JOHN N. HUGHES

Attorney at Law
Professional Service Corporation
124 West Todd Street
Frankfort, Kentucky 40601

Telephone: (502) 227-7270   Email: jnhughes@johnnhughespsc.com

July 29, 2022

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

> Re: Atmos Energy Corporation
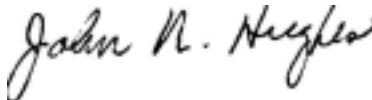>   Case No. 2022-00222

Dear Ms. Bridwell:

Atmos Energy Corporation submits its application to establish PRP Rider Rates for the twelve-month period commencing October 1, 2022 and a petition for confidentiality. I certify that the electronic documents are true and correct copies of the original documents.

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

Submitted By:

Mark R. Hutchinson
Wilson, Hutchinson & Littlepage
611 Frederica Street
Owensboro, KY 42301
(270) 926-5011
randy@whplawfirm.com

And

John N. Hughes

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

Attorneys for Atmos Energy Corporation

<div align="center">COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION</div>

IN THE MATTER OF:

APPLICATION OF ATMOS ENERGY CORPORATION	)	
TO ESTABLISH PRP RIDER RATES FOR THE	)	CASE NO. 2022-00222
TWELVE MONTH PERIOD BEGINNING	)	
OCTOBER 1, 2022	)	

<div align="center">**APPLICATION**</div>

Atmos Energy Corporation ("Company"), by counsel, applies to the Kentucky Public Service Commission ("Commission"), for approval to establish PRP Rider Rates for the 12-month period beginning October 1, 2022. In support of this Application, Company states as follows:

1. The Company is an operating public utility engaged in the business of supplying natural gas to the public in numerous cities, towns and communities in western and south central Kentucky. Correspondence and communications with respect to this Application should be directed to:

> Brannon C. Taylor,
> Atmos Energy Corporation,
> 810 Crescent Centre Dr. STE 600,
> Franklin, TN 37067
> (615) 771-8330 Ph
> (615) 771-8301 fax
> (brannon.taylor@atmosenergy.com)

> Mark R. Hutchinson,
> Wilson, Hutchinson & Littlepage,
> 611 Frederica Street,
> Owensboro, Kentucky 42301
> 270 926 5011 Ph
> (270) 926-9394 fax
> (randy@whplawfirm.com)

> And

John N. Hughes
124 W. Todd St.
Frankfort, KY 40601
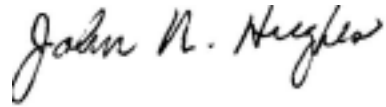(502) 227 7270 Ph
 (jnhughes@johnnhughespsc.com)

2. The Company is a corporation duly qualified under the laws of the Commonwealth of Kentucky to carry on its business in the Commonwealth. A certified copy of Company's restated Articles of Incorporation, as amended, together with all amendments thereto, is on file in the records of the Commission and the same are incorporated herein by reference. See Case No. 2021-00214. The Company was initially incorporated in Texas on February 6, 1981 and in Virginia on July 21, 1997. Applicant attests that it is a foreign corporation in good standing to operate in Kentucky. Atmos Energy does not operate under an assumed name in Kentucky.

3. The Company is filing this application in compliance with the Commission's Order in Case No. 2021-00214 and Case No. 2020-00229. This Application and the attached supporting exhibits contain the facts on which the relief being requested is based, a request for the relief sought and references to the particular provisions of law requiring or providing for the relief sought as specified in 807 KAR 5:001

4. A petition for confidentiality for Exhibits TRA-1 through TRA-3 is being filed with the application.

WHEREFORE, the Company requests the Commission to approve the attached PRP Rider Rates for the 12-month period beginning October 1, 2022.

Respectfully submitted this 29th day of July, 2022.
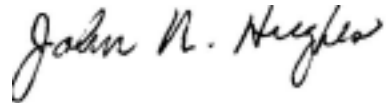
John N. Hughes

John N. Hughes
124 W. Todd St.
Frankfort, KY 40601
(502) 227-7270 Ph
(jnhughes@johnnhughespsc.com)

WILSON, HUTCHINSON & LITTLEPAGE
Mark R. Hutchinson
611 Frederica Street
Owensboro, Kentucky 42301
randy@whplawfirm.com

CERTIFICATE

In accordance with the requirements of 807 KAR 5:001, I certify that this electronic filing is a true and accurate copy of the documents filed that the electronic filing has been transmitted to the Commission on July 29, 2022 and that no party has been excused from participation by electronic means.

John N. Hughes

_____

John N. Hughes

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

APPLICATION OF ATMOS ENERGY	)	
CORPORATION TO ESTABLISH PRP	)	
RIDER RATES FOR THE TWELVE MONTH	)	CASE NO. 2022-00222
PERIOD BEGINNING OCTOBER 1, 2022	)	

AFFIDAVIT

The Affiant, Brannon C. Taylor, being duly sworn, deposes and states that the statements

contained in the attached Application are true and correct to the best of my knowledge and belief.

_____
Brannon C. Taylor

STATE OF NORTH CAROLINA

COUNTY OF HENDERSON

SUBSCRIBED AND SWORN to before me by Brannon C. Taylor on this the 26th day of July, 2022.

_____
Notary Public
My Commission Expires: 12/4/2025

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

Application Of Atmos Energy Corporation)	
To Establish PRP Rider Rates for the)	Case No. 2022-00222
Twelve Month Period Beginning)	
October 1, 2022)	

<u>PETITION FOR CONFIDENTIALITY</u>

Atmos Energy Corporation (Atmos) petitions the Commission ("Commission"),

pursuant to 807 KAR 5:001, Section 13, and all other applicable law, for confidential

treatment of certain information submitted to the Commission as part of its Application in

this proceeding. The information submitted consists of maps of the Atmos gas

distribution system.

KRS Chapter 61 requires information filed with the Commission to be available

for public inspection <u>unless specifically exempted by statute.</u> Exemptions from public

disclosure of the information relevant to this petition are provided in KRS 61.878(1)(m).

Under the Kentucky Open Records Act, the Commission is entitled to withhold from

public disclosure information disclosed to it to the extent that open disclosure would

"have a reasonable likelihood of threatening the public safety by exposing a vulnerability

in preventing, protecting against, mitigating, or responding to a terrorist act and limited

to: . . ,

(f) infrastructure records that expose a vulnerability referred to in this

subparagraph through the disclosure of the location, configuration, or security of critical

systems, including public utility critical systems. These critical systems shall include but

not be limited to information technology, communications, electrical, fire suppression, ventilation, water, wastewater, sewage, and **gas systems** and;

(g) The following records when their disclosure will expose a vulnerability referred to in this subparagraph: detailed drawings, schematics, **maps**, or specifications of structural elements, floor plans, and operating, utility, or security systems of any building or facility owned, occupied, leased, or maintained by a public agency."

This Commission has recognized that maps "are infrastructure records that disclose the location, configuration, or security of public utility systems" and therefore, should be treated as confidential. See Case No. 2014-00166 *In the Matter of 2104 Integrated Resource Plan of Big Rivers Electric Corporation,* KY PSC Order, p. 7 (August 26, 2014).

The information contained in the specified document may provide detailed information about Atmos's distribution system and the location of critical components; as such, the disclosure of which could threaten the public safety generally and provide sensitive information relevant to the security against terroristic events. Atmos petitions the Commission to classify as confidential and protect from public disclosure the maps provided in Exhibits TRA-1 through TRA-3 as part of Atmos witness Ryan Austin's direct testimony.

The information for which the Company is seeking confidential treatment is not known outside of the Company, is not disseminated within the Company except to those employees with a legitimate business need to know and act upon the information and is generally recognized as confidential and proprietary information in the energy industry. If the Commission disagrees with this request for confidential protection, Atmos

requests that it hold an evidentiary hearing (a) to protect the Company's due process rights and (b) to supply the Commission with a complete record to enable it to reach a decision with regard to this matter. Utility Regulatory Commission v. Kentucky Water Service Company, Inc., Ky. App., 642 S.W.2d 591, 592-94 (1982).
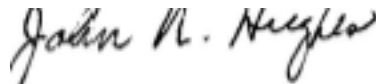
Atmos requests that the information referenced herein be kept confidential for an indefinite period.

For these reasons, Atmos petitions the Commission to treat as confidential, indefinitely, the information referenced in this petition in its entirety

Submitted By:

Mark R. Hutchinson
Wilson, Hutchinson & Littlepage
611 Frederica Street
Owensboro, KY 42301
(270) 926-5011
randy@whplawfirm.com

And

John N. Hughes

John N. Hughes
124 West Todd Street
Frankfort, Kentucky 40601
502-227-7270
jnhughes@johnnhughespsc.com

Attorneys for Atmos Energy Corporation

BEFORE THE PUBLIC SERVICE COMMISSION

COMMONWEALTH OF KENTUCKY

IN THE MATTER OF:

APPLICATION OF ATMOS ENERGY	)	
CORPORATION TO ESTABLISH PRP	)	
RIDER RATES FOR THE TWELVE	)	**Case No. 2022-00222**
MONTH PERIOD BEGINNING	)	
OCTOBER 1, 2022	)	

<u>**TESTIMONY OF BRANNON C. TAYLOR**</u>

INDEX TO THE DIRECT TESTIMONY
OF BRANNON C TAYLOR, WITNESS FOR
ATMOS ENERGY CORPORATION

I. INTRODUCTION

1

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

3 A. My name is Brannon C. Taylor. I am Vice President - Rates and Regulatory Affairs

4 for the Kentucky/Mid-States Division of Atmos Energy Corporation ("Atmos

5 Energy" or the "Company"). My business address is 810 Crescent Centre Dr. Ste

6 600, Franklin, Tennessee, 37067.

7 **Q. PLEASE BRIEFLY DESCRIBE YOUR CURRENT RESPONSIBILITIES,**

8 **AND PROFESSIONAL AND EDUCATIONAL BACKGROUND.**

9 A. I am responsible for all rate and regulatory matters in Kentucky, Tennessee, and

10 Virginia. I graduated from Vanderbilt University in 2009 with a degree in Political

11 Science. I also graduated from Emory University in 2012 with a law degree and

12 am a licensed attorney. I have been with Atmos Energy Corporation since

13 September 2012. I have served in a variety of positions of increasing responsibility

14 in both the Corporate Rates and Regulatory Affairs group as well as the

15 Kentucky/Mid-States Division prior to assuming my current responsibilities in

16 2020.

17 **Q. HAVE YOU SUBMITTED TESTIMONY BEFORE THE KENTUCKY**

18 **PUBLIC SERVICE COMMISSION ("COMMISSION")?**

19 A. Yes, I submitted Direct Testimony in Case No 2021-00214 and 2021-00304.

20 **Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY ON MATTERS**

21 **BEFORE OTHER STATE REGULATORY COMMISSIONS?**

22 A. Yes, I have filed testimony before the Tennessee Public Utility Commission and

23 participated in a proceeding to promulgate rules for the evaluation of utility

| 1 | | acquisitions. |

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A.   My direct testimony will address areas referenced in the Final Order in Case No. 2021-00214 issued by the Commission in the Company's 2021 general rate case, as well as introduce the Company's other witnesses in this case. Specifically, I will address our compliance with evaluating the return on equity in this case as well as addressing the Aldyl-A projects filed by the Company.[1]   I will sponsor the incorporation of the revenue requirement schedules to determine the PRP deficiency, incorporate the capital structure into the record in this case, and incorporate the addition of Aldyl-A projects.

III. PRP UPDATES

Q. HAS THE COMPANY UPDATED THE RATE OF RETURN USED IN THE PRP CALCULATION IN THIS FILING IN ACCORDANCE WITH THE CASE NOS. 2020-00229 and 2021-00214 ORDERS?

A.   Yes. The Final Order from Case No 2020-00229 ordered the Company to amend its PRP tariff to reflect that the overall rate of return will be established in the annual PRP rate application, rather than defaulting to the return on equity ("ROE") ordered by the Commission in the Atmos Energy's prior general rate case. The Company has complied with this in its filing by engaging consultant Dylan D'Ascendis to provide testimony to support the ROE used in this case.

---

[1] (1) Calculating the PRP rate base in a forecasted period in a manner consistent with 807 KAR 5:001, Section 16(6)(c) and reflect an overall rate of return established in the annual PRP rate application.

1 **Q** **PLEASE DISCUSS THE RETURN ON EQUITY AMOUNT USED BY THE**

2 **COMPANY IN THIS PRP FILING.**

3 A. The Order in Case No. 2020-00229 stated "[g]iven the condensed timeline of these

4 proceedings, the Commission strongly recommends that Atmos file adequate

5 testimony to support its proposed rate of return, including a reasonable ROE." The

6 testimony of Company Witness Dylan D'Ascendis sponsors the ROE calculations

7 used by the Company. The overall rate of return is summarized in Table 1 below:

8 **Table 1: Summary of Recommended Weighted Average Cost of Capital**

Type of Capital	Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	45.45%	3.84%	1.73%
Short-Term Debt	0.05%	80.94%	0.04%
Common Equity	54.50%	10.95%	5.97%
Total	100.00%		7.75%

9

10 **Q.** **WHAT SUPPORT IS THE COMPANY PROVIDING FOR THE CAPITAL**

11 **STRUCTURE REFLECTED IN TABLE 1 ABOVE?**

12 A. The Company has filed using the capital structure recently ordered by the

13 Commission in the Final Order of the Company's general rate case, Case No. 2021-

14 00214.

15 **Q.** **HAS THE COMPANY INCLUDED ALDYL-A PROJECTS IN THIS**

16 **FILING?**

17 A. Yes. In Case No. 2021-00214, the Commission stated that the inclusion of Aldyl-

18 A pipelines will be determined on a case-by-case basis and any PRP applications

19 including Aldyl-A projects should at a minimum including safety justifications for

1   such projects.[2] In compliance with the Commission's order, Atmos Energy witness

2   T. Ryan Austin provides the safety justifications and other factors for the Aldyl-A

3   projects listed in this PRP filing. The Aldyl-A projects are listed in Exhibit K-1 of

4   the Company's filing.

5   **Q.   PLEASE EXPLAIN WHY A DELAY TO THE SCHEDULE OUTLINED IN**

6   **THE PRP TARIFF UNDERMINES THE POLICY GOALS OF THE**

7   **ANNUAL MECHANISM.**

8   A.   Delay beyond October 1 introduces additional regulatory lag. Forward-looking

9   treatment, as generally described in the context of rate of return regulation, entails

10   forecasting cost of service components and implementing rates such that the timing

11   of the Company's revenues collected from customers aligns with the timing of its

12   cost of service. In allowing such treatment, regulators ensure that the rates

13   customers are paying more closely align with the utility's cost of service and the

14   value of investment provided during the same time period. Any material delay

15   would result in significant under-recovery of the Company's PRP investments.

16   This under recovery could only be addressed two years from this PRP filing as

17   contemplated by the Company's tariff as part of the balancing adjustment, and layer

18   that additional amount on top of any new rates approved by the Commission in that

19   future docket.

20   **IV.   <u>CONCLUSION</u>**

21   **Q.   DOES THIS CONCLUDE YOUR TESTIMONY?**

22   A.   Yes, at this time.

---

[2] Case No. 2021-00214, *Electronic Application of Atmos Energy Corporation for an Adjustment of Rates* (Ky. PSC May 19, 2022), final Order at 60.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

APPLICATION OF ATMOS ENERGY)
CORPORATION TO ESTABLISH PRP)
RIDER RATES FOR THE TWELVE MONTH) CASE NO. 2022-00222
PERIOD BEGINNING OCTOBER 1, 2022)

CERTIFICATE AND AFFIDAVIT
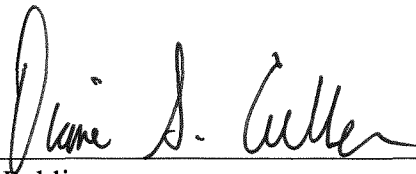
The Affiant, Brannon C. Taylor, being duly sworn, deposes and states that the prepared testimony attached hereto and made a part hereof, constitutes the prepared direct testimony of this affiant in Case No. 2022-00222 and that if asked the questions propounded therein, this affiant would make the answers set forth in the attached prepared direct pre-filed testimony.

_____
Brannon C. Taylor

STATE OF NORTH CAROLINA

COUNTY OF HENDERSON

SUBSCRIBED AND SWORN to before me by Brannon C. Taylor on this the 22nd day of July, 2022.

_____
Notary Public
My Commission Expires: 12/4/2025

BEFORE THE PUBLIC SERVICE COMMISSION

COMMONWEALTH OF KENTUCKY

IN THE MATTER OF:

APPLICATION OF ATMOS ENERGY	)	
CORPORATION TO ESTABLISH PRP	)	
RIDER RATES FOR THE TWELVE	)	**Case No. 2022-00222**
MONTH PERIOD BEGINNING	)	
OCTOBER 1, 2022	)	

<u>**DIRECT TESTIMONY OF DYLAN W. D'ASCENDIS**</u>

RATE OF RETURN

TABLE OF CONTENTS

I. INTRODUCTION AND PURPOSE

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

A. My name is Dylan W. D'Ascendis. My business address is 3000 Atrium Way, Suite 200, Mount Laurel, NJ 08054.

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

A. I am a Partner at ScottMadden, Inc.

Q. **PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE AND EDUCATIONAL BACKGROUND.**

A. I have offered expert testimony on behalf of investor-owned utilities in over 30 state regulatory commissions in the United States, the Federal Energy Regulatory Commission, the Alberta Utility Commission, one American Arbitration Association panel, and the Superior Court of Rhode Island on issues including, but not limited to, common equity cost rate, rate of return, valuation, capital structure, class cost of service, and rate design.

On behalf of the American Gas Association ("AGA"), I calculate the AGA Gas Index, which serves as the benchmark against which the performance of the American Gas Index Fund ("AGIF") is measured on a monthly basis. The AGA Gas Index and AGIF are a market capitalization-weighted index and mutual fund, respectively, comprised of the common stocks of the publicly traded corporate members of the AGA.

I am a member of the Society of Utility and Regulatory Financial Analysts ("SURFA"). In 2011, I was awarded the professional designation "Certified Rate

1   of Return Analyst" by SURFA, which is based on education, experience, and the

2   successful completion of a comprehensive written examination.

3   I am also a member of the National Association of Certified Valuation

4   Analysts ("NACVA") and was awarded the professional designation "Certified

5   Valuation Analyst" by the NACVA in 2015.

6   I am a graduate of the University of Pennsylvania, where I received a

7   Bachelor of Arts degree in Economic History. I have also received a Master of

8   Business Administration with high honors and concentrations in Finance and

9   International Business from Rutgers University.

10   The details of my educational background and expert witness appearances

11   are included in Appendix A.

12   **Q.   WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**

13   **PROCEEDING?**

14   A.   The purpose of my testimony is to present evidence and provide a recommendation

15   regarding Atmos Energy Corporation's Kentucky operations' ("Atmos Energy" or

16   the "Company") return on common equity ("ROE") for use in setting rates pursuant

17   to the Company's Pipeline Replacement Program ("PRP") tariff.

18   **Q.   HAVE YOU PREPARED EXHIBITS IN SUPPORT OF YOUR**

19   **RECOMMENDATION?**

20   A.   Yes. I have prepared Exhibits DWD-1 through DWD-9, which were prepared by

21   me or under my direction.

1   **Q.   WHAT IS YOUR RECOMMENDED ROE FOR ATMOS ENERGY?**

2   A.   I recommend that the Kentucky Public Service Commission ("KY PSC" or the

3   "Commission") authorize Atmos Energy the opportunity to earn an ROE of 10.95%

4   on its PRP investment. The ratemaking capital structure and debt cost rates are

5   based on the approved capital structure for Atmos Energy in Case No. 2021-00214.

6   The overall rate of return is summarized on page 1 of Exhibit DWD-1 and in Table

7   1 below:

8   **Table 1: Summary of Recommended Weighted Average Cost of Capital**

Type of Capital	Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	45.45%	3.84%	1.74%
Short-Term Debt	0.05%	80.94%	0.04%
Common Equity	54.50%	10.95%	5.97%
Total	100.00%		7.75%

9   **II.   SUMMARY OF TESTIMONY**

10   **Q.   PLEASE SUMMARIZE YOUR RECOMMENDED COMMON EQUITY**

11   **COST RATE.**

12   A.   My recommended common equity cost rate of 10.95% is summarized on page 2 of

13   Exhibit DWD-1. In determining my recommendation, I have assessed the market-

14   based common equity cost rates of companies of relatively similar, but not

15   necessarily identical, risk to Atmos Energy. Using companies of relatively

16   comparable risk as proxies is consistent with the principles of fair rate of return

17   established in the *Hope*[1] and *Bluefield*[2] decisions. Of course, no proxy group can

18   be identical in risk to any single company. Consequently, there must be an

---

[1]   *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).
[2]   *Bluefield Water Works Improvement Co. v. Public Serv. Comm'n*, 262 U.S. 679 (1922).

1   evaluation of relative risk between the Company and the proxy group to determine

2   if it is appropriate to adjust the proxy group's indicated rate of return.

3   My recommendation results from the application of several cost of common

4   equity models, specifically the Discounted Cash Flow ("DCF") model, the Risk

5   Premium Model ("RPM"), and the Capital Asset Pricing Model ("CAPM"), to the

6   market data of a proxy group of six natural gas distribution utilities ("Utility Proxy

7   Group") whose selection criteria will be discussed below. In addition, I applied

8   these same models to a proxy group of 38 domestic, non-price regulated companies

9   comparable in total risk to the Utility Proxy Group ("Non-Price Regulated Proxy

10   Group"). The results derived from each are as follows:

11   **Table 2: Summary of Common Equity Cost Rates**

Discounted Cash Flow Model	9.73%
Risk Premium Model	10.99%
Capital Asset Pricing Model	11.14%
Market Models Applied to Comparable Risk, Non-Price Regulated Companies	12.03%
Indicated Range of Common Equity Cost Rates Before Adjustments for Company-Specific Risk	9.73% - 12.03%
Size Adjustment	0.20%
Credit Risk Adjustment	-0.06%
Flotation Cost Adjustment	0.05%
Indicated Range of Common Equity Cost Rates after Adjustment	9.92% – 12.22%
Recommended Cost of Common Equity	10.95%

1		After analyzing the indicated common equity cost rates derived through
2		these models, the indicated range of common equity cost rates applicable to the
3		Utility Proxy Group is between 9.73% and 12.03%.[3]
4		The indicated range of common equity cost rates applicable to the Utility
5		Proxy Group was then adjusted by 0.20% and negative 0.06% to reflect the
6		Company's greater relative business risk and lower credit risk, respectively, as
7		compared to the Utility Proxy Group companies, and by 0.05% for flotation costs.[4]
8		These adjustments result in a Company-specific range of common equity cost rates
9		between 9.92% and 12.22%. From this range of results, I recommend the
10		Commission consider a common equity cost rate of 10.95%, for use in setting rates
11		for the Company.
12	**Q.**	**HOW IS THE REMAINDER OF YOUR DIRECT TESTIMONY**
13		**ORGANIZED?**
14	A.	The remainder of my Direct Testimony is organized as follows:
15		• Section III – Provides a summary of financial theory and regulatory principles
16		pertinent to the development of the cost of common equity;
17		• Section IV – Explains my selection of the Utility Proxy Group used to develop
18		my Cost of Common Equity analytical results;
19		• Section V – Describes the analyses on which my Cost of Common Equity
20		recommendation is based;

---

[3]   The indicated range of ROEs applicable to the Utility Proxy Group excluding the Predictive Risk Premium Model ("PRPM") is 9.73% to 12.02%.

[4]   *See* Section VII for a detailed discussion of my cost of common equity adjustments.

1 • <u>Section VI</u> – Summarizes my common equity cost rate before adjustments to

2 reflect Company-specific factors;

3 • <u>Section VII</u> – Explains my adjustments to my common equity cost rate to reflect

4 Company-specific factors; and

5 • <u>Section VIII</u> – Presents my conclusions.

6 **III. GENERAL PRINCIPLES**

7 **Q. WHAT GENERAL PRINCIPLES HAVE YOU CONSIDERED IN**

8 **ARRIVING AT YOUR RECOMMENDED COMMON EQUITY COST**

9 **RATE?**

10 A. In unregulated industries, marketplace competition is the principal determinant of

11 the price of products or services. For regulated public utilities, regulation must act

12 as a substitute for marketplace competition. Assuring that the utility can fulfill its

13 obligations to the public, while providing safe and reliable service at all times,

14 requires a level of earnings sufficient to maintain the integrity of presently invested

15 capital. Sufficient earnings also permit the attraction of needed new capital at a

16 reasonable cost, for which the utility must compete with other firms of comparable

17 risk, consistent with the fair rate of return standards established by the U.S.

18 Supreme Court in the previously cited *Hope* and *Bluefield* cases.

19 The U.S. Supreme Court affirmed the fair rate of return standards in *Hope*,

20 when it stated:

21 The rate-making process under the Act, *i.e.,* the fixing of 'just and
22 reasonable' rates, involves a balancing of the investor and the
23 consumer interests. Thus we stated in the Natural Gas Pipeline Co.
24 case that 'regulation does not insure that the business shall produce
25 net revenues.' 315 U.S. at page 590, 62 S.Ct. at page 745. But such
26 considerations aside, the investor interest has a legitimate concern

1 with the financial integrity of the company whose rates are being
2 regulated. From the investor or company point of view it is
3 important that there be enough revenue not only for operating
4 expenses but also for the capital costs of the business. These include
5 service on the debt and dividends on the stock. Cf. Chicago & Grand
6 Trunk R. Co. v. Wellman, 143 U.S. 339, 345, 346 12 S.Ct. 400,402.
7 By that standard the return to the equity owner should be
8 commensurate with returns on investments in other enterprises
9 having corresponding risks. That return, moreover, should be
10 sufficient to assure confidence in the financial integrity of the
11 enterprise, so as to maintain its credit and to attract capital.[5]

12 In summary, the U.S. Supreme Court has found a return that is adequate to

13 attract capital at reasonable terms enables the utility to provide service while

14 maintaining its financial integrity. As discussed above, and in keeping with

15 established regulatory standards, that return should be commensurate with the

16 returns expected elsewhere for investments of equivalent risk. The Commission's

17 decision in this proceeding, therefore, should provide the Company with the

18 opportunity to earn a return that is: (1) adequate to attract capital at reasonable cost

19 and terms; (2) sufficient to ensure their financial integrity; and (3) commensurate

20 with returns on investments in enterprises having corresponding risks.

21 Lastly, the required return for a regulated public utility is established on a

22 stand-alone basis, i.e., for the utility operating company at issue in a rate case.

23 Parent entities, like other investors, have capital constraints and must look at the

24 attractiveness of the expected risk-adjusted return of each investment alternative in

25 their capital budgeting process. That is, utility holding companies that own many

26 utility operating companies have choices as to where they will invest their capital

---

[5] *Hope*, 320 U.S. 591 (1944), at 603.

1		within the holding company family. Therefore, the opportunity cost concept
2		applies regardless of the source of the funding, public funding or corporate funding.
3		When funding is provided by a parent entity, the return still must be
4		sufficient to provide an incentive to allocate equity capital to the subsidiary or
5		business unit rather than other internal or external investment opportunities. That
6		is, the regulated subsidiary must compete for capital with all the parent company's
7		affiliates, and with other, similarly situated utility companies. In that regard,
8		investors value corporate entities on a sum-of-the-parts basis and expect each
9		division within the parent company to provide an appropriate risk-adjusted return.
10		It therefore is important that the authorized ROE reflects the risks and
11		prospects of the utility's operations and supports the utility's financial integrity
12		from a stand-alone perspective as measured by their combined business and
13		financial risks. Consequently, the ROE authorized in this proceeding should be
14		sufficient to support the operational (i.e., business risk) and financing (i.e., financial
15		risk) of the Company's Kentucky utility operations on a stand-alone basis.
16	Q.	**WITHIN THAT BROAD FRAMEWORK, HOW IS THE COST OF**
17		**CAPITAL ESTIMATED IN REGULATORY PROCEEDINGS?**
18	A.	Regulated utilities primarily use common stock and long-term debt to finance their
19		permanent property, plant, and equipment (i.e., rate base). The fair rate of return
20		for a regulated utility is based on its weighted average cost of capital, in which, as
21		noted earlier, the costs of the individual sources of capital are weighted by their
22		respective book values.

1   The cost of capital is the return investors require to make an investment in

2   a firm. Investors will provide funds to a firm only if the return that they *expect* is

3   equal to, or greater than, the return that they *require* to accept the risk of providing

4   funds to the firm.

5   The cost of capital (that is, the combination of the costs of debt and equity)

6   is based on the economic principle of "opportunity costs." Investing in any asset

7   (whether debt or equity securities) represents a forgone opportunity to invest in

8   alternative assets. For any investment to be sensible, its expected return must be at

9   least equal to the return expected on alternative, comparable risk investment

10   opportunities. Because investments with like risks should offer similar returns, the

11   opportunity cost of an investment should equal the return available on an

12   investment of comparable risk.

13   Whereas the cost of debt is contractually defined and can be directly

14   observed as the interest rate or yield on debt securities, the cost of common equity

15   must be estimated based on market data and various financial models. Because the

16   cost of common equity is premised on opportunity costs, the models used to

17   determine it are typically applied to a group of "comparable" or "proxy" companies.

18   In the end, the estimated cost of capital should reflect the return that

19   investors require in light of the subject company's business and financial risks, and

20   the returns available on comparable investments.

1 **A.   Business Risk**

2 **Q.   PLEASE DEFINE BUSINESS RISK AND EXPLAIN WHY IT IS**

3 **IMPORTANT FOR DETERMINING A FAIR RATE OF RETURN.**

4 A.   The investor-required return on common equity reflects investors' assessment of

5 the total investment risk of the subject firm. Total investment risk is often discussed

6 in the context of business and financial risk.

7 Business risk reflects the uncertainty associated with owning a company's

8 common stock without the company's use of debt and/or preferred stock financing.

9 One way of considering the distinction between business and financial risk is to

10 view the former as the uncertainty of the expected earned return on common equity,

11 assuming the firm is financed with no debt.

12 Examples of business risks generally faced by utilities include, but are not

13 limited to, the regulatory environment, mandatory environmental compliance

14 requirements, customer mix and concentration of customers, service territory

15 economic growth, market demand, risks and uncertainties of supply, operations,

16 capital intensity, size, the degree of operating leverage, and the like, all of which

17 have a direct bearing on earnings.

18 Although analysts, including rating agencies, may categorize business risks

19 individually, as a practical matter, such risks are interrelated and not wholly distinct

20 from one another. When determining an appropriate return on common equity, the

21 relevant issue is where investors see the subject company in relation to other

22 similarly situated utility companies (i.e., the Utility Proxy Group). To the extent

1   investors view a company as being exposed to higher risk, the required return will

2   increase, and vice versa.

3   For regulated utilities, business risks are both long-term and near-term in

4   nature. Whereas near-term business risks are reflected in year-to-year variability in

5   earnings and cash flow brought about by economic or regulatory factors, long-term

6   business risks reflect the prospect of an impaired ability of investors to obtain both

7   a fair rate of return on, and return of, their capital. Moreover, because utilities

8   accept the obligation to provide safe, adequate and reliable service at all times (in

9   exchange for a reasonable opportunity to earn a fair return on their investment),

10 they generally do not have the option to delay, defer, or reject capital investments.

11 Because those investments are capital-intensive, utilities generally do not have the

12 option to avoid raising external funds during periods of capital market distress, if

13 necessary.

14   Because utilities invest in long-lived assets, long-term business risks are of

15 paramount concern to equity investors. That is, the risk of not recovering the return

16 on their investment extends far into the future. The timing and nature of events that

17 may lead to losses, however, also are uncertain and, consequently, those risks and

18 their implications for the required return on equity tend to be difficult to quantify.

19 Regulatory commissions (like investors who commit their capital) must review a

20 variety of quantitative and qualitative data and apply their reasoned judgment to

21 determine how long-term risks weigh in their assessment of the market-required

22 return on common equity.

1	**B.**	**Financial Risk**

2   **Q.**   **PLEASE DEFINE FINANCIAL RISK AND EXPLAIN WHY IT IS**

3   **IMPORTANT IN DETERMINING A FAIR RATE OF RETURN.**

4   A.   Financial risk is the additional risk created by the introduction of debt and preferred

5   stock into the capital structure. The higher the proportion of debt and preferred

6   stock in the capital structure, the higher the financial risk to common equity owners

7   (i.e., failure to receive dividends due to default or other covenants). Therefore,

8   consistent with the basic financial principle of risk and return, common equity

9   investors demand higher returns as compensation for bearing higher financial risk.

10   **Q.**   **CAN BOND AND CREDIT RATINGS BE A PROXY FOR A FIRM'S**

11   **COMBINED BUSINESS AND FINANCIAL RISKS TO EQUITY OWNERS**

12   **(I.E., INVESTMENT RISK)?**

13   A.   Yes, similar bond ratings/issuer credit ratings reflect, and are representative of,

14   similar combined business and financial risks (i.e., total risk) faced by bond

15   investors.[6] Although specific business or financial risks may differ between

16   companies, the same bond/credit rating indicates that the combined risks are

17   roughly similar from a debtholder perspective. The caveat is that these debtholder

18   risk measures do not translate directly to risks for common equity.

19   **Q.**   **DO RATING AGENCIES ACCOUNT FOR COMPANY SIZE IN THEIR**

20   **BOND RATINGS?**

21   A.   No. Neither Standard & Poor's ("S&P") nor Moody's Investor Service

---

[6]   Risk distinctions within S&P's bond rating categories are recognized by a plus or minus, e.g., within the A category, an S&P rating can by at A+, A, or A-. Similarly, risk distinction for Moody's ratings are distinguished by numerical rating gradations, e.g., within the A category, a Moody's rating can be A1, A2 and A3.

1		("Moody's") have minimum company size requirements for any given rating level.
2		This means, all else equal, a relative size analysis must be conducted for equity
3		investments in companies with similar bond ratings.

| 4 | IV. | **ATMOS ENERGY'S KENTUCKY OPERATIONS AND THE UTILITY** |
| 5 | | **PROXY GROUP** |

6 **Q. ARE YOU FAMILIAR WITH ATMOS ENERGY'S OPERATIONS?**

7 A.   Yes. Atmos Energy's operations serve approximately 183,000 customers in

8   Kentucky.[7] Atmos Energy's gas operations are not publicly-traded as they comprise

9   an operating division of Atmos Energy Corporation ("ATO"), which operates in

10   eight states[8] and serves approximately 3.4 million gas customers[9] and is publicly-

11   traded under symbol ATO.

12 **Q. PLEASE EXPLAIN HOW YOU CHOSE THE COMPANIES IN THE**

13 **UTILITY PROXY GROUP.**

14 A.   The companies selected for the Utility Proxy Group met the following criteria:

15   (i)   They were included in the Natural Gas Utility Group of *Value Line's*
16   *Standard Edition* (*Value Line*) (May 27, 2022);

17   (ii)   They have 60% or greater of fiscal year 2021 total operating income derived
18   from, and 60% or greater of fiscal year 2021 total assets attributable to,
19   regulated gas distribution operations;

20   (iii)   At the time of preparation of this testimony, they had not publicly
21   announced that they were involved in any major merger or acquisition
22   activity (i.e., one publicly-traded utility merging with or acquiring another);

23   (iv)   They have not cut or omitted their common dividends during the five years
24   ended 2021 or through the time of preparation of this testimony;

---

[7]   Atmos Energy Corporation, 2021 SEC Form 10-K, at 4.
[8]   Atmos Energy Corporation, 2021 SEC Form 10-K, at 4, In addition to Kentucky, ATO also serves
    customers in Texas, Louisiana, Mississippi, Virginia, Ke, Kansas, and Tennessee.
[9]   Atmos Energy Corporation, 2021 SEC Form 10-K, at 4.

| 1 | | (v) | They have *Value Line* and Bloomberg Professional Services ("Bloomberg") |

1   (v)   They have *Value Line* and Bloomberg Professional Services ("Bloomberg")

2   adjusted Beta coefficients ("beta");

3   (vi)   They have positive *Value Line* five-year dividends per share ("DPS")

4   growth rate projections; and

5   (vii)   They have *Value Line*, Zacks, or Yahoo! Finance consensus five-year

6   earnings per share ("EPS") growth rate projections.

7   The following six companies met these criteria: Atmos Energy Corporation,

8 New Jersey Resources Corporation, NiSource Inc., Northwest Natural Holding

9 Company, ONE Gas, Inc., and Spire Inc.

10 **Q. IS A UTILITY PROXY GROUP OF SIX COMPANIES SUFFICIENT FOR**

11 **YOUR ANALYSIS?**

12 A. Yes, it is. My objective in selecting a Utility Proxy Group is to develop a proxy

13 group that is highly representative of the risks and prospects faced by Atmos

14 Energy. Therefore, I developed and used selection criteria to accomplish that

15 objective. Including additional companies solely for the purpose of increasing the

16 size of the Utility Proxy Group produces results that may be less relevant to Atmos

17 Energy.

18 **V. COMMON EQUITY COST RATE MODELS**

19 **Q. IS IT IMPORTANT THAT COST OF COMMON EQUITY MODELS BE**

20 **MARKET BASED?**

21 A. Yes. A public utility must compete for equity in capital markets along with all other

22 companies of comparable risk, which includes non-utilities. The cost of common

23 equity is thus determined based on equity market expectations for the returns of

24 those comparable risk companies. When individual investors choose to invest their

1		capital among companies of comparable risk, they will choose a company
2		providing a higher return over a company providing a lower return.
3	**Q.**	**ARE YOUR COST OF COMMON EQUITY MODELS MARKET BASED?**
4	A.	Yes. The DCF model is market-based because market prices are used in developing
5		the dividend yield component of the model. The RPM is market-based because the
6		bond ratings and expected bond yields used in the application of the RPM reflect
7		the market's assessment of bond/credit risk. In addition, the use of betas (β) to
8		determine the equity risk premium reflects the market's assessment of
9		market/systematic risk, since betas are derived from regression analyses of market
10		prices. The Predictive Risk Premium Model ("PRPM") uses monthly market
11		returns in addition to expectations of the risk-free rate. The CAPM is market-based
12		for many of the same reasons that the RPM is market-based (i.e., the use of expected
13		bond yields and betas). Selection of the comparable risk non-price regulated
14		companies is market-based because it is based on statistics which result from
15		regression analyses of market prices and reflect the market's assessment of total
16		risk.
17	**Q.**	**WHAT ANALYTICAL APPROACHES DID YOU USE TO DETERMINE**
18		**THE COMPANY'S ROE?**
19	A.	As discussed earlier, I have relied on the DCF model, the RPM, and the CAPM,
20		which I apply to the Utility Proxy Group described above. I also applied these same
21		models to a Non-Price Regulated Proxy Group described later in this section.
22		I rely on these models because reasonable investors use a variety of tools
23		and do not rely exclusively on a single source of information or single model.

1   Moreover, the models on which I rely focus on different aspects of return

2   requirements, and provide different insights to investors' views of risk and return.

3   The DCF model, for example, estimates the investor-required return assuming a

4   constant expected dividend yield and growth rate in perpetuity, while Risk

5   Premium-based methods (i.e., the RPM and CAPM approaches) provide the ability

6   to reflect investors' views of risk, future market returns, and the relationship

7   between interest rates and the Cost of equity. Just as the use of market data for the

8   Utility Proxy Group adds the reliability necessary to inform expert judgment in

9   arriving at a recommended common equity cost rate, the use of multiple generally

10   accepted common equity cost rate models also adds reliability and accuracy when

11   arriving at a recommended common equity cost rate.

12   **A.**   **Discounted Cash Flow Model**

13   **Q.**   **WHAT IS THE THEORETICAL BASIS OF THE DCF MODEL?**

14   A.   The theory underlying the DCF model is that the present value of an expected future

15   stream of net cash flows during the investment holding period can be determined

16   by discounting those cash flows at the cost of capital, or the investors' capitalization

17   rate. DCF theory indicates that an investor buys a stock for an expected total return

18   rate, which is derived from cash flows received in the form of dividends plus

19   appreciation in market price (the expected growth rate). Mathematically, the

20   dividend yield on market price plus a growth rate equals the capitalization rate, i.e.,

21   the total common equity return rate expected by investors.

22   **Q.**   **WHICH VERSION OF THE DCF MODEL DID YOU USE?**

23   A.   I used the single-stage constant growth DCF model.

1	Q.	**PLEASE DESCRIBE THE DIVIDEND YIELD YOU USED IN APPLYING**
2		**THE CONSTANT GROWTH DCF MODEL.**

3 A. The unadjusted dividend yields are based on the proxy companies' dividends as of

4 May 31, 2022, divided by the average closing market price for the 60 trading days

5 ended May 31, 2022.[10]

6 Q. **PLEASE EXPLAIN YOUR ADJUSTMENT TO THE DIVIDEND YIELD.**

7 A. Because dividends are paid periodically (*e.g.* quarterly), as opposed to continuously

8 (daily), an adjustment must be made to the dividend yield. This is often referred to

9 as the discrete, or the Gordon Periodic, version of the DCF model.

10 DCF theory calls for using the full growth rate, or D_1, in calculating the

11 model's dividend yield component. Since the companies in the Utility Proxy Group

12 increase their quarterly dividends at various times during the year, a reasonable

13 assumption is to reflect one-half the annual dividend growth rate in the dividend

14 yield component, or $D_{1/2}$. Because the dividend should be representative of the next

15 12-month period, this adjustment is a conservative approach that does not overstate

16 the dividend yield. Therefore, the actual average dividend yields in Column 1, page

17 1 of Exhibit DWD-2 have been adjusted upward to reflect one-half the average

18 projected growth rate shown in Column 5.

19 Q. **PLEASE EXPLAIN THE BASIS FOR THE GROWTH RATES YOU APPLY**

20 **TO THE UTILITY PROXY GROUP IN YOUR CONSTANT GROWTH DCF**

21 **MODEL.**

22 A. Investors are likely to rely on widely available financial information services, such

---

[10] *See*, column 1, page 1 of Exhibit DWD-2.

1 as *Value Line*, Zacks, and Yahoo! Finance. Investors realize that analysts have

2 significant insight into the dynamics of the industries and individual companies

3 they analyze, as well as companies' ability to effectively manage the effects of

4 changing laws and regulations, and ever-changing economic and market conditions.

5 For these reasons, I used analysts' five-year forecasts of EPS growth in my DCF

6 analysis.

7 Over the long run, there can be no growth in DPS without growth in EPS.

8 Security analysts' earnings expectations have a more significant influence on

9 market prices than dividend expectations. Thus, using earnings growth rates in a

10 DCF analysis provides a better match between investors' market price appreciation

11 expectations and the growth rate component of the DCF.

12 **Q.** **PLEASE SUMMARIZE THE CONSTANT GROWTH DCF MODEL**

13 **RESULTS.**

14 A. As shown on page 1 of Exhibit DWD-2, for the Utility Proxy Group, the mean

15 result of applying the single-stage DCF model is 9.71%, the median result is 9.74%,

16 and the average of the two is 9.73%. In arriving at a conclusion for the constant

17 growth DCF-indicated common equity cost rate for the Utility Proxy Group, I relied

18 on an average of the mean and the median results of the DCF. This approach

19 considers all the proxy utilities' results, while mitigating the high and low outliers

20 of those individual results.

21 **B.** **The Risk Premium Model**

22 **Q.** **PLEASE DESCRIBE THE THEORETICAL BASIS OF THE RPM.**

23 A. The RPM is based on the fundamental financial principle of risk and return; namely,

24 that investors require greater returns for bearing greater risk. The RPM recognizes

1   that common equity capital has greater investment risk than debt capital, as

2   common equity shareholders are behind debt holders in any claim on a company's

3   assets and earnings. As a result, investors require higher returns from common

4   stocks than from bonds to compensate them for bearing the additional risk.

5   While it is possible to directly observe bond returns and yields, investors'

6   required common equity returns cannot be directly determined or observed.

7   According to RPM theory, one can estimate a common equity risk premium over

8   bonds (either historically or prospectively) and use that premium to derive a cost

9   rate of common equity. The cost of common equity equals the expected cost rate

10   for long-term debt capital, plus a risk premium over that cost rate, to compensate

11   common shareholders for the added risk of being unsecured and last-in-line for any

12   claim on the corporation's assets and earnings in the event of liquidation.

13   **Q.   PLEASE EXPLAIN HOW YOU DERIVED YOUR INDICATED COST OF**

14   **COMMON EQUITY BASED ON THE RPM.**

15   A.   I relied on the results of the application of two risk premium methods. The first

16   method is the PRPM, while the second method is a risk premium model using a

17   total market approach.

18   **1.   The Predictive Risk Premium Model**

19   **Q.   PLEASE EXPLAIN THE PRPM.**

20   A.   The PRPM, published in the *Journal of Regulatory Economics* and *The Electricity*

21   *Journal,*[11] was developed from the work of Robert F. Engle, who shared the Nobel

---

[11] Autoregressive conditional heteroscedasticity. *See*, "A New Approach for Estimating the Equity
Risk Premium for Public Utilities", Pauline M. Ahern, Frank J. Hanley and Richard A. Michelfelder,
The Journal of Regulatory Economics (December 2011), 40:261-278 and "Comparative Evaluation
of the Predictive Risk Premium Model, the Discounted Cash Flow Model and the Capital Asset

1   Prize in Economics in 2003 "for methods of analyzing economic time series with

2   time-varying volatility ("ARCH")".[12] Engle found that volatility changes over time

3   and is related from one period to the next, especially in financial markets. Engle

4   discovered that the volatility in prices and returns clusters over time, and is

5   therefore highly predictable, and can be used to predict future levels of risk and risk

6   premiums.

7   The PRPM estimates the risk / return relationship directly, as the predicted

8   equity risk premium is generated by the prediction of volatility or risk. The PRPM

9   is not based on an <u>estimate</u> of investor behavior, but rather on the evaluation of the

10   results of that behavior (i.e., the variance of historical equity risk premiums).

11   **Q.   PLEASE EXPLAIN YOUR APPLICATION OF THE PRPM.**

12   A.   The inputs to the model are the historical returns on the common shares of each

13   company in the Utility Proxy Group minus the historical monthly yield on long-

14   term U.S. Treasury securities through May 2022. Using a generalized form of

15   ARCH, known as GARCH, I calculated each Utility Proxy Group company's

16   projected equity risk premium using Eviews$^{©}$ statistical software. When the

17   GARCH Model is applied to the historical return data, it produces a predicted

18   GARCH variance series[13] and a GARCH coefficient.[14] Multiplying the predicted

19   monthly variance by the GARCH coefficient, then annualizing it,[15] produces the

20   predicted annual equity risk premium. I then added the forecasted 30-year U.S.

Pricing Model for Estimating the Cost of Common Equity", Richard A. Michelfelder, Pauline M.
Ahern, Dylan W. D'Ascendis, and Frank J. Hanley, *The Electricity Journal* (May 2013), 84-89.
[12]   www.nobelprize.org.
[13]   Illustrated on Columns 1 and 2 of page 2 of Exhibit DWD-3.
[14]   Illustrated on Column 4 of page 2 of Exhibit DWD-3.
[15]   Annualized Return = (1+Monthly Return)^12 – 1.

1		Treasury Bond yield, 3.51%,[16] to each company's PRPM-derived equity risk
2		premium to arrive at an indicated cost of common equity. The 30-year Treasury
3		yield is a consensus forecast derived from *Blue Chip*.[17]
4	Q.	**WHAT IS THE INDICATED ROE USING THE PRPM?**
5	A.	The mean PRPM indicated common equity cost rate for the Utility Proxy Group is
6		11.69%, the median is 10.62%, and the average of the two is 11.16%. Consistent
7		with my reliance on the average of the median and mean results of the DCF, I relied
8		on the average of the mean and median results of the Utility Proxy Group PRPM to
9		calculate a cost of common equity rate of 11.16%.
10	Q.	**IS THE PRPM SUPPORTED BY ACADEMIC LITERATURE?**
11	A.	Yes, it is. The PRPM is based on the research of Dr. Robert F. Engle, dating back
12		to the early 1980s. Dr. Engle discovered that the volatility of market prices, returns,
13		and risk premiums clusters over time, making prices, returns, and risk premiums
14		highly predictable.
15		In 2003, he shared the Nobel Prize in Economics for this work, characterized as
16		"methods
17		of analyzing economic time series with time-varying volatility ("ARCH").[18] Dr.
18		Engle[19]
19		noted that relative to volatility, "the standard tools have become the
20		ARCH/GARCH[20]

---

[16] *See,* Column 6 of page 2 of Exhibit DWD-3.
[17] *Blue Chip Financial Forecasts*, June 1, 2022 at 2 and 14.
[18] www.nobelprize.org.
[19] 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.
[20] Autoregressive Conditional Heteroskedasticity/Generalized Autoregressive Conditional Heteroskedasticity.

1   models." Hence, the methodology is not new.

2   In addition, the GARCH methodology has been well tested by academia

3   since Engle's, *et al*. research was originally published in 1982, 40 years ago. I use

4   the well-established GARCH methodology to estimate the PRPM model using a

5   standard commercial and relatively inexpensive statistical package, Eviews,[©21] to

6   develop a means by which to estimate a predicted equity risk premium which, when

7   added to a bond yield, results in a cost of common equity.

8   Also, the PRPM is in the public domain, having been published six times in

9   academically peer-reviewed journals: *Journal of Economics and Business* (June

10   2011 and April 2015),[22] *The Journal of Regulatory Economics* (December 2011),[23]

11   *The Electricity Journal* (May 2013 and March 2020),[24] and *Energy Policy* (April

12   2019).[25] Notably, none of these articles have been rebutted in the academic

13   literature.

---

[21]   In addition to Eviews,[®] 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,[®] currently costs $600 - $700 for a single user commercial license. In addition, JMulti is a free downloadable software with GARCH estimation applications.

[22]   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.

[23]   Pauline M. Ahern, Frank J. Hanley, and Richard A. Michelfelder, "New Approach to Estimating the Equity Risk Premium for Public Utilities", *The Journal of Regulatory Economics*, December 2011, at 40:261-278.

[24]   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.

[25]   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 | | Finally, the PRPM has also been presented to a number of utility |

1   Finally, the PRPM has also been presented to a number of utility

2   industry/regulatory/academic groups including the following: The Edison Electric

3   Institute Cost of Capital Working Group; The NARUC Staff Subcommittee on

4   Accounting and Finance; The National Association of Electric Companies

5   Finance/Accounting/Taxation and Rates and Regulations Committees; the NARUC

6   Electric Committee; The Wall Street Utility Group; the Indiana Utility Regulatory

7   Commission Cost of Capital Task Force; the Financial Research Institute of the

8   University of Missouri Hot Topic Hotline Webinar; and the Center for Research

9   and Regulated Industries Annual Eastern Conference on two occasions.

10   **Q.   HAS THE PRPM BEEN IMPLICITLY ACCEPTED BY OTHER**

11   **REGULATORY COMMISSIONS?**

12   A.   Yes. In Docket No. 2017-292-WS, the Public Service Commission of South

13   Carolina ("PSC SC") accepted Blue Granite Water Company's entire requested

14   ROE, which included the PRPM. The relevant portion states:

15   The Commission finds Mr. D'Ascendis' arguments persuasive. He
16   provided more indicia of market returns, by using more analytical
17   methods and proxy group calculations. Mr. D'Ascendis' use of
18   analysts' estimates for his DCF analysis is supported by consensus,
19   as is his use of the arithmetic mean. The Commission also finds that
20   Mr. D'Ascendis' non-price regulated proxy group more accurately
21   reflects the total risk faced [by] price regulated utilities and CWS.
22   Furthermore, there is no dispute that CWS is significantly smaller
23   than its proxy group counterparts, and, therefore, it may present a
24   higher risk. An appropriate ROE for CWS is 10.45% to 10.95%. The
25   Company used an ROE of 10.5% in computing its Application, a
26   return on the low end of Mr. D'Ascendis' range, and the
27   Commission finds that ROE is supported by the evidence.[26]

[26] PSC SC Docket No. 2017-292-WS - Order No. 2018-345, at 14. (May 17, 2018)

1		In addition, in Docket No. W-354, Subs 363, 364 and 365, the State of North
2		Carolina Utilities Commission ("NCUC") approved my RPM and CAPM analyses,
3		which used PRPM analyses as presented in this proceeding. The relevant portion
4		of the order states:

5		In doing so the Commission finds that the DCF (8.81%), Risk
6		Premium (10.00%) and CAPM (9.29%) model results provided by
7		witness D'Ascendis, as updated to use current rates in D'Ascendis
8		Late-Filed Exhibit No. 1, as well as the risk premium (9.57%)
9		analysis of witness Hinton, are credible, probative, and are entitled
10		to substantial weight as set forth below.[27]

| 11 | **Q.** | **DID THE COMMISSION REJECT THE PRPM IN CASE NO. 2021-00214** |
| 12 | | **CONCERNING ATMOS ENERGY?** |

| 13 | A. | Yes, it did. The Commission stated: |

14		Even though the Commission supports the use and presentation of
15		multiple modelling approaches, the Commission finds that Atmos
16		Kentucky's use of the Predictive Risk Premium Model (PRPM)
17		should be rejected. Though the PRPM model has been published
18		and presented in multiple forums, it has been rejected by this
19		Commission and only been addressed by three other regulatory
20		jurisdictions thus far and is not universally accepted.

| 21 | **Q.** | **DO YOU HAVE A RESPONSE TO THE COMMISSION'S STATEMENT?** |

22	A.	Yes, I do. I appreciate the Commission's openness to considering multiple models
23		in its determination of ROEs for the utilities they regulate, but I respectfully
24		disagree with their exclusion of the PRPM in Case No. 2021-00214. As noted
25		above, the theory supporting the model is based on the Nobel Prize winning work
26		of Engle, and the model itself has been published six times in four separate peer-
27		reviewed academic journals, which indicates that it has been thoroughly vetted by

---

[27] NCUC Docket No. W-354, Sub 363, 364, 365, *Order Granting Partial Rate Increase and Requiring Customer Notice*, at PDF 72 (March 31, 2020).

1   the academic community. This, in addition to the fact that the model has not been

2   rebutted in the academic literature in the over ten years since it has been presented

3   should speak to the model's soundness.

4   Regarding the amount of times the model has been addressed in final orders;

5   while it is true that only three (now four) regulatory commissions have addressed

6   the PRPM in their final orders, the model has been presented in over 100 regulatory

7   proceedings in over thirty U.S. regulatory jurisdictions and the Alberta Utilities

8   Commission in Canada. This would indicate that while maybe not universally

9   accepted, the model is widely disseminated across the U.S. regulatory landscape.

10   In view of the above, the soundness of the model, as evidenced in the

11   underlying theory and the academic vetting of the PRPM, and the wide

12   dissemination of the model in the U.S. regulatory landscape should lead the

13   Commission reconsider the PRPM in its determination regarding the ROE for

14   Atmos Energy in this proceeding.

15 **Q.**   **HAVE YOU PRESENTED YOUR ROE MODEL RESULTS EXCLUDING**

16   **THE PRPM?**

17 A.   Yes. While I respectfully disagree with the Commission's finding in Case No.

18   2021-00214, I have presented my ROE model results including and excluding the

19   PRPM for the Commission's convenience. As can be gleaned from page 2 of

20   Exhibit DWD-1, my recommended ROE of 10.95% is still within the range of

21   ROEs produced by my models without the PRPM.

	2.	**The Total Market Risk Premium Approach**

1

Q. **PLEASE EXPLAIN THE TOTAL MARKET APPROACH RPM.**

A. The total market approach RPM adds a prospective public utility bond yield to an average of: (1) an equity risk premium that is derived from a beta-adjusted total market equity risk premium; (2) an equity risk premium based on the S&P Utilities Index; and (3) an equity risk premium based on authorized ROEs for gas distribution utilities.

Q. **PLEASE EXPLAIN THE BASIS OF THE EXPECTED BOND YIELD OF 5.30% APPLICABLE TO THE UTILITY PROXY GROUP.**

A. The first step in the total market approach RPM analysis is to determine the expected bond yield. Because both ratemaking and the cost of capital, including common equity cost rate, are prospective in nature, a prospective yield on similarly-rated long-term debt is essential. I relied on a consensus forecast of about 50 economists of the expected yield on Aaa-rated corporate bonds for the six calendar quarters ending with the third calendar quarter of 2023, and *Blue Chip's* long-term projections for 2024 to 2028 and 2029 to 2033. As shown on line 1, page 3 of Exhibit DWD-3, the average expected yield on Moody's Aaa-rated corporate bonds is 4.73%. To derive an expected yield on Moody's A2-rated public utility bonds, I made an upward adjustment of 0.57%, which represents a recent spread between Aaa-rated corporate bonds and A2-rated public utility bonds, in order to adjust the expected Aaa-rated corporate bond yield to an equivalent A2-rated public utility bond yield.[28] Adding that recent 0.57% spread to the expected Aaa-rated corporate

---

[28] As shown on line 2 and explained in note 2, page 3 of Exhibit DWD-3.

1   bond yield of 4.73% results in an expected A2-rated public utility bond yield of

2   5.30%.

3   Since the Utility Proxy Group's average Moody's long-term rating is A2, no

4   additional adjustment is needed to reflect the rating of the Utility Proxy Group.

5   **Table 5: Summary of the Calculation of the Utility Proxy Group Projected**
6   **Bond Yield[29]**

Prospective Yield on Moody's Aaa-Rated Corporate Bonds (*Blue Chip)*	4.73%
Adjustment to Reflect Yield Spread Between Moody's Aaa-Rated Corporate Bonds and Moody's A2-Rated Utility Bonds	0.57%
Prospective Bond Yield Applicable to the Utility Proxy Group	5.30%

7   To develop the indicated ROE using the total market approach RPM, this

8   prospective bond yield is then added to the average of the three different equity risk

9   premiums described below.

10   *a.   The Beta-Derived Risk Premium*

11   Q.   **PLEASE EXPLAIN HOW THE BETA-DERIVED EQUITY RISK**

12   **PREMIUM IS DETERMINED.**

13   A.   The components of the beta-derived risk premium model are: (1) an expected

14   market equity risk premium over corporate bonds, and (2) the beta. The derivation

15   of the beta-derived equity risk premium that I applied to the Utility Proxy Group is

16   shown on Lines 1 through 9 of page 8 of Exhibit DWD-3. The total beta-derived

17   equity risk premium I applied was based on an average of: (1) Ibbotson-based

18   equity risk premiums; (2) *Value Line*-based equity risk premiums; and (3)

19   Bloomberg-based equity risk premiums. Each of these is described in turn.

---

[29]   As shown on page 3 of Exhibit DWD-3.

| 1 | **Q.** | **HOW DID YOU DERIVE A MARKET EQUITY RISK PREMIUM BASED** |

1 **Q.** **HOW DID YOU DERIVE A MARKET EQUITY RISK PREMIUM BASED**

2 **ON LONG-TERM HISTORICAL DATA?**

3 A. To derive a historical market equity risk premium, I used the most recent holding

4 period returns for the large company common stocks from the Kroll 2022 SBBI®

5 Yearbook Stocks, Bonds, Bills, and Inflation ("SBBI – 2022")[30] less the average

6 historical yield on Moody's Aaa/Aa-rated corporate bonds for the period 1928 to

7 2021. The use of holding period returns over a very long period of time is

8 appropriate because it is consistent with the long-term investment horizon

9 presumed by investing in a going concern, i.e., a company expected to operate in

10 perpetuity.

11 The long-term arithmetic mean monthly total return rate on large company

12 common stocks was 12.11% and the long-term arithmetic mean monthly yield on

13 Moody's Aaa/Aa-rated corporate bonds was 5.98% from 1928 to 2021.[31] As shown

14 on Line 1 of page 8 of Exhibit DWD-3, subtracting the mean monthly bond yield

15 from the total return on large company stocks results in a long-term historical equity

16 risk premium of 6.13%.

17 I used the arithmetic mean monthly total return rates for the large company

18 stocks and yields (income returns) for the Moody's Aaa/Aa-rated corporate bonds,

19 because they are appropriate for the purpose of estimating the cost of capital as

20 noted in SBBI – 2022.[32] The use of the arithmetic mean return rates and yields is

21 appropriate because historical total returns and equity risk premiums provide

---

[30] SBBI – 2022, at 256-258.
[31] As explained in note 1 on page 9 of Exhibit DWD-3.
[32] SBBI – 2022, at 200-201.

1   insight into the variance and standard deviation of returns needed by investors in

2   estimating future risk when making a current investment. If investors relied on the

3   geometric mean of historical equity risk premiums, they would have no insight into

4   the potential variance of future returns because the geometric mean relates to the

5   change over many periods to a <u>constant</u> rate of change, thereby obviating the year-

6   to-year fluctuations, or variance, which is critical to risk analysis.

7 **Q.   PLEASE EXPLAIN THE DERIVATION OF THE REGRESSION-BASED**

8   **MARKET EQUITY RISK PREMIUM.**

9 A.   To derive the regression analysis-derived market equity risk premium of 7.67%,

10   shown on Line 2 of page 8 of Exhibit DWD-3, I used the same monthly annualized

11   total returns on large company common stocks relative to the monthly annualized

12   yields on Moody's Aaa/Aa-rated corporate bonds as mentioned above. The

13   relationship between interest rates and the market equity risk premium was modeled

14   using the observed monthly market equity risk premium as the dependent variable,

15   and the monthly yield on Moody's Aaa/Aa-rated corporate bonds as the

16   independent variable. I used a linear Ordinary Least Squares ("OLS") regression,

17   in which the market equity risk premium is expressed as a function of the Moody's

18   Aaa/Aa-rated corporate bonds yield:

19                          $RP = \alpha + \beta\ (R_{Aaa/Aa})$

20 **Q.   PLEASE EXPLAIN THE DERIVATION OF THE PRPM EQUITY RISK**

21   **PREMIUM.**

22 A.   I used the same PRPM approach described above to the PRPM equity risk premium.

23   The inputs to the model are the historical monthly returns on large company

1	common stocks minus the monthly yields on Moody's Aaa/Aa-rated corporate
2	bonds during the period from January 1928 through May 2022.[33] Using the
3	previously discussed generalized form of ARCH, known as GARCH, the projected
4	equity risk premium is determined using Eviews© statistical software. The resulting
5	PRPM predicted a market equity risk premium of 8.79%.[34]

Q. **PLEASE EXPLAIN THE DERIVATION OF A PROJECTED EQUITY RISK PREMIUM BASED ON *VALUE LINE* SUMMARY & INDEX DATA FOR YOUR RPM ANALYSIS.**

A. As noted previously, because both ratemaking and the cost of capital are prospective, a prospective market equity risk premium is needed. The derivation of the forecasted or prospective market equity risk premium can be found in note 4 on page 9 of Exhibit DWD-3. Consistent with the concept of total investment returns being the sum of income and capital appreciation returns, this prospective market equity risk premium is derived from an average of the three to five-year median market price appreciation potential by *Value Line* Summary & Index for the 13 weeks ending June 3, 2022, plus an average of the median estimated dividend yield for the common stocks of the 1,700 firms covered in *Value Line*'s Standard Edition.[35]

The average median expected price appreciation is 58%, which translates to a 12.12% annual appreciation, and when added to the average of *Value Line's* median expected dividend yields of 1.98%, equates to a forecasted annual total

---

[33] Data from January 1928 to December 2021 is from <u>SBBI - 2022</u>. Data from January 2022 to May 2022 is from Bloomberg.
[34] Shown on line 3, page 8 of Exhibit DWD-3.
[35] As explained in detail in page 2, note 1 of Exhibit DWD-3.

1   return rate on the market of 14.10%. The forecasted Aaa-rated bond yield of 4.73%

2   is deducted from the total market return of 14.10%, resulting in an equity risk

3   premium of 9.37%, shown on page 8, Line 4 of Exhibit DWD-3.

4 **Q.**   **PLEASE EXPLAIN THE DERIVATION OF AN EQUITY RISK PREMIUM**

5   **BASED ON THE S&P 500 COMPANIES.**

6 A.   Using data from *Value Line*, I calculated an expected total return on the S&P 500

7   companies using expected dividend yields and long-term growth estimates as a

8   proxy for capital appreciation. The expected total return for the S&P 500 is 16.29%.

9   Subtracting the prospective yield on Moody's Aaa-rated corporate bonds of 4.73%

10   results in an 11.56% projected equity risk premium.

11 **Q.**   **PLEASE EXPLAIN THE DERIVATION OF AN EQUITY RISK PREMIUM**

12   **BASED ON BLOOMBERG DATA.**

13 A.   Using data from Bloomberg, I calculated an expected total return on the S&P 500

14   using expected dividend yields and long-term growth estimates as a proxy for

15   capital appreciation, identical to the method described above. The expected total

16   return for the S&P 500 is 12.35%. Subtracting the prospective yield on Moody's

17   Aaa-rated corporate bonds of 4.73% results in a 7.62% projected equity risk

18   premium.

19 **Q.**   **WHAT IS YOUR CONCLUSION OF A BETA-DERIVED EQUITY RISK**

20   **PREMIUM FOR USE IN YOUR RPM ANALYSIS?**

21 A.   I gave equal weight to the six equity risk premiums in arriving at my conclusion of

22   8.52%.[36]

---

[36]   *See,* line No. 7 on page 8 of Exhibit DWD-3.

Table 6: Summary of the Calculation of the Equity Risk Premium Using Total Market Returns[37]

Historical Spread Between Total Returns of Large Stocks and Aaa and Aa2-Rated Corporate Bond Yields (1928 – 2021)	6.13%
Regression Analysis on Historical Data	7.67%
PRPM Analysis on Historical Data	8.79%
Prospective Equity Risk Premium using Total Market Returns from *Value Line* Summary & Index less Projected Aaa Corporate Bond Yields	9.37%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from *Value Line* for the S&P 500 less Projected Aaa Corporate Bond Yields	11.56%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from Bloomberg Professional Services for the S&P 500 less Projected Aaa Corporate Bond Yields	7.62%
Average	8.52%

After calculating the average market equity risk premium of 8.52%, I adjusted it by beta to account for the risk of the Utility Proxy Group. As discussed below, beta is a meaningful measure of prospective relative risk to the market as a whole, and is a logical way to allocate a company's, or proxy group's, share of the market's total equity risk premium relative to corporate bond yields. As shown on page 1 of Exhibit DWD-4, the average of the mean and median beta for the Utility Proxy Group is 0.76. Multiplying the 0.76 average by the market equity risk premium of 8.52% results in a beta-adjusted equity risk premium for the Utility Proxy Group of 6.48%.

---

[37] As shown on page 8 of Exhibit DWD-3.

1		***b.*** ***The S&P Utility Index-Derived Risk Premium***

1   ***b.***   ***The S&P Utility Index-Derived Risk Premium***

2 **Q.**   **HOW DID YOU DERIVE THE EQUITY RISK PREMIUM BASED ON THE**

3   **S&P UTILITY INDEX AND MOODY'S A-RATED PUBLIC UTILITY**

4   **BONDS?**

5 A.   I estimated three equity risk premiums based on S&P Utility Index holding period

6   returns, and two equity risk premiums based on the expected returns of the S&P

7   Utilities Index, using *Value Line* and Bloomberg data, respectively. Turning first to

8   the S&P Utility Index holding period returns, I derived a long-term monthly

9   arithmetic mean equity risk premium between the S&P Utility Index total returns

10   of 10.74%, and monthly Moody's A-rated public utility bond yields of 6.46% from

11   1928 to 2021, to arrive at an equity risk premium of 4.28%.[38] I then used the same

12   historical data to derive an equity risk premium of 5.28% based on a regression of

13   the monthly equity risk premiums. The final S&P Utility Index holding period

14   equity risk premium involved applying the PRPM using the historical monthly

15   equity risk premiums from January 1928 to May 2022 to arrive at a PRPM-derived

16   equity risk premium of 5.85% for the S&P Utility Index.

17   I then derived expected total returns on the S&P Utilities Index of 10.58%

18   and 9.88% using data from *Value Line* and Bloomberg, respectively, and subtracted

19   the prospective Moody's A2-rated public utility bond yield of 5.30%[39], which

20   resulted in equity risk premiums of 5.28% and 4.58%, respectively. As with the

21   market equity risk premiums, I averaged each risk premium based on each source

---

[38]   As shown on line 1, page 12 of Exhibit DWD-3.
[39]   Derived on line 3, page 3 of Exhibit DWD-3.

1   (i.e., historical, *Value Line*, and Bloomberg) to arrive at my utility-specific equity

2   risk premium of 5.05%.

3   **Table 7: Summary of the Calculation of the Equity Risk Premium Using**
4   **S&P Utility Index Holding Returns[40]**

Historical Spread Between Total Returns of the S&P Utilities Index and A2-Rated Utility Bond Yields (1928 – 2021)	4.28%
Regression Analysis on Historical Data	5.28%
PRPM Analysis on Historical Data	5.85%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from *Value Line* for the S&P Utilities Index less Projected A2 Utility Bond Yields	5.28%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from Bloomberg Professional Services for the S&P Utilities Index less Projected A2 Utility Bond Yields	4.58%
Average	5.05%

5   **c.   Authorized Return-Derived Equity Risk Premium**

6   **Q.   HOW DID YOU DERIVE AN EQUITY RISK PREMIUM OF 5.00% BASED**

7   **ON AUTHORIZED ROES FOR GAS DISTRIBUTION UTILITIES?**

8   A.   The equity risk premium of 5.00% shown on line 3, page 7 of Exhibit DWD-3 is

9   the result of a regression analysis based on regulatory awarded ROEs related to the

10   yields on Moody's A-rated public utility bonds. That analysis is shown on page 13

11   of Exhibit DWD-3 which contains the graphical results of a regression analysis of

12   809 rate cases for gas distribution utilities which were fully litigated during the

13   period from January 1, 1980 through May 31, 2022. It shows the implicit equity

14   risk premium relative to the yields on A-rated public utility bonds immediately prior

15   to the issuance of each regulatory decision. It is readily discernible that there is an

---

40   As shown on page 12 of Exhibit DWD-3.

1		inverse relationship between the yield on A-rated public utility bonds and equity
2		risk premiums. In other words, as interest rates decline, the equity risk premium
3		rises and vice versa, a result consistent with financial literature on the subject.[41] I
4		used the regression results to estimate the equity risk premium applicable to the
5		projected yield on Moody's A2-rated public utility bonds of 5.30%. Given the
6		expected A-rated utility bond yield of 5.30%, it can be calculated that the indicated
7		equity risk premium applicable to that bond yield is 5.00%, which is shown on line
8		3, page 7 of Exhibit DWD-3.

9 **Q.** **WHAT IS YOUR CONCLUSION OF AN EQUITY RISK PREMIUM FOR**

10 **USE IN YOUR TOTAL MARKET APPROACH RPM ANALYSIS?**

11 A. The equity risk premium I apply to the Utility Proxy Group is 5.51%, which is the

12 average of the beta-adjusted equity risk premium for the Utility Proxy Group, the

13 S&P Utilities Index, and the authorized return utility equity risk premiums of

14 6.48%, 5.05%, and 5.00%, respectively.[42]

15 **Q.** **WHAT IS THE INDICATED RPM COMMON EQUITY COST RATE**

16 **BASED ON THE TOTAL MARKET APPROACH?**

17 A. As shown on line 5, page 3 of Exhibit DWD-3, I calculated a common equity cost

18 rate of 10.81% for the Utility Proxy Group based on the total market approach

19 RPM.

---

[41] *See, e.g.*, Robert S. Harris and Felicia C. Marston, *The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts*, Journal of Applied Finance, Vol. 11, No. 1, 2001, at pages 11 to 12; Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, Financial Management, Spring 1985, at pages 33 to 45.

[42] As shown on page 7 of Exhibit DWD-3.

Table 8: Summary of the Total Market Return Risk Premium Model[43]

Prospective Moody's A2 -Rated Utility Bond Applicable to the Utility Proxy Group	5.30%
Prospective Equity Risk Premium	<u>5.51%</u>
Indicated Cost of Common Equity	<u>10.81%</u>

Q. **WHAT ARE THE RESULTS OF YOUR APPLICATION OF THE PRPM AND THE TOTAL MARKET APPROACH RPM?**

A. As shown on page 1 of Exhibit DWD-3, the indicated RPM-derived common equity cost rate is 10.99%, which gives equal weight to the PRPM (11.16%) and the adjusted-market approach results (10.81%).

C. **The Capital Asset Pricing Model**

Q. **PLEASE EXPLAIN THE THEORETICAL BASIS OF THE CAPM.**

A. CAPM theory defines risk as the co-variability of a security's returns with the market's returns as measured by beta (β). A beta less than 1.0 indicates lower variability than the market as a whole, while a beta greater than 1.0 indicates greater variability than the market.

The CAPM assumes that all other risk (i.e., all non-market or unsystematic risk) can be eliminated through diversification. The risk that cannot be eliminated through diversification is called market, or systematic, risk. In addition, the CAPM presumes that investors require compensation only for systematic risk, which is the result of macroeconomic and other events that affect the returns on all assets. The model is applied by adding a risk-free rate of return to a market risk premium, which is adjusted proportionately to reflect the systematic risk of the individual security

---

[43] As shown on page 3 of Exhibit DWD-3.

| 1 | relative to the total market as measured by beta. The traditional CAPM model is |
| 2 | expressed as: |

$$R_s \quad = \quad R_f + \beta \, (R_m - R_f)$$

4	Where:	R_s	$=$	Return rate on the common stock
5		R_f	$=$	Risk-free rate of return
6		R_m	$=$	Return rate on the market as a whole
7		β	$=$	Adjusted beta (volatility of the
8				security relative to the market as a whole)

9   Numerous tests of the CAPM have measured the extent to which security

10   returns and betas are related as predicted by the CAPM, confirming its validity. The

11   empirical CAPM ("ECAPM") reflects the reality that while the results of these tests

12   support the notion that beta is related to security returns, the empirical Security

13   Market Line ("SML") described by the CAPM formula is not as steeply sloped as

14   the predicted SML.[44]

15   The ECAPM reflects this empirical reality. Fama and French clearly state

16   regarding Figure 2, below, that "[t]he returns on the low beta portfolios are too high,

17   and the returns on the high beta portfolios are too low." [45]

---

[44] Roger A. Morin, <u>Modern Regulatory Finance, Public Utility Reports, Inc., 2021, at 205-209</u>. ("Morin")

[45] Eugene F. Fama and Kenneth R. French, "The Capital Asset Pricing Model: Theory and Evidence", *Journal of Economic Perspectives*, Vol. 18, No. 3, Summer 2004 at 33 (Fama & French).

Figure 2 http://pubs.aeaweb.org/doi/pdfplus/10.1257/0895330042162430

Average Annualized Monthly Return versus Beta for Value Weight Portfolios Formed on Prior Beta, 1928–2003
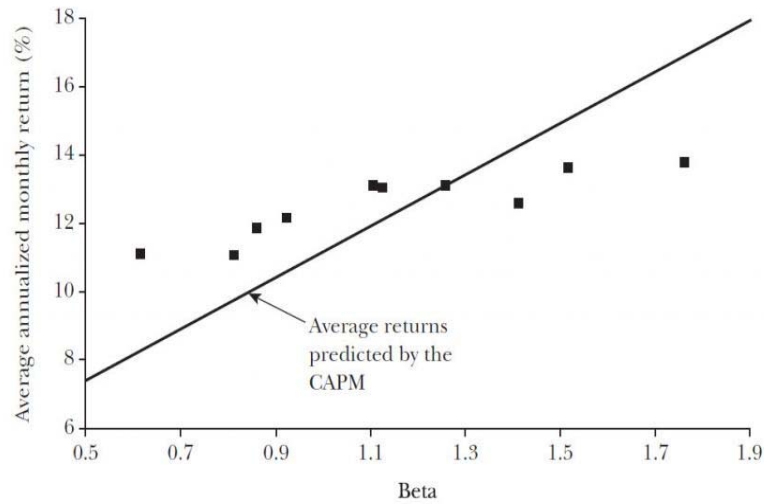
In addition, Morin observes that while the results of these tests support the notion that beta is related to security returns, the empirical SML described by the CAPM formula is not as steeply sloped as the predicted SML. Morin states:

> With few exceptions, the empirical studies agree that … low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted.[46]

> * * *

> Therefore, the empirical evidence suggests that the expected return on a security is related to its risk by the following approximation:

$$K = R_F + x\,\beta(R_M - R_F) + (1-x)\,\beta(R_M - R_F)$$

> where x is a fraction to be determined empirically. The value of x that best explains the observed relationship [is] Return = 0.0829 + 0.0520 β is between 0.25 and 0.30. If x = 0.25, the equation becomes:

$$K = R_F + 0.25(R_M - R_F) + 0.75\,\beta(R_M - R_F)[47]$$

Fama and French provide similar support for the ECAPM when they state:

---

[46]   Morin, at 207.
[47]   Morin, at 221.

1   The early tests firmly reject the Sharpe-Lintner version of the
2   CAPM. There is a positive relation between beta and average return,
3   but it is too 'flat.'… The regressions consistently find that the
4   intercept is greater than the average risk-free rate… and the
5   coefficient on beta is less than the average excess market return…
6   This is true in the early tests… as well as in more recent cross-
7   section regressions tests, like Fama and French (1992).[48]

8   Finally, Fama and French further note:

9   Confirming earlier evidence, the relation between beta and average
10   return for the ten portfolios is much flatter than the Sharpe-Linter
11   CAPM predicts. The returns on low beta portfolios are too high,
12   and the returns on the high beta portfolios are too low. For example,
13   the predicted return on the portfolio with the lowest beta is 8.3
14   percent per year; the actual return as 11.1 percent. The predicted
15   return on the portfolio with the t beta is 16.8 percent per year; the
16   actual is 13.7 percent.[49]

17
18   Clearly, the justification from Morin, Fama, and French, along with their

19   reviews of other academic research on the CAPM, validate the use of the ECAPM.

20   In view of theory and practical research, I have applied both the traditional CAPM

21   and the ECAPM to the companies in the Utility Proxy Group and averaged the

22   results.

23 **Q.   WHAT BETAS DID YOU USE IN YOUR CAPM ANALYSIS?**

24 A.   With respect to the beta, I considered two sources: *Value Line* and Bloomberg.

25   While both of those services adjust their calculated (or "raw") betas to reflect the

26   tendency of the beta to regress to the market mean of 1.00, *Value Line* calculates

27   the beta over a five-year period, while Bloomberg's calculation is based on two

28   years of data.

---

[48]   Fama & French, at 32.
[49]   Fama & French, at 33.

1	Q.	**PLEASE DESCRIBE YOUR SELECTION OF A RISK-FREE RATE OF**
2		**RETURN.**
3	A.	As shown in Exhibits DWD-3 and 4, the risk-free rate adopted for applications of
4		the RPM and CAPM is 3.51%. This risk-free rate is based on the average of the
5		*Blue Chip* consensus forecast of the expected yields on 30-year U.S. Treasury
6		bonds for the six quarters ending with the third calendar quarter of 2023, and long-
7		term projections for the years 2024 to 2028 and 2029 to 2033.
8	Q.	**WHY DO YOU USE THE PROJECTED 30-YEAR TREASURY YIELD IN**
9		**YOUR ANALYSES?**
10	A.	The yield on long-term U.S. Treasury bonds is almost risk-free and its term is
11		consistent with the long-term cost of capital to public utilities measured by the
12		yields on Moody's A2-rated public utility bonds; the long-term investment horizon
13		inherent in utilities' common stocks; and the long-term life of the jurisdictional rate
14		base to which the allowed fair rate of return (i.e., cost of capital) will be applied.
15		In contrast, short-term U.S. Treasury yields are more volatile and largely a function
16		of Federal Reserve monetary policy.
17	Q.	**PLEASE EXPLAIN THE ESTIMATION OF THE EXPECTED RISK**
18		**PREMIUM FOR THE MARKET USED IN YOUR CAPM ANALYSES.**
19	A.	The basis of the market risk premium is explained in detail in note 1 on page 2 of
20		Exhibit DWD-4. As discussed previously, the market risk premium is derived from
21		an average of:
22		(i) Ibbotson-based market risk premiums;
23		(ii) *Value Line* data-based market risk premiums; and

| 1 | (iii)   Bloomberg data-based market risk premiums. |

2   The long-term income return on U.S. Government Securities of 5.02% was

3   deducted from the SBBI - 2022 monthly historical total market return of 12.37%,

4   which results in an historical market equity risk premium of 7.35%.[50] I applied a

5   linear OLS regression to the monthly annualized historical returns on the S&P 500

6   relative to historical yields on long-term U.S. Government Securities from SBBI -

7   2022. That regression analysis yielded a market equity risk premium of 9.15%.

8   The PRPM market equity risk premium is 9.84% and is derived using the PRPM

9   relative to the yields on long-term U.S. Treasury securities from January 1926

10   through May 2022.

11   The *Value Line*-derived forecasted total market equity risk premium is

12   derived by deducting the forecasted risk-free rate of 3.51%, discussed above, from

13   the *Value Line* projected total annual market return of 14.10%, resulting in a

14   forecasted total market equity risk premium of 10.59%. The S&P 500 projected

15   market equity risk premium using *Value Line* data is derived by subtracting the

16   projected risk-free rate of 3.51% from the projected total return of the S&P 500 of

17   16.29%. The resulting market equity risk premium is 12.78%.

18   The S&P 500 projected market equity risk premium using Bloomberg data

19   is derived by subtracting the projected risk-free rate of 3.51% from the projected

20   total return of the S&P 500 of 12.35%. The resulting market equity risk premium

21   is 8.84%.

---

[50]   SBBI – 2022, at 256-258, 274-276.

---

1   These six market risk premiums, when averaged, result in an average total

2   market equity risk premium of 9.76%.

3   **Table 9: Summary of the Calculation of the Market Risk Premium for Use in**
4   **the CAPM[51]**

Historical Spread Between Total Returns of Large Stocks and Long-Term Government Bond Yields (1926 – 2021)	7.35%
Regression Analysis on Historical Data	9.15%
PRPM Analysis on Historical Data	9.84%
Prospective Equity Risk Premium using Total Market Returns from *Value Line* Summary & Index less Projected 30-Year Treasury Bond Yields	10.59%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from *Value Line* for the S&P 500 less Projected 30-Year Treasury Bond Yields	12.78%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from Bloomberg Professional Services for the S&P 500 less Projected 30-Year Treasury Bond Yields	8.84%
Average	9.76%

5 **Q. WHAT ARE THE RESULTS OF YOUR APPLICATION OF THE**

6   **TRADITIONAL AND EMPIRICAL CAPM TO THE UTILITY PROXY**

7   **GROUP?**

8 A.   As shown on page 1 of Exhibit DWD-4, the mean result of my CAPM/ECAPM

9   analyses is 11.18%, the median is 11.09%, and the average of the two is 11.14%.

10   Consistent with my reliance on the average of mean and median DCF results

11   discussed above, the indicated common equity cost rate using the CAPM/ECAPM

12   is 11.14%.

---

[51]   As shown on page 2 of Exhibit DWD-4.

| 1 | | D. | **Common Equity Cost Rates for a Proxy Group of Domestic, Non-** |
| 2 | | | **Price Regulated Companies Based on the DCF, RPM, and CAPM** |

3 **Q. WHY DO YOU ALSO CONSIDER A PROXY GROUP OF DOMESTIC,**

4 **NON-PRICE REGULATED COMPANIES?**

5 A. In the *Hope* and *Bluefield* cases, the U.S. Supreme Court did not specify that

6 comparable risk companies had to be utilities. Since the purpose of rate regulation

7 is to be a substitute for marketplace competition, non-price regulated firms

8 operating in the competitive marketplace make an excellent proxy group if they are

9 comparable in total risk to the Utility Proxy Group being used to estimate the cost

10 of common equity. The selection of such domestic, non-price regulated competitive

11 firms theoretically and empirically results in a proxy group which is comparable in

12 total risk to the Utility Proxy Group.

13 **Q. HOW DID YOU SELECT NON-PRICE REGULATED COMPANIES THAT**

14 **ARE COMPARABLE IN TOTAL RISK TO THE UTILITY PROXY**

15 **GROUP?**

16 A. In order to select a proxy group of domestic, non-price regulated companies similar

17 in total risk to the Utility Proxy Group, I relied on the betas and related statistics

18 derived from *Value Line* regression analyses of weekly market prices over the most

19 recent 260 weeks (i.e., five years). Using these selection criteria resulted in a proxy

20 group of 38 domestic, non-price regulated firms comparable in total risk to the

21 Utility Proxy Group. Total risk is the sum of non-diversifiable market risk and

22 diversifiable company-specific risks. The criteria used in the selection of the

23 domestic, non-price regulated firms was:

1	(i)	They must be covered by *Value Line Investment Survey* (Standard Edition);
2		
3	(ii)	They must be domestic, non-price regulated companies, i.e., not utilities;
4	(iii)	Their beta must lie within plus or minus two standard deviations of the average unadjusted betas of the Utility Proxy Group; and
5		
6	(iv)	The residual standard errors of the *Value Line* regressions which gave rise to the unadjusted betas must lie within plus or minus two standard deviations of the average residual standard error of the Utility Proxy Group.
7		
8		

9   Betas are a measure of market or systematic risk, which is not diversifiable.

10 The residual standard errors of the regressions were used to measure each firm's

11 company-specific, diversifiable risk. Companies that have similar betas <u>and</u> similar

12 residual standard errors resulting from the same regression analyses have similar

13 total investment risk.

14 **Q.** **HAVE YOU PREPARED AN EXHIBIT WHICH SHOWS THE DATA FROM**

15 **WHICH YOU SELECTED THE 38 DOMESTIC, NON-PRICE**

16 **REGULATED COMPANIES THAT ARE COMPARABLE IN TOTAL RISK**

17 **TO THE UTILITY PROXY GROUP?**

18 A. Yes, the basis of my selection and both proxy groups' regression statistics are shown

19   in Exhibit DWD-5.

20 **Q.** **DID YOU CALCULATE COMMON EQUITY COST RATES USING THE**

21 **DCF MODEL, RPM, AND CAPM FOR THE NON-PRICE REGULATED**

22 **PROXY GROUP?**

23 A. Yes. Because the DCF, RPM, and CAPM have been applied in an identical manner

24   as described above, I will not repeat the details of the rationale and application of

25   each model. One exception is in the application of the RPM, where I did not use

1   public utility-specific equity risk premiums, nor did I apply the PRPM to the

2   individual companies.

3   Pages 2 of Exhibit DWD-6 contains the derivation of the DCF cost rates.

4   As shown, the indicated common equity cost rate using the DCF for the Non-Price

5   Regulated Proxy Group comparable in total risk to the Utility Proxy Group, is

6   11.92%.

7   Pages 3 through 5 of Exhibit DWD-6 contain the data and calculations that

8   support the 12.65% RPM common equity cost rate. As shown on line 1, page 3 of

9   Exhibit DWD-6, the consensus prospective yield on Moody's Baa-rated corporate

10   bonds for the six quarters ending in the third quarter of 2023, and for the years 2024

11   to 2028 and 2029 to 2033, is 5.64%.[52] Since the Non-Price Regulated Proxy Group

12   has an average Moody's long-term rating of Baa1, a downward adjustment of

13   0.15% to the projected Baa2 corporate bond yield is necessary to reflect the

14   difference in ratings. The adjustment results in a projected Baa1-rated corporate

15   bond yield of 5.49%.

16   When the beta-adjusted risk premium of 7.16%[53] relative to the Non-Price

17   Regulated Proxy Group is added to the prospective Baa1-rated corporate bond yield

18   of 5.49%, the indicated RPM common equity cost rate is 12.65%.

19   Page 6 of Exhibit DWD-6 contains the inputs and calculations that support

20   my indicated CAPM/ECAPM common equity cost rate of 11.84%.

---

[52] *Blue Chip Financial Forecasts*, June 1, 2022, at page 2 and 14.
[53] Derived on page 6 of Exhibit DWD-6.

1	Q.	**WHAT IS THE COST RATE OF COMMON EQUITY BASED ON THE**
2		**NON-PRICE REGULATED PROXY GROUP COMPARABLE IN TOTAL**
3		**RISK TO THE UTILITY PROXY GROUP?**
4	A.	As shown on page 1 of Exhibit DWD-6, the results of the DCF, RPM, and CAPM
5		applied to the Non-Price Regulated Proxy Group comparable in total risk to the
6		Utility Proxy Group are 11.92%, 12.65%, and 11.84%, respectively. The average
7		of the mean and median of these models is 12.03%, which I used as the indicated
8		common equity cost rate for the Non-Price Regulated Proxy Group.

<div align="center">

9   **VI.**   <u>**CONCLUSION OF COMMON EQUITY COST RATE BEFORE**</u>
10   <u>**ADJUSTMENTS**</u>

</div>

11	Q.	**WHAT ARE THE INDICATED COMMON EQUITY COST RATES**
12		**BEFORE ADJUSTMENTS?**
13	A.	Based on the results of the application of multiple cost of common equity models
14		to the Utility Proxy Group, the range of ROEs attributable to the Utility Proxy
15		Group is between 9.73% and 12.03%.
16		I used multiple cost of common equity models as primary tools in arriving
17		at my recommended common equity cost rate, because no single model is so
18		inherently precise that it can be relied on solely to the exclusion of other
19		theoretically sound models. The use of multiple models adds reliability to the
20		estimation of the common equity cost rate, and the prudence of using multiple cost
21		of common equity models is supported in both the financial literature and
22		regulatory precedent.
23		As discussed previously, after determining the indicated range of ROEs
24		attributable to a comparable group, there must be an evaluation of relative risk

1		between that group and the target company to determine whether it is appropriate
2		to apply adjustments to the comparable group's indicated ROE to better reflect the
3		target company's specific risks.
4		**VII. ADJUSTMENTS TO THE COMMON EQUITY COST RATE**
5	Q.	**DID THE COMMISSION REJECT RELATIVE RISK ADJUSTMENTS TO**
6		**THE ROE IN CASE NO. 2021-00214 CONCERNING ATMOS ENERGY?**
7	A.	Yes, it did. The Commission stated:
8		The Commission reiterates that it continues to reject use of flotation
9		cost adjustments, financial risk adjustments, and size adjustments in
10		the ROE analyses.
11	Q.	**DO YOU HAVE A RESPONSE TO THE COMMISSION'S STATEMENT?**
12	A.	Yes, I do. I respectfully disagree with the Commission's continued rejection of
13		Company-specific risk adjustments as stated in their Final Order in Case No. 2021-
14		00214, especially when it does not point to evidence in the record to reject those
15		adjustments. As will be explained in detail below, each adjustment is a common
16		sense adjustment which is specific to Atmos Energy: (1) flotation costs are real
17		costs to issue equity that cannot be recovered through rates; (2) financial risk
18		adjustments are based in the fact that investors in higher risk companies require
19		higher returns; and (3) size adjustments are based in the fact that smaller companies
20		are riskier than larger companies, all else equal.
21	Q.	**DESPITE THE COMMISSION'S REJECTION OF THE ADJUSTMENTS**
22		**IN CASE NO. 2021-00214, DOES IT IMPLICITLY TAKE INTO ACCOUNT**
23		**BOTH BUSINESS AND FINANCIAL RISK IN THEIR ROE**
24		**DETERMINATIONS?**
25	A.	Yes, it does. The Commission stated:

1   An ROE of 9.23 percent is lower than recent Commission awards
2   for gas utilities, but those awards were tied to stay-out clauses **for a**
3   **utility that is significantly smaller**, rural and had not requested a
4   rate increase for over ten years. Additionally, in deciding upon the
5   approved ROE, the Commission is also balancing the recent
6   destruction due to the devastating tornadoes and customer bill
7   impact during the region's recovery, **as well as the still high equity**
8   **percentage**. (emphasis added)

9 **Q.** **SHOULD THE COMMISSION COMPARE ATMOS ENERGY TO OTHER**

10 **UTILITIES IN KENTUCKY WHEN IT MAKES ITS ROE**

11 **DETERMINATION?**

12 A. No, it should not. Since the indicated ROE is determined using the market data of

13 the Utility Proxy Group, any type of adjustment to the ROE must reflect relative

14 differences between the Company and the Utility Proxy Group.   Since this is the

15 case, the relative risks of other Kentucky utilities is not relevant to determining the

16 ROE for the Company.

17 **A.**   **Size Adjustment**

18 **Q.** **DOES ATMOS ENERGY'S SMALLER SIZE RELATIVE TO THE**

19 **UTILITY PROXY GROUP COMPANIES INCREASE ITS BUSINESS**

20 **RISK?**

21 A. Yes. Atmos Energy's smaller size relative to the Utility Proxy Group companies

22 indicates greater relative business risk for the Company because, all else being

23 equal, size has a material bearing on risk.

24   Size affects business risk because smaller companies generally are less able

25 to cope with significant events that affect sales, revenues and earnings.   For

26 example, smaller companies face more risk exposure to business cycles and

27 economic conditions, both nationally and locally. Additionally, the loss of revenues

1   from a few larger customers would have a greater effect on a small company than

2   on a bigger company with a larger, more diverse, customer base.

3   As further evidence that smaller firms are riskier, investors generally

4   demand greater returns from smaller firms to compensate for less marketability and

5   liquidity of their securities. Kroll's Cost of Capital Navigator: U.S. Cost of Capital

6   Module ("Kroll") discusses the nature of the small-size phenomenon, providing an

7   indication of the magnitude of the size premium based on several measures of size.

8   In discussing "Size as a Predictor of Equity Premiums," Kroll states:

9   The size effect is based on the empirical observation that companies
10   of smaller size are associated with greater risk and, therefore, have
11   greater cost of capital [sic]. The "size" of a company is one of the
12   most important risk elements to consider when developing cost of
13   equity capital estimates for use in valuing a business simply because
14   size has been shown to be a *predictor* of equity returns. In other
15   words, there is a significant (negative) relationship between size and
16   historical equity returns - as size *decreases*, returns tend to *increase*,
17   and vice versa. (footnote omitted) (emphasis in original)[54]

18   Furthermore, in "The Capital Asset Pricing Model: Theory and Evidence,"

19   Fama and French note size is indeed a risk factor which must be reflected when

20   estimating the cost of common equity. On page 14, they note:

21   . . . the higher average returns on small stocks and high book-to-
22   market stocks reflect unidentified state variables that produce
23   undiversifiable risks (covariances) in returns not captured in the
24   market return and are priced separately from market betas.[55]

25   Based on this evidence, Fama and French proposed their three-factor model

26   which includes a size variable in recognition of the effect size has on the cost of

27   common equity.

[54]   Kroll, Cost of Capital Navigator: U.S. Cost of Capital Module, Size as a Predictor of Returns, at 1.
[55]   Eugene F. Fama and Kenneth R. French, "The Capital Asset Pricing Model: Theory and Evidence,"
        Journal of Economic Perspectives, Volume 18, Number 3, Summer 2004, at 25-43.

1   Also, it is a basic financial principle that the use of funds invested, and not

2   the source of funds, is what gives rise to the risk of any investment.[56]   Eugene

3   Brigham, a well-known authority, states:

4   A number of researchers have observed that portfolios of small-
5   firms (sic) have earned consistently higher average returns than
6   those of large-firm stocks; this is called the "small-firm effect." On
7   the surface, it would seem to be advantageous to the small firms to
8   provide average returns in a stock market that are higher than those
9   of larger firms. In reality, it is bad news for the small firm; **what the**
10 **small-firm effect means is that the capital market demands**
11 **higher returns on stocks of small firms than on otherwise similar**
12 **stocks of the large firms**. (emphasis added)[57]

13 Consistent with the financial principle of risk and return discussed above,

14 increased relative risk due to small size must be considered in the allowed rate of

15 return on common equity. Therefore, the Commission's authorization of a cost rate

16 of common equity in this proceeding must appropriately reflect the unique risks of

17 Atmos Energy, including its small size, which is justified and supported above by

18 evidence in the financial literature.

19 **Q.   SHOULD THE COMMISSION CONSIDER ATMOS ENERGY AS A**

20 **STAND-ALONE COMPANY?**

21 A.   Yes, it should. Because it is Atmos Energy's Kentucky rate base to which the

22 overall rates of return set forth in this proceeding will be applied, they should be

23 evaluated as a stand-alone entity. To do otherwise would be discriminatory,

24 confiscatory, and inaccurate. It is also a basic financial precept that the use of the

25 funds invested give rise to the risk of the investment. As Brealey and Myers state:

---

[56]   Brealey, Richard A. and Myers, Stewart C., <u>Principles of Corporate Finance</u> (McGraw-Hill Book Company, 1996), at 204-205, 229.
[57]   Brigham, Eugene F., <u>Fundamentals of Financial Management, Fifth Edition</u> (The Dryden Press, 1989), at 623.

1   *The true cost of capital depends on the use to which the capital is*
2   *put.*

3   ***

4   ***Each project should be evaluated at its own opportunity cost of***
5   ***capital; the true cost of capital depends on the use to which the***
6   ***capital is put***. (italics and bold in original) [58]

7   Morin confirms Brealey and Myers when he states:

8   Financial theory clearly establishes that the cost of equity is the risk-
9   adjusted opportunity cost of the investors and not the cost of the
10   specific capital sources employed by the investors. The true cost of
11   capital depends on the use to which the capital is put and not on its
12   source. The Hope and Bluefield doctrines have made clear that the
13   relevant considerations in calculating a company's cost of capital are
14   the alternatives available to investors and the returns and risks
15   associated with those alternatives.[59]

16   Additionally, Levy and Sarnat state:

17   The firm's cost of capital is the discount rate employed to discount
18   the firm's average cash flow, hence obtaining the value of the firm.
19   It is also the weighted average cost of capital, as we shall see below.
20   The weighted average cost of capital should be employed for project
21   evaluation… only in cases where the risk profile of the new projects
22   is a "carbon copy" of the risk profile of the firm.[60]

23   Although Levy and Sarnat discuss a project's cost of capital relative to a

24   firm's cost of capital, these principles apply equally to the use of a proxy group-

25   based cost of capital. Each company must be viewed on its own merits, regardless

26   of the source of its equity capital. As *Bluefield* clearly states:

27   A public utility is entitled to such rates as will permit it to earn a
28   return on the value of the property which it employs for the
29   convenience of the public equal to that generally being made at the
30   same time and in the same general part of the country on investments

---

[58]   Richard A. Brealey and Stewart C. Myers, <u>Principles of Corporate Finance,</u> McGraw-Hill, Third Edition, 1988, at 173, 198.
[59]   Morin, at 581.
[60]   Haim Levy & Marshall Sarnat, <u>Capital Investment and Financial Decisions</u>, Prentice/Hall International, 1986, at 465.

| 1 | | in other business undertakings which are attended by corresponding |
| 2 | | risks and uncertainties; [61] |

3   In other words, it is the "risks and uncertainties" surrounding the property

4   employed for the "convenience of the public" which determines the appropriate

5   level of rates. In this proceeding, the property employed "for the convenience of

6   the public" is the rate base of Atmos Energy's Kentucky operations. Thus, it is only

7   the risk of investment in Atmos Energy's Kentucky operations that is relevant to

8   the determination of the cost of common equity to be applied to the common equity-

9   financed portion of that rate base.

10   In addition, in the Fama and French article previously cited, the authors[62]

11   proposed that their three-factor model include the SMB (Small Minus Big) factor,

12   which indicates that small capitalization firms are more risky than large

13   capitalization firms, confirming that size is a risk factor which must be taken into

14   account in estimating the cost of common equity.

15   Consistent with the financial principle of risk and return discussed

16   previously, and the stand-alone nature of ratemaking, an upward adjustment must

17   be applied to the indicated cost of common equity derived from the cost of equity

18   models of the proxy groups used in this proceeding.

19 **Q.**   **IS THERE A WAY TO QUANTIFY A RELATIVE RISK ADJUSTMENT DUE**

20   **TO ATMOS ENERGY'S SMALL SIZE RELATIVE TO THE UTILITY**

21   **PROXY GROUP?**

22 A.   Yes. Atmos Energy has greater relative risk than the average utility in the Utility

---

[61]   *Bluefield*, at 6.
[62]   Fama & French, at 39.

1   Proxy Group because of its smaller size compared with the utilities in that group,

2   as measured by an estimated market capitalization of common equity for Atmos

3   Energy.

**Table 11: Size as Measured by Market Capitalization for Atmos Energy and
the Utility Proxy Group**

	Market Capitalization* ($ Millions)	Times Greater than The Company
Atmos Energy Kentucky Operations	$609.447	
Utility Proxy Group	$4,531.075	7.4x
*From page 1 of Exhibit DWD-7.		

6   Atmos Energy's estimated market capitalization was $609.447 million as of

7   May 31, 2022,[63] compared with the market capitalization of the median company

8   in the Utility Proxy Group of $4.531 billion as of May 31, 2022. The average

9   company in the Utility Proxy Group has a market capitalization 7.4 times the size

10   of Atmos Energy's estimated market capitalization.

11   As a result, it is necessary to upwardly adjust the range of indicated common

12   equity cost rates to reflect Atmos Energy's greater risk due to their smaller relative

13   size. The determination is based on the size premiums for portfolios of New York

14   Stock Exchange, American Stock Exchange, and NASDAQ listed companies

15   ranked by deciles for the 1926 to 2021 period. The median size premium for the

16   Utility Proxy Group with a market capitalization of $4.531 billion falls in the 5th

17   decile, while the Company's estimated market capitalization of $609.447 million

---

[63] $568,505,829 (requested rate base) * 54.50% (Case No. 2021-00214 final order equity ratio) *
196.7% (market-to-book ratio of the Utility Proxy Group) as demonstrated on page 2 of Exhibit
DWD-7.

1		places it in the 9th decile. The size premium spread between the 5th decile and the
2		9th decile is 1.21%. Even though a 1.21% upward size adjustment is indicated, I
3		applied a size premium of 0.20% to the Company's range of indicated common
4		equity cost rates.
5		**B.** **Credit Risk Adjustment**
6	**Q.**	**PLEASE DISCUSS YOUR PROPOSED CREDIT RISK ADJUSTMENT.**
7	A.	Atmos Energy's long-term ratings are A1 and A from Moody's and S&P,
8		respectively, which are less risky than the average long-term ratings for the Utility
9		Proxy Group of A2 and A-, respectively.[64] Hence, a downward credit risk
10		adjustment is necessary to reflect the less risky credit rating, i.e., A1, of Atmos
11		Energy relative to the A2 average Moody's bond rating of the Utility Proxy
12		Group.[65]
13		An indication of the magnitude of the necessary downward adjustment to
14		reflect the lower credit risk inherent in an A1 bond rating is one-third of a recent
15		three-month average spread between Moody's A- and Aa-rated public utility bond
16		yields, shown on page 4 of Exhibit DWD-3, or 0.06%.[66]
17		**C.** **Flotation Cost Adjustment**
18	**Q.**	**WHAT ARE FLOTATION COSTS?**
19	A.	Flotation costs are those costs associated with the sale of new issuances of common
20		stock. They include market pressure and the mandatory unavoidable costs of
21		issuance (*e.g.*, underwriting fees and out-of-pocket costs for printing, legal,

---

[64] Source of Information: S&P Global Market Intelligence.
[65] As shown on page 5 of Exhibit DWD-3.
[66] 1/3 * 0.19% = 0.06%.

1		registration, etc.). For every dollar raised through debt or equity offerings, the
2		Company receives less than one full dollar in financing.
3	**Q.**	**WHY IS IT IMPORTANT TO RECOGNIZE FLOTATION COSTS IN THE**
4		**ALLOWED COMMON EQUITY COST RATE?**
5	A.	It is important because there is no other mechanism in the ratemaking paradigm
6		through which such costs can be recognized and recovered. Because these costs
7		are real, necessary, and legitimate, recovery of these costs should be permitted. As
8		noted by Morin:

> The costs of issuing these securities are just as real as operating and
> maintenance expenses or costs incurred to build utility plants, and
> fair regulatory treatment must permit recovery of these costs….
>
> The simple fact of the matter is that common equity capital is not
> free….[Flotation costs] must be recovered through a rate of return
> adjustment.[67]

15	**Q.**	**SHOULD FLOTATION COSTS BE RECOGNIZED ONLY IF THERE WAS**
16		**AN ISSUANCE DURING THE TEST YEAR OR THERE IS AN IMMINENT**
17		**POST-TEST YEAR ISSUANCE OF ADDITIONAL COMMON STOCK?**
18	A.	No. As noted above, there is no mechanism to recapture such costs in the
19		ratemaking paradigm other than an adjustment to the allowed common equity cost
20		rate. Flotation costs are charged to capital accounts and are not expensed on a
21		utility's income statement. As such, flotation costs are analogous to capital
22		investments, albeit negative, reflected on the balance sheet. Recovery of capital
23		investments relates to the expected useful lives of the investment. Since common
24		equity has a very long and indefinite life (assumed to be infinity in the standard

---

[67] Morin, at 329.

1   regulatory DCF model), flotation costs should be recovered through an adjustment

2   to common equity cost rate, even when there has not been an issuance during the

3   test year, or in the absence of an expected imminent issuance of additional shares

4   of common stock.

5   Historical flotation costs are a permanent loss of investment to the utility

6   and should be accounted for. When any company, including a utility, issues

7   common stock, flotation costs are incurred for legal, accounting, printing fees and

8   the like. For each dollar of issuing market price, a small percentage is expensed

9   and is permanently unavailable for investment in utility rate base. Since these

10   expenses are charged to capital accounts and not expensed on the income statement,

11   the only way to restore the full value of that dollar of issuing price with an assumed

12   investor required return of 10% is for the net investment, $0.95, to earn more than

13   10% to net back to the investor a fair return on that dollar. In other words, if a

14   company issues stock at $1.00 with 5% in flotation costs, it will net $0.95 in

15   investment. Assuming the investor in that stock requires a 10% return on his or her

16   invested $1.00 (i.e., a return of $0.10), the company needs to earn approximately

17   10.5% on its invested $0.95 to receive a $0.10 return.

18 **Q.   DO THE COMMON EQUITY COST RATE MODELS YOU HAVE USED**

19   **ALREADY REFLECT INVESTORS' ANTICIPATION OF FLOTATION**

20   **COSTS?**

21 A.   No. All of these models assume no transaction costs. The literature is quite clear

22   that these costs are not reflected in the market prices paid for common stocks. For

23   example, Brigham and Daves confirm this and provide the methodology utilized to

1		calculate the flotation adjustment.[68] In addition, Morin confirms the need for such
2		an adjustment even when no new equity issuance is imminent.[69] Consequently, it
3		is proper to include a flotation cost adjustment when using cost of common equity
4		models to estimate the common equity cost rate.
5	**Q.**	**HOW DID YOU CALCULATE THE FLOTATION COST ALLOWANCE?**
6	A.	I modified the DCF calculation to provide a dividend yield that would reimburse
7		investors for issuance costs in accordance with the method cited in literature by
8		Brigham and Daves, as well as by Morin. The flotation cost adjustment recognizes
9		the actual costs of issuing equity that were incurred by ATO in its equity issuances
10		for the period beginning 2016. Based on the issuance costs shown on page 1 of
11		Exhibit DWD-8, an adjustment of 0.05% is required to reflect the flotation costs
12		applicable to the Utility Proxy Group.
13		**D.** **Other Considerations**
14	**Q.**	**DOES THE COMPANY'S UTILIZATION OF THE PRP AFFECT ITS**
15		**RELATIVE RISK TO THE UTILITY PROXY GROUP?**
16	A.	No. The *Hope* and *Bluefield* "Comparable Earnings" standard requires the allowed
17		ROE to be commensurate with the returns on investments of similar risk. The cost
18		of capital is a comparative exercise, so if the mechanism is common throughout the
19		companies on which one bases their analyses, the comparative risk is zero, because
20		any effect of the perceived reduced risk of the mechanism(s) by investors would be
21		reflected in the market data of the proxy group. To the extent the proxy companies

---

[68] Eugene F. Brigham and Phillip R. Daves, Intermediate Financial Management, 9th Edition, Thomson/Southwestern, at 342.
[69] Morin, at 337-339.

1   have mechanisms in place to address revenue shortfalls and cost recovery, the PRP

2   only serves to make it more comparable to its peers and have no impact on

3   comparative risk.

4   To that point, Exhibit DWD-9 provides a summary of rate stabilization

5   mechanisms currently in effect at each gas utility subsidiary of the proxy group

6   companies.   As Exhibit DWD-9 demonstrates, substantially all the proxy

7   companies have recovery mechanisms and/or annual formula-based rate

8   mechanisms in place.[70]

9   **Q.   ARE YOU AWARE OF ANY STUDIES THAT HAVE ADDRESSED THE**

10 **RELATIONSHIP BETWEEN RATE STABILIZATION MECHANISMS,**

11 **GENERALLY, AND ROE?**

12 A.   Yes.   I, along with Richard A. Michelfelder of Rutgers University, and my

13 colleague at ScottMadden, Pauline M. Ahern, examined the relationship between

14 PRP-like mechanisms and ROE among electric, gas, and water utilities. Using the

15 generalized consumption asset pricing model, also known as the PRPM, we found

16 PRP-like mechanisms to have no statistically significant effect on investor

17 perceived risk, and hence, ROE.[71]

18 Also, in March 2014, The Brattle Group (Brattle) published a study

19 addressing the effect of revenue decoupling structures on the cost of capital for

20 electric utilities.[72] In its report, which extended a prior analysis focused on natural

---

[70]   Only two of the 23 proxy group operating companies do not have a capital recovery mechanism.
[71]   Richard A. Michelfelder, Pauline M. Ahern, Dylan W. D'Ascendis, *The Impact of Decoupling on The Cost of Capital of Public Utilities*, Energy Policy 130 (2019), at 311-319.
[72]   The Brattle Group, *The Impact of Revenue Decoupling on the Cost of Capital for Electric Utilities: An Empirical Investigation*, Prepared for the Energy Foundation, March 20, 2014.

1		gas distribution utilities, Brattle pointed out that although decoupling structures
2		may affect revenues, net income still can vary. Brattle further noted that the
3		distinction between diversifiable and non-diversifiable risk is important to equity
4		investors, and the relationship between decoupling and ROE should be examined
5		in that context. Further to that point, Brattle noted that although reductions in total
6		risk may be important to bondholders, only reductions in non-diversifiable business
7		risk would justify a reduction to the ROE. In November 2016, the Brattle study
8		was updated based on data through the fourth quarter of 2015.[73]
9		Brattle's empirical analysis examined the relationship between decoupling
10		and the After-Tax WACC for a group of electric utilities that had implemented
11		decoupling structures in various jurisdictions throughout the United States. As with
12		Brattle's 2014 study, the updated study found no statistically significant link
13		between the cost of capital and revenue decoupling structures.[74]
14	Q.	**WHAT ARE YOUR CONCLUSIONS REGARDING THE EFFECT OF THE**
15		**COMPANY'S PRP ON ROE?**
16	A.	The presence of Atmos Energy's PRP rider does not affect the Company's ROE.
17		Atmos Energy's PRP rider does not affect the ROE because it is similar to riders
18		present in the operating companies of the Utility Proxy Group used to derive the
19		ROE. Since this is the case, the lower risk of having a PRP (if any) would already
20		be subsumed in the market data for the Utility Proxy Group.

---

[73] Michael J. Vilbert, Joseph B. Wharton, Shirley Zhang and James Hall, *Effect on the Cost of Capital of Innovative Ratemaking that Relaxes the Linkage between Revenue and kWh Sales – An Updated Empirical Investigation*, November 2016.

[74] *Ibid.*

1		Furthermore, several studies show that rate stabilization mechanisms like
2		the PRP do not materially affect the investor-required return for those companies.
3		Given that, the Company's PRP rider does not lower the comparative risk of the
4		Company relative to the Utility Proxy Group and therefore, the ROE should not be
5		adjusted due to the Company's PRP rider.
6	Q.	**WHAT IS THE INDICATED COST OF COMMON EQUITY AFTER**
7		**TAKING INTO CONSIDERATION YOUR COMPANY-SPECIFIC**
8		**ADJUSTMENTS AND THE PRESENCE OF THE COMPANY'S PRP?**
9	A.	As discussed above, no adjustment was made due to the presence of the Company's
10		PRP. Therefore, applying the 0.20% size adjustment, the -0.06% credit risk
11		adjustment, and the 0.05% flotation cost adjustment to the 9.73% and 12.03%
12		indicated range of common equity cost rates applicable to the Utility Proxy Group
13		results in a Company-specific range of common equity rates between 9.92% and
14		12.22%.

<div align="center">

VIII. CONCLUSION

</div>

16	Q.	**WHAT IS YOUR RECOMMENDED ROE FOR ATMOS ENERGY?**
17	A.	Given the indicated ROE ranges applicable to the Utility Proxy Group and
18		Company, I conclude that an appropriate ROE for the Company is 10.95%.
19	Q.	**IN YOUR OPINION, IS YOUR PROPOSED ROE OF 10.95% FAIR AND**
20		**REASONABLE TO ATMOS ENERGY AND ITS CUSTOMERS?**
21	A.	Yes, it is.
22	Q.	**DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**
23	A.	Yes, it does.
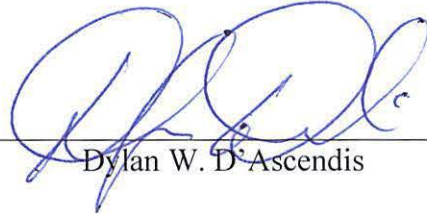
COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

APPLICATION OF ATMOS ENERGY)
CORPORATION TO ESTABLISH PRP)
RIDER RATES FOR THE TWELVE MONTH) CASE NO. 2022-00222
PERIOD BEGINNING OCTOBER 1, 2022)

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 direct testimony of this affiant in Case No. 2022-00222 and that if asked the questions propounded therein, this affiant would make the answers set forth in the attached prepared direct 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 22nd day of July, 2022.

MEGAN HALE
Notary Public - State of New Jersey
My Commission Expires Apr 3, 2026

_____
Notary Public

My Commission Expires: 04·03·2026

Summary

Dylan is an experienced consultant and a Certified Rate of Return Analyst (CRRA) and Certified Valuation Analyst (CVA). Dylan joined ScottMadden in 2016 and has become a leading expert witness with respect to cost of capital and capital structure. He has served as a consultant for investor-owned and municipal utilities and authorities for 14 years. Dylan has testified as an expert witness on over 100 occasions regarding rate of return, cost of service, rate design, and valuation before more than 30 regulatory jurisdictions in the United States and Canada, an American Arbitration Association panel, and the Superior Court of Rhode Island. He also maintains the benchmark index against which the Hennessy Gas Utility Mutual Fund performance is measured. Dylan holds a B.A. in economic history from the University of Pennsylvania and an M.B.A. with concentrations in finance and international business from Rutgers University.

Areas of Specialization

- Regulation and Rates
- Rate of Return
- Valuation
- Mutual Fund Benchmarking

- Capital Market Risk
- Regulatory Strategy
- Cost of Service

Recent Expert Testimony Submission/Appearance

- Regulatory Commission of Alaska – Capital Structure
- Federal Energy Regulatory Commission – Rate of Return
- Public Utility Commission of Texas – Return on Equity
- Hawaii Public Utilities Commission – Cost of Service / Rate Design
- Pennsylvania Public Utility Commission - Valuation

Recent Assignments

- Provided expert testimony on the cost of capital for ratemaking purposes before numerous state utility regulatory agencies
- Sponsored valuation testimony for a large municipal water company in front of an American Arbitration Association Board to justify the reasonability of their lease payments to the City
- Co-authored a valuation report on behalf of a large investor-owned utility company in response to a new state regulation which allowed the appraised value of acquired assets into rate base

Recent Articles and Speeches

- Co-Author of: "Decoupling, Risk Impacts and the Cost of Capital", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University and Pauline M. Ahern. The Electricity Journal, March, 2020
- Co-Author of: "Decoupling Impact and Public Utility Conservation Investment", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University and Pauline M. Ahern. Energy Policy Journal, 130 (2019), 311-319
- "Establishing Alternative Proxy Groups", before the Society of Utility and Regulatory Financial Analysts: 51st Financial Forum, April 4, 2019, New Orleans, LA
- "Past is Prologue: Future Test Year", Presentation before the National Association of Water Companies 2017 Southeast Water Infrastructure Summit, May 2, 2017, Savannah, GA.
- Co-author of: "Comparative Evaluation of the Predictive Risk Premium Model^{TM}, the Discounted Cash Flow Model and the Capital Asset Pricing Model", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University, Pauline M. Ahern, and Frank J. Hanley, The Electricity Journal, May, 2013
- "Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks", before the Society of Utility and Regulatory Financial Analysts: 45th Financial Forum, April 17-18, 2013, Indianapolis, IN

Sponsor	Date	Case/Applicant	Docket No.	Subject
Regulatory Commission of Alaska				
Cook Inlet Natural Gas Storage Alaska, LLC	07/21	Cook Inlet Natural Gas Storage Alaska, LLC	Docket No. TA45-733	Capital Structure
Alaska Power Company	09/20	Alaska Power Company; Goat Lake Hydro, Inc.; BBL Hydro, Inc.	Tariff Nos. TA886-2; TA6-521; TA4-573	Capital Structure
Alaska Power Company	07/16	Alaska Power Company	Docket No. TA857-2	Rate of Return
Alberta Utilities Commission				
AltaLink, L.P., and EPCOR Distribution & Transmission, Inc.	01/20	AltaLink, L.P., and EPCOR Distribution & Transmission, Inc.	2021 Generic Cost of Capital, Proceeding ID. 24110	Rate of Return
Arizona Corporation Commission				
EPCOR Water Arizona, Inc.	06/20	EPCOR Water Arizona, Inc.	Docket No. WS-01303A-20-0177	Rate of Return
Arizona Water Company	12/19	Arizona Water Company – Western Group	Docket No. W-01445A-19-0278	Rate of Return
Arizona Water Company	08/18	Arizona Water Company – Northern Group	Docket No. W-01445A-18-0164	Rate of Return
Arkansas Public Service Commission				
Southwestern Electric Power Co.	07/21	Southwestern Electric Power Co.	Docket No. 21-070-U	Return on Equity
CenterPoint Energy Resources Corp.	05/21	CenterPoint Arkansas Gas	Docket No. 21-004-U	Return on Equity
Colorado Public Utilities Commission				
Summit Utilities, Inc.	04/18	Colorado Natural Gas Company	Docket No. 18AL-0305G	Rate of Return
Atmos Energy Corporation	06/17	Atmos Energy Corporation	Docket No. 17AL-0429G	Rate of Return
Delaware Public Service Commission				
Delmarva Power & Light Co.	01/22	Delmarva Power & Light Co.	Docket No. 22-002 (Gas)	Return on Equity
Delmarva Power & Light Co.	11/20	Delmarva Power & Light Co.	Docket No. 20-0149 (Electric)	Return on Equity
Delmarva Power & Light Co.	10/20	Delmarva Power & Light Co.	Docket No. 20-0150 (Gas)	Return on Equity
Tidewater Utilities, Inc.	11/13	Tidewater Utilities, Inc.	Docket No. 13-466	Capital Structure
Public Service Commission of the District of Columbia				
Washington Gas Light Company	04/22	Washington Gas Light Company	Formal Case No. 1169	Rate of Return
Washington Gas Light Company	09/20	Washington Gas Light Company	Formal Case No. 1162	Rate of Return
Federal Energy Regulatory Commission				
LS Power Grid California, LLC	10/20	LS Power Grid California, LLC	Docket No. ER21-195-000	Rate of Return
Florida Public Service Commission				
Tampa Electric Company	04/21	Tampa Electric Company	Docket No. 20210034-EI	Return on Equity
Peoples Gas System	09/20	Peoples Gas System	Docket No. 20200051-GU	Rate of Return
Utilities, Inc. of Florida	06/20	Utilities, Inc. of Florida	Docket No. 20200139-WS	Rate of Return

Sponsor	Date	Case/Applicant	Docket No.	Subject
Hawaii Public Utilities Commission				
Launiupoko Irrigation Company, Inc.	12/20	Launiupoko Irrigation Company, Inc.	Docket No. 2020-0217 / Transferred to 2020-0089	Capital Structure
Lanai Water Company, Inc.	12/19	Lanai Water Company, Inc.	Docket No. 2019-0386	Cost of Service / Rate Design
Manele Water Resources, LLC	08/19	Manele Water Resources, LLC	Docket No. 2019-0311	Cost of Service / Rate Design
Kaupulehu Water Company	02/18	Kaupulehu Water Company	Docket No. 2016-0363	Rate of Return
Aqua Engineers, LLC	05/17	Puhi Sewer & Water Company	Docket No. 2017-0118	Cost of Service / Rate Design
Hawaii Resources, Inc.	09/16	Laie Water Company	Docket No. 2016-0229	Cost of Service / Rate Design
Illinois Commerce Commission				
Utility Services of Illinois, Inc.	02/21	Utility Services of Illinois, Inc.	Docket No. 21-0198	Rate of Return
Ameren Illinois Company d/b/a Ameren Illinois	07/20	Ameren Illinois Company d/b/a Ameren Illinois	Docket No. 20-0308	Return on Equity
Utility Services of Illinois, Inc.	11/17	Utility Services of Illinois, Inc.	Docket No. 17-1106	Cost of Service / Rate Design
Aqua Illinois, Inc.	04/17	Aqua Illinois, Inc.	Docket No. 17-0259	Rate of Return
Utility Services of Illinois, Inc.	04/15	Utility Services of Illinois, Inc.	Docket No. 14-0741	Rate of Return
Indiana Utility Regulatory Commission				
Aqua Indiana, Inc.	03/16	Aqua Indiana, Inc. Aboite Wastewater Division	Docket No. 44752	Rate of Return
Twin Lakes, Utilities, Inc.	08/13	Twin Lakes, Utilities, Inc.	Docket No. 44388	Rate of Return
Kansas Corporation Commission				
Atmos Energy	07/19	Atmos Energy	19-ATMG-525-RTS	Rate of Return
Kentucky Public Service Commission				
Atmos Energy Corporation	07/21	Atmos Energy Corporation	2021-00304	PRP Rider Rate
Atmos Energy Corporation	06/21	Atmos Energy Corporation	2021-00214	Rate of Return
Duke Energy Kentucky, Inc.	06/21	Duke Energy Kentucky, Inc.	2021-00190	Return on Equity
Bluegrass Water Utility Operating Company	10/20	Bluegrass Water Utility Operating Company	2020-00290	Return on Equity
Louisiana Public Service Commission				
Utilities, Inc. of Louisiana	05/21	Utilities, Inc. of Louisiana	Docket No. U-36003	Rate of Return
Southwestern Electric Power Company	12/20	Southwestern Electric Power Company	Docket No. U-35441	Return on Equity
Atmos Energy	04/20	Atmos Energy	Docket No. U-35535	Rate of Return
Louisiana Water Service, Inc.	06/13	Louisiana Water Service, Inc.	Docket No. U-32848	Rate of Return
Maine Public Utilities Commission				
Summit Natural Gas of Maine, Inc.	03/22	Summit Natural Gas of Maine, Inc.	Docket No. 2022-00025	Rate of Return
The Maine Water Company	09/21	The Maine Water Company	Docket No. 2021-00053	Rate of Return

Sponsor	Date	Case/Applicant	Docket No.	Subject
Maryland Public Service Commission				
Washington Gas Light Company	08/20	Washington Gas Light Company	Case No. 9651	Rate of Return
FirstEnergy, Inc.	08/18	Potomac Edison Company	Case No. 9490	Rate of Return
Massachusetts Department of Public Utilities				
Unitil Corporation	12/19	Fitchburg Gas & Electric Co. (Elec.)	D.P.U. 19-130	Rate of Return
Unitil Corporation	12/19	Fitchburg Gas & Electric Co. (Gas)	D.P.U. 19-131	Rate of Return
Liberty Utilities	07/15	Liberty Utilities d/b/a New England Natural Gas Company	Docket No. 15-75	Rate of Return
Minnesota Public Utilities Commission				
Northern States Power Company	11/01	Northern States Power Company	Docket No. G002/GR-21-678	Return on Equity
Northern States Power Company	10/21	Northern States Power Company	Docket No. E002/GR-21-630	Return on Equity
Northern States Power Company	11/20	Northern States Power Company	Docket No. E002/GR-20-723	Return on Equity
Mississippi Public Service Commission				
Atmos Energy	03/19	Atmos Energy	Docket No. 2015-UN-049	Capital Structure
Atmos Energy	07/18	Atmos Energy	Docket No. 2015-UN-049	Capital Structure
Missouri Public Service Commission				
Spire Missouri, Inc.	12/20	Spire Missouri, Inc.	Case No. GR-2021-0108	Return on Equity
Indian Hills Utility Operating Company, Inc.	10/17	Indian Hills Utility Operating Company, Inc.	Case No. SR-2017-0259	Rate of Return
Raccoon Creek Utility Operating Company, Inc.	09/16	Raccoon Creek Utility Operating Company, Inc.	Case No. SR-2016-0202	Rate of Return
Public Utilities Commission of Nevada				
Southwest Gas Corporation	09/21	Southwest Gas Corporation	Docket No. 21-09001	Return on Equity
Southwest Gas Corporation	08/20	Southwest Gas Corporation	Docket No. 20-02023	Return on Equity
New Hampshire Public Utilities Commission				
Aquarion Water Company of New Hampshire, Inc.	12/20	Aquarion Water Company of New Hampshire, Inc.	Docket No. DW 20-184	Rate of Return
New Jersey Board of Public Utilities				
Middlesex Water Company	05/21	Middlesex Water Company	Docket No. WR21050813	Rate of Return
Atlantic City Electric Company	12/20	Atlantic City Electric Company	Docket No. ER20120746	Return on Equity
FirstEnergy	02/20	Jersey Central Power & Light Co.	Docket No. ER20020146	Rate of Return
Aqua New Jersey, Inc.	12/18	Aqua New Jersey, Inc.	Docket No. WR18121351	Rate of Return
Middlesex Water Company	10/17	Middlesex Water Company	Docket No. WR17101049	Rate of Return
Middlesex Water Company	03/15	Middlesex Water Company	Docket No. WR15030391	Rate of Return

Sponsor	Date	Case/Applicant	Docket No.	Subject
The Atlantic City Sewerage Company	10/14	The Atlantic City Sewerage Company	Docket No. WR14101263	Cost of Service / Rate Design
Middlesex Water Company	11/13	Middlesex Water Company	Docket No. WR1311059	Capital Structure
New Mexico Public Regulation Commission				
Southwestern Public Service Co.	01/21	Southwestern Public Service Co.	Case No. 20-00238-UT	Return on Equity
North Carolina Utilities Commission				
Carolina Water Service, Inc.	07/21	Carolina Water Service, Inc.	Docket No. W-354 Sub 384	Rate of Return
Piedmont Natural Gas Co., Inc.	03/21	Piedmont Natural Gas Co., Inc.	Docket No. G-9, Sub 781	Return on Equity
Duke Energy Carolinas, LLC	07/20	Duke Energy Carolinas, LLC	Docket No. E-7, Sub 1214	Return on Equity
Duke Energy Progress, LLC	07/20	Duke Energy Progress, LLC	Docket No. E-2, Sub 1219	Return on Equity
Aqua North Carolina, Inc.	12/19	Aqua North Carolina, Inc.	Docket No. W-218 Sub 526	Rate of Return
Carolina Water Service, Inc.	06/19	Carolina Water Service, Inc.	Docket No. W-354 Sub 364	Rate of Return
Carolina Water Service, Inc.	09/18	Carolina Water Service, Inc.	Docket No. W-354 Sub 360	Rate of Return
Aqua North Carolina, Inc.	07/18	Aqua North Carolina, Inc.	Docket No. W-218 Sub 497	Rate of Return
North Dakota Public Service Commission				
Northern States Power Company	09/21	Northern States Power Company	Case No. PU-21-381	Rate of Return
Northern States Power Company	11/20	Northern States Power Company	Case No. PU-20-441	Rate of Return
Public Utilities Commission of Ohio				
Duke Energy Ohio, Inc.	10/21	Duke Energy Ohio, Inc.	Case No. 21-887-EL-AIR	Return on Equity
Aqua Ohio, Inc.	07/21	Aqua Ohio, Inc.	Case No. 21-0595-WW-AIR	Rate of Return
Aqua Ohio, Inc.	05/16	Aqua Ohio, Inc.	Case No. 16-0907-WW-AIR	Rate of Return
Pennsylvania Public Utility Commission				
Citizens' Electric Company of Lewisburg	05/22	C&T Enterprises	Docket No. R-2022-3032369	Rate of Return
Valley Energy Company	05/22	C&T Enterprises	Docket No. R-2022-3032300	Rate of Return
Community Utilities of Pennsylvania, Inc.	04/21	Community Utilities of Pennsylvania, Inc.	Docket No. R-2021-3025207	Rate of Return
Vicinity Energy Philadelphia, Inc.	04/21	Vicinity Energy Philadelphia, Inc.	Docket No. R-2021-3024060	Rate of Return
Delaware County Regional Water Control Authority	02/20	Delaware County Regional Water Control Authority	Docket No. A-2019-3015173	Valuation

Sponsor	Date	Case/Applicant	Docket No.	Subject
Valley Energy, Inc.	07/19	C&T Enterprises	Docket No. R-2019-3008209	Rate of Return
Wellsboro Electric Company	07/19	C&T Enterprises	Docket No. R-2019-3008208	Rate of Return
Citizens' Electric Company of Lewisburg	07/19	C&T Enterprises	Docket No. R-2019-3008212	Rate of Return
Steelton Borough Authority	01/19	Steelton Borough Authority	Docket No. A-2019-3006880	Valuation
Mahoning Township, PA	08/18	Mahoning Township, PA	Docket No. A-2018-3003519	Valuation
SUEZ Water Pennsylvania Inc.	04/18	SUEZ Water Pennsylvania Inc.	Docket No. R-2018-000834	Rate of Return
Columbia Water Company	09/17	Columbia Water Company	Docket No. R-2017-2598203	Rate of Return
Veolia Energy Philadelphia, Inc.	06/17	Veolia Energy Philadelphia, Inc.	Docket No. R-2017-2593142	Rate of Return
Emporium Water Company	07/14	Emporium Water Company	Docket No. R-2014-2402324	Rate of Return
Columbia Water Company	07/13	Columbia Water Company	Docket No. R-2013-2360798	Rate of Return
Penn Estates Utilities, Inc.	12/11	Penn Estates, Utilities, Inc.	Docket No. R-2011-2255159	Capital Structure / Long-Term Debt Cost Rate
South Carolina Public Service Commission				
Blue Granite Water Co.	12/19	Blue Granite Water Company	Docket No. 2019-292-WS	Rate of Return
Carolina Water Service, Inc.	02/18	Carolina Water Service, Inc.	Docket No. 2017-292-WS	Rate of Return
Carolina Water Service, Inc.	06/15	Carolina Water Service, Inc.	Docket No. 2015-199-WS	Rate of Return
Carolina Water Service, Inc.	11/13	Carolina Water Service, Inc.	Docket No. 2013-275-WS	Rate of Return
United Utility Companies, Inc.	09/13	United Utility Companies, Inc.	Docket No. 2013-199-WS	Rate of Return
Utility Services of South Carolina, Inc.	09/13	Utility Services of South Carolina, Inc.	Docket No. 2013-201-WS	Rate of Return
Tega Cay Water Services, Inc.	11/12	Tega Cay Water Services, Inc.	Docket No. 2012-177-WS	Capital Structure
Tennessee Public Utility Commission				
Piedmont Natural Gas Company	07/20	Piedmont Natural Gas Company	Docket No. 20-00086	Return on Equity
Public Utility Commission of Texas				
Oncor Electric Delivery Co. LLC	05/22	Oncor Electric Delivery Co. LLC	Docket No. 53601	Return on Equity
Southwestern Public Service Co.	02/21	Southwestern Public Service Co.	Docket No. 51802	Return on Equity
Southwestern Electric Power Co.	10/20	Southwestern Electric Power Co.	Docket No. 51415	Rate of Return
Virginia State Corporation Commission				

Sponsor	Date	Case/Applicant	Docket No.	Subject
Virginia Natural Gas, Inc.	04/21	Virginia Natural Gas, Inc.	PUR-2020-00095	Return on Equity
Massanutten Public Service Corporation	12/20	Massanutten Public Service Corporation	PUE-2020-00039	Return on Equity
Aqua Virginia, Inc.	07/20	Aqua Virginia, Inc.	PUR-2020-00106	Rate of Return
WGL Holdings, Inc.	07/18	Washington Gas Light Company	PUR-2018-00080	Rate of Return
Atmos Energy Corporation	05/18	Atmos Energy Corporation	PUR-2018-00014	Rate of Return
Aqua Virginia, Inc.	07/17	Aqua Virginia, Inc.	PUR-2017-00082	Rate of Return
Massanutten Public Service Corp.	08/14	Massanutten Public Service Corp.	PUE-2014-00035	Rate of Return / Rate Design
Public Service Commission of West Virginia				
Monongahela Power Company and The Potomac Edison Company	12/21	Monongahela Power Company and The Potomac Edison Company	Case No. 21-0857-E-CN (ELG)	Return on Equity
Monongahela Power Company and The Potomac Edison Company	11/21	Monongahela Power Company and The Potomac Edison Company	Case No. 21-0813-E-P (Solar)	Return on Equity

Atmos Energy Corporation
Table of Contents
Supporting Attachments Accompanying the Direct Testimony of
Dylan W. D'Ascendis, CRRA, CVA

Atmos Energy Corporation
Recommended Capital Structure and Cost Rates
for Ratemaking Purposes

Type Of Capital	Ratios (1)	Cost Rate	Weighted Cost Rate
Long-Term Debt	45.45%	3.84% (1)	1.74%
Short-Term Debt	0.05%	80.94% (1)	0.04%
Common Equity	54.50%	10.95% (2)	5.97%
Total	100.00%		7.75%

Notes:

(1) Company-provided
(2) From page 2 of this Exhibit.

Atmos Energy Corporation
Brief Summary of Common Equity Cost Rate

Line No.	Principal Methods	Proxy Group of Six Natural Gas Distribution Companies	Proxy Group of Six Natural Gas Distribution Companies (excl. PRPM)
1.	Discounted Cash Flow Model (DCF) (1)	9.73%	9.73%
2.	Risk Premium Model (RPM) (2)	10.99%	10.73%
3.	Capital Asset Pricing Model (CAPM) (3)	11.14%	11.13%
4.	Market Models Applied to Comparable Risk, Non-Price Regulated Companies (4)	12.03%	12.02%
5.	Indicated Range of Common Equity Cost Rates before Adjustment for Company-Specific Risk	9.73% - 12.03%	9.73% - 12.02%
6.	Size Adjustment (5)	0.20%	0.20%
7.	Credit Risk Adjustment (6)	-0.06%	-0.06%
8.	Flotation Cost Adjustment (7)	0.05%	0.05%
9.	Recommended Range of Common Equity Cost Rates after Adjustment for Company-Specific Risk	9.92% - 12.22%	9.92% - 12.21%
10	Recommended Cost of Common Equity Cost Rate	10.95%	

Notes: (1) From page 1 of Exhibit DWD-2
(2) From page 1 of Exhibit DWD-3
(3) From page 1 of Exhibit DWD-4
(4) From page 1 of Exhibit DWD-6
(5) Adjustment to reflect the Company's greater business risk relative to the Utility Proxy Group as detailed in Mr. D'Ascendis' Direct Testimony.
(6) Company-specific risk adjustment to reflect Atmos' lower risk due to a lower long-term rating relative to the proxy group as detailed in Mr. D'Ascendis' Direct Testimony.
(7) From Exhibit DWD-8.

Atmos Energy Corporation
Indicated Common Equity Cost Rate Using the Discounted Cash Flow Model for the
Proxy Group of Six Natural Gas Distribution Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Proxy Group of Six Natural Gas Distribution Companies	Average Dividend Yield (1)	Value Line Projected Five Year Growth in EPS (2)	Zack'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)
Atmos Energy Corporation	2.34 %	7.50 %	7.30 %	8.61 %	7.80 %	2.43 %	10.23 %
New Jersey Resources Corporation	3.22	5.00	6.00	6.00	5.67	3.31	8.98
NiSource Inc.	3.06	9.50	7.20	7.18	7.96	3.18	11.14
Northwest Natural Holding Company	3.72	6.50	4.70	5.90	5.70	3.83	9.53
ONE Gas, Inc.	2.85	6.50	5.00	5.00	5.50	2.93	8.43
Spire Inc.	3.74	9.00	5.00	4.30	6.10	3.85	9.95
						Average	9.71 %
						Median	9.74 %
						Average of Mean and Median	9.73 %

NA= Not Available
NMF= Not Meaningful Figure

Notes:

(1) Indicated dividend at 05/31/2022 divided by the average closing price of the last 60 trading days ending 05/31/2022 for each company.
(2) From pages 2 through 7 of this Exhibit.
(3) Average of columns 2 through 4 excluding negative growth rates.
(4) This reflects a growth rate component equal to one-half the conclusion of growth rate (from column 5) x column 1 to reflect the periodic payment of dividends (Gordon Model) as opposed to the continuous payment. Thus, for Atmos Energy Corporation, 2.34% x (1+(1/2 x 7.80%)) = 2.43%.
(5) Column 5 + column 6.

Source of Information: Value Line Investment Survey
www.zacks.com Downloaded on 05/31/2022
www.yahoo.com Downloaded on 05/31/2022

ATMOS ENERGY CORP. NYSE-ATO

RECENT PRICE **113.16**	P/E RATIO **20.0** (Trailing: 21.0 / Median: 20.0)	RELATIVE P/E RATIO **1.23**	DIV'D YLD **2.5%**	**VALUE LINE**

TIMELINESS **3** Raised 2/18/22	High: 35.6 37.3 47.4 58.2 64.8 82.0 93.6 100.8 115.2 121.1 105.3 123.0	**Target Price Range 2025 2026 2027**
SAFETY **1** Raised 6/6/14	Low: 28.5 30.4 34.9 44.2 50.8 60.0 72.5 76.5 89.2 77.9 84.6 99.8	
TECHNICAL **1** Raised 5/20/22		
BETA .80 (1.00 = Market)		

LEGENDS
— 0.50 x Dividends p sh divided by Interest Rate
.... Relative Price Strength
Options: Yes
Shaded area indicates recession

18-Month Target Price Range
Low-High   Midpoint (% to Mid)
$83-$128 $106 (-5%)

2025-27 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	160	(+40%)	11%
Low	130	(+15%)	6%

Institutional Decisions

	1Q2021	2Q2021	3Q2021
to Buy	256	247	262
to Sell	258	223	217
Hld's(000)	107920	109549	114371

Percent shares traded: 24 / 16 / 8

% TOT. RETURN 4/22
	THIS STOCK	VL ARITH.* INDEX
1 yr.	14.1	-7.2
3 yr.	20.2	20.2
5 yr.	58.6	58.7

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	© VALUE LINE PUB. LLC	25-27
75.27	66.03	79.52	53.69	53.12	48.15	38.10	42.88	49.22	40.82	32.23	26.01	28.00	24.32	22.41	25.73	*27.45*	*28.75*	Revenues per sh A	35.50
4.26	4.14	4.19	4.29	4.64	4.72	4.76	5.14	5.42	5.81	6.19	6.62	7.24	7.57	8.03	8.64	*9.05*	*9.75*	"Cash Flow" per sh	11.95
2.00	1.94	2.00	1.97	2.16	2.26	2.10	2.50	2.96	3.09	3.38	3.60	4.00	4.35	4.72	5.12	*5.50*	*5.90*	Earnings per sh AB	7.30
1.26	1.28	1.30	1.32	1.34	1.36	1.38	1.40	1.48	1.56	1.68	1.80	1.94	2.10	2.30	2.50	*2.72*	*2.92*	Div'ds Decl'd per sh C■	3.50
5.20	4.39	5.20	5.51	6.02	6.90	8.12	9.32	8.32	9.61	10.46	10.72	13.19	14.19	15.38	14.87	*17.25*	*17.10*	Cap'l Spending per sh	18.00
20.16	22.01	22.60	23.52	24.16	24.98	26.14	28.47	30.74	31.48	33.32	36.74	42.87	48.18	53.95	59.71	*64.25*	*68.20*	Book Value per sh	82.85
81.74	89.33	90.81	92.55	90.16	90.30	90.24	90.64	100.39	101.48	103.93	106.10	111.27	119.34	125.88	132.42	*142.00*	*146.00*	Common Shs Outst'g D	155.00
13.5	15.9	13.6	12.5	13.2	14.4	15.9	15.9	16.1	17.5	20.8	22.0	21.7	23.2	22.3	18.8	*Bold figures are*		Avg Ann'l P/E Ratio	20.0
.73	.84	.82	.83	.84	.90	1.01	.89	.85	.88	1.09	1.11	1.17	1.24	1.15	1.00	*Value Line*		Relative P/E Ratio	1.10
4.7%	4.2%	4.8%	5.3%	4.7%	4.2%	4.1%	3.5%	3.1%	2.9%	2.4%	2.3%	2.2%	2.1%	2.2%	2.6%	*estimates*		Avg Ann'l Div'd Yield	2.4%

CAPITAL STRUCTURE as of 3/31/22
Total Debt $7959.0 mill. **Due in 5 Yrs** $2410.0 mill.
LT Debt $5757.6 mill. **LT Interest** $85.0 mill.
(LT interest earned: 10.8x; total interest coverage: 10.8x)

Leases, Uncapitalized Annual rentals $41.8 mill.

Pfd Stock None

Pension Assets-9/21 $596.8 mill.
Oblig. $596.0 mill.

Common Stock 139,015,012 shs.
as of 4/29/22

MARKET CAP: $15.7 billion (Large Cap)

																	Column	25-27
3438.5	3886.3	4940.9	4142.1	3349.9	2759.7	3115.5	2901.8	2821.1	3407.5	*3900*	*4200*	Revenues ($mill) A	6000
192.2	230.7	289.8	315.1	350.1	382.7	444.3	511.4	580.5	665.6	*760*	*860*	Net Profit ($mill)	1130
33.8%	38.2%	39.2%	38.3%	36.4%	36.6%	27.0%	21.4%	19.5%	18.8%	*8.5%*	*17.5%*	Income Tax Rate	25.0%
5.6%	5.9%	5.9%	7.6%	10.5%	13.9%	14.3%	17.6%	20.6%	19.5%	*19.5%*	*20.5%*	Net Profit Margin	18.8%
45.3%	48.8%	44.3%	43.5%	38.7%	44.0%	34.3%	38.0%	40.0%	38.4%	*40.0%*	*40.0%*	Long-Term Debt Ratio	40.0%
54.7%	51.2%	55.7%	56.5%	61.3%	56.0%	65.7%	62.0%	60.0%	61.6%	*60.0%*	*60.0%*	Common Equity Ratio	60.0%
4315.5	5036.1	5542.2	5650.2	5651.8	6965.7	7263.6	9279.7	11323	12837	*15200*	*16600*	Total Capital ($mill)	21400
5475.6	6030.7	6725.9	7430.6	8280.5	9259.2	10371	11788	13355	15064	*16500*	*18000*	Net Plant ($mill)	23000
6.1%	5.9%	6.4%	6.6%	7.2%	6.4%	6.9%	6.1%	5.5%	5.5%	*6.0%*	*6.5%*	Return on Total Cap'l	6.5%
8.1%	8.9%	9.4%	9.9%	10.1%	9.8%	9.3%	8.9%	8.5%	8.4%	*8.5%*	*8.5%*	Return on Shr. Equity	9.0%
8.1%	8.9%	9.4%	9.9%	10.1%	9.8%	9.3%	8.9%	8.5%	8.4%	*8.5%*	*8.5%*	Return on Com Equity	9.0%
2.8%	4.0%	4.7%	4.9%	5.1%	4.9%	4.8%	4.6%	4.4%	4.3%	*4.0%*	*4.5%*	Retained to Com Eq	4.5%
65%	56%	50%	51%	50%	50%	48%	48%	49%	49%	*51%*	*50%*	All Div'ds to Net Prof	48%

CURRENT POSITION ($MILL.)

	2020	2021	3/31/22
Cash Assets	20.8	116.7	582.5
Other	450.5	2722.0	2946.5
Current Assets	471.3	2838.7	3529.0
Accts Payable	235.8	423.2	354.0
Debt Due	.2	2400.5	2201.4
Other	546.4	686.7	653.0
Current Liab.	782.4	3510.4	3208.4
Fix. Chg. Cov.	1306%	1457%	1445%

ANNUAL RATES

of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '19-'21 to '25-'27
Revenues	-7.5%	-10.0%	6.5%
"Cash Flow"	6.0%	7.0%	7.0%
Earnings	8.5%	8.5%	7.5%
Dividends	5.5%	8.0%	7.0%
Book Value	8.5%	11.0%	7.5%

QUARTERLY REVENUES ($ mill.) A

Fiscal Year Ends	Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2019	877.8	1094.6	485.7	443.7	2901.8
2020	875.6	977.6	493.0	474.9	2821.1
2021	914.5	1319.1	605.6	568.3	3407.5
2022	1012.8	1649.8	640	597.4	3900
2023	1060	1720	730	690	4200

EARNINGS PER SHARE A B E

Fiscal Year Ends	Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2019	1.38	1.82	.68	.49	4.35
2020	1.47	1.95	.79	.53	4.72
2021	1.71	2.30	.78	.37	5.12
2022	1.86	2.37	.82	.45	5.50
2023	2.02	2.43	.91	.54	5.90

QUARTERLY DIVIDENDS PAID C■

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2018	.485	.485	.485	.525	1.98
2019	.525	.525	.525	.575	2.15
2020	.575	.575	.575	.625	2.35
2021	.625	.625	.625	.68	2.56
2022	.68	.68			

BUSINESS: Atmos Energy Corporation is engaged primarily in the distribution and sale of natural gas to over three million customers through six regulated natural gas utility operations: Louisiana Division, West Texas Division, Mid-Tex Division, Mississippi Division, Colorado-Kansas Division, and Kentucky/Mid-States Division. Gas sales breakdown for fiscal 2021: 67.9%, residential; 26.8%, commercial; 3.6%, industrial; and 1.7% other. The company sold Atmos Energy Marketing, 1/17. Officers and directors own approximately .9% of common stock (12/21 Proxy). President and Chief Executive Officer: Kevin Akers. Incorporated: Texas. Address: Three Lincoln Centre, Suite 1800, 5430 LBJ Freeway, Dallas, Texas 75240. Telephone: 972-934-9227. Internet: www.atmosenergy.com.

Atmos Energy had a decent showing through the first half of fiscal 2022 (which ended last March 31st). Share net rose 5.5%, to $4.23, compared to $4.01 for the same period in fiscal 2021. That was brought about partly by the distribution unit, helped by favorable rate case outcomes and an expanded customer base. A substantially diminished effective income tax rate also benefited the company. But the performance of the pipeline and storage division was held back a bit by heightened operating expenses. Nevertheless, assuming that the second half goes fairly well for Atmos, full-year earnings stand to increase around 7%, to $5.50 a share, relative to fiscal 2021's $5.12 total. Regarding next year, share net might grow at a similar percentage rate, to $5.90, as operating margins widen further.

The Financial Strength rating is A+. When the second quarter concluded, cash and equivalents resided at $582.5 million. Also, long-term debt was manageable (roughly 40% of total capital) and short-term commitments did not appear to be a major obstacle. Furthermore, $2.2 billion in common stock and/or debt securities remained available for issuance (out of $5 billion) under a shelf registration statement expiring in June, 2024. Lastly, Atmos can access four revolving credit facilities aggregating $2.5 billion plus a $1.5 billion commercial paper program. So, there seems to be ample liquidity to satisfy working capital needs, capital expenditures, and other obligations for some time.

Prospects out to 2025-2027 appear encouraging. The company ranks as one of the nation's largest natural gas-only distributors, with more than three million customers across several states, including Texas, Louisiana, and Mississippi. Moreover, we think the pipeline and storage segment has promising overall growth opportunities, given that it operates in one of the most-active drilling regions in the world. The healthy balance sheet is another positive.

That said, these top-quality shares hold unimpressive long-term total return potential. Capital appreciation possibilities aren't exciting. Also, the dividend yield is below the average of Value Line's Natural Gas Utility group.

Frederick L. Harris, III   *May 27, 2022*

(A) Fiscal year ends Sept. 30th. (B) Diluted shrs. Excl. nonrec. gains (loss): '10, 5¢; '11, (1¢); '18, $1.43; '20, 17¢. Excludes discontinued operations: '11, 10¢; '12, 27¢; '13, 14¢; '17, 13¢. Next egs. rpt. due early Aug. (C) Dividends historically paid in early March, June, Sept., and Dec. ■ Div. reinvestment plan. Direct stock purchase plan avail. (D) In millions. (E) Qtrs may not add due to change in shrs outstanding.

Company's Financial Strength	A+
Stock's Price Stability	95
Price Growth Persistence	70
Earnings Predictability	100

NEW JERSEY RES. NYSE-NJR

RECENT PRICE	44.63	P/E RATIO	19.1	(Trailing: 22.7 / Median: 17.0)	RELATIVE P/E RATIO	1.18	DIV'D YLD	3.2%	VALUE LINE

TIMELINESS	4	Lowered 5/20/22	
SAFETY	2	Lowered 4/17/20	
TECHNICAL	3	Lowered 5/27/22	
BETA .95 (1.00 = Market)			

High/Low:

| High: | 25.2 | 25.1 | 23.8 | 32.1 | 34.1 | 38.9 | 45.4 | 51.8 | 51.2 | 44.7 | 44.4 | 47.5 |
| Low: | 19.8 | 19.3 | 19.5 | 21.9 | 26.8 | 30.5 | 33.7 | 35.6 | 40.3 | 21.1 | 33.3 | 37.8 |

Target Price Range 2025 2026 2027

LEGENDS
0.40 x Dividends p sh divided by Interest Rate
.... Relative Price Strength
2-for-1 split 3/15
Options: Yes
Shaded area indicates recession

18-Month Target Price Range

Low-High: $29-$55   Midpoint (% to Mid): $42 (-5%)

2025-27 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	55	(+25%)	8%
Low	40	(-10%)	1%

Institutional Decisions

	1Q2021	2Q2021	3Q2021
to Buy	105	102	109
to Sell	139	130	121
Hld's(000)	68468	68609	66131

Percent shares traded: 30 20 10

% TOT. RETURN 4/22

	THIS STOCK	VL ARITH.* INDEX
1 yr.	6.2	-7.2
3 yr.	-4.6	37.2
5 yr.	24.6	58.7

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	© VALUE LINE PUB. LLC	25-27
Revenues per sh A	39.81	36.31	45.37	31.17	32.05	36.30	27.08	38.38	44.40	32.09	21.90	26.28	33.24	29.01	20.39	22.71	25.50	25.95		28.10
"Cash Flow" per sh	1.37	1.22	1.81	1.58	1.63	1.70	1.86	1.93	2.73	2.52	2.46	2.68	3.72	2.99	3.30	3.36	3.65	3.75		4.25
Earnings per sh B	.93	.78	1.35	1.20	1.23	1.29	1.36	1.37	2.08	1.78	1.61	1.73	2.72	1.96	2.07	2.16	2.30	2.40		2.80
Div'ds Decl'd per sh C■	.48	.51	.56	.62	.68	.72	.77	.81	.86	.93	.98	1.04	1.11	1.19	1.27	1.36	1.45	1.49		1.70
Cap'l Spending per sh	.64	.73	.86	.90	1.05	1.13	1.26	1.33	1.52	3.76	4.15	3.80	4.39	5.83	4.65	5.42	5.35	5.30		5.50
Book Value per sh D	7.50	7.75	8.64	8.29	8.81	9.36	9.80	10.65	11.48	12.99	13.58	14.33	16.18	17.37	19.26	17.18	18.70	19.85		23.15
Common Shs Outst'g E	82.88	83.22	84.12	83.17	82.35	82.89	83.05	83.32	84.20	85.19	85.88	86.32	87.69	89.34	95.80	94.95	98.00	99.00		100.00
Avg Ann'l P/E Ratio	16.1	21.6	12.3	14.9	15.0	16.8	16.8	16.0	11.7	16.6	21.3	22.4	15.6	24.3	17.7	17.5	Bold figures are Value Line estimates			17.0
Relative P/E Ratio	.87	1.15	.74	.99	.95	1.05	1.07	.90	.62	.84	1.12	1.13	.84	1.29	.91	.94				.95
Avg Ann'l Div'd Yield	3.2%	3.0%	3.3%	3.5%	3.7%	3.3%	3.4%	3.7%	3.5%	3.1%	2.9%	2.7%	2.6%	2.5%	3.5%	3.6%				4.0%

CAPITAL STRUCTURE as of 3/31/22

Total Debt $2646.1 mill. Due in 5 Yrs $442.8 mill.
LT Debt $2319.4 mill. LT Interest $78.6 mill.
Incl. $6.0 mill. capitalized leases.
(LT interest earned: 5.0x; total interest coverage: 5.0x)

Pension Assets-9/21 $469.5 mill.
Oblig. $640.2 mill.

Pfd Stock None

Common Stock 96,152,712 shs.
as of 5/2/22

MARKET CAP: $4.3 billion (Mid Cap)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		25-27
Revenues ($mill) A	2248.9	3198.1	3738.1	2734.0	1880.9	2268.6	2915.1	2592.0	1953.7	2156.6	2500	2570		2810
Net Profit ($mill)	112.4	113.7	176.9	153.7	138.1	149.4	240.5	175.0	196.2	207.7	225	240		280
Income Tax Rate	7.1%	25.4%	30.2%	26.3%	15.5%	17.2%	--	--	NMF	10.3%	10.5%	10.5%		10.5%
Net Profit Margin	5.0%	3.6%	4.7%	5.6%	7.3%	6.6%	8.2%	6.7%	10.0%	9.6%	9.1%	10.0%		10.0%
Long-Term Debt Ratio	39.2%	36.6%	38.2%	43.2%	47.7%	44.6%	45.4%	49.8%	55.1%	57.0%	57.5%	57.0%		56.5%
Common Equity Ratio	60.8%	63.4%	61.8%	56.8%	52.3%	55.4%	54.6%	50.2%	44.9%	43.0%	42.5%	43.0%		43.5%
Total Capital ($mill)	1339.0	1400.3	1564.4	1950.6	2230.1	2233.7	2599.6	3088.9	4104.2	3793.0	4335	4565		5310
Net Plant ($mill)	1484.9	1643.1	1884.1	2128.3	2407.7	2609.7	2651.0	3041.2	3983.0	4213.5	4145	4225		4485
Return on Total Cap'l	9.2%	9.0%	12.1%	8.6%	6.9%	7.7%	10.1%	6.4%	5.6%	6.5%	6.5%	6.5%		6.5%
Return on Shr. Equity	13.8%	12.8%	18.3%	13.9%	11.8%	12.1%	16.9%	11.3%	10.6%	12.7%	12.5%	12.0%		12.0%
Return on Com Equity	13.8%	12.8%	18.3%	13.9%	11.8%	12.1%	16.9%	11.3%	10.6%	12.7%	12.5%	12.0%		12.0%
Retained to Com Eq	6.2%	5.2%	11.0%	7.0%	4.8%	5.0%	10.2%	4.6%	4.3%	5.6%	4.5%	4.5%		4.5%
All Div'ds to Net Prof	55%	59%	40%	50%	60%	59%	40%	59%	60%	56%	63%	62%		61%

CURRENT POSITION

($MILL.)	2020	2021	3/31/22
Cash Assets	117.0	4.7	13.9
Other	505.3	629.6	542.1
Current Assets	622.3	634.3	556.0
Accts Payable	270.1	429.6	301.6
Debt Due	152.6	450.1	326.7
Other	111.0	171.7	253.8
Current Liab.	533.7	1051.4	882.1
Fix. Chg. Cov.	545%	545%	550%

ANNUAL RATES

of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '19-'21 to '25-'27
Revenues	-3.0%	-6.0%	2.5%
"Cash Flow"	7.0%	4.5%	5.0%
Earnings	5.0%	2.5%	5.0%
Dividends	6.5%	6.5%	5.0%
Book Value	7.5%	7.0%	4.5%

QUARTERLY REVENUES ($ mill.) A

Fiscal Year Ends	Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2019	811.8	866.2	434.9	479.1	2592.0
2020	615.0	639.6	299.0	400.1	1953.7
2021	454.3	802.2	367.6	532.5	2156.6
2022	675.8	912.3	430	481.9	2500
2023	695	930	450	495	2570

EARNINGS PER SHARE A B

Fiscal Year Ends	Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2019	.61	1.27	d.20	.29	1.96
2020	.44	1.12	d.06	.57	2.07
2021	.46	1.77	d.15	.07	2.16
2022	.69	1.36	d.10	.35	2.30
2023	.73	1.38	d.08	.37	2.40

QUARTERLY DIVIDENDS PAID C■

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2018	.273	.273	.273	.2925	1.11
2019	.2925	.2925	.2925	.3125	1.19
2020	.3125	.3125	.3125	.3325	1.27
2021	.3325	.3325	.3325	.3625	1.36
2022	.3625	.3625			

BUSINESS: New Jersey Resources Corp. is a holding company providing retail/wholesale energy svcs. to customers in NJ, and in states from the Gulf Coast to New England, and Canada. New Jersey Natural Gas had 564,000 cust. at 9/30/21. Fiscal 2021 volume: 112 bill. cu. ft. (20% interruptible, 61% residential, commercial & firm transportation, 19% other). N.J. Natural Energy subsidiary pro-vides unregulated retail/wholesale natural gas and related energy svcs. 2021 dep. rate: 2.4%. Has 1,251 empls. Off./dir. own less than 1% of common; BlackRock, 15.3%; Vanguard, 10.6% (12/21 Proxy). CEO, President & Director: Steven D. Westhoven. Incorporated: New Jersey. Address: 1415 Wyckoff Road, Wall, NJ 07719. Telephone: 732-938-1480. Web: www.njresources.com.

Since our February review, shares of New Jersey Resources have continued to trend higher. In fact, the stock's price advanced another 9.5%. In comparison, the S&P 500 Index registered a downturn of nearly 10% for this same period.

Meanwhile, the retail and wholesale energy provider posted mixed March-quarter results. To that point, revenues advanced 13.7%, to $912.3 million, besting our call for $855 million. This reflected an impressive 49% spike in utility volumes, partially offset by a 9% downturn in non-utility volumes. On the margin front, total expenses increased 990 basis points, as a percentage of the top line. That margin compression completely offset the top-line growth, and after factoring in the dilutive effects of stock issuances, NJR's fiscal second-quarter (ended March 31, 2022) earnings declined 23%, to $1.36 a share. This fell short of our outlook of $1.70.

We have left our fiscal 2022 (ends September 30th) bottom-line estimate unchanged at this time. Despite the lower-than-expected second-quarter earnings, management recently raised its guidance range from $2.20-$2.30, to $2.30-$2.40 per share. Our call of $2.30 represents a year-over-year advance of about 6.5%. Share net should be driven by an estimated uptick in the top line of approximately 16%. This ought to be supported by the addition of more than 3,575 new customer accounts over the first half of the year. At the same time, steady contributions from the Storage & Transportation arm will likely be nicely complementary this year. Alternatively, the Energy Services segment has been hurt by the increased volatility in energy prices over the past year. This will likely present some headwinds for the company as the year progresses.

At the recent quotation, these untimely shares have already realized the bulk of the earnings growth potential that we envision for the pull to 2025-2027. Due to this, the stock offers below-average capital appreciation potential over that time frame. That said, conservative investors will likely find the Above-Average Safety rank and high Price Stability mark attractive features, given the recent market volatility. The attractive dividend yield is also a plus.

Bryan J. Fong   *May 27, 2022*

(A) Fiscal year ends Sept. 30th.
(B) Diluted earnings. Qtly. revenues and egs. may not sum to total due to rounding and change in shares outstanding. Next earnings report due early Aug.
(C) Dividends historically paid in early Jan., April, July, and October. ■ Dividend reinvestment plan available.
(D) Includes regulatory assets in 2021: $522.1 million, $5.49/share.
(E) In millions, adjusted for splits.

Company's Financial Strength	A+
Stock's Price Stability	85
Price Growth Persistence	50
Earnings Predictability	55

NISOURCE INC. NYSE-NI

RECENT PRICE	30.43	P/E RATIO	21.0	(Trailing: 22.1 / Median: 21.0)	RELATIVE P/E RATIO	1.30	DIV'D YLD	3.1%	VALUE LINE

TIMELINESS	4	Raised 3/11/22
SAFETY	3	Lowered 3/19/21
TECHNICAL	2	Raised 5/13/22
BETA	.85	(1.00 = Market)

| High: | 24.0 | 26.2 | 33.5 | 44.9 | 49.2 | 26.9 | 27.8 | 28.1 | 30.7 | 30.5 | 27.8 | 32.6 |
| Low: | 17.7 | 22.3 | 24.8 | 32.1 | 16.0 | 19.0 | 21.7 | 22.4 | 24.7 | 19.6 | 21.1 | 26.4 |

LEGENDS
— 0.50 x Dividends p sh divided by Interest Rate
.... Relative Price Strength
Options: Yes
Shaded area indicates recession

Target Price Range 2025 2026 2027

18-Month Target Price Range

Low-High	Midpoint (% to Mid)
$28-$39	$34 (10%)

2025-27 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	50	(+65%)	16%
Low	35	(+15%)	7%

Institutional Decisions

	1Q2021	2Q2021	3Q2021
to Buy	252	256	230
to Sell	188	197	208
Hld's(000)	361960	367884	376481

| Percent shares traded | 30 / 20 / 10 |

% TOT. RETURN 4/22

	THIS STOCK	VL ARITH.* INDEX
1 yr.	16.2	-7.2
3 yr.	15.3	37.2
5 yr.	40.2	58.7

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	© VALUE LINE PUB. LLC	25-27
27.37	28.96	32.36	24.02	22.99	21.33	16.31	18.04	20.47	14.58	13.90	14.46	13.74	13.63	11.95	12.09	*13.85*	*14.70*	Revenues per sh	*17.55*
3.18	3.20	3.32	2.96	3.19	2.98	3.13	3.41	3.60	2.27	2.71	2.07	2.86	3.17	3.15	3.26	*3.20*	*3.50*	"Cash Flow" per sh	*4.35*
1.14	1.14	1.34	.84	1.06	1.05	1.37	1.57	1.67	.63	1.00	.39	1.30	1.31	1.32	1.37	*1.45*	*1.60*	Earnings per sh A	*2.30*
.92	.92	.92	.92	.92	.92	.94	.98	1.02	.83	.64	.70	.78	.80	.84	.88	*.94*	*.98*	Div'd Decl'd per sh B ■	*1.08*
2.33	2.88	3.54	2.81	2.88	3.99	4.83	5.99	6.42	4.26	4.57	5.03	4.88	4.72	4.49	4.53	*4.45*	*4.45*	Cap'l Spending per sh	*4.35*
18.32	18.52	17.24	17.54	17.63	17.71	17.90	18.77	19.54	12.04	12.60	12.82	13.08	13.36	12.66	13.33	*13.80*	*14.35*	Book Value per sh C	*17.40*
273.65	274.18	274.26	276.79	279.30	282.18	310.28	313.68	316.04	319.11	323.16	337.02	372.36	382.14	391.76	404.30	*405.00*	*405.00*	Common Shs Outst'g D	*415.00*
19.2	18.8	12.1	14.3	15.3	19.4	17.9	18.9	22.7	37.3	23.2	64.4	19.3	21.3	18.7	18.0	*Bold figures are*		Avg Ann'l P/E Ratio	*19.0*
1.04	1.00	.73	.95	.97	1.22	1.14	1.06	1.19	1.88	1.22	3.24	1.04	1.13	.96	.99	*Value Line*		Relative P/E Ratio	*1.05*
4.2%	4.3%	5.7%	7.6%	5.7%	4.5%	3.8%	3.3%	2.7%	3.5%	2.8%	2.8%	3.1%	2.9%	3.4%	3.6%	*estimates*		Avg Ann'l Div'd Yield	*2.5%*

CAPITAL STRUCTURE as of 3/31/22

Total Debt $9757.7 mill. **Due in 5 Yrs** $1318 mill.
LT Debt $9179.8 mill. **LT Interest** $341 mill.
(Interest cov. earned: 2.2x) (58% of Cap'l)

Leases, Uncapitalized Annual rentals $32.7 mill.
Pension Assets-12/21 $1.9 bill. **Oblig.** $2.0 bill.

Pfd Stock $1547 mill. **Pfd Div'd** $55.1 mill.

Common Stock 407,798,111 shs.
as of 4/26/22
MARKET CAP: $12.4 billion (Large Cap)

	5061.2	5657.3	6470.6	4651.8	4492.5	4874.6	5114.5	5208.9	4681.7	4899.6	*5600*	*5950*	Revenues ($mill)	*7290*
	410.6	490.9	530.7	198.6	328.1	128.6	478.3	549.8	562.6	626.3	*605*	*670*	Net Profit ($mill)	*990*
	34.4%	34.8%	36.9%	41.6%	35.7%	71.0%	19.7%	17.0%	18.3%	15.7%	*19.0%*	*19.0%*	Income Tax Rate	*19.0%*
	--	--	--	--	--	--	--	--	2.9%	2.0%	*2.0%*	*2.0%*	AFUDC % to Net Profit	*2.0%*
	55.1%	56.3%	56.9%	60.7%	59.8%	63.5%	55.3%	56.8%	61.2%	56.9%	*56.5%*	*56.0%*	Long-Term Debt Ratio	*52.0%*
	44.9%	43.7%	43.1%	39.3%	40.2%	36.5%	37.9%	36.9%	32.9%	33.5%	*34.0%*	*35.0%*	Common Equity Ratio	*39.5%*
	12373	13480	14331	9792.0	10129	11832	12856	13843	15058	16131	*16435*	*16700*	Total Capital ($mill)	*18225*
	12916	14365	16017	12112	13068	14360	15543	16912	16620	17882	*18000*	*19000*	Net Plant ($mill)	*22000*
	5.0%	5.2%	5.3%	4.0%	5.0%	2.6%	5.1%	5.3%	5.0%	4.9%	*3.5%*	*4.0%*	Return on Total Cap'l	*5.5%*
	7.4%	8.3%	8.6%	5.2%	8.1%	3.0%	8.3%	9.2%	9.6%	9.0%	*8.5%*	*9.0%*	Return on Shr. Equity	*11.5%*
	7.4%	8.3%	8.6%	5.2%	8.1%	3.0%	9.6%	9.7%	10.2%	10.6%	*8.5%*	*9.0%*	Return on Com Equity	*11.5%*
	2.5%	3.1%	3.4%	NMF	3.0%	NMF	4.0%	3.8%	3.7%	4.2%	*2.5%*	*3.0%*	Retained to Com Eq	*5.5%*
	67%	62%	61%	NMF	63%	NMF	60%	64%	67%	64%	*72%*	*68%*	All Div'ds to Net Prof	*51%*

CURRENT POSITION ($MILL.)

	2020	2021	3/31/22
Cash Assets	116.5	85.2	114.5
Other	1542.9	1835.6	1757.4
Current Assets	1659.4	1920.8	1871.9
Accts Payable	589.0	697.8	628.5
Debt Due	526.3	618.1	577.9
Other	1164.1	1430.3	1388.2
Current Liab.	2279.4	2746.2	2594.6
Fix. Chg. Cov.	250%	250%	255%

ANNUAL RATES

of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '19-'21 to '25-'27
Revenues	-6.0%	-5.0%	5.5%
"Cash Flow"	.5%	2.0%	5.5%
Earnings	3.0%	4.0%	9.5%
Dividends	-1.0%	--	4.5%
Book Value	-3.0%	-2.5%	5.0%

QUARTERLY REVENUES ($ mill.)

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2019	1869.8	1010.4	931.5	1397.2	5208.9
2020	1605.5	962.7	902.5	1211.0	4681.7
2021	1545.6	986.0	959.4	1408.6	4899.6
2022	1873.9	*1085*	*1035*	*1606.7*	*5600*
2023	*1960*	*1170*	*1120*	*1700*	*5950*

EARNINGS PER SHARE A

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2019	.82	.05	--	.45	1.31
2020	.76	.13	.09	.34	1.32
2021	.77	.13	.11	.39	1.37
2022	.75	*.17*	*.15*	*.38*	*1.45*
2023	*.80*	*.20*	*.20*	*.40*	*1.60*

QUARTERLY DIVIDENDS PAID B ■

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2018	.195	.195	.195	.195	.78
2019	.200	.200	.200	.200	.80
2020	.21	.21	.21	.21	.84
2021	.22	.22	.22	.22	.88
2022	.235	.235			

BUSINESS: NiSource Inc. is a holding company for Northern Indiana Public Service Company (NIPSCO), which supplies electricity and gas to the northern third of Indiana. Customers: 479,185 electric in Indiana, 3,200,000 million gas in Indiana, Ohio, Pennsylvania, Kentucky, Virginia, Maryland, through its Columbia subsidiaries. Revenue breakdown, 2021: electrical, 31%; gas, 69%; other, less than 1%. Generating sources, coal, 69.4%; purchased & other, 30.6%. 2021 reported depreciation rates: 2.9% electric, 2.2% gas. Has 7,304 employees. Chairman: Richard L. Thompson. President & Chief Executive Officer: Lloyd Yates. Incorporated: Indiana. Address: 801 East 86th Avenue, Merrillville, Indiana 46410. Telephone: 877-647-5990. Internet: www.nisource.com.

Since our February review, shares of NiSource have continued on their upward trajectory. In fact, over that time frame, the stock's price advanced another roughly 7%. In comparison, the S&P 500 Index underwent a correction of approximately 10% over that same period.

Meantime, the supplier of electricity and gas to northern Indiana is off to a mixed start this year. To that point, revenues advanced 21.2%, to $1.873 billion, thanks to a solid, double-digit increase in customer revenues, partially offset by a modest decline in other volumes. This handily bested our call for $1.645 billion. On the profitability front, total expenses declined 402 basis points, as a percentage of the top line. After accounting for the dilutive effects of a 13.3 million spike in the number of shares outstanding, NI's first-quarter share net fell 2.6%, to $0.75. This was modestly below our call for $0.80. **As a result, we have sliced a nickel off our 2022 and 2023 earnings estimates, bringing those figures to $1.45 and $1.60, respectively.** In the current year, our revised call would still represent a roughly 6% annual increase. This figure also coincides with management's recently reiterated guidance range of $1.42 to $1.48. This ought to reflect an estimated revenue advance of more than 14%, to $5.6 billion. NiSource has roughly $10 billion in capital growth projects on deck and planned to come into service through 2024. It is also transitioning away from coal-fired generation and toward greener alternatives. Finally, the company has filed for roughly $475 million in proposed rate-case increases across its various service territories. Those efforts ought to help the company recoup some of its already invested capital and offset growth costs.

This stock offers an above-average dividend yield when viewed against the Value Line median, which may appeal to income-oriented investors. That said, the stock's upside potential for the pull to 2025-2027 is below the *Value Line* median. What's more, momentum accounts would probably be better served elsewhere. Our Timeliness Ranking System has NiSource pegged to lag the broader market averages in the coming six to 12 months (Timeliness: 4).

Bryan J. Fong   *May 27, 2022*

(A) Dil. EPS. Excl. gains (losses) on disc. ops.: '06, (11¢); '07, 3¢; '08, ($1.14); '15, (30¢); '18, ($1.48). Next egs. report due late July. Qtl'y egs. may not sum to total due to rounding.
(B) Div'ds historically paid in mid-Feb., May, Aug., Nov. ■ Div'd reinv. avail.
(C) Incl. intang in '21: $1485.9 million, $3.68/sh.
(D) In mill.
(E) Spun off Columbia Pipeline Group (7/15)

Company's Financial Strength	B+
Stock's Price Stability	100
Price Growth Persistence	20
Earnings Predictability	50

To subscribe call 1-800-VALUELINE

N.W. NATURAL NYSE-NWN

RECENT PRICE	50.78	P/E RATIO	19.9	(Trailing: 21.0) (Median: 24.0)	RELATIVE P/E RATIO	1.23	DIV'D YLD	3.8%	VALUE LINE

TIMELINESS	4	Raised 4/29/22			
SAFETY	3	Lowered 3/19/21			
TECHNICAL	4	Lowered 5/27/22			
BETA	.80	(1.00 = Market)			

High:	49.0	50.8	46.6	52.6	52.3	66.2	69.5	71.8	74.1	77.3	56.8	57.6
Low:	39.6	41.0	40.0	40.1	42.0	48.9	56.5	51.5	57.2	42.3	41.7	45.8

LEGENDS
— 0.60 x Dividends p sh divided by Interest Rate
.... Relative Price Strength
Options: Yes
Shaded area indicates recession

Target Price Range 2025 2026 2027

18-Month Target Price Range
Low-High Midpoint (% to Mid)
$41-$67 $54 (5%)

2025-27 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	85	(+65%)	16%
Low	55	(+10%)	6%

Institutional Decisions

	1Q2021	2Q2021	3Q2021
to Buy	103	114	95
to Sell	89	81	95
Hld's(000)	21451	21444	21597

Percent shares traded: 15 10 5

% TOT. RETURN 4/22

	THIS STOCK	VL ARITH.* INDEX
1 yr.	-7.2	-7.2
3 yr.	-20.6	37.2
5 yr.	-5.4	58.7

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	© VALUE LINE PUB. LLC	25-27
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	27.64	28.50	29.45	Revenues per sh	33.55
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	6.17	6.20	6.65	"Cash Flow" per sh	7.65
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	2.56	2.55	2.85	Earnings per sh A	3.45
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	1.94	Div'ds Decl'd per sh B■	1.96
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	9.49	8.65	8.90	Cap'l Spending per sh	9.40
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	30.04	29.25	30.25	Book Value per sh D	37.20
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	31.13	31.25	31.50	Common Shs Outst'g C	32.00
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	19.5	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	20.0
.86	.89	1.09	1.01	1.08	1.19	1.34	1.09	1.09	1.19	1.41	- -	1.44	1.65	1.28	1.06			Relative P/E Ratio	1.10
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%	3.8%			Avg Ann'l Div'd Yield	2.6%

CAPITAL STRUCTURE as of 3/31/22
Total Debt $1434.4 mill. Due in 5 Yrs $175.3 mill.
LT Debt $1044.6 mill. LT Interest $44.5 mill.

(Total interest coverage: 3.1x)

Pension Assets-12/21 $399.2 mill.
Oblig. $569.8 mill.

Pfd Stock None

Common Stock 30,730,274 shares as of 10/27/21

MARKET CAP $1.6 billion (Mid Cap)

730.6	758.5	754.0	723.8	676.0	762.2	706.1	746.4	773.7	860.4	890	925	Revenues ($mill)	1075
59.9	60.5	58.7	53.7	58.9	d55.6	67.3	65.3	70.3	78.7	80.0	90.0	Net Profit ($mill)	135
42.4%	40.8%	41.5%	40.0%	40.9%	- -	26.4%	16.2%	23.1%	25.8%	21.0%	21.0%	Income Tax Rate	21.0%
8.2%	8.0%	7.8%	7.4%	8.7%	NMF	9.5%	8.8%	9.1%	9.1%	8.9%	9.7%	Net Profit Margin	10.3%
48.5%	47.6%	44.8%	42.5%	44.4%	47.9%	48.1%	48.2%	49.2%	52.8%	52.0%	51.0%	Long-Term Debt Ratio	48.0%
51.5%	52.4%	55.2%	57.5%	55.6%	52.1%	51.9%	51.8%	50.8%	47.2%	48.0%	49.5%	Common Equity Ratio	52.0%
1424.7	1433.6	1389.0	1357.7	1529.8	1426.0	1468.9	1672.0	1748.8	1979.7	1915	1955	Total Capital ($mill)	2290
1973.6	2062.9	2121.6	2182.7	2260.9	2255.0	2421.4	2438.9	2654.8	2871.4	3105	3360	Net Plant ($mill)	4250
5.7%	5.8%	5.8%	5.5%	5.1%	NMF	5.8%	5.2%	5.2%	5.1%	4.0%	4.5%	Return on Total Cap'l	5.0%
8.2%	8.1%	7.6%	6.9%	6.9%	NMF	8.8%	7.5%	7.9%	8.4%	8.5%	9.5%	Return on Shr. Equity	9.5%
8.2%	8.1%	7.6%	6.9%	6.9%	NMF	8.8%	7.5%	7.9%	8.4%	8.5%	9.5%	Return on Com Equity	9.5%
1.6%	1.5%	1.1%	.6%	.9%	NMF	2.1%	1.4%	1.7%	2.4%	2.0%	3.0%	Retained to Com Eq	4.0%
80%	81%	85%	92%	87%	NMF	76%	82%	79%	71%	76%	68%	All Div'ds to Net Prof	57%

CURRENT POSITION ($MILL.)

	2020	2021	3/31/22
Cash Assets	30.2	18.6	24.3
Other	293.0	418.7	367.1
Current Assets	323.2	437.3	391.4
Accts Payable	97.9	133.5	130.6
Debt Due	399.9	389.8	332.8
Other	129.3	201.5	194.9
Current Liab.	627.1	724.8	658.3
Fix. Chg. Cov.	335%	335%	312%

ANNUAL RATES

of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '19-'21 to '25-'27
Revenues	-2.5%	- -	4.5%
"Cash Flow"	1.0%	2.5%	5.0%
Earnings	-1.0%	2.5%	6.5%
Dividends	1.5%	.5%	.5%
Book Value	1.0%	.5%	4.0%

QUARTERLY REVENUES ($ mill.)

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
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	101.5	294.1	860.4
2022	350.3	150	110	279.7	890
2023	355	160	120	290	925

EARNINGS PER SHARE A

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
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.67	1.31	2.56
2022	1.80	.01	d.56	1.30	2.55
2023	2.00	.05	d.55	1.35	2.85

QUARTERLY DIVIDENDS PAID B■

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
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	.483	1.92
2022	.483	.483			

BUSINESS: Northwest Natural Holding Co. distributes natural gas to 1,000 communities, 775,000 customers, in Oregon (89% of customers) and in southwest Washington state. Principal cities served: Portland and Eugene, OR; Vancouver, WA. Service area population: 3.7 mill. (77% in OR). Company buys gas supply from Canadian and U.S. producers; has transportation rights on Northwest Pipeline system. Owns local underground storage. Rev. breakdown: residential, 37%; commercial, 22%; industrial, gas transportation, 41%. Employs 1,167. BlackRock Inc. owns 17.2% of shares; Vanguard, 11.8%; Off./Dir., .92% (4/22 proxy). CEO: David H. Anderson. Inc.: Oregon. Address: 220 NW 2nd Ave., Portland, OR 97209. Tel.: 503-226-4211. Internet: www.nwnatural.com.

Since our February review, shares of Northwest Natural Holding Co. have ticked modestly higher. In fact, the stock's price advanced nearly 7%. In comparison, the S&P 500 Index logged a correction of nearly 10% for that same period. **Meantime, the distributor of natural gas posted mixed financial results for the March quarter.** On the upside, revenues increased 10.9%, to $350.3 million, thanks to incremental volumes associated with the 10,800 natural gas meters added over the past 12 months. Additional benefits stemmed from a rate increase in Washington state. On the profitability front, total costs rose 498 basis points, as a percentage of the top line. After accounting for a drop in other expenses and an increase in common stock outstanding, NWN's share net declined about 7%, to $1.80, versus the prior year. This was well below our call for $1.96 per share. **Consequently, we have sliced $0.15 off our bottom-line outlook for this year, to $2.55 a share.** Our revised figure would represent a less-than-1% year-over-year earnings decline. This ought to reflect an estimated revenue advance of about 3.5%, to $890 million, as Northwest Natural continues to focus its efforts on growing its renewal operations, and moving its existing rate cases forward. In mid-December, it filed for a more-than-$365 million hike with the Oregon Public Utility Commission, which is anticipated to go into effect around November 1st. The purpose of the higher rate is to support long-term investments in safety, reliability, and technology upgrades. That said, we look for costs to remain elevated as the year progresses. This will likely offset the top-line gains and keep a lid on bottom-line growth until next year.

These shares have improved one notch in Timeliness since our last report. Still, they are ranked a 4, suggesting NWN will lag the broader market averages in the year ahead. Meanwhile, the stock offers worthwhile capital appreciation potential for the pull to 2025-2027, even after reducing our 3- to 5-year P/E multiple to 20 from 24. Additionally, NWN offers a dividend yield that is well above the Value Line median, which may appeal to yield-seeking investors.

Bryan J. Fong   May 27, 2022

(A) Diluted earnings per share. Excludes nonrecurring items: '06, ($0.06); '08, ($0.03); '09, $0.06; May not sum due to rounding. Next earnings report due in early Aug.
(B) Dividends historically paid in mid-February, May, August, and November.
■ Dividend reinvestment plan available.
(C) In millions.
(D) Includes intangibles. In 2021: $70.6 million, $2.27/share.

Company's Financial Strength	A
Stock's Price Stability	85
Price Growth Persistence	35
Earnings Predictability	10

ONE GAS, INC. NYSE-OGS

RECENT PRICE	85.96	P/E RATIO	21.2	Trailing: 22.1 / Median: NMF	RELATIVE P/E RATIO	1.31	DIV'D YLD	3.0%	VALUE LINE

TIMELINESS	3	Raised 5/13/22
SAFETY	2	New 6/2/17
TECHNICAL	1	Raised 5/20/22

BETA .80 (1.00 = Market)

18-Month Target Price Range
Low-High   **Midpoint (% to Mid)**
$69-$110 $90 (5%)

2025-27 PROJECTIONS
	Price	Gain	Ann'l Total Return
High	145	(+70%)	16%
Low	105	(+20%)	8%

Institutional Decisions
	1Q2021	2Q2021	3Q2021
to Buy	127	111	135
to Sell	144	140	122
Hld's(000)	42395	43179	42681

High:	44.3	51.8	67.4	79.5	87.8	96.7	97.0	81.9	92.3
Low:	31.9	38.9	48.0	61.4	62.2	75.8	63.7	62.5	73.4

LEGENDS
— 0.50 x Dividends p sh divided by Interest Rate
.... Relative Price Strength
Options: Yes
Shaded area indicates recession

Target Price Range
2025 2026 2027

Percent shares traded: 21 / 14 / 7

% TOT. RETURN 4/22
	THIS STOCK	VL ARITH.* INDEX
1 yr.	9.4	-7.2
3 yr.	4.2	37.2
5 yr.	40.6	58.7

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	© VALUE LINE PUB. LLC	25-27
Revenues per sh	--	--	34.92	29.62	27.30	29.43	31.08	31.32	28.78	33.72	42.80	45.35		57.45
"Cash Flow" per sh	--	--	4.52	4.82	5.43	5.96	6.32	6.96	7.36	7.71	8.25	8.70		10.55
Earnings per sh A	--	--	2.07	2.24	2.65	3.02	3.25	3.51	3.68	3.85	4.05	4.25		5.30
Div'ds Decl'd per sh B■	--	--	.84	1.20	1.40	1.68	1.84	2.00	2.16	2.32	2.48	2.64		3.12
Cap'l Spending per sh	--	--	5.70	5.63	5.91	6.81	7.50	7.91	8.87	9.23	9.40	9.55		9.85
Book Value per sh	--	--	34.45	35.24	36.12	37.47	38.86	40.35	42.01	43.81	59.70	60.65		71.60
Common Shs Outst'g C	--	--	52.08	52.26	52.28	52.31	52.57	52.77	53.17	53.63	54.00	54.00		57.00
Avg Ann'l P/E Ratio	--	--	17.8	19.8	22.7	23.5	23.1	25.3	21.7	18.9	Bold figures are Value Line estimates			23.5
Relative P/E Ratio	--	--	.94	1.00	1.19	1.18	1.25	1.35	1.11	1.03				1.30
Avg Ann'l Div'd Yield	--	--	2.3%	2.7%	2.3%	2.4%	2.5%	2.3%	2.7%	3.2%				2.5%
Revenues ($mill)	--	--	1818.9	1547.7	1427.2	1539.6	1633.7	1652.7	1530.3	1808.6	2310	2450		3275
Net Profit ($mill)	--	--	109.8	119.0	140.1	159.9	172.2	186.7	196.4	206.4	218	230		300
Income Tax Rate	--	--	38.4%	38.0%	37.8%	36.4%	23.7%	18.7%	17.5%	16.3%	18.0%	18.5%		22.0%
Net Profit Margin	--	--	6.0%	7.7%	9.8%	10.4%	10.5%	11.3%	12.8%	11.4%	9.4%	9.4%		9.2%
Long-Term Debt Ratio	--	--	40.1%	39.5%	38.7%	37.8%	38.6%	37.7%	41.5%	61.0%	48.0%	49.0%		52.0%
Common Equity Ratio	--	--	59.9%	60.5%	61.3%	62.2%	61.4%	62.3%	58.5%	39.0%	52.0%	51.0%		48.0%
Total Capital ($mill)	--	--	2995.3	3042.9	3080.7	3153.5	3328.1	3415.5	3815.7	6032.9	6200	6420		8500
Net Plant ($mill)	--	--	3293.7	3511.9	3731.6	4007.6	4283.1	4565.2	4867.1	5190.8	5500	5800		6750
Return on Total Cap'l	--	--	4.4%	4.7%	5.2%	5.8%	5.9%	6.4%	6.0%	3.9%	5.0%	5.0%		5.0%
Return on Shr. Equity	--	--	6.1%	6.5%	7.4%	8.2%	8.4%	8.8%	8.8%	8.8%	7.0%	7.0%		7.5%
Return on Com Equity	--	--	6.1%	6.5%	7.4%	8.2%	8.4%	8.8%	8.8%	8.8%	7.0%	7.0%		7.5%
Retained to Com Eq	--	--	3.7%	3.1%	3.5%	3.7%	3.7%	3.8%	3.7%	3.5%	2.5%	2.5%		3.0%
All Div'ds to Net Prof	--	--	40%	53%	52%	55%	56%	56%	58%	60%	61%	62%		59%

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 3/31/22
Total Debt $4188.8 mill. **Due in 5 Yrs** $2900.0 mill.
LT Debt $2283.6 mill. **LT Interest** $140.0 mill.
(LT interest earned: 5.1x; total interest coverage: 5.1x)
Leases, Uncapitalized Annual rentals $7.5 mill.
Pfd Stock None
Pension Assets-12/21 $1245.2 mill.
  Oblig. $1272.8 mill.
Common Stock 54,089,905 shs.
as of 4/25/22
MARKET CAP: $4.6 billion (Mid Cap)

CURRENT POSITION
($MILL.)	2020	2021	3/31/22
Cash Assets	8.0	8.9	12.4
Other	531.9	2215.7	2262.1
Current Assets	539.9	2224.6	2274.5
Accts Payable	152.3	258.6	209.8
Debt Due	418.2	494.0	1905.2
Other	226.6	227.9	253.8
Current Liab.	797.1	980.5	2368.8
Fix. Chg. Cov.	587%	625%	632%

ANNUAL RATES
of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '19-'21 to '25-'27
Revenues	--	.5%	10.5%
"Cash Flow"	--	8.5%	6.5%
Earnings	--	9.5%	6.5%
Dividends	--	13.5%	6.5%
Book Value	--	3.5%	9.5%

QUARTERLY REVENUES ($ mill.)
Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
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	273.9	593.8	1808.6
2022	971.5	400	323.5	615	2310
2023	1009	450	346	645	2450

EARNINGS PER SHARE A
Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2019	1.76	.46	.33	.96	3.51
2020	1.72	.48	.39	1.09	3.68
2021	1.79	.56	.38	1.12	3.85
2022	1.83	.62	.45	1.15	4.05
2023	1.90	.67	.50	1.18	4.25

QUARTERLY DIVIDENDS PAID B■
Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
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
2022	.62	.62			

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 164 Bcf of natural gas supply in 2021, compared to 153 Bcf in 2020. Total volumes delivered by customer (fiscal 2021): transportation, 59.3%; residential, 30.4%; commercial & industrial, 9.7%; other, .6%. ONE Gas has around 3,600 employees. BlackRock owns 12.2% of common stock; The Vanguard Group, 10.9%; American Century Investment, 8.0%; officers and directors, 1.5% (4/22 Proxy). CEO: Robert S. McAnnally. Incorporated: Oklahoma. Address: 15 East Fifth Street, Tulsa, Oklahoma 74103. Tel.: 918-947-7000. Internet: www.onegas.com.

ONE Gas' first-quarter 2022 results showed some improvement. Share net of $1.83 was several pennies higher than last year's $1.79 figure. That stemmed partially from benefits from new rates. Also, there was a rise in residential sales due to net customer growth. Bad-debt expense decreased, too. So, assuming that the business climate continues to be generally favorable over the course of the year, we believe that 2022 share net will increase around 5%, to $4.05, compared to the 2021 tally of $3.85. Regarding next year, the company's bottom line might advance at a similar percentage rate, to $4.25 a share, as operating margins expand further.

Prospects over the 2025-2027 period appear promising. ONE Gas remains the top natural gas distributor (as measured by customer count) in both Oklahoma and Kansas, and holds the number-three position in Texas. Moreover, we think these markets have decent growth possibilities and are located in one of the most active drilling regions in the United States. Too, thanks to healthy finances, the company should continue to satisfy its working capital requirements, capital expenditures, and other commitments with little difficulty.

There are risks to bear in mind, though. ONE Gas' lack of geographic diversification leaves it somewhat more vulnerable to regional economic downturns and regulations. Also, there's competition from other energy suppliers, which include electric companies and propane dealers. Lastly, pipeline ruptures, leaks, and other unfortunate occurrences can take a big bite out of corporate profits if not adequately covered by insurance.

The good-quality stock has climbed roughly 15% in value since our last full-page report in February. It seems that can be traced, to some extent, to expectations of decent earnings for the energy provider in 2022. But the price action has dampened 3- to 5-year capital appreciation potential. Too, the dividend yield does not stand out from the average yield in *Value Line's* Natural Gas Utility group. Lastly, these shares are ranked to just approximate the market over the coming six to 12 months.
Frederick L. Harris, III   *May 27, 2022*

(A) Diluted EPS. Excludes nonrecurring gain: 2017, $0.06. Next earnings report due early Aug.
(B) Dividends historically paid in early March, June, Sept., and Dec. ■ Dividend reinvestment plan. Direct stock purchase plan.
(C) In millions.

Company's Financial Strength	B++
Stock's Price Stability	95
Price Growth Persistence	60
Earnings Predictability	100

SPIRE INC. NYSE-SR

RECENT PRICE	75.39	P/E RATIO	17.6	(Trailing: 18.6 / Median: 19.0)	RELATIVE P/E RATIO	1.09	DIV'D YLD	3.7%	VALUE LINE

TIMELINESS	4	Lowered 8/20/21
SAFETY	2	Raised 6/20/03
TECHNICAL	3	Raised 5/20/22
BETA .80 (1.00 = Market)		

High: 42.8 44.0 48.5 55.2 61.0 71.2 82.9 81.1 88.0 88.0 77.9 79.2
Low: 32.9 36.5 37.4 44.0 49.1 57.1 62.3 60.1 71.7 50.6 59.3 61.9

Target Price Range 2025 2026 2027

LEGENDS
— 0.35 x Dividends p sh divided by Interest Rate
. . . . Relative Price Strength
Options: Yes
Shaded area indicates recession

18-Month Target Price Range

Low-High	Midpoint (% to Mid)
$51-$84	$68 (-10%)

2025-27 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	130	(+70%)	17%
Low	95	(+25%)	10%

Institutional Decisions

	1Q2021	2Q2021	3Q2021
to Buy	124	112	125
to Sell	139	126	113
Hld's(000)	42475	42992	42729

Percent shares traded: 18 12 6

% TOT. RETURN 4/22

	THIS STOCK	VL ARITH.* INDEX
1 yr.	1.8	-7.2
3 yr.	-2.4	37.2
5 yr.	27.3	58.7

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	© VALUE LINE PUB. LLC	25-27
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	43.24	38.95	40.75	Revenues per sh A	63.65
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	9.09	8.40	9.10	"Cash Flow" per sh	10.90
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	4.96	3.90	4.35	Earnings per sh A B	5.50
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	2.74	2.86	Div'ds Decl'd per sh C ■	3.30
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	12.09	10.40	11.10	Cap'l Spending per sh	11.50
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	46.74	51.90	56.55	Book Value per sh D	67.10
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	51.70	52.00	52.50	Common Shs Outst'g E	55.00
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	NMF	13.6	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	20.5
.73	.75	.86	.89	.87	.82	.92	1.20	1.04	.83	1.03	1.00	.90	1.21	NMF	.73			Relative P/E Ratio	1.15
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%	3.8%			Avg Ann'l Div'd Yield	3.0%

CAPITAL STRUCTURE as of 3/31/22

Total Debt $3845.6 mill. **Due in 5 Yrs** $1520.0 mill.
LT Debt $3207.3 mill. **LT Interest** $145.0 mill.
(Total interest coverage: 4.2x)

Leases, Uncapitalized Annual rentals $8.8 mill.
Pension Assets-9/21 $945.7 mill.
Oblig. $1318.0 mill.
Pfd Stock $242.0 mill. **Pfd Div'd** $14.8 mill.
Common Stock 52,121,977 shs.
as of 5/1/22

MARKET CAP: $3.9 billion (Mid Cap)

	1125.5	1017.0	1627.2	1976.4	1537.3	1740.7	1965.0	1952.4	1855.4	2235.5	2025	2140	Revenues ($mill) A	3500
	62.6	52.8	84.6	136.9	144.2	161.6	214.2	184.6	88.6	271.7	205	230	Net Profit ($mill)	300
	29.6%	25.0%	27.6%	31.2%	32.5%	32.4%	NMF	15.7%	12.3%	20.1%	21.0%	22.0%	Income Tax Rate	25.0%
	5.6%	5.2%	5.2%	6.9%	9.4%	9.3%	10.9%	9.5%	4.8%	12.2%	10.1%	10.7%	Net Profit Margin	8.6%
	36.1%	46.6%	55.1%	53.0%	50.9%	50.0%	45.7%	45.0%	49.0%	52.5%	53.0%	52.0%	Long-Term Debt Ratio	51.0%
	63.9%	53.4%	44.9%	47.0%	49.1%	50.0%	54.3%	49.7%	46.1%	43.2%	43.0%	44.0%	Common Equity Ratio	45.0%
	941.0	1959.0	3359.4	3345.1	3601.9	3986.3	4155.5	4625.6	4946.0	5597.3	6275	6750	Total Capital ($mill)	8200
	1019.3	1776.6	2759.7	2941.2	3300.9	3665.2	3970.4	4352.0	4680.1	5055.7	5400	5715	Net Plant ($mill)	7100
	7.9%	3.3%	3.1%	5.1%	4.9%	5.0%	6.3%	5.1%	2.9%	5.8%	5.0%	5.0%	Return on Total Cap'l	5.0%
	10.4%	5.0%	5.6%	8.7%	8.2%	8.1%	9.5%	7.3%	3.5%	10.2%	7.5%	7.5%	Return on Shr. Equity	8.0%
	10.4%	5.0%	5.6%	8.7%	8.2%	8.1%	9.5%	7.9%	3.2%	10.6%	7.5%	7.5%	Return on Com Equity	8.0%
	4.3%	1.0%	1.5%	3.7%	3.3%	3.3%	4.7%	2.7%	NMF	5.1%	2.0%	2.0%	Retained to Com Eq	3.0%
	59%	81%	73%	58%	59%	60%	51%	66%	NMF	54%	77%	72%	All Div'ds to Net Prof	65%

CURRENT POSITION ($MILL.)

	2020	2021	3/31/22
Cash Assets	4.1	4.3	8.3
Other	586.5	1312.2	1081.0
Current Assets	590.6	1316.5	1089.3
Accts Payable	243.3	409.9	367.5
Debt Due	708.4	727.8	638.3
Other	497.5	470.6	390.0
Current Liab.	1449.2	1608.3	1395.8
Fix. Chg. Cov.	373%	448%	435%

ANNUAL RATES

of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '19-'21 to '25-'27
Revenues	-6.5%	--	8.5%
"Cash Flow"	5.0%	6.0%	7.5%
Earnings	2.0%	2.5%	9.0%
Dividends	4.5%	6.0%	5.0%
Book Value	6.5%	4.5%	7.0%

QUARTERLY REVENUES ($ mill.)A

Fiscal Year Ends	Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2019	602.0	803.5	321.3	225.6	1952.4
2020	566.9	715.5	321.1	251.9	1855.4
2021	512.6	1104.9	327.8	290.2	2235.5
2022	555.4	880.9	330	258.7	2025
2023	580	950	340	270	2140

EARNINGS PER SHARE A B F

Fiscal Year Ends	Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2019	1.32	3.04	d.09	d.74	3.52
2020	1.24	2.54	d1.87	d.45	1.44
2021	1.65	3.55	.03	d.26	4.96
2022	1.01	3.27	.06	d.44	3.90
2023	1.40	3.36	.07	d.48	4.35

QUARTERLY DIVIDENDS PAID C ■

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2018	.5625	.5625	.5625	.5625	2.25
2019	.5925	.5925	.5925	.5925	2.37
2020	.6225	.6225	.6225	.6225	2.49
2021	.65	.65	.65	.65	2.60
2022	.685	.685			

BUSINESS: 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 therms sold and transported in fiscal 2021: 3.3 bill. Revenue mix for regu- lated operations: residential, 58%; commercial and industrial, 28%; transportation, 6%; other, 8%. Has about 3,710 employees. Officers and directors own 3.0% of common shares; BlackRock, 11.5% (1/22 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.

It's been a difficult year, thus far, for Spire Inc. (Fiscal 2022 ends on September 30th.) In fact, first-half share net of $4.28 plummeted about 18%, compared to the prior-year tally of $5.20. This stemmed partially from substantially lower profits from the Gas Marketing unit, as fiscal 2021's results enjoyed very favorable market conditions created by extreme weather associated with Winter Storm Uri. Moreover, the Gas Utility division was held back, to a certain extent, by higher operating expenses. So, right now, it seems that full-year share net will plunge more than 20%, to $3.90, relative to fiscal 2021's $4.96 figure. Please be aware that our fiscal 2023 estimate of $4.35 a share is a bit tentative, in part, because of a pending rate case in Missouri. Too, the company is authorized by the Federal Energy Regulatory Commission to operate the key Spire STL Pipeline, temporarily, while it reviews whether permanent approval should be granted. (Leadership expects the process to continue into calendar 2023.)

The Financial Strength rating is B++. When the March period concluded, cash and equivalents resided at $8.3 million.

Furthermore, there was $975 million available through a revolving credit facility maturing in October, 2023. Elsewhere, long-term debt was a manageable 53% of total capital, and short-term borrowings were not a major stumbling block. So, Spire ought to be able to meet its various obligations for a while.

We are optimistic about the company's performance out to 2025-2027. The gas utilities boast 1.7 million customers in Mississippi, Alabama, and Missouri, providing a measure of regional diversity. Also, the other businesses, especially pipelines, hold promise. Additional expansionary projects and technological enhancements in customer service and elsewhere should aid Spire, as well. Finally, acquisitions are plausible, supported by the decent balance sheet.

These good-quality shares offer a solid dividend yield. Steady hikes in the payout appear to be in store during the 3- to 5-year period, too. But recent price strength has diminished long-term capital appreciation potential. Meanwhile, the stock is untimely.

Frederick L. Harris, III   May 27, 2022

(A) Fiscal year ends Sept. 30th. (B) Based on diluted shares outstanding. Excludes nonrecurring loss: '06, 7¢. Excludes gain from discontinued operations: '08, 94¢. Next earnings report due late July. (C) Dividends paid in early January, April, July, and October. ■ Dividend reinvestment plan available. (D) Incl. deferred charges. In '21: $1,171.6 mill., $22.66/sh. (E) In millions. (F) Qtly. 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	45
Earnings Predictability	45

<u>Atmos Energy Corporation</u>
Summary of Risk Premium Models for the
<u>Proxy Group of Six Natural Gas Distribution Companies</u>

	Proxy Group of Six Natural Gas Distribution Companies	Proxy Group of Six Natural Gas Distribution Companies (excl. PRPM)
Predictive Risk Premium Model (PRPM) (1)	11.16 %	NA
Risk Premium Using an Adjusted Total Market Approach (2)	10.81 %	10.73 %
Average	10.99 %	10.73 %

Notes:
(1) From page 2 of this Exhibit.
(2) From page 3 of this Exhibit.

Atmos Energy Corporation
Indicated ROE
Derived by the Predictive Risk Premium Model (1)

Proxy Group of Six Natural Gas Distribution Companies	[1] LT Average Predicted Variance	[2] Spot Predicted Variance	[3] Recommended Variance (2)	[4] GARCH Coefficient	[5] Predicted Risk Premium (3)	[6] Risk-Free Rate (4)	[7] Indicated ROE (5)
Atmos Energy Corporation	0.34%	0.44%	0.39%	2.3358	11.39%	3.51%	14.90%
New Jersey Resources Corporation	0.38%	0.40%	0.39%	2.0838	10.22%	3.51%	13.73%
NiSource Inc.	0.49%	0.64%	0.56%	0.8406	5.81%	3.51%	9.32%
Northwest Natural Holding Company	0.33%	0.41%	0.37%	1.5619	7.11%	3.51%	10.62%
ONE Gas, Inc.	0.33%	0.46%	0.40%	4.0752	NMF	3.51%	NMF
Spire Inc.	0.71%	0.36%	0.53%	0.9628	6.35%	3.51%	9.86%
						Average	11.69%
						Median	10.62%
					Average of Mean and Median		11.16%

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)   Average of the long-term average and spot predicted variance.
(3)   (1+(Column [3] * Column [4]) $^{\wedge 12}$) - 1.
(4)   From note 2 on page 2 of Exhibit DWD-4
(5)   Column [5] + Column [6].

<u>Atmos Energy Corporation</u>
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
<u>Using an Adjusted Total Market Approach</u>

Line No.		Proxy Group of Six Natural Gas Distribution Companies	Proxy Group of Six Natural Gas Distribution Companies (excl. PRPM)
1.	Prospective Yield on Aaa Rated Corporate Bonds (1)	4.73 %	4.73 %
2.	Adjustment to Reflect Yield Spread Between Aaa Rated Corporate Bonds and A2 Rated Public Utility Bonds	0.57 (2)	0.57 (2)
3.	Adjusted Prospective Yield on A2 Rated Public Utility Bonds	5.30 %	5.30 %
4.	Equity Risk Premium (3)	5.51	5.43
5.	Risk Premium Derived Common Equity Cost Rate	10.81 %	10.73 %

Notes: (1) Consensus forecast of Moody's Aaa Rated Corporate bonds from Blue Chip Financial Forecasts (see pages 10 and 11 of this Exhibit).

(2) The average yield spread of A2 rated public utility bonds over Aaa rated corporate bonds of 0.57% from page 4 of this Exhibit.

(3) From page 7 of this Exhibit.

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]
	Aaa Rated Corporate Bond	Aa Rated Public Utility Bond	A2 Rated Public Utility Bond	Baa2 Rated Public Utility Bond
May-2022	4.13 %	4.55 %	4.75 %	5.07 %
Apr-2022	3.75	4.09	4.30	4.60
Mar-2022	3.43	3.81	3.98	4.28
Average	3.77 %	4.15 %	4.34 %	4.65 %

Selected Bond Spreads

A2 Rated Public Utility Bonds Over Aaa Rated Corporate Bonds:

0.57 % (1)

Baa2 Rated Public Utility Bonds Over A2 Rated Public Utility Bonds:

0.31 % (2)

A2 Rated Public Utility Bonds Over Aa2 Rated Public Utility Bonds:

0.19 % (3)

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 Six Natural Gas Distribution Companies

	Moody's Long-Term Issuer Rating May 2022		Standard & Poor's Long-Term Issuer Rating May 2022	
Proxy Group of Six Natural Gas Distribution Companies	Long-Term Issuer Rating (1)	Numerical Weighting (2)	Long-Term Issuer Rating (1)	Numerical Weighting (2)
Atmos Energy Corporation	A1	5.0	A-	7.0
New Jersey Resources Corporation	A1	5.0	NR	- -
NiSource Inc.	Baa1	8.0	BBB+	8.0
Northwest Natural Holding Company	Baa1	8.0	A+	5.0
ONE Gas, Inc.	A3	7.0	BBB+	8.0
Spire Inc.	A1/A2	5.5	A-	7.0
Average	A2	6.4	A-	7.0

Notes:

(1) Ratings are that of the average of each company's utility operating subsidiaries.
(2) From page 6 of this Exhibit.

Source Information: Moody's Investors Service
Standard & Poor's Global Utilities Rating Service

Numerical Assignment for
Moody's and Standard & Poor's Bond Ratings

Moody's Bond Rating	Numerical Bond Weighting	Standard & Poor's Bond Rating
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 Six Natural Gas Distribution Companies

Line No.		Proxy Group of Six Natural Gas Distribution Companies	Proxy Group of Six Natural Gas Distribution Companies (excl. PRPM)
1.	Calculated equity risk premium based on the total market using the beta approach (1)	6.48 %	6.44 %
2.	Mean equity risk premium based on a study using the holding period returns of public utilities with A rated bonds (2)	5.05	4.85
3.	Predicted Equity Risk Premium Based on Regression Analysis of 810 Fully-Litigated Natural Gas Utility Rate Cases (3)	5.00	5.00
4.	Average equity risk premium	5.51 %	5.43 %

Notes: (1) From page 8 of this Exhibit.
(2) From page 12 of this Exhibit.
(3) From page 13 of this Exhibit.

Atmos Energy Corporation
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for the
Proxy Group of Six Natural Gas Distribution Companies

Line No.	Equity Risk Premium Measure	Proxy Group of Six Natural Gas Distribution Companies	Proxy Group of Six Natural Gas Distribution Companies (excl. PRPM)
1.	Ibbotson Equity Risk Premium (1)	6.13 %	6.13 %
2.	Regression on Ibbotson Risk Premium Data (2)	7.67	7.67
3.	Ibbotson Equity Risk Premium based on PRPM (3)	8.79	NA
4.	Equity Risk Premium Based on Value Line Summary and Index (4)	9.37	9.37
5.	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	11.56	11.56
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	7.62	7.62
7.	Conclusion of Equity Risk Premium	8.52 %	8.47 %
8.	Adjusted Beta (7)	0.76	0.76
9.	Forecasted Equity Risk Premium	6.48 %	6.44 %

Notes provided on page 9 of this Exhibit.

Atmos Energy Corporation
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for the
Proxy Group of Six Natural Gas Distribution Companies

Notes:

(1) Based on the arithmetic mean historical monthly returns on large company common stocks from Ibbotson® SBBI® 2022 Market Report minus the arithmetic mean monthly yield of Moody's average Aaa and Aa corporate bonds from 1928-2021.

(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 Aa2 rated corporate bond yields from 1928-2021 referenced in Note 1 above. Using the equation generated from the regression, an expected equity risk premium is calculated using the average consensus forecast of Aaa corporate bonds of 4.73% (from page 3 of this Exhibit).

(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 May 2022.

(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 4.73% (from page 3 of this Exhibit) from the projected 3-5 year total annual market return of 14.10% (described fully in note 1 on page 2 of Exhibit DWD-4).

(5) Using data from Value Line for the S&P 500, an expected total return of 16.29% 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 4.73% results in an expected equity risk premium of 11.56%.

(6) Using data from the Bloomberg Professional Service for the S&P 500, an expected total return of 12.35% 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 4.73% results in an expected equity risk premium of 7.62%.

(7) Average of mean and median beta from Exhibit DWD-4.

Sources of Information:

Stocks, Bonds, Bills, and Inflation - 2022 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, 2022
Bloomberg Professional Service

Consensus Forecasts of U.S. Interest Rates and Key Assumptions

	------History------				---Average For Month---				Consensus Forecasts-Quarterly Avg.					
	------Average For Week Ending------							*Latest Qtr*	2Q	3Q	4Q	1Q	2Q	3Q
Interest Rates	May 20	May 13	May 6	Apr 29	Apr	Mar	Feb	1Q 2022	2022	2022	2022	2023	2023	2023
Federal Funds Rate	0.83	0.83	0.33	0.33	0.33	0.20	0.08	0.12	1.0	1.9	2.4	2.8	3.0	3.1
Prime Rate	4.00	4.00	3.50	3.50	3.50	3.37	3.25	3.29	4.0	5.0	5.5	5.9	6.1	6.2
SOFR	0.79	0.78	0.49	0.28	0.29	0.16	0.05	0.09	0.9	1.8	2.3	2.7	2.9	3.0
Commercial Paper, 1-mo.	0.83	0.82	0.71	0.55	0.44	0.32	0.16	0.18	0.9	1.8	2.4	2.8	3.0	3.0
Treasury bill, 3-mo.	1.05	0.94	0.88	0.85	0.76	0.45	0.31	0.30	1.1	1.9	2.4	2.7	2.9	3.0
Treasury bill, 6-mo.	1.54	1.44	1.43	1.40	1.26	0.86	0.64	0.61	1.5	2.2	2.6	2.9	3.1	3.1
Treasury bill, 1 yr.	2.11	2.00	2.10	2.03	1.89	1.34	1.00	0.96	2.0	2.6	2.9	3.1	3.2	3.2
Treasury note, 2 yr.	2.64	2.61	2.72	2.62	2.54	1.91	1.44	1.44	2.6	2.9	3.1	3.2	3.3	3.2
Treasury note, 5 yr.	2.86	2.89	3.00	2.84	2.78	2.11	1.81	1.82	2.8	3.1	3.2	3.3	3.4	3.4
Treasury note, 10 yr.	2.87	2.94	3.01	2.83	2.75	2.13	1.93	1.94	2.9	3.1	3.2	3.3	3.4	3.4
Treasury note, 30 yr.	3.07	3.09	3.10	2.91	2.81	2.41	2.25	2.25	3.0	3.3	3.4	3.5	3.6	3.6
Corporate Aaa bond	4.43	4.42	4.40	4.19	4.01	3.63	3.36	3.35	4.1	4.5	4.7	4.8	4.9	4.9
Corporate Baa bond	5.13	5.10	5.06	4.84	4.63	4.23	3.92	3.90	5.0	5.4	5.6	5.7	5.8	5.8
State & Local bonds	4.09	4.03	3.93	3.84	3.70	3.30	3.01	3.02	3.5	3.8	4.0	4.1	4.2	4.2
Home mortgage rate	5.25	5.30	5.27	5.10	4.98	4.17	3.76	3.79	5.1	5.3	5.5	5.6	5.6	5.5

	------History------								Consensus Forecasts-Quarterly					
	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
Key Assumptions	2020	2020	2020	2021	2021	2021	2021	2022	2022	2022	2022	2023	2023	2023
Fed's AFE $ Index	112.4	107.2	105.1	103.4	102.9	105.0	107.0	108.4	112.7	113.9	114.1	114.0	113.6	112.9
Real GDP	-31.2	33.8	4.5	6.3	6.7	2.3	6.9	-1.5	2.9	2.5	2.2	1.8	1.6	1.6
GDP Price Index	-1.5	3.6	2.2	4.3	6.1	6.0	7.1	8.1	5.9	4.6	3.5	3.1	2.8	2.7
Consumer Price Index	-3.4	4.8	2.2	4.1	8.2	6.7	7.9	9.2	7.6	4.8	3.4	3.0	2.6	2.6
PCE Price Index	-1.6	3.7	1.5	3.8	6.5	5.3	6.4	7.0	5.8	4.3	3.2	2.8	2.6	2.5

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 May 20, 2022 & Year Ago vs.
2Q 2022 & 3Q 2023
Consensus Forecasts
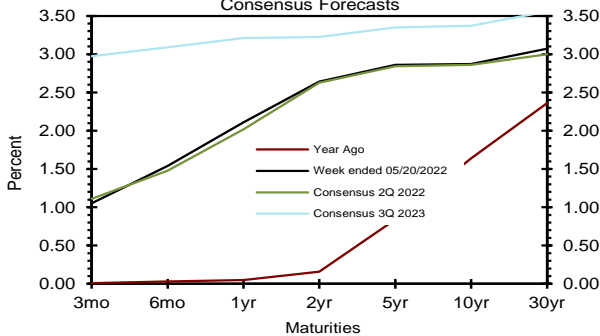
US 3-Mo T-Bills & 10-Yr T-Note Yield
(Quarterly Average)
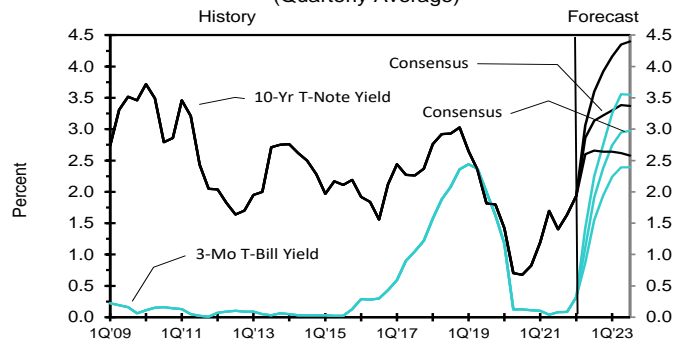
Corporate Bond Spreads
As of week ended May 20, 2022
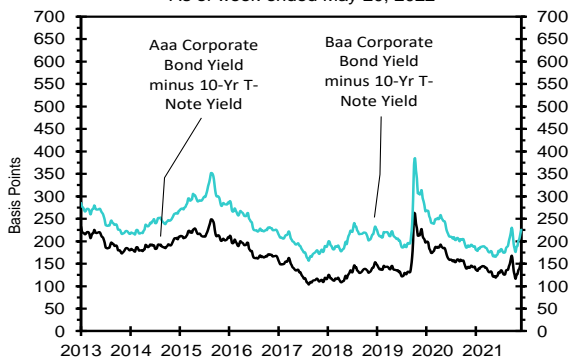
U.S. Treasury Yield Curve
As of week ended May 20, 2022
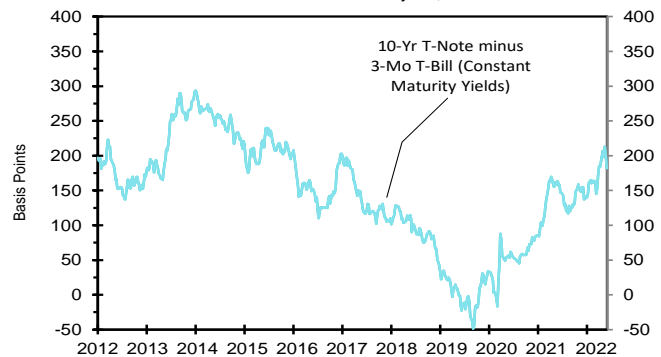
Long-Range Survey:

The table below contains the results of our twice-annual long-range CONSENSUS survey. There are also Top 10 and Bottom 10 averages for each variable. Shown are consensus estimates for the years 2023 through 2028 and averages for the five-year periods 2024-2028 and 2029-2033. Apply these projections cautiously. Few if any economic, demographic and political forces can be evaluated accurately over such long time spans.

		------------------------ Average For The Year ------------------------						Five-Year Averages	
		2023	2024	2025	2026	2027	2028	2024-2028	2029-2033
1. Federal Funds Rate	CONSENSUS	3.0	2.7	2.5	2.5	2.5	2.5	2.6	2.5
	Top 10 Average	3.5	3.3	3.0	2.8	2.8	2.8	3.0	2.8
	Bottom 10 Average	2.6	2.1	2.0	2.2	2.2	2.2	2.2	2.1
2. Prime Rate	CONSENSUS	6.1	5.9	5.7	5.6	5.6	5.6	5.7	5.6
	Top 10 Average	6.6	6.4	6.1	6.0	6.0	6.0	6.1	5.9
	Bottom 10 Average	5.6	5.3	5.2	5.3	5.3	5.3	5.3	5.2
3. SOFR	CONSENSUS	3.0	2.8	2.5	2.5	2.5	2.5	2.6	2.5
	Top 10 Average	3.4	3.3	3.0	2.9	2.8	2.8	3.0	2.8
	Bottom 10 Average	2.7	2.2	2.0	2.2	2.2	2.2	2.2	2.1
4. Commercial Paper, 1-Mo	CONSENSUS	3.2	2.9	2.6	2.6	2.6	2.6	2.7	2.6
	Top 10 Average	3.5	3.4	3.1	2.9	2.9	2.9	3.0	2.9
	Bottom 10 Average	2.8	2.5	2.3	2.4	2.4	2.3	2.3	2.3
5. Treasury Bill Yield, 3-Mo	CONSENSUS	3.0	2.8	2.6	2.6	2.6	2.5	2.6	2.5
	Top 10 Average	3.6	3.4	3.1	3.1	3.0	2.9	3.1	2.9
	Bottom 10 Average	2.5	2.2	2.0	2.1	2.2	2.2	2.1	2.2
6. Treasury Bill Yield, 6-Mo	CONSENSUS	3.2	2.9	2.7	2.7	2.7	2.6	2.7	2.6
	Top 10 Average	3.8	3.6	3.2	3.2	3.1	3.0	3.2	3.0
	Bottom 10 Average	2.6	2.2	2.1	2.2	2.3	2.3	2.2	2.3
7. Treasury Bill Yield, 1-Yr	CONSENSUS	3.2	3.0	2.9	2.9	2.8	2.8	2.9	2.8
	Top 10 Average	3.9	3.8	3.5	3.4	3.3	3.2	3.4	3.2
	Bottom 10 Average	2.6	2.4	2.2	2.4	2.4	2.4	2.3	2.4
8. Treasury Note Yield, 2-Yr	CONSENSUS	3.4	3.2	3.1	3.1	3.0	3.0	3.1	3.0
	Top 10 Average	4.3	4.1	3.8	3.6	3.5	3.5	3.7	3.5
	Bottom 10 Average	2.7	2.4	2.3	2.5	2.6	2.5	2.4	2.5
9. Treasury Note Yield, 5-Yr	CONSENSUS	3.5	3.4	3.3	3.3	3.3	3.2	3.3	3.3
	Top 10 Average	4.3	4.2	4.1	3.9	3.8	3.8	3.9	3.8
	Bottom 10 Average	2.8	2.6	2.5	2.7	2.7	2.7	2.6	2.8
10. Treasury Note Yield, 10-Yr	CONSENSUS	3.5	3.5	3.4	3.5	3.5	3.4	3.5	3.5
	Top 10 Average	4.4	4.4	4.2	4.2	4.1	4.1	4.2	4.1
	Bottom 10 Average	2.8	2.5	2.6	2.9	2.9	2.8	2.7	2.8
11. Treasury Bond Yield, 30-Yr	CONSENSUS	3.8	3.8	3.8	3.9	3.8	3.8	3.8	3.9
	Top 10 Average	4.6	4.7	4.5	4.5	4.4	4.5	4.5	4.5
	Bottom 10 Average	3.0	2.9	3.0	3.3	3.2	3.2	3.1	3.2
12. Corporate Aaa Bond Yield	CONSENSUS	5.0	5.0	4.9	5.0	5.0	4.9	4.9	5.0
	Top 10 Average	5.7	5.7	5.6	5.5	5.5	5.5	5.5	5.6
	Bottom 10 Average	4.4	4.2	4.3	4.4	4.4	4.4	4.3	4.4
13. Corporate Baa Bond Yield	CONSENSUS	6.0	5.9	5.8	5.9	5.9	5.9	5.9	5.9
	Top 10 Average	6.6	6.6	6.4	6.3	6.3	6.3	6.4	6.4
	Bottom 10 Average	5.4	5.3	5.2	5.4	5.4	5.4	5.3	5.4
14. State & Local Bonds Yield	CONSENSUS	4.3	4.3	4.2	4.3	4.3	4.3	4.3	4.3
	Top 10 Average	5.0	5.0	4.8	4.8	4.7	4.7	4.8	4.8
	Bottom 10 Average	3.7	3.7	3.7	3.9	3.9	3.9	3.8	3.9
15. Home Mortgage Rate	CONSENSUS	5.7	5.5	5.4	5.4	5.4	5.4	5.4	5.4
	Top 10 Average	6.4	6.4	6.1	6.0	6.0	6.0	6.1	6.0
	Bottom 10 Average	4.9	4.7	4.6	4.8	4.8	4.8	4.7	4.8
A. Fed's AFE Nominal $ Index	CONSENSUS	113.8	112.8	111.9	111.0	110.6	110.4	111.3	109.8
	Top 10 Average	115.6	114.7	114.0	113.4	113.1	112.8	113.6	112.7
	Bottom 10 Average	112.2	111.0	109.9	108.8	108.2	107.9	109.2	107.4

		--------------------- Year-Over-Year, % Change ---------------------						Five-Year Averages	
		2023	2024	2025	2026	2027	2028	2024-2028	2029-2033
B. Real GDP	CONSENSUS	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0
	Top 10 Average	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.3
	Bottom 10 Average	1.5	1.5	1.8	1.8	1.8	1.8	1.7	1.8
C. GDP Chained Price Index	CONSENSUS	3.0	2.4	2.3	2.3	2.2	2.2	2.3	2.2
	Top 10 Average	3.7	2.8	2.7	2.6	2.6	2.6	2.7	2.6
	Bottom 10 Average	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9
D. Consumer Price Index	CONSENSUS	3.2	2.4	2.4	2.4	2.3	2.3	2.4	2.3
	Top 10 Average	4.1	3.0	2.9	2.8	2.7	2.7	2.8	2.7
	Bottom 10 Average	2.3	1.8	2.0	2.0	1.9	1.9	1.9	1.9
E. PCE Price Index	CONSENSUS	3.0	2.3	2.3	2.3	2.3	2.2	2.3	2.3
	Top 10 Average	3.8	2.8	2.8	2.7	2.7	2.6	2.7	2.7
	Bottom 10 Average	2.2	1.8	1.9	1.9	1.9	1.8	1.9	1.9

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

Line No.	Equity Risk Premium Measure	Implied Equity Risk Premium	Implied Equity Risk Premium ex PRPM
1.	Historical Equity Risk Premium (1)	4.28 %	4.28 %
2.	Regression of Historical Equity Risk Premium (2)	5.28	5.28
3.	Forecasted Equity Risk Premium Based on PRPM (3)	5.85	NA
4.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Value Line Data) (4)	5.28	5.28
5.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Bloomberg Data) (5)	4.58	4.58
6.	Average Equity Risk Premium (6)	5.05 %	4.85 %

Notes: (1) Based on S&P Public Utility Index monthly total returns and Moody's Public Utility Bond average monthly yields from 1928-2021. 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 - 2021 referenced in note 1 above. Using the equation generated from the regression, an expected equity risk premium is calculated using the prospective A2 rated public utility bond yield of 5.30% (from line 3, page 3 of this Exhibit).

(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 - May 2022.

(4) Using data from Value Line for the S&P Utilities Index, an expected return of 10.58% 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 5.30%, calculated on line 3 of page 3 of this Exhibit results in an equity risk premium of 5.28%. (10.58% - 5.30% = 5.28%)

(5) Using data from Bloomberg Professional Service for the S&P Utilities Index, an expected return of 9.88% 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 5.30%, calculated on line 3 of page 3 of this Exhibit results in an equity risk premium of 4.58%. (9.88% - 5.30% = 4.58%)

(6) Average of lines 1 through 5.

Atmos Energy Corporation
Prediction of Equity Risk Premiums Relative to
Moody's A2 Rated Utility Bond Yields

$y = -0.4879x + 7.5895$
$R^2 = 0.8747$
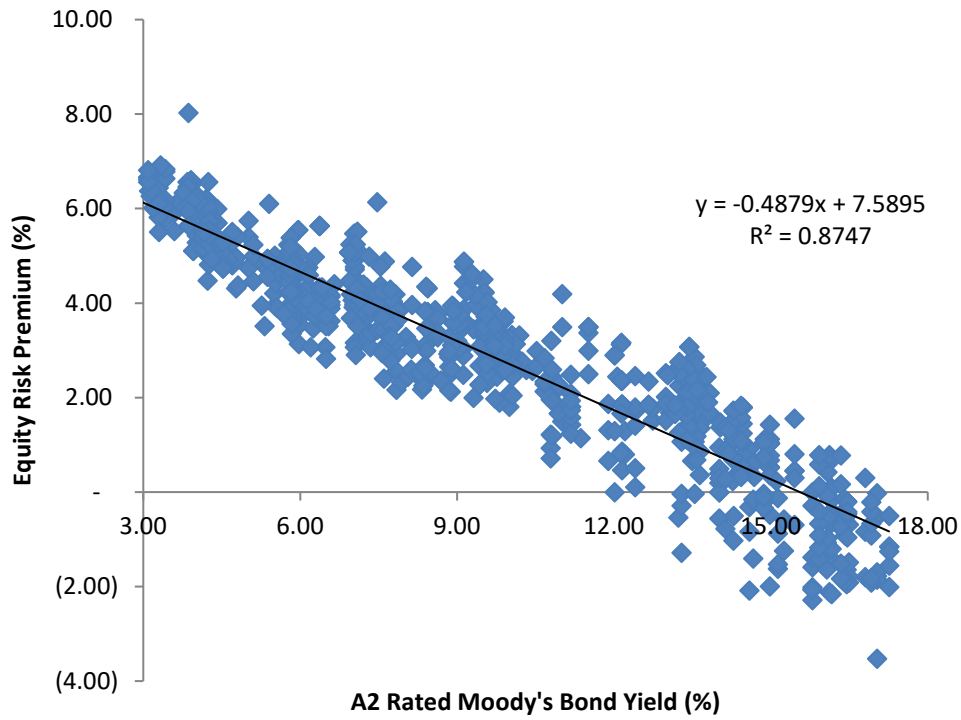
Constant	Slope	Prospective A2 Rated Utility Bond (1)	Prospective Equity Risk Premium
7.5895 %	-0.4879	5.30 %	5.00 %

Notes:

(1)   From line 3 of page 3 of this Exhibit.

Source of Information: Regulatory Research Associates

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)

Proxy Group of Six Natural Gas Distribution Companies	[1] Value Line Adjusted Beta	[2] Bloomberg Adjusted Beta	[3] Average Beta	[4] Market Risk Premium (1)	[5] Risk-Free Rate (2)	[6] Traditional CAPM Cost Rate	[7] ECAPM Cost Rate	[8] Indicated Common Equity Cost Rate (4)
Atmos Energy Corporation	0.80	0.67	0.74	9.76 %	3.51 %	10.73 %	11.37 %	11.05 %
New Jersey Resources Corporation	0.95	0.73	0.84	9.76	3.51	11.71	12.10	11.90
NiSource Inc.	0.85	0.64	0.75	9.76	3.51	10.83	11.44	11.13
Northwest Natural Holding Company	0.80	0.63	0.71	9.76	3.51	10.44	11.15	10.79
ONE Gas, Inc.	0.80	0.69	0.74	9.76	3.51	10.73	11.37	11.05
Spire Inc.	0.80	0.70	0.75	9.76	3.51	10.83	11.44	11.13
Mean			0.76			10.88 %	11.48 %	11.18 %
Median			0.75			10.78 %	11.40 %	11.09 %
Average of Mean and Median			0.76			10.83 %	11.44 %	11.14 %

Results Excluding the PRPM MRP

Proxy Group of Six Natural Gas Distribution Companies	[1] Value Line Adjusted Beta	[2] Bloomberg Adjusted Beta	[3] Average Beta	[4] Market Risk Premium (1)	[5] Risk-Free Rate (2)	[6] Traditional CAPM Cost Rate	[7] ECAPM Cost Rate	[8] Indicated Common Equity Cost Rate (4)
Atmos Energy Corporation	0.80	0.67	0.74	9.74	3.51	10.72 %	11.35 %	11.04 %
New Jersey Resources Corporation	0.95	0.73	0.84	9.74	3.51	11.69	12.08	11.89
NiSource Inc.	0.85	0.64	0.75	9.74	3.51	10.82	11.43	11.12
Northwest Natural Holding Company	0.80	0.63	0.71	9.74	3.51	10.43	11.13	10.78
ONE Gas, Inc.	0.80	0.69	0.74	9.74	3.51	10.72	11.35	11.04
Spire Inc.	0.80	0.70	0.75	9.74	3.51	10.82	11.43	11.12
Mean			0.76			10.87 %	11.46 %	11.17 %
Median			0.75			10.77 %	11.39 %	11.08 %
Average of Mean and Median			0.76			10.82 %	11.43 %	11.13 %

Notes on page 2 of this Exhibit.

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 (1926-2021)

Arithmetic Mean Monthly Returns for Large Stocks 1926-2021:	12.37	%
Arithmetic Mean Income Returns on Long-Term Government Bonds:	5.02	
MRP based on Ibbotson Historical Data:	7.35	%

Measure 2: Application of a Regression Analysis to Ibbotson Historical Data
(1926-2021)   9.15 %

Measure 3: Application of the PRPM to Ibbotson Historical Data:
(January 1926 - May 2022)   9.84 %

Value Line MRP Estimates:

Measure 4: Value Line Projected MRP (Thirteen weeks ending June 03, 2022)

Total projected return on the market 3-5 years hence*:	14.10	%
Projected Risk-Free Rate (see note 2):	3.51	
MRP based on Value Line Summary & Index:	10.59	%

*Forcasted 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:	16.29	%
Projected Risk-Free Rate (see note 2):	3.51	
MRP based on Value Line data	12.78	%

Measure 6: Bloomberg Projected MRP

Total return on the Market based on the S&P 500:	12.35	%
Projected Risk-Free Rate (see note 2):	3.51	
MRP based on Bloomberg data	8.84	%

Average of Value Line, Ibbotson, and Bloomberg MRP:	9.76	%
Average MRP Excluding the PRPM MRP:	9.74	%

(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 10 and 11 of Exhibit DWD-3.) The projection of the risk-free rate is illustrated below:

Second Quarter 2022	3.00	%
Third Quarter 2022	3.30	
Fourth Quarter 2022	3.40	
First Quarter 2023	3.50	
Second Quarter 2023	3.60	
Third Quarter 2023	3.60	
2024-2028	3.80	
2029-2033	3.90	
	3.51	%

(3) Average of Column 6 and Column 7.

Sources of Information:
Value Line Summary and Index
Blue Chip Financial Forecasts, June 1, 2022
Stocks, Bonds, Bills, and Inflation - 2022 SBBI Yearbook, John Wiley & Sons, Inc.
Bloomberg Professional Services

<u>Atmos Energy Corporation</u>
Basis of Selection of the Group of Non-Price Regulated Companies
<u>Comparable in Total Risk to the Utility Proxy Group</u>

The criteria for selection of the Non-Price Regulated Proxy Group was that the non-price regulated companies be domestic and reported in <u>Value Line Investment Survey</u> (Standard Edition).

The Non-Price Regulated Proxy Group companies were then selected based on the unadjusted beta range of 0.59 – 0.87 and residual standard error of the regression range of 2.5562 – 3.0486 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 Gas Utility Proxy Group's residual standard error of the regression is 0.1231. 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

$$\text{Thus, } 0.1231 = \frac{2.8024}{\sqrt{518}} = \frac{2.8024}{22.7596}$$

Source of Information: Value Line, Inc., March 2022
                         <u>Value Line Investment Survey</u> (Standard Edition)

Atmos Energy Corporation
Basis of Selection of Comparable Risk
Domestic Non-Price Regulated Companies

Proxy Group of Six Natural Gas Distribution Companies	[1] Value Line Adjusted Beta	[2] Unadjusted Beta	[3] Residual Standard Error of the Regression	[4] Standard Deviation of Beta
Atmos Energy Corporation	0.80	0.68	2.7298	0.0675
New Jersey Resources Corporation	1.00	0.92	2.9340	0.0726
NiSource Inc.	0.85	0.71	2.4700	0.0611
Northwest Natural Holding Company	0.80	0.69	3.1119	0.0770
ONE Gas, Inc.	0.80	0.66	2.7138	0.0671
Spire Inc.	0.85	0.71	2.8551	0.0706
Average	0.85	0.73	2.8024	0.0693

Beta Range (+/- 2 std. Devs. of Beta)	0.59	0.87		
2 std. Devs. of Beta	0.14			
Residual Std. Err. Range (+/- 2 std. Devs. of the Residual Std. Err.)	2.5562	3.0486		
Std. dev. of the Res. Std. Err.	0.1231			
2 std. devs. of the Res. Std. Err.	0.2462			

Source of Information: Valueline Proprietary Database, March 2022

Atmos Energy Corporation
Proxy Group of Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Six Natural Gas Distribution Companies

Proxy Group of Thirty-Eight Non-Price Regulated Companies	[1] Value Line Adjusted Beta	[2] Unadjusted Beta	[3] Residual Standard Error of the Regression	[4] Standard Deviation of Beta
Agilent Technologies	0.90	0.78	2.7005	0.0668
Abbott Labs.	0.90	0.82	2.8039	0.0694
Assurant Inc.	0.90	0.84	2.7387	0.0677
Smith (A.O.)	0.85	0.77	2.8592	0.0707
Air Products & Chem.	0.90	0.79	2.6168	0.0647
Becton, Dickinson	0.75	0.60	2.8626	0.0708
Brown-Forman 'B'	0.90	0.80	2.7317	0.0676
Black Knight, Inc.	0.75	0.60	2.6932	0.0666
Bristol-Myers Squibb	0.85	0.75	2.9154	0.0721
Broadridge Fin'l	0.85	0.73	2.7513	0.0681
CACI Int'l	0.90	0.84	2.8642	0.0709
Cerner Corp.	0.90	0.80	2.6984	0.0667
Chemed Corp.	0.85	0.70	2.8432	0.0703
CSW Industrials	0.90	0.80	2.8686	0.0710
Exponent, Inc.	0.90	0.79	3.0005	0.0742
Ingredion Inc.	0.95	0.85	2.7688	0.0685
J&J Snack Foods	0.95	0.86	3.0009	0.0742
Henry (Jack) & Assoc	0.85	0.70	2.9159	0.0721
McCormick & Co.	0.80	0.65	2.8247	0.0699
Monster Beverage	0.85	0.75	2.9659	0.0734
Altria Group	0.95	0.86	3.0325	0.0750
Merck & Co.	0.80	0.63	2.8110	0.0695
Motorola Solutions	0.90	0.79	2.6488	0.0655
NewMarket Corp.	0.75	0.60	2.7398	0.0678
Northrop Grumman	0.85	0.75	2.9830	0.0738
Old Dominion Freight	0.95	0.86	2.9874	0.0739
Oracle Corp.	0.75	0.61	2.8406	0.0703
Pfizer, Inc.	0.80	0.65	2.6589	0.0658
Progressive Corp.	0.75	0.59	2.9344	0.0726
RLI Corp.	0.80	0.65	2.8568	0.0707
Selective Ins. Group	0.90	0.81	2.9172	0.0722
Sirius XM Holdings	0.95	0.85	2.9761	0.0736
Sensient Techn.	0.90	0.82	2.6687	0.0660
Thermo Fisher Sci.	0.85	0.70	2.6150	0.0647
Texas Instruments	0.85	0.76	2.6869	0.0665
VeriSign Inc.	0.90	0.79	2.6081	0.0645
Watsco, Inc.	0.85	0.74	2.6836	0.0664
Western Union	0.80	0.64	2.8493	0.0705
Average	0.86	0.75	2.8138	0.0696
Proxy Group of Six Natural Gas Distribution Companies	0.85	0.73	2.8024	0.0693

Source of Information: Valueline Proprietary Database, March 2022

Atmos Energy Corporation
Summary of Cost of Equity Models Applied to
Proxy Group of Thirty-Eight Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Six Natural Gas Distribution Companies

Principal Methods	Proxy Group of Thirty-Eight Non-Price Regulated Companies		Proxy Group of Thirty-Eight Non-Price Regulated Companies (excl. PRPM)	
Discounted Cash Flow Model (DCF) (1)	11.92 %		11.92 %	
Risk Premium Model (RPM) (2)	12.65		12.60	
Capital Asset Pricing Model (CAPM)	11.84	(3)	11.83	(4)
Mean	12.14 %		12.12 %	
Median	11.92 %		11.92 %	
Average of Mean and Median	12.03 %		12.02 %	

Notes:
  (1) From page 2 of this Exhibit.
  (2) From page 3 of this Exhibit.
  (3) From page 6 of this Exhibit.
  (4) From page 7 of this Exhibit.

Atmos Energy Corporation
DCF Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Six Natural Gas Distribution Companies

	[1]	[2]	[3]	[5]	[6]	[7]	[8]
Proxy Group of Thirty-Eight Non-Price Regulated Companies	Average Dividend Yield	Value Line Projected Five Year Growth in EPS	Zack'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)
Agilent Technologies	0.66 %	11.50 %	10.00 %	13.98 %	11.83 %	0.70 %	12.53 %
Abbott Labs.	1.61	8.00	7.80	11.53	9.11	1.68	10.79
Assurant Inc.	1.50	15.50	17.20	17.20	16.63	1.62	18.25
Smith (A.O.)	1.77	11.50	9.00	8.00	9.50	1.85	11.35
Air Products & Chem.	2.71	12.00	13.10	12.13	12.41	2.88	15.29
Becton, Dickinson	1.35	5.50	5.40	4.85	5.25	1.39	6.64
Brown-Forman 'B'	1.14	12.00	NA	7.01	9.51	1.19	10.70
Black Knight, Inc.	-	9.50	9.60	11.23	10.11	-	NA
Bristol-Myers Squibb	2.90	NMF	6.20	4.43	5.32	2.98	8.30
Broadridge Fin'l	1.73	9.00	NA	11.80	10.40	1.82	12.22
CACI Int'l	-	7.00	4.10	2.40	4.50	-	NA
Cerner Corp.	1.15	9.50	12.80	13.30	11.87	1.22	13.09
Chemed Corp.	0.29	7.00	8.50	7.00	7.50	0.30	7.80
CSW Industrials	0.61	12.00	NA	12.00	12.00	0.65	12.65
Exponent, Inc.	0.98	9.50	NA	15.00	12.25	1.04	13.29
Ingredion Inc.	2.94	8.00	NA	7.72	7.86	3.06	10.92
J&J Snack Foods	1.75	8.50	NA	6.00	7.25	1.81	9.06
Henry (Jack) & Assoc	1.03	9.00	9.00	14.00	10.67	1.08	11.75
McCormick & Co.	1.50	6.00	6.10	6.95	6.35	1.55	7.90
Monster Beverage	-	11.50	15.70	14.58	13.93	-	NA
Altria Group	6.74	5.50	4.00	5.51	5.00	6.91	11.91
Merck & Co.	3.23	8.00	10.10	11.62	9.91	3.39	13.30
Motorola Solutions	1.41	8.00	9.00	14.27	10.42	1.48	11.90
NewMarket Corp.	2.55	(0.50)	NA	7.70	7.70	2.65	10.35
Northrop Grumman	1.53	7.50	6.10	6.10	6.57	1.58	8.15
Old Dominion Freight	0.43	10.50	17.30	25.56	17.79	0.47	18.26
Oracle Corp.	1.67	9.00	8.00	10.24	9.08	1.75	10.83
Pfizer, Inc.	3.12	6.50	12.50	(0.80)	9.50	3.27	12.77
Progressive Corp.	0.36	4.50	17.30	30.32	17.37	0.39	17.76
RLI Corp.	0.92	12.00	NA	9.80	10.90	0.97	11.87
Selective Ins. Group	1.34	11.00	3.00	13.40	9.13	1.40	10.53
Sirius XM Holdings	1.39	32.50	9.70	9.75	17.32	1.51	18.83
Sensient Techn.	1.98	2.50	NA	3.80	3.15	2.01	5.16
Thermo Fisher Sci.	0.21	10.00	13.00	8.70	10.57	0.22	10.79
Texas Instruments	2.64	8.50	9.30	10.00	9.27	2.76	12.03
VeriSign Inc.	-	11.00	NA	8.00	9.50	-	NA
Watsco, Inc.	3.14	11.00	NA	15.00	13.00	3.34	16.34
Western Union	5.20	8.00	NA	6.84	7.42	5.39	12.81

Mean	11.94	%
Median	11.89	%
Average of Mean and Median	11.92	%

NA= Not Available
NMF= Not Meaningful Figure

(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 May 31, 2022. 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, 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 05/31/2022
www.yahoo.com Downloaded on 05/31/2022

Atmos Energy Corporation
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

Line No.		Proxy Group of Thirty-Eight Non-Price Regulated Companies	Proxy Group of Thirty-Eight Non-Price Regulated Companies (excl. PRPM)
1.	Prospective Yield on Baa2 Rated Corporate Bonds (1)	5.64 %	5.64 %
2.	Adjustment to Reflect Bond rating Difference of Non-Price Regulated Companies (2)	(0.15)	(0.15)
3.	Adjusted Prospective Bond Yield	5.49 %	5.49 %
4.	Equity Risk Premium (3)	7.16	7.11
5.	Risk Premium Derived Common Equity Cost Rate	12.65 %	12.60 %

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, 2022 (see pages 10 and 11 of Exhibit DWD-3). The estimates are detailed below.

Second Quarter 2022	5.00 %
Third Quarter 2022	5.40
Fourth Quarter 2022	5.60
First Quarter 2023	5.70
Second Quarter 2023	5.80
Third Quarter 2023	5.80
2024-2028	5.90
2029-2033	5.90
Average	5.64 %

(2) The average yield spread of Baa rated corporate bonds over A corporate bonds for the three months ending May 2022 . To reflect the Baa1 average rating of the non-utility proxy group, the prosepctive yield on Baa corporate bonds must be adjusted by 1/3 of the spread between A and Baa corporate bond yields as shown below:

	A Corp. Bond Yield	Baa Corp. Bond Yield	Spread
May-22	4.65 %	5.12 %	0.47 %
Apr-22	4.21	4.64	0.43
Mar-22	3.88	4.29	0.41
Average yield spread			0.44 %
1/3 of spread			0.15 %

(3) From page 5 of this Exhibit.

Atmos Energy Corporation
Comparison of Long-Term Issuer Ratings for the
Proxy Group of Thirty-Eight Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Six Natural Gas Distribution Companies

Proxy Group of Thirty-Eight Non-Price Regulated Companies	Moody's Long-Term Issuer Rating May 2022		Standard & Poor's Long-Term Issuer Rating May 2022	
	Long-Term Issuer Rating	Numerical Weighting (1)	Long-Term Issuer Rating	Numerical Weighting (1)
Agilent Technologies	Baa2	9.0	BBB+	8.0
Abbott Labs.	A1	5.0	AA-	4.0
Assurant Inc.	Baa3	10.0	BBB	9.0
Smith (A.O.)	NA	--	NA	--
Air Products & Chem.	A2	6.0	A	6.0
Becton, Dickinson	Baa3	10.0	BBB	9.0
Brown-Forman 'B'	A1	5.0	A-	7.0
Black Knight, Inc.	Ba3	13.0	BB	12.0
Bristol-Myers Squibb	A2	6.0	A+	5.0
Broadridge Fin'l	Baa1	8.0	BBB+	8.0
CACI Int'l	NA	--	BB+	11.0
Cerner Corp.	NA	--	NA	--
Chemed Corp.	WR	--	NR	--
CSW Industrials	NA	--	NA	--
Exponent, Inc.	NA	--	NA	--
Ingredion Inc.	Baa1	8.0	BBB	9.0
J&J Snack Foods	NA	--	NA	--
Henry (Jack) & Assoc	NA	--	NA	--
McCormick & Co.	Baa2	9.0	BBB	9.0
Monster Beverage	NA	--	NA	--
Altria Group	A3	7.0	BBB	9.0
Merck & Co.	A1	5.0	A+	5.0
Motorola Solutions	Baa3	10.0	BBB-	10.0
NewMarket Corp.	Baa2	9.0	BBB+	8.0
Northrop Grumman	Baa1	8.0	BBB+	8.0
Old Dominion Freight	NA	--	NA	--
Oracle Corp.	Baa2	9.0	BBB+	8.0
Pfizer, Inc.	A2	6.0	A+	5.0
Progressive Corp.	A2	6.0	A	6.0
RLI Corp.	Baa2	9.0	BBB	9.0
Selective Ins. Group	Baa2	9.0	BBB	9.0
Sirius XM Holdings	NA	--	BB	12.0
Sensient Techn.	WR	--	NR	--
Thermo Fisher Sci.	A3	7.0	BBB+	8.0
Texas Instruments	Aa3	4.0	A+	5.0
VeriSign Inc.	Baa3	10.0	BBB	9.0
Watsco, Inc.	NA	--	NA	--
Western Union	Baa2	9.0	BBB	9.0
Average	Baa1	7.9	BBB+	8.0

Notes:
(1) From page 6 of Exhibit DWD-3.

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 Thirty-Eight Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Six Natural Gas Distribution Companies

Line No.	Equity Risk Premium Measure	Proxy Group of Thirty-Eight Non-Price Regulated Companies	Proxy Group of Thirty-Eight Non-Price Regulated Companies (excl. PRPM)
1.	Ibbotson Equity Risk Premium (1)	6.13 %	6.13 %
2.	Regression on Ibbotson Risk Premium Data (2)	7.67	7.67
3.	Ibbotson Equity Risk Premium based on PRPM (3)	8.79	NA
4.	Equity Risk Premium Based on Value Line Summary and Index (4)	9.37	9.37
5	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	11.56	11.56
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	7.62	7.62
7.	Conclusion of Equity Risk Premium	8.52 %	8.47 %
8.	Adjusted Beta (7)	0.84	0.84
9.	Forecasted Equity Risk Premium	7.16 %	7.11 %

Notes:
(1) From note 1 of page 9 of Exhibit DWD-3.
(2) From note 2 of page 9 of Exhibit DWD-3.
(3) From note 3 of page 9 of Exhibit DWD-3.
(4) From note 4 of page 9 of Exhibit DWD-3.
(5) From note 5 of page 9 of Exhibit DWD-3.
(6) From note 6 of page 9 of Exhibit DWD-3.
(7) Average of mean and median beta from page 6 of this Exhibit.

Sources of Information:
Stocks, Bonds, Bills, and Inflation - 2022 SBBI Yearbook, John Wiley & Sons, Inc.
Value Line Summary and Index
Blue Chip Financial Forecasts, June 1, 2022
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 Six Natural Gas Distribution Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Thirty-Eight 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)
Agilent Technologies	0.90	0.99	0.95	9.76 %	3.51 %	12.78 %	12.90 %	12.84 %
Abbott Labs.	0.90	0.76	0.83	9.76	3.51	11.61	12.02	11.82
Assurant Inc.	0.90	0.73	0.82	9.76	3.51	11.51	11.95	11.73
Smith (A.O.)	0.85	1.00	0.93	9.76	3.51	12.59	12.76	12.67
Air Products & Chem.	0.90	0.84	0.87	9.76	3.51	12.00	12.32	12.16
Becton, Dickinson	0.75	0.57	0.66	9.76	3.51	9.95	10.78	10.37
Brown-Forman 'B'	0.90	0.87	0.89	9.76	3.51	12.20	12.46	12.33
Black Knight, Inc.	0.75	0.65	0.70	9.76	3.51	10.34	11.07	10.71
Bristol-Myers Squibb	0.85	0.61	0.73	9.76	3.51	10.63	11.29	10.96
Broadridge Fin'l	0.85	0.87	0.86	9.76	3.51	11.90	12.24	12.07
CACI Int'l	0.90	0.73	0.82	9.76	3.51	11.51	11.95	11.73
Cerner Corp.	0.90	0.62	0.76	9.76	3.51	10.93	11.51	11.22
Chemed Corp.	0.85	0.82	0.83	9.76	3.51	11.61	12.02	11.82
CSW Industrials	0.90	0.90	0.90	9.76	3.51	12.29	12.54	12.41
Exponent, Inc.	0.90	1.07	0.98	9.76	3.51	13.07	13.12	13.10
Ingredion Inc.	0.95	0.71	0.83	9.76	3.51	11.61	12.02	11.82
J&J Snack Foods	0.95	0.71	0.83	9.76	3.51	11.61	12.02	11.82
Henry (Jack) & Assoc	0.85	0.74	0.79	9.76	3.51	11.22	11.73	11.48
McCormick & Co.	0.80	0.65	0.73	9.76	3.51	10.63	11.29	10.96
Monster Beverage	0.85	0.92	0.89	9.76	3.51	12.20	12.46	12.33
Altria Group	0.95	0.80	0.87	9.76	3.51	12.00	12.32	12.16
Merck & Co.	0.80	0.50	0.65	9.76	3.51	9.85	10.71	10.28
Motorola Solutions	0.90	0.95	0.93	9.76	3.51	12.59	12.76	12.67
NewMarket Corp.	0.75	0.58	0.67	9.76	3.51	10.05	10.85	10.45
Northrop Grumman	0.85	0.67	0.76	9.76	3.51	10.93	11.51	11.22
Old Dominion Freight	0.95	1.10	1.03	9.76	3.51	13.56	13.49	13.52
Oracle Corp.	0.75	0.90	0.83	9.76	3.51	11.61	12.02	11.82
Pfizer, Inc.	0.80	0.67	0.73	9.76	3.51	10.63	11.29	10.96
Progressive Corp.	0.75	0.74	0.74	9.76	3.51	10.73	11.37	11.05
RLI Corp.	0.80	0.85	0.83	9.76	3.51	11.61	12.02	11.82
Selective Ins. Group	0.90	0.98	0.94	9.76	3.51	12.68	12.83	12.76
Sirius XM Holdings	0.95	0.80	0.87	9.76	3.51	12.00	12.32	12.16
Sensient Techn.	0.90	0.95	0.92	9.76	3.51	12.49	12.68	12.59
Thermo Fisher Sci.	0.85	0.86	0.86	9.76	3.51	11.90	12.24	12.07
Texas Instruments	0.85	0.93	0.89	9.76	3.51	12.20	12.46	12.33
VeriSign Inc.	0.90	0.91	0.90	9.76	3.51	12.29	12.54	12.41
Watsco, Inc.	0.85	0.91	0.88	9.76	3.51	12.10	12.39	12.24
Western Union	0.80	0.86	0.83	9.76	3.51	11.61	12.02	11.82
		Mean	0.84			11.66 %	12.06 %	11.86 %
		Median	0.83			11.61 %	12.02 %	11.82 %
		Average of Mean and Median	0.84			11.64 %	12.04 %	11.84 %

Notes:
(1) From note 1 of page 2 of Exhibit DWD-4.
(2) From note 2 of page 2 of Exhibit DWD-4.
(3) Average of CAPM and ECAPM cost rates.

Atmos Energy Corporation
Traditional CAPM and ECAPM Results (excluding the PRPM MRP) for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Six Natural Gas Distribution Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Thirty-Eight 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)
Agilent Technologies	0.90	0.99	0.95	9.74 %	3.51 %	12.77 %	12.89 %	12.83 %
Abbott Labs.	0.90	0.76	0.83	9.74	3.51	11.60	12.01	11.80
Assurant Inc.	0.90	0.73	0.82	9.74	3.51	11.50	11.94	11.72
Smith (A.O.)	0.85	1.00	0.93	9.74	3.51	12.57	12.74	12.66
Air Products & Chem.	0.90	0.84	0.87	9.74	3.51	11.99	12.30	12.14
Becton, Dickinson	0.75	0.57	0.66	9.74	3.51	9.94	10.77	10.35
Brown-Forman 'B'	0.90	0.87	0.89	9.74	3.51	12.18	12.45	12.31
Black Knight, Inc.	0.75	0.65	0.70	9.74	3.51	10.33	11.06	10.70
Bristol-Myers Squibb	0.85	0.61	0.73	9.74	3.51	10.62	11.28	10.95
Broadridge Fin'l	0.85	0.87	0.86	9.74	3.51	11.89	12.23	12.06
CACI Int'l	0.90	0.73	0.82	9.74	3.51	11.50	11.94	11.72
Cerner Corp.	0.90	0.62	0.76	9.74	3.51	10.91	11.50	11.21
Chemed Corp.	0.85	0.82	0.83	9.74	3.51	11.60	12.01	11.80
CSW Industrials	0.90	0.90	0.90	9.74	3.51	12.28	12.52	12.40
Exponent, Inc.	0.90	1.07	0.98	9.74	3.51	13.06	13.11	13.08
Ingredion Inc.	0.95	0.71	0.83	9.74	3.51	11.60	12.01	11.80
J&J Snack Foods	0.95	0.71	0.83	9.74	3.51	11.60	12.01	11.80
Henry (Jack) & Assoc	0.85	0.74	0.79	9.74	3.51	11.21	11.72	11.46
McCormick & Co.	0.80	0.65	0.73	9.74	3.51	10.62	11.28	10.95
Monster Beverage	0.85	0.92	0.89	9.74	3.51	12.18	12.45	12.31
Altria Group	0.95	0.80	0.87	9.74	3.51	11.99	12.30	12.14
Merck & Co.	0.80	0.50	0.65	9.74	3.51	9.84	10.70	10.27
Motorola Solutions	0.90	0.95	0.93	9.74	3.51	12.57	12.74	12.66
NewMarket Corp.	0.75	0.58	0.67	9.74	3.51	10.04	10.84	10.44
Northrop Grumman	0.85	0.67	0.76	9.74	3.51	10.91	11.50	11.21
Old Dominion Freight	0.95	1.10	1.03	9.74	3.51	13.54	13.47	13.51
Oracle Corp.	0.75	0.90	0.83	9.74	3.51	11.60	12.01	11.80
Pfizer, Inc.	0.80	0.67	0.73	9.74	3.51	10.62	11.28	10.95
Progressive Corp.	0.75	0.74	0.74	9.74	3.51	10.72	11.35	11.04
RLI Corp.	0.80	0.85	0.83	9.74	3.51	11.60	12.01	11.80
Selective Ins. Group	0.90	0.98	0.94	9.74	3.51	12.67	12.81	12.74
Sirius XM Holdings	0.95	0.80	0.87	9.74	3.51	11.99	12.30	12.14
Sensient Techn.	0.90	0.95	0.92	9.74	3.51	12.47	12.67	12.57
Thermo Fisher Sci.	0.85	0.86	0.86	9.74	3.51	11.89	12.23	12.06
Texas Instruments	0.85	0.93	0.89	9.74	3.51	12.18	12.45	12.31
VeriSign Inc.	0.90	0.91	0.90	9.74	3.51	12.28	12.52	12.40
Watsco, Inc.	0.85	0.91	0.88	9.74	3.51	12.08	12.38	12.23
Western Union	0.80	0.86	0.83	9.74	3.51	11.60	12.01	11.80
Mean			0.84			11.65 %	12.05 %	11.85 %
Median			0.83			11.60 %	12.01 %	11.80 %
Average of Mean and Median			0.84			11.63 %	12.03 %	11.83 %

Notes:
(1) From note 1 of page 2 of Exhibit DWD-4.
(2) From note 2 of page 2 of Exhibit DWD-4.
(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 31, 2022 (1) (millions)	(times larger)	[2] Applicable Decile of the NYSE/AMEX/NASDAQ (2)	[3] Applicable Size Premium (3)	[4] Spread from Applicable Size Premium (4)
1.	Atmos Energy Corporation	$ 609.447		9	2.10%	
2.	Proxy Group of Six Natural Gas Distribution Companies	$ 4,531.075	7.4 x	5	0.89%	1.21%
		[A]		[B]	[C]	[D]

Decile	Market Capitalization of Smallest Company (millions)	Market Capitalization of Largest Company (millions)	Size Premium (Return in Excess of CAPM)*
1 Largest	$ 36,160.584	$ 2,324,390.219	-0.22%
2	16,759.390	36,099.221	0.43%
3	8,216.356	16,738.364	0.55%
4	5,019.883	8,212.638	0.54%
5	3,281.009	5,003.747	0.89%
6	2,170.315	3,276.553	1.18%
7	1,306.402	2,164.524	1.34%
8	629.118	1,306.038	1.21%
9	290.002	627.803	2.10%
10 Smallest	10.588	289.007	4.80%

*From 2022 Duff & Phelps Cost of Capital Navigator

Notes:

(1) From page 2 of this Exhibit.
(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 1.21% in Column [4], Line No. 2 is derived as follows 1.21% = 2.1% - 0.89%.

Atmos Energy Corporation
Market Capitalization of Atmos Energy Corporation and the
Proxy Group of Six Natural Gas Distribution Companies

Company	Exchange	[1] Common Stock Shares Outstanding at Fiscal Year End 2021 (millions)	[2] Book Value per Share at Fiscal Year End 2021 (1)	[3] Total Common Equity at Fiscal Year End 2021 (millions)	[4] Closing Stock Market Price on May 31, 2022	[5] Market-to-Book Ratio on May 31, 2022 (2)	[6] Market Capitalization on May 31, 2022 (3) (millions)
Atmos Energy Corporation		NA	NA	$ 309.836 (4)	NA	196.7 (5) %	$ 609.447 (6)
Based upon Proxy Group of Six Natural Gas Distribution Companies							
Proxy Group of Six Natural Gas Distribution Companies							
Atmos Energy Corporation	NYSE	132.420	$ 59.711	$ 7,906.889	$ 116.310	194.8 %	$ 15,401.742
New Jersey Resources Corporation	NYSE	95.710	17.040	1,630.862	45.920	269.5	4,394.988
NiSource Inc.	NYSE	405.303	13.325	5,400.800	31.450	236.0	12,746.780
Northwest Natural Holding Company	NYSE	31.129	30.041	935.146	54.290	180.7	1,689.993
ONE Gas, Inc.	NYSE	53.633	43.807	2,349.532	87.020	198.6	4,667.162
Spire Inc.	NYSE	51.685	46.749	2,416.200	78.300	167.5	4,046.926
Median		74.671	$ 36.924	$ 2,382.866	$ 66.295	196.7 %	$ 4,531.075

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 requested common equity ratio.
(5) The market-to-book ratio of Atmos Energy Corporation on May 31, 2022 is assumed to be equal to the market-to-book ratio of Proxy Group of Six Natural Gas Distribution Companies on May 31, 2022 as appropriate.
(6) Column [3] multiplied by Column [5].

Atmos Energy Corporation
Derivation of the Flotation Cost Adjustment to the Cost of Common Equity

Equity Issuances and Flotation Costs for FY 2016 - 2022

Fiscal Year	Transaction (1)	[Column 1] Shares Issued	[Column 2] Average Offering Price per Share	[Column 3] Net Proceeds per Share (2)	[Column 4] Gross Equity Issue before Costs	[Column 5] Total Net Proceeds	[Column 6] Total Flotation Costs (3)	[Column 7] Flotation Cost Percentage (4)
2022	At the Market Equity Offering	6,162,269	$ 98.0985	$ 96.5572	$ 604,509,329	$ 595,011,373	$ 9,497,956	1.57%
2021	At the Market Equity Offering	6,130,875	$ 101.5775	$ 99.0072	622,758,775	607,000,833	15,757,941	2.53%
2020	At the Market Equity Offering	6,101,916	NA	NA	632,630,269	625,894,599	6,735,669	1.06%
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%
					$ 2,959,898,372	$ 2,914,506,806	$ 45,391,566	1.53%

Flotation Cost Adjustment

	Average Dividend Yield	Average Projected EPS Growth Rate	Adjusted Dividend Yield	Average DCF Cost Rate Unadjusted for Flotation (5)	DCF Cost Rate Adjusted for Flotation (6)	Flotation Cost Adjustment (7)
Proxy Group of Six Natural Gas Distribution Companies	3.16 %	6.46 %	3.26 %	9.72 %	9.77 %	0.05 %

See page 2 of this Exhibit for notes.

Source of Information: Atmos Energy Corporation SEC Form 10-Ks, Company-Provided Data

Atmos Energy Corporation
Notes to Accompany the
Derivation of the Flotation Cost Adjustment to the Cost of Common Equity

(1) Atmos Energy Corporation SEC Filings, Company-provided.

(2) Column 5 ÷ Column 1.

(3) Column 4 - Column 5.

(4) Column 6 ÷ Column 4.

(5) Using the average growth rate from Attachment DWD-2.

(6) 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.

(7) Flotation cost adjustment of 0.05% equals the difference between the flotation adjusted average DCF cost rate of 9.77% and the unadjusted average DCF cost rate of 9.72% of the Utility Proxy Group.

Sources of Information:

Company SEC Filings; Company-Provided

Atmos Energy Corporation
Summary of Adjustment Clauses & Alternative Regulation/Incentive Plans
Proxy Group of Six Natural Gas Distribution Companies

Company	Parent	State	Adjustment Clauses					Alternative Regulation / Incentive Plans		
			Gas Commodity	Decoupling (F/P) [1]	Capital Investment [2]	Energy Efficiency [3]	Other [4]	Formula-Based Rates	Earnings Sharing/PBR	Forward Test Year Allowed in Jurisdiction [5]
Atmos Energy	ATO	Colorado	✓		✓	✓	✓			✓
Atmos Energy	ATO	Kansas	✓	P	✓		✓			
Atmos Energy	ATO	Kentucky	✓	P	✓	✓	✓		✓	✓
Atmos Energy	ATO	Louisiana	✓	P	✓			✓		K
Atmos Energy	ATO	Mississippi	✓	P	✓	✓		✓		✓
Atmos Energy	ATO	Tennessee	✓	P	✓			✓		✓
Atmos Energy	ATO	Texas	✓	P	✓	✓		✓	✓	K
Atmos Energy	ATO	Virginia	✓	P	✓					K
New Jersey Natural Gas	NJR	New Jersey	✓	F	✓	✓	✓			K
Columbia Gas of Kentucky	NI	Kentucky	✓	P	✓	✓	✓			✓
Columbia Gas of Maryland	NI	Maryland	✓	P	✓	✓	✓			K
Columbia Gas of Ohio	NI	Ohio	✓		✓	✓	✓			
Columbia Gas of Pennsylvania	NI	Pennsylvania	✓	P	✓	✓	✓			✓
Columbia Gas of Virginia	NI	Virginia	✓		✓		✓			K
Northern Indiana Public Service	NI	Indiana	✓	F	✓	✓	✓			K
Northwest Natural Gas	NWN	Oregon	✓	P		✓	✓		✓	✓
Northwest Natural Gas	NWN	Washington	✓			✓	✓			K
Kansas Gas Service	OGS	Kansas	✓	P			✓			
Oklahoma Natural Gas	OGS	Oklahoma	✓	P	✓	✓	✓	✓	✓	K
Texas Gas Service	OGS	Texas	✓	P	✓	✓	✓			K
Spire Alabama Inc.	SR	Alabama	✓	P	✓		✓	✓		K
Spire Gulf Inc.	SR	Alabama	✓	P	✓		✓	✓		K
Spire Mississippi Inc.	SR	Mississippi	✓	P	✓		✓	✓		K
Spire Missouri East	SR	Missouri	✓	P	✓		✓			✓
Spire Missouri West	SR	Missouri	✓	P	✓		✓			K

Notes:
Note: A mechanism may cover one or more cost categories; therefore, designations may not indicate separate mechanisms for each category.
[1] Full or partial decoupling (such as Fixed Variable rate design, weather normalization clauses, and recovery of lost revenues as a result of Energy Efficiency programs). All full or partial decoupling mechanisms include weather normalization adjustments.
[2] Includes recovery of costs related to infrastructure replacement, system integrity/hardening, and other capital expenditures.
[3] Utility-sponsored conservation, energy efficiency, or other demand side management programs.
[4] Pension expenses, bad debt costs, storm costs, transmission/transportation costs, environmental, regulatory fee, government & franchise fees and taxes, economic development, and low income programs.
[5] K = Known and Measurable or similar language, partially forecasted test years are included.
Sources: Company SEC Form 10-Ks; Operating company tariffs; Regulatory Research Associates.

BEFORE THE PUBLIC SERVICE COMMISSION

COMMONWEALTH OF KENTUCKY

APPLICATION OF ATMOS ENERGY	)	
CORPORATION TO ESTABLISH PRP	)	
RIDER STATES FOR HE TWELVE	)	Case No. 2022-00222
MONTH PERIOD BEGINNING	)	
OCTOBER 1, 2022	)	

<u>TESTIMONY OF T. RYAN AUSTIN</u>

1	**I.**	**INTRODUCTION**
2	Q.	**PLEASE STATE YOUR NAME AND BUSINESS ADDRESS AND AN**
3		**EXECUTIVE SUMMARY OF THE PURPOSE AND CONTENT OF YOUR**
4		**TESTIMONY.**
5	A.	My name is T. Ryan Austin. My business address is 3275 Highland Pointe Drive,
6		Owensboro, KY 42303.
7		**II.** **EXECUTIVE SUMMARY AND PURPOSE OF TESTIMONY**

8   Atmos Energy continuously strives to improve the safety and reliability

9   of its pipeline system. Vital steps in this process include (1) proactively

10   identifying assets where the risk of failure is higher and then (2) designing and

11   implementing a plan to mitigate those risks. Through that process, Atmos Energy

12   has identified a need to continue its Pipeline Replacement Program ("PRP") in

13   Kentucky and adapt that program to include projects that target a certain type and

14   generation of polyethylene ("PE") pipe known as Aldyl-A, in addition to the bare

15   steel pipe that is already the focus of our program. The Company outlined in its

16   most recent general rate case, Case No. 2021-00214, the supporting reasons for the

17   replacement of Aldyl-A in its system as needed. Pursuant to the Commission's

18   Final Order, "[t]he inclusion of Aldyl-A pipelines will be determined in a case-by-

19   case basis and any PRP applications including Aldyl-A projects should include

20   minimum safety justifications for such projects." The primary purpose of my

21   testimony is to support the specific Aldyl-A projects that the Company has included

22   in this PRP filing.

1   While the safety and reliability of our system is the paramount goal for

2   Atmos Energy, the Company understands the Commission's obligation to balance

3   safety and cost. Atmos Energy believes that inclusion of the Aldyl-A projects in

4   this filing is appropriate and will strike the right balance between increased safety

5   for the community, our customers, and property while ensuring rates continue to be

6   reasonable for our natural gas customers.

7   **III.   INTRODUCTION OF WITNESS**

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

9   A.   I am the Vice President of Technical Services for Atmos Energy Corporation's

10   Kentucky/Mid-States Division (hereinafter "Atmos Energy" or the "Company").

11 **Q.   WHAT ARE YOUR JOB RESPONSIBILITIES?**

12 A.   My current responsibilities for the Company include oversight of engineering,

13   geographic information systems, measurement, compliance, safety, related

14   information technology, and procurement. My department is responsible for

15   execution of Projects within our Pipeline Integrity Plan, Annual DOT filings,

16   Contracting, and Project Management for planned system growth, improvement,

17   and replacement projects. I previously served as the Program Manager for the

18   Kentucky PRP from 2015 through 2017.

19 **Q.   PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**

20   **PROFESSIONAL EXPERIENCE.**

21 A.   I earned a Bachelor of Science degree in Civil Engineering from The University of

22   Evansville in 2000. I am a Registered Professional Engineer in the Commonwealth

23   of Kentucky. I have been employed by Atmos Energy for 12 years. During my

1   time at Atmos Energy I have held engineering positions of increasing responsibility

2   (Engineer 1 – Senior 2009-2015) in Owensboro, Manager of Engineering Services

3   with responsibilities of the Kentucky Bare Steel Pipe Replacement Program (2015-

4   2017) and VP of Operations for Kentucky (2017-2019) - before moving to my

5   current role as Vice President of Technical Services in June of 2019.

6   **Q.   ARE YOU A MEMBER OF ANY PROFESSIONAL ORGANIZATIONS?**

7   A.   Yes, I am a member of the American Gas Association. I am also a member of the

8   Kentucky Gas Association where I currently serve as a member of the Operations

9   and Engineering Committee.

10   **Q.   HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE KENTUCKY**

11   **PUBLIC SERVICE COMMISSION?**

12   A.   Yes. I testified before the Commission in Case No. 2021-00214.

13   **Q.   ARE YOU SPONSORING ANY EXHIBITS?**

14   A.   Yes. I am sponsoring the following exhibits, which are attached to my testimony:

15   **Exhibit TRA-1 (Confidential):**   Aldyl.2736.Lincoln Ave

16   **Exhibit TRA-2 (Confidential):**   Aldyl.2736.Cunningham Ave

17   **Exhibit TRA-3 (Confidential):**   Aldyl.2635.St Charles

18   **Exhibit TRA-4 :**   ADB-2007-01 – PHMSA Advisory Bulletin, Pipeline

19   Safety: Updated Notification of the Susceptibility to

20   Premature Brittle-Like Cracking of Older Plastic Pipe.

1   **IV.   DESCRIPTION OF PROPOSED ALDYL-A PROJECTS**

2 **Q.   HAS THE COMPANY INCLUDED SPECIFIC ALDYL-A PROJECTS IN**

3   **THIS PRP FILING FOR APPROVAL BY THIS COMMISSION?**

4 A.   Yes.   In addition to the steel projects included for review and approval, the

5   Company has submitted the following three Aldyl-A projects in this filing for

6   approval:

7   **Table TRA-1 – Proposed Aldyl-A Projects for Fiscal Year 2023**

Project Name	Project Description
Aldyl.2736.Lincoln Ave	Replace 2,599' of 2" Aldyl A, 3,407' of 2" PE, 1,002' of 1" Adly A, Install 7,008' of 2" HDPE. 53 Services
Aldyl.2736.Cunningham Ave	Replace 3,573' of 2" Aldyl A, 5' of 2" PE, 100' of unknown Plastic, 2,399' of 1" Aldyl A 5' od 1" PE, Install 6,100' of 2" HDPE. 80 services
Aldyl.2635.St Charles	Replace 612' of 1.25" Mill Wrap, 305' of 2" PE, 449' of 2" Aldyl-A and 8,718' of 1.25" Aldyl-A, Install 10,085' of 2" HDPE. 90 Services

8

9 **Q.   ARE BOTH THE PROPOSED LINCOLN AVENUE AND CUNNINGHAM**

10   **AVENUE PROJECTS LOCATED IN CADIZ, KENTUCKY?**

11 A.   Yes. The Company submitted testimony in Case No. 2021-00214 concerning the

12   Aldyl-A located in the Company's Cadiz, Kentucky system and the need for its

13   replacement in a ratable manner beginning in our Fiscal 2022 budget. Case No.

14   2021-00214 included four_projects that were approved by the Commission as just

15   and reasonable. The two Cadiz projects included in this filing are a continuation of

16   the Company's efforts to tackle the risk in this system with targeted replacement.

| 1 | **Q.** | **PLEASE DISCUSS THE COMPANY'S SYSTEM IN CADIZ.** |

2   A.   Atmos Energy's system in Cadiz, Kentucky is a good example of the susceptibility

3   to cracking of Aldyl-A. The Cadiz system was installed in the mid-1960s and is

4   entirely Aldyl-A pipe. The system has had a history of leaks caused by the rocky

5   bedding conditions impinging on the Aldyl-A pipe which has, with the passage of

6   time, proven to lead to increased cracking. This area also has tracer wire with the

7   pipe that has deteriorated over time which makes the pipeline in Cadiz difficult to

8   locate. As I mentioned in Case No. 2021-00214, the Cadiz area is one of the areas

9   we are targeting first for replacement because of the knowledge we have from the

10   historical records of the system and the risk factors involved. The Lincoln Avenue

11   and Cunningham Avenue projects are a continuation of our efforts to safely replace

12   the system in Cadiz over time.

13   **Q.**   **PLEASE DISCUSS COMPANY'S LINCOLN AVENUE PROJECT.**

14   A.   The Lincoln Avenue project is located in Cadiz, Kentucky. As listed above, the

15   Company plans to replace approximately 3,601 feet of Aldyl-A and 3,407 feet of

16   polyethylene (PE), and install 7,008 feet of high density polyethylene (HDPE) pipe.

17   The Aldyl-A being replaced around Lincoln Avenue was installed in 1966 and is

18   entirely pre-1973 Aldyl-A vintage with higher relative susceptibility to cracking

19   and leakage. To uniformly make this area of the system consistent with the current

20   standards the Company will install HDPE. Lincoln Avenue is located in the middle

21   of Cadiz, and in addition, portions of Trigg County Middle School and Trigg

22   County Primary School, are located off of the end of Lincoln Avenue. A map of the

23   Lincoln Avenue project is provided in Confidential Exhibit TRA-1.

1   Q.   PLEASE   DISCUSS   THE   COMPANY'S   CUNNINGHAM   AVENUE

2   PROJECT.

3   A.   The Cunningham Avenue project is located in Cadiz, Kentucky. In the proposed

4   project, the Company plans to replace approximately 5,972 feet of Aldyl-A, 10 feet

5   of PE, 100 feet of unknown plastic and install 6,100 feet of HDPE. The Aldyl-A

6   being replaced was also installed in 1966 and is also entirely pre-1973 vintage.

7   Cunningham Avenue is one of the longest residential streets in Cadiz and is located

8   just off Main Street. The pipe on Cunningham Avenue is almost entirely Aldyl-A

9   and due to the vintage, heavy residential presence, and underlying soil conditions

10   in Cadiz the Company believes the safest action to mitigate failure risk is

11   replacement of this pipe. A map of the Cunningham Avenue project is provided in

12   Confidential Exhibit TRA-2.

13 Q.   PLEASE   DISCUSS   THE   COMPANY'S   PROPOSED   ST.   CHARLES

14   PROJECT.

15 A.   St. Charles is a small town in Hopkins County, Kentucky, with an estimated

16   population of 277 people. The St. Charles project will replace all the remaining

17   Aldyl-A pipe in Atmos Energy's system in St. Charles which is almost entirely

18   Aldyl-A and was installed in 1969. While St. Charles does not have the same

19   underlying soil conditions as Cadiz, the pipe itself is extremely shallow with very

20   little cover. This fact, along with the fact that the pipe is extremely difficult to

21   locate, has led to higher relative risk of damage from excavation and other external

22   forces that can impact the pipe as it crosses road ditches and areas of field drainage.

23   The amount of Aldyl-A pipelines in the relatively small area and the leakage and

1   damage history lead to St. Charles being one of the highest relative failure risks in

2   Atmos Energy's system. Replacing the Aldyl-A pipe in St. Charles will prevent

3   further elevated risk to the customers in this area. A map of the St. Charles project

4   is provided in Confidential Exhibit TRA-3.

5 **Q.**   **HOW DID THE COMPANY CHOOSE THESE ALDYL-A PROJECTS?**

6 A.   In considering the listed Aldyl-A projects, the Company has taken into

7   consideration factors such as age of material, location of the pipe in relation to

8   population and high consequence facilities, and relative risk from third party

9   damage as described above. All three of the proposed projects ranked high in risk

10   factors in the Company's assessment.

11 **Q.**   **PLEASE LIST SOME ADDITIONAL RISK FACTORS THAT LED THE**

12   **COMPANY TO PROPOSE THESE THREE PROJECTS.**

13 A.   The existing pipe in all three projects is exceptionally difficult to locate. For all

14   three sections, the tracer wire has deteriorated and to find the existing pipe the

15   Company or its contractors must rely on the use of hand tools for excavation, which

16   greatly increases the time it takes to conduct locates in turn reducing efficiency and

17   potentially increasing risk of damage. In Cadiz, for example, similar pipe the

18   Company has been replacing in FY 2022 has required up to a week for the crews to

19   locate a small section of the pipe. By replacing this pipe, which is already prone to

20   cracking, the Company also substantially mitigates the risk of third-party damage

21   as well mitigating future O&M expenses by having pipe that is easily locatable.

1 Q. **PLEASE LIST ANY ADDITIONAL ATTRIBUTES THAT THE CHOSEN**

2 **ALDYL-A PROJECTS PROVIDE.**

3 A. The Cunningham Avenue and Lincoln Avenue projects are both in Cadiz, Kentucky,

4 and this helps create operational synergies with the local government to efficiently

5 replace those systems while ensuring minimal disruption in the community and

6 quickly and efficiently rehabilitating the area. Similarly, the St. Charles

7 replacement project will allow the Company to completely replace all of the Aldyl-

8 A located in St. Charles, Kentucky, and coordinate with the local community to

9 accomplish this work all at once to ensure an efficient replacement process and to

10 work to keep rehabilitation costs lower than a longer more drawn-out project or

11 projects.

12 **V. ALDYL-A REPLACEMENT**

13 Q. **PLEASE PROVIDE ADDITIONAL DETAIL ABOUT ATMOS ENERGY'S**

14 **ALDYL-A PIPE.**

15 A. Atmos Energy's Kentucky gas distribution system still contains approximately

16 201miles of Aldyl-A pipe. While this pipe is not generally as old as the bare steel

17 pipe in Atmos Energy's Kentucky distribution system, it is nonetheless made of

18 materials that are considered obsolete and no longer used in the natural gas industry.

19 Following bare steel pipe, the Company considers Aldyl-A the vintage material that

20 presents the next most significant risks on its system and has been studying the

21 change in leakage rates of Aldyl-A systems as bare steel pipe replacement within

22 PRP has progressed.

1 **Q. WHAT ARE THE MAIN CAUSES OF LEAKS ON ALDYL-A PIPE?**

2 A. As these materials age, the structure of the pipe weakens, becomes brittle and

3 eventually cracks. In 2007, PHMSA issued an Advisory Bulletin ADB-07-01 for

4 updated notification of the susceptibility of older plastic pipes to premature brittle-

5 like cracking. The older pipes listed included Aldyl-A. The advisory bulletin noted

6 that:

7 Brittle-like cracking refers to crack initiation in the pipe wall not
8 immediately resulting a full break followed by stable crack growth
9 at stress levels much lower than the stress required for yielding. This
10 results in very tight, slit-like, openings and gas leaks. Although
11 significant cracking may occur at point of stress concentration and
12 near improperly designed or installed fittings, small brittle-like
13 cracks may be difficult to detect until a significant amount of gas
14 leaks out of the pipe, and potentially migrates into an enclosed space
15 such as a basement.
16
17 A copy of the Advisory Bulletin is included as Exhibit TRA-4. The brittle-like

18 cracking characteristic could cause a leak on an early vintage plastic pipeline such

19 as Aldyl-A to grow and release additional natural gas than would normally be

20 released, increasing the risk of natural gas gathering and igniting.

21 **Q. DOES PHMSA BULLETIN ADB-07-01 MAKE A DISTINCTION AMONG**

22 **TYPES OF ALDYL-A PIPE?**

23 A. Yes. PHMSA Advisory Bulletin ADB-07-01 follows up on Advisory Bulletins

24 ADB-99-01, ADB-99-02, and ADB-02-07 and provides updated notification of the

25 susceptibility of older plastic pipes to premature brittle-like cracking. Among older

26 polyethylene pipe materials these included, but are not limited, to Aldyl-A

27 manufactured before 1973. The American Gas Association has also produced a

28 technical document that expands on the pipe manufactured between 1971 and 1983.

1   This pipe still has issues with brittle cracking and should be replaced as well. Table

2   TRA-2 below is a summary of the American Gas Association documents

3   highlighting the risks of cracking associated with various types of Aldyl-A pipe:

4   **Table TRA-2**

Years of Manufacture	Pipe Resin	Relative Resistance to Slow Crack Growth	Summary Notes
1965 – 1971	Alathon® 5040	Low	Initial Product Marketed as Aldyl A*
1971 – 1983[14]	Alathon® 5043	Low[15]	Resin Improvement. Low Ductile Inner Wall (LDIW) pipe manufacturing defect ('70-72)*
1983 – 1989[17]	Alathon® 5046-C	Medium[18]	Resin Improvement-- Sold as "Improved Aldyl A"
1989 – 1992	Alathon® 5046-U	High	Resin Improvement --"Improved Aldyl A"
1992 – 1999	Alathon® 5046-O	Very High	Resin Improvement

*Note: Low Ductile Inner Wall (LDIW) manufacturing defect primarily occurring in some pipe manufactured in years 1970 through 1972 and resulting in possible lower slow crack resistance.

Table 1. DuPont Aldyl A Pipe Resins 1965 – 1999

5

- **Pre-1973 Aldyl A** - Pipe installed prior to 1973, from the first two resin formulations, and including pipe having low ductile inner wall. Susceptible to brittle-like failures due to rock impingement or squeeze-off.

- **1973-1983 Aldyl A** - Aldyl A pipe manufactured from Alathon® 5043 resin, but only that pipe manufactured after 1972 and through 1983. Susceptible to brittle-like failures due to rock impingement.

- **1984 and Later Aldyl A** - Pipe manufactured from the improved Alathon® 5046-C, 5046-U and 5046-O resins.

6

---

1   Q.   **WHAT TYPE OF ALDYL-A PIPE IS PROPOSED FOR REPLACEMENT**

2   **IN THE LINCOLN AVENUE, CUNNINGHAM AVENUE, AND ST.**

3   **CHARLES PROJECTS?**

4   A.   The Lincoln Avenue and Cunningham Avenue Aldyl-A is from 1966, and St.

5   Charles is from 1969. This pipe resin is the Alathon 5040 which as the table above

6   shows has a low relative resistance to slow crack growth. The Company's Aldyl-

7   A projects it is targeting for replacement are pre-1973 Aldyl-A pipe with the

8   exception of some smaller sections identified that we feel warrant the replacement

9   ahead of others due to additional risk factors or operational synergies. For example,

10   there may be a small section of post-1973 Aldyl-A pipe in the near vicinity of a

11   project of older vintage already identified for replacement. While this relatively

12   newer section of Aldyl-A or PE may not have been identified as a standalone

13   project, it may be included because of the operational efficiencies of replacing it

14   simultaneously with the adjacent sections and/or because there are risk factors other

15   than age that influence the priority of the project, such as location in a highly

16   populated or growing area with high probability of construction.

17   Q.   **IS REPLACEMENT OF THIS PIPE THE ONLY POSSIBLE REMEDY FOR**

18   **THESE THREE PROJECTS?**

19   A.   Yes, replacement is the only remedy for these pipes over time. As stated above,

20   Aldyl-A pipe is no longer used for new installations. There is no remedial action

21   that will reverse the brittle cracking of this early generation plastic pipe.

22

1   **VI. <u>CONCLUSION</u>**

2   **Q.   DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

3   A.   Yes.
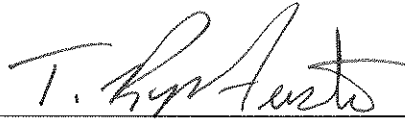
COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

APPLICATION OF ATMOS ENERGY   )
CORPORATION TO ESTABLISH PRP   )
RIDER RATES FOR THE TWELVE MONTH   )   CASE NO. 2022-00222
PERIOD BEGINNING OCTOBER 1, 2022   )

CERTIFICATE AND AFFIDAVIT

The Affiant, T. Ryan Austin, being duly sworn, deposes and states that the prepared testimony attached hereto and made a part hereof, constitutes the prepared direct testimony of this affiant in Case No. 2022-00222 and that if asked the questions propounded therein, this affiant would make the answers set forth in the attached prepared direct pre-filed testimony.

_____
T. Ryan Austin

STATE OF KENTUCKY

COUNTY OF DAVIESS

SUBSCRIBED AND SWORN to before me by T. Ryan Austin on this the 26 day of July, 2022.

_____
Notary Public
My Commission Expires: December 8, 2025

Mariam Lynne Tucker
Notary Public, ID KYNP41628
State at Large, Kentucky
My Commission Expires on Dec. 8, 2025
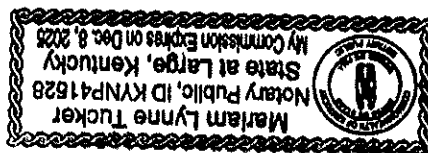
Exhibit TRA-1 (CONFIDENTIAL)

Exhibit TRA-2 (CONFIDENTIAL)

Exhibit TRA-3 (CONFIDENTIAL)

safety procedures used for filling, operating, and discharging MATs to determine whether additional safety procedures should be implemented. To this end, we request that persons who use such transportation systems to provide us with information on the effectiveness of the current DOT regulations, consensus standards, and industry best practices. We are also interested in any other procedures utilized to ensure that operations related to the transportation of acetylene on MATs are performed safely.

We would also like to work with shippers, carriers, and facilities that receive shipments of acetylene in MATs to develop and implement a pilot program to test the effectiveness of current or alternative procedures or methods designed to enhance the safety of transportation operations involving acetylene on MATs. As part of this program, we will assist individual companies or facilities to evaluate the effectiveness of their current procedures and to identify additional measures that should be implemented. We welcome suggestions concerning how such a program should be structured and the entities that should participate.

To ensure that our message reaches all stakeholders affected by these risks, we plan to communicate this advisory through our public affairs notification and outreach processes. For additional visibility, we have made this advisory available on the PHMSA homepage at *http://www.phmsa.dot.gov* and the DOT electronic docket site at *http://dms.dot.gov*. In addition, if you are aware of other companies that are involved in the charging, operating, and discharging MATs, please share this advisory notice with them and, if possible, identify them in your correspondence with this agency. We believe a collaborative effort involving an integrated and cooperative approach will help us to address safety risks, reduce incidents, enhance safety, and protect the public.

Issued in Washington, DC on August 30, 2007.

Theodore L. Willke,

Associate Administrator for Hazardous Materials Safety.

[FR Doc. 07–4355 Filed 9–5–07; 8:45 am]

BILLING CODE 4910–60–P

DEPARTMENT OF TRANSPORTATION

Pipeline and Hazardous Materials Safety Administration

[Docket No. PHMSA–2004–19856]

Pipeline Safety: Updated Notification of the Susceptibility to Premature Brittle-Like Cracking of Older Plastic Pipe

AGENCY: Pipeline and Hazardous Materials Safety Administration (PHMSA); DOT.

ACTION: Notice; Issuance of Advisory Bulletin.

SUMMARY: PHMSA is issuing this updated advisory bulletin to owners and operators of natural gas pipeline distribution systems concerning the susceptibility of older plastic pipe to premature brittle-like cracking. PHMSA previously issued three advisory bulletins on this subject: Two on March 11, 1999 and one on November 26, 2002. This advisory bulletin expands on the information provided in the three prior bulletins by listing two additional pipe materials with poor performance histories relative to brittle-like cracking and by updating pipeline owners and operators on the ongoing voluntary efforts to collect and analyze data on plastic pipe performance. Owners and operators of natural gas pipeline distribution systems are encouraged to review the three previous advisory bulletins in their entirety.

FOR FURTHER INFORMATION CONTACT: Richard Sanders at (405) 954–7214, or by e-mail at *richard.sanders@dot.gov*.

SUPPLEMENTARY INFORMATION:

I. National Transportation Safety Board (NTSB) Investigation

On April 23, 1998, the National Transportation Safety Board (NTSB) issued its Special Investigation Report, *Brittle-Like Cracking in Plastic Pipe for Gas Service,* NTSB/SIR–98/01. The report described the results of the NTSB's special investigation of polyethylene gas service pipe, which addressed three major safety issues: (1) Vulnerability of plastic piping to premature failures due to brittle-like cracking; (2) adequacy of available guidance relating to the installation and protection of plastic piping connections to steel mains; and, (3) effectiveness of performance monitoring of plastic pipeline systems to detect unacceptable performance in piping systems.

(1) *Vulnerability of plastic piping to premature failures due to brittle-like cracking:* The NTSB found that failures in polyethylene pipe in actual service are frequently brittle-like, slit failures,

not ductile failures. It concluded the number and similarity of plastic pipe accident and non-accident failures indicate past standards used to rate the long-term strength of plastic pipe may have overrated the strength and resistance to brittle-like cracking for much of the plastic pipe manufactured and used for gas service from the 1960s through the early 1980s. The NTSB also concluded any potential public safety hazards from these failures are likely to be limited to locations where stress intensification exists. The NTSB went on to state that more durable modern plastic piping materials and better strength testing have made the strength ratings of modern plastic piping more reliable.

(2) *Adequacy of available guidance relating to the installation and protection of plastic piping connections to steel mains:* The NTSB concluded that gas pipeline operators had insufficient notification of the brittle-like failure potential for plastic pipe manufactured and used for gas service from the 1960s to the early 1980s. The NTSB also concluded this may not have allowed companies to implement adequate surveillance and replacement programs for older plastic piping. The NTSB explained the Gas Research Institute (GRI) developed a significant amount of data on older plastic pipe but the data was published in codified terms making it insufficient for use by pipeline system operators. The NTSB recommended that manufacturers of resin and pipe, industry trade groups and the Federal government do more to alert pipeline operators to the role played by stress intensification from external forces in the premature failure of plastic pipe due to brittle-like cracking.

(3) *Effectiveness of performance monitoring of plastic pipeline systems as a way of detecting unacceptable performance in piping systems:* The NTSB's analysis noted that Federal regulations require pipeline operators to have an ongoing program to monitor the performance of their pipeline systems. However, the NTSB investigation revealed some gas pipeline operators' performance monitoring programs did not effectively collect and analyze data to determine the extent of possible hazards associated with plastic pipeline systems. The NTSB pointed out, "such a program must be adequate to detect trends as well as to identify localized problem areas, and it must be able to relate poor performance to specific factors such as plastic piping brands, dates of manufacture (or installation dates), and failure conditions."

Copies of this report may be obtained by searching the NTSB Web site at *www.ntsb.gov.*

II. Advisory Bulletins Previously Issued by PHMSA

The NTSB made several recommendations to PHMSA and to trade organizations in its 1998 special investigation report. In response, PHMSA issued three advisory bulletins. The first advisory bulletin, ADB–99–01, *Potential Failure Due to Brittle-Like Cracking of Certain Polyethylene Plastic Pipe Manufactured by Century Utility Products Inc,* was published in the **Federal Register** (FR) on March 11, 1999 (64 FR 12211) to advise natural gas pipeline distribution system operators that brittle-like cracking may occur on certain polyethylene pipe manufactured by Century Utility Products, Inc.

The second advisory bulletin, ADB–99–02, *Potential Failures Due to Brittle-Like Cracking of Older Plastic Pipe in Natural Gas Distribution Systems,* was also published in the **Federal Register** on March 11, 1999 (64 FR 12212) to advise natural gas pipeline distribution system operators of the potential for brittle-like cracking of plastic pipes installed between the 1960s and early 1980s.

The third advisory bulletin, ADB–02–07, *Notification of the Susceptibility To Premature Brittle-Like Cracking of Older Plastic Pipe,* was published in the **Federal Register** on November 26, 2002 (67 FR 70806) to reiterate to natural gas pipeline distribution system operators the susceptibility of older plastic pipe to premature brittle-like cracking. The older polyethylene pipe materials specifically identified in ADB–02–07 included, but were not limited to:

• Century Utility Products, Inc. products;

• Low-ductile inner wall "Aldyl A" piping manufactured by DuPont Company before 1973; and

• Polyethylene gas pipe designated PE 3306.

This third advisory bulletin also listed several environmental, installation and service conditions in which plastic piping is used that could lead to premature brittle-like cracking failure. PHMSA also described six recommended practices for polyethylene gas pipeline system operators to aid them with identifying and managing brittle-like cracking problems.

III. Plastic Pipe Studies

Beginning January 25, 2001, the American Gas Association (AGA) began to collect data on in-service plastic piping material failures with the objective of identifying trends in the performance of these materials. The resulting leak survey data, collected from 2001 to present, on the county's natural gas distribution systems includes both actual failure information and negative reports (reports of no leads) submitted voluntarily by participating pipeline operating companies.

The AGA, PHMSA, and other industry and state organizations continue to collect and analyze the data. Unfortunately, the data cannot be correlated with the quantities of each plastic pipe material that may be in service across the United States. Therefore, the data does not assess the failure rates of individual plastic pipe materials on a linear basis (i.e. per foot, per mile, etc.). However, the failure data reinforces what is historically known about certain older plastic piping and components. The data also indicates the susceptibility of additional specific materials to brittle-like cracking.

IV. Advisory Bulletin ADB–07–01

To: Owners and Operators of Natural Gas Pipeline Distribution Systems.

Subject: Updated Notification of the Susceptibility of Older Plastic Pipes to Premature Brittle-Like Cracking.

Advisory: All owners and operators of natural gas distribution systems who have installed and operate plastic piping are reminded of the phenomenon of brittle-like cracking. Brittle-like cracking refers to crack initiation in the pipe wall not immediately resulting in a full break followed by stable crack growth at stress levels much lower than the stress required for yielding. This results in very tight, slit-like, openings and gas leaks. Although significant cracking may occur at points of stress concentration and near improperly designed or installed fittings, small brittle-like cracks may be difficult to detect until a significant amount of gas leaks out of the pipe, and potentially migrates into an enclosed space such as a basement. Premature brittle-like cracking requires relatively high localized stress intensification that may result from geometrical discontinuities, excessive bending, improper installation of fittings, dents and/or gouges. Because this failure mode exhibits no evidence of gross yielding at the failure location, the term brittle-like cracking is used. This phenomenon is different from brittle fracture, in which the pipe failure causes fragmentation of the pipe.

All owners and operators of natural gas distribution systems are future advised to review the three earlier advisory bulletins on this issue. In addition to being available in the

Federal Register, these advisory bulletins are available in the docket, and on PHMSA's Web site at *http:// phmsa.dot.gov/* under Pipeline Safety Regulations.

In the first advisory bulletin, ADB–99–01, published on March 11, 1999 (64 FR 12211), PHMSA advises natural gas distribution system operators of the potential for poor resistance to brittle-like cracking of certain polyethylene pipe manufactured by Century Utility Products, Inc. In the second advisory bulletin, ADB–99–02, published on March 11, 1999 (64 FR 12212), PHMSA advises natural gas distribution system operators of the potential for brittle-like cracking of plastic pipes installed between the 1960s and early 1980s.

In the third advisory bulletin, ADB–02–07, published on November 26, 2002 (67 FR 70806), PHMSA reiterates to pipeline operators the susceptibility of some older plastic pipe to premature brittle-like cracking which could substantially reduce the service life of natural gas distribution systems and to explain the mission of the Plastic Pipe Database Committee (PPDC) "to develop and maintain a voluntary data collection process that supports the analysis of the frequency and causes of in-service plastic piping material failures." The advisory bulletin also lists several environmental, installation and service conditions under which plastic piping is used which is used which could lead to premature brittle-like cracking failure. PHMSA also describes six recommended practices for polyethylene gas pipeline system operators to aid them with identifying and managing brittle-like cracking problems.

Lastly, the susceptibility of some polyethylene pipes to brittle-like cracking is dependent on the resin, pipe processing, and service conditions. As noted in ADB–02–07, these older polyethylene pipe materials include, but are not limited to:

• Century Utility Products, Inc. products;

• Low-ductile inner wall "Aldyl A" piping manufactured by DuPont Company before 1973; and

• Polyethylene gas pipe designated PE 3306.

The data now supports adding the following pipe materials to this list:

• Delrin insert tap tees; and,

• Plexco service tee Celcon (polyacetal) caps.

Authority: 49 U.S.C. chapter 601 and 49 CFR 1.53.

Issued in Washington, DC, on August 28, 2007.

Jeffrey D. Wiese,

Associate Administrator for Pipeline Safety.

[FR Doc. 07–4309 Filed 9–5–07; 8:45 am]

BILLING CODE 4910–60–M

DEPARTMENT OF TRANSPORTATION

Pipeline and Hazardous Materials Safety Administration

[Docket No. PHMSA–2007–28993]

Pipeline Safety: Adequacy of Internal Corrosion Regulations for Hazardous Liquid Pipelines

AGENCY: Pipeline and Hazardous Materials Safety Administration (PHMSA), U.S. Department of Transportation (DOT).

ACTION: Notice of availability of materials; request for comments.

SUMMARY: This notice announces the availability of materials, including a briefing paper prepared for PHMSA's Technical Hazardous Liquid Pipeline Safety Standards Committee (THLPSSC) and data on risks posed by internal corrosion on hazardous liquid pipelines. PHMSA is preparing a report to Congress on the adequacy of the internal corrosion regulations for hazardous liquid pipelines. Participants at a meeting of the THLPSSC discussed issues involved in examining the adequacy of the regulations and requested additional data. PHMSA requests public comment on these matters.

DATES: Submit comments by October 9, 2007.

ADDRESSES: Comments should reference Docket No. PHMSA–2007–28993 and may be submitted in the following ways:

• *E-Gov Web site: http:// www.regulations.gov.* This Web site allows the public to enter comments on any **Federal Register** notice issued by any agency. Follow the instructions for submitting comments.

• *Fax:* 1–202–493–2251.

• *Mail:* Docket Management System: U.S. Department of Transportation, Docket Operations, M–30, Room W12–140, 1200 New Jersey Avenue, SE., Washington, DC 20590–0001.

• *Hand Delivery:* DOT Docket Management System, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue, SE., Washington, DC 20590–0001 between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Instructions: Identify the docket number, PHMSA–2007–28993, at the beginning of your comments. If you submit your comments by mail, submit two copies. To receive confirmation that PHMSA received your comments, include a self-addressed stamped postcard. Internet users may submit comments at *http:// www.regulations.gov.*

Note: Comments are posted without changes or edits to *http:// www.regulations.gov,* including any personal information provided. There is a privacy statement published on *http:// www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Barbara Betsock at (202) 366–4361, or by e-mail at *barbara.betsock@dot.gov.*

SUPPLEMENTARY INFORMATION: The Pipeline Inspection, Protection, Enforcement, and Safety Act of 2006 directs PHMSA to review the internal corrosion regulations in subpart H of 49 CFR part 195 to determine if they are adequate to ensure adequate protection of the public and environment and to report to Congress on the results of the review. As an initial step in the review, PHMSA consulted the THLPSSC at its meeting on July 24, 2007. The briefing paper prepared for the committee members contains preliminary data on risk history as well as questions relating to the internal corrosion regulations. This briefing paper is posted on PHMSA's pipeline Web site (*http:// ops.dot.gov*) and has been placed in the docket.

At the meeting, PHMSA officials committed to gathering additional data responding to questions posed by the committee members. PHMSA has updated the data and included data responsive to the committee members. This data is also posted on the pipeline Web site and contained in the docket.

PHMSA requests comments on the adequacy of the internal corrosion regulations and answers to the questions posed in the briefing paper. PHMSA will use these comments in its review of the internal corrosion regulations.

Authority: 49 U.S.C. 60102, 60115, 60117: Sec. 22, Pub. L. 109–468, 120 Stat. 3499.

Issued in Washington, DC on August 27, 2007.

Jeffrey D. Wiese,

Associate Administrator for Pipeline Safety.

[FR Doc. E7–17538 Filed 9–5–07; 8:45 am]

BILLING CODE 4910–60–P

DEPARTMENT OF VETERANS AFFAIRS

[OMB Control No. 2900–0675]

Proposed Information Collection Activity: Proposed Collection; Comment Request

AGENCY: Center for Veterans Enterprise, Department of Veterans Affairs.

ACTION: Notice.

SUMMARY: The Center for Veterans Enterprise (CVE), Department of Veterans Affairs (VA), is announcing an opportunity for public comment on the proposed collection of certain information by the agency. Under the Paperwork Reduction Act (PRA) of 1995, Federal agencies are required to publish notice in the **Federal Register** concerning each proposed collection of information, including each proposed extension of a currently approved collection, and allow 60 days for public comment in response to the notice. This notice solicits comments for information needed to identify veteran-owned businesses.

DATES: Written comments and recommendations on the proposed collection of information should be received on or before November 5, 2007.

ADDRESSES: Submit written comments on the collection of information through *http://www.Regulations.gov;* or Gail Wegner (00VE), Department of Veterans Affairs, 810 Vermont Avenue, NW., Washington, DC 20420 or e-mail: *gail.wegner@va.gov.* Please refer to "OMB Control No. 2900–0675" in any correspondence. During the comment period, comments may be viewed online through the Federal Docket Management System (FDMS) at *http:// www.Regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Gail Wegner at (202) 303–3296 or FAX (202) 254–0238.

SUPPLEMENTARY INFORMATION: Under the PRA of 1995 (Pub. L. 104–13; 44 U.S.C. 3501–3521), Federal agencies must obtain approval from the Office of Management and Budget (OMB) for each collection of information they conduct or sponsor. This request for comment is being made pursuant to section 3506(c)(2)(A) of the PRA.

With respect to the following collection of information, CVE invites comments on: (1) Whether the proposed collection of information is necessary for the proper performance of CVE's functions, including whether the information will have practical utility; (2) the accuracy of CVE's estimate of the burden of the proposed collection of

ATMOS ENERGY CORPORATION
(NAME OF UTILITY)

Pipeline Replacement Program Rider

4. Pipe Replacement Rider Rates

The charges for the respective gas service schedules for the revenue month beginning October 1,2022 per billing period are: (T)

	Monthly Customer Charge		Distribution Charge per Mcf	
Rate G-1 (Residential)	$0.00	1-300	$0.1245 per 1000 cubic feet	(-,N)
		301-15,000	$0.1245 per 1000 cubic feet	(N)
		Over 15,000	$0.1245 per 1000 cubic feet	(N)
Rate G-1 (Non-Residential)	$0.00	1-300	$0.0909 per 1000 cubic feet	(-,N)
		301-15,000	$0.0632 per 1000 cubic feet	(N)
		Over 15,000	$0.0632 per 1000 cubic feet	(N)
Rate G-2	$0.00	1-15,000	$0.0300 per 1000 cubic feet	(,I)
		Over 15,000	$0.0246 per 1000 cubic feet	(I)
Rate T-3	$0.00	1-15,000	$0.0223 per 1000 cubic feet	(-,I)
		Over 15,000	$0.0183 per 1000 cubic feet	(I)
Rate T-4	$0.00	1-300	$0.0371 per 1000 cubic feet	(-,I)
		301-15,000	$0.0258 per 1000 cubic feet	(I)
		Over 15,000	$0.0213 per 1000 cubic feet	(I)

DATE OF ISSUE   July 29, 2022
                        Month/Date/Year

DATE EFFECTIVE   October 1, 2022
                        Month/Date/Year

Issued by Authority of an Order of the Public Service Commission in
Case No. 2022-00222 dated XXXXXX

ISSUED BY   /s/ Brannon Taylor
                       Signature of Officer

TITLE   Vice President – Rates and Regulatory Affairs

Atmos Energy Corporation
Pipe Replacement Program Filing
Table of Contents

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
SURCHARGE SUMMARY

Line Number	Tariff Schedule		Customer Charge	Volumetric Charge
1	RESIDENTIAL (Rate G-1)		$ -	0.1245
2	NON-RESIDENTIAL (Rate G-1)		$ -	
3		Sales: 1-300		0.0909
4		Sales: 301-15000		0.0632
5		Sales: Over 15000		0.0000
6	INTERRUPTIBLE (Rate G-2)		$ -	
7		Sales: 1-15,000		0.0300
8		Sales: Over 15,000		0.0246
9	TRANSPORTATION (T-3)		$ -	
10		Interrupt Transport: 1-15,000		0.0223
11		Interrupt Transport: Over 15,000		0.0183
12	TRANSPORTATION (T-4)		$ -	
13		Firm Transport: 1-300		0.0371
14		Firm Transport: 301-15,000		0.0258
15		Firm Transport: Over 15,000		0.0213

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
DEFICIENCY

Line Number	Description	Total
1	Project Additions	$ 15,586,559
2	Project Retirements	$ (3,039,583)
3	**Net Change to Gross Plant**	$ 12,546,976
4		
5	Cost of Removal to Accumulated Depr.	$ 790,841
6	Retirements from Accumulated Depr.	3,039,583
7	Depreciation Accrual to Accumulated Depr.	(63,621)
8	**Net Change to Accumulated Depreciation**	3,766,802
9		
10	**Net Change to Net Plant**	$ 16,313,779
11		
12	Accumulated Deferred Income Taxes	(317,361)
13	**Net Change to Rate Base**	$ 15,996,418
14		
15	Rate of Return	7.75%
16	**Required Operating Income**	$ 1,240,282
17		
18	Depreciation & Amortization Expense	216,445
19	O&M Savings	(4,474)
20	Ad Valorem Tax Increase	122,265
21	Income Taxes on Cost of Service Items	(83,392)
22	Income Taxes on Adjusted Interest Expense	(71,271)
23	**Operating Income at Present Rates**	$ 179,573
24		
25	Deficiency	$ 1,419,855
26	Tax Factor	74.56%
27	**Total Rate Adjustment**	$ 1,904,243
28		
29	Project Cost True-up	$ 237,735
30	Revenue Recovery True-up	99,746
31	**Total True-up**	$ 337,481
32		
33	**Total Rate Adjustment**	$ 2,241,724

Note:

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
NET RATE BASE FOR FISCAL YEAR 2023

Line No.	Description	Cumulative balance as of Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	13-Month Average
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Net Investment														
1	Plant in Service	$ -	$ 3,745,265	$ 5,770,040	$ 7,766,651	$ 9,957,196	$ 12,739,158	$ 15,339,209	$ 18,252,442	$ 20,888,288	$ 23,460,426	$ 26,048,680	$ 28,319,918	$ 30,337,995	$ 15,586,559
2	Retirements	$ -	$ (684,917)	(1,094,662)	(1,499,864)	(1,939,816)	(2,477,961)	(2,987,505)	(3,552,051)	(4,073,910)	(4,581,911)	(5,097,403)	(5,555,536)	(5,969,041)	$ (3,039,583)
3	Investments Activity (Additions net of Retirements)	$ -	$ 3,060,348	$ 4,675,378	$ 6,266,787	$ 8,017,380	$ 10,261,198	$ 12,351,704	$ 14,700,392	$ 16,814,378	$ 18,878,516	$ 20,951,277	$ 22,764,382	$ 24,368,954	$ 12,546,976
4															
5															
6	**Accumulated Depreciation**														
7															
8	Depreciation Expense	$ -	$ (2,129)	(5,595)	(10,513)	(17,190)	(26,322)	(38,098)	(53,305)	(72,288)	(95,869)	(125,653)	(163,665)	(216,445)	$ (63,621)
9	Retirement	$ -	$ 684,917	1,094,662	1,499,864	1,939,816	2,477,961	2,987,505	3,552,051	4,073,910	4,581,911	5,097,403	5,555,536	5,969,041	$ 3,039,583
10	Cost of Removal	$ -	$ 192,926	294,712	395,008	505,340	646,771	778,535	926,576	1,059,816	1,189,915	1,320,555	1,434,825	1,535,948	$ 790,841
11	Accumulated Depreciation	$ -	$ 875,714	1,383,779	1,884,358	2,427,966	3,098,410	3,727,942	4,425,322	5,061,438	5,675,957	6,292,305	6,826,696	7,288,544	$ 3,766,802
12															
13															
14	**Accumulated Deferred Income Taxes**														
15															
16	ADIT	$ -	$ (471,445)	(720,840)	(966,971)	(1,238,047)	(1,585,644)	(1,910,328)	(2,275,617)	(2,605,759)	(2,929,408)	(3,255,972)	(3,544,688)	(3,805,097)	$ (1,946,909)
17	NOLC Variable	$ -	$ 269,397	538,793	808,190	1,077,586	1,346,983	1,616,379	1,885,776	2,155,172	2,424,569	2,693,965	2,963,362	3,502,155	$ 1,637,102
18	**Net ADIT**	$ -	$ (202,049)	(182,047)	(158,782)	(160,461)	(238,661)	(293,949)	(389,841)	(450,587)	(504,839)	(562,006)	(581,326)	(302,942)	$ (309,807)
19															
20	**Proration Adjustment**														$ (7,554)
21															
22	**Net Rate Base (Lines 3 + 11 + 18)**	$ -	$ 3,734,013	$ 5,877,110	$ 7,992,364	$ 10,284,885	$ 13,120,946	$ 15,785,697	$ 18,735,872	$ 21,425,229	$ 24,049,634	$ 26,681,577	$ 29,009,752	$ 31,354,555	$ 15,996,418

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORCASTED ACTIVITY
AS OF OCTOBER 2020 THROUGH SEPTEMBER 2021
RECOVERY SCHEDULE

Line No.	Surcharge Report	Actual Recovery Year		Approved Recovery Amt	Actual Recovery Amt	Over / (Under) Recovered	Carrying Charges	Total Over / (Under)	Weighted Average Cost of Capital
1	2021	Oct-20	Sep-21	4,474,439	4,381,643	(92,796)	(6,950)	(99,746)	7.49%
2				$ 4,474,439	$ 4,381,643	$ (92,796)	$ (6,950)	$ (99,746)	

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORCASTED ACTIVITY
AS OF OCTOBER 2020 THROUGH SEPTEMBER 2021
DEFICIENCY

Line Number	Description	Actual	As Filed
1	Project Additions	$ 39,519,538	$ 39,996,032
2	Project Retirements	(1,674,531)	(9,137,846)
3	**Net Change to Gross Plant**	$ 37,845,007	$ 30,858,185
4			
5	Cost of Removal to Accumulated Depr.	2,079,976	2,014,401
6	Retirements from Accumulated Depr.	1,674,531	9,137,846
7	Depreciation Accrual to Accumulated Depr.	(543,200)	(711,874)
8	**Net Change to Accumulated Depreciation**	3,211,306	10,440,373
9			
10	**Net Change to Net Plant**	$ 41,056,314	$ 41,298,558
11			
12	Accumulated Deferred Income Taxes	(1,233,814)	(1,930,185)
13	**Net Change to Rate Base**	$ 39,822,499	$ 39,368,374
14			
15	Rate of Return	7.49%	7.49%
16	**Required Operating Income**	$ 2,982,553	$ 2,948,541
17			
18	Depreciation & Amortization Expense	655,514	533,873
19	O&M Savings	(12,409)	(18,695)
20	Ad Valorem Tax Increase	301,841	246,116
21	Income Taxes on Cost of Service Items	(235,764)	(189,943)
22	Income Taxes on Adjusted Interest Expense	(180,004)	(185,332)
23	**Operating Income at Present Rates**	$ 529,178	$ 386,019
24			
25	Deficiency	$ 3,511,731	$ 3,334,560
26	Tax Factor	74.52%	74.52%
27	**Total Proposed Rate Adjustment**	$ 4,712,174	$ 4,474,439
28			
29	2021 approved deficiency	$ 4,474,439	$ 4,474,439
30			
31	Increase in deficiency	$ 237,735	$ -

Exhibit C

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
ADDITIONS

Line Number	Description	Mains	Services	Meters	Total
1					
2	Current Year: 2023	22,437,148	7,581,265	319,583	30,337,995
3					
4	Total Additions	$ 22,437,148	$ 7,581,265	$ 319,583	$ 30,337,995

Exhibit C-1

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
MONTHLY DEPRECIATION EXPENSE FOR FISCAL YEAR 2023

Line No.	Description	annual rate	Prior Yr	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Annual Totals	13-Month Average
	FERC 37600: Mains																
1	Monthly Investment Additions			$ 3,200,279	$ 1,403,322	$ 1,374,233	$ 1,545,866	$ 2,133,738	$ 1,939,650	$ 2,226,071	$ 1,922,460	$ 1,886,302	$ 1,862,445	$ 1,586,463	$ 1,356,318	$ 22,437,145	
2	Cumulative Investment		-	3,200,279	4,603,600	5,977,833	7,523,699	9,657,437	11,597,087	13,823,158	15,745,618	17,631,920	19,494,365	21,080,827	22,437,145		11,751,767
3	Monthly Retirements	16.53%		529,021	231,976	227,167	255,539	352,717	320,633	367,980	317,792	311,815	307,871	262,250	224,206	3,708,968	
4	Cumulative Retirements		-	529,021	760,997	988,165	1,243,704	1,596,421	1,917,054	2,285,034	2,602,826	2,914,641	3,222,512	3,484,762	3,708,968		1,942,623
5	Depreciable Base		-	2,671,257	1,171,346	1,147,066	1,290,327	1,781,021	1,619,017	1,858,091	1,604,668	1,574,487	1,554,574	1,324,213	1,132,112	18,728,178	
6	Monthly Depreciation Expense, book basis		-	1,714	2,534	3,417	4,521	6,235	8,016	10,401	12,872	15,903	19,893	24,991	33,709	144,207	
7	Cumulative Depreciation		-	1,714	4,248	7,665	12,186	18,422	26,438	36,839	49,711	65,614	85,507	110,498	144,207		43,312
8		Net	Depr.															
9	Month	Investment	Rate														
10	prior period	-	1.54%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Oct-22	2,671,257	1.54%		1,714	1,714	1,714	1,714	1,714	1,714	1,714	1,714	1,714	1,714	1,714	1,714	20,569
12	Nov-22	1,171,346	1.54%			820	820	820	820	820	820	820	820	820	820	820	9,019
13	Dec-22	1,147,066	1.54%				883	883	883	883	883	883	883	883	883	883	8,832
14	Jan-23	1,290,327	1.54%					1,104	1,104	1,104	1,104	1,104	1,104	1,104	1,104	1,104	9,936
15	Feb-23	1,781,021	1.54%						1,714	1,714	1,714	1,714	1,714	1,714	1,714	1,714	13,714
16	Mar-23	1,619,017	1.54%							1,781	1,781	1,781	1,781	1,781	1,781	1,781	12,466
17	Apr-23	1,858,091	1.54%								2,385	2,385	2,385	2,385	2,385	2,385	14,307
18	May-23	1,604,668	1.54%									2,471	2,471	2,471	2,471	2,471	12,356
19	Jun-23	1,574,487	1.54%										3,031	3,031	3,031	3,031	12,124
20	Jul-23	1,554,574	1.54%											3,990	3,990	3,990	11,970
21	Aug-23	1,324,213	1.54%												5,098	5,098	10,196
22	Sep-23	1,132,112	1.54%													8,717	8,717
23	**Total: FERC 376 Depr Exp**	**18,728,178**		$ -	$ 1,714	$ 2,534	$ 3,417	$ 4,521	$ 6,235	$ 8,016	$ 10,401	$ 12,872	$ 15,903	$ 19,893	$ 24,991	$ 33,709	$ 144,207	
24																		
25																		
26	**FERC 38000: Services**																
27	Monthly Investment Additions			$ 522,943	$ 596,316	$ 597,203	$ 618,603	$ 622,004	$ 633,688	$ 659,368	$ 684,529	$ 658,095	$ 696,451	$ 657,076	$ 634,991	$ 7,581,266	
28	Cumulative Investment		-	522,943	1,119,258	1,716,461	2,335,064	2,957,068	3,590,756	4,250,124	4,934,653	5,592,748	6,289,199	6,946,275	7,581,266		3,679,678
29	Monthly Retirements	28.147%		147,194	167,846	168,096	174,119	175,077	178,365	185,594	192,676	185,235	196,031	184,949	178,732	2,133,914	
30	Cumulative Retirements		-	147,194	315,040	483,136	657,255	832,332	1,010,697	1,196,291	1,388,967	1,574,202	1,770,233	1,955,182	2,133,914		1,035,726
31	Depreciable Base		-	375,749	428,469	429,107	444,484	446,927	455,322	473,774	491,853	472,860	500,420	472,128	456,259	5,447,352	
32	Monthly Depreciation Expense, book basis		-	388	871	1,403	2,016	2,709	3,515	4,494	5,714	7,180	9,248	12,175	17,833	67,547	
33	Cumulative Depreciation		-	388	1,260	2,663	4,679	7,387	10,902	15,396	21,110	28,290	37,539	49,714	67,547		18,990
34		Net	Depr.															
35	Month	Investment	Rate														
36	prior period	-	2.48%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	Oct-22	375,749	2.48%		388	388	388	388	388	388	388	388	388	388	388	388	4,659
38	Nov-22	428,469	2.48%			483	483	483	483	483	483	483	483	483	483	483	5,313
39	Dec-22	429,107	2.48%				532	532	532	532	532	532	532	532	532	532	5,321
40	Jan-23	444,484	2.48%					612	612	612	612	612	612	612	612	612	5,512
41	Feb-23	446,927	2.48%						693	693	693	693	693	693	693	693	5,542
42	Mar-23	455,322	2.48%							807	807	807	807	807	807	807	5,646
43	Apr-23	473,774	2.48%								979	979	979	979	979	979	5,875
44	May-23	491,853	2.48%									1,220	1,220	1,220	1,220	1,220	6,099
45	Jun-23	472,860	2.48%										1,466	1,466	1,466	1,466	5,863
46	Jul-23	500,420	2.48%											2,068	2,068	2,068	6,205
47	Aug-23	472,128	2.48%												2,927	2,927	5,854
48	Sep-23	456,259	2.48%													5,658	5,658
49	**Total: FERC 380 Depr Exp**	**5,447,352**		$ -	$ 388	$ 871	$ 1,403	$ 2,016	$ 2,709	$ 3,515	$ 4,494	$ 5,714	$ 7,180	$ 9,248	$ 12,175	$ 17,833	$ 67,547	
50																		
51	**FERC 38100: Meters**																
52	Monthly Investment Additions			$ 22,044	$ 25,137	$ 25,175	$ 26,077	$ 26,220	$ 26,713	$ 27,795	$ 28,856	$ 27,742	$ 29,358	$ 27,699	$ 26,768	$ 319,583	
53	Cumulative Investment		-	22,044	47,182	72,356	98,433	124,653	151,366	179,161	208,017	235,758	265,117	292,815	319,583		155,114
54	Monthly Retirements	39.48%		8,702	9,923	9,938	10,294	10,351	10,545	10,972	11,391	10,951	11,590	10,934	10,567	126,159	
55	Cumulative Retirements		-	8,702	18,625	28,563	38,857	49,208	59,753	70,726	82,117	93,068	104,658	115,592	126,159		61,233
56	Depreciable Base		-	13,342	15,214	15,237	15,783	15,869	16,168	16,823	17,465	16,790	17,769	16,764	16,201	193,424	
57	Monthly Depreciation Expense, book basis		-	27	61	97	140	188	244	312	397	499	642	845	1,238	4,691	
58	Cumulative Depreciation		-	27	87	185	325	513	757	1,069	1,466	1,965	2,607	3,452	4,691		1,319
59		Net	Depr.															
60	Month	Investment	Rate														
61	prior period	-	4.85%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62	Oct-22	13,342	4.85%		27	27	27	27	27	27	27	27	27	27	27	27	323.54
63	Nov-22	15,214	4.85%			34	34	34	34	34	34	34	34	34	34	34	368.94
64	Dec-22	15,237	4.85%				37	37	37	37	37	37	37	37	37	37	369.49
65	Jan-23	15,783	4.85%					43	43	43	43	43	43	43	43	43	382.73
66	Feb-23	15,869	4.85%						48	48	48	48	48	48	48	48	384.83
67	Mar-23	16,168	4.85%							56	56	56	56	56	56	56	392.06
68	Apr-23	16,823	4.85%								68	68	68	68	68	68	407.95
69	May-23	17,465	4.85%									85	85	85	85	85	423.52
70	Jun-23	16,790	4.85%										102	102	102	102	407.16
71	Jul-23	17,769	4.85%											144	144	144	430.89
72	Aug-23	16,764	4.85%												203	203	406.53
73	Sep-23	16,201	4.85%													393	392.87
74	**Total: FERC 381 Depr Exp**	**193,424**		$ -	$ 27	$ 61	$ 97	$ 140	$ 188	$ 244	$ 312	$ 397	$ 499	$ 642	$ 845	$ 1,238	$ 4,691	
75																		
76	**Total Depreciation Expense, Monthly (Lines 22+44+66)**			$ -	$ 2,129	$ 3,466	$ 4,918	$ 6,677	$ 9,132	$ 11,776	$ 15,207	$ 18,983	$ 23,581	$ 29,784	$ 38,012	$ 52,780	$ 216,445	

Notes: This Depreciation methodology is consistent with how the Company accounts for Depreciation expense on its books.

Exhibit C-2

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
MONTHLY COST OF REMOVAL FOR FISCAL YEAR 2023

Line No.	Description		Prior Yr Balance	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Annual Totals	13-Month Average
1	**FERC 37600: Mains**																
2	**Cost of Removal**			$ 168,436	$ 73,859	$ 72,328	$ 81,361	$ 112,302	$ 102,087	$ 117,162	$ 101,182	$ 99,279	$ 98,023	$ 83,498	$ 71,385	$ 1,180,902	
3		Accumulated	-	168,436	242,295	314,623	395,984	508,286	610,373	727,535	828,717	927,996	1,026,019	1,109,517	1,180,902		$ 618,514
4																	
5	**FERC 38000: Services**																
6	**Cost of Removal**			$ 24,490	$ 27,927	$ 27,968	$ 28,970	$ 29,130	$ 29,677	$ 30,879	$ 32,058	$ 30,820	$ 32,616	$ 30,772	$ 29,738	$ 355,046	
7		Accumulated	-	24,490	52,417	80,385	109,356	138,485	168,162	199,042	231,099	261,919	294,535	325,308	355,046		$ 172,327
8																	
9	**Total Cost of Removal**			$ 192,926	$ 101,786	$ 100,296	$ 110,332	$ 141,432	$ 131,764	$ 148,041	$ 133,240	$ 130,099	$ 130,640	$ 114,270	$ 101,123	$ 1,535,948	
10		Accumulated	-	192,926	294,712	395,008	505,340	646,771	778,535	926,576	1,059,816	1,189,915	1,320,555	1,434,825	1,535,948		$ 790,841

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
RETIREMENTS

Line Number	Description	Mains	Services	Meters	Total
1	Current Year: 2023	3,708,968	2,133,914	126,159	5,969,041
2					
3	Total Retirements	$ 3,708,968	$ 2,133,914	$ 126,159	$ 5,969,041

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
DEPRECIATION EXPENSE

Line Number	Description	Mains	Services	Meters	Total
1	Net Change to Gross Plant	$ 18,728,180	$ 5,447,351	$ 193,424	
2	Depreciation Rates	1.54%	2.48%	4.85%	
3	Proforma Annual Depreciation Expense	$ 288,414	$ 135,094	$ 9,381	$ 432,889
4					
5	Current Year Net Change to Gross Plant	$ 18,728,180	$ 5,447,351	$ 193,424	
6	Depreciation Rates	1.54%	2.48%	4.85%	
7	Proforma Annual Depreciation Expense	$ 288,414	$ 135,094	$ 9,381	$ 432,889
8					
9	Depreciation Accrual to Accumulated Depreciation from Prior Approved Filing				$ -
10	Accumulated Depreciation on Prior Additions (full years depreciation)				-
11	Accumulated Depreciation on Current Additions (half-year convention)				216,445
12					
13	Depreciation Accrual to Accumulated Depreciation				$ 216,445

Note:

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
KENTUCKY PRP ADIT CALCULATION

Line No		Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Total
1	Book Cost	3,060,348	1,615,030	1,591,409	1,750,593	2,243,818	2,090,507	2,348,687	2,113,986	2,064,137	2,072,762	1,813,105	1,604,572	24,368,954
2	Tax Cost	1,172,972	619,010	609,956	670,968	860,012	801,251	900,206	810,250	791,144	794,450	694,928	615,001	9,340,148
3	FXA01	$ (1,887,376) $	(996,020) $	(981,453) $	(1,079,625) $	(1,383,806) $	(1,289,256) $	(1,448,481) $	(1,303,736) $	(1,272,994) $	(1,278,312) $	(1,118,177) $	(989,571) $	(15,028,806)
4														
5														
6	Prior Yr Bal	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Current Yr	(1,887,376)	(996,020)	(981,453)	(1,079,625)	(1,383,806)	(1,289,256)	(1,448,481)	(1,303,736)	(1,272,994)	(1,278,312)	(1,118,177)	(989,571)	(15,028,806)
8	FXA01 Cumulative	(1,887,376)	(2,883,396)	(3,864,849)	(4,944,474)	(6,328,279)	(7,617,535)	(9,066,016)	(10,369,753)	(11,642,746)	(12,921,059)	(14,039,236)	(15,028,806)	(15,028,806)
9	Deferred Rate	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%
10	FXA01 Tax Effected	$ (470,900) $	(719,407) $	(964,280) $	(1,233,646) $	(1,578,906) $	(1,900,575) $	(2,261,971) $	(2,587,253) $	(2,904,865) $	(3,223,804) $	(3,502,789) $	(3,749,687) $	(3,749,687)
11	**FXA01 Prorated**	$ (450,903) $	(668,432) $	(861,982) $	(1,052,014) $	(1,269,102) $	(1,444,037) $	(1,610,874) $	(1,733,411) $	(1,826,955) $	(1,893,801) $	(1,928,578) $	(1,939,063) $	(1,939,063)
12														
13														
14														
15	Book Depreciation	2,129	3,466	4,918	6,677	9,132	11,776	15,207	18,983	23,581	29,784	38,012	52,780	216,445
16	Tax Depreciation	4,314	7,022	9,964	13,528	18,502	23,858	30,811	38,460	47,777	60,343	77,015	106,935	438,530
17	FXA02	$ (2,185) $	(3,556) $	(5,046) $	(6,851) $	(9,370) $	(12,082) $	(15,603) $	(19,478) $	(24,196) $	(30,560) $	(39,003) $	(54,155) $	(222,086)
18														
19														
20														
21	Prior Yr Bal	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Current Yr	(2,185)	(3,556)	(5,046)	(6,851)	(9,370)	(12,082)	(15,603)	(19,478)	(24,196)	(30,560)	(39,003)	(54,155)	(222,086)
23	FXA02 Cumulative	(2,185)	(5,741)	(10,787)	(17,638)	(27,008)	(39,090)	(54,694)	(74,172)	(98,367)	(128,927)	(167,930)	(222,086)	(222,086)
24	Deferred Rate	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%
25	FXA02 Tax Effected	$ (545) $	(1,432) $	(2,691) $	(4,401) $	(6,739) $	(9,753) $	(13,646) $	(18,506) $	(24,543) $	(32,167) $	(41,899) $	(55,410) $	(55,410)
26	**FXA02 Prorated**	$ (522) $	(1,299) $	(2,294) $	(3,500) $	(4,970) $	(6,609) $	(8,406) $	(10,237) $	(12,015) $	(13,613) $	(14,826) $	(15,400) $	(15,400)
27														
28	Cumulative Deferred Inc. Taxes and Investment Tax Credits												$	(1,954,463)
29	*(excluding forecasted change in NOLC)*													
30	Forecasted Change in NOLC												$	3,502,155
31														
32	**Forecasted ADIT in Rate Base**												$	1,547,692

33			Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Total
33		**ADIT Proration:**													
34		days in month	31	30	31	31	28	31	30	31	30	31	31	30	365
35		mid month convention	15.5	30	31	31	28	31	30	31	30	31	31	30	
36		days remaining	350	320	289	258	230	199	169	138	108	77	46	16	
37		pro ration factor	95.75%	87.53%	79.04%	70.55%	62.88%	54.38%	46.16%	37.67%	29.45%	20.96%	12.47%	4.25%	

Line No		Schedule Reference		Total
38				
39	**Calculation of Change in NOLC**			
40		Schedule		
41	Forecasted Test Period	Reference		
42				
43	Net Change to Rate Base	Exhibit B		15,996,418
44				
45	Required Operating Income	Exhibit B		1,240,282
46				
47	Interest Deduction	Exhibit B		285,656
48				
49	Return on Equity Portion of Rate Base	line 36 - line 38		954,626
50				
51	Return, grossed up for Income Tax	Line 40 / (1-tax rate)	24.95%	1,271,987
52				
53	Tax Expense on Return	Line 42 x tax rate	24.95%	317,361
54				
55	Change In ADIT, excluding forecasted change in N	Line 22		$ (3,805,097)
56	Required Change in NOLC			3,502,155
57				
58	**Total Required Change in Accumulated Deferre**	**Exhibit B**		(317,361)
59				

60 [1] *Because the Company is in a NOLC position, the total change in ADIT must equal the tax expenses included in revenue requirement*

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
DEFERRED INCOME TAXES

Line Number	Description	Mains	Services	Meters	Total
1					
2	Additions to Gross Plant - Book 2023	$ 22,437,148	$ 7,581,265	$ 319,583	$ 30,337,995
3	Less: Retirements to Book 2023	(3,708,968)	(2,133,914)	(126,159)	(5,969,041)
4	**Book Basis**	**$ 18,728,180**	**$ 5,447,351**	**$ 193,424**	**$ 24,368,954**
5	Repairs Percentage	69.95%	69.95%	0.00%	
6	Less: Repairs	$ (15,694,761)	$ (5,303,087)	$ -	$ (20,997,847)
7	Add: Deferred Retirements	$ 3,708,968	$ 2,133,914	$ 126,159	5,969,041
8	Tax Basis Before Bonus	$ 6,742,387	$ 2,278,178	$ 319,583	9,340,148
9	Bonus Depreciation %	0.00%	0.00%	0.00%	
10	Bonus Depreciation	$ -	$ -	$ -	$ -
11	**Tax Basis**	**$ 6,742,387**	**$ 2,278,178**	**$ 319,583**	**$ 9,340,148**
12					
13	FXA01 - Gross	$ (11,985,793)	$ (3,169,172)	$ 126,159	$ (15,028,807)
14	Deferred Rate	24.95%	24.95%	24.95%	
15	**FXA01 - Tax Effected**	**$ (2,990,455)**	**$ (790,709)**	**$ 31,477**	**$ (3,749,687)**
16	**FXA01 - Tax Effected Prorated**				**$ (1,939,063)**
17					
18					
19	Book Depreciation 2023	$ 144,207	$ 67,547	$ 4,691	$ 216,445
20	Book Depreciation	$ 144,207	$ 67,547	$ 4,691	$ 216,445
21					
22	Tax Depreciation 2023	$ 337,119	$ 85,432	$ 15,979	$ 438,530
23	Tax Depreciation	$ 337,119	$ 85,432	$ 15,979	$ 438,530
24					
25	FXA02 - Gross	$ (192,912)	$ (17,885)	$ (11,289)	$ (222,085)
26	Deferred Rate	24.95%	24.95%	24.95%	
27	**FXA02 - Tax Effected**	**$ (48,132)**	**$ (4,462)**	**$ (2,817)**	**$ (55,410)**
28	**FXA02 - Tax Effected Prorated**				**$ (15,400)**
29					
30	**Calculation of Book Depreciation**				
31					
32	Book Basis - 2023	$ 18,728,180	$ 5,447,351	$ 193,424	$ 24,368,954
33	Book Depreciation Rates - Year 1	0.77%	1.24%	2.43%	
34	Book Depreciation 2023	**$ 144,207**	**$ 67,547**	**$ 4,691**	**$ 216,445**
35					
36	**Calculation of Tax Depreciation**				
37					
38	Tax Basis - 2023	$ 6,742,387	$ 2,278,178	$ 319,583	$ 9,340,148
39	Tax Depreciation Rates - Year 1	5.00%	3.75%	5.00%	
40	Tax Depreciation 2023	**$ 337,119**	**$ 85,432**	**$ 15,979**	**$ 438,530**
41					
42					
43					
44					
45	**Tax Rates**				
46	Ad Valorem Tax Rate	0.974%			
47	Income Tax Rate	24.950%			
48	State Tax Rate	5.00%			
49	Federal Tax Rate	21.00%			
50	Uncollectible accounts expense	0.50%			
51	PSC Assessment	0.1493%			
52	Gross Up Factor	1.3412			

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
RATE OF RETURN

Line Number	Description	Percent	Cost	Weighted Cost
1	ST Debt	0.05%	80.94%	0.04%
2	LT Debt	45.45%	3.84%	1.75%
3	Equity	54.50%	10.95%	5.97%
4		100.0%		7.75%

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
O&M SAVINGS

Line Number	Description	Annual Savings	Cumulative Savings
1	Current Year: 2023	$ 4,474	$ 4,474

Exhibit I

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
RATE DESIGN

Case 2020-00214

Line Number	Class of Customers	Rate	Total	Total Dollars	Ratio	Volumetric Charge Ratio	Revenue increase by Class	Budgeted Volumes	Budgeted Customer Counts	Customer Charge	Volumetric Charge
1	RESIDENTIAL (Rate G-1)				55.58%		$ 1,245,957		1,941,034		
2	FIRM BILLS	$19.30	1,930,462	$37,257,917						$ -	
3	Sales: 1-300	1.5483	10,018,608	$15,511,811		100.00%		10,005,605			0.1245
4	Sales: 301-15000	1.0762	0	$0		0.00%		0			
5	Sales: Over 15000	0.8888	0	$0		0.00%		0			
6	CLASS TOTAL (Mcf/month)		10,018,608	52,769,728				10,005,605			
7											
8	NON-RESIDENTIAL (Rate G-1)				26.86%		$ 602,073		240,676		
9	FIRM BILLS	66.00	239,727	$15,821,982						$ -	
10	Sales: 1-300	1.5483	5,456,430	$8,448,191		87.30%		5,779,978			0.0909
11	Sales: 301-15000	1.0762	1,142,223	$1,229,260		12.70%		1,209,953			0.0632
12	Sales: Over 15000	0.8888	0	$0		0.00%		0			
13	CLASS TOTAL (Mcf/month)		6,598,653	25,499,433				6,989,931			
14											
15	INTERRUPTIBLE (G-2)				0.31%		$ 6,998		88		
16	INT BILLS	520.00	97	$50,440						$ -	
17	Sales: 1-15000	0.9557	216,799	$207,195		84.24%		196,639			0.0300
18	Sales: Over 15000	0.7837	49,469	$38,769		15.76%		44,869			0.0246
19	CLASS TOTAL (Mcf/month)		266,268	296,404				241,508			
20											
21	TRANSPORTATION (T-3)				8.24%		184,737		840		
22	TRANSPORTATION BILLS	520.00	838	$435,760						$ -	
23	Interrupt Transport: 1-15000	0.9557	4,937,981	$4,719,228		63.87%		5,285,147			0.0223
24	Interrupt Transport: Over 15000	0.7837	3,405,818	$2,669,140		36.13%		3,645,265			0.0183
25	CLASS TOTAL (Mcf/month)		8,343,799	7,824,128				8,930,412			
26											
27	TRANSPORTATION (T-4)				9.01%		201,958		1,464		
28	TRANSPORTATION BILLS	520.00	1,429	$742,877						$ -	
29	Firm Transport: 1-300	1.5483	412,985	$639,425		8.19%		446,010			0.0371
30	Firm Transport: 301-15000	1.0762	5,249,162	$5,649,148		72.33%		5,668,919			0.0258
31	Firm Transport: Over 15000	0.8888	1,712,468	$1,522,042		19.49%		1,849,408			0.0213
32	CLASS TOTAL (Mcf/month)		7,374,615	8,553,492				7,964,337			
33											
34	Total Revenue			94,943,184	100.00%		$ 2,241,724	34,131,793	2,184,103		
35											
36											
37								**KY Revenue Requirement**			$	2,241,724

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORECASTED ACTIVITY
AS OF OCTOBER 2022 THROUGH SEPTEMBER 2023
CUSTOMERS & VOLUMES

Line Number	Tariff	Description		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
		Customers														
1	G-1	Residential	**Fiscal 2023 Bud**	158,399	160,564	162,424	163,942	163,310	164,591	164,062	164,142	161,415	160,986	159,343	157,855	1,941,034
2	G-1	Commercial Firm	**Fiscal 2023 Bud**	17,846	18,111	18,496	18,718	18,569	18,804	18,637	18,460	18,109	17,959	17,923	17,942	219,573
3	G-1	Public Authority	**Fiscal 2023 Bud**	1,529	1,518	1,535	1,539	1,531	1,539	1,523	1,534	1,532	1,527	1,515	1,523	18,343
4	G-1	Industrial Firm	**Fiscal 2023 Bud**	230	230	230	230	230	230	230	230	230	230	230	230	2,760
5																
6	G-2	Commercial Interruptible	**Fiscal 2023 Bud**	2	3	3	3	3	3	2	2	2	2	2	2	28
7	G-2	Industrial Interruptible	**Fiscal 2023 Bud**	5	5	5	5	5	5	5	5	5	5	5	5	60
8	G-2	Public Authority Interruptible	**Fiscal 2023 Bud**	-	-	-	-	-	-	-	-	-	-	-	-	-
9																
10	T-3	Transportation Interruptible	**Fiscal 2023 Bud**	70	70	70	70	70	70	70	70	70	70	70	70	840
11	T-4	Transportation Firm	**Fiscal 2023 Bud**	122	122	122	122	122	122	122	122	122	122	122	122	1,464
12				178,203	180,623	182,885	184,629	183,840	185,364	184,651	184,564	181,485	180,901	179,210	177,748	2,184,103
13																
14		**Volumes**														
15																
16	G-1	Residential	**Fiscal 2023 Bud**	168,214	609,665	1,465,801	2,081,448	2,007,745	1,590,244	1,028,050	414,625	162,415	161,983	160,329	155,086	10,005,605
17	G-1	Commercial Firm	**Fiscal 2023 Bud**	246,332	330,086	672,117	989,567	921,281	771,762	486,190	222,389	168,055	153,679	138,362	234,078	5,333,897
18	G-1	Public Authority	**Fiscal 2023 Bud**	30,377	57,641	121,222	175,090	165,833	137,258	90,822	48,889	29,897	21,373	21,215	24,579	924,195
19	G-1	Industrial Firm	**Fiscal 2023 Bud**	30,212	51,894	91,049	115,667	141,499	111,219	56,661	33,687	23,737	26,318	22,174	27,722	731,839
20																
21	G-2	Commercial Interruptible	**Fiscal 2023 Bud**	102	805	1,484	1,819	2,032	1,939	816	380	160	25	25	29	9,617
22	G-2	Industrial Interruptible	**Fiscal 2023 Bud**	16,601	21,713	22,852	27,389	19,704	12,435	18,194	23,233	17,077	19,775	16,421	16,497	231,891
23	G-2	Public Authority Interruptible	**Fiscal 2023 Bud**	-	-	-	-	-	-	-	-	-	-	-	-	-
24																
25	T-3	Transportation Interruptible	**Fiscal 2023 Bud**	676,269	747,827	846,239	802,581	828,913	759,563	791,169	738,898	747,919	713,837	591,498	685,698	8,930,412
26	T-4	Transportation Firm	**Fiscal 2023 Bud**	560,042	615,961	766,185	718,101	890,462	824,442	733,337	628,376	574,066	543,477	548,376	561,511	7,964,337
27				1,728,149	2,435,592	3,986,948	4,911,662	4,977,471	4,208,864	3,205,241	2,110,476	1,723,325	1,640,468	1,498,400	1,705,199	34,131,793

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORCASTED ACTIVITY

2023 PROJECT DETAILS

Projects	Project Description	No. of services	Installation			Cost of Removal			Retirements		
			Main	Services	Meters	Main	Services	Meters	Main	Services	Meters
PRP.2636.N Cherry St Greenville	Replace 146' of 2" Mill Wrap Bare Joint, 5212' of 2" Bare Stl, 778' of Fusion Bond Epoxy, 88' of 2" Unknown coating, 736' of 2" Mill Wrap 407' of 3" Bare, 200'of 2" Epoxy, 15' of 2" PE, 498' of 4" Bare Stl, Install 8,080' of 2" HDPE 130 services.	130	722,565			$38,030					
	Contractor			419,900			22,100				
	Material			52,000	19,893						
	Overhead			103,960	4,382		4,869				
PRP.2636.W Campbell St	Replace 299' of 2" Steel unknown coating, 57' of 1" Bare Steel, 648' of 4" Epoxy, 135' of 4" unknown coating, 50' of 3" Mill Wrap, 2,770' of 4" Bare Steel , 245' of Mill Wrap Bare joint, 554' of 2" painted, 211' of 6" Mill Wrap, 550' of4" Mill Wrap, 14' of 3" Mill Wrap Bare joint, 312' of3" Bare Steel, 271' of 2" Epoxy, 486' of 2" Fusion Bond Epoxy, 3' of 2" PE, 103' of 1.25" Bare Steel, 1,224' of 2" Bare Steel, 102' of 6" Mill Wrap Bare joint, 91' of 6" unkown coating. Install 4,244' of 2" and 2,768' of 4" HDPE. 65 services	65	747,261			$39,330					
	Contractor			209,950			11,050				
	Material			26,000	9,946						
	Overhead			51,980	2,191		2,434				
PRP.2636.Oak St	Replace 201' of 1.25" Steel unknown coating, 427' of 2" Steel unknown coating, 1,405' of 2" Bare Steel, 123' of 4" Mill Wrap,277' of Mill Wrap, 1,225' of 3" Bare Steel, 197' of 2" Fusion Bond Epoxy, 1,428' of 4" Bare Steel, 31' of 4" PE, Install 3,887' of 2" and 1,428' of 4" HDPE. 62 services	62	570,084			$30,004					
	Contractor			200,260			10,540				
	Material			24,800	9,487						
	Overhead			49,581	2,090		2,322				
PRP.2636.Maple Dr	Replace 201' of 4" Steel unknown coating, 589' of 3" Bare Steel, 235' of 2" Steel unknown coating, 359' of 3" Painted, 71' of 4" Mill Wrap, 451' of 4" Bare Steel, 101' of 2" PE, Install 1,384' of 2" and 672' of 4" HDPE. 23 services	23	218,909			$11,522					
	Contractor			74,290			3,910				
	Material			9,200	3,519						
	Overhead			18,393	775		861				

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORCASTED ACTIVITY

2023 PROJECT DETAILS

Projects	Project Description	No. of services	Installation			Cost of Removal			Retirements		
			Main	Services	Meters	Main	Services	Meters	Main	Services	Meters
PRP.W Depot St	Replace 125' of 2" Steel unknown coating, 269' of unknown diameter and unknown coating pipe, 276' of 4" Mill Wrap, 204' of 4" Painted, 65' of 2" Epoxy, 604' of 4" Bare, 909' of 2" Bare, Install 1,581' of 2" and 871' of 4" HDPE, 33 services.	33	272,399			$14,337					
	Contractor			106,590			5,610				
	Material			13,200	5,050						
	Overhead			26,390	1,112		1,236				
PRP.2635.Maple Street	Replace 1268' of 2" Epoxy,527' of 1.25 Bare Stl., 63' of 3" Epoxy, 218' of 2" N/A Plastic, 108' of 1" Bare Stl.,2491' of 2" Bare Stl., 1684' of 3" Bare Stl., 130' of 1.25 PE, Install 5359' of 2" HDPE 110 services	110	929,700			$48,932					
	Contractor			355,300			18,700				
	Material			44,000	16,832						
	Overhead			87,966	3,708		4,120				
PRP.2635.E Keigan St	Replace 5,570' of 2" Mill Wrap Bare Joint, 1,044' of 4" Mill Wrap Bare Joint, 201' of 2" Steel unknown coating, 76' of 2" Painted, Install 5,847' of 2" and 1044' of 4" HDPE. 95 services	95	686,640			$36,139					
	Contractor			306,850			16,150				
	Material			38,000	14,537						
	Overhead			75,970	3,202		3,558				
Adyl.2635.St Charles Replacement	Replace 612' of 1.25" Mill Wrap, 305' of 2" PE, 449' of 2" Aldyl-A and 8,718' of 1.25" Adlyl-A, Install 10,085' of 2" HDPE. 90 Services	90	1,134,333			$59,702					
	Contractor			290,700			15,300				
	Material			36,000	13,772						
	Overhead			71,972	3,034		3,371				
PRP.2637.Washington St	Replace 219' of 1.25" Fusion Bond Epoxy, 392' of 2" PE, 111' of 2" Steel unknown coating, 411' of 2" Mill Wrap, 611' of 2" Bare Steel, 1,037' of Mill Wrap Bare joint, 4,430' of 4" bare Steel, Install 2,782' of 2" and 4,430' of 4" HDPE. 68 services	68	668,058			$35,161					
	Contractor			219,640			11,560				
	Material			27,200	10,405						
	Overhead			54,379	2,292		2,547				

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORCASTED ACTIVITY

2023 PROJECT DETAILS

Projects	Project Description	No. of services	Installation			Cost of Removal			Retirements		
			Main	Services	Meters	Main	Services	Meters	Main	Services	Meters
PRP.2637.Hilldale Dr	Replace 66' of 3" Mill Wrap Bare joint, 216' of 2" PE, 703' of 3" Mill Wrap, 245' of 2" Bare Steel, 3,236' of 2" Mill Wrap Bare joint, 1,334' of 2" Mill Wrap, 40' of 2" Fusion Bond Epoxy, Install 6,116' of 2" HDPE. 80 services	80	501,116			$26,375					
	Contractor			258,400			13,600				
	Material			32,000	12,242						
	Overhead			63,975	2,697			2,996			
PRP.2637.Sunset Ave	Replace 99' of 2" Steel unknown coating, 20' of 6" Mill Wrap, 100' of 2" Bare Steel, 2,515' of 2" Mill Wrap, 1' of 2" Epoxy, 1' of 3" Epoxy, 3,560' of 6" Mill Wrap Bare joint, 931' of 3" Mill Wrap Bare joint, Install 3,668' of 2" and 3,560' of 6" HDPE. 92 services	92	704,072			$37,056					
	Contractor			297,160			15,640				
	Material			36,800	14,078						
	Overhead			73,571	3,101			3,445			
PRP.2637.Lone Oak 2	Replace 1,260' of 4" Steel unknown coating, 479' of 2" PE, 238' of 2" Steel unknown coating, 106' of 8" Mill Wrap, 1,928' of 8" Mill Wrap Bare joint, 1,711' of 2" Mill Wrap Bare joint, 171' of 2" Mill Wrap, 73' of Fusion Bond Epoxy, Install 2,672' of 2" , 1,260' of 4" and 2,032' of 8" HDPE 30 services	30	683,341			$35,965					
	Contractor			96,900			5,100				
	Material			12,000	4,591						
	Overhead			23,991	1,011			1,124			
PRP.2637.North 8th and 11th St	Replace 56' of 2" Steel unknown coating, 1,365' of 2" Mill Wrap Bare joint, 8' of 4" Mill Wrap, 1,465' of 2" Mill Wrap, 314' of 2" Fusion Bond Epoxy, 3,759' of 4" Mill Wrap Bare joint, 513' of 2" PE, 100' of 2" Epoxy, 18' of 4" Epoxy, Install 5,719' of 2" and 1,880' of 4" HDPE. 62 services	62	601,738			$31,670					
	Contractor			200,260			10,540				
	Material			24,800	9,487						
	Overhead			49,581	2,090			2,322			
PRP.2734.US 31W	Replace 978' of 1.25" Fusion Bond Epoxy, 12' of 2" Fusion Bond Epoxy, 462' of 4" Mill Wrap, 19' of 4" PE, 254' of 2" Epoxy, 108' of 1.25" Epoxy, 1,889' of 4" Bare Steel, 490' of 491' of 2" Mill Wrap, 778' of 2" Bare Steel, 30' of 2" PE, with 2,513' of 2" and 1,895' of 4" HDPE. 37 services	37	578,739			$30,460					
	Contractor			119,510			6,290				
	Material			14,800	5,662						
	Overhead			29,588	1,247			1,386			

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORCASTED ACTIVITY

2023 PROJECT DETAILS

Projects	Project Description	No. of services	Installation Main	Installation Services	Installation Meters	Cost of Removal Main	Cost of Removal Services	Cost of Removal Meters	Retirements Main	Retirements Services	Retirements Meters
PRP.2734.Schweizer Rd	Replace 25,500' of 8" high pressure Bare steel iInstall 25,500' of Fusion Bond Epoxy Steel, project will also includ a new Purchase Station , check meter , YZ odorzer, all electronics and a expanded station lot.	20	8,579,348			$451,545					
	Contractor			64,600			3,400				
	Material			8,000	3,060						
	Overhead			15,994	674		749				
Adyl.2736.Lincoln Ave	Replace 2,599' of 2" Adyl A, 3,407' of 2" PE, 1,002' of 1" Adly A, Install 7,008' of 2" HDPE. 53 Services	53	698,507			$36,764					
	Contractor			171,190			9,010				
	Material			21,200	8,110						
	Overhead			42,384	1,787		1,985				
Adyl. 2736.Cunningham Ave	Replace 3,573' of 2" Adyl A, 5' of 2" PE, 100' of unknown Plastic, 2,399' of 1" Adyl A 5' od 1" PE, Install 6,100' of 2" HDPE. 80 services	80	475,579			$25,030					
	Contractor			258,400			13,600				
	Material			32,000	12,242						
	Overhead			63,975	2,697		2,996				
PRP.2738.Covington Ave	Replace 105' of 2" Epoxy, 1,210' of 2" Mill Wrap, 8' of 2" Stl., unknown coating, 2,072' of 4" painted, 1,514' of 2" Painted, 210' of 2" Mill Wrap Bare joint, 303' of 1.25" painted, 63' of 1.25" Fusion Bond Epoxy, 345' of 2" Hot Tar, 892' of Fusion Bond Epoxy, Install 6,722' of 2" HDPE 98 services.	98	672,708			$35,406					
	Contractor			316,540			16,660				
	Material			39,200	14,996						
	Overhead			78,370	3,304		3,670				
PRP.2737.Logan Ave	Replace 2,719' of 2" Mill Wrap Bare joint, 2,093' of 4" Mill Wrap Bare joint, 279' of 2" Bare Stl., 33' of 2" PE, Install 3,031' of 2" and 2,093' of 4" HDPE HDPE 92 services.	92	656,032			$34,528					
	Contractor			297,160			15,640				
	Material			36,800	14,078						
	Overhead			73,571	3,101		3,445				
PRP.2737.Portman St	Replace 546' of 2" Bare Stl., 5,215' of Mill Wrap Bare Joint, 489' of 2" Stl unknown coating, 1,132' of 2" Mill Wrap, 567' of 2" Mill Wrap Bare Joint, 100' of 2" PE, Install 2,301' of 2" and 3,817' of HDPE, 103 services.	103	737,557			$38,819					
	Contractor			332,690			17,510				
	Material			41,200	15,761						
	Overhead			82,368	3,472		3,857				

ATMOS ENERGY CORPORATION
KENTUCKY PIPE REPLACEMENT PROGRAM
SURCHARGE CALCULATION OF FORCASTED ACTIVITY

2023 PROJECT DETAILS

Projects	Project Description	No. of services	Installation			Cost of Removal			Retirements		
			Main	Services	Meters	Main	Services	Meters	Main	Services	Meters
PRP.2737.Locust St	Replace 1,557'of 2" Bare Stl., 141' of 2" Hot Tar,324' of 2" Mill Wrap, 803' of Fusion Bond Epoxy, 970' of 4" Bare Stl.,Install 2,919' of 2" and 851' of 4" HDPE 88 services	88	436,750			$22,987					
	Contractor			284,240			14,960				
	Material			35,200	13,466						
	Overhead			70,373	2,967		3,296				
PRP.2737.Orchard St	Replace 809' of 2" Unknown coating, 2,252' of 2" Bare Stl., 1,382' of 2" Mill Wrap , 227' of 2" Hot Tar, Install 4,670' of 2" HDPE 98 services	98	504,607			$26,558					
	Contractor			316,540			16,660				
	Material			39,200	14,996						
	Overhead			78,370	3,304		3,670				
PRP.2738.Mulberry St	Replace 537' of 4" Epoxy, 1,949' of 6" Bare Stl., 151' of 2" Stl. Unknown coating, 67' of 4" Mill Wrap, 1,643' of of 2" Bare Stl., 72' of 2" Fusion Bond Epoxy, 602' of Mill Wrap Bare Joint, 384' of 2" Mill Wrap, 508' of 2" Painted, 361' of 2" PE, 159' of 2" Epoxy, Install 4,678' of 2" and 1,754' of 4" HDPE 90 services.	90	657,106			$34,585					
	Contractor			290,700			15,300				
	Material			36,000	13,772						
	Overhead			71,972	3,034		3,371				
	Total specific budgeted projects & bare steel functional		**22,437,148**	**7,526,042**	**317,255**	**1,180,903**	**352,459**	**-**	**-**	**-**	**-**
	Non specfic bare steel functional			55,223	2,328	-	2,586				
	Total budgeted 2023 projects		**22,437,148**	**7,581,265**	**319,583**	**1,180,903**	**355,045**	**-**	**3,708,968**	**2,133,914**	**126,159**