additional benefits stemmed from an in-												ANNUAL RATES				Past 10 Yrs.	Past 5 Yrs.	Est'd '18-'20 to '24-'26	crease in its base rate in Oregon that went into effect last November. Elsewhere, the NW Natural Water Company continues to grow through the acquisition of water and wastewater utilities. Those efforts are helping to expand that unit's geographic footprint while providing clean and reliable service to its customers.												of change (per sh)				-3.5%	-2.0%	4.0%	<b>The balance sheet is in good shape.</b> Although cash reserves fell 33% so far this year, that financial cushion still sits at about \$20 million. Meanwhile, the long-term debt load receded a bit and sits at about 50% of total capital, which is on the lower end for this industry.												Revenues				.5%	1.5%	4.0%	<b>Since our May review, these shares have fallen one notch in Timeliness.</b> At this point, our Ranking System suggests NWN stock will lag the broader market averages in the coming year. However, a near term correction may provide an attractive opportunity for income-seeking accounts. The stock does offer an above-average dividend yield. At the same time, the equity is also positioned for worthwhile recovery potential over the coming 3- to 5-year time frame.												"Cash Flow"				-1.5%	1.5%	5.5%	<b>Bryan J. Fong</b> August 27, 2021												Earnings				1.5%	.5%	.5%													Dividends				1.0%	--	8.5%													Book Value																			Cal-endar				QUARTERLY REVENUES (\$ mill.)				Full Year																	Mar.31	Jun.30	Sep.30	Dec.31														2018				264.7	124.6	91.2	226.7	706.1													2019				285.4	123.4	90.3	247.3	746.4													2020				285.2	135.0	93.3	260.2	773.7													2021				315.9	148.9	110	255.2	830													2022				320	150	120	270	860													Cal-endar				EARNINGS PER SHARE <sup>A</sup>				Full Year																	Mar.31	Jun.30	Sep.30	Dec.31														2018				1.46	d.01	d.39	1.27	2.33													2019				1.50	.07	d.61	1.26	2.19													2020				1.58	d.17	d.61	1.50	2.30													2021				1.94	d.02	d.60	1.28	2.60													2022				1.96	.01	d.57	1.30	2.70													Cal-endar				QUARTERLY DIVIDENDS PAID <sup>B</sup>				Full Year																	Mar.31	Jun.30	Sep.30	Dec.31														2017				.47	.47	.47	.4725	1.88													2018				.4725	.4725	.4725	.475	1.89													2019				.475	.475	.475	.4775	1.90													2020				.4775	.4775	.4775	.48	1.91													2021				.48	.48	.48														
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	© VALUE LINE PUB. LLC	24-26																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Revenues per sh	33.01	37.20	39.13	39.16	38.17	30.56	31.72	27.14	28.02	27.64	26.39	23.61	26.52	24.45	24.49	25.29	26.75	27.75	Revenues per sh	31.10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
"Cash Flow" per sh	4.34	4.76	5.41	5.31	5.20	5.18	5.00	4.94	5.04	5.05	4.91	4.93	1.04	5.28	5.15	5.69	5.85	6.10	"Cash Flow" per sh	6.85																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Earnings per sh <sup>A</sup>	2.11	2.35	2.76	2.57	2.83	2.73	2.39	2.22	2.24	2.16	1.96	2.12	d1.94	2.33	2.19	2.30	2.60	2.70	Earnings per sh <sup>A</sup>	3.10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Div'ds Decl'd per sh <sup>B</sup>	1.32	1.39	1.44	1.52	1.60	1.68	1.75	1.79	1.83	1.85	1.86	1.87	1.88	1.89	1.90	1.91	1.92	1.93	Div'ds Decl'd per sh <sup>B</sup>	1.96																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Cap'l Spending per sh	3.48	3.56	4.48	3.92	5.09	9.35	3.76	4.91	5.13	4.40	4.37	4.87	7.43	7.43	7.95	9.18	8.40	8.70	Cap'l Spending per sh	9.40																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Book Value per sh <sup>D</sup>	21.28	22.01	22.52	23.71	24.88	26.08	26.70	27.23	27.77	28.12	28.47	29.71	25.85	26.41	28.42	29.05	33.85	37.10	Book Value per sh <sup>D</sup>	45.30																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Common Shs Outst'g <sup>C</sup>	27.58	27.24	26.41	26.50	26.53	26.58	26.76	26.92	27.08	27.28	27.43	28.63	28.74	28.88	30.47	30.59	31.00	31.00	Common Shs Outst'g <sup>C</sup>	32.00																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Avg Ann'l P/E Ratio	17.0	15.9	16.7	18.1	15.2	17.0	19.0	21.1	19.4	20.7	23.7	26.9	--	26.6	30.9	25.0	24.0	24.0	Avg Ann'l P/E Ratio	24.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Relative P/E Ratio	.91	.86	.89	1.09	1.01	1.08	1.19	1.34	1.09	1.09	1.19	1.41	--	1.44	1.65	1.30	1.30	1.35	Relative P/E Ratio	1.35																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Avg Ann'l Div'd Yield	3.7%	3.7%	3.1%	3.3%	3.7%	3.6%	3.9%	3.8%	4.2%	4.1%	4.0%	3.3%	3.0%	3.0%	2.8%	3.3%	3.3%	2.6%	Avg Ann'l Div'd Yield	2.6%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
<b>CAPITAL STRUCTURE as of 6/30/21</b>				848.8	730.6	758.5	754.0	723.8	676.0	762.2	706.1	746.4	773.7	830	860	Revenues (\$mill)	995																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Total Debt \$1215.8 mill. Due in 5 Yrs \$360.2 mill.				63.9	59.9	60.5	58.7	53.7	58.9	d55.6	67.3	65.3	70.3	80.0	85.0	Net Profit (\$mill)	100																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
LT Debt \$915.5 mill. LT Interest \$43.1 mill.				40.4%	42.4%	40.8%	41.5%	40.0%	40.9%	--	26.4%	16.2%	23.1%	21.0%	21.0%	Income Tax Rate	21.0%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
(Total interest coverage: 3.1x)				7.5%	8.2%	8.0%	7.8%	7.4%	8.7%	NMF	9.5%	8.8%	9.1%	9.6%	9.9%	Net Profit Margin	10.1%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Pension Assets-12/20 \$373.9 mill.				47.3%	48.5%	47.6%	44.8%	42.5%	44.4%	47.9%	48.1%	48.2%	49.2%	49.0%	46.5%	Long-Term Debt Ratio	43.0%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Oblig. \$595.2 mill.				52.7%	51.5%	52.4%	55.2%	57.5%	55.6%	52.1%	51.9%	51.8%	50.8%	51.0%	53.5%	Common Equity Ratio	57.0%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Pfd Stock None				1356.2	1424.7	1433.6	1389.0	1357.7	1529.8	1426.0	1468.9	1672.0	1748.8	2050	2150	Total Capital (\$mill)	2550																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Common Stock 30,670,722 shares as of 7/23/21				1893.9	1973.6	2062.9	2121.6	2182.7	2260.9	2255.0	2421.4	2438.9	2654.8	2640	2750	Net Plant (\$mill)	3105																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
MARKET CAP \$1.6 billion (Mid Cap)				6.2%	5.7%	5.8%	5.8%	5.5%	5.1%	NMF	5.8%	5.2%	5.2%	4.0%	4.0%	Return on Total Cap'l	4.0%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
CURRENT POSITION				8.9%	8.2%	8.1%	7.6%	6.9%	6.9%	NMF	8.8%	7.5%	7.9%	7.5%	7.5%	Return on Shr. Equity	7.0%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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Cash Assets				9.6	30.2	20.1	<b>BUSINESS:</b> Northwest Natural Holding Co. distributes natural gas Pipeline system. Owns local underground storage. Rev. break-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Other				284.1	293.0	253.7	down: residential, 37%; commercial, 22%; industrial, gas trans-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Current Assets				293.7	323.2	273.8	portation, 41%. Employs 1,167. BlackRock Inc. owns 16.4% of																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Accts Payable				113.4	97.9	97.9	shares; State Street, 15.4%; Off./Dir., 1.03% (4/21 proxy). CEO:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Debt Due				224.2	399.9	330.3	David H. Anderson. Inc.: Oregon. Address: 220 NW 2nd Ave., Port-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Other				144.6	129.3	144.3	land, OR 97209. Tel.: 503-226-4211. Internet: www.nwnatural.com.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Current Liab.				482.2	627.1	572.5	<b>Northwest Natural Holding recently posted better-than-expected June-quarter financial results.</b> To that point, revenues increased 10.3%, to \$148.9 million thanks to new rates in Oregon, additional customer accounts, and reduced economic headwinds from the COVID-19 pandemic. On the profitability front, total expenses declined 190 basis points, as a percentage of the top line. After accounting for a drop in interest expenses as well, NWN's share deficit was reduced by nearly 90%, to \$0.02. This was markedly above our call for a loss of \$0.10.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Fix. Chg. Cov.				336%	335%	312%	<b>As a result, we have raised our earnings outlook for 2021 and 2022 by a nickel each, to \$2.60 and \$2.70, respectively.</b> In the current year, our revised figure would represent a share-net increase of approximately 13%. This ought to be supported by a nearly 7.5% rise in revenues, to \$830 million. The company has been quite successful at adding new customer meters despite the challenging operating environment. This is evident in the Natural Gas Distribution business gaining 12,000 new accounts over the past year. Additional benefits stemmed from an in-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
ANNUAL RATES				Past 10 Yrs.	Past 5 Yrs.	Est'd '18-'20 to '24-'26	crease in its base rate in Oregon that went into effect last November. Elsewhere, the NW Natural Water Company continues to grow through the acquisition of water and wastewater utilities. Those efforts are helping to expand that unit's geographic footprint while providing clean and reliable service to its customers.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
of change (per sh)				-3.5%	-2.0%	4.0%	<b>The balance sheet is in good shape.</b> Although cash reserves fell 33% so far this year, that financial cushion still sits at about \$20 million. Meanwhile, the long-term debt load receded a bit and sits at about 50% of total capital, which is on the lower end for this industry.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Revenues				.5%	1.5%	4.0%	<b>Since our May review, these shares have fallen one notch in Timeliness.</b> At this point, our Ranking System suggests NWN stock will lag the broader market averages in the coming year. However, a near term correction may provide an attractive opportunity for income-seeking accounts. The stock does offer an above-average dividend yield. At the same time, the equity is also positioned for worthwhile recovery potential over the coming 3- to 5-year time frame.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
"Cash Flow"				-1.5%	1.5%	5.5%	<b>Bryan J. Fong</b> August 27, 2021																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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(A) Diluted earnings per share. Excludes non-recurring items: '08, (\$0.06); '08, (\$0.03); '09, \$0.06; May not sum due to rounding. Next earnings report due in early Nov. (B) Dividends historically paid in mid-February, May, August, and November. (C) In millions. (D) Includes intangibles. In 2020: \$69.2 million, \$2.26/share.

Company's Financial Strength	A
Stock's Price Stability	85
Price Growth Persistence	35
Earnings Predictability	5

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	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	© VALUE LINE PUB. LLC	24-26
Revenues per sh	--	--	--	34.92	29.62	27.30	29.43	31.08	31.32	28.78	<b>31.30</b>	<b>33.85</b>		<b>43.00</b>
"Cash Flow" per sh	--	--	--	4.52	4.82	5.43	5.96	6.32	6.96	7.36	<b>7.75</b>	<b>8.20</b>		<b>9.75</b>
Earnings per sh <sup>A</sup>	--	--	--	2.07	2.24	2.65	3.02	3.25	3.51	3.68	<b>3.85</b>	<b>4.05</b>		<b>5.00</b>
Div'ds Decl'd per sh <sup>B</sup>	--	--	--	.84	1.20	1.40	1.68	1.84	2.00	2.16	<b>2.32</b>	<b>2.48</b>		<b>2.95</b>
Cap'l Spending per sh	--	--	--	5.70	5.63	5.91	6.81	7.50	7.91	8.87	<b>9.00</b>	<b>9.20</b>		<b>9.75</b>
Book Value per sh	--	--	--	34.45	35.24	36.12	37.47	38.86	40.35	42.01	<b>44.40</b>	<b>48.45</b>		<b>74.40</b>
Common Shs Outst'g <sup>C</sup>	--	--	--	52.08	52.26	52.28	52.31	52.57	52.77	53.17	<b>53.50</b>	<b>53.50</b>		<b>57.00</b>
Avg Ann'l P/E Ratio	--	--	--	17.8	19.8	22.7	23.5	23.1	25.3	21.7	<b>Bold figures are Value Line estimates</b>			<b>25.0</b>
Relative P/E Ratio	--	--	--	.94	1.00	1.19	1.18	1.25	1.35	1.11				<b>1.40</b>
Avg Ann'l Div'd Yield	--	--	--	2.3%	2.7%	2.3%	2.4%	2.5%	2.3%	2.7%				<b>2.4%</b>
Revenues (\$mill)	--	--	--	1818.9	1547.7	1427.2	1539.6	1633.7	1652.7	1530.3	<b>1675</b>	<b>1810</b>		<b>2450</b>
Net Profit (\$mill)	--	--	--	109.8	119.0	140.1	159.9	172.2	186.7	196.4	<b>205</b>	<b>215</b>		<b>285</b>
Income Tax Rate	--	--	--	38.4%	38.0%	37.8%	36.4%	23.7%	18.7%	17.5%	<b>17.0%</b>	<b>17.5%</b>		<b>22.0%</b>
Net Profit Margin	--	--	--	6.0%	7.7%	9.8%	10.4%	10.5%	11.3%	12.8%	<b>12.2%</b>	<b>11.9%</b>		<b>11.6%</b>
Long-Term Debt Ratio	--	--	--	40.1%	39.5%	38.7%	37.8%	38.6%	37.7%	41.5%	<b>64.0%</b>	<b>62.0%</b>		<b>47.0%</b>
Common Equity Ratio	--	--	--	59.9%	60.5%	61.3%	62.2%	61.4%	62.3%	58.5%	<b>36.0%</b>	<b>38.0%</b>		<b>53.0%</b>
Total Capital (\$mill)	--	--	--	2995.3	3042.9	3080.7	3153.5	3328.1	3415.5	3815.7	<b>6600</b>	<b>6820</b>		<b>8000</b>
Net Plant (\$mill)	--	--	--	3293.7	3511.9	3731.6	4007.6	4283.7	4565.2	4867.1	<b>5150</b>	<b>5380</b>		<b>6000</b>
Return on Total Cap'l	--	--	--	4.4%	4.7%	5.2%	5.8%	5.9%	6.4%	6.0%	<b>5.0%</b>	<b>5.0%</b>		<b>5.0%</b>
Return on Shr. Equity	--	--	--	6.1%	6.5%	7.4%	8.2%	8.4%	8.8%	8.8%	<b>8.5%</b>	<b>8.5%</b>		<b>6.5%</b>
Return on Com Equity	--	--	--	6.1%	6.5%	7.4%	8.2%	8.4%	8.8%	8.8%	<b>8.5%</b>	<b>8.5%</b>		<b>6.5%</b>
Retained to Com Eq	--	--	--	3.7%	3.1%	3.5%	3.7%	3.7%	3.8%	3.7%	<b>3.5%</b>	<b>3.0%</b>		<b>3.0%</b>
All Div's to Net Prof	--	--	--	40%	53%	52%	55%	56%	56%	58%	<b>61%</b>	<b>62%</b>		<b>59%</b>

The shares of ONE Gas, Inc. began trading "regular-way" on the New York Stock Exchange on February 3, 2014. That happened as a result of the separation of ONEOK's natural gas distribution operation. Regarding the details of the spinoff, on January 31, 2014, ONEOK distributed one share of OGS common stock for every four shares of ONEOK common stock held by ONEOK shareholders of record as of the close of business on January 21. It should be mentioned that ONEOK did not retain any ownership interest in the new company.

**CAPITAL STRUCTURE as of 6/30/21**  
Total Debt \$4082.8 mill. Due in 5 Yrs \$1020.0 mill.  
LT Debt \$4082.8 mill. LT Interest \$150.0 mill.  
(LT interest earned: 4.8x; total interest coverage: 4.8x)  
Leases, Uncapitalized Annual rentals \$7.9 mill.  
Pfd Stock None  
Pension Assets-12/20 \$987.6 mill.  
Obliq. \$1077.6 mill.

Common Stock 53,500,783 shs.  
as of 7/26/21  
MARKET CAP: \$3.9 billion (Mid Cap)

**CURRENT POSITION (SMILL)**

	2019	2020	6/30/21
Cash Assets	17.9	8.0	209.1
Other	488.3	531.9	394.6
Current Assets	506.2	539.9	603.7
Accts Payable	120.5	152.3	158.4
Debt Due	516.5	418.2	--
Other	235.7	226.6	210.9
Current Liab.	872.7	797.1	369.3
Fix. Chg. Cov.	567%	587%	595%

**ANNUAL RATES**

	Past 10 Yrs.	Past 5 Yrs.	Est'd '18-'20 to '24-'26
Revenues	--	-1.0%	6.0%
"Cash Flow"	--	8.0%	6.0%
Earnings	--	10.0%	6.5%
Dividends	--	14.5%	7.0%
Book Value	--	3.0%	10.5%

**QUARTERLY REVENUES (\$ mill.)**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2018	638.5	292.5	238.3	464.4	1633.7
2019	661.0	290.6	248.6	452.5	1652.7
2020	528.2	273.3	244.6	484.2	1530.3
2021	625.3	315.6	257	477.1	1675
2022	650	355	300	505	1810

**EARNINGS PER SHARE <sup>A</sup>**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2018	1.72	.39	.31	.83	3.25
2019	1.76	.46	.33	.96	3.51
2020	1.72	.48	.39	1.09	3.68
2021	1.79	.56	.42	1.08	3.85
2022	1.85	.60	.47	1.13	4.05

**QUARTERLY DIVIDENDS PAID <sup>B</sup>**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2017	.42	.42	.42	.42	1.68
2018	.46	.46	.46	.46	1.84
2019	.50	.50	.50	.50	2.00
2020	.54	.54	.54	.54	2.16
2021	.58	.58	.58	.58	2.32

**BUSINESS:** ONE Gas, Inc. provides natural gas distribution services to more than two million customers. There are three divisions: Oklahoma Natural Gas, Kansas Gas Service, and Texas Gas Service. The company purchased 153 Bcf of natural gas supply in 2020, compared to 174 Bcf in 2019. Total volumes delivered by customer (fiscal 2020): transportation, 58.3%; residential, 31.7%; commercial & industrial, 9.4%; other, .6%. ONE Gas has around 3,600 employees. BlackRock owns 11.9% of common stock; The Vanguard Group, 9.7%; American Century Investment, 7.6%; officers and directors, 1.9% (4/21 Proxy). CEO: Robert S. McAnnally. Incorporated: Oklahoma. Address: 15 East Fifth Street, Tulsa, Oklahoma 74103. Tel.: 918-947-7000. Internet: www.onegas.com.

**Profits for ONE Gas have been decent so far this year.** In fact, through the first half, share net of \$2.35 was 7% higher than the 2020 tally of \$2.20. That stemmed partly from benefits from new rates, primarily in Texas and Oklahoma. Another plus was an expanded customer base in Oklahoma and Texas. The effective income tax rate was lower, too. Although the company is not out of the woods yet as far as COVID-19 goes, it seems that full-year earnings will advance almost 5%, to \$3.85 a share, relative to the 2020 figure of \$3.68. Assuming additional expansion of operating margins in 2022, share net stands to increase at a similar percentage rate, to \$4.05.

**There's a new CEO.** Pierce H. Norton II stepped down in late June to become the head of ONEOK Inc. (ONE Gas was spun off from that company in early 2014 via the distribution of OGS common stock to ONEOK shareholders.) His successor, Robert S. McAnnally, has held some important positions since coming on board six years ago, the latest one being chief operating officer. So, we believe ONE Gas is in capable hands.

**Prospects out to mid-decade appear promising.** The company remains the top natural gas distributor (as measured by customer count) in both Oklahoma and Kansas, and holds the number-three spot in Texas. Furthermore, we think those markets have decent growth possibilities and are located in one of the most active drilling regions in the United States. Too, ONE Gas seems capable of meeting its working capital requirements, capital expenditures, and other obligations for a while.

**There are risks to consider, however.** The company's lack of geographic diversification leaves it somewhat more vulnerable to regional economic downturns and regulations. Also, there's competition from other energy suppliers, including electric companies and propane dealers. Finally, pipeline ruptures, leaks, and other unfortunate occurrences can take a big bite out of profits if not adequately covered by insurance.

**The stock, though untimely, may appeal to total return-minded investors with a long-term stance.**  
*Frederick L. Harris, III August 27, 2021*

(A) Diluted EPS. Excludes nonrecurring gain: 2017, \$0.06. Next earnings report due early Nov. Quarterly EPS for 2018 don't add up due to rounding.  
(B) Dividends historically paid in early March, June, Sept., and Dec. ■ Dividend reinvestment plan. Direct stock purchase plan.  
(C) In millions.

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Company's Financial Strength	B++
Stock's Price Stability	95
Price Growth Persistence	70
Earnings Predictability	100

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SOUTH JERSEY INDS. NYSE-SJI				RECENT PRICE	25.32	P/E RATIO	14.8 (Trailing: 26.7; Median: 19.0)	RELATIVE P/E RATIO	0.77	DIV'D YLD	5.1%	VALUE LINE																																																																																																																																																																																																																													
<b>TIMELINESS</b> 5 Lowered 5/28/21	High: 27.1	29.0	29.0	31.1	30.6	30.4	34.8	38.4	36.7	34.5	33.4	29.2	Target Price Range 2024 2025 2026																																																																																																																																																																																																																												
<b>SAFETY</b> 3 Lowered 8/28/20	Low: 18.6	21.4	22.9	25.3	25.9	21.2	22.1	30.8	26.0	26.6	18.2	20.8																																																																																																																																																																																																																													
<b>TECHNICAL</b> 2 Raised 7/23/21	<b>LEGENDS</b> 0.70 x Dividends p sh divided by Interest Rate . . . . Relative Price Strength 2-for-1 split 5/15 Options: Yes Shaded area indicates recession																																																																																																																																																																																																																																								
<b>BETA</b> 1.05 (1.00 = Market)	<b>18-Month Target Price Range</b> Low-High Midpoint (% to Mid) \$10-\$36 \$23 (-10%)																																																																																																																																																																																																																																								
<b>2024-26 PROJECTIONS</b> <table border="1"> <thead> <tr> <th></th> <th>Price</th> <th>Gain</th> <th>Ann'l Total Return</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>50</td> <td>(+95%)</td> <td>22%</td> </tr> <tr> <td>Low</td> <td>35</td> <td>(+40%)</td> <td>13%</td> </tr> </tbody> </table>														Price	Gain	Ann'l Total Return	High	50	(+95%)	22%	Low	35	(+40%)	13%																																																																																																																																																																																																																	
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<b>CAPITAL STRUCTURE as of 6/30/21</b> Total Debt \$3293.1 mill. Due in 5 Yrs \$380.1 mill. LT Debt \$3177.4 mill. LT Interest \$100 mill.				828.6	706.3	731.4	887.0	959.6	1036.5	1243.1	1641.3	1628.6	1541.4	1800	1950	Revenues (\$mill)	2500																																																																																																																																																																																																																								
				87.0	93.3	97.1	104.0	99.0	102.8	98.1	116.2	103.0	163.0	180	205	Net Profit (\$mill)	320																																																																																																																																																																																																																								
				22.4%	10.8%	--	--	5.9%	42.0%	--	--	--	9.9%	22.0%	21.0%	Income Tax Rate	21.0%																																																																																																																																																																																																																								
				10.5%	13.2%	13.3%	11.7%	10.3%	9.9%	7.9%	7.1%	6.3%	10.6%	10.0%	10.5%	Net Profit Margin	12.8%																																																																																																																																																																																																																								
<b>Leases, Uncapitalized Annual rentals \$1.2 mill.</b> <b>Pension Assets-12/20 \$331 mill.</b> <b>Oblig. \$481.8 mill.</b>				40.5%	45.0%	45.1%	48.0%	49.2%	38.5%	48.5%	62.4%	59.2%	62.6%	63.5%	63.5%	Long-Term Debt Ratio	61.5%																																																																																																																																																																																																																								
				59.5%	55.0%	54.9%	52.0%	50.8%	61.5%	51.5%	37.6%	40.8%	37.4%	36.5%	36.5%	Common Equity Ratio	38.5%																																																																																																																																																																																																																								
<b>Prfd Stock None</b> <b>Common Stock 112,447,099 shs.</b> <b>as of 8/1/21</b>				1048.3	1337.6	1507.4	1791.9	2043.9	2097.2	2315.4	3373.9	3493.9	4437.3	5125	5450	Total Capital (\$mill)	6500																																																																																																																																																																																																																								
				1352.4	1578.0	1859.1	2134.1	2448.1	2623.8	2700.2	3653.5	4073.5	4464.2	4800	5150	Net Plant (\$mill)	5800																																																																																																																																																																																																																								
				8.9%	7.4%	6.8%	6.4%	5.4%	5.4%	5.1%	4.4%	4.0%	4.8%	4.5%	4.5%	Return on Total Cap'l	6.0%																																																																																																																																																																																																																								
				13.9%	12.7%	11.7%	11.2%	9.5%	8.0%	8.2%	9.2%	7.2%	9.8%	9.5%	10.5%	Return on Shr. Equity	13.0%																																																																																																																																																																																																																								
				13.9%	12.7%	11.7%	11.2%	9.5%	8.0%	8.2%	9.2%	7.2%	9.8%	9.5%	10.5%	Return on Com Equity	13.0%																																																																																																																																																																																																																								
				6.7%	5.8%	4.8%	4.3%	2.8%	1.6%	.9%	1.7%	NMF	2.9%	2.0%	2.5%	Retained to Com Eq	5.5%																																																																																																																																																																																																																								
				52%	55%	59%	61%	71%	80%	89%	82%	104%	70%	74%	All Div'ds to Net Prof	56%																																																																																																																																																																																																																									
<b>MARKET CAP: \$2.8 billion (Mid Cap)</b>				<b>BUSINESS:</b> South Jersey Industries, Inc. is a holding company. The company distributes natural gas in New Jersey and Maryland. South Jersey Gas rev. mix '20: residential, 48%; commercial, 23%; cogen. and electric gen., 9%; industrial, 20%. Acq. Elizabethtown Gas and Elkton Gas, 7/18. Nonutil. oper. incl. South Jersey Energy, South Jersey Resources Group, South Jersey Exploration, Marina Energy, South Jersey Energy Service Plus, and SJI Midstream. Has about 1,130 empl. Off.dir. own less than 1% of common; BlackRock, 14.4%; State Street Corporation, 13.9%; The Vanguard Group, 10.8% (3/21 proxy). Pres. & CEO: Michael J. Renna. Chairman: Joseph M. Rigby, Inc.: NJ. Addr.: 1 South Jersey Plaza, Folsom, NJ 08037. Tel.: 609-561-9000. Web: www.sjindustries.com.																																																																																																																																																																																																																																					
<b>ANNUAL RATES</b> Past 10 Yrs. Past 5 Yrs. Est'd '18-'20 to '24-'26 of change (per sh) Revenues 1.5% 6.5% 3.0% "Cash Flow" 4.5% 3.0% 6.0% Earnings 1.5% -1.5% 11.5% Dividends 6.5% 4.0% 4.5% Book Value 5.5% 2.5% 5.0%				<b>Shares of South Jersey Industries have traded in a fairly narrow range in recent months.</b> The company reported solid results for the June quarter. The top line increased roughly 20%, on a year-over-year basis. Adjusted earnings per share of \$0.02 marked a nice improvement over the prior-year deficit of \$0.01. Utility South Jersey Gas benefited from continued growth in the customer base as well as infrastructure modernization programs. An increase in adjusted earnings here was partly offset by losses incurred at Elizabethtown Gas, owing to greater operating and depreciation expenses. Meanwhile, the Energy Management business has capitalized on improved asset optimization opportunities and additional fuel management contracts. Elsewhere, fuel cell and solar investments have paid off at the Energy Production segment. On a GAAP basis, South Jersey reported a share deficit of \$0.87 for the recent interim. This was mostly due to an impairment charge of \$87.4 million (\$0.79 per share) related to the company's investment in the Penn East Pipeline.																																																																																																																																																																																																																																					
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2020	1.15	d.01	d.06	.62	1.68																																																																																																																																																																																																																																				
2021	1.26	.02	d.15	.52	1.65																																																																																																																																																																																																																																				
2022	1.32	.02	d.07	.58	1.85																																																																																																																																																																																																																																				
<table border="1"> <thead> <tr> <th>Cal-endar</th> <th colspan="4">QUARTERLY DIVIDENDS PAID <sup>B</sup></th> <th>Full Year</th> </tr> <tr> <th></th> <th>Mar.31</th> <th>Jun.30</th> <th>Sep.30</th> <th>Dec.31</th> <th></th> </tr> </thead> <tbody> <tr> <td>2017</td> <td>--</td> <td>.273</td> <td>.273</td> <td>.553</td> <td>1.10</td> </tr> <tr> <td>2018</td> <td>--</td> <td>.280</td> <td>.280</td> <td>.567</td> <td>1.13</td> </tr> <tr> <td>2019</td> <td>--</td> <td>.287</td> <td>.287</td> <td>.582</td> <td>1.16</td> </tr> <tr> <td>2020</td> <td>--</td> <td>.295</td> <td>.295</td> <td>.598</td> <td>1.19</td> </tr> <tr> <td>2021</td> <td>--</td> <td>.303</td> <td>.303</td> <td></td> <td></td> </tr> </tbody> </table>				Cal-endar	QUARTERLY DIVIDENDS PAID <sup>B</sup>				Full Year		Mar.31	Jun.30	Sep.30	Dec.31		2017	--	.273	.273	.553	1.10	2018	--	.280	.280	.567	1.13	2019	--	.287	.287	.582	1.16	2020	--	.295	.295	.598	1.19	2021	--	.303	.303			<b>Long-term prospects appear to be relatively favorable here.</b>																																																																																																																																																																																											
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2021	--	.303	.303																																																																																																																																																																																																																																						
<b>(A)</b> Based on economic eggs. from 2007. GAAP EPS: '10, \$1.11; '11, \$1.49; '12, \$1.49; '13, \$1.28; '14, \$1.46; '15, \$1.52; '16, \$1.56; '17, (\$0.04); '18, \$0.21; '19, \$0.84; '20, \$1.62. Excl. nonrecur. gain (loss): '10, (\$0.24); '11, \$0.04; '12, (\$0.03); '13, (\$0.24); '14, (\$0.11); '15, \$0.08; '16, \$0.22; '17, (\$1.27); '18, (\$1.17); '19, (\$0.28); '20, (\$0.06). Next eggs. rpt. due early November.				<b>(B)</b> Div'ds paid early April, July, Oct., and late Dec. ■ Div. reinvest. plan avail.				<b>(C)</b> Incl. reg. assets. In 2020: \$674.0 mill., \$6.70 per shr.				<b>(D)</b> In mill., adj. for split.																																																																																																																																																																																																																													
<b>Company's Financial Strength</b> B++ <b>Stock's Price Stability</b> 60 <b>Price Growth Persistence</b> 20 <b>Earnings Predictability</b> 65				<b>To subscribe call 1-800-VALUELINE</b>																																																																																																																																																																																																																																					

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SPIRE INC. NYSE-SR				RECENT PRICE	P/E RATIO	TRAILING P/E RATIO	RELATIVE P/E RATIO	DIV'D YLD	VALUE LINE																		
<b>TIMELINESS</b> 4 Lowered 8/20/21 <b>SAFETY</b> 2 Raised 6/20/03 <b>TECHNICAL</b> 3 Lowered 7/2/21 <b>BETA</b> .85 (1.00 = Market)				72.28	17.9	(Trailing: 15.1) (Median: 19.0)	0.94	3.7%																			
<b>18-Month Target Price Range</b> Low-High Midpoint (% to Mid) \$37-\$92 \$65 (-10%)										<b>Target Price Range</b> 2024 2025 2026																	
<b>2024-26 PROJECTIONS</b> Price Gain Ann'l Total Return High Low 130 95 (+80%) (+30%) 18% 10%										<b>% TOT. RETURN 7/21</b> THIS STOCK INDEX VL ARITH.* 1 yr. 19.6 55.5 3 yr. 9.5 48.6 5 yr. 20.1 95.5																	
<b>Institutional Decisions</b> 3Q2020 4Q2020 1Q2021 to Buy 145 131 124 to Sell 121 148 139 Hid's(000) 40642 41028 42475				<b>Percent shares traded</b> 18 12 6																							
				2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	© VALUE LINE PUB. LLC	24-26				
				75.43	93.51	93.40	100.44	85.49	77.83	71.48	49.90	31.10	37.68	45.59	33.68	36.07	38.78	38.30	35.96	42.30	37.75	Revenues per sh <sup>A</sup>	58.20				
				2.98	3.81	3.87	4.22	4.56	4.11	4.62	4.58	3.12	3.87	6.15	6.16	6.54	7.55	7.12	5.25	8.75	8.10	"Cash Flow" per sh	10.50				
				1.90	2.37	2.31	2.64	2.92	2.43	2.86	2.79	2.02	2.35	3.16	3.24	3.43	4.33	3.52	1.44	4.70	4.00	Earnings per sh <sup>A B</sup>	5.50				
				1.37	1.40	1.45	1.49	1.53	1.57	1.61	1.66	1.70	1.76	1.84	1.96	2.10	2.25	2.37	2.49	2.60	2.72	2.80	Div'ds Decl'd per sh <sup>C</sup>	3.10			
				2.84	2.97	2.72	2.57	2.36	2.56	3.02	4.83	4.00	3.96	6.68	6.42	9.08	9.86	16.15	12.37	11.35	10.95	Cap'l Spending per sh	11.45				
				17.31	18.85	19.79	22.12	23.32	24.02	25.56	26.67	32.00	34.93	36.30	38.73	41.26	44.51	45.14	44.19	47.95	50.90	50.90	Book Value per sh <sup>D</sup>	70.60			
				21.17	21.36	21.65	21.99	22.17	22.29	22.43	22.55	32.70	43.18	43.36	45.65	48.26	50.67	50.97	51.60	52.00	53.00	53.00	Common Shs Outst'g <sup>E</sup>	55.00			
				16.2	13.6	14.2	14.3	13.4	13.7	13.0	14.5	21.3	19.8	16.5	19.6	19.8	16.7	22.8	22.8	NMF	NMF	NMF	Avg Ann'l P/E Ratio	20.5			
				.86	.73	.75	.86	.89	.87	.92	1.20	1.04	.83	1.03	1.00	.90	.90	1.21	1.21	NMF	NMF	NMF	Relative P/E Ratio	1.15			
				4.4%	4.3%	4.4%	3.9%	3.9%	4.7%	4.3%	4.1%	4.0%	3.8%	3.5%	3.1%	3.1%	3.1%	3.0%	3.4%	3.4%	3.4%	3.4%	Avg Ann'l Div'd Yield	2.8%			
<b>CAPITAL STRUCTURE as of 6/30/21</b> Total Debt \$3510.8 mill. Due in 5 Yrs \$1720.0 mill. LT Debt \$2939.0 mill. LT Interest \$135.0 mill. (Total interest coverage: 2.0x)				1603.3	1125.5	1017.0	1627.2	1976.4	1537.3	1740.7	1965.0	1952.4	1855.4	2200	2000	2000	2000	2000	2000	2000	2000	2000	2000	Revenues (\$mill) <sup>A</sup>	3200		
				63.8	62.6	52.8	84.6	136.9	144.2	161.6	214.2	184.6	88.6	245	210	210	210	210	210	210	210	210	210	Net Profit (\$mill)	300		
				31.4%	29.6%	25.0%	27.6%	31.2%	32.5%	32.4%	32.4%	15.7%	12.3%	20.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	Income Tax Rate	23.5%		
				4.0%	5.6%	5.2%	5.2%	6.9%	9.4%	9.3%	10.9%	9.5%	4.8%	11.1%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	Net Profit Margin	9.4%		
				38.9%	36.1%	46.6%	55.1%	53.0%	50.9%	50.0%	45.7%	45.0%	49.0%	52.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	Long-Term Debt Ratio	45.0%	
<b>Leases, Uncapitalized Annual rentals \$8.8 mill.</b> <b>Pension Assets-9/20 \$897.9 mill.</b> <b>Pfd Stock \$242.0 mill.</b> <b>Common Stock 51,684,120 shs. as of 7/31/21</b>				61.1%	63.9%	53.4%	44.9%	47.0%	49.1%	50.0%	54.3%	55.0%	51.0%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%	Cap'l Spending per sh	11.45
				937.7	941.0	1959.0	3359.4	3345.1	3601.9	3986.3	4155.5	4625.6	4946.0	5700	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	Total Capital (\$mill)	7500	
				928.7	1019.3	1776.6	2759.7	2941.2	3300.9	3665.2	3970.5	4352.0	4680.1	5050	5350	5350	5350	5350	5350	5350	5350	5350	5350	5350	Net Plant (\$mill)	6800	
				8.1%	7.9%	3.3%	3.1%	5.1%	4.9%	5.0%	6.3%	5.1%	2.9%	6.0%	5.0%	5.1%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	Return on Total Cap'l	5.5%	
				11.1%	10.4%	5.0%	5.6%	8.7%	8.2%	8.1%	9.5%	7.3%	3.5%	9.0%	7.0%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	Return on Shr. Equity	7.5%	
				11.1%	10.4%	5.0%	5.6%	8.7%	8.2%	8.1%	9.5%	7.9%	3.2%	9.0%	7.0%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	Return on Com Equity	7.5%	
				4.9%	4.3%	1.0%	1.5%	3.7%	3.3%	3.3%	4.7%	2.7%	3.5%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	Retained to Com Eq	3.0%	
				56%	59%	81%	73%	58%	59%	60%	51%	66%	NMF	61%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	All Div'ds to Net Prof	62%	
<b>MARKET CAP: \$3.7 billion (Mid Cap)</b>				<b>BUSINESS:</b> Spire Inc., formerly known as the Laclede Group, Inc., is a holding company for natural gas utilities, which distributes natural gas across Missouri, including the cities of St. Louis and Kansas City, Alabama, and Mississippi. Has roughly 1.7 million customers. Acquired Missouri Gas 9/13, Alabama Gas Co 9/14. Utility terms sold and transported in fiscal 2020: 3.3 bill. Revenue mix for regulated operations: residential, 68%; commercial and industrial, 22%; transportation, 6%; other, 4%. Has about 3,583 employees. Officers and directors own 3.0% of common shares; BlackRock, 12.0% (1/21 proxy). Chairman: Edward Glotzbach; CEO: Suzanne Sitherwood, Inc.: Missouri. Address: 700 Market Street, St. Louis, Missouri 63101. Tel.: 314-342-0500. Internet: www.spireenergy.com.																							
<b>CURRENT POSITION</b> 2019 2020 6/30/21 (\$MILL.)				<b>Spire Inc. seems to be headed toward a record fiscal 2021, which ends on September 30th.</b> Through the first nine months, earnings per share were \$5.23, some 2.7 times higher than the year-ago tally of \$1.91 (hurt by the effects of the coronavirus). One supporting factor was the Gas Utility unit, aided by increased Infrastructure System Replacement Surcharge (ISRS) revenues for the Missouri operations, the impact of colder weather, plus rate adjustments at Spire Alabama. Furthermore, favorable market conditions, particularly in February when Winter Storm Uri struck parts of the United States, boosted results of the Gas Marketing division. If there are no major downside surprises in the fourth quarter, it appears that full-year profits will surge more than threefold, to \$4.70 a share, compared to the fiscal 2020 total of \$1.44. Concerning fiscal 2022, we anticipate diminished, though still respectable, share net of \$4.00, given that this year's second-quarter number will be difficult to beat. <b>Corporate finances are in solid condition.</b> When the June period concluded, cash on hand stood at nearly \$24 million.																							
<b>ANNUAL RATES</b> Past 10 Yrs. Past 5 Yrs. Est'd '18-'20 of change (per sh)				<b>Moreover, there was \$975 million available through a revolving credit facility expiring in October, 2023. Also, long-term debt was a manageable 52% of total capital, and short-term obligations were not a big obstacle. So, the company should continue to satisfy its various commitments with little trouble.</b>																							
<b>Revenues</b> -8.0% 7.5% <b>"Cash Flow"</b> 4.5% 8.0% <b>Earnings</b> 1.5% 4.5% 10.0% <b>Dividends</b> 4.5% 6.0% 4.5% <b>Book Value</b> 7.0% 5.5% 7.5%				<b>Prospects out to mid-decade look decent.</b> The gas utilities boast 1.7 million customers in Mississippi, Alabama, and Missouri, providing a measure of regional diversity. Furthermore, the other businesses, especially pipelines, hold promise. Additional expansionary projects and technological enhancements in customer service and elsewhere ought to help Spire, as well. Lastly, acquisitions are possible, supported, of course, by the healthy balance sheet. <b>The good-quality stock ought to draw the interest of total return-focused accounts with a long-term view.</b> Capital appreciation potential during the 2024-2026 period seems appealing. Consider, also, the promising dividend growth possibilities. But these shares are untimely. <i>Frederick L. Harris, III August 27, 2021</i>																							
<b>Fiscal Year Ends</b> QUARTERLY REVENUES (\$ mill.) <sup>A</sup> Full Fiscal Year				<b>Moreover, there was \$975 million available through a revolving credit facility expiring in October, 2023. Also, long-term debt was a manageable 52% of total capital, and short-term obligations were not a big obstacle. So, the company should continue to satisfy its various commitments with little trouble.</b>																							
<b>2018</b> 561.8 813.4 350.6 239.2 1965.0 <b>2019</b> 602.0 803.5 321.3 225.6 1952.4 <b>2020</b> 566.9 715.5 321.1 251.9 1855.4 <b>2021</b> 512.6 1104.9 327.8 254.7 2200 <b>2022</b> 530 892 325 253 2000				<b>Prospects out to mid-decade look decent.</b> The gas utilities boast 1.7 million customers in Mississippi, Alabama, and Missouri, providing a measure of regional diversity. Furthermore, the other businesses, especially pipelines, hold promise. Additional expansionary projects and technological enhancements in customer service and elsewhere ought to help Spire, as well. Lastly, acquisitions are possible, supported, of course, by the healthy balance sheet. <b>The good-quality stock ought to draw the interest of total return-focused accounts with a long-term view.</b> Capital appreciation potential during the 2024-2026 period seems appealing. Consider, also, the promising dividend growth possibilities. But these shares are untimely. <i>Frederick L. Harris, III August 27, 2021</i>																							
<b>Fiscal Year Ends</b> EARNINGS PER SHARE <sup>A B F</sup> Full Fiscal Year				<b>Prospects out to mid-decade look decent.</b> The gas utilities boast 1.7 million customers in Mississippi, Alabama, and Missouri, providing a measure of regional diversity. Furthermore, the other businesses, especially pipelines, hold promise. Additional expansionary projects and technological enhancements in customer service and elsewhere ought to help Spire, as well. Lastly, acquisitions are possible, supported, of course, by the healthy balance sheet. <b>The good-quality stock ought to draw the interest of total return-focused accounts with a long-term view.</b> Capital appreciation potential during the 2024-2026 period seems appealing. Consider, also, the promising dividend growth possibilities. But these shares are untimely. <i>Frederick L. Harris, III August 27, 2021</i>																							
<b>2018</b> 2.39 2.03 .52 d.51 4.33 <b>2019</b> 1.32 3.04 d.09 d.74 3.52 <b>2020</b> 1.24 2.54 d1.87 d.45 1.44 <b>2021</b> 1.65 3.55 .03 d.53 4.70 <b>2022</b> 1.75 2.78 .05 d.58 4.00				<b>Prospects out to mid-decade look decent.</b> The gas utilities boast 1.7 million customers in Mississippi, Alabama, and Missouri, providing a measure of regional diversity. Furthermore, the other businesses, especially pipelines, hold promise. Additional expansionary projects and technological enhancements in customer service and elsewhere ought to help Spire, as well. Lastly, acquisitions are possible, supported, of course, by the healthy balance sheet. <b>The good-quality stock ought to draw the interest of total return-focused accounts with a long-term view.</b> Capital appreciation potential during the 2024-2026 period seems appealing. Consider, also, the promising dividend growth possibilities. But these shares are untimely. <i>Frederick L. Harris, III August 27, 2021</i>																							
<b>Calendar</b> QUARTERLY DIVIDENDS PAID <sup>C</sup> Full Year				<b>Prospects out to mid-decade look decent.</b> The gas utilities boast 1.7 million customers in Mississippi, Alabama, and Missouri, providing a measure of regional diversity. Furthermore, the other businesses, especially pipelines, hold promise. Additional expansionary projects and technological enhancements in customer service and elsewhere ought to help Spire, as well. Lastly, acquisitions are possible, supported, of course, by the healthy balance sheet. <b>The good-quality stock ought to draw the interest of total return-focused accounts with a long-term view.</b> Capital appreciation potential during the 2024-2026 period seems appealing. Consider, also, the promising dividend growth possibilities. But these shares are untimely. <i>Frederick L. Harris, III August 27, 2021</i>																							
<b>2017</b> .525 .525 .525 .525 2.10 <b>2018</b> .5625 .5625 .5625 .5625 2.25 <b>2019</b> .5925 .5925 .5925 .5925 2.37 <b>2020</b> .6225 .6225 .6225 .6225 2.49 <b>2021</b> .65 .65 .65 .65				<b>Prospects out to mid-decade look decent.</b> The gas utilities boast 1.7 million customers in Mississippi, Alabama, and Missouri, providing a measure of regional diversity. Furthermore, the other businesses, especially pipelines, hold promise. Additional expansionary projects and technological enhancements in customer service and elsewhere ought to help Spire, as well. Lastly, acquisitions are possible, supported, of course, by the healthy balance sheet. <b>The good-quality stock ought to draw the interest of total return-focused accounts with a long-term view.</b> Capital appreciation potential during the 2024-2026 period seems appealing. Consider, also, the promising dividend growth possibilities. But these shares are untimely. <i>Frederick L. Harris, III August 27, 2021</i>																							

(A) Fiscal year ends Sept. 30th. (B) Based on diluted shares outstanding. Excludes nonrecurring loss: '06, 7c. Excludes gain from discontinued operations: '08, 94c. Next earnings report due late Oct. (C) Dividends paid in early January, April, July, and October. (D) Dividend reinvestment plan available. (E) Incl. deferred charges. In '20: \$1,171.6 mill., \$2.71/sh. (F) In millions. (G) Qly. egs. may not sum due to rounding or change in shares outstanding.

Company's Financial Strength B++  
 Stock's Price Stability 90  
 Price Growth Persistence 60  
 Earnings Predictability 50

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Atmos Energy Corporation  
Summary of Risk Premium Models for the  
Proxy Group of Seven Natural Gas Distribution Companies

	<u>Proxy Group of Seven Natural Gas Distribution Companies</u>
Predictive Risk Premium Model (PRPM) (1)	10.06 %
Risk Premium Using an Adjusted Total Market Approach (2)	<u>10.53 %</u>
Average	<u><u>10.30 %</u></u>

Notes:

- (1) From page 12 of this Schedule.
- (2) From page 13 of this Schedule.



Atmos Energy Corporation  
Indicated ROE  
Derived by the Predictive Risk Premium Model (1)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Proxy Group of Seven Natural Gas Distribution Companies	L.T Average Predicted Variance	Spot Predicted Variance	Recommended Variance (2)	GARCH Coefficient	Predicted Risk Premium (3)	Risk-Free Rate (4)	Indicated ROE (5)
Atmos Energy Corporation	0.33%	0.34%	0.34%	2.1709	9.10%	2.76%	11.86%
New Jersey Resources Corporation	0.38%	0.31%	0.35%	1.9844	8.62%	2.76%	11.38%
Northwest Natural Holding Company	0.32%	0.24%	0.28%	1.4655	5.09%	2.76%	7.85%
ONE Gas, Inc.	0.31%	0.34%	0.32%	3.1382	12.86%	2.76%	NMF
South Jersey Industries, Inc.	0.39%	0.44%	0.41%	1.5681	8.09%	2.76%	10.85%
Southwest Gas Holdings, Inc.	0.43%	0.32%	0.38%	1.3697	6.37%	2.76%	9.13%
Spire Inc.	0.71%	0.42%	0.57%	0.9298	6.51%	2.76%	9.27%
						Average	10.06%
						Median	10.06%
						Average of Mean and Median	10.06%

Notes:

- (1) The Predictive Risk Premium Model uses historical data to generate a predicted variance and a GARCH coefficient. The historical data used are the equity risk premiums for the first available trading month as reported by Bloomberg Professional Service.
- (2) Given current market conditions, I recommend using average of the the long-term average predicted variance and the spot variance.
- (3)  $(1 + (\text{Column [3]} * \text{Column [4]})^{12}) - 1$ .
- (4) From note 2 on page 25 of this Schedule.
- (5) Column [5] + Column [6].

Atmos Energy Corporation  
Indicated Common Equity Cost Rate  
Through Use of a Risk Premium Model  
Using an Adjusted Total Market Approach

<u>Line No.</u>		<u>Proxy Group of Seven Natural Gas Distribution Companies</u>
1.	Prospective Yield on Aaa Rated Corporate Bonds (1)	3.50 %
2.	Adjustment to Reflect Yield Spread Between Aaa Rated Corporate Bonds and A2 Rated Public Utility Bonds	<u>0.40</u> (2)
3.	Adjusted Prospective Yield on A2 Rated Public Utility Bonds	3.90 %
4.	Adjustment to Reflect Bond Rating Difference of Proxy Group	<u>0.04</u> (3)
5.	Adjusted Prospective Bond Yield	3.94 %
6.	Equity Risk Premium (4)	<u>6.59</u>
7.	Risk Premium Derived Common Equity Cost Rate	<u><u>10.53</u></u> %

Notes: (1) Consensus forecast of Moody's Aaa Rated Corporate bonds from Blue Chip Financial Forecasts (see pages 20 and 21 of this Schedule).

(2) The average yield spread of A2 rated public utility bonds over Aaa rated corporate bonds of 0.40% from page 14 of this Schedule.

(3) Adjustment to reflect the A2/A3 Moody's LT issuer rating of the Utility Proxy Group as shown on page 15 of this Schedule. The 0.04% upward adjustment is derived by taking 1/6 of the spread between A2 and Baa2 Public Utility Bonds ( $1/6 * 0.24\% = 0.04\%$ ) as derived from page 14 of this Schedule.

(4) From page 17 of this Schedule.

Atmos Energy Corporation  
Interest Rates and Bond Spreads for  
Moody's Corporate and Public Utility Bonds

Selected Bond Yields - Moody's

	[1]	[2]	[3]	[4]
	<u>Aaa Rated Corporate Bond</u>	<u>Aa2 Rated Public Utility Bond</u>	<u>A2 Rated Public Utility Bond</u>	<u>Baa2 Rated Public Utility Bond</u>
Sep-2021	2.53 %	2.84 %	2.96 %	3.19 %
Aug-2021	2.55	2.82	2.95	3.19
Jul-2021	<u>2.57</u>	<u>2.80</u>	<u>2.95</u>	<u>3.20</u>
Average	<u>2.55 %</u>	<u>2.82 %</u>	<u>2.95 %</u>	<u>3.19 %</u>

Selected Bond Spreads

A2 Rated Public Utility Bonds Over Aaa Rated Corporate Bonds:	<u>0.40 % (1)</u>
Baa2 Rated Public Utility Bonds Over A2 Rated Public Utility Bonds:	<u>0.24 % (2)</u>
A2 Rated Public Utility Bonds Over Aa2 Rated Public Utility Bonds:	<u>0.13 % (3)</u>

Notes:

- (1) Column [3] - Column [1].
- (2) Column [4] - Column [3].
- (3) Column [3] - Column [2].

Source of Information:

Bloomberg Professional Service

Atmos Energy Corporation  
Comparison of Long-Term Issuer Ratings for  
Proxy Group of Seven Natural Gas Distribution Companies

	<u>Moody's</u>		<u>Standard &amp; Poor's</u>	
	<u>Long-Term Issuer Rating</u>		<u>Long-Term Issuer Rating</u>	
	<u>September 2021</u>		<u>September 2021</u>	
<u>Proxy Group of Seven Natural Gas Distribution Companies</u>	<u>Long-Term Issuer Rating (1)</u>	<u>Numerical Weighting (2)</u>	<u>Long-Term Issuer Rating (1)</u>	<u>Numerical Weighting (2)</u>
Atmos Energy Corporation	A1	5.0	A-	7.0
New Jersey Resources Corporation	A1	5.0	NR	- -
Northwest Natural Holding Company	Baa1	8.0	A+	5.0
ONE Gas, Inc.	A3	7.0	BBB+	8.0
South Jersey Industries, Inc.	A3	7.0	BBB	9.0
Southwest Gas Holdings, Inc.	Baa1	8.0	BBB	9.0
Spire Inc.	A1/A2	5.5	A-	7.0
Average	<u>A2/A3</u>	<u>6.5</u>	<u>A-/BBB+</u>	<u>7.5</u>

Notes:

(1) Ratings are that of the average of each company's utility operating subsidiaries.

(2) From page 16 of this Schedule.

Source Information: Moody's Investors Service  
Standard & Poor's Global Utilities Rating Service



Numerical Assignment for  
Moody's and Standard & Poor's Bond Ratings

<u>Moody's Bond Rating</u>	<u>Numerical Bond Weighting</u>	<u>Standard &amp; Poor's Bond Rating</u>
Aaa	1	AAA
Aa1	2	AA+
Aa2	3	AA
Aa3	4	AA-
A1	5	A+
A2	6	A
A3	7	A-
Baa1	8	BBB+
Baa2	9	BBB
Baa3	10	BBB-
Ba1	11	BB+
Ba2	12	BB
Ba3	13	BB-
B1	14	B+
B2	15	B
B3	16	B-

Atmos Energy Corporation  
Judgment of Equity Risk Premium for  
Proxy Group of Seven Natural Gas Distribution Companies

Line No.		Proxy Group of Seven Natural Gas Distribution Companies
1.	Calculated equity risk premium based on the total market using the beta approach (1)	8.45 %
2.	Mean equity risk premium based on a study using the holding period returns of public utilities with A rated bonds (2)	5.63
3.	Predicted Equity Risk Premium Based on Regression Analysis of 805 Fully-Litigated Natural Gas Utility Rate Cases	5.68
4.	Average equity risk premium	6.59 %

Notes: (1) From page 18 of this Schedule.  
(2) From page 22 of this Schedule.  
(3) From page 23 of this Schedule.

Atmos Energy Corporation  
Derivation of Equity Risk Premium Based on the Total Market Approach  
Using the Beta for the  
Proxy Group of Seven Natural Gas Distribution Companies

<u>Line No.</u>	<u>Equity Risk Premium Measure</u>	<u>Proxy Group of Seven Natural Gas Distribution Companies</u>
<u>Ibbotson-Based Equity Risk Premiums:</u>		
1.	Ibbotson Equity Risk Premium (1)	5.92 %
2.	Regression on Ibbotson Risk Premium Data (2)	8.76
3.	Ibbotson Equity Risk Premium based on PRPM (3)	7.66
4.	Equity Risk Premium Based on Value Line Summary and Index (4)	6.09
5.	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	12.31
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	<u>13.77</u>
7.	Conclusion of Equity Risk Premium	9.09 %
8.	Adjusted Beta (7)	<u>0.93</u>
9.	Forecasted Equity Risk Premium	<u><u>8.45 %</u></u>

Notes provided on page 19 of this Schedule.

Atmos Energy Corporation  
Derivation of Equity Risk Premium Based on the Total Market Approach  
Using the Beta for the  
Proxy Group of Seven Natural Gas Distribution Companies

Notes:

- (1) Based on the arithmetic mean historical monthly returns on large company common stocks from Duff & Phelps 2021 SBBI® Yearbook minus the arithmetic mean monthly yield of Moody's average Aaa and Aa corporate bonds from 1928-2020.
- (2) This equity risk premium is based on a regression of the monthly equity risk premiums of large company common stocks relative to Moody's average Aaa and Aa rated corporate bond yields from 1928-2020 referenced in Note 1 above.
- (3) The Predictive Risk Premium Model (PRPM) is discussed in the accompanying direct testimony. The Ibbotson equity risk premium based on the PRPM is derived by applying the PRPM to the monthly risk premiums between Ibbotson large company common stock monthly returns and average Aaa and Aa corporate monthly bond yields, from January 1928 through September 2021.
- (4) The equity risk premium based on the Value Line Summary and Index is derived by subtracting the average consensus forecast of Aaa corporate bonds of 3.50% (from page 13 of this Schedule) from the projected 3-5 year total annual market return of 9.59% (described fully in note 1 on page 25 of this Schedule).
- (5) Using data from Value Line for the S&P 500, an expected total return of 15.81% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 3.50% results in an expected equity risk premium of 12.31%.
- (6) Using data from the Bloomberg Professional Service for the S&P 500, an expected total return of 17.27% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 3.50% results in an expected equity risk premium of 13.77%.
- (7) Average of mean and median beta from page 24 of this Schedule.

Sources of Information:

Stocks, Bonds, Bills, and Inflation - 2021 SBBI Yearbook, John Wiley & Sons, Inc.  
Industrial Manual and Mergent Bond Record Monthly Update.  
Value Line Summary and Index  
Blue Chip Financial Forecasts, June 1, 2021, October 1, 2021  
Bloomberg Professional Service

### Consensus Forecasts of U.S. Interest Rates and Key Assumptions

Interest Rates	History								Consensus Forecasts-Quarterly Avg.					
	Average For Week Ending				Average For Month				Latest Qtr	4Q 2021	1Q 2022	3Q 2022	3Q 2022	4Q 2022
	Sep 24	Sep 17	Sep 10	Sep 3	Aug	Jul	Jun	3Q 2021*	2021	2022	2022	2022	2022	2023
Federal Funds Rate	0.08	0.08	0.08	0.08	0.09	0.10	0.08	0.09	0.1	0.1	0.1	0.1	0.2	0.3
Prime Rate	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.3	3.3	3.3	3.3	3.3	3.4
LIBOR, 3-mo.	0.13	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.2	0.2	0.3	0.3	0.4	0.4
Commercial Paper, 1-mo.	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.05	0.1	0.1	0.1	0.2	0.2	0.3
Treasury bill, 3-mo.	0.03	0.04	0.05	0.05	0.05	0.05	0.04	0.05	0.1	0.1	0.1	0.2	0.2	0.3
Treasury bill, 6-mo.	0.05	0.05	0.06	0.06	0.06	0.05	0.05	0.05	0.1	0.1	0.2	0.2	0.3	0.4
Treasury bill, 1 yr.	0.08	0.07	0.08	0.07	0.07	0.08	0.07	0.07	0.1	0.2	0.2	0.3	0.4	0.5
Treasury note, 2 yr.	0.25	0.22	0.23	0.20	0.22	0.22	0.20	0.22	0.3	0.4	0.5	0.5	0.7	0.8
Treasury note, 5 yr.	0.89	0.83	0.81	0.78	0.77	0.76	0.84	0.79	1.0	1.1	1.2	1.3	1.4	1.5
Treasury note, 10 yr.	1.37	1.33	1.35	1.30	1.28	1.32	1.52	1.31	1.5	1.7	1.8	1.9	2.0	2.1
Treasury note, 30 yr.	1.89	1.88	1.95	1.92	1.92	1.94	2.16	1.92	2.2	2.3	2.4	2.5	2.6	2.7
Corporate Aaa bond	2.68	2.67	2.73	2.72	2.72	2.72	2.91	2.71	2.9	3.0	3.1	3.2	3.3	3.4
Corporate Baa bond	3.12	3.11	3.17	3.15	3.16	3.17	3.35	3.16	3.6	3.8	4.0	4.1	4.2	4.3
State & Local bonds	2.67	2.66	2.66	2.65	2.64	2.60	2.64	2.64	2.5	2.6	2.6	2.7	2.8	2.9
Home mortgage rate	2.88	2.86	2.88	2.87	2.84	2.87	2.98	2.86	3.0	3.2	3.4	3.5	3.6	3.7

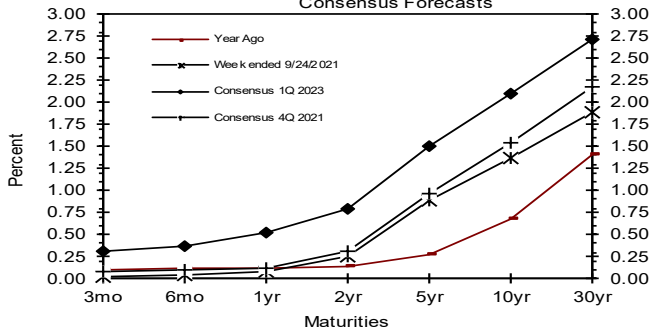
  

Key Assumptions	History								Consensus Forecasts-Quarterly					
	4Q 2019	1Q 2020	2Q 2020	3Q 2020	4Q 2020	1Q 2021	2Q 2021	3Q 2021**	4Q 2021	1Q 2022	3Q 2022	3Q 2022	4Q 2022	1Q 2023
Fed's AFE \$ Index	110.5	111.4	112.4	107.3	105.2	103.4	102.9	105.0	105.5	105.5	105.2	104.9	104.7	104.6
Real GDP	1.9	-5.1	-31.2	33.8	4.5	6.3	6.7	6.4	5.4	4.2	3.8	3.1	2.5	2.4
GDP Price Index	1.5	1.6	-1.5	3.6	2.2	4.3	6.1	4.2	2.9	2.5	2.5	2.5	2.5	2.4
Consumer Price Index	2.6	1.0	-3.1	4.7	2.4	3.7	8.4	5.5	2.8	2.4	2.5	2.4	2.4	2.3
PCE Price Index	1.7	1.3	-1.6	3.7	1.5	3.8	6.5	4.3	2.5	2.2	2.2	2.2	2.1	2.2

Forecasts for interest rates and the Federal Reserve's Major Currency Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index, PCE Price Index and Consumer Price Index are seasonally-adjusted annual rates of change (saar). Individual panel members' forecasts are on pages 4 through 9. Historical data: Treasury rates from the Federal Reserve Board's H.15; AAA-AA and A-BBB corporate bond yields from Bank of America-Merrill Lynch and are 15+ years, yield to maturity; State and local bond yields from Bank of America-Merrill Lynch, A-rated, yield to maturity; Mortgage rates from Freddie Mac, 30-year, fixed; LIBOR quotes from Intercontinental Exchange. \*Interest rate data for 3Q 2021 are based on historical data through the week ended September 24. \*\*Data for 3Q 2021 for the Fed's AFE \$ Index are based on data through the week ended September 24. Figures for 3Q 2021 Real GDP, GDP Chained Price Index, Consumer Price Index, and PCE Price Index are consensus forecasts from the September 2021 survey.

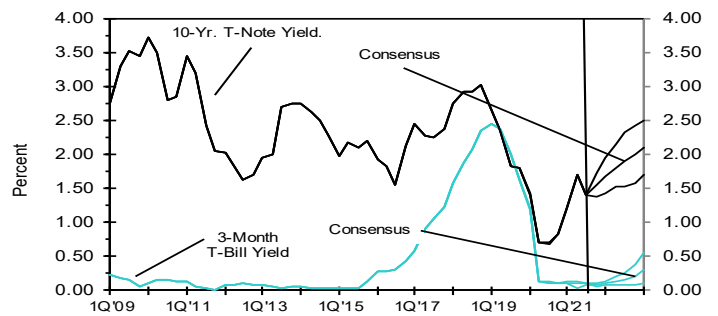
#### U.S. Treasury Yield Curve

Week ended September 24, 2021 & Year Ago vs. 4Q 2021 & 1Q 2023 Consensus Forecasts



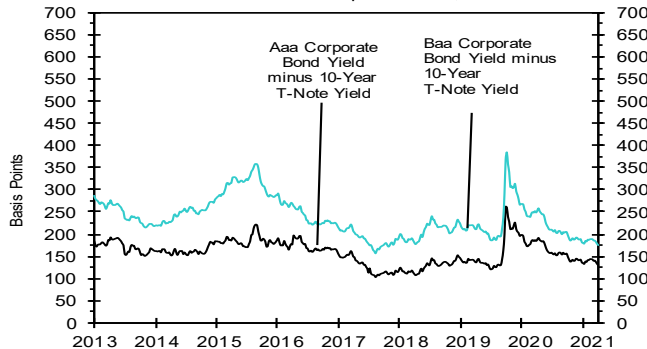
#### U.S. 3-Mo. T-Bills & 10-Yr. T-Note Yield

(Quarterly Average) Forecast



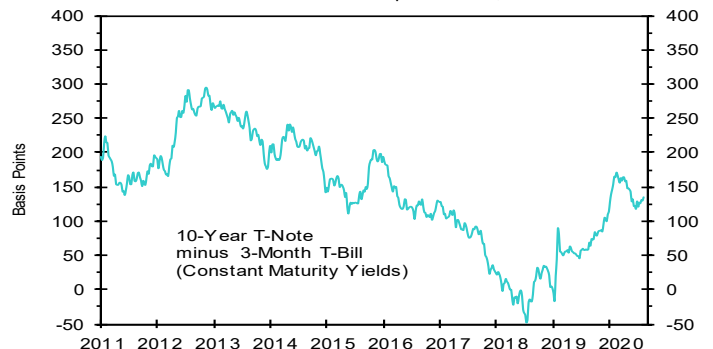
#### Corporate Bond Spreads

As of week ended September 24, 2021



#### U.S. Treasury Yield Curve

As of week ended September 24, 2021



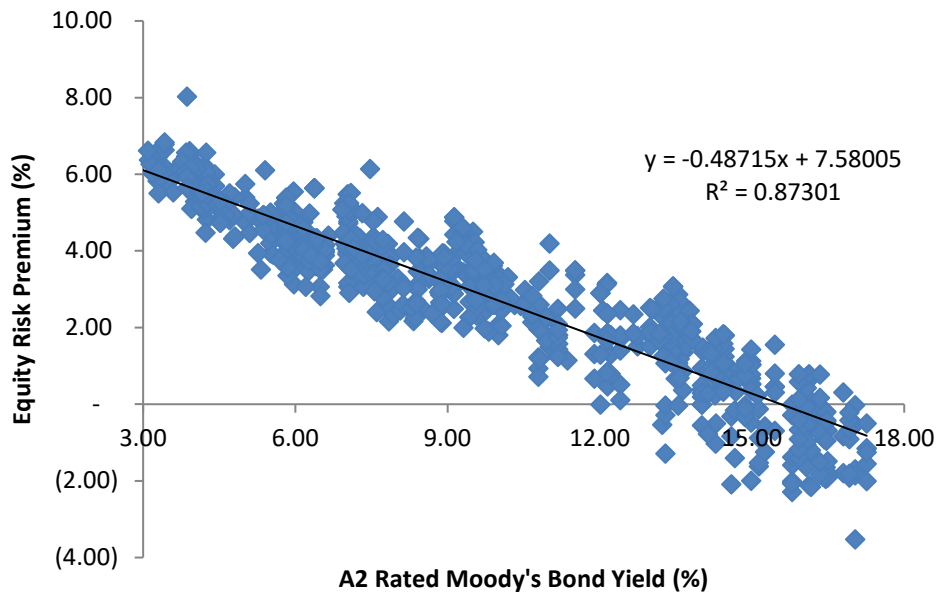


Atmos Energy Corporation  
Derivation of Mean Equity Risk Premium Based Studies  
Using Holding Period Returns and  
Projected Market Appreciation of the S&P Utility Index

<u>Line No.</u>		<u>Implied Equity Risk Premium</u>
	<u>Equity Risk Premium based on S&amp;P Utility Index Holding Period Returns (1):</u>	
1.	Historical Equity Risk Premium	4.16 %
2.	Regression of Historical Equity Risk Premium (2)	6.42
3.	Forecasted Equity Risk Premium Based on PRPM (3)	4.76
4.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Value Line Data) (4)	7.20
5.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Bloomberg Data) (5)	<u>5.61</u>
6.	Average Equity Risk Premium (6)	<u><u>5.63 %</u></u>

- Notes: (1) Based on S&P Public Utility Index monthly total returns and Moody's Public Utility Bond average monthly yields from 1928-2020. Holding period returns are calculated based upon income received (dividends and interest) plus the relative change in the market value of a security over a one-year holding period.
- (2) This equity risk premium is based on a regression of the monthly equity risk premiums of the S&P Utility Index relative to Moody's A2 rated public utility bond yields from 1928 - 2020 referenced in note 1 above.
- (3) The Predictive Risk Premium Model (PRPM) is applied to the risk premium of the monthly total returns of the S&P Utility Index and the monthly yields on Moody's A2 rated public utility bonds from January 1928 - September 2021.
- (4) Using data from Value Line for the S&P Utilities Index, an expected return of 11.10% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the expected A2 rated public utility bond yield of 3.90%, calculated on line 3 of page 13 of this Schedule results in an equity risk premium of 7.20%. (11.10% - 3.90% = 7.20%)
- (5) Using data from Bloomberg Professional Service for the S&P Utilities Index, an expected return of 9.51% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the expected A2 rated public utility bond yield of 3.90%, calculated on line 3 of page 13 of this Schedule results in an equity risk premium of 5.61%. (9.51% - 3.90% = 5.61%)
- (6) Average of lines 1 through 5.

Atmos Energy Corporation  
Prediction of Equity Risk Premiums Relative to  
Moody's A2 Rated Utility Bond Yields



		Prospective A2 Rated Utility Bond (1)	Prospective Equity Risk Premium
<u>Constant</u>	<u>Slope</u>	<u>3.90 %</u>	<u>5.68 %</u>
7.58005 %	-0.48715		

Notes:

(1) From line 3 of page 13 of this Schedule.

Source of Information:

Regulatory Research Associates  
 Bloomberg Professional Services



Atmos Energy Corporation  
Indicated Common Equity Cost Rate Through Use  
of the Traditional Capital Asset Pricing Model (CAPM) and Empirical Capital Asset Pricing Model (ECAPM)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Seven Natural Gas Distribution Companies	Value Line Adjusted Beta	Bloomberg Adjusted Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
Atmos Energy Corporation	0.80	0.94	0.87	9.93 %	2.76 %	11.40 %	11.72 %	11.56 %
New Jersey Resources Corporation	1.00	0.98	0.99	9.93	2.76	12.59	12.62	12.61
Northwest Natural Holding Company	0.85	0.87	0.86	9.93	2.76	11.30	11.65	11.48
ONE Gas, Inc.	0.80	1.02	0.91	9.93	2.76	11.80	12.02	11.91
South Jersey Industries, Inc.	1.05	1.00	1.03	9.93	2.76	12.99	12.92	12.95
Southwest Gas Holdings, Inc.	0.95	1.10	1.02	9.93	2.76	12.89	12.84	12.87
Spire Inc.	0.85	0.99	0.92	9.93	2.76	11.90	12.10	12.00
Mean			0.94			12.12 %	12.27 %	12.20 %
Median			0.92			11.90 %	12.10 %	12.00 %
Average of Mean and Median			0.93			12.01 %	12.19 %	12.10 %

Notes on page 25 of this Schedule.

Atmos Energy Corporation  
Notes to Accompany the Application of the CAPM and ECAPM

Notes:

- (1) The market risk premium (MRP) is derived by using six different measures from three sources: Ibbotson, Value Line, and Bloomberg as illustrated below:

Historical Data MRP Estimates:

Measure 1: Ibbotson Arithmetic Mean MRP (1926-2020)

Arithmetic Mean Monthly Returns for Large Stocks 1926-2020:	12.20 %
Arithmetic Mean Income Returns on Long-Term Government Bonds:	5.05
MRP based on Ibbotson Historical Data:	7.15 %

Measure 2: Application of a Regression Analysis to Ibbotson Historical Data (1926-2020)

9.51 %

Measure 3: Application of the PRPM to Ibbotson Historical Data: (January 1926 - September 2021)

8.54 %

Value Line MRP Estimates:

Measure 4: Value Line Projected MRP (Thirteen weeks ending October 01, 2021)

Total projected return on the market 3-5 years hence*:	9.59 %
Projected Risk-Free Rate (see note 2):	2.76
MRP based on Value Line Summary & Index:	6.83 %

\*Forecasted 3-5 year capital appreciation plus expected dividend yield

Measure 5: Value Line Projected Return on the Market based on the S&P 500

Total return on the Market based on the S&P 500:	15.81 %
Projected Risk-Free Rate (see note 2):	2.76
MRP based on Value Line data	13.05 %

Measure 6: Bloomberg Projected MRP

Total return on the Market based on the S&P 500:	17.27 %
Projected Risk-Free Rate (see note 2):	2.76
MRP based on Bloomberg data	14.51 %

Average of Value Line, Ibbotson, and Bloomberg MRP: 9.93 %

- (2) For reasons explained in the direct testimony, the appropriate risk-free rate for cost of capital purposes is the average forecast of 30 year Treasury Bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts. (See pages 20 and 21 of this Schedule.) The projection of the risk-free rate is illustrated below:

Fourth Quarter 2021	2.20 %
First Quarter 2022	2.30
Second Quarter 2022	2.40
Third Quarter 2022	2.50
Fourth Quarter 2022	2.60
First Quarter 2023	2.70
2023-2027	3.50
2028-2032	3.90
	2.76 %

- (3) Average of Column 6 and Column 7.

Sources of Information:

Value Line Summary and Index  
Blue Chip Financial Forecasts, June 1, 2021, October 1, 2021  
Stocks, Bonds, Bills, and Inflation - 2021 SBBI Yearbook, John Wiley & Sons, Inc.  
Bloomberg Professional Services

Atmos Energy Corporation  
Basis of Selection of the Group of Non-Price Regulated Companies  
Comparable in Total Risk to the Utility Proxy Group

The criteria for selection of the proxy group of forty-six non-price regulated companies was that the non-price regulated companies be domestic and reported in Value Line Investment Survey (Standard Edition).

The Non-Price Regulated Proxy Group were then selected based on the unadjusted beta range of 0.66 – 0.96 and residual standard error of the regression range of 2.7953 – 3.3337 of the Utility Proxy Group.

These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression. Plus or minus two standard deviations captures 95.50% of the distribution of unadjusted betas and residual standard errors of the regression.

The standard deviation of the Utility Proxy Group's residual standard error of the regression is 0.1346. The standard deviation of the standard error of the regression is calculated as follows:

$$\text{Standard Deviation of the Std. Err. of the Regr.} = \frac{\text{Standard Error of the Regression}}{\sqrt{2N}}$$

where: N = number of observations. Since Value Line betas are derived from weekly price change observations over a period of five years, N = 259

$$\text{Thus, } 0.1346 = \frac{3.0645}{\sqrt{518}} = \frac{3.0645}{22.7596}$$

Source of Information: Value Line, Inc., September 2021  
Value Line Investment Survey (Standard Edition)

Atmos Energy Corporation  
Basis of Selection of Comparable Risk  
Domestic Non-Price Regulated Companies

	[1]	[2]	[3]	[4]
<u>Proxy Group of Seven Natural Gas Distribution Companies</u>	<u>Value Line Adjusted Beta</u>	<u>Unadjusted Beta</u>	<u>Residual Standard Error of the Regression</u>	<u>Standard Deviation of Beta</u>
Atmos Energy Corporation	0.80	0.69	2.7656	0.0694
New Jersey Resources Corporation	1.00	0.95	3.0200	0.0758
Northwest Natural Holding Company	0.85	0.72	3.1578	0.0793
ONE Gas, Inc.	0.80	0.69	2.7297	0.0685
South Jersey Industries, Inc.	1.05	1.03	3.7894	0.0951
Southwest Gas Holdings, Inc.	0.95	0.87	3.1477	0.0790
Spire Inc.	0.85	0.74	2.8414	0.0713
Average	<u>0.90</u>	<u>0.81</u>	<u>3.0645</u>	<u>0.0769</u>
Beta Range (+/- 2 std. Devs. of Beta)	0.66	0.96		
2 std. Devs. of Beta	0.15			
Residual Std. Err. Range (+/- 2 std. Devs. of the Residual Std. Err.)	2.7953	3.3337		
Std. dev. of the Res. Std. Err.	0.1346			
2 std. devs. of the Res. Std. Err.	0.2692			

Source of Information: Valueline Proprietary Database, September 2021

Atmos Energy Corporation  
Proxy Group of Non-Price Regulated Companies  
Comparable in Total Risk to the  
Proxy Group of Seven Natural Gas Distribution Companies

	[1]	[2]	[3]	[4]
<u>Proxy Group of Forty-Six Non-Price Regulated Companies</u>	<u>VL Adjusted Beta</u>	<u>Unadjusted Beta</u>	<u>Residual Standard Error of the Regression</u>	<u>Standard Deviation of Beta</u>
Apple Inc.	0.90	0.83	3.2592	0.0818
Abbott Labs.	0.90	0.85	2.8087	0.0705
Assurant Inc.	0.85	0.75	3.3031	0.0829
ANSYS, Inc.	0.90	0.82	3.1917	0.0801
Booz Allen Hamilton	1.00	0.96	2.8317	0.0711
Becton, Dickinson	0.95	0.86	2.9371	0.0737
Brown-Forman 'B'	0.90	0.81	3.1690	0.0795
Broadridge Fin'l	0.90	0.80	2.8605	0.0718
Brady Corp.	0.85	0.70	2.9807	0.0748
CACI Int'l	1.00	0.94	3.2911	0.0826
Casey's Gen'l Stores	0.95	0.90	2.9211	0.0733
Cadence Design Sys.	0.90	0.79	2.8942	0.0726
Cerner Corp.	0.95	0.87	3.1652	0.0794
CSW Industrials	0.90	0.79	3.2553	0.0817
Quest Diagnostics	0.95	0.86	3.1959	0.0802
Lauder (Estee)	0.95	0.90	3.0993	0.0778
Exponent, Inc.	0.90	0.85	3.3036	0.0829
Fastenal Co.	0.95	0.85	2.8492	0.0715
Gentex Corp.	0.90	0.80	3.1804	0.0798
Int'l Flavors & Frag	0.95	0.87	2.8494	0.0715
Ingredion Inc.	0.95	0.87	2.9374	0.0737
Iron Mountain	0.85	0.70	2.8714	0.0721
Hunt (J.B.)	1.00	0.95	2.8530	0.0716
J&J Snack Foods	0.85	0.75	3.1404	0.0788
Henry (Jack) & Assoc	0.85	0.74	3.0420	0.0764
ManTech Int'l 'A'	0.95	0.87	2.9653	0.0744
McCormick & Co.	1.00	0.94	2.9892	0.0750
Altria Group	0.95	0.85	3.0069	0.0755
MSA Safety	0.95	0.89	3.2995	0.0828
MSCI Inc.	0.85	0.74	2.9028	0.0729
Motorola Solutions	0.90	0.84	2.9628	0.0744
Vail Resorts	0.95	0.90	2.8484	0.0715
Maxim Integrated	0.90	0.81	3.1146	0.0782
Northrop Grumman	0.95	0.91	3.2426	0.0814
Old Dominion Freight	0.85	0.74	3.3291	0.0836
PerkinElmer Inc.	0.95	0.88	2.8724	0.0721
Philip Morris Int'l	0.80	0.67	3.0414	0.0763
Pool Corp.	0.85	0.71	3.0047	0.0754
Post Holdings	0.90	0.80	2.9915	0.0751
RLI Corp.	0.95	0.88	2.9112	0.0731
Rollins, Inc.	0.95	0.90	2.9615	0.0743
Selective Ins. Group	0.85	0.77	3.3219	0.0834
Sirius XM Holdings	0.95	0.86	3.2794	0.0823
Bio-Techne Corp.	0.95	0.86	2.8250	0.0709
Tetra Tech	0.95	0.92	3.2506	0.0816
Waters Corp.	0.80	0.69	3.3126	0.0831
Average	<u>0.92</u>	<u>0.83</u>	<u>3.0570</u>	<u>0.0767</u>
Proxy Group of Seven Natural Gas Distribution Companies	<u>0.90</u>	<u>0.81</u>	<u>3.0645</u>	<u>0.0769</u>

Source of Information:

ValueLine Proprietary Database, September 2021

Atmos Energy Corporation  
Summary of Cost of Equity Models Applied to  
Proxy Group of Forty-Six Non-Price Regulated Companies  
Comparable in Total Risk to the  
Proxy Group of Seven Natural Gas Distribution Companies

<u>Principal Methods</u>	<u>Proxy Group of Forty-Six Non- Price Regulated Companies</u>
Discounted Cash Flow Model (DCF) (1)	14.03 %
Risk Premium Model (RPM) (2)	12.93
Capital Asset Pricing Model (CAPM) (3)	12.16
	13.04 %
	12.93 %
	12.99 %

Notes:

- (1) From page 30 of this Schedule.
- (2) From page 31 of this Schedule.
- (3) From page 34 of this Schedule.

Atmos Energy Corporation  
DCF Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the  
Proxy Group of Seven Natural Gas Distribution Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Forty-Six Non-Price Regulated Companies	Average Dividend Yield	Value Line Projected Five Year Growth in EPS	Zack's Five Year Projected Growth Rate in EPS	Bloomberg's Five Year Projected Growth Rate in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Average Projected Five Year Growth Rate in EPS	Adjusted Dividend Yield	Indicated Common Equity Cost Rate (1)
Apple Inc.	0.60 %	17.00 %	12.50 %	12.80 %	19.68 %	15.50 %	0.65 %	16.15 %
Abbott Labs.	1.63	11.50	17.80	17.78	17.80	16.22	1.76	17.98
Assurant Inc.	-	8.00	12.30	10.93	12.14	10.84	-	NA
ANSYS, Inc.	1.78	8.50	8.30	9.00	8.80	8.65	1.86	10.51
Booz Allen Hamilton	0.90	21.00	5.00	8.40	15.05	12.36	0.96	13.32
Becton, Dickinson	-	13.50	5.40	3.23	5.10	6.81	-	NA
Brown-Forman 'B'	0.71	10.50	NA	9.24	7.40	9.05	0.74	9.79
Broadridge Fin'l	0.48	11.50	NA	15.00	12.00	12.83	0.51	13.34
Brady Corp.	1.69	7.50	26.50	(4.70)	(8.60)	17.00	1.83	18.83
CACI Int'l	1.00	16.50	10.70	NA	11.87	13.02	1.07	14.09
Casey's Gen'l Stores	0.65	11.50	9.50	11.27	18.71	12.74	0.69	13.43
Cadence Design Sys.	0.73	12.00	NA	NA	15.00	13.50	0.78	14.28
Cerner Corp.	2.06	9.00	9.00	7.90	6.33	8.06	2.14	10.20
CSW Industrials	1.44	9.50	NA	NA	23.00	16.25	1.56	17.81
Quest Diagnostics	0.85	10.00	NA	15.00	13.40	12.80	0.90	13.70
Lauder (Estee)	2.24	6.00	NA	7.50	12.00	8.50	2.34	10.84
Exponent, Inc.	2.15	7.50	9.50	33.01	4.35	13.59	2.30	15.89
Fastenal Co.	2.96	7.50	NA	10.70	1.90	6.70	3.06	9.76
Genex Corp.	5.48	8.00	3.80	4.00	6.41	5.55	5.63	11.18
Int'l Flavors & Frag	0.70	8.00	15.00	14.65	20.50	14.54	0.75	15.29
Ingredion Inc.	1.56	10.00	NA	NA	6.00	8.00	1.62	9.62
Iron Mountain	1.07	9.50	11.00	13.10	9.64	10.81	1.13	11.94
Hunt (J.B.)	2.83	7.00	8.40	8.93	9.56	8.47	2.95	11.42
J&J Snack Foods	1.86	9.00	5.10	5.06	5.38	6.14	1.92	8.06
Henry (Jack) & Assoc	-	11.50	14.70	12.17	14.85	13.31	-	NA
ManTech Int'l 'A'	7.44	6.00	4.00	4.25	4.67	4.73	7.62	12.35
McCormick & Co.	1.11	6.50	NA	9.00	18.00	11.17	1.17	12.34
Altria Group	0.68	16.00	NA	13.30	17.79	15.70	0.73	16.43
MSA Safety	1.14	7.50	NA	58.85	56.46	40.94	1.37	42.31
MSCI Inc.	1.74	7.50	9.00	5.29	6.70	7.12	1.80	8.92
Motorola Solutions	0.29	9.50	22.70	21.08	22.70	18.99	0.32	19.31
Vail Resorts	2.80	5.00	5.00	5.00	16.86	7.97	2.91	10.88
Maxim Integrated	0.16	11.00	37.90	(3.57)	37.90	28.93	0.18	29.11
Northrop Grumman	4.97	7.00	8.70	11.35	12.57	9.90	5.22	15.12
Old Dominion Freight	0.67	15.00	NA	17.00	17.00	16.33	0.72	17.05
PerkinElmer Inc.	-	9.50	NA	21.70	24.70	18.63	-	NA
Philip Morris Int'l	0.94	12.00	NA	NA	9.80	10.90	0.99	11.89
Pool Corp.	0.85	11.50	NA	NA	8.20	9.85	0.89	10.74
Post Holdings	1.24	12.00	12.40	12.44	10.00	11.71	1.31	13.02
RLI Corp.	0.93	31.50	12.20	6.22	10.05	14.99	1.00	15.99
Rollins, Inc.	-	13.00	16.00	16.13	16.00	15.28	-	NA
Selective Ins. Group	-	10.50	NA	NA	9.34	9.92	-	NA
Sirius XM Holdings	0.58	13.50	15.00	16.00	15.00	14.88	0.62	15.50
Bio-Techne Corp.	-	6.00	9.40	10.76	9.30	8.86	-	NA
Tetra Tech	0.10	15.50	NA	NA	10.00	12.75	0.11	12.86
Waters Corp.	0.16	17.00	27.30	19.83	25.80	22.48	0.18	22.66
							Mean	14.72 %
							Median	13.34 %
							Average of Mean and Median	14.03 %

NA= Not Available

(1) The application of the DCF model to the domestic, non-price regulated comparable risk companies is identical to the application of the DCF to the Utility Proxy Group. The dividend yield is derived by using the 60 day average price and the spot indicated dividend as of September 30, 2021. The dividend yield is then adjusted by 1/2 the average projected growth rate in EPS, which is calculated by averaging the 5 year projected growth in EPS provided by Value Line, www.zacks.com, Bloomberg Professional Services, and www.yahoo.com (excluding any negative growth rates) and then adding that growth rate to the adjusted dividend yield.

Source of Information: Value Line Investment Survey  
www.zacks.com Downloaded on 09/30/2021  
www.yahoo.com Downloaded on 09/30/2021  
Bloomberg Professional Services

Atmos Energy Corporation  
Indicated Common Equity Cost Rate  
Through Use of a Risk Premium Model  
Using an Adjusted Total Market Approach

<u>Line No.</u>		<u>Proxy Group of Forty- Six Non-Price Regulated Companies</u>
1.	Prospective Yield on Baa2 Rated Corporate Bonds (1)	4.39 %
2.	Equity Risk Premium (2)	<u>8.54</u>
3.	Risk Premium Derived Common Equity Cost Rate	<u><u>12.93 %</u></u>

Notes: (1) Average forecast of Baa2 corporate bonds based upon the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated June 1, 2021, October 1, 2021 (see pages 20 and 21 of this Schedule). The estimates are detailed below.

Fourth Quarter 2021	3.60 %
First Quarter 2022	3.80
Second Quarter 2022	4.00
Third Quarter 2022	4.10
Fourth Quarter 2022	4.20
First Quarter 2023	4.30
2023-2027	5.30
2028-2032	<u>5.80</u>
Average	<u><u>4.39 %</u></u>

(2) From page 33 of this Schedule.



Atmos Energy Corporation  
Comparison of Long-Term Issuer Ratings for the  
Proxy Group of Forty-Six Non-Price Regulated Companies of Comparable risk to the  
Proxy Group of Seven Natural Gas Distribution Companies

Proxy Group of Forty-Six Non-Price Regulated Companies	Moody's Long-Term Issuer Rating September 2021	Numerical Weighting (1)	Standard & Poor's Long-Term Issuer Rating September 2021	Numerical Weighting (1)
	Long-Term Issuer Rating		Long-Term Issuer Rating	
Apple Inc.	Aa1	2.0	AA+	2.0
Abbott Labs.	Baa3	10.0	BBB	9.0
Assurant Inc.	NA	--	NA	--
ANSYS, Inc.	NA	--	NA	--
Booz Allen Hamilton	Ba1	11.0	BB+	11.0
Becton, Dickinson	NA	--	BB+	11.0
Brown-Forman 'B'	NA	--	NA	--
Broadridge Fin'l	NA	--	NA	--
Brady Corp.	Baa2	9.0	BBB+	8.0
CACI Int'l	Baa1	8.0	BBB+	8.0
Casey's Gen'l Stores	A1	5.0	A+	5.0
Cadence Design Sys.	NA	--	NA	--
Cerner Corp.	NA	--	NA	--
CSW Industrials	Ba1	11.0	BB	12.0
Quest Diagnostics	NA	--	NA	--
Lauder (Estee)	Baa2	9.0	BBB	9.0
Exponent, Inc.	Baa3	10.0	BBB	9.0
Fastenal Co.	Baa1	8.0	BBB	9.0
Gentex Corp.	Ba3	13.0	BB-	13.0
Int'l Flavors & Frag	Baa1	8.0	BBB+	8.0
Ingredion Inc.	NA	--	NA	--
Iron Mountain	NA	--	NA	--
Hunt (J.B.)	Baa2	9.0	BBB	9.0
J&J Snack Foods	WR	--	BB+	11.0
Henry (Jack) & Assoc	NA	--	NA	--
ManTech Int'l 'A'	A3	7.0	BBB	9.0
McCormick & Co.	NA	--	NA	--
Altria Group	Ba1	11.0	BB+	11.0
MSA Safety	B2	15.0	BB	12.0
MSCI Inc.	Baa1	8.0	BBB+	8.0
Motorola Solutions	NA	--	NA	--
Vail Resorts	Baa2	9.0	BBB	9.0
Maxim Integrated	Baa3	10.0	BBB	9.0
Northrop Grumman	A2	6.0	A	6.0
Old Dominion Freight	NA	--	NA	--
PerkinElmer Inc.	B2	15.0	B+	14.0
Philip Morris Int'l	Baa2	9.0	BBB	9.0
Pool Corp.	NA	--	NA	--
Post Holdings	Baa2	9.0	BBB	9.0
RLI Corp.	NA	--	BB	12.0
Rollins, Inc.	NA	--	NA	--
Selective Ins. Group	Ba3	13.0	BB	12.0
Sirius XM Holdings	NA	--	NA	--
Bio-Techne Corp.	NA	--	NA	--
Tetra Tech	NA	--	NA	--
Waters Corp.	NA	--	NA	--
Average	Baa2	9.4	BBB	9.4

Notes:  
(1) From page 16 of this Schedule.

Source of Information:  
Bloomberg Professional Services

Atmos Energy Corporation  
Derivation of Equity Risk Premium Based on the Total Market Approach  
Using the Beta for  
Proxy Group of Forty-Six Non-Price Regulated Companies of Comparable risk to the  
Proxy Group of Seven Natural Gas Distribution Companies

<u>Line No.</u>	<u>Equity Risk Premium Measure</u>	<u>Proxy Group of Forty-Six Non-Price Regulated Companies</u>
<u>Ibbotson-Based Equity Risk Premiums:</u>		
1.	Ibbotson Equity Risk Premium (1)	5.92 %
2.	Regression on Ibbotson Risk Premium Data (2)	8.76
3.	Ibbotson Equity Risk Premium based on PRPM (3)	7.66
4.	Equity Risk Premium Based on <u>Value Line</u> Summary and Index (4)	6.09
5	Equity Risk Premium Based on <u>Value Line</u> S&P 500 Companies (5)	12.31
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	<u>13.77</u>
7.	Conclusion of Equity Risk Premium	9.09 %
8.	Adjusted Beta (7)	<u>0.94</u>
9.	Forecasted Equity Risk Premium	<u><u>8.54 %</u></u>

Notes:

- (1) From note 1 of page 19 of this Schedule.
- (2) From note 2 of page 19 of this Schedule.
- (3) From note 3 of page 19 of this Schedule.
- (4) From note 4 of page 19 of this Schedule.
- (5) From note 5 of page 19 of this Schedule.
- (6) From note 6 of page 19 of this Schedule.
- (7) Average of mean and median beta from page 34 of this Schedule.

Sources of Information:

Stocks, Bonds, Bills, and Inflation - 2021 SBBI Yearbook, John Wiley & Sons, Inc.  
Value Line Summary and Index  
Blue Chip Financial Forecasts, June 1, 2021, October 1, 2021  
Bloomberg Professional Services

Atmos Energy Corporation  
Traditional CAPM and ECAPM Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the  
Proxy Group of Seven Natural Gas Distribution Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Forty-Six Non-Price Regulated Companies	Value Line Adjusted Beta	Bloomberg Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
Apple Inc.	0.90	1.00	0.95	9.93 %	2.76 %	12.20 %	12.32 %	12.26 %
Abbott Labs.	0.90	1.01	0.96	9.93	2.76	12.29	12.39	12.34
Assurant Inc.	0.85	0.96	0.91	9.93	2.76	11.80	12.02	11.91
ANSYS, Inc.	0.90	0.92	0.91	9.93	2.76	11.80	12.02	11.91
Booz Allen Hamilton	1.00	1.03	1.02	9.93	2.76	12.89	12.84	12.87
Becton, Dickinson	0.95	1.01	0.98	9.93	2.76	12.49	12.54	12.52
Brown-Forman 'B'	0.90	0.94	0.92	9.93	2.76	11.90	12.10	12.00
Broadridge Fin'l	0.90	1.05	0.98	9.93	2.76	12.49	12.54	12.52
Brady Corp.	0.85	0.97	0.91	9.93	2.76	11.80	12.02	11.91
CACI Int'l	1.00	1.08	1.04	9.93	2.76	13.09	12.99	13.04
Casey's Gen'l Stores	0.95	1.02	0.98	9.93	2.76	12.49	12.54	12.52
Cadence Design Sys.	0.90	0.96	0.93	9.93	2.76	12.00	12.17	12.08
Cerner Corp.	0.95	0.94	0.94	9.93	2.76	12.10	12.25	12.17
CSW Industrials	0.90	0.93	0.92	9.93	2.76	11.90	12.10	12.00
Quest Diagnostics	0.95	0.98	0.96	9.93	2.76	12.29	12.39	12.34
Lauder (Estee)	0.95	1.00	0.97	9.93	2.76	12.39	12.47	12.43
Exponent, Inc.	0.90	1.06	0.98	9.93	2.76	12.49	12.54	12.52
Fastenal Co.	0.90	0.92	0.91	9.93	2.76	11.80	12.02	11.91
Gentex Corp.	0.90	1.05	0.98	9.93	2.76	12.49	12.54	12.52
Int'l Flavors & Frag	0.95	0.94	0.94	9.93	2.76	12.10	12.25	12.17
Ingredion Inc.	0.95	0.81	0.88	9.93	2.76	11.50	11.80	11.65
Iron Mountain	0.85	0.89	0.87	9.93	2.76	11.40	11.72	11.56
Hunt (J.B.)	1.00	0.96	0.98	9.93	2.76	12.49	12.54	12.52
J&J Snack Foods	0.85	1.13	0.99	9.93	2.76	12.59	12.62	12.60
Henry (Jack) & Assoc	0.85	0.97	0.91	9.93	2.76	11.80	12.02	11.91
ManTech Int'l 'A'	0.95	0.91	0.93	9.93	2.76	12.00	12.17	12.08
McCormick & Co.	1.00	1.01	1.00	9.93	2.76	12.69	12.69	12.69
Altria Group	0.95	0.92	0.94	9.93	2.76	12.10	12.25	12.17
MSA Safety	0.95	1.13	1.04	9.93	2.76	13.09	12.99	13.04
MSCI Inc.	0.85	0.79	0.82	9.93	2.76	10.90	11.35	11.13
Motorola Solutions	0.90	0.98	0.94	9.93	2.76	12.10	12.25	12.17
Vail Resorts	0.95	0.79	0.87	9.93	2.76	11.40	11.72	11.56
Maxim Integrated	0.90	0.80	0.85	9.93	2.76	11.20	11.57	11.39
Northrop Grumman	0.95	0.95	0.95	9.93	2.76	12.20	12.32	12.26
Old Dominion Freight	0.85	0.96	0.91	9.93	2.76	11.80	12.02	11.91
PerkinElmer Inc.	0.95	0.90	0.92	9.93	2.76	11.90	12.10	12.00
Philip Morris Int'l	0.80	0.92	0.86	9.93	2.76	11.30	11.65	11.48
Pool Corp.	0.85	0.69	0.77	9.93	2.76	10.41	10.98	10.69
Post Holdings	0.90	1.00	0.95	9.93	2.76	12.20	12.32	12.26
RLI Corp.	0.95	1.13	1.04	9.93	2.76	13.09	12.99	13.04
Rollins, Inc.	0.95	1.02	0.99	9.93	2.76	12.59	12.62	12.60
Selective Ins. Group	0.85	0.98	0.91	9.93	2.76	11.80	12.02	11.91
Sirius XM Holdings	0.95	1.06	1.01	9.93	2.76	12.79	12.77	12.78
Bio-Techne Corp.	0.95	0.85	0.90	9.93	2.76	11.70	11.95	11.82
Tetra Tech	0.95	1.01	0.98	9.93	2.76	12.49	12.54	12.52
Waters Corp.	0.80	0.74	0.77	9.93	2.76	10.41	10.98	10.69
Mean			<u>0.94</u>			<u>12.06 %</u>	<u>12.22 %</u>	<u>12.14 %</u>
Median			<u>0.94</u>			<u>12.10 %</u>	<u>12.25 %</u>	<u>12.17 %</u>
Average of Mean and Median			<u>0.94</u>			<u>12.08 %</u>	<u>12.24 %</u>	<u>12.16 %</u>

Notes:

- (1) From note 1 of page 25 of this Schedule.
- (2) From note 2 of page 25 of this Schedule.
- (3) Average of CAPM and ECAPM cost rates.

Atmos Energy Corporation  
Derivation of Investment Risk Adjustment Based upon  
Ibbotson Associates' Size Premia for the Decile Portfolios of the NYSE/AMEX/NASDAQ

Line No.	[1] Market Capitalization on May 28, 2021 (1) ( millions )	[2] Applicable Decile of the NYSE/AMEX/ NASDAQ (2)	[3] Applicable Size Premium (3)	[4] Spread from Applicable Size Premium (4)
1.	\$ 516.513	8	1.46%	
2.	\$ 4,048.578	7.8 x 4	0.75%	0.71%
		[A]                      [B]                      [C]                      [D]		
		Decile	Market Capitalization of Largest Company ( millions )	Size Premium (Return in Excess of CAPM)*
	Largest	1	\$ 29,025.803	-0.22%
		2	13,178.743	0.49%
		3	6,743.361	0.71%
		4	3,861.858	0.75%
		5	2,445.693	1.09%
		6	1,591.865	1.37%
		7	911.586	1.54%
		8	451.955	1.46%
		9	190.019	2.29%
	Smallest	10	2.194	5.01%

\*From 2021 Duff & Phelps Cost of Capital Navigator

Notes:

- (1) From page 36 of this Schedule.
- (2) Gleaned from Columns [B] and [C] on the bottom of this page. The appropriate decile (Column [A]) corresponds to the market capitalization of the proxy group, which is found in Column [1].
- (3) Corresponding risk premium to the decile is provided in Column [D] on the bottom of this page.
- (4) Line No. 1 Column [3] - Line No. 2 Column [3]. For example, the 0.71% in Column [4], Line No. 2 is derived as follows 0.71% = 1.46% - 0.75%.

**Atmos Energy Corporation**  
Market Capitalization of Atmos Energy Corporation and the  
Proxy Group of Seven Natural Gas Distribution Companies

Company	Exchange	[1] Common Stock Shares Outstanding at Fiscal Year End 2020 (millions)	[2] Book Value per Share at Fiscal Year End 2020 (1)	[3] Total Common Equity at Fiscal Year End 2020 (millions)	[4] Closing Stock Market Price on September 30, 2021	[5] Market-to- Book Ratio on September 30, 2021 (2)	[6] Market Capitalization on September 30, 2021 (3) (millions)
Atmos Energy Corporation		NA	NA	340,035 (4)	NA		
Based upon Proxy Group of Seven Natural Gas Distribution Companies						151.9 (5)	\$ 516,513 (6)
Proxy Group of Seven Natural Gas Distribution Companies							
Atmos Energy Corporation	NYSE	\$ 125,882	\$ 53,949	\$ 6,791,203	\$ 88,200	163.5 %	\$ 11,102,834
New Jersey Resources Corporation	NYSE	95,949	19,226	1,844,692	34,810	181.1	3,339,991
Northwest Natural Holding Company	NYSE	30,589	29,054	888,733	45,990	158.3	1,406,788
ONE Gas, Inc.	NYSE	53,167	42,006	2,233,311	63,370	150.9	3,369,176
South Jersey Industries, Inc.	NYSE	100,592	16,571	1,666,876	21,260	128.3	2,138,585
Southwest Gas Holdings, Inc.	NYSE	57,193	46,771	2,674,953	66,880	143.0	3,825,063
Spire Inc.	NYSE	51,612	44,182	2,280,300	61,180	138.5	3,157,609
Average		\$ 73,569	\$ 35,966	\$ 2,625,724	\$ 54,527	151.9 %	\$ 4,048,578

NA= Not Available

- Notes: (1) Column 3 / Column 1.  
(2) Column 4 / Column 2.  
(3) Column 1 \* Column 4.

(4) Requested rate base multiplied by the initial requested common equity ratio.

(5) The market-to-book ratio of Atmos Energy Corporation on September 30, 2021 is assumed to be equal to the market-to-book ratio of Proxy Group of Seven Natural Gas Distribution Companies on September 30, 2021 as appropriate.

(6) Column [3] multiplied by Column [5].

Source of Information: 2020 Annual Forms 10K  
yahoo.finance.com  
Bloomberg Professional

**Atmos Energy Corporation**  
**Derivation of the Flotation Cost Adjustment to the Cost of Common Equity**  
**Equity Issuances and Flotation Costs for FY 2020, 2019, 2018, 2017, and 2016**

Fiscal Year	Transaction (1)	[Column 1] Shares Issued	[Column 2] Average Offering Price per Share (2)	[Column 3] Net Proceeds per Share (3)	[Column 4] Gross Equity Issue before Costs	[Column 5] Total Net Proceeds	[Column 6] Total Flotation Costs (4)	[Column 7] Flotation Cost Percentage (5)
2020	At the Market Equity Offering	5,616,727	\$ 106.1997	\$ 103.5392	\$ 596,494,899	\$ 581,551,607	\$ 14,943,292	2.51%
2019	At the Market Equity Offering	5,390,836	\$ 92.7500	\$ 91.6555	\$ 500,000,000	\$ 494,100,000	\$ 5,900,000	1.18%
2018	At the Market Equity Offering	4,558,404	\$ 87.7500	\$ 86.6751	\$ 400,000,000	\$ 395,100,000	\$ 4,900,000	1.23%
2017	At the Market Equity Offering	1,303,494	\$ 76.7169	\$ 75.7963	\$ 100,000,000	\$ 98,800,000	\$ 1,200,000	1.20%
2016	At the Market Equity Offering	1,360,756	\$ 73.4886	\$ 72.4597	\$ 100,000,000	\$ 98,600,000	\$ 1,400,000	1.40%
					\$ 1,696,494,899	\$ 1,668,151,607	\$ 28,343,292	1.67%

**Flotation Cost Adjustment**

Proxy Group of Seven Natural Gas Distribution Companies	Average Dividend Yield	Average EPS Projected Growth Rate	Adjusted Dividend Yield	Average DCF Cost Rate Unadjusted for Flotation (6)	DCF Cost Rate Adjusted for Flotation (7)	Flotation Cost Adjustment (8)
	3.66 %	6.12 %	3.77 %	9.89 %	9.95 %	0.06 %

See page 38 of this Schedule for notes.

Source of Information: Company SEC filings

Atmos Energy Corporation  
Notes to Accompany the  
Derivation of the Flotation Cost Adjustment to the Cost of Common Equity

- (1) Company-provided.
- (2) Column 4 ÷ Column 1.
- (3) Column 5 ÷ Column 1.
- (4) Column 4 – Column 5.
- (5) Column 6 ÷ Column 4.
- (6) Using the average growth rate from page 3 of this Schedule.
- (7) Adjustment for flotation costs based on adjusting the average DCF constant growth cost rate in accordance with the following:

$$K = \frac{D(1 + 0.5g)}{P(1 - F)} + g,$$

where  $g$  is the growth factor and  $F$  is the percentage of flotation costs.

- (8) Flotation cost adjustment of 0.06% equals the difference between the flotation adjusted average DCF cost rate of 9.95% and the unadjusted average DCF cost rate of 9.89% of the Utility Proxy Group.

Source of Information:

Company SEC Filings

Atmos Energy Corporation  
 Demonstration of the Inadequacy of  
 a DCF Return Rate Related to Book Value  
When Market Value is Greater than Book Value

		[A]	[B]
Line No.		<u>Based on Mr. Baudino's Proxy Group</u>	
		Market Value	Book Value
1.	Per Share	\$ 61.16 (1)	\$ 35.97 (2)
2.	DCF Cost Rate (3)	9.10%	9.10%
3.	Return in Dollars (4)	\$ 5.566	\$ 3.273
4.	Dividends (5)	\$ 2.148	\$ 2.148
5.	Growth in Dollars (6)	\$ 3.418	\$ 1.125
6.	Return on Market Value (7)	9.10%	5.35%
7.	Rate of Growth on Market Value (8)	5.59%	1.84%

Notes:

- (1) Average market price calculated using the six-month dividend yield and annual dividend as shown on Exhibit RAB-2.
- (2) Average book value dividing total common equity at year-end 2020 by common shares outstanding at year-end 2020 for each proxy group company.
- (3) Mr. Baudino's Recommended DCF cost rate.
- (4) Line 1 x Line 2.
- (5) Dividends are based on a 3.48% dividend yield from Exhibit RAB-3.
- (6) Line 3 - Line 4.
- (7) Line 3 / Line 1.
- (8) Line 5 / Line 1.



Atmos Energy Corporation  
Calculation of Indicated DCF Applied to Book Value Capital Structure  
of Mr. Baudino's Natural Gas Proxy Group

Un-lever Indicated Market Capital Structure DCF

Ku	=	Ke	-	(((	Ku	-	i	)	1	-	t	)	D	/	E	)	-	(	Ku	-	d	)	P	/	E
		=		(((	9.10%		4.12%	)	1	-	21%	)	44.92%	/	54.49%	)	-	(	Ku	-	5.90%	)	0.59%	/	54.49%
		=		(((	9.10%		4.12%	)	79.00%			)	82.43%			)	-	(	Ku	-	5.90%	)			1.08%
		=		((	79.00%	*	Ku	-	3.2520%	)		)	82.43%			)	-	(	1.08%	*	Ku	-	0.06%	)	
		=		(	65.12%	*	Ku	-	2.68%	)		)	-1.08%			*			Ku	+	0.06%				
		=			-65.12%	*	Ku	+	2.68%			)	-1.08%			*			Ku	+	0.06%				
		=			-66.20%	*	Ku																		
166.20%	*	Ku	=		11.84%																				
		Ku	=		<b>7.13%</b>																				

Re-lever to Indicated Book Value Capital Structure DCF

Ke	=	Ku	+	(((	Ku	-	i	)	1	-	t	)	D	/	E	)	+	(	Ku	-	d	)	P	/	E
		=		(((	7.13%		4.12%	)	1	-	21%	)	50.44%	/	48.87%	)	+	(	7.13%	-	5.90%	)	0.69%	/	48.87%
		=		(((	7.13%		3.01%	)	79%			)	103.23%			)	+	(	1.23%			)			1.41%
		=		((	2.38%	)	103.23%	)	+	(	0.02%	)													
		=		(	2.45%	)	+					)													
		Ke	=		<b>9.60%</b>																				

Where:

- Ku = Un-levered (i.e., 100% equity) cost of common equity
- Ke = Market determined cost of common equity
- i = Cost of debt
- t = Income tax rate
- D = Debt ratio
- E = Equity ratio
- d = Cost of preferred stock
- P = Preferred equity ratio

Atmos Energy Corporation  
Growth Rate Regression Analysis

Company	Ticker	Median P/E Ratio	Proj.	
			Earnings Growth Rate	Proj. Dividend Growth Rate
Atmos Energy Corporation	ATO	19.00	7.00%	7.50%
Chesapeake Utilities Corporation	CPK	20.00	8.50%	8.00%
New Jersey Resources Corporation	NJR	17.00	2.00%	5.50%
NiSource Inc.	NI	21.00	9.50%	4.50%
Northwest Natural Gas Company	NWN	24.00	5.50%	0.50%
ONE Gas, Inc.	OGS	NMF	6.50%	7.00%
RGC Resources, Inc.	RGCO	NMF	-	-
South Jersey Industries, Inc.	SJI	19.00	11.50%	4.50%
Spire Inc	SR	19.00	10.00%	4.50%
Southwest Gas Corporation	SWX	19.00	8.00%	4.50%
UGI Corporation	UGI	17.00	6.50%	4.50%
ALLETE, Inc.	ALE	18.00	5.00%	4.00%
Alliant Energy Corporation	LNT	19.00	5.50%	6.00%
Ameren Corporation	AEE	18.00	6.50%	7.00%
American Electric Power Company, Inc.	AEP	16.00	6.50%	5.50%
Avangrid, Inc.	AGR	NMF	2.00%	1.50%
Avista Corporation	AVA	18.00	3.00%	4.50%
Black Hills Corporation	BKH	18.00	5.00%	5.50%
CenterPoint Energy, Inc.	CNP	18.00	9.50%	-1.00%
CMS Energy Corporation	CMS	19.00	6.00%	5.50%
Consolidated Edison, Inc.	ED	17.00	4.00%	3.00%
Dominion Energy Inc.	D	22.00	12.00%	-1.50%
DTE Energy Company	DTE	17.00	2.00%	1.50%
Duke Energy Corporation	DUK	18.00	7.00%	2.00%
Edison International	EIX	15.00	NMF	3.50%
Entergy Corporation	ETR	13.00	3.00%	4.50%
Exelon Corporation	EXC	15.00	5.50%	4.50%
FirstEnergy Corp.	FE	20.00	11.50%	2.50%
Evergy, Inc.	EVRG	NMF	8.00%	5.50%
Hawaiian Electric Industries, Inc.	HE	18.00	5.00%	3.00%
IDACORP, Inc.	IDA	17.00	4.00%	6.50%
MGE Energy, Inc.	MGEE	22.00	5.50%	5.00%
NextEra Energy, Inc.	NEE	19.00	10.50%	10.00%
Eversource Energy	ES	19.00	6.50%	6.00%
NorthWestern Corporation	NWE	17.00	3.00%	3.50%
OGE Energy Corp.	OGE	17.00	4.00%	4.50%
Otter Tail Corporation	OTTR	21.00	7.00%	6.00%
Pinnacle West Capital Corporation	PNW	17.00	5.00%	5.50%
PNM Resources, Inc.	PNM	20.00	6.50%	6.50%
Portland General Electric Company	POR	18.00	8.50%	5.50%
PPL Corporation	PPL	13.00	NMF	NMF
Public Service Enterprise Group Incorporated	PEG	14.00	3.50%	4.00%
Sempra Energy	SRE	20.00	10.00%	6.00%
Southern Company	SO	16.00	6.00%	3.00%
Unitil Corp.	UTL	NMF	-	-
WEC Energy Group, Inc.	WEC	19.00	6.50%	6.50%
Xcel Energy Inc.	XEL	17.00	6.00%	6.00%
Artesian Resources Corporation	ARTNA	NMF	-	-
American Water	AWK	24.00	8.50%	8.50%
American States Water	AWR	24.00	6.50%	9.50%
Consolidated Water Co.	CWCO	NMF	-	-
Consolidated Water	CWT	24.00	6.50%	6.50%
Global Water Resources	GWRS	NMF	-	-
Middlesex Water	MSEX	23.00	4.50%	5.50%
SJW Group	SJW	21.00	13.00%	6.00%
Essential Utilities	WTRG	23.00	10.00%	7.50%
York Water	YORW	28.00	6.50%	6.00%

Notes:

Source: Value Line Reports as of September 30, 2021.

Atmos Energy Corporation  
Growth Rate Regression Analysis

SUMMARY OUTPUT

<i>Regression Statistics</i>						
Multiple R		0.398420895				
R Square		0.158739209				
Adjusted R Square		0.140044525				
Standard Error		2.683622325				
Observations		47				

ANOVA						
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
Regression	1	61.15174732	61.15174732	8.49114151	0.00554135	
Residual	45	324.0822952	7.201828783			
Total	46	385.2340426				

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	16.25472794	1.060788019	15.32325748	0.00	14.1181912	18.391265
Projected Earnings Growth Rate	43.07106435	14.78095738	2.913956333	0.00554135	13.30068801	72.841441

SUMMARY OUTPUT

<i>Regression Statistics</i>						
Multiple R		0.22700				
R Square		0.05153				
Adjusted R Square		0.03091				
Standard Error		2.87873				
Observations		48				

ANOVA						
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
Regression	1	20.71071	20.71071	2.49915	0.12076	
Residual	46	381.20596	8.28709			
Total	47	401.91667				

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	17.60711	0.99805	17.64144	0.00000	15.59813	19.61608
Projected Dividends Growth Rate	28.93230	18.30149	1.58087	0.12076	-7.90669	65.77129

SUMMARY OUTPUT

<i>Regression Statistics</i>						
Multiple R		0.44291				
R Square		0.19617				
Adjusted R Square		0.15963				
Standard Error		2.65289				
Observations		47				

ANOVA						
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
Regression	2	75.57044	37.78522	5.36889	0.00820	
Residual	44	309.66361	7.03781			
Total	46	385.23404				

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	15.11383	1.31719	11.47431	0.00000	12.45921	17.76845
Projected Earnings Growth Rate	42.01527	14.63028	2.87180	0.00626	12.52988	71.50066
Projected Dividends Growth Rate	24.27816	16.96179	1.43134	0.15940	-9.90608	58.46240

Atmos Energy Corporation  
Mr. Baudino's DCF Analysis using only Projected EPS Growth

	(2) Value Line <u>Earnings Gr.</u>	(3) Zack's <u>Earnings Gr.</u>	(4) Yahoo! <u>Earnings Gr.</u>	(5) Average of <u>All Gr. Rates</u>
<u>Method 1:</u>				
Dividend Yield	3.48%	3.48%	3.48%	3.48%
Average Growth Rate	7.21%	5.83%	5.76%	6.27%
Expected Div. Yield	3.60%	3.58%	3.58%	3.58%
<b>DCF Return on Equity</b>	<b>10.81%</b>	<b>9.41%</b>	<b>9.34%</b>	<b>9.85%</b>
<u>Method 2:</u>				
Dividend Yield	3.48%	3.48%	3.48%	3.48%
Median Growth Rate	7.00%	5.50%	5.50%	6.00%
Expected Div. Yield	3.60%	3.57%	3.57%	3.58%
<b>DCF Return on Equity</b>	<b>10.60%</b>	<b>9.07%</b>	<b>9.07%</b>	<b>9.58%</b>

Source: Exhibit RAB-3, Page 2 of 2

Atmos Energy Corporation  
Calculation of the Capital Asset Pricing Model  
to Reflect Forward-Looking Interest Rates, Market Risk Premiums  
and the Employment of the ECAPM

	Arithmetic Mean	Value Line 3-5 Year Total Return	Value Line Investment Analyzer Market DCF	Ibbotson and Chen Prospective MRP	Average
<b>CAPM with Prospective Risk-Free Rate</b>					
Long-Term Annual Return on Stocks	12.20% (1)	9.42% (2)	12.40% (3)	11.11% (4)	
Long-Term Annual Income Return on Long-Term Treas. Bonds	<u>4.90%</u>	<u>2.74%</u> (5)	<u>2.74%</u> (5)	<u>2.74%</u> (5)	
Market Risk Premium	7.30%	6.68%	9.66%	8.37%	8.00%
Proxy Group Beta, Value Line (6)	<u>0.90</u>	<u>0.90</u>	<u>0.90</u>	<u>0.90</u>	
Beta * Market Premium	6.57%	6.01%	8.70%	7.54%	
Prospective 30-Year Treasury Bond Yield	<u>2.74%</u>	<u>2.74%</u>	<u>2.74%</u>	<u>2.74%</u>	
<b>CAPM Cost of Equity</b>	<b><u>9.31%</u></b>	<b><u>8.75%</u></b>	<b><u>11.43%</u></b>	<b><u>10.27%</u></b>	<b><u>9.94%</u></b>
<b>ECAPM with Prospective Risk-Free Rate</b>					
Historical Market Risk Premium	7.30%	6.68%	9.66%	8.37%	
Proxy Group Beta, Value Line	0.90	0.90	0.90	0.90	
Beta * Market Premium	6.57%	6.01%	8.70%	7.54%	
Prospective 30-Year Treasury Bond Yield	<u>2.74%</u>	<u>2.74%</u>	<u>2.74%</u>	<u>2.74%</u>	
<b>ECAPM Cost of Equity (rf + 0.25(MRP) + 0.75(β*MRP))</b>	<b><u>9.49%</u></b>	<b><u>8.92%</u></b>	<b><u>11.68%</u></b>	<b><u>10.48%</u></b>	<b><u>10.14%</u></b>

Notes:

(1) From Exhibit RAB-5.

(2) From Exhibit RAB-4, page 2.

(3) Calculated from Baudino Value Line Investment Analyzer workpapers, as shown below:

	Avg. Dividend Yield	Median Projected EPS Growth Rate	Adjusted Yield	Market DCF
Value Line Investment Analyzer Data	0.85%	11.50%	0.90%	12.40%

(4) Calculated by converting the Ibbotson and Chen projected return on the market from a geometric mean to an arithmetic mean as shown below:

$$R_A = R_G + \frac{\sigma^2}{2}$$

	Geometric Mean Return	Standard Deviation of Equity Returns	Arithmetic Mean Return
Where: R <sub>A</sub> = Arithmetic Mean R <sub>G</sub> = Geometric Mean σ = Standard Deviation of Equity Returns	9.18%	19.67%	11.11%

(5) For reasons explained in the direct testimony, the appropriate risk-free rate for cost of capital purposes is the average forecast of 30 year Treasury Bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts. (See page 21 of Schedule DWD-1 and page 2 of this Schedule.) The projection of the risk-free rate is illustrated below:

Third Quarter 2021	2.10 %
Fourth Quarter 2021	2.30
First Quarter 2022	2.40
Second Quarter 2022	2.50
Third Quarter 2022	2.60
Fourth Quarter 2022	2.60
2023-2027	3.50
2028-2032	<u>3.90</u>
	2.74 %

Sources of Information:

Exhibit RAB-4  
Exhibit RAB-5  
Baudino Workpapers  
2021 SBBi@ Yearbook, at 10-29, 10-30  
Blue Chip Financial Forecasts, August 3, 2021 and June 1, 2021

### Consensus Forecasts of U.S. Interest Rates and Key Assumptions

Interest Rates	History								Consensus Forecasts-Quarterly Avg.						
	Average For Week Ending				Average For Month				Latest Qtr	3Q 2021	4Q 2021	1Q 2022	2Q 2022	3Q 2022	4Q 2022
	Jul 23	Jul 16	Jul 9	Jul 2	Jun	May	Apr	2Q 2021	2021	2021	2022	2022	2022	2022	
Federal Funds Rate	0.10	0.10	0.10	0.10	0.08	0.06	0.07	0.07	0.1	0.1	0.1	0.1	0.1	0.1	
Prime Rate	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.3	3.3	3.3	3.3	3.3	3.3	
LIBOR, 3-mo.	0.13	0.13	0.13	0.14	0.13	0.15	0.18	0.16	0.2	0.2	0.2	0.3	0.3	0.3	
Commercial Paper, 1-mo.	0.05	0.06	0.06	0.05	0.04	0.10	0.04	0.06	0.1	0.1	0.1	0.1	0.2	0.2	
Treasury bill, 3-mo.	0.05	0.05	0.06	0.05	0.04	0.02	0.02	0.03	0.1	0.1	0.1	0.1	0.2	0.2	
Treasury bill, 6-mo.	0.05	0.05	0.06	0.06	0.05	0.04	0.04	0.04	0.1	0.1	0.1	0.2	0.2	0.2	
Treasury bill, 1 yr.	0.07	0.08	0.08	0.08	0.07	0.05	0.06	0.06	0.1	0.1	0.2	0.2	0.3	0.3	
Treasury note, 2 yr.	0.21	0.24	0.22	0.25	0.20	0.16	0.16	0.17	0.2	0.3	0.4	0.5	0.5	0.6	
Treasury note, 5 yr.	0.71	0.81	0.78	0.88	0.84	0.82	0.86	0.84	0.9	1.0	1.1	1.2	1.3	1.3	
Treasury note, 10 yr.	1.26	1.36	1.34	1.47	1.52	1.62	1.64	1.59	1.5	1.6	1.8	1.9	1.9	2.0	
Treasury note, 30 yr.	1.89	1.97	1.96	2.08	2.16	2.32	2.30	2.26	2.1	2.3	2.4	2.5	2.6	2.6	
Corporate Aaa bond	2.69	2.74	2.74	2.81	2.91	3.06	3.04	3.00	2.8	3.0	3.1	3.2	3.3	3.3	
Corporate Baa bond	3.13	3.19	3.19	3.26	3.35	3.52	3.51	3.46	3.5	3.7	3.9	4.0	4.1	4.2	
State & Local bonds	2.59	2.60	2.63	2.66	2.64	2.64	2.66	2.65	2.4	2.5	2.6	2.6	2.7	2.7	
Home mortgage rate	2.78	2.88	2.90	2.98	2.98	2.96	3.06	3.00	3.0	3.2	3.3	3.4	3.5	3.5	

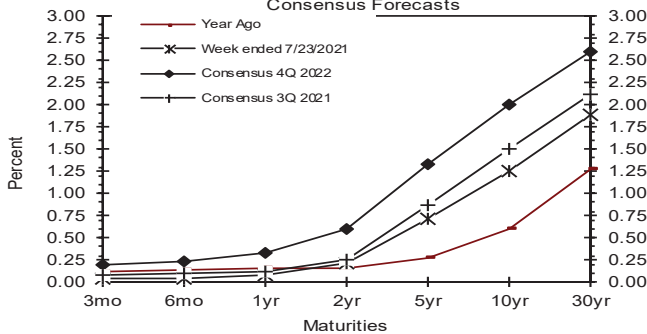
  

Key Assumptions	History								Consensus Forecasts-Quarterly					
	3Q 2019	4Q 2019	1Q 2020	2Q 2020	3Q 2020	4Q 2020	1Q 2021	2Q 2021	3Q 2021	4Q 2021	1Q 2022	2Q 2022	3Q 2022	4Q 2022
	2019	2019	2020	2020	2020	2020	2021	2021	2021	2021	2022	2022	2022	2022
Fed's AFE \$ Index	110.6	110.5	111.4	112.4	107.3	105.2	103.4	102.9	104.5	104.4	104.0	103.9	103.9	104.0
Real GDP	2.8	1.9	-5.1	-31.2	33.8	4.5	6.3	6.5	7.2	5.5	4.0	3.3	2.7	2.3
GDP Price Index	1.4	1.5	1.6	-1.5	3.6	2.2	4.3	6.0	3.7	2.5	2.4	2.3	2.3	2.3
Consumer Price Index	1.3	2.6	1.0	-3.1	4.7	2.4	3.7	8.4	4.7	2.4	2.2	2.4	2.4	2.2
PCE Price Index	1.1	1.7	1.3	-1.6	3.7	1.5	3.8	6.4	3.7	2.2	2.1	2.3	2.2	2.2

Forecasts for interest rates and the Federal Reserve's Major Currency Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index, PCE Price Index and Consumer Price Index are seasonally-adjusted annual rates of change (saar). Individual panel members' forecasts are on pages 4 through 9. Historical data: Treasury rates from the Federal Reserve Board's H.15; AAA-AA and A-BBB corporate bond yields from Bank of America-Merrill Lynch and are 15+ years, yield to maturity; State and local bond yields from Bank of America-Merrill Lynch, A-rated, yield to maturity; Mortgage rates from Freddie Mac, 30-year, fixed; LIBOR quotes from Intercontinental Exchange. All interest rate data are sourced from Haver Analytics. Historical data for Fed's Major Currency Index are from FRSR H.10. Historical data for Real GDP, GDP Price Index and PCE Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index history is from the Department of Labor's Bureau of Labor Statistics (BLS).

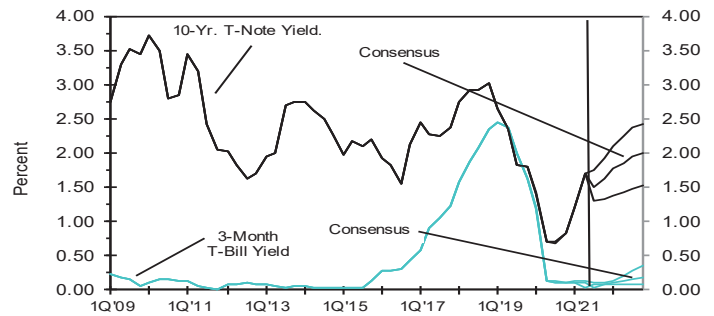
#### U.S. Treasury Yield Curve

Week ended July 23, 2021 & Year Ago v.s.  
3Q 2021 & 4Q 2022  
Consensus Forecasts



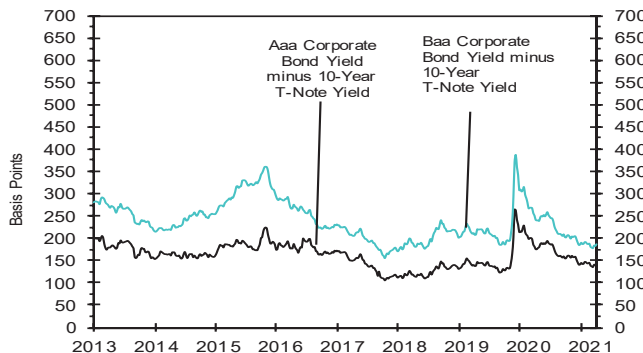
#### U.S. 3-Mo. T-Bills & 10-Yr. T-Note Yield

(Quarterly Average) Forecast



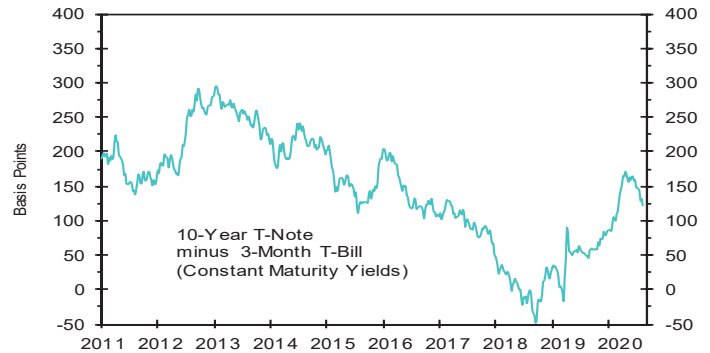
#### Corporate Bond Spreads

As of week ended July 23, 2021



#### U.S. Treasury Yield Curve

As of week ended July 23, 2021

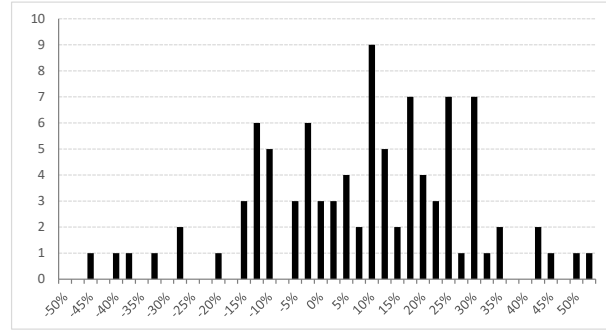


Alamos Energy Corporation  
Portfolio Ranks by Size and Risk Premiums over CAPM Results  
as Compiled by Duff and Phelps Guide to Cost of Capital

Portfolio Rank by Size	B-1		B-2		B-3		B-4		B-5		B-6		B-7		B-8	
	Market Val. of Equity (in \$Millions)	RP	Average Book Val. (in \$Millions)	RP	5-yr Net Income (in \$Millions)	RP	Market Value of Invested Capital (in \$Millions)	RP	Total Assets (in \$Millions)	RP	5-yr EBITDA (in \$Millions)	RP	Sales (in \$Millions)	RP	Average Number of Employees	RP
1	\$222,261 and Up	-0.78%	\$44,861 and Up	1.22%	\$7,190 and Up	0.85%	\$258,435 and Up	-0.32%	\$121,632 and Up	0.84%	\$14,837 and Up	0.95%	\$95,905 and Up	1.02%	234,707 and Up	0.67%
2	\$67,607 - \$222,261	0.50%	\$15,985 - \$44,861	1.88%	\$2,418 - \$7,190	1.69%	\$85,545 - \$258,435	0.77%	\$52,712 - \$121,632	1.52%	\$5,561 - \$14,837	1.74%	\$33,447 - \$95,905	1.85%	92,311 - 234,707	1.57%
3	\$42,245 - \$67,607	0.96%	\$10,286 - \$15,985	2.16%	\$1,515 - \$2,418	1.98%	\$54,459 - \$85,545	1.19%	\$34,307 - \$52,712	1.79%	\$3,740 - \$5,561	2.03%	\$20,941 - \$33,447	2.25%	62,769 - 92,311	1.92%
4	\$29,591 - \$42,245	1.30%	\$7,504 - \$10,286	2.32%	\$1,013 - \$1,515	2.28%	\$39,733 - \$54,459	1.47%	\$23,000 - \$34,307	2.08%	\$2,748 - \$3,740	2.24%	\$16,179 - \$20,941	2.43%	47,290 - 62,769	2.16%
5	\$21,930 - \$29,591	1.57%	\$5,725 - \$7,504	2.49%	\$772 - \$1,013	2.47%	\$29,472 - \$39,733	1.69%	\$17,517 - \$23,000	2.29%	\$2,103 - \$2,748	2.43%	\$12,750 - \$16,179	2.60%	36,723 - 47,290	2.36%
6	\$16,592 - \$21,930	1.83%	\$4,594 - \$5,725	2.60%	\$613 - \$772	2.62%	\$21,901 - \$29,472	1.97%	\$14,200 - \$17,517	2.43%	\$1,650 - \$2,103	2.59%	\$10,380 - \$12,750	2.75%	28,971 - 36,723	2.55%
7	\$12,962 - \$16,592	2.06%	\$3,718 - \$4,594	2.76%	\$502 - \$613	2.76%	\$17,501 - \$21,901	2.16%	\$11,581 - \$14,200	2.57%	\$1,315 - \$1,650	2.75%	\$8,805 - \$10,380	2.87%	23,614 - 28,971	2.73%
8	\$10,730 - \$12,962	2.29%	\$3,164 - \$3,718	2.82%	\$422 - \$502	2.87%	\$14,263 - \$17,501	2.33%	\$9,608 - \$11,581	2.69%	\$1,094 - \$1,315	2.88%	\$7,598 - \$8,805	2.97%	19,619 - 23,614	2.87%
9	\$9,185 - \$10,730	2.53%	\$2,750 - \$3,164	2.89%	\$355 - \$422	2.98%	\$11,972 - \$14,263	2.49%	\$8,067 - \$9,608	2.81%	\$924 - \$1,094	2.98%	\$6,502 - \$7,598	3.07%	16,645 - 19,619	3.02%
10	\$7,763 - \$9,185	2.68%	\$2,388 - \$2,750	2.96%	\$305 - \$355	3.08%	\$10,234 - \$11,972	2.61%	\$6,901 - \$8,067	2.92%	\$784 - \$924	3.10%	\$5,381 - \$6,502	3.18%	14,557 - 16,645	3.12%
11	\$6,515 - \$7,763	2.84%	\$2,059 - \$2,388	3.04%	\$259 - \$305	3.17%	\$8,619 - \$10,234	2.74%	\$6,025 - \$6,901	3.01%	\$675 - \$784	3.20%	\$4,454 - \$5,381	3.26%	12,653 - 14,557	3.23%
12	\$5,542 - \$6,515	2.84%	\$1,769 - \$2,059	3.12%	\$221 - \$259	3.29%	\$7,384 - \$8,619	2.89%	\$5,275 - \$6,025	3.09%	\$582 - \$675	3.30%	\$3,801 - \$4,454	3.43%	11,017 - 12,653	3.34%
13	\$4,806 - \$5,542	2.97%	\$1,542 - \$1,769	3.20%	\$189 - \$221	3.37%	\$6,601 - \$7,384	2.99%	\$4,495 - \$5,275	3.19%	\$509 - \$582	3.39%	\$3,318 - \$3,801	3.53%	9,726 - 11,017	3.44%
14	\$4,160 - \$4,806	3.09%	\$1,358 - \$1,542	3.27%	\$159 - \$189	3.49%	\$5,895 - \$6,601	3.07%	\$3,807 - \$4,495	3.30%	\$450 - \$509	3.47%	\$2,935 - \$3,318	3.62%	8,526 - 9,726	3.54%
15	\$3,572 - \$4,160	3.22%	\$1,204 - \$1,358	3.33%	\$138 - \$159	3.58%	\$5,125 - \$5,895	3.18%	\$3,263 - \$3,807	3.40%	\$402 - \$450	3.55%	\$2,571 - \$2,935	3.70%	7,367 - 8,526	3.65%
16	\$3,052 - \$3,572	3.36%	\$1,049 - \$1,204	3.39%	\$103 - \$120	3.76%	\$4,340 - \$5,125	3.30%	\$2,788 - \$3,263	3.50%	\$293 - \$349	3.73%	\$2,252 - \$2,571	3.80%	6,292 - 7,367	3.77%
17	\$2,627 - \$3,052	3.50%	\$899 - \$1,049	3.48%	\$87 - \$103	3.85%	\$3,663 - \$4,340	3.45%	\$2,011 - \$2,788	3.72%	\$241 - \$293	3.95%	\$1,786 - \$2,252	3.88%	5,374 - 6,292	3.90%
18	\$2,238 - \$2,627	3.62%	\$778 - \$899	3.55%	\$71 - \$87	3.98%	\$3,084 - \$3,663	3.73%	\$1,712 - \$2,011	3.82%	\$195 - \$241	3.99%	\$1,554 - \$1,786	4.03%	4,623 - 5,374	4.02%
19	\$1,859 - \$2,238	3.79%	\$670 - \$778	3.63%	\$57 - \$71	4.12%	\$2,511 - \$3,084	3.91%	\$1,429 - \$1,712	3.93%	\$161 - \$195	4.24%	\$1,296 - \$1,554	4.14%	3,913 - 4,623	4.14%
20	\$1,527 - \$1,859	3.95%	\$574 - \$670	3.71%	\$47 - \$57	4.24%	\$2,016 - \$2,511	4.08%	\$1,171 - \$1,429	4.05%	\$135 - \$161	4.24%	\$1,046 - \$1,296	4.14%	3,231 - 3,913	4.28%
21	\$1,243 - \$1,527	4.13%	\$488 - \$574	3.79%	\$36 - \$47	4.38%	\$1,633 - \$2,016	4.25%	\$913 - \$1,171	4.19%	\$106 - \$135	4.36%	\$853 - \$1,046	4.43%	2,608 - 3,231	4.44%
22	\$964 - \$1,243	4.31%	\$401 - \$488	3.89%	\$25 - \$36	4.56%	\$1,281 - \$1,633	4.48%	\$646 - \$913	4.38%	\$76 - \$106	4.56%	\$648 - \$853	4.55%	1,451 - 2,008	4.62%
23	\$658 - \$964	4.59%	\$319 - \$401	3.99%	\$21 - \$25	4.86%	\$899 - \$1,281	4.86%	\$457 - \$646	4.86%	\$42 - \$76	4.80%	\$349 - \$648	4.81%	798 - 1,451	5.13%
24	\$329 - \$658	4.13%	\$190 - \$319	4.13%	\$13 - \$21	5.55%	Up To \$457	5.79%	Up To \$352	5.30%	Up To \$42	5.50%	Up To \$349	5.56%	Up to 798	5.99%
25	Up To \$329	6.05%	Up To \$190	4.66%	Up To \$13	5.55%	Up To \$457	5.79%	Up To \$352	5.30%	Up To \$42	5.50%	Up To \$349	5.56%	Up to 798	5.99%
Mr. Baudino's Proxy Group	\$ 4,265	Portfolio Ranking 14	\$ 2,691	Portfolio Ranking 10	\$ 186	Portfolio Ranking 14	\$ 7,208	Portfolio Ranking 13	\$ 7,769	Portfolio Ranking 10	\$ 490	Portfolio Ranking 14	\$ 1,968	Portfolio Ranking 18	\$ 3,804	Portfolio Ranking 20
Amos Energy Kentucky	\$ 545	24	\$ 340	23	\$ 28	23	\$ 801	24	\$ 596	24	\$ 52	24	\$ 154	25	191	25
Indicated Risk Premium	1.93%		1.03%		1.07%		1.87%		1.73%		1.33%		1.61%		1.71%	

Sources of Information:  
Duff & Phelps Risk Premium Size Study Premia as of December 31, 2020.  
Bloomberg Professional  
SEC Form 10-K  
Company financial statements

Atmos Energy Corporation  
Frequency Distribution of Market Risk Premium, 1926 - 2020



Large Company Stocks Total Returns		Long-Term Government Bond Income Returns		MRP		
Year	Jan-Dec*	Jan-Dec*	Jan-Dec*	Bin	Frequency	Cumulative %
1926	0.1162	0.0373	0.0789	-50.00%	0	0.0%
1927	0.3749	0.0341	0.3408	-47.50%	0	0.0%
1928	0.4361	0.0322	0.4039	-45.00%	1	1.1%
1929	-0.0842	0.0347	-0.1189	-42.50%	0	1.1%
1930	-0.2490	0.0332	-0.2822	-40.00%	1	2.1%
1931	-0.4334	0.0333	-0.4667	-37.50%	1	3.2%
1932	-0.0819	0.0369	-0.1188	-35.00%	0	3.2%
1933	0.5399	0.0312	0.5087	-32.50%	1	4.2%
1934	-0.0144	0.0318	-0.0462	-30.00%	0	4.2%
1935	0.4767	0.0281	0.4486	-27.50%	2	6.3%
1936	0.3392	0.0277	0.3115	-25.00%	0	6.3%
1937	-0.3503	0.0266	-0.3769	-22.50%	0	6.3%
1938	0.3112	0.0264	0.2848	-20.00%	1	7.4%
1939	-0.0041	0.0240	-0.0281	-17.50%	0	7.4%
1940	-0.0978	0.0223	-0.1201	-15.00%	3	10.5%
1941	-0.1159	0.0194	-0.1353	-12.50%	6	16.8%
1942	0.2034	0.0246	0.1788	-10.00%	5	22.1%
1943	0.2590	0.0244	0.2346	-7.50%	0	22.1%
1944	0.1975	0.0246	0.1729	-5.00%	3	25.3%
1945	0.3644	0.0234	0.3410	-2.50%	6	31.6%
1946	-0.0807	0.0204	-0.1011	0.00%	3	34.7%
1947	0.0571	0.0213	0.0358	2.50%	3	37.9%
1948	0.0550	0.0240	0.0310	5.00%	4	42.1%
1949	0.1879	0.0225	0.1654	7.50%	2	44.2%
1950	0.3171	0.0212	0.2959	10.00%	9	53.7%
1951	0.2402	0.0238	0.2164	12.50%	5	58.9%
1952	0.1837	0.0266	0.1571	15.00%	2	61.1%
1953	-0.0099	0.0284	-0.0383	17.50%	7	68.4%
1954	0.5262	0.0279	0.4983	20.00%	4	72.6%
1955	0.3156	0.0275	0.2881	22.50%	3	75.8%
1956	0.0656	0.0299	0.0357	25.00%	7	83.2%
1957	-0.1078	0.0344	-0.1422	27.50%	1	84.2%
1958	0.4336	0.0327	0.4009	30.00%	7	91.6%
1959	0.1196	0.0401	0.0795	32.50%	1	92.6%
1960	0.0047	0.0426	-0.0379	35.00%	2	94.7%
1961	0.2689	0.0383	0.2306	37.50%	0	94.7%
1962	-0.0873	0.0400	-0.1273	40.00%	0	94.7%
1963	0.2280	0.0389	0.1891	42.50%	2	96.8%
1964	0.1648	0.0415	0.1233	45.00%	1	97.9%
1965	0.1245	0.0419	0.0826	47.50%	0	97.9%
1966	-0.1006	0.0449	-0.1455	50.00%	1	98.9%
1967	0.2398	0.0459	0.1939	51.00%	1	100.0%
1968	0.1106	0.0550	0.0556			
1969	-0.0850	0.0595	-0.1445			
1970	0.0386	0.0674	-0.0288			
1971	0.1430	0.0632	0.0798			
1972	0.1899	0.0587	0.1312			
1973	-0.1469	0.0651	-0.2120			
1974	-0.2647	0.0727	-0.3374			
1975	0.3723	0.0799	0.2924			
1976	0.2393	0.0789	0.1604			
1977	-0.0716	0.0714	-0.1430			
1978	0.0657	0.0790	-0.0133			
1979	0.1861	0.0886	0.0975			
1980	0.3250	0.0997	0.2253			
1981	-0.0492	0.1155	-0.1647			
1982	0.2155	0.1350	0.0805			
1983	0.2256	0.1038	0.1218			

MRP		
Bin	Frequency	Cumulative %
-50.00%	0	0.0%
-47.50%	0	0.0%
-45.00%	1	1.1%
-42.50%	0	1.1%
-40.00%	1	2.1%
-37.50%	1	3.2%
-35.00%	0	3.2%
-32.50%	1	4.2%
-30.00%	0	4.2%
-27.50%	2	6.3%
-25.00%	0	6.3%
-22.50%	0	6.3%
-20.00%	1	7.4%
-17.50%	0	7.4%
-15.00%	3	10.5%
-12.50%	6	16.8%
-10.00%	5	22.1%
-7.50%	0	22.1%
-5.00%	3	25.3%
-2.50%	6	31.6%
0.00%	3	34.7%
2.50%	3	37.9%
5.00%	4	42.1%
7.50%	2	44.2%
10.00%	9	53.7%
12.50%	5	58.9%
15.00%	2	61.1%
17.50%	7	68.4%
20.00%	4	72.6%
22.50%	3	75.8%
25.00%	7	83.2%
27.50%	1	84.2%
30.00%	7	91.6%
32.50%	1	92.6%
35.00%	2	94.7%
37.50%	0	94.7%
40.00%	0	94.7%
42.50%	2	96.8%
45.00%	1	97.9%
47.50%	0	97.9%
50.00%	1	98.9%
51.00%	1	100.0%

Count:	95
MRP from Direct	Rank
9.64%	51.00%
MRP from Rebuttal	Rank
9.93%	53.40%

Historical Market Return - Direct		
% Rank	Occurrence	
12.34%	47.60%	50
Historical Market Return - Rebuttal		
% Rank	Occurrence	
12.69%	48.00%	49



Year	Large Company Stocks	Long-Term Government	MRP
	Total Returns	Bond Income Returns	
	Jan-Dec*	Jan-Dec*	Jan-Dec*
1984	0.0627	0.1174	-0.0547
1985	0.3173	0.1125	0.2048
1986	0.1867	0.0898	0.0969
1987	0.0525	0.0792	-0.0267
1988	0.1661	0.0897	0.0764
1989	0.3169	0.0881	0.2288
1990	-0.0310	0.0819	-0.1129
1991	0.3047	0.0822	0.2225
1992	0.0762	0.0726	0.0036
1993	0.1008	0.0717	0.0291
1994	0.0132	0.0659	-0.0527
1995	0.3758	0.0760	0.2998
1996	0.2296	0.0618	0.1678
1997	0.3336	0.0664	0.2672
1998	0.2858	0.0583	0.2275
1999	0.2104	0.0557	0.1547
2000	-0.0910	0.0650	-0.1560
2001	-0.1189	0.0553	-0.1742
2002	-0.2210	0.0559	-0.2769
2003	0.2868	0.0480	0.2388
2004	0.1088	0.0502	0.0586
2005	0.0491	0.0469	0.0022
2006	0.1579	0.0468	0.1111
2007	0.0549	0.0486	0.0063
2008	-0.3700	0.0445	-0.4145
2009	0.2646	0.0347	0.2299
2010	0.1506	0.0425	0.1081
2011	0.0211	0.0382	-0.0171
2012	0.1600	0.0246	0.1354
2013	0.3239	0.0288	0.2951
2014	0.1369	0.0341	0.1028
2015	0.0138	0.0247	-0.0109
2016	0.1196	0.0230	0.0966
2017	0.2183	0.0267	0.1916
2018	-0.0438	0.0282	-0.0720
2019	0.3149	0.0255	0.2894
2020	0.1840	0.0142	0.1698
Average	0.1216	0.0491	0.0725
Std. Dev.	0.1967	0.0264	0.1979

Source: Duff & Phelps, 2021 SBBI Yearbook, Appendix A-1, A-7

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# FINANCIAL **Q**UARTERLY

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## **Comparable Earnings: New Life for an Old Precept**

by  
**Frank J. Hanley**  
**Pauline M. Ahern**

# Comparable Earnings: New Life for an Old Precept

**A**ccelerating deregulation has greatly increased the investment risk of natural gas utilities. As a result, the authors believe it more appropriate than ever to employ the comparable earnings model. We believe our application of the model overcomes the greatest traditional objection to it — lack of comparability of the selected non-utility proxy firms. Our illustration focuses on a target gas pipeline company with a beta of 0.96 — almost equal to the market's beta of 1.00.



## Introduction

The comparable earnings model used to determine a common equity cost rate is deeply rooted in the standard of “corresponding risk” enunciated in the landmark *Bluefield* and *Hope* decisions of the U.S. Supreme Court.<sup>1</sup> With such solid grounding in the foundations of rate of return regulation, comparable earnings should be accepted as a principal model, along with the currently popular market-based models, provided that its most common criticism, non-comparability of the proxy companies, is overcome.

Our comparable earnings model overcomes the non-comparability issue of the non-utility firms selected as a proxy for the target utility, in this example, a gas pipeline company. We should note that in the absence of common stock prices for the target utility (as with a wholly-owned subsidiary), it is appropriate to use the average of a proxy group of similar risk gas pipeline companies whose common stocks are actively traded. As we will demonstrate, our selection process results in a group of domestic, non-utility firms that is comparable in total risk, the sum of business and financial risk, which reflects both non-diversifiable systematic, or market, risk as well as diversifiable unsystematic, or firm-specific, risk.

*Frank J. Hanley is president of AUS Consultants — Utility Services Group. He has testified in several hundred rate proceedings on the subject of cost of capital before the Federal Energy Regulatory Commission and 27 state regulatory commissions. Before joining AUS in 1971, he was an assistant treasurer of a number of operating companies in the American Water Works System, as well as a financial planning officer with the Philadelphia National Bank. He is a Certified Rate of Return Analyst.*

*Pauline M. Ahern is a senior financial analyst with AUS Consultants — Utility Services Group. She has participated in many cost-of-capital studies. A former employee of the U.S. Department of the Treasury and the Federal Reserve Bank of Boston, she holds an MBA degree from Rutgers University and is a Certified Rate of Return Analyst.*

## Embedded in the Landmark Decisions

As stated in *Bluefield* in 1922: “A public utility is entitled to such rates as will permit it to earn a return ... on investments in other business undertakings which are attended by corresponding risks and uncertainties ...”

In addition, the court stated in *Hope* in 1944: “By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks.”

Thus, the “corresponding risk” pre-

cept of *Bluefield* and *Hope* predates the use of such market-based cost-of-equity models as the Discounted Cash Flow (DCF) and Capital Asset Pricing (CAPM), which were developed later and are currently popular in rate-base/rate-of-return regulation. Consequently, the comparable earnings model has a longer regulatory and judicial history. However, it has far greater relevance now than ever before in its history because significant deregulation has substantially increased natural gas utilities' investment risk to a level similar to that of non-utility firms. As a result, it is

## Comparable Earnings *from page 4*

more important than ever to look to similar-risk non-utility firms for insight into common equity cost rate, especially in view of the deficiencies inherent in the currently popular market-based cost of common equity models, particularly the DCF model.

Despite the fact that the landmark decisions are still regarded as having set the standards for determining a fair rate of return, the comparable earnings model has experienced decreased usage by expert witnesses, as well as less regulatory acceptance over the years. We believe the decline in the popularity of the comparable earnings model, in large measure, is attributable to the difficulty of selecting non-utility proxy firms that regulators will accept as comparable to the target utility. Regulatory acceptance is difficult to gain when the selection process is arbitrary. Our application of the model is objective and consistent with fundamental financial tenets.

### Principles of Comparable Earnings

Regulation is a substitute for the competition of the marketplace. Moreover, regulated public utilities compete in the capital markets with all firms, including unregulated non-utilities. The comparable earnings model is based upon the opportunity cost principle; i.e., that the true cost of an investment is the return that could have been earned on the next best available alternative investment of similar risk. Consequently, the comparable earnings model is consistent with regulatory and financial principles, as it is a surrogate for the competition of the marketplace, and investors seek the greatest available rate of return for bearing similar risk.

The selection of comparable firms is the most difficult step in applying the comparable earnings model, as noted by Phillips<sup>2</sup> as well as by Bonbright, Danielsen and Kamerschen.<sup>3</sup> The selection of non-utility proxy firms should result in a sufficiently broad-based group in order to minimize the effect of company-specific aberrations. How-

ever, if the selection process is arbitrary, it likely would result in a proxy group that is too broad-based, such as the Standard & Poor's 500 Composite Index or the Value Line Industrial Composite. The use of such groups would require subjective adjustments to the comparable earnings results to reflect risk differences between the group(s) and the target utility, a gas pipeline company in this example.

### Authors' Selection Criteria

We base the selection of comparable non-utility firms on market-based, objective, quantitative measures of risk resulting from market prices that subsume investors' assessments of all elements of risk. Thus, our approach is based upon the principle of risk and return; namely, that firms of comparable risk should be expected to earn comparable returns. It is also consistent with the "corresponding risk" standard established in *Bluefield* and *Hope*. We measure total investment risk as the sum of non-diversifiable systematic and diversifiable unsystematic risk. We use the unadjusted beta as a measure of systematic risk and the standard error of the estimate (residual standard error) as a measure of unsystematic risk. Both the unadjusted beta and the residual standard error are derived from a regression of the target utility's security returns relative to the market's returns, which takes the general form:

$$r_{it} = a_i + b_i r_{mt} + e_{it}$$

where:

$r_{it}$  =  $t$ th observation of the  $i$ th utility's rate of return

$r_{mt}$  =  $t$ th observation of the market's rate of return

$e_{it}$  =  $t$ th random error term

$a_i$  = constant least-squares regression coefficient

$b_i$  = least-squares regression slope coefficient, the unadjusted beta.

As shown by Francis,<sup>4</sup> the total variation or risk of a firm's return,  $\text{Var}(r_i)$ , comes from two sources:

$$\text{Var}(r_i) = \text{total risk of } i\text{th asset}$$

$$\begin{aligned} &= \text{var}(a_i + b_i r_m + e) \\ &\quad \text{substituting } (a_i + b_i r_m + e) \\ &\quad \text{for } r_i \\ &= \text{var}(b_i r_m) + \text{var}(e) \text{ since} \\ &\quad \text{var}(a_i) = 0 \\ &= b_i^2 \text{var}(r_m) + \text{var}(e) \\ &\quad \text{since } \text{var}(b_i r_m) = b_i^2 \\ &\quad \text{var}(r_m) \\ &= \text{systematic} + \\ &\quad \text{unsystematic risk} \end{aligned}$$

Francis<sup>5</sup> also notes: "The term  $\sigma^2(r_i|r_m)$  is called the *residual variance around the regression line* in statistical terms or *unsystematic risk* in capital market theory language.  $\sigma^2(r_i|r_m) = \dots = \text{var}(e)$ . The residual variance is the squared standard error in regression language, a measure of unsystematic risk." Application of these criteria results in a group of non-utility firms whose average total investment risk is indeed comparable to that of the target gas pipeline.

As a measure of systematic risk, we use the Value Line unadjusted beta. Beta measures the extent to which market-wide or macro-economic events affect a firm's stock price. We use the unadjusted beta of the target utility as a starting point because it results from the regression of the target utility's security returns relative to the market's returns. Thus, the resulting standard deviation of beta relates to the unadjusted beta. We use the standard deviation of the unadjusted beta to determine the range around it as the selection criterion based on systematic risk.

We use the residual standard error of the regression as a measure of unsystematic risk. The residual standard error reflects the extent to which events specific to the firm's operations affect a firm's stock price. Thus, it is a measure of diversifiable, unsystematic, firm-specific risk.

### An Illustration of Authors' Approach

**Step One:** We begin our approach by establishing the selection criteria as a range of both unadjusted beta and residual standard error of the target gas  
*continued on page 6*

## Comparable Earnings from page 5

pipeline company.

As shown in table 1, our target gas pipeline company has a Value Line unadjusted beta of 0.90, whose standard deviation is 0.1250. The selection criterion range of unadjusted beta is the unadjusted beta plus (+) and minus (-) three of its standard deviations. By using three standard deviations, 99.73 percent of the comparable unadjusted betas is captured.

Three standard deviations of the target utility's unadjusted beta equals 0.38 ( $0.1250 \times 3 = 0.3750$ , rounded to 0.38). Consequently, the range of unadjusted betas to be used as a selection criteria is  $0.52 - 1.28$  ( $0.52 = 0.90 - 0.38$ ) and  $1.28 = 0.90 + 0.38$ .

Likewise, the selection criterion range of residual standard error equals the residual standard error plus (+) and

minus (-) three of its standard deviations. The standard deviation of the residual standard error is defined as:  $\sigma/\sqrt{2N}$ .

As also shown in table 1, the target gas pipeline company has a residual standard error of 3.7867. According to the above formula, the standard deviation of the residual standard error would be 0.1664 ( $0.1664 = 3.7867/\sqrt{2(259)} = 3.7867/22.7596$ , where  $259 = N$ , the number of weekly price change observations over a period of five years). Three standard deviations of the target utility's residual standard error would be 0.4992 ( $0.1664 \times 3 = .4992$ ). Consequently, the range of residual standard errors to be used as a selection criterion is  $3.2875 - 4.2859$  ( $3.2875 = 3.7867 - 0.4992$ ) and  $4.2859 = 3.7867 + 0.4992$ .

**Step Two:** The step one criteria are applied to Value Line's data base of nearly 4,000 firms for which Value Line derives unadjusted betas and residual standard errors on a weekly basis. All firms with unadjusted betas and residual standard errors within the criteria ranges are then selected.

**Step Three:** In the regulatory ratemaking environment, authorized common equity return rates are applied to a book-value rate base. Thus, the earnings rates on book common equity, or net worth, of competitive, non-utility firms are highly relevant provided those firms are indeed comparable in total risk to the target gas pipeline. The use of the return rates of other utilities has no relevance because their allowed, and hence subsequently achieved, earnings rates are dependent upon the regulatory

table 1

### Summary of the Comparable Earnings Analysis for the Proxy Group of 248 Non-Utility Companies Comparable in Total Risk to the Target Gas Pipeline Company<sup>1</sup>

	1	2	3	4	5	6	7	8
	adj. beta	unadj. beta	residual standard error	rate of return on net worth				
				3-year average <sup>2</sup>	4-year average <sup>2</sup>	5-year average <sup>2</sup>	5-year projected <sup>3</sup>	
average for the proxy group of 248 non-utility companies comparable in total risk to the target gas pipeline company	0.97	0.92	3.7705					
target gas pipeline company	0.96	0.90 <sup>4</sup>	3.7867					
median				11.7%	12.0%	12.6%	15.5%	
average of the median historical returns					12.1%			
conclusion <sup>5</sup>								13.8%

<sup>1</sup>The criteria for selection of the non-utility group was that the non-utility companies be domestic and included in Value Line Investment Survey. The non-utility group was selected based on an unadjusted beta range of 0.52 to 1.28 and a residual standard error range of 3.2875 to 4.2859.

<sup>2</sup>Ending 1992.

<sup>3</sup>1996-1998/1997-1999.

<sup>4</sup>The average standard deviation of the target gas pipeline company's unadjusted beta is 0.1250.

<sup>5</sup>Equal weight given to both the average of the 3-, 4- and 5-year historical medians (12.1%) and 5-year projected median rate of return on net worth (15.5%). Thus,  $13.8\% = (12.1\% + 15.5\% / 2)$ .

Source: Value Line Inc., March 15, 1994  
Value Line Investment Survey

## Comparable Earnings *from page 6*

process. Consequently, we believe all utilities must be eliminated to avoid circularity. Moreover, we believe non-domestic firms must be eliminated because their reporting methods differ significantly from U.S. firms.

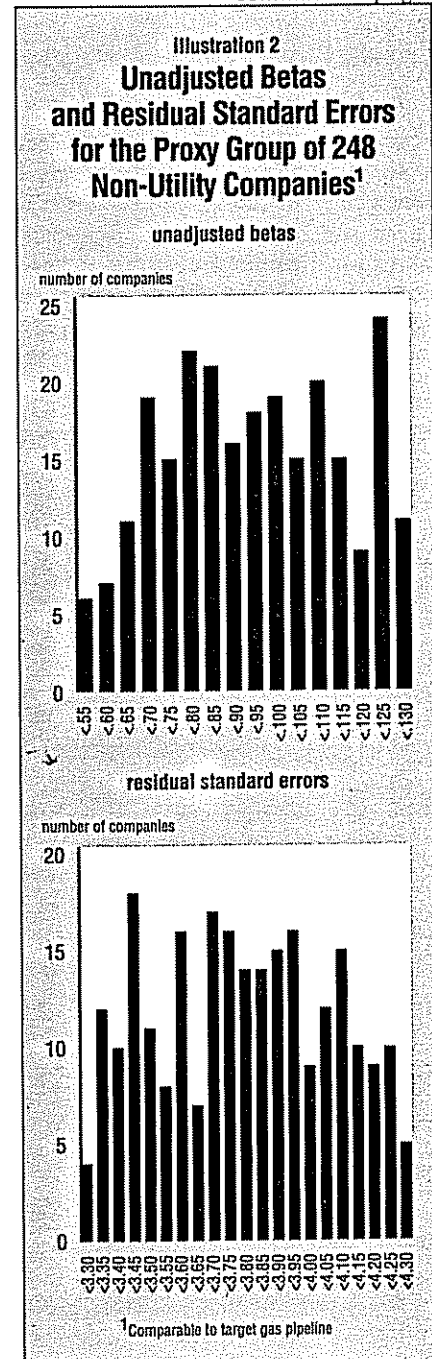
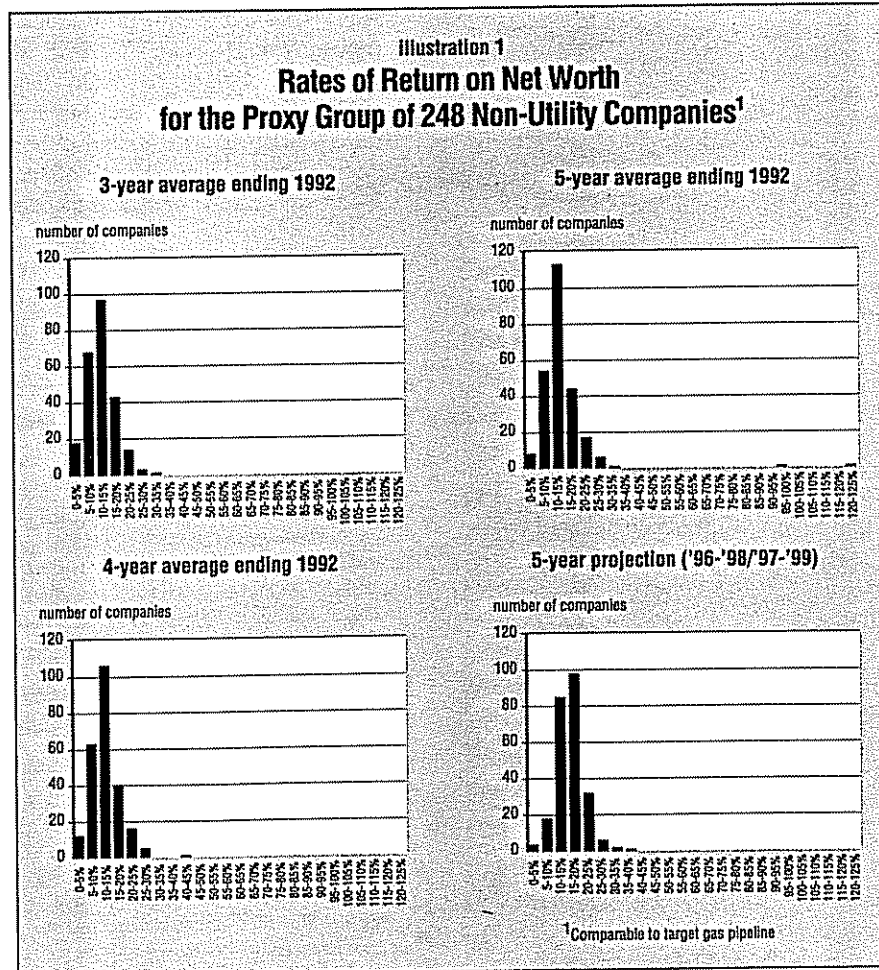
**Step Four:** We then eliminated those firms for which Value Line does not publish a "Ratings & Report" in *Value Line Investment Survey* so that the historical and projected returns on net worth<sup>6</sup> are from a consistent source. We use historical returns on net worth for the most recent five years, as well as those projected three to five years into the future. We believe it is logical to evaluate both historical and projected return rates because it is reasonable to assume that investors avail themselves of both when they are available from widely disseminated information ser-

VICES, such as Value Line Inc. The use of Value Line's return rates on net worth understates the common equity return rates for two reasons. First, preferred stock is included in net worth. Second, the net worth return rates are as of the end of each period. Thus, the use of average common equity return rates would yield higher results.

**Step Five:** Median returns based on the historical average three, four and five years ending 1992 and projected 1996-1998 or 1997-1999 rates of return on net worth are then determined as shown in columns 4 through 7 of table 1. The median is used due to the wide variations and skewness in rates of return on net worth for the non-utility firms as evidenced by the frequency distributions of those returns as shown in illustration 1.

However, we show the average unadjusted beta, 0.92, and residual standard error, 3.7705, for the proxy group in columns 2 and 3 of table 1 because their frequency distributions are not significantly skewed, as shown in illustration 2.

**Step Six:** Our conclusion of a com-  
*continued on page 8*



## Comparable Earnings *from page 7*

comparable earnings cost rate is based upon the mid-point of the average of the median three-, four- and five-year historical rates of return on net worth of 12.1 percent as shown in column 5 and the median projected 1996-1998/1997-1999 rate of return on net worth of 15.5 percent as shown in column 7 of table 1. As shown in column 8, it is 13.8 percent.

### Summary

Our comparable earnings approach demonstrates that it is possible to select a proxy group of non-utility firms that is comparable in total risk to a target utility. In our example, the 13.8 percent comparable earnings cost rate is very conservative as it is an expected achieved rate on book common equity (a regulatory allowed rate should be

greater) and because it is based on end-of-period net worth. A similar rate on average net worth would be about 20 to 40 basis points higher (i.e., 14.0 to 14.2 percent) and still understate the appropriate regulatory allowed rate of return on book common equity.

Our selection criteria are based upon measures of systematic and unsystematic risk, specifically unadjusted beta and residual standard error. They provide the basis for the objective selection of comparable non-utility firms. Our selection criteria rely on changes in market prices over approximately five years. We compare the aggregate total risk, or the sum of systematic and unsystematic risk, which reflects investors' aggregate assessment of both business and financial risk. Thus, no adjustments are necessary to the proxy group results to

compensate for the differences in business risk and financial risk, such as accounting practices and debt/equity ratios. Moreover, it is inappropriate to attempt a comparison of the target utility with any individual firm, or subset of firms, in the proxy group because only the average firm of the group is relevant.

Because the comparable earnings model is firmly anchored in the "corresponding risk" precept established in the landmark court decisions, it is worthy of consideration as a principal model for use in estimating the cost rate of common equity capital of a regulated utility. Our approach to the comparable earnings model produces a proxy group that is indeed comparable in total risk because the selection process is objective and quantitative. It therefore overcomes criticism linked to arbitrary selection processes.

All cost-of-common-equity models, including the DCF and CAPM, are fraught with deficiencies, usually stemming from the many necessary but unrealistic assumptions that underlie them. The effects of the deficiencies of individual models can be mitigated by using more than one model when estimating a utility's common equity cost rate. Therefore, when the non-comparability issue is overcome, the comparable earnings model deserves to receive the same consideration as a primary model, as do the currently popular market-based models. ■

## Report Lists Pipeline, Storage Projects

More than \$9 billion worth of projects to expand the nation's natural gas pipeline network are in various stages of development, according to an A.G.A. report. These projects involve nearly 8,000 miles of new pipelines and capacity additions to existing lines and represent 15.3 billion cubic feet (Bcf) per day of new pipeline capacity.

During 1993 and early 1994, construction on 3,100 miles of pipeline was completed or under way, at a cost of nearly \$4 billion, says A.G.A. These projects are adding 5.4 Bcf in daily delivery capacity nationwide.

Among the projects completed in 1993 were Pacific Gas Transmission Co.'s 805 miles of looping that allows increased deliveries of Canadian gas to the West Coast; Northwest Pipeline Corp.'s addition of 433 million cubic feet of daily capacity for customers in the Pacific Northwest and Rocky Mountain areas; and the 156-mile Empire State Pipeline in New York.

In addition, major construction projects were started on the systems of Texas Eastern Transmission Corp. and Algonquin Gas Transmission Co. — both subsidiaries of Panhandle Eastern Corp. — and along Florida Gas Transmission Co.'s pipeline.

The report goes on to discuss another \$5 billion in proposed projects, which, if completed, will add nearly 5,000 miles of pipeline and 9.8 Bcf per day in capacity, much of it serving Florida and West Coast markets.

A.G.A. also identifies 47 storage projects and says that if all of them are built, existing storage capacity will increase by more than 500 Bcf, or 15 percent.

For a copy of *New Pipeline Construction: Status Report 1993-94* (#F00103), call A.G.A. at (703) 841-8490. Price per copy is \$6 for employees of member companies and associates and \$12 for other customers.

<sup>1</sup>Bluefield Water Works Improvement Co. v. Public Service Commission. 262 U.S. 679 (1922) and Federal Power Commission v. Hope Natural Gas Co. 320 U.S. 519 (1944).

<sup>2</sup>Charles F. Phillips Jr., *The Regulation of Public Utilities: Theory and Practice*, Public Utilities Reports Inc. 1988, p. 379

<sup>3</sup>James C. Bonbright, Albert L. Danielsen and David R. Kamerschen, *Principles of Public Utilities Rates*, 2nd edition, Public Utilities Reports Inc. 1988, p. 329.

<sup>4</sup>Jack Clark Francis, *Investments: Analysis and Management*, 3rd edition, McGraw-Hill Book Co., 1980, p. 363

<sup>5</sup>*Id.*, p. 548.

<sup>6</sup>Returns on net worth must be used when relying on Value Line data because returns on book common equity for non-utility firms are not available from Value Line.





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Investments:  
Analysis and  
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Fifth Edition

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**Beta Measurements** The beta coefficient is an *index of systematic risk*. Beta coefficients may be used for ranking the systematic risk of different assets. If the beta is larger than 1,  $b > 1.0$ , then the asset is more volatile than the market and is called an **aggressive asset**. If the beta is less than 1,  $b < 1.0$ , the asset is a **defensive asset**; its price fluctuations are less volatile than the market's. Figure 10-1 illustrates the characteristic lines for three different assets that have low, medium, and high levels of beta (or undiversifiable risk).

Figure 10-2 shows that IBM is a stock with an average amount of systematic risk. IBM's beta of 1.02 indicates that its return tends to increase 2 percent more than the return on the market average when the market is rising. When the market falls, IBM's return tends to fall 2 percent more than the market's. The characteristic line for IBM has an above average correlation coefficient of  $\rho = .7495$ , indicating that the returns on this security follow its particular characteristic line slightly more closely than those of the average stock.

**Partitioning Risk**

Total risk can be measured by the variance of returns, denoted  $\text{Var}(r)$ . This measure of *total risk is partitioned into its systematic and unsystematic components in Equation (10-8).*<sup>7</sup>

$$\begin{aligned} \text{Var}(r_i) &= \text{total risk of } i\text{th asset} \\ &= \text{Var}(a_i + b_i r_{m,t} + e_{i,t}) \\ &\quad \text{by substituting } (a_i + b_i r_{m,t} + e_{i,t}) \text{ for } r_{i,t} \\ &= 0 + \text{Var}(b_i r_{m,t}) + \text{Var}(e_{i,t}) \\ &\quad \text{since } \text{Var}(a_i) = 0 \end{aligned} \tag{10-8}$$

$$\begin{aligned} \text{Var}(r_i) &= b_i^2 \text{Var}(r_m) + \text{Var}(e) \quad \text{since } \text{Var}(b_i r_m) = b_i^2 \text{Var}(r_m) \\ &= \text{systematic} + \text{unsystematic risk} \end{aligned} \tag{10-8a}$$

$$.01389 = .00780 + .00609 \quad \text{for IBM}$$

The unsystematic risk measure  $\text{Var}(e)$  is called in regression language the *residual variance* or, synonymously, the *standard error squared*.

**Undiversifiable Proportion** The percentage of total risk that is systematic can be measured by the coefficient of determination  $\rho^2$  (that is, the characteristic line's squared correlation coefficient).

<sup>7</sup>In this context, **partition** is a technical statistical term that means to divide the total variance into *mutually exclusive* and *exhaustive* pieces. This partition is only possible if the returns from the market are statistically independent from the residual error terms that occur simultaneously,  $\text{Cov}(r_{m,t}, e_{i,t}) = 0$ . The mathematics of regression analysis will orthogonalize the residuals and thus ensure that the needed statistical independence exists.

$$\frac{\text{Systematic risk}}{\text{Total risk}} = \frac{b_i^2 \text{Var}(r_m)}{\text{Var}(r_i)} = \rho^2 \quad (10-9)$$

$$\frac{.007802}{.01389} = \frac{(1.021)^2 (.00749)}{.00749} = .5617 \times 100 = 56.17\% \quad \text{for IBM}$$

**Diversifiable Proportion** The percentage of unsystematic risk equals  $(1.0 - \rho^2)$ .

$$\frac{\text{Unsystematic risk}}{\text{Total risk}} = \frac{\text{Var}(e)}{\text{Var}(r_i)} = (1.0 - \rho^2)$$

$$\frac{.00609}{.01389} = (1.0 - .5617) = .438 \times 100 \quad (10-10)$$

$$= 43.8\% \text{ unsystematic} \quad \text{for IBM}$$

Studies of the characteristic lines of hundreds of stocks listed on the NYSE indicate that the average correlation coefficient is approximately  $\rho = .5$ .<sup>8</sup> This means that about  $\rho^2 = 25$  percent of the total variability of return in most NYSE securities is explained by movements in the market.

	NYSE average	IBM
Systematic risk: $\rho^2$	.25	.5617
Unsystematic risk: $(1.0 - \rho^2)$	.75	.4383
Total risk: 100%	1.00	1.0000

As explained above, systematic changes are common to all stocks and are therefore undiversifiable.

A primary use of the characteristic line (or *market model*, or the *single-index model*, as it is also called) is to assess the risk characteristics of one asset.<sup>9</sup> The statistics in Table 10-2, for instance, indicate that IBM's common stock is slightly more risky than the average common stock in terms of total risk and

<sup>8</sup>The average  $\rho$  was found to be about .5, as reported in Marshall Blume, "On the Assessment of Risk," *Journal of Finance*, March 1971, p. 4. For similar estimates, see J. C. Francis, "Statistical Analysis of Risk Surrogates for NYSE Stocks," *Journal of Financial and Quantitative Analysis*, Dec. 1979.

<sup>9</sup>Professor Jensen reformulated the characteristic line in a risk-premium form. See M. C. Jensen, "The Performance of Mutual Funds in the Period 1945 through 1964," *Journal of Finance*, May 1968, pp. 389-416. See also M. C. Jensen, "Risk, the Pricing of Capital Assets, and the Evaluation of Investment Portfolios," *Journal of Business*, vol. XLII, 1969. Jensen interprets the alpha intercept term of the characteristic line, as he formulates it, as an investment performance measure. It has been suggested that Jensen's performance measure is biased. See Keith V. Smith and Dennis A. Tito, "Risk-Return Measures of Ex-Post Portfolio Performance," *Journal of Financial and Quantitative Analysis*, Dec. 1969, vol. IV, no. 4, p. 466.

systematic risk.<sup>10</sup> New risk measurements must be made periodically, however, because the risk and return of an asset may change with the passage of time.<sup>11</sup>

**10-3****CAPITAL ASSET PRICING MODEL (CAPM)**

An old axiom states “there is no such thing as a free lunch.” This means that you cannot expect to get something for nothing—a rule that certainly applies to investment returns. Investors who want to earn high average rates of return must take high risks and endure the associated loss of sleep, the possibility of ulcers, and the chance of bankruptcy. The question to which we now turn is: Should investors worry about total risk, undiversifiable risk, diversifiable risk, or all three?

In Chapter 1 it was suggested that *investors should seek investments that have the maximum expected return in their risk class*. Their happiness from investing is presumed to be derived as indicated in the expected utility  $E(U)$  function below.

$$E(U) = f[E(r), \sigma]$$

The investment preferences of wealth-seeking risk-averse investors represented by the function above cause them to maximize their expected utility (or, equivalently, happiness) by (1) maximizing their expected return in any given risk class,  $\partial E(U)/\partial E(r) > 0$ , or, conversely, (2) minimizing their total risk at any given rate of expected return,  $\partial E(U)/\partial \sigma < 0$ . However, in selecting individual assets, investors will not be particularly concerned with the asset's total risk  $\sigma$ . Figure 9-1 showed that the unsystematic portion of total risk can be easily diversified by holding a portfolio of different securities. But, systematic risk affects all stocks in the market because it is undiversifiable. Portfolio theory therefore suggests that only the undiversifiable (or systematic) risk is worth avoiding.<sup>12</sup>

<sup>10</sup>Statements about the relative degree of total risk are made in the context of a long-run horizon—that is, over at least one *complete business cycle*. Obviously, an accurate short-run forecast which says that some particular company will go bankrupt next quarter makes it more risky than IBM, although IBM may have had more historical variability of return.

<sup>11</sup>Empirical studies documenting the intertemporal instability of betas have been published. Marshall Blume, “Betas and Their Regression Tendencies,” *Journal of Finance*, June 1975, pp. 785–795. See also J. C. Francis, “Statistical Analysis of Risk Coefficients for NYSE Stocks,” *Journal of Financial and Quantitative Analysis*, Dec. 1979, vol. XIV, no. 5, pp. 981–997. An appendix at the end of this chapter reviews some evidence about shifting betas, standard deviations, and correlations.

<sup>12</sup>Both the systematic and unsystematic portions of total risk must be considered by **undiversified investors**. Entrepreneurs who have their entire net worth invested in one business, for example, can be bankrupted by a piece of bad luck that could be easily averaged away to zero in a diversified portfolio. Poorly diversified investors should not treat diversifiable risk lightly. Only well-diversified investors can afford to ignore diversifiable risk.

Capital Structure Based upon Total Permanent Capital for the  
Proxy Group of Seven Natural Gas Distribution Companies  
2016 - 2020, Inclusive

	<u>2020</u>	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>5 YEAR AVERAGE</u>
<u>Atmos Energy Corporation</u>						
Long-Term Debt	40.02 %	36.22 %	36.47 %	41.37 %	36.23 %	38.06 %
Short-Term Debt	-	4.77	6.84	6.04	12.33	6.00
Preferred Stock	-	-	-	-	-	0.00
Common Equity	59.98	59.01	56.69	52.59	51.44	55.94
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>New Jersey Resources</u>						
Long-Term Debt	53.72 %	49.70 %	45.36 %	43.62 %	46.62 %	47.80 %
Short-Term Debt	2.94	0.81	5.29	9.98	5.04	4.81
Preferred Stock	-	-	-	-	-	0.00
Common Equity	43.34	49.48	49.35	46.40	48.34	47.38
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>Northwest Natural Gas Co.</u>						
Long-Term Debt	44.47 %	46.47 %	42.89 %	49.46 %	44.32 %	45.52 %
Short-Term Debt	14.17	7.86	12.68	3.44	3.28	8.29
Preferred Stock	-	-	-	-	-	0.00
Common Equity	41.36	45.67	44.43	47.10	52.40	46.19
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>ONE Gas, Inc.</u>						
Long-Term Debt	37.65 %	32.71 %	35.44 %	33.99 %	36.97 %	35.35 %
Short-Term Debt	9.83	13.14	8.26	10.18	4.50	9.18
Preferred Stock	-	-	-	-	-	0.00
Common Equity	52.51	54.16	56.31	55.84	58.54	55.47
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>South Jersey Industries</u>						
Long-Term Debt	56.33 %	52.76 %	64.88 %	43.54 %	39.61 %	51.42 %
Short-Term Debt	11.51	17.64	6.18	12.71	11.28	11.86
Preferred Stock	-	-	-	-	-	0.00
Common Equity	32.16	29.60	28.94	43.75	49.11	36.71
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>Southwest Gas Holding Co.</u>						
Long-Term Debt	49.92 %	47.56 %	47.10 %	46.66 %	49.06 %	48.06 %
Short-Term Debt	1.93	4.07	3.35	5.64	-	3.00
Preferred Stock	-	-	-	-	-	0.00
Common Equity	48.16	48.37	49.55	47.69	50.94	48.94
Total Capital	<u>100.01 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>99.99 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>Spire, Inc.</u>						
Long-Term Debt	43.93 %	39.24 %	40.57 %	45.91 %	49.02 %	43.73 %
Short-Term Debt	11.46	13.74	11.71	10.46	9.38	11.35
Preferred Stock	4.28	4.47	-	-	-	1.75
Common Equity	40.33	42.54	47.72	43.63	41.60	43.16
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>Proxy Group of Seven Natural Gas Distribution Companies</u>						
Long-Term Debt	46.57 %	43.52 %	44.67 %	43.51 %	43.12 %	44.28 %
Short-Term Debt	7.41	8.86	7.76	8.35	6.54	7.78
Preferred Stock	0.61	0.64	-	-	-	0.25
Common Equity	45.41	46.98	47.57	48.14	50.34	47.68
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>

Source of Information  
Annual Forms 10-K

Capital Structure Based upon Total Permanent Capital for the  
Kentucky Natural Gas Utilities  
2016 - 2020, Inclusive

	<u>2020</u>	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>5 YEAR AVERAGE</u>
<u>Duke Energy Corporation</u>						
Long-Term Debt	54.07 %	53.77 %	53.59 %	54.35 %	52.39 %	53.63 %
Short-Term Debt	2.60	2.90	3.35	2.25	2.72	2.76
Preferred Stock	1.77	1.82	-	-	-	0.72
Common Equity	41.56	41.50	43.06	43.40	44.89	42.88
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>NiSource Inc.</u>						
Long-Term Debt	56.44 %	47.66 %	45.40 %	58.52 %	53.60 %	52.32 %
Short-Term Debt	3.07	10.74	12.54	9.05	12.42	9.56
Preferred Stock	5.37	5.33	5.58	-	-	3.26
Common Equity	35.12	36.26	36.48	32.43	33.98	34.85
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>PPL Corporation</u>						
Long-Term Debt	58.91 %	59.43 %	61.15 %	63.04 %	62.87 %	61.07 %
Short-Term Debt	4.54	3.30	4.25	3.37	3.17	3.73
Preferred Stock	-	-	-	-	-	0.00
Common Equity	36.55	37.26	34.60	33.59	33.96	35.19
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>Essential Utilities, Inc.</u>						
Long-Term Debt	53.57 %	43.14 %	55.76 %	51.94 %	50.54 %	50.98 %
Short-Term Debt	1.18	0.53	0.53	0.61	0.51	0.67
Preferred Stock	-	-	-	-	-	0.00
Common Equity	45.25	56.32	43.71	47.45	48.95	48.34
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>Parent Companies of Kentucky Natural Gas Utilities</u>						
Long-Term Debt	55.74 %	51.00 %	53.97 %	56.96 %	54.84 %	44.28 %
Short-Term Debt	2.85	4.37	5.17	3.82	4.71	7.78
Preferred Stock	1.79	1.79	1.40	-	-	0.25
Common Equity	39.62	42.84	39.46	39.22	40.45	47.68
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>

Source of Information  
Annual Forms 10-K

Atmos Energy Corporation  
Operating Subsidiary Company Capital Structures of the  
Proxy Group of Seven Natural Gas Distribution Companies

	2020				
Company Name	Parent Company Ticker	Common Equity	Long-Term Debt	Short-Term Debt	Total Capital
Atmos Energy Corporation	ATO	58.75%	41.25%	0.00%	100.00%
New Jersey Natural Gas Company	NJR	53.09%	46.91%	0.00%	100.00%
Northwest Natural Gas Company	NWN	40.43%	48.36%	11.21%	100.00%
ONE Gas, Inc.	OGS	52.28%	37.93%	9.79%	100.00%
Elizabethtown Gas Company	SJI	NA	NA	NA	NA
South Jersey Gas Company	SJI	53.87%	44.17%	1.96%	100.00%
Southwest Gas Corporation	SWX	47.21%	51.59%	1.20%	100.00%
Missouri Gas Energy	SR	NA	NA	NA	NA
Spire Alabama Inc.	SR	58.68%	32.96%	8.36%	100.00%
Spire Gulf Inc.	SR	NA	NA	NA	NA
Spire Mississippi Inc.	SR	NA	NA	NA	NA
Spire Missouri Inc.	SR	50.71%	38.65%	10.64%	100.00%
	Mean	<u>51.88%</u>	<u>42.73%</u>	<u>5.40%</u>	<u>100.00%</u>

Source: S&P Global Market Intelligence

Atmos Energy Corporation  
Operating Subsidiary Company Capital Structures of the  
Kentucky Natural Gas Utilities

Company Name	Parent Company Ticker	Common Equity	Long-Term Debt	Short-Term Debt	Total Capital
Columbia Gas of Kentucky, Incorporated	NI	NA	NA	NA	NA
Delta Natural Gas Company, Inc.	WTRG	NA	NA	NA	NA
Duke Energy Kentucky, Inc.	DUK	46.90%	48.17%	4.93%	100.00%
Louisville Gas and Electric Company	PPL	<u>56.28%</u>	<u>38.72%</u>	<u>5.00%</u>	<u>100.00%</u>
	Mean	<u>51.59%</u>	<u>43.45%</u>	<u>4.96%</u>	<u>100.00%</u>

Source: S&P Global Market Intelligence





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**I. INTRODUCTION AND PURPOSE**

**Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A. My name is Joel J. Multer. My business address is 5430 LBJ Freeway, Dallas, Texas 75240.

**Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

A. I am the Vice President of Tax for Atmos Energy Corporation.

**Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.**

A. I have a Bachelor of Business Administration Degree in Accounting as well as a Master of Science with a focus on Taxation from the University of Wisconsin-Milwaukee. I am a Certified Public Accountant in the State of Wisconsin. I joined Atmos Energy in my current role in August 2021. Prior to that time, I held positions in both public accounting and within the private sector, including over thirteen years in the regulated utility industry. My previous employers include American Electric Power Service Corporation, Ernst & Young, WEC Energy Group, and Walgreen Boots Alliance.

**Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN ANY REGULATORY PROCEEDINGS?**

A. Yes. I have provided testimony to the Arkansas Public Service Commission, the Louisiana Public Service Commission, and the Public Utility Commission of Texas on behalf of Southwestern Electric Power Company. I have also provided testimony to the Oklahoma Corporation Commission on behalf of Public Service Company of Oklahoma, to the Michigan Public Service Commission on behalf of Indiana

1 Michigan Power Company, and to the Public Utilities Commission of Ohio on  
2 behalf of the Ohio Power Company.

3 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
4 **PROCEEDING?**

5 A. The purpose of my testimony is to rebut certain recommendations regarding Atmos  
6 Energy Corporation’s (“Atmos Energy” or the “Company”) tax matters advocated  
7 for by Lane Kollen in his Answering Testimony.

8 **Q. WHAT IS YOUR SUMMARY OF MR. KOLLEN’S POSITION ON TAX**  
9 **MATTERS?**

10 A. Mr. Kollen recommends the following (1) that the Commission exclude the SSU  
11 division 002 asset Self-Insurance Adjustment, Rabbi Trust, VEBA Trust  
12 Contribution Adjustment, FAS106 Adjustment, Federal and State Tax Interest, FD-  
13 NOL Credit Carryforward – Other, and Enterprise Zone ITC and the related  
14 Valuation Allowance ADIT amounts, and the liability Pension Expense ADIT  
15 amount from the allocation to the Kentucky rate division and reduce the Kentucky  
16 rate division rate base by the asset amounts allocated and increase the rate base by  
17 the liability amount allocated by the Company in its calculations (“Various SSU  
18 ADIT Adjustments”); (2) that the Commission use a three-year amortization period  
19 on a consistent basis for the amortization of the unprotected excess deferred tax  
20 regulatory liability, stores clearing account liability, and deferred rate case expenses  
21 (“EDIT Amortization Issue”); (3) that the Commission remove the asset NOL ADIT  
22 addition from the PRP rate base formula unless it incorporates reductions in the  
23 Company NOL ADIT due to taxable income after the test year in this proceeding

1 and subtracts the allocation of these amounts to the Kentucky rate division from the  
2 PRP rate base formula (“PRP ADIT Issue”); (4) that the Company’s NOL ADIT  
3 exclude amounts specifically identified and directly assignable to other rate  
4 divisions, such as the NOL ADIT due to Winter Storm Uri (“NOL ADIT  
5 Assignment Issue”); and (5) that the Commission reject the Company’s request for  
6 a TAAF rider because the Commission already has the capability to address changes  
7 in tax codes (“TAAF Rider Issue”).

## 8 **II. SUMMARY OF TESTIMONY**

### 9 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS**

10 A. My recommendations in response to Mr. Kollen’s various positions are as follows:

- 11 • **Various SSU ADIT Adjustments** – I agree with Mr. Kollen’s proposal to  
12 remove these items from the allocation to the Kentucky rate division.
- 13 • **EDIT Amortization Issue** – I neither accept nor reject Mr. Kollen’s adjustment  
14 but provide policy considerations.
- 15 • **Liability ADIT Unrealized Gains on Interest Rate Contracts** – I agree in  
16 part to Mr. Kollen’s recommendation to include this liability in rate base.
- 17 • **NOL ADIT April 2021 Through December 2021** – I rebut Mr. Kollen’s  
18 adjustment.
- 19 • **PRPADIT Issue** – I rebut Mr. Kollen’s adjustment.
- 20 • **NOL ADIT Assignment Issue** – As further explained by Mr. Christian, the  
21 Company supplemented its filing in August to remove this item from rate base.
- 22 • **TAAF Rider Issue** – I rebut Mr. Kollen’s adjustment.



1 **IV. EDIT AMORTIZATION ISSUE**

2 **Q. WHAT WAS THE COMPANY’S PROPOSAL WITH REGARDS TO THE**  
3 **AMORTIZATION OF UNPROTECTED EDIT?**

4 A. The Company proposed to return unprotected EDIT to the customers over a five-  
5 year period.

6 **Q. WHAT IS MR. KOLLEN’S PROPOSAL FOR THE AMORTIZATION OF**  
7 **UNPROTECTED EDIT?**

8 A. Mr. Kollen proposes a three-year amortization period.

9 **Q. DO YOU AGREE OR DISAGREE WITH MR. KOLLEN’S ADJUSTMENT?**

10 A. I take no position. There is no “right” or “wrong” answer. Both the Company and  
11 Mr. Kollen correctly recognize that the protected EDIT must be returned more  
12 slowly to avoid a normalization violation, but that it is up to the Commission to  
13 determine the appropriate schedule for the return of unprotected EDIT. The choice  
14 of five years, three years, or any other timetable is a policy decision for the  
15 Commission. Mr. Christian provides some additional insights regarding the impact  
16 of the three year vs. five year amortization on the Company’s cash flow.

17 **V. SSU DIVISION 002 T-LOCK ADJUSTMENT-UNREALIZED GAINS**  
18 **LIABILITY ADIT ISSUE**

19 **Q. WHAT IS MR. KOLLEN’S PROPOSAL WITH REGARD TO LIABILITY**  
20 **ADIT ASSOCIATED WITH UNREALIZED GAINS ON COMPANY**  
21 **INTEREST RATE CONTRACTS?**

22 A. Mr. Kollen recommends inclusion of an allocation of the liability T-Lock  
23 Adjustment- Unrealized Gains ADIT in the Kentucky rate division rate base.

1 **Q. WHAT EXPLANATION DOES MR. KOLLEN PROVIDE FOR HIS**  
2 **RECOMMENDATION?**

3 A. Mr. Kollen does not provide a rate making justification for including an allocation  
4 of the liability T-Lock Adjustment-Unrealized Gains ADIT in the Kentucky rate  
5 division rate base. Mr. Kollen's rationale for proposing the inclusion of an  
6 allocation of this liability ADIT in the Kentucky rate division rate base is that ADIT  
7 associated with unrealized gains on interest rate contracts were included within  
8 Kentucky rate division rate base in previous Company rate filings.

9 **Q. DO YOU AGREE WITH MR. KOLLEN'S RATIONALE FOR INCLUSION**  
10 **OF AN ALLOCATION OF LIABILITY ADIT FOR UNREALIZED GAINS**  
11 **IN RATE BASE?**

12 A. I do not agree with Mr. Kollen's rationale. Liability ADIT is properly included as a  
13 component of rate base in instances in which a corresponding income tax expense  
14 is allowed as a cost of service element; however, such tax expense is not  
15 immediately due the taxing authority but is rather deferred to a subsequent year in  
16 accordance with provisions of the tax code. In the case of interest rate contracts  
17 acquired by the Company, no amounts are included in Kentucky rate division rate  
18 base and; therefore, no corresponding tax expense is calculated and included in cost  
19 of service (meaning no income expense has been paid for by customers in relation  
20 to the appreciation in value of these interest rate contracts). Because no tax would  
21 be due the taxing authority in relation to appreciation in value (i.e. gains) that are  
22 unrealized, there is also no immediate cash tax payment or obligation due.  
23 Therefore, it would generally be proper for neither the unrealized gain on interest

1 rate contracts or the associated liability ADIT to be included as components of rate  
2 base.

3 **Q. DO YOU AGREE WITH MR. KOLLEN'S RECOMMENDATION?**

4 A. In part. The Company agrees with Mr. Kollen that unrealized gains on interest rate  
5 contracts have been included in the common equity used to calculate weighted  
6 average cost of capital in this filing<sup>1</sup>. As a result of the inclusion of unrealized gains  
7 in the Company's common equity, the Company concedes that an element of  
8 income tax expense associated with unrealized gains is included in the revenue  
9 deficiency determination. Because no cash tax payments are owed the taxing  
10 authorities in relation to unrealized gains on interest rate contracts, the Company  
11 does not object to Mr. Kollen's recommendation so long as there is no reduction to  
12 the common equity component used to calculated weighted average cost of capital  
13 in the Company's filing.

14 **VI. ASSET NOL ADIT FOR PERIOD APRIL 2021 THROUGH DECEMBER 2021**

15 **Q. WHAT IS MR. KOLLEN'S PROPOSAL WITH REGARD TO ASSET NOL**  
16 **ADIT FOR THE PERIOD APRIL 2021 THROUGH DECEMBER 2021?**

17 A. Mr. Kollen proposes reducing the asset NOL ADIT by \$106.679 million for the  
18 nine-month period from April 1, 2021 through December 31, 2021.

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<sup>1</sup> Mr. Christian's update of capital structure to September 30, 2021 continues to include the unrealized gains in common equity therefore if the Commission accepts the Company's capital structure it follows that the related ADIT items should be included in rate base.



1 **Q. WHAT DOES MR. KOLLEN DESCRIBE AS THE REASON FOR THIS**  
2 **PROPOSAL?**

3 A. Mr. Kollen explains that the asset NOL ADIT balance within the Company's filing  
4 is reduced for the time period October 1, 2020 through March 31, 2021 as the result  
5 of the Company estimating positive taxable income before application of net  
6 operating loss carryforwards. Mr. Kollen notes that the asset NOL ADIT balance as  
7 of March 31, 2021 then remains unchanged from April 1, 2021 through December  
8 31, 2021, the first month of the test period's 13-month average. Mr. Kollen proposes  
9 a reduction to the Company's asset NOL ADIT balance for the period April 1, 2021  
10 through December 31, 2021 of \$106.670 million under an assumption that the  
11 Company will continue to recognize taxable income for this period at the same  
12 average monthly rate as was experienced between October 1, 2020 and March 31,  
13 2021 thereby utilizing an additional amount of its asset NOL ADIT.

14 **Q. DO YOU AGREE WITH MR. KOLLEN'S PROPOSAL TO REDUCE ASSET**  
15 **NOL ADIT FOR THE PERIOD APRIL 1, 2021 THROUGH DECEMBER 31,**  
16 **2021?**

17 A. No. The Company disagrees with Mr. Kollen's methodological assumption that  
18 there would be a further reduction to the Company's asset NOL ADIT for the April  
19 through December period at the same rate as was experienced in the first six months  
20 of the base period.

21 **Q. FOR WHAT REASONS IS MR. KOLLEN'S PROPOSAL NOT VALID?**

22 A. Mr. Kollen's underlying assumption and therefore his proposal are not reasonable  
23 as the Company's test year projections were valid estimates at the time of filing in

1 this proceeding as evidenced by the Company's actual results for the period April  
 2 1, 2021 through September 30, 2021 (the Company's most recent fiscal year-end)  
 3 as well as the Company's historic results and deferred tax assumptions for the test  
 4 period (calendar year 2022). The Company's actual results for the period April 1,  
 5 2021 through September 30, 2021 was a \$34.9 million increase to the asset NOL  
 6 ADIT such that when combined with the \$71 million asset NOL ADIT reduction  
 7 for the taxable period October 1, 2020 through March 31, 2021, resulting in a  
 8 twelve-month reduction of the asset NOL ADIT of \$36.3 million for the full  
 9 Company fiscal year (which coincides with the base period in this case).

10 **Q. HOW DO THE COMPANY'S ACTUAL RESULTS CONTRAST WITH MR.**  
 11 **KOLLEN'S PROPOSAL?**

12 A. Mr. Kollen's assumption that the Company will have further incremental taxable  
 13 income for the period April 1, 2021 through December 31, 2021 along with his  
 14 extrapolation methodology for estimating such incremental taxable income, results  
 15 in a proposal that overestimates the Company's taxable income and associated  
 16 reduction in asset NOL ADIT for this time period. A comparison of Mr. Kollen's  
 17 proposal to the Company's filing as well as the Company's actual results is as  
 18 follows:

	(Decrease) Increase in Asset NOL ADIT				
	10/1/20 - 3/31/21	4/1/21 - 9/30/21	12-Months Ended 9/30/21	10/1/21 - 12/31/21	15-Months Ended 12/31/21
Mr. Kollen's Proposal	(71.2)	(71.2) (a)	(142.4)	(35.6) (a)	(178.0)
Company Filing	(71.2)	-	(71.2)	-	(71.2)
Company Actual Results	(71.2)	34.9 (b)	(36.3)	-	(36.3)
<i>Diff-Mr. Kollen's Proposal over Company Filing</i>	-	(71.2)	(71.2)	(35.6)	(106.8)
<i>Diff-Mr. Kollen's Proposal over Company Actual Results</i>	-	(106.1)	(106.1)	(35.6)	(141.7)

Sum of (a) - Mr. Kollen's proposal - extrapolation of six-month change Oct '20 thru Mar '21 - \$106.8 million [\$71.2 million / 6 months x 9 months]

(b) - Company's actual results for period Apr '21 thru Sept '21

19



- 1 • The amount of asset NOL ADIT for the period January through December 2022  
2 reflects the Company’s proposed revenue requirement for the period.
- 3 • The amount of asset NOL ADIT included in the Company PRP Rider properly  
4 reflects the impact of rider revenue and investments on ADIT.

5 **VIII. ASSET NOL ADIT DUE TO WINTER STORM URI**

6 **Q. WHAT IS MR. KOLLEN’S PROPOSAL WITH REGARD TO ASSET NOL**  
7 **ADIT ASSOCIATED WITH WINTER STORM URI?**

8 A. Mr. Kollen’s testimony proposes the exclusion from rate base of asset NOL ADIT  
9 associated with Winter Storm Uri as the expenses giving rise to such asset relate to  
10 Company rate divisions other than Kentucky.

11 **Q. WAS THE ASSET NOL ADIT DUE TO WINTER STORM URI EXCLUDED**  
12 **FROM RATE BASE IN THE COMPANY’S FILING?**

13 A. The asset NOL ADIT was included in the Company’s original filing. However, in  
14 responding to an OAG discovery request, the Company has acknowledged that  
15 none of the asset NOL ADIT associated with expenses incurred as the result of  
16 Winter Storm Uri should be allocated or included in the Kentucky rate division rate  
17 base. As a result, the Company has supplemented its filing to excluded asset NOL  
18 ADIT associated with Winter Storm Uri and provided a revised calculation of base  
19 revenue deficiency.

20 **IX. TAAF RIDER ISSUE**

21 **Q. HOW DOES MR. KOLLEN DESCRIBE THE COMPANY’S REQUESTED**  
22 **TAAF RIDER?**

23 A. Mr. Kollen says that the TAAF Rider is not necessary.

1 **Q. IS A TAAF RIDER NECESSARY?**

2 A. No. The Company is requesting a TAAF Rider not because it is the *only* way to  
3 address future tax changes, but because it is the *most efficient* way to address future  
4 tax changes. The TAAF Rider allows all parties to avoid the time and expense of  
5 conducting a proceeding to implement a known and measurable change.

6 **Q. DOES MR. KOLLEN ADDRESS EFFICIENCY IN HIS TESTIMONY?**

7 A. No. He describes the Commission's prior practice of addressing tax change impacts  
8 as "sufficient" and "superior."<sup>2</sup> However he does not seem to consider the effort  
9 involved in that analysis.

10 **Q. DOES MR. KOLLEN PROVIDE EXAMPLES OF WHY HE BELIEVES**  
11 **THE COMMISSION'S PRIOR PRACTICE IS SUPERIOR?**

12 A. Yes, but his examples merely posit potential tax changes that would require  
13 adjustments outside of or in excess to the TAAF Rider. The TAAF Rider does not  
14 preclude the Commission from undertaking its own analysis and/or requiring  
15 additional filings. What the TAAF Rider does is promote efficiency by creating a  
16 mechanism through which future tax changes can flow. In the event the impacts of  
17 a tax change were non-controversial, the TAAF Rider would save the Commission  
18 the need of conducting a proceeding to review the impacts of a tax change and result  
19 in a faster implementation of the impacts of that tax change.

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<sup>2</sup> Kollen at p. 50.

1 **X. CONCLUSION**

2 **Q. PLEASE SUMMARIZE THE CONCLUSIONS WITHIN YOUR**  
3 **REBUTTAL TESTIMONY?**

4 **A.** The following summarizes my recommendations upon rebuttal to the proposals set  
5 forth in Mr. Kollen's testimony:

- 6 • **Various SSU ADIT Adjustments** – I agree with Mr. Kollen's proposal to  
7 exclude allocations of these various SSU ADIT items from the Kentucky rate  
8 division rate base in this proceeding.
- 9 • **EDIT Amortization Issue** – I neither accept nor reject Mr. Kollen's adjustment  
10 but provide policy considerations.
- 11 • **Liability ADIT Unrealized Gains on Interest Rate Contracts** – I agree in  
12 part to Mr. Kollen's proposal to include liability ADIT unrealized gains in  
13 Kentucky rate division rate base so long as the corresponding OCI-Unrealized  
14 Gain remains within the company's capital structure in this proceeding.
- 15 • **NOL ADIT April 2021 Through December 2021** – I rebut Mr. Kollen's  
16 adjustment as the Company's estimate of NOL ADIT for this period is  
17 appropriate.
- 18 • **PRP ADIT Issue** – I rebut Mr. Kollen's adjustment as the Company's NOL  
19 ADIT is appropriate.
- 20 • **NOL ADIT Assignment Issue** – I explain why Mr. Kollen's proposal is  
21 irrelevant as Company has supplemented its filing to reflect this item.
- 22 • **TAAF Rider Issue** – I rebut Mr. Kollen's adjustment.

1 Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

2 A. Yes, it does.

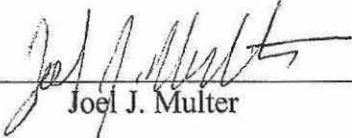
COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF )  
RATE APPLICATION OF ) Case No. 2021-00214  
ATMOS ENERGY CORPORATION )

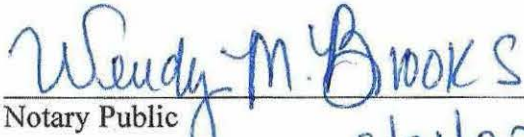
CERTIFICATE AND AFFIDAVIT

The Affiant, Joel J. Multer, being duly sworn, deposes and states that the prepared testimony attached hereto and made a part hereof, constitutes the prepared rebuttal testimony of this affiant in Case No. 2021-00214, in the Matter of the Rate Application of Atmos Energy Corporation, and that if asked the questions propounded therein, this affiant would make the answers set forth in the attached prepared rebuttal testimony.

  
\_\_\_\_\_  
Joel J. Multer

STATE OF TEXAS  
COUNTY OF DALLAS

SUBSCRIBED AND SWORN to before me by Joel J. Multer on this the 18 day of  
November, 2021.

  
\_\_\_\_\_  
Notary Public  
My Commission Expires: 3/31/22

