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**INDIANA UTILITY
REGULATORY COMMISSION**

JOINT PETITIONERS' EXHIBIT NO. 7

**OHIO VALLEY GAS CORPORATION AND
OHIO VALLEY GAS, INC.**
INDIANA UTILITY REGULATORY COMMISSION

DIRECT TESTIMONY

OF

ANN E. BULKLEY

SPONSORING ATTACHMENTS AEB-1 THROUGH AEB-11

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Attachment AEB-1	Resume and Testimony Listing
Attachment AEB-2	Summary of ROE Analyses
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OHIO VALLEY GAS CORPORATION AND OHIO VALLEY GAS, INC.

DIRECT TESTIMONY OF ANN E. BULKLEY

I. INTRODUCTION AND OVERVIEW

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Q. What is your name, position, and business address?

A. My name is Ann E. Bulkley. I am a Principal at The Brattle Group (“Brattle”). My business address is One Beacon Street, Suite 2600, Boston, Massachusetts 02108.

Q. On whose behalf are you submitting this testimony?

A. I am submitting this pre-filed direct testimony (“direct testimony”) before the Indiana Utility Regulatory Commission (“IURC” or the “Commission”) on behalf of Joint Petitioners Ohio Valley Gas Corporation and its subsidiary, Ohio Valley Gas, Inc. (collectively “OVG” or the “Company”).

Q. Please describe your education and experience.

A. I hold a Bachelor’s degree in Economics and Finance from Simmons College and a Master’s degree in Economics from Boston University, with over 25 years of experience consulting to the energy industry. I have advised numerous energy and utility clients on a wide range of financial and economic issues with primary concentrations in valuation and utility rate matters. Many of these assignments have included the determination of the cost of capital for valuation and ratemaking purposes. I have included my resume and a listing of testimony that I have filed in other proceedings as Attachment AEB-1.

1 **Q. What is the purpose of your direct testimony?**

2 A. The purpose of my direct testimony is to present evidence and provide a recommendation
3 regarding the appropriate return on equity (“ROE”) for the Company.

4 **Q. Are you sponsoring any exhibits or schedules in support of your direct testimony?**

5 A. Yes. My analyses and recommendations are supported by the following attachments,
6 which were prepared by me or under my direction:

- 7 • Attachment AEB-1- Resume and Testimony Listing
- 8 • Attachment AEB-2- Summary of ROE Analyses
- 9 • Attachment AEB-3- OVG Proxy Group Selection
- 10 • Attachment AEB-4- Constant Growth DCF Analysis
- 11 • Attachment AEB-5- CAPM Analysis
- 12 • Attachment AEB-6- Historical Proxy Group Betas
- 13 • Attachment AEB-7- S&P 500 Market Return
- 14 • Attachment AEB-8- Bond Yield Plus Risk Premium
- 15 • Attachment AEB-9- Small Size Premium
- 16 • Attachment AEB-10- Capital Expenditure Analysis
- 17 • Attachment AEB-11- Regulatory Risk Analysis

18 **Q. Please provide a brief overview of the analyses that led to your ROE recommendation.**

19 A. In developing my opinion, I have estimated the cost of equity by applying traditional
20 estimation methodologies to a proxy group of comparable utilities, including the constant
21 growth form of the Discounted Cash Flow (“DCF”) model, the Capital Asset Pricing Model
22 (“CAPM”), the Empirical Capital Asset Pricing Model (“ECAPM”), and a Bond Yield
23 Risk Premium (“BYRP” or “Risk Premium”) analysis. My recommendation also takes
24 into consideration the following factors: (1) the Company’s small size relative to the proxy
25 group; (2) the financial implications of the Company’s recent and extraordinary medical
26 expenses; (3) the Company’s anticipated capital expenditure requirements; and (4) the
27 Company’s regulatory risk as compared with the proxy group. While I do not make

1 specific adjustments to my ROE recommendation for any individual factor, I did consider
2 them in the aggregate when determining where my recommended ROE falls within the
3 range of the analytical results.

4 **Q. Do you have any workpapers supporting your testimony and attachments?**

5 A. Yes. Workpapers AEB-1 through AEB-10 are being provided in support of my testimony
6 and attachments.

7 **Q. How is the remainder of your direct testimony organized?**

8 A. The remainder of my direct testimony is organized as follows:

- 9 • Section II provides a summary of my analyses and conclusions.
- 10 • Section III reviews the regulatory guidelines pertinent to the development of the
11 cost of capital.
- 12 • Section IV discusses current and projected capital market conditions and the effect
13 of those conditions on the Company's cost of equity.
- 14 • Section V explains my selection of the proxy group.
- 15 • Section VI describes my cost of equity analyses and the basis for my recommended
16 ROE in this proceeding.
- 17 • Section VII provides a discussion of specific regulatory, business, and financial
18 risks that have a direct bearing on the ROE to be authorized for the Company in
19 this case.
- 20 • Section VIII presents my conclusions and recommendations.

1 **II. SUMMARY OF ANALYSIS AND CONCLUSIONS**

2 **Q. Please summarize the key factors considered in your analyses and upon which you**
3 **base your recommended ROE.**

4 **A.** The key factors that I considered in my cost of equity analyses and recommended ROE for
5 the Company in this proceeding are:

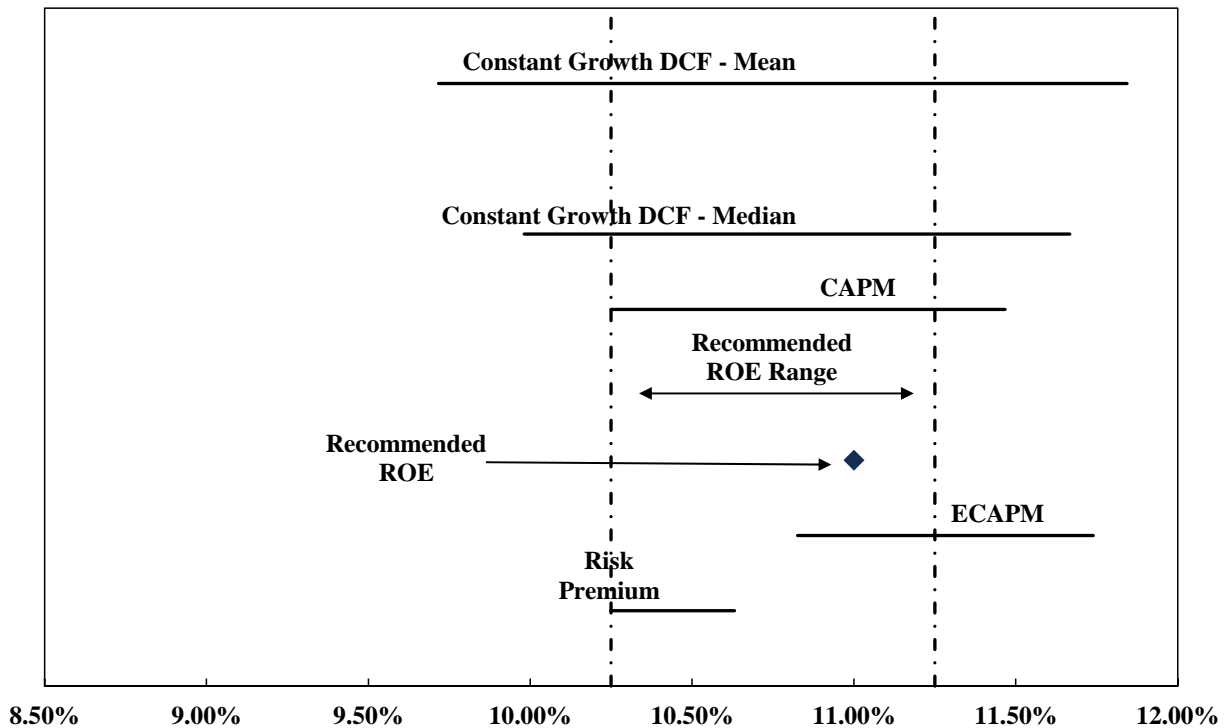
- 6 • The United States Supreme Court’s *Hope* and *Bluefield* decisions¹ established the
7 standards for determining a fair and reasonable authorized ROE for public utilities,
8 including consistency of the allowed return with the returns of other businesses
9 having similar risk, adequacy of the return to provide access to capital and support
10 credit quality, and the requirement that the result lead to just and reasonable rates.
- 11 • The effect of current and prospective capital market conditions on the cost of equity
12 estimation models and on investors’ return requirements.
- 13 • The results of several analytical approaches that provide estimates of the
14 Company’s cost of equity. Because the Company’s authorized ROE should be a
15 forward-looking estimate over the period during which the rates will be in effect,
16 these analyses rely on forward-looking inputs and assumptions (*e.g.*, projected
17 analyst growth rates in the DCF model, forecasted risk-free rate and market risk
18 premium in the CAPM analysis.)
- 19 • Although the companies in my proxy group are generally comparable to OVG, each
20 company is unique, and no two companies have the exact same business and
21 financial risk profiles. Accordingly, I consider the Company’s regulatory, business,
22 and financial risks relative to the proxy group of comparable companies in
23 assessing where within the range of analytical results the Company’s ROE should
24 reasonably fall to appropriately account for any residual differences in risk. This
25 risk assessment includes the specific financial risk faced by OVG associated with
26 significant medical expenses.

¹ Federal Power Commission v. Hope Natural Gas Co., 320 U.S. 591 (1944) (“Hope”); Bluefield Waterworks & Improvement Co., v. Public Service Commission of West Virginia, 262 U.S. 679 (1923) (“Bluefield”).

1 **Q. What are the results of the models that you have used to estimate the cost of equity**
2 **for OVG?**

3 A. Figure 1 summarizes the range of results produced by the Constant Growth DCF, CAPM,
4 ECAPM, and BYRP analyses.

5 **Figure 1: Summary of Analytical Results**



6 As shown, the range of results across all methodologies is wide. While it is
7 common to consider multiple models to estimate the cost of equity, it is particularly
8 important when the range of results varies considerably across methodologies.

1 **Q. Are prospective capital market conditions expected to affect the results of the cost of**
2 **equity for the Company during the period in which the rates established in this**
3 **proceeding will be in effect?**

4 A. Yes. Capital market conditions are expected to affect the results of the cost of equity
5 estimation models. Specifically:

- 6 • Long-term interest rates have increased substantially in the past two years and are
7 expected to remain relatively high at least over the next year in response to inflation.
- 8 • Since (i) utility dividend yields are less attractive than the risk-free rates of
9 government bonds; (ii) interest rates are expected to remain near current levels over
10 the next year, and (iii) utility stock prices are inversely related to changes in interest
11 rates; it is likely that utility share prices may remain depressed.
- 12 • Rating agencies have responded to the risks of the utility sector, citing factors
13 including interest rates and inflation that create pressures for customer affordability
14 and prompt rate recovery, and have noted the importance of regulatory support in
15 their current outlooks.
- 16 • Similarly, equity analysts have noted the increased risk for the utility sector as a
17 result of elevated interest rates and have expected the sector to underperform in
18 2024.
- 19 • Consequently, it is important to consider that if utility share prices decline, the
20 results of the DCF model, which relies on current utility share prices, would
21 understate the cost of equity during the period that the Company's rates will be in
22 effect.

23 It is appropriate to consider all of these factors when estimating a reasonable range of the
24 investor-required cost of equity and the recommended ROE for the Company.

25
26 **Q. What is your recommended ROE for OVG in this proceeding?**

27 A. The analytical results are summarized in Figure 1, based on this data, a reasonable range
28 of results is between 10.25 percent and 11.25 percent. As discussed in more detail in
29 Section VII of my testimony, OVG has considerably greater risk than the proxy group

1 companies considering several factors. In particular, OVG is significantly smaller in size
2 than the proxy group companies. As shown in Attachment AEB-9, OVG is approximately
3 2.26 percent of the size of the proxy group companies, which results in a size premium of
4 approximately 390 basis points. While I am not proposing an explicit adjustment for size
5 in establishing the ROE in this proceeding, I believe it is reasonable to consider an ROE at
6 the higher end of the range of results to address the incremental risk of a small company,
7 among other financial risk factors in setting the ROE for OVG. In addition to the size of
8 the Company, I have considered other financial risk factors as discussed in Section VII of
9 my testimony, including the financial risk associated with the Company's unusual and
10 extraordinary medical expenses and customer concentration. Considering the results of the
11 models and the totality of the business risks reviewed, I conclude that an ROE of 11.00
12 percent would be reasonable.

13 III. REGULATORY GUIDELINES

14 **Q. Please describe the guiding principles to be used in establishing the cost of equity for**
15 **a regulated utility.**

16 A. The United States Supreme Court's precedent-setting *Hope and Bluefield* cases established
17 the standards for determining the fairness or reasonableness of a utility's allowed ROE.
18 Among the standards established by the Court in those cases are: (1) consistency with
19 other businesses having similar or comparable risks; (2) adequacy of the return to support
20 credit quality and access to capital; and (3) the principle that the specific means of arriving
21 at a fair return are not important, only that the end result (*i.e.*, an ROE that reflects

1 investors' requirements for investments of comparable risks and supports a utility's credit
2 quality and access to capital) leads to just and reasonable rates.²

3 **Q. Has the IURC provided similar guidance in establishing the appropriate return on
4 common equity?**

5 A. Yes. The Commission follows the precedents of *Hope* and *Bluefield* and acknowledges
6 that utility investors are entitled to a fair and reasonable return. For example, in a 2016
7 Order regarding Indianapolis Power & Light, the Commission stated: "The rate of return
8 for a utility must be comparable to the return on investments in other enterprises having
9 corresponding risks, sufficient to assure confidence in the financial integrity of the utility,
10 maintain support of the utility's credit, and attract capital."³

11 **Q. Why is it important for a utility to be allowed the opportunity to earn a return that is
12 adequate to attract capital at reasonable terms?**

13 A. An ROE that is adequate to attract capital at reasonable terms enables the Company to
14 continue to provide safe, reliable natural gas service while maintaining its financial
15 integrity. That return should be commensurate with returns expected elsewhere in the
16 market for investments of equivalent risk. If it is not, debt and equity investors will seek
17 alternative investment opportunities for which the expected return reflects the perceived
18 risks, thereby inhibiting the Company's ability to attract capital at reasonable cost.

² *Hope*, 320 U.S. 591 (1944); *Bluefield*, 262 U.S. 679 (1923).

³ Indianapolis Power & Light, Cause No. 44576, Order of the Commission issued March 16, 2016, at 41.

1 **Q. Is a utility's ability to attract capital also affected by the ROEs authorized for other**
2 **utilities?**

3 A. Yes. Utilities compete directly for capital with other investments of similar risk, which
4 include other electric, natural gas, and water utilities. Therefore, the ROE authorized for a
5 utility sends an important signal to investors regarding whether there is regulatory support
6 for financial integrity, dividends, growth, and fair compensation for business and financial
7 risk. The cost of capital represents an opportunity cost to investors. If higher returns are
8 available elsewhere for other investments of comparable risk over the same time-period,
9 investors have an incentive to direct their capital to those alternative investments. Thus,
10 an authorized ROE significantly below authorized ROEs for other natural gas utilities can
11 inhibit the utility's ability to attract capital for investment.

12 **Q. What is the standard for setting the ROE in any jurisdiction?**

13 A. The stand-alone ratemaking principle is the foundation of jurisdictional ratemaking. This
14 principle requires that the rates that are charged in any operating jurisdiction be for the
15 costs incurred in that jurisdiction. The stand-alone ratemaking principle ensures that
16 customers in each jurisdiction only pay for the costs of the service provided in that
17 jurisdiction, which is not influenced by the business operations in other operating
18 companies. In order to maintain this principle, the cost of equity analysis is performed for
19 an individual operating company as a stand-alone entity. As such, I have evaluated the
20 investor-required return for OVG's natural gas operations in Indiana.

1 **Q. What are your conclusions regarding regulatory guidelines?**

2 A. The ratemaking process is premised on the principle that, in order for investors and
3 companies to commit the capital needed to provide safe and reliable utility services, a
4 utility must have a reasonable opportunity to recover the return of, and the market-required
5 return on, its invested capital. Accordingly, the Commission's order in this proceeding
6 should establish rates that provide the Company with a reasonable opportunity to earn an
7 ROE that is: (1) adequate to attract capital at reasonable terms; (2) sufficient to ensure its
8 financial integrity; and (3) commensurate with returns on investments in enterprises with
9 similar risk. As noted in *Hope* and *Bluefield*, as well as by the Commission,⁴ it is important
10 for the ROE authorized in this proceeding to satisfy all three of these criteria. Additionally,
11 it is important that the Commission's decision also consider current and projected capital
12 market conditions, as well as investors' expectations and requirements for both risks and
13 returns. Because utility operations are capital-intensive, regulatory decisions should enable
14 the utility to attract capital at reasonable terms under a variety of economic and financial
15 market conditions. Providing the opportunity to earn a market-based cost of capital
16 supports the financial integrity of the Company, which is in the interest of both customers
17 and shareholders.

18 **IV. CAPITAL MARKET CONDITIONS**

19 **Q. Why is it important to analyze capital market conditions?**

20 A. The models used to estimate the cost of equity rely on market data and thus the results of
21 those models can be affected by prevailing market conditions at the time the analysis is

⁴ See, e.g., Proceeding Nos. 11AL-382E and 11AL-387E, Decision No. C11-1373, at ¶ 87; Proceeding No. 17AL-0363G, Decision No. C18-0736-I, at ¶ 56-57.

1 performed. While the ROE established in a rate proceeding is intended to be forward-
2 looking, the analyst uses current and projected market data, including stock prices,
3 dividends, growth rates, and interest rates, in the cost of equity estimation models to
4 estimate the investor-required return for the subject company.

5 Analysts and regulatory commissions recognize that current market conditions affect the
6 results of the cost of equity estimation models. As a result, it is important to consider the
7 effect of the market conditions on these models when determining an appropriate range for
8 the ROE and the recommended ROE for ratemaking purposes for a future period. If
9 investors do not expect current market conditions to be sustained in the future, it is possible
10 that the cost of equity estimation models will not provide an accurate estimate of investors'
11 required return during that rate period. Therefore, it is very important to consider projected
12 market data to estimate the return for that forward-looking period.

13 **Q. What factors affect the cost of equity for regulated utilities in the current and**
14 **prospective capital markets?**

15 A. The cost of equity for regulated utility companies is affected by several factors in the
16 current and prospective capital markets, including: (1) changes in monetary policy; (2)
17 relatively high inflation; and (3) increased interest rates that are expected to remain
18 relatively high over the next few years. These factors affect the assumptions used in the
19 cost of equity estimation models.

1 **a. Inflationary Expectations in Current and Projected Capital Market**
2 **Conditions**

3 **Q. What has the level of inflation been over the past few years?**

4 A. As shown in Figure 2 core inflation increased steadily beginning in early 2021, rising from
5 1.41 percent in January 2021 to a high of 6.64 percent in September 2022, which was the
6 largest 12-month increase since 1982.⁵ Since that time, while core inflation has declined
7 in response to the Federal Reserve’s monetary policy, it continues to remain above the
8 Federal Reserve’s target level of 2.0 percent.

9 In addition, as shown in Figure 2, I also considered the ratio of unemployed persons per
10 job opening, which is currently 0.7 and has been consistently below 1.0 since 2021, despite

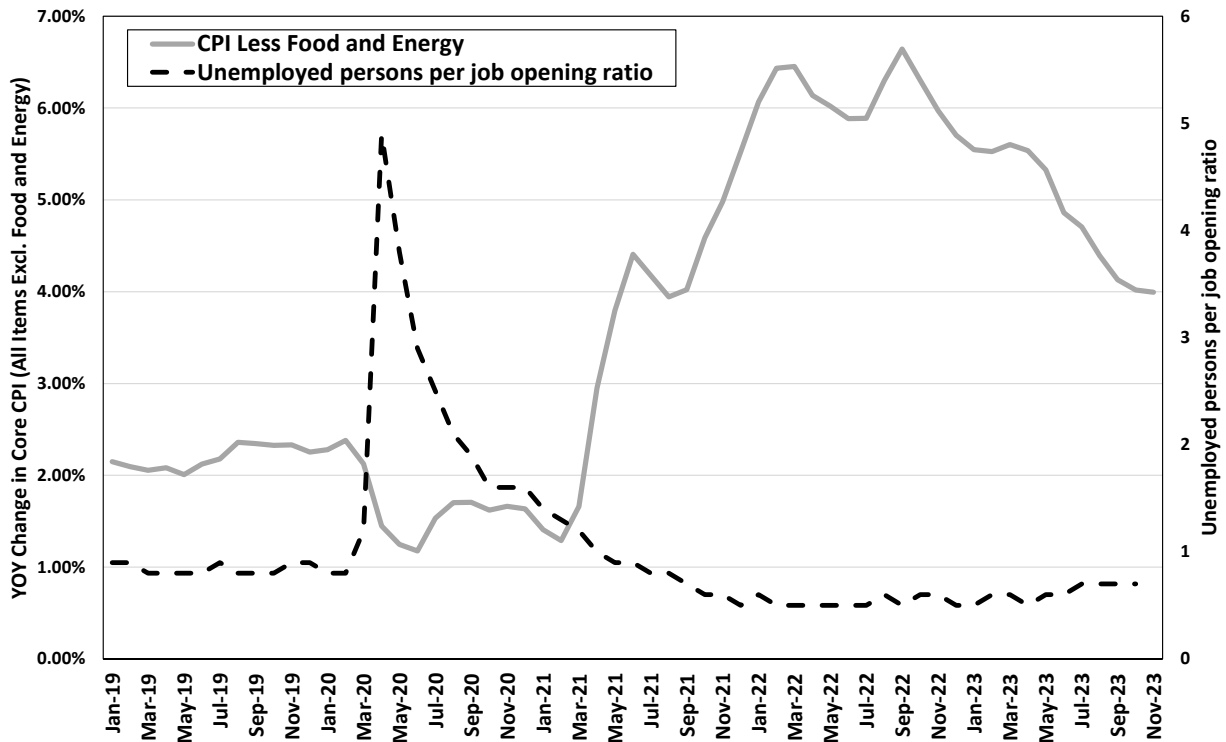
⁵ As shown in Figure 2 core inflation increased steadily beginning in early 2021, rising from 1.41 percent in January 2021 to a high of 6.64 percent in September 2022, which was the largest 12-month increase since 1982. Since that time, while core inflation has declined in response to the Federal Reserve’s monetary policy, it continues to remain above the Federal Reserve’s target level of 2.0 percent.

In addition, as shown in Figure 2, I also considered the ratio of unemployed persons per job opening, which is currently 0.7 and has been consistently below 1.0 since 2021, despite the Federal Reserve’s accelerated policy normalization. This metric indicates sustained strength in the labor market. Given the Federal Reserve’s dual mandate of maximum employment and price stability, the continued increased levels of core inflation coupled with the strength in the labor market has resulted in the Federal Reserve’s sustained focus on the priority of reducing inflation.

Figure 2 presents the year-over-year (“YOY”) change in core inflation, as measured by the Consumer Price Index (“CPI”) excluding food and energy prices as published by the Bureau of Labor Statistics. I considered core inflation because it is the preferred inflation indicator of the Federal Reserve for determining the direction of monetary policy. Core inflation is preferred by the Federal Reserve because it removes the effect of food and energy prices, which can be highly volatile.

1 the Federal Reserve's accelerated policy normalization. This metric indicates sustained
 2 strength in the labor market. Given the Federal Reserve's dual mandate of maximum
 3 employment and price stability, the continued increased levels of core inflation coupled
 4 with the strength in the labor market has resulted in the Federal Reserve's sustained focus
 5 on the priority of reducing inflation.

6 **Figure 2: Core Inflation and Unemployed Persons-to-Job Openings,**
 7 **January 2019 to November 2023⁶**



8 **Q. What are the expectations for inflation over the near-term?**

9 A. The Federal Reserve has indicated that it expects inflation will remain elevated above its
 10 target level until 2026 and that the extent to which it maintains the restrictive monetary
 11 policy will depend on market indicators going forward. For example, Federal Reserve

⁶ Bureau of Labor Statistics.

1 Chair Jerome Powell at the Federal Open Market Committee (“FOMC”) meeting on
2 December 13, 2023 observed that while inflation is off of its recent highs, it remains too
3 high and noted that further policy firming is possible based on the data:

4 Today, we decided to leave our policy interest rate unchanged and to
5 continue to reduce our securities holdings. Given how far we have come,
6 along with the uncertainties and risks that we face, the Committee is
7 proceeding carefully. We will make decisions about the extent of any
8 additional policy firming and how long policy will remain restrictive
9 based on the totality of the incoming data, the evolving outlook, and the
10 balance of risks.⁷

11 Chair Powell reiterated that the FOMC was committed to bringing inflation down to the 2
12 percent target level, and that while the easing of inflation has been good news, it is currently
13 projected to take until 2026 to reach the Federal Reserve’s target of 2.0 percent:

14 Inflation has eased over the past year but remains above our longer-run
15 goal of 2 percent. Based on the Consumer Price Index and other data,
16 we estimate that total PCE prices rose 2.6 percent over the 12 months
17 ending in November; and that, excluding the volatile food and energy
18 categories, core PCE prices rose 3.1 percent. The lower inflation
19 readings over the past several months are welcome, but we will need to
20 see further evidence to build confidence that inflation is moving down
21 sustainably toward our goal. Longer-term inflation expectations appear
22 to remain well anchored, as reflected in a broad range of surveys of
23 households, businesses, and forecasters, as well as measures from
24 financial markets. As is evident from the SEP [Summary of Economic
25 Projections], we anticipate that the process of getting inflation all the
26 way to 2 percent will take some time. The median projection in the SEP
27 is 2.8 percent this year, falls to 2.4 percent next year, and reaches 2
28 percent in 2026.⁸

⁷ Federal Reserve, Transcript of Chair Powell’s Press Conference, December 13, 2023, at 1.

⁸ *Id.*, at 2-3.

1 Chair Powell noted that the FOMC members project a gradual decline in the federal funds
2 rates over time, although remain cautious and leave open the possibility of further monetary
3 policy tightening as required:

4 While we believe that our policy rate is likely at or near its peak for this
5 tightening cycle, the economy has surprised forecasters in many ways
6 since the pandemic, and ongoing progress toward our 2 percent inflation
7 objective is not assured. We are prepared to tighten policy further if
8 appropriate. We are committed to achieving a stance of monetary policy
9 that is sufficiently restrictive to bring inflation sustainably down to 2
10 percent over time, and to keeping policy restrictive until we are
11 confident that inflation is on a path to that objective.

12 In our SEP, FOMC participants wrote down their individual
13 assessments of an appropriate path for the federal funds rate based on
14 what each participant judges to be the most likely scenario going
15 forward. While participants do not view it as likely to be appropriate to
16 raise interest rates further, neither do they want to take the possibility
17 off the table. If the economy evolves as projected, the median
18 participant projects that the appropriate level of the federal funds rate
19 will be 4.6 percent at the end of 2024, 3.6 percent at the end of 2025,
20 and 2.9 percent at the end of 2026, still above the median longer-term
21 rate. These projections are not a Committee decision or plan; if the
22 economy does not evolve as projected, the path for policy will adjust as
23 appropriate to foster our maximum employment and price stability
24 goals.⁹

25 **b. The Use of Monetary Policy to Address Inflation**

26 **Q. What policy actions has the Federal Reserve enacted to respond to increased**
27 **inflation?**

28 A. The dramatic increase in inflation has prompted the Federal Reserve to pursue an
29 aggressive normalization of monetary policy, removing the accommodative policy
30 programs used to mitigate the economic effects of COVID-19. Beginning in March 2022

⁹ *Id.*, at 3-4; clarification added.

1 and through May 3, 2023, the Federal Reserve increased the target federal funds rate
2 through a series of increases from a range of 0.00 – 0.25 percent to a range of 5.25 percent
3 to 5.50 percent.¹⁰ Further, as noted above, while the Federal Reserve acknowledges that
4 inflation has declined from its peak, it still is well above the Federal Reserve’s target of 2
5 percent. Therefore, the Federal Reserve anticipates the continued need to maintain the
6 federal funds rate at a restrictive level in order to achieve its goal of 2 percent inflation over
7 the long-run.

8 **c. The Federal Reserve’s Monetary Policy to Combat Inflation has Increased**
9 **Short- and Long-Term Interest Rates and the Investor-Required Return**

10 **Q. Have the yields on long-term government bonds increased in response to inflation and**
11 **the Federal Reserve’s normalization of monetary policy?**

12 **A.** Yes. As the Federal Reserve has substantially increased the federal funds rate and
13 decreased its holdings of Treasury bonds and mortgage-backed securities in response to
14 increased levels of inflation that have persisted for longer than originally projected, longer
15 term interest rates have also increased. For example, as shown in Figure 3 below, since
16 the Federal Reserve’s December 2021 meeting, the yield on 10-year Treasury bonds has
17 increased 280 basis points from 1.47 percent on December 15, 2021 to 4.27 percent at the
18 end of November 2023.

¹⁰ Federal Reserve, Press Releases, March 16, 2022, May 4, 2022, June 15, 2022, September 22, 2022, November 2, 2022, February 1, 2023, March 22, 2023, May 3, 2023, July 26, 2023.

1 **Figure 3: 10-Year Treasury Bond Yield, January 2021 – November 2023¹¹**

2 **Q. How have interest rates and inflation changed since the Company's last rate case?**

3 A. Figure 4 compares short-term interest rates, long-term interest rates and the inflation rates
 4 as of the Company's last rate proceeding in 2016, when the Commission authorized an
 5 ROE of 10.00 percent to the current market conditions. Specifically, Figure 4 presents the
 6 capital market conditions as of: (1) October 17, 2017, which is the date of the decision in
 7 the Company's last rate proceeding and (2) the current market conditions through
 8 November 30, 2023. Since the Company's last rate proceeding, short-term interest rates
 9 have increased 417 basis points, and long-term interest rates have increased approximately

¹¹ S&P Capital IQ Pro.

1 196 basis points. Finally, inflation has increased 226 basis points. All of these indicators
 2 suggest a cost of equity that is higher than at the time of the Company's last rate proceeding.

3 **Figure 4: Change in Market Conditions Since OVG's Last Rate Case¹²**

Docket	Date	Federal Funds Rate	30-Day Avg of 30-Year Treasury Bond Yield	Core Inflation Rate	Auth'd ROE
Cause No. 44891	10/17/2017	1.16%	2.81%	1.76%	10.00%
Current	11/30/2023	5.33%	4.77%	4.02%	
Change		4.17%	1.96%	2.26%	

4 **Q. What have equity analysts said about long-term government bond yields?**

5 A. Leading equity analysts have noted that they expect the yields on long-term government
 6 bonds to remain elevated. For example, in the most recent Big Money poll released by
 7 *Barron's* in October 2023, which surveys money managers regarding the outlook for the
 8 next twelve months, two-thirds of the money managers surveyed expect the yield on the
 9 10-year Treasury bond to be at least 4.50 percent in October 2024.¹³ Similarly, according
 10 to the most recent *Blue Chip Financial Forecasts* report, the consensus estimate of the
 11 average yields on the 10-year and 30-year Treasury bonds are approximately 4.00 percent
 12 and 4.30 percent, respectively, through the first quarter of 2025.¹⁴ Therefore, investors
 13 expect interest rates to remain elevated for at least the next 15 months. As a result, it is

¹² St. Louis Federal Reserve Bank; Bureau of Labor Statistics.

¹³ Jasinski, Nicholas, Big Money Pros Are Split on the Outlook for Stocks. But They Are Fans of Bonds", October 27, 2023. https://www.barrons.com/articles/big-money-poll-stock-market-bonds-economy-outlook-375aebae?mod=hp_MAG

¹⁴ *Blue Chip Financial Forecasts*, Vol. 42, No. 12, December 1, 2023, p. 2.

1 reasonable to expect that if government bond yields remain elevated, the cost of equity
2 (“COE”) will remain materially higher than at the time of the Company’s last rate
3 proceeding. .

4 **d. Expected Performance of Utility Stocks and the Investor-Required Return**
5 **on Utility Investments**

6 **Q. Are utility share prices correlated to changes in the yields on long-term government**
7 **bonds?**

8 A. Yes. Interest rates and utility share prices are inversely correlated, which means that
9 increases in interest rates result in declines in the share prices of utilities and vice versa.
10 For example, Goldman Sachs and Deutsche Bank examined the sensitivity of share prices
11 of different industries to changes in interest rates over the past five years. Both Goldman
12 Sachs and Deutsche Bank found that utilities had one of the strongest negative relationships
13 with bond yields (*i.e.*, increases in bond yields resulted in the decline of utility share
14 prices).¹⁵

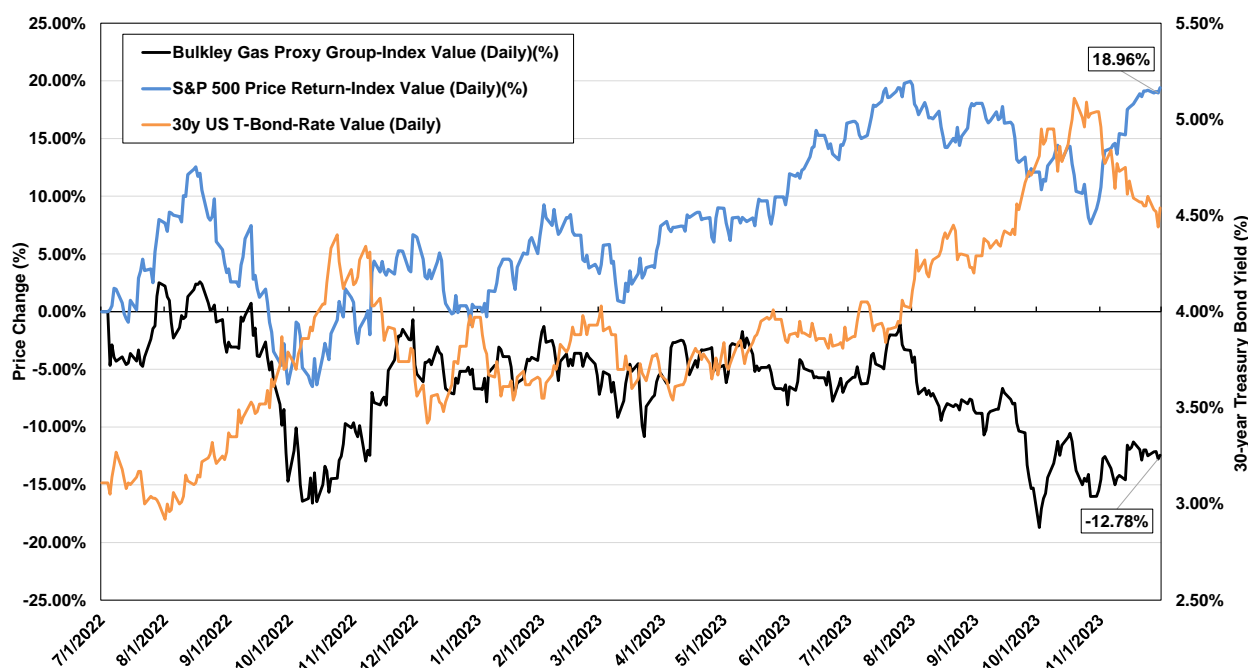
15 **Q. How have utility stocks performed in a rising interest rate environment?**

16 A. Since July 2022, natural gas utility stocks have significantly underperformed the broader
17 market, as Treasury bond yields have increased to levels greater than the dividend yield on
18 utility stocks. For example, as shown in Figure 5, since July 2022, the yield on the 30-year
19 Treasury bond has increased over 140 basis points, while the share prices for the natural
20 gas utilities included in my proxy group (discussed in the following section) have declined

¹⁵ Lee, Justina. “Wall Street Is Rethinking the Treasury Threat to Big Tech Stocks.” Bloomberg.com, March 11, 2021.

1 by 12.8 percent and the S&P (“Standard & Poor’s”) 500 Index has increased nearly 19.0
 2 percent. In fact, on October 2, 2023, the utilities sector dropped by 4.7 percent, its single
 3 highest one-day percentage decline since April 2020.¹⁶ The stock price underperformance
 4 for the utility sector indicates that the cost of equity has increased since the Company’s last
 5 rate proceeding.

6 **Figure 5: Relative Performance of the Proxy Group and the S&P 500, July 1, 2022**
 7 **– November 30, 2023¹⁷**



8 **Q. How do equity analysts expect the utilities sector to perform in 2024?**

9 A. Equity analysts have recently projected the continued underperformance of the utility
 10 sector, and have not changed their views on the sector. For example, Fidelity Investments

¹⁶ Valetkevich, Caroline. “S&P 500 ends near flat; utilities drop, focus on rate outlook.” Reuters. October 2, 2023.

¹⁷ S&P Capital IQ Pro.

1 classifies the utility sector as underweight,¹⁸ and Bank of America recently noted that they
2 are “not so constructive on [u]tilities” given that the dividend yields for utilities are below
3 both the yields available on long- and short-term treasury bonds.¹⁹ Moreover, the
4 professional investors surveyed by *Barron’s* in its most recent Big Money poll selected the
5 utility sector as one of the four equity sectors that they liked the least over the next twelve
6 months, indicating they are projecting that utilities will underperform the broader market
7 in 2024.²⁰

8 **Q. Why do equity analysts expect the utility sector to underperform over the near-term?**

9 A. Equity analysts expect the utility sector to continue to underperform given that utility
10 dividend yields remain higher than the yields on long-term government bonds. To illustrate
11 this point, I have examined the difference between the dividend yields of utility stocks and
12 the yields on long-term government bonds from January 2010 through November 2023
13 (“yield spread”). I selected the dividend yield on the Standard & Poor’s Utilities Index as
14 the measure of the dividend yields for the utility sector and the yield on the 10-year
15 Treasury bond as the estimate of the yield on long-term government bonds.

16 As shown in Figure 6, the recent significant increase in long-term government bonds yields
17 has resulted in the yield on long-term government bonds exceeding the dividend yields of
18 utilities. The yield spread as of November 30, 2023 was negative 0.87 percent, meaning

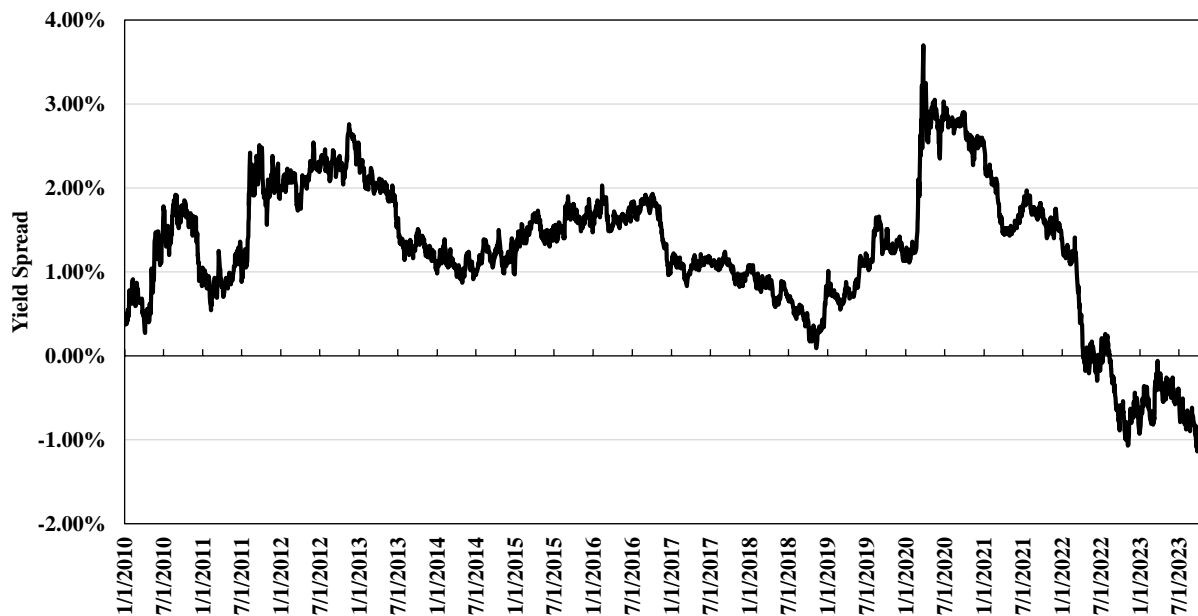
¹⁸ Fidelity Investments, “Fourth Quarter 2023 Investment Research Update,” October 19, 2023.

¹⁹ Julien Dumoulin-Smith, *et. al.*, “US Electric Utilities & IPPs: As the leaves fall, preparing for Autumn utility outlook. Macro still has potholes,” BofA Securities, September 6, 2023.

²⁰ Nicholas Jasinski, “Big Money Pros Are Split on the Outlook for Stocks. But They Are Fans of Bonds,” *Barron’s*, October 27, 2023.

1 that the yield on the 10-year Treasury bond exceeds the dividend yield for the S&P Utilities
2 Index. However, the long-term average yield spread from 2010 to 2023 is 1.23 percent.
3 Therefore, the current yield spread is well below the long-term average. Because of the
4 fact that the yield spread is currently well below the long-term average, and the expectation
5 that interest rates will remain relatively high through at least the next year, it is reasonable
6 to conclude that the utility sector will most likely underperform over the near-term. This
7 is because investors that purchased utility stocks as an alternative to the lower yields on
8 long-term government bonds would otherwise be inclined to rotate back into government
9 bonds, particularly as the yields on long-term government bonds remain elevated, thus
10 resulting in a decrease in the share prices of utilities.

1 **Figure 6: Spread between the S&P Utilities Index Dividend Yield and the 10-year**
 2 **Treasury Bond Yield, January 2010 - November 2023²¹**



3 **Q. Do you have any further context as to how unlikely it is to have a negative yield spread**
 4 **of this magnitude?**

5 A. Yes. For further context as to how unlikely it is to have a yield spread of negative 0.87
 6 percent, I calculated the z-score for the current yield spread, which measures the number
 7 of standard deviations from the mean. The current yield spread has a z-score of -2.44,
 8 indicating that the current yield spread is over 2 standard deviations from the mean of 1.23
 9 percent.²² In other words, 95 percent of the daily yield spread observations from 2010
 10 through November 2023 fall between -0.49 percent and 2.96 percent, with the current yield

²¹ S&P Capital IQ Pro and Bloomberg Professional.

²² The z-score is calculated as: (yield spread at November 30, 2023 minus average yield spread 2010 through October 2023)/standard deviation of yield spread from 2010 through November 2023. This equals: (-0.0087 minus .0123)/0.0086.

1 spread falling outside of that range. Thus, the current yield spread is an outlier, which is
2 why equity analysts do not expect this current level to hold.

3 **e. Conclusion**

4 **Q. What are your conclusions regarding the effect of current market conditions on the**
5 **cost of equity for the Company?**

6 A. Due to their effect on the estimated cost of equity, it is important that current and projected
7 market conditions be considered in setting the forward-looking ROE in this proceeding.
8 The combination of persistently high inflation and the Federal Reserve's changes in
9 monetary policy that have increased interest rates demonstrate that the cost of equity has
10 increased since the Company's last natural gas rate proceeding since (i) there is a strong
11 historical inverse correlation between interest rates (*i.e.*, yields on long-term government
12 bonds) and the share prices of utility stocks (*i.e.*, as interest rates increase, utility share
13 prices decline, and thus utility dividend yields increase); and (ii) the yields on long-term
14 government bonds currently exceed the dividend yields of utilities, when historically long-
15 term government bond yields have been lower than the dividend yields of utilities. Because
16 the cost of equity has increased since the Company's last natural gas rate proceeding, cost
17 of equity estimates based in whole or in part on historical or current market conditions, as
18 opposed to projected market conditions, may understate the cost of equity during the future
19 period that the Company's rates will be in effect. Therefore, these current and expected
20 market conditions support consideration of forward-looking cost of equity estimation
21 models such as the CAPM and ECAPM, which better reflect expected market conditions.

1 V. **PROXY GROUP SELECTION**

2 **Q. Please provide a brief profile of OVG.**

3 A. OVG is a privately held company and has no publicly traded common stock. The Company
4 is based in Winchester, Indiana, and provides regulated natural gas distribution and
5 transportation services to approximately 29,365 customers²³ in central and southern
6 Indiana and in Drake County, Ohio. Approximately 76 percent of the Company's gas
7 utility sales in Indiana are attributable to industrial customers, while the remaining
8 throughput is accounted for by residential (*i.e.*, 17 percent) and commercial (*i.e.*, 7 percent)
9 customers.²⁴ The majority of the Company's stock is owned by Beynon Farm Production
10 Corporation. Beyond this stock ownership, the Company obtains further common equity
11 through retained earnings. OVG has approximately \$4.8 million in long-term debt²⁵
12 secured through bank notes and has not been rated by any of the major credit rating
13 agencies.

14 **Q. Why have you used a group of proxy companies to estimate the cost of equity for the**
15 **Company?**

16 A. One of the purposes of this proceeding is to estimate the cost of equity for a utility company
17 that is not itself publicly traded. Because the cost of equity is a market-based concept and
18 OVG's operations do not make up the entirety of a publicly traded entity, it is necessary to
19 establish a group of companies that are both publicly traded and comparable to the

²³ Indiana Utility Regulatory Commission Class A-B Private Gas Utility Annual Report, December 31, 2022, p. 49.

²⁴ 2022 EIA Form 176 data.

²⁵ Direct Testimony of Company Witness Gary Verdouw

1 Company in certain fundamental business and financial respects to serve as its “proxy” in
2 the cost of equity estimation process.

3 Even if OVG was a publicly traded entity, it is possible that transitory events could bias its
4 market value over a given period. A significant benefit of using a proxy group is that it
5 moderates the effects of unusual events that may be associated with any one company. The
6 proxy companies used in my analyses all possess a set of operating and risk characteristics
7 that are substantially comparable to the Company, and thus provide a reasonable basis to
8 derive and estimate the appropriate ROE for the Company.

9 **Q. How did you select the companies included in your proxy group?**

10 A. I began with the group of 10 publicly traded companies that *Value Line* classifies as Natural
11 Gas Distribution Utilities and applied the following screening criteria to select companies
12 that:

- 13 • pay consistent quarterly cash dividends that have not been reduced in the last
14 three years, since companies that do not pay dividends cannot be analyzed using
15 the constant growth DCF model;
- 16 • have investment grade long-term issuer ratings from both S&P and Moody’s;
- 17 • are covered by more than one utility industry analyst;
- 18 • have positive long-term earnings growth forecasts from at least two equity
19 analysts;
- 20 • derive more than 70.00 percent of their total operating income from regulated
21 operations;
- 22 • derive more than 60.00 percent of regulated operating income from gas
23 distribution operations; and,

- 1 • were not party to a merger or transformative transaction during the analytical
2 period considered or had a material event that would have affected the market
3 data for the company.

4 I developed the screens and thresholds for each screen based on judgment with the intention
5 of balancing the need to maintain a proxy group that is of sufficient size against establishing
6 a proxy group of companies that are comparable in business and financial risk to the
7 Company.

8 **Q. What is the composition of your proxy group?**

9 A. The screening criteria discussed above is shown in Attachment AEB-3 and resulted in a
10 proxy group consisting of the companies shown Figure 7 below.

11 **Figure 7: Proxy Group**

Company	Ticker
Atmos Energy Corporation	ATO
NiSource	NI
Northwest Natural Gas Company	NWN
ONE Gas, Inc.	OGS
Spire, Inc.	SR

12 **Q. Is this group directly comparable to OVG?**

13 A. While the operational risks of this group are directly comparable to OVG, being natural
14 gas distribution companies, the business and financial risks of OVG are significantly
15 different from this group based on the size of OVG and the resulting differences in financial
16 flexibility resulting from the difference in size. Therefore, while this is the most
17 comparable group of publicly traded companies to OVG, it is necessary to consider the

1 business and financial risk differences between the proxy group and OVG in setting the
2 Company's ROE. These risk factors are discussed in Section VII of my testimony.

3 **VI. COST OF EQUITY ESTIMATION**

4 **Q. Please briefly discuss the ROE in the context of the regulated rate of return.**

5 A. The overall rate of return for a regulated utility is often determined from the weighted
6 average cost of capital, in which the cost rates of the individual sources of capital are
7 weighted by their respective book values. The ROE is the cost of common equity capital
8 in the utility's capital structure for ratemaking purposes. While the costs of debt and
9 preferred stock can be directly observed, the cost of equity is market-based and, therefore,
10 must be estimated based on observable market data.

11 **Q. How is the required cost of equity determined?**

12 A. The required cost of equity is estimated by using analytical techniques that rely on market-
13 based data to quantify investor expectations regarding equity returns, adjusted for certain
14 incremental costs and risks. Informed judgment is then applied to determine where the
15 company's cost of equity falls within the range of results produced by multiple analytical
16 techniques. The key consideration in determining the cost of equity is to ensure that the
17 methodologies employed reasonably reflect investors' views of the financial markets in
18 general, as well as the subject company (in the context of the proxy group), in particular.

1 **Q. What quantitative methods did you use to establish your recommended ROE in this**
2 **proceeding?**

3 A. I considered the results of the constant growth DCF model, the CAPM, the ECAPM, and
4 the BYRP analyses. As discussed in more detail below, a reasonable cost of equity estimate
5 considers alternative methodologies, observable market data, and the reasonableness of
6 their individual and collective results.

7 **Q. Is it important to use more than one analytical approach to estimate the cost of**
8 **equity?**

9 A. Yes. Because the cost of equity is not directly observable, it must be estimated based on
10 both quantitative and qualitative information. When faced with the task of estimating the
11 cost of equity, analysts and investors are inclined to gather and evaluate as much relevant
12 data as reasonably can be analyzed. Several models have been developed to estimate the
13 cost of equity, and we use multiple approaches to estimate the cost of equity. As a practical
14 matter, however, all the models available for estimating the cost of equity are subject to
15 limiting assumptions or other methodological constraints. Consequently, many well-
16 regarded finance texts recommend using multiple approaches when estimating the cost of
17 equity. For example, Copeland, Koller, and Murrin²⁶ suggest using the CAPM and
18 Arbitrage Pricing Theory model, while Brigham and Gapenski²⁷ recommend the CAPM,
19 DCF, and BYRP approaches.

²⁶ Copeland, Tom, Tim Koller and Jack Murrin. *Valuation: Measuring and Managing the Value of Companies*. New York, McKinsey & Company, Inc., 3rd Ed., 2000, at 214.

²⁷ Brigham, Eugene and Louis Gapenski. *Financial Management: Theory and Practice*. Orlando, Dryden Press, 1994, at 341.

1 **Q. Do current market conditions increase the importance of using more than one**
2 **analytical approach?**

3 A. Yes. As discussed previously, interest rates have increased substantially over the past year
4 and are expected to remain elevated over at least the next year from the lows seen in 2020
5 and 2021. The benefit of using multiple models is that each model relies on different
6 assumptions, certain of which may better reflect current and projected market conditions
7 at different times. For example, the CAPM, ECAPM, and BYRP analyses offer some
8 balance to the DCF model, which relies on historical price data, because these models can
9 be specified using current and projected market data. Therefore, it is important to use
10 multiple analytical approaches to ensure that the cost of equity results reflect market
11 conditions that are expected during the period that the Company's rates will be in effect.

12 **Q. Has the Commission also recognized the benefits of using more than one model to**
13 **estimate the cost of equity?**

14 A. Yes. In its 2020 Duke Energy Indiana decision, the Commission explained:

15 The Commission recognizes that the cost of equity cannot be precisely
16 calculated and estimating it requires the use of judgment. Due to this lack
17 of precision, the use of multiple methods is desirable because no single
18 method will produce the most reasonable result under all conditions and
19 circumstances. The Commission is also mindful of the strengths and
20 weaknesses of the various models typically used to estimate a utility's cost
21 of common equity, and we find that with appropriate and reasonable inputs,
22 models such as the DCF and other methods can produce reasonable
23 estimates of a utility's cost of common equity. Consistent with the
24 standards in *Hope* and *Bluefield*, as well as under Indiana law, DEI's
25 authorized return on equity should be reasonable given the totality of the
26 circumstances.²⁸

²⁸ Duke Energy Indiana, Cause No. 45253, Order of the Commission issued June 29, 2020, at 57.

1 **a. Constant Growth DCF Model**2 **Q. Please describe the DCF approach.**

3 A. The DCF approach is based on the theory that a stock's current price represents the present
4 value of all expected future cash flows. In its most general form, the DCF model is
5 expressed as follows:

$$6 \quad P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \dots + \frac{D_\infty}{(1+k)^\infty} \quad [1]$$

7 Where P_0 represents the current stock price, $D_1 \dots D_\infty$ are all expected future
8 dividends, and k is the discount rate, or required ROE. Equation [1] is a standard present
9 value calculation that can be simplified and rearranged into the following form:

$$10 \quad k = \frac{D_0(1+g)}{P_0} + g \quad [2]$$

11 Equation [2] is often referred to as the constant growth DCF model in which the
12 first term is the expected dividend yield and the second term is the expected long-term
13 growth rate.

14 **Q. What assumptions are required for the constant growth DCF model?**

15 A. The constant growth DCF model requires the following four assumptions: (1) a constant
16 growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a constant
17 price-to-earnings ratio; and (4) a discount rate greater than the expected growth rate. To
18 the extent that any of these assumptions are violated, considered judgment and/or specific
19 adjustments should be applied to the results.

1 **Q. What market data did you use to calculate the dividend yield in your constant growth**
2 **DCF model?**

3 A. The dividend yield in my constant growth DCF model is based on the proxy group
4 companies' current annual dividend and average closing stock prices over the 30-, 90-, and
5 180-trading days ended November 30, 2023.

6 **Q. Why do you use 30-, 90-, and 180-day averaging periods?**

7 A. I use an average of recent trading days to calculate the term P_0 in the DCF model to reflect
8 current market data while also ensuring that the result of the model is not skewed by
9 anomalous events that may affect stock prices on any given trading day.

10 **Q. Did you make any adjustments to the dividend yield to account for periodic growth**
11 **in dividends?**

12 A. Yes. Because utility companies tend to increase their quarterly dividends at different times
13 throughout the year, it is reasonable to assume that dividend increases will be evenly
14 distributed over calendar quarters. Given that assumption, it is reasonable to apply one-
15 half of the expected annual dividend growth rate for purposes of calculating the expected
16 dividend yield component of the DCF model. This adjustment ensures that the expected
17 first-year dividend yield is, on average, representative of the coming twelve-month period,
18 and does not overstate the aggregated dividends to be paid during that time.

1 **Q. Why is it important to select appropriate measures of long-term growth in applying**
2 **the DCF model?**

3 A. In its constant growth form, the DCF model (*i.e.*, Equation [2]) assumes a single growth
4 estimate in perpetuity. To reduce the long-term growth rate to a single measure, one must
5 assume that the payout ratio remains constant and that earnings per share (“EPS”),
6 dividends per share and book value per share all grow at the same constant rate. Over the
7 long run, however, dividend growth can only be sustained by earnings growth. Therefore,
8 it is important to incorporate a variety of sources of long-term earnings growth rates into
9 the constant growth DCF model.

10 **Q. Which sources of long-term earnings growth rates did you use?**

11 A. My constant growth DCF model incorporates three sources of long-term projected EPS
12 growth rates: (1) *Zacks Investment Research* (“Zacks”); (2) Yahoo! Finance; and (3) *Value*
13 *Line*.

14 **Q. Why are EPS growth rates the appropriate growth rates to be relied on in the DCF**
15 **model?**

16 A. Earnings are the fundamental driver of a company’s ability to pay dividends; therefore,
17 projected EPS growth is the appropriate measure of a company’s long-term growth. In
18 contrast, changes in a company’s dividend payments are based on management decisions
19 related to cash management and other factors. For example, a company may decide to
20 retain earnings rather than pay out a portion of those earnings to shareholders through
21 dividends. Therefore, dividend growth rates are less likely than earnings growth rates to
22 reflect accurately investor perceptions of a company’s growth prospects.

1 **Q. How did you calculate the range of results for the constant growth DCF models?**

2 A. I calculated the low-end result for the constant growth DCF model using the minimum
3 growth rate of the three sources (*i.e.*, the lowest of the *Zacks*, Yahoo! Finance, and *Value*
4 *Line* projected EPS growth rates) for each of the proxy group companies. I used a similar
5 approach to calculate a high-end result, using the maximum growth rate of the three sources
6 for each proxy group company. Lastly, I also calculated results using the average EPS
7 growth rate from all three sources for each proxy group company.

8 **Q. What were the results of your constant growth DCF analyses?**

9 A. Figure 8 (see also Attachment AEB-4) summarizes the results of my DCF analyses. As
10 shown, the mean/median DCF results using the average growth rates range from 10.22
11 percent to 10.84 percent, and the mean/median results using the maximum growth rates
12 range from 11.38 percent to 12.02 percent. While I also summarize the mean DCF results
13 using the minimum growth rates, given the expected underperformance of utility stocks
14 and thus the likelihood that the DCF model is understating the cost of equity, I do not
15 believe it is appropriate to consider these DCF results at this time.

16

1

2

Figure 8: Summary of Constant Growth DCF Results

	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Mean Results:			
30-Day Avg. Stock Price	9.89%	10.84%	12.02%
90-Day Avg. Stock Price	9.72%	10.67%	11.85%
180-Day Avg. Stock Price	9.53%	10.48%	11.66%
Average	9.72%	10.66%	11.84%
Median Results:			
30-Day Avg. Stock Price	10.03%	10.30%	11.92%
90-Day Avg. Stock Price	9.97%	10.24%	11.70%
180-Day Avg. Stock Price	9.95%	10.22%	11.38%
Average	9.98%	10.25%	11.67%

3 **Q. Have regulatory commissions acknowledged that the DCF model might understate**
4 **the cost of equity given the current capital market conditions of relatively high**
5 **inflation and elevated interest rates?**

6 A. Yes. For example, in its May 2022 decision establishing the cost of equity for Aqua
7 Pennsylvania, Inc., the Pennsylvania Public Utility Commission (“PPUC”) concluded that
8 the current capital market conditions of high inflation and increased interest rates has
9 resulted in the DCF model understating the utility cost of equity, and that weight should be
10 placed on risk premium models, such as the CAPM, in the determination of the ROE:

11 To help control rising inflation, the Federal Open Market Committee
12 has signaled that it is ending its policies designed to maintain low
13 interest rates. Aqua Exc. at 9. Because the DCF model does not directly
14 account for interest rates, consequently, it is slow to respond to interest
15 rate changes. However, I&E’s CAPM model uses forecasted yields on
16 ten-year Treasury bonds, and accordingly, its methodology captures
17 forward looking changes in interest rates.

1 Therefore, our methodology for determining Aqua’s ROE shall utilize
2 both I&E’s DCF and CAPM methodologies. As noted above, the
3 Commission recognizes the importance of informed judgment and
4 information provided by other ROE models. In the 2012 PPL Order,
5 the Commission considered PPL’s CAPM and RP methods, tempered
6 by informed judgment, instead of DCF-only results. We conclude that
7 methodologies other than the DCF can be used as a check upon the
8 reasonableness of the DCF derived ROE calculation. Historically, we
9 have relied primarily upon the DCF methodology in arriving at ROE
10 determinations and have utilized the results of the CAPM as a check
11 upon the reasonableness of the DCF derived equity return. As such,
12 where evidence based on other methods suggests that the DCF-only
13 results may understate the utility’s ROE, we will consider those other
14 methods, to some degree, in determining the appropriate range of
15 reasonableness for our equity return determination. In light of the above,
16 we shall determine an appropriate ROE for Aqua using informed
17 judgement based on I&E’s DCF and CAPM methodologies.²⁹

18

19 We have previously determined, above, that we shall utilize I&E’s DCF
20 and CAPM methodologies. I&E’s DCF and CAPM produce a range of
21 reasonableness for the ROE in this proceeding from 8.90% [DCF] to
22 9.89% [CAPM]. Based upon our informed judgment, which includes
23 consideration of a variety of factors, including increasing inflation
24 leading to increases in interest rates and capital costs since the rate
25 filing, we determine that a base ROE of 9.75% is reasonable and
26 appropriate for Aqua.³⁰

27 More recently, the Massachusetts Department of Public Utilities (“MDPU”) also recently
28 came to a similar conclusion³¹

²⁹ Pennsylvania Public Utility Commission, Docket Nos. R-2021-3027385 and R-2021-3027386, Opinion and Order, May 12, 2022, pp. 154–155.

³⁰ *Id.*, pp. 177–178.

³¹ Massachusetts Department of Public Utilities, D.P.U. 22-22, Order, November 30, 2022, p. 385-386; emphasis added.

1 **b. CAPM Analysis**

2 **Q. Please briefly describe the CAPM.**

3 A. The CAPM is a risk premium approach that estimates the cost of equity for a given security
4 as a function of a risk-free return plus a risk premium to compensate investors for the non-
5 diversifiable, systematic risk of that security. Systematic risk is the risk inherent in the
6 entire market or market segment, which cannot be diversified using a portfolio of assets.
7 Unsystematic risk is the risk of a specific company that can, theoretically, be mitigated
8 through portfolio diversification.

9 The CAPM is defined by four components:

10
$$K_e = r_f + \beta(r_m - r_f) \quad [3]$$

11 Where:

12 K_e = the required market ROE;

13 β = beta coefficient of an individual security;

14 r_f = the risk-free rate of return; and

15 r_m = the required return on the market.

16 In this specification, the term ($r_m - r_f$) represents the market risk premium. According to
17 the theory underlying the CAPM, because unsystematic risk can be diversified away,
18 investors should only be concerned with systematic or non-diversifiable risk. Systematic
19 risk is measured by beta, which is a measure of the volatility of a security as compared to
20 the market as a whole. Beta is defined as:

1
$$\beta = \frac{\text{Covariance}(r_e, r_m)}{\text{Variance}(r_m)} \quad [4]$$

2 *Variance* (r_m) represents the variance of the market return, which is a measure of the
3 uncertainty of the general market. *Covariance* (r_e, r_m) represents the covariance between
4 the return on a specific security and the general market, which reflects the extent to which
5 the return on that security will respond to a given change in the general market return.
6 Thus, beta represents the risk of the security relative to the general market.

7 **Q. What risk-free rate do you use in your CAPM analysis?**

8 A. I rely on three sources for my estimate of the risk-free rate: (1) the current 30-day average
9 yield on 30-year U.S. Treasury bonds, which is 4.77 percent;³² (2) the average projected
10 30-year U.S. Treasury bond yield for the first quarter of 2024 through the first quarter of
11 2025, which is 4.48 percent;³³ and (3) the average projected 30-year U.S. Treasury bond
12 yield for 2025 through 2029, which is 4.10 percent.³⁴

13 **Q. What beta coefficients did you use in your CAPM analyses?**

14 A. As shown in Attachment AEB-5, I use the beta coefficients for the proxy group companies
15 as reported by Bloomberg and *Value Line*. The beta coefficients reported by Bloomberg
16 are calculated using ten years of weekly returns relative to the S&P 500 Index. The *Value*
17 *Line* beta coefficients are calculated based on five years of weekly returns relative to the
18 New York Stock Exchange Composite Index.

³² Bloomberg Professional, as of November 30, 2023.

³³ *Blue Chip Financial Forecasts*, Vol. 42, No. 12, December 1, 2023, at 2.

³⁴ *Blue Chip Financial Forecasts*, Vol. 42, No. 12, December 1, 2023, at 14.

1 Additionally, as shown in shown Attachment AEB-5, I also consider an additional CAPM
2 analysis that relies on the long-term average utility beta coefficient for the companies in
3 my proxy group. As shown in Attachment AEB-6, the long-term average utility beta
4 coefficient is calculated as an average of the *Value Line* beta coefficients for the companies
5 in my proxy group from 2013 through 2022.

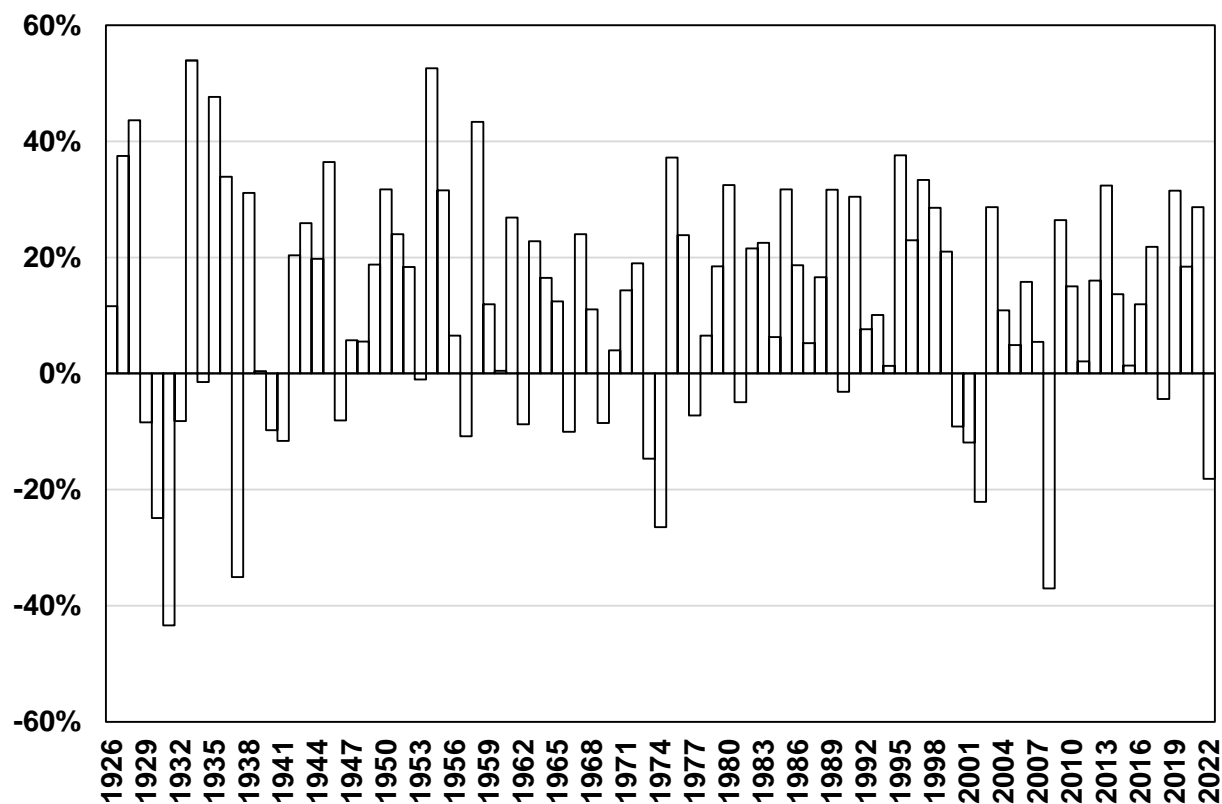
6 **Q. How did you estimate the market risk premium in the CAPM?**

7 A. I estimate the market risk premium as the difference between the implied expected equity
8 market return and the risk-free rate. As shown in Attachment AEB-7, the expected market
9 return is calculated using the constant growth DCF model discussed previously as applied
10 to the companies in the S&P 500 Index. Based on an estimated market capitalization-
11 weighted dividend yield of 1.69 percent and a weighted long-term growth rate of 10.78
12 percent, the estimated required market return for the S&P 500 Index as of November 30,
13 2023 is 12.56 percent. As shown in Attachment AEB-5, based on the three risk-free rates
14 considered, the market risk premium ranges from 7.78 percent to 8.46 percent.

15 **Q. How does the current expected market return compare to observed historical market
16 returns?**

17 A. As shown in Figure 9, given the range of annual equity returns that have been observed
18 over the past century, a current expected market return of 12.56 percent is not unreasonable.
19 In 50 out of the past 97 years (or approximately 52 percent of observations), the realized
20 equity market return was at least 12.56 percent or greater.

1

Figure 9: Realized U.S. Equity Market Returns (1926-2022)³⁵

2 **Q. Did you consider another form of the CAPM in your analysis?**

3 A. Yes. I have also considered the results of an ECAPM in estimating the cost of equity for
 4 the Company.³⁶ The ECAPM calculates the product of the adjusted beta coefficient and
 5 the market risk premium and applies a weight of 75.00 percent to that result. The model
 6 then applies a 25.00 percent weight to the market risk premium without any effect from the
 7 beta coefficient. The results of the two calculations are summed, along with the risk-free
 8 rate, to produce the ECAPM result, as noted in Equation [5] below:

$$9 \quad k_e = r_f + 0.75\beta(r_m - r_f) + 0.25(r_m - r_f) \quad [5]$$

³⁵ Depicts total annual returns on large company stocks, as reported in the 2023 Kroll SBBI Yearbook.

³⁶ See, e.g., Morin, Roger A. *New Regulatory Finance*. Public Utilities Reports, Inc., 2006, at 189.

1 Where:

2 k_e = the required market ROE

3 β = Adjusted beta coefficient of an individual security

4 r_f = the risk-free rate of return

5 r_m = the required return on the market as a whole

6 The ECAPM addresses the tendency of the “traditional” CAPM to underestimate the cost
7 of equity for companies with low beta coefficients such as regulated utilities. In that regard,
8 the ECAPM is not redundant to the use of adjusted betas in the traditional CAPM, but
9 rather it recognizes the results of academic research indicating that the risk-return
10 relationship is different (in essence, flatter) than estimated by the CAPM, meaning that the
11 CAPM underestimates the “alpha,” or the constant return term.³⁷

12 Consistent with my CAPM, my application of the ECAPM uses the forward-looking
13 market risk premium estimates, the three yields on 30-year Treasury securities noted earlier
14 as the risk-free rate, and the current Bloomberg, current *Value Line*, and long-term *Value*
15 *Line* beta coefficients.

16 **Q. What are the results of your CAPM analyses?**

17 A. The results of my CAPM and ECAPM analyses are shown in below in Figure 10, as well
18 as in Attachment AEB-5.

19 **Figure 10: CAPM Results**

Current 30-Day Avg 30-Year Treasury	Near-Term Projected 30-Year Treasury	Longer-Term Projected 30-Year Treasury
--	---	---

³⁷ *Id.* at 191.

	Yield	Yield	Yield
CAPM:			
Current <i>Value Line</i> Beta	11.47%	11.43%	11.37%
Current Bloomberg Beta	10.72%	10.66%	10.57%
Long-term Avg. <i>Value Line</i> Beta	10.43%	10.35%	10.25%
ECAPM:			
Current <i>Value Line</i> Beta	11.74%	11.71%	11.67%
Current Bloomberg Beta	11.18%	11.13%	11.06%
Long-term Avg. <i>Value Line</i> Beta	10.96%	10.90%	10.83%

1 **c. Bond Yield Plus Risk Premium Analysis**

2 **Q. Please describe the BYRP analysis.**

3 A. In general terms, this approach is based on the fundamental principle that equity investors
4 bear the residual risk associated with equity ownership and therefore require a premium
5 over the return they would have earned as bondholders. In other words, because returns to
6 equity holders have greater risk than returns to bondholders, equity holders require a higher
7 return for that incremental risk. Thus, risk premium approaches estimate the cost of equity
8 as the sum of the equity risk premium and the yield on a particular class of bonds. In my
9 analysis, I use actual authorized returns for natural gas utilities as the historical measure of
10 the cost of equity to determine the risk premium.

11 **Q. What is the fundamental relationship between the equity risk premium and interest**
12 **rates?**

13 A. It is important to recognize both academic literature and market evidence indicating that
14 the equity risk premium (as used in this approach) is inversely related to the level of interest
15 rates (*i.e.*, as interest rates increase, the equity risk premium decreases, and vice versa).
16 Consequently, it is important to develop an analysis that: (1) reflects the inverse

1 relationship between interest rates and the equity risk premium; and (2) relies on recent
2 and expected market conditions. The analysis provided in Attachment AEB-8 establishes
3 that relationship using a regression of the risk premium as a function of Treasury bond
4 yields. When the authorized ROEs serve as the measure of required equity returns and the
5 long-term Treasury bond yield is defined as the relevant measure of interest rates, the risk
6 premium is the difference between those two points.³⁸

7 **Q. Is the BYRP analysis relevant to investors?**

8 A. Yes. Investors are aware of authorized ROEs in other jurisdictions and they consider those
9 awards as a benchmark for a reasonable level of equity returns for utilities of comparable
10 risk operating in other jurisdictions. Because my BYRP analysis is based on authorized
11 ROEs for utility companies relative to corresponding Treasury yields, it provides relevant
12 information to assess the return expectations of investors in the current interest rate
13 environment.

14 **Q. What did your BYRP analysis reveal?**

15 A. As shown in Figure 11, from 1980 through November 2023, there was a strong negative
16 relationship between risk premia and interest rates. To estimate that relationship, I
17 conducted a regression analysis using the following equation:

$$RP = a + b(T) \quad [6]$$

18
19 Where:

³⁸ See e.g., Berry, S. Keith. "Interest Rate Risk and Utility Risk Premia during 1982-93." *Managerial and Decision Economics*, Vol. 19, No. 2, March, 1998 (the author used a similar methodology, including using authorized ROEs as the relevant data source, and came to similar conclusions regarding the inverse relationship between risk premia and interest rates). See also Harris, Robert S. "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return." *Financial Management*, Spring 1986, at 66.

1 RP = Risk Premium (difference between allowed ROEs and the yield on 30-year
2 Treasury bonds)

3 a = intercept term

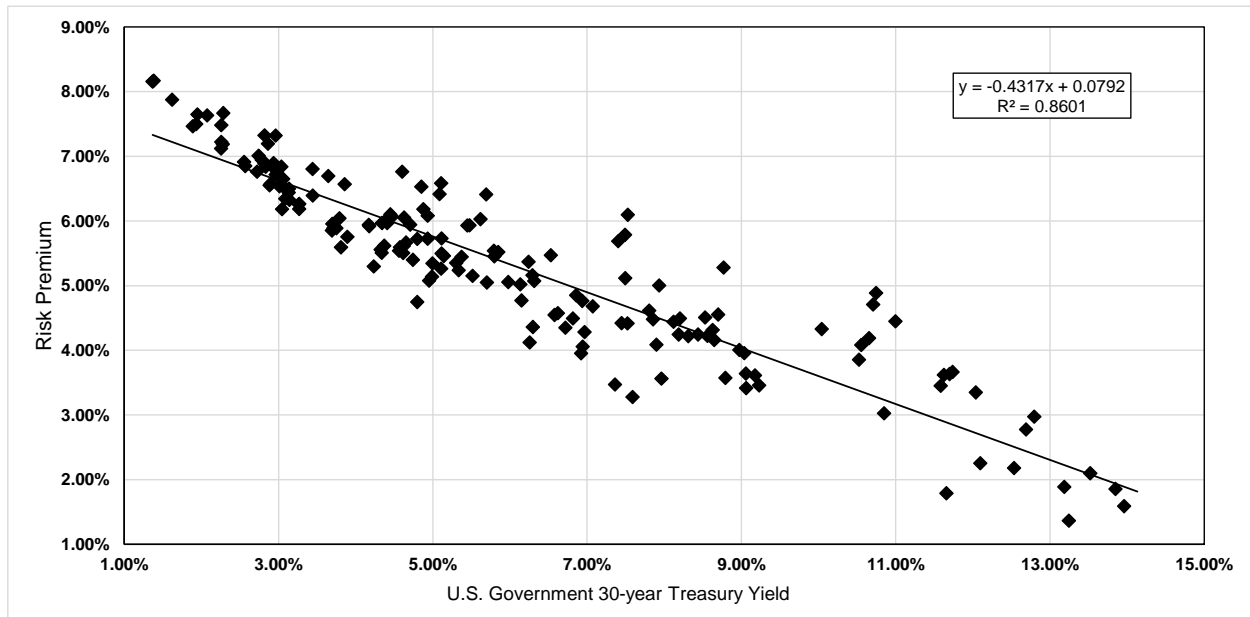
4 b = slope term

5 T = 30-year Treasury bond yield

6 Data regarding authorized ROEs were derived from all natural gas utility rate cases from
7 1980 through November 2023 as reported by Regulatory Research Associates (“RRA”).³⁹

8 This equation’s coefficients were statistically significant at the 99.00 percent level.

9 **Figure 11: Risk Premium Regression Analysis**



10
11 **Q. What are the results of your BYRP analysis?**

12 A. Figure 12 presents the results of my BYRP analysis, which is also presented in more detail
13 in Attachment AEB-8.

³⁹ This analysis was screened to eliminate limited issue rider cases, transmission cases, and cases that were silent with respect to the authorized ROE.

1

Figure 12: BYRP Results

	Current 30-Day Avg 30-Year Treasury Yield	Near-Term Projected 30-Year Treasury Yield	Longer-Term Projected 30-Year Treasury Yield
Bond Yield Risk Premium:	10.63%	10.46%	10.25%

2 **Q. How did the results of the BYRP analysis inform your recommended ROE for the**
3 **Company?**

4 A. I have considered the results of the BYRP analysis in setting my recommended ROE for
5 OVG's natural gas operations in Indiana. As noted, investors consider the authorized ROE
6 for a utility when assessing the risk of that company as compared to utilities of comparable
7 risk operating in other jurisdictions.

8 **VII. REGULATORY AND BUSINESS RISKS**

9 **Q. Taken alone, do the results of the cost of equity estimation models for the proxy group**
10 **provide an appropriate estimate of the cost of equity for the Company?**

11 A. No. These results provide only a range of the appropriate estimate of the Company's cost
12 of equity. There are several additional factors that must be taken into consideration when
13 determining where the Company's cost of equity falls within the range of results. These
14 factors, which are discussed below, should be considered with respect to their overall effect
15 on the Company's risk profile.

1 **a. Cost Recovery Risk**

2 **Q. How does the regulatory environment affect investors' risk assessments?**

3 A. The ratemaking process is premised on the principle that, for investors and companies to
4 commit the capital needed to provide safe and reliable utility services, the subject utility
5 must have the opportunity to recover invested capital and the market-required return on
6 such capital. Regulatory commissions recognize that because utility operations are capital
7 intensive, regulatory decisions should enable the utility to attract capital at reasonable
8 terms, which balances the long-term interests of investors and customers. In that respect,
9 the regulatory framework in which a utility operates is one of the most important factors
10 considered in both debt and equity investors' risk assessments. Because investors have
11 many investment alternatives, even within a given market sector, the Company's
12 authorized returns must be adequate on a relative basis to ensure their ability to attract
13 capital under a variety of economic and financial market conditions.

14 From the perspective of debt investors, the authorized return should enable the Company
15 to generate the cash flow needed to meet their near-term financial obligations, make the
16 capital investments needed to maintain and expand their systems, and maintain sufficient
17 levels of liquidity to fund unexpected events. This financial liquidity must be derived not
18 only from internally generated funds, but also from efficient access to capital markets.

19 From the perspective of equity investors, the authorized return must be adequate to provide
20 a return on the equity portion of the Company's capital investments comparable to other
21 companies of similar risk. Because equity investors are the residual claimants on the
22 Company's cash flows (that is, debt interest must be paid prior to any equity dividends),

1 equity investors are particularly concerned with the regulatory framework in which a utility
2 operates and its effect on future earnings and cash flows.

3 **Q. Why is cost recovery risk important for OVG?**

4 A. In order to maintain access to bank financing at affordable rates, it is important that OVG
5 be able to recover its costs on a timely basis and that it has revenue stability.

6 **b. Medical Expense Recovery Risk**

7 **Q. What is the most significant cost recovery issue that affects the financial stability of**
8 **OVG at this time?**

9 A. As discussed in the testimony of Joint Petitioners' Witnesses Mr. Greg Roach and Mr.
10 Scott Ingram, the Company's greatest financial risk relates to the significant increase in
11 costs due to medical expenses related to adverse claims and general price increases for
12 medical insurance costs.

13 As discussed in that testimony, in 2023, the Company incurred approximately \$4.7 million
14 in medical expenses, which are a 158 percent increase over 2022 costs of \$1.8 million. In
15 2023, medical expenses represented 69 percent of total employee benefit expenses and 44.4
16 percent of administrative and general expenses. In 2022, employee medical expenses
17 represented 48 percent of total employee benefits expenses and approximately 26 percent
18 of total administrative and general expenses. In 2022 employee medical costs represented
19 approximately 14 percent and 26 percent of non-gas operating expenses, respectively.
20 These extraordinary expenses have a significant effect on the Company's financial integrity

1 and ability to earn its allowed return on equity. As of test year ending September 30, 2023,
2 the Company's return on its original cost rate base was 1.51 percent.

3 Further, the Company projects that employee medical expenses will increase to
4 approximately \$5.3 million in 2024 and \$6.2 million in 2025, which is 70 percent and 72
5 percent of total employee and approximately 46 and 39 percent respectively of total
6 operation and maintenance expense in 2024 and 2025 respectively.

7 **Q. Have you conducted an analysis to compare OVG's ability recover its costs and**
8 **stabilize its revenue to the companies in your proxy group?**

9 A. Yes. I have evaluated the regulatory framework in Indiana based on three factors that are
10 important in terms of providing a regulated utility with a reasonable opportunity to earn its
11 authorized ROE: (1) test year convention (*i.e.*, a forecast vs. historical test year); (2) use
12 of rate design and/or other mechanisms that mitigate volumetric risk and stabilize revenue;
13 and (3) the prevalence of capital cost recovery between rate cases. The following
14 summarizes the results of this regulatory risk assessment, which are also presented in
15 Attachment AEB-11:

16 Test Year Convention: OVG is relying on a fully forecasted test year in Indiana for
17 the test year ending September 30, 2025. Similarly, approximately 52 percent of
18 the operating utility subsidiaries of the proxy group companies provide service in
19 jurisdictions that use a forecasted test year.

20 Revenue Stabilization/Volumetric Risk: OVG does not currently have any revenue
21 stabilization mechanisms. Approximately, approximately 91 percent of the utility
22 operating subsidiaries of the proxy group companies have some form of protection

1 against volumetric risk either through formula-based rates, revenue decoupling, or
2 straight fixed-variable rate design.

3 Capital Cost Recovery: The Company current has a TDSIC mechanism that
4 provides for the recovery of 80 percent of the costs related to eligible improvements
5 in a rider that is adjusted semi-annually, with the remaining 20 percent of costs
6 deferred for future recovery in a subsequent rate proceeding. In addition, the
7 Company has a Pipeline Safety Adjustment (“PSA”) mechanism that provides for
8 the annual adjustment for additional maintenance expenses incurred to comply with
9 federal integrity management guidelines. Similarly, approximately 71 percent of
10 the operating utility subsidiaries of the proxy group companies have some form of
11 capital cost recovery allowing for the recovery of capital investments placed into
12 service between rate cases.

13 Fuel cost recovery: OVG has a Gas Cost Adjustment (“GCA”) rider that recovers
14 the costs of purchased gas costs, reconciled through quarterly filings. GCA
15 mechanisms are standard in the industry and are relied upon by all of the proxy
16 companies.

17 **c. Small Size Risk**

18 **Q. What is the risk related to the size of a firm?**

19 A. The financial and academic communities have long accepted the proposition that the cost
20 of equity for small companies is subject to a “size effect.” While empirical evidence of the
21 size effect often is based on studies of industries other than regulated utilities, utility
22 analysts also have noted the risk associated with small market capitalizations. Specifically,
23 an analyst for Ibbotson Associates noted:

24 For small utilities, investors face additional obstacles, such as a smaller
25 customer base, limited financial resources, and a lack of diversification

1 across customers, energy sources, and geography. These obstacles
2 imply a higher investor return.⁴⁰

3 **Q. How does the smaller size of a utility affect its business risk?**

4 A. In general, smaller companies are less able to withstand adverse events that affect their
5 revenues and expenses. The impact of factors such as weather variability, the loss of large
6 customers to bypass opportunities, or the destruction of demand as a result of general
7 macroeconomic conditions or fuel price volatility, have a proportionately greater impact
8 on the earnings and cash flow volatility of smaller utilities. Similarly, capital expenditures
9 for non-revenue producing investments, such as system maintenance and replacements, put
10 proportionately greater pressure on customer costs, potentially leading to customer attrition
11 or demand reduction. Taken together, these risks affect the return required by investors for
12 smaller companies.

13 **Q. How do OVG's natural gas operations in Indiana compare in size to the proxy group
14 companies?**

15 A. OVG's natural gas operations in Indiana are substantially smaller than the median of the
16 proxy group companies in terms of market capitalization. As shown on Attachment AEB-
17 9, while OVG is not publicly traded, I have estimated the implied market capitalization for
18 the Company (*i.e.*, the market capitalization if the Company were a stand-alone publicly-
19 traded entity) relative to the actual market capitalization for the proxy group companies.
20 Based on this analysis, I conclude that the proxy group is 44 times the size of OVG.

⁴⁰ Annin, Michael. "Equity and the Small-Stock Effect." Public Utilities Fortnightly, October 15, 1995.

1 **Q. Please explain how you estimated the size of OVG.**

2 A. To estimate the size of the Company's implied market capitalization relative to the proxy
3 group, I first calculated the equity component of the Company's capital structure by
4 multiplying the Company's test year rate base of \$64.5 million by the Company's proposed
5 common equity ratio in this proceeding of 93.3 percent. I then applied the median market-
6 to-book ratio for the proxy group of 1.28 to the Company's implied common equity balance
7 to estimate the Company's implied market capitalization, which is approximately \$77.2
8 million, or just 2.26 percent of the median market capitalization for the proxy group.

9 **Q. Can you estimate an equity risk premium resulting from the difference in the size of**
10 **OVG and the proxy group?**

11 A. Yes. To do so, I relied on the *Kroll* Cost of Capital Navigator data that estimates the stock
12 risk premia based on the size of a company's market capitalization.⁴¹ As shown on
13 Attachment AEB-9, the median market capitalization of the proxy group is approximately
14 \$3.42 billion, which corresponds to the fifth decile of *Kroll's* market capitalization data.⁴²
15 Based on *Kroll's* analysis, that decile corresponds to a size premium of 0.93 percent (*i.e.*,
16 93 basis points). In comparison, the Company's implied market capitalization of
17 approximately \$ 77 million falls within the 10th decile, which corresponds to a size
18 premium of 4.83 percent (*i.e.*, 483 basis points). The difference between the size premium
19 for the Company and the size premium for the proxy group is 390 basis points (*i.e.*, 4.83
20 percent minus 0.93 percent)

⁴¹ *Kroll* Cost of Capital Navigator – Size Premium; annual data as of December 31, 2022.

⁴² *Id.*

1 **Q. Have regulators in other jurisdictions recognized that smaller companies have**
2 **greater risk and applied a risk adjustment to the cost of equity results based on a**
3 **company's small size?**

4 A. Yes. For example, in Order No. 15, the Regulatory Commission of Alaska (“RCA”)
5 concluded that Alaska Electric Light and Power Company (“AEL&P”) was riskier than the
6 proxy group companies due to small size as well as other business risks. The RCA did
7 “not believe that adopting the upper end of the range of ROE analyses in this case, without
8 an explicit adjustment, would adequately compensate AEL&P for its greater risk.”⁴³ Thus,
9 the RCA awarded AEL&P an ROE of 12.875 percent, which was 108 basis points above
10 the highest cost of equity estimate from any model presented in the case.⁴⁴ Similarly, the
11 RCA has also noted that small size, as well as other business risks such as structural
12 regulatory lag, weather risk, alternative rate mechanisms, gas supply risk, geographic
13 isolation and economic conditions, increased the risk of ENSTAR Natural Gas Company.⁴⁵
14 Ultimately, the RCA concluded that:

15 Although we agree that the risk factors identified by ENSTAR increase
16 its risk, we do not attempt to quantify the amount of that increase.
17 Rather, we take the factors into consideration when evaluating the
18 remainder of the record and the recommendations presented by the
19 parties. After applying our reasoned judgment to the record, we find that
20 11.875% represents a fair ROE for ENSTAR.⁴⁶

⁴³ Regulatory Commission of Alaska, Docket No. U-10-29, Order No. 15, September 2, 2011, at 37.

⁴⁴ *Id.*, at 32 and 37.

⁴⁵ Regulatory Commission of Alaska, Docket No. U-16-066, Order No. 19, September 22, 2017, at 50-52.

⁴⁶ *Id.*

1 Additionally, the Minnesota Public Utilities Commission (“Minnesota PUC”) authorized
2 an ROE for Otter Tail Power Company (“Otter Tail”) above the mean DCF results as a
3 result of multiple factors, including Otter Tail’s small size. The Minnesota PUC stated:

4 The record in this case establishes a compelling basis for selecting an
5 ROE above the mean average within the DCF range, given Otter Tail’s
6 unique characteristics and circumstances relative to other utilities in the
7 proxy group. These factors include the company’s relatively smaller
8 size, geographically diffuse customer base, and the scope of the
9 Company’s planned infrastructure investments.⁴⁷

10 Finally, in Opinion Nos. 569 and 569-A, the Federal Energy Regulatory Commission
11 (“FERC”) adopted a size premium adjustment in its CAPM estimates for electric utilities.⁴⁸

12 In those decisions, the FERC concluded that “the size adjustment was necessary to correct
13 for the CAPM’s inability to fully account for the impact of firm size when determining the
14 cost of equity.”⁴⁹

15 **Q. Are there other aspects of the Company’s small size that also affect its overall risk**
16 **relative to the proxy group?**

17 A. Yes. As noted, the Company is not currently rated by any of the major credit rating
18 agencies. However, each of the companies in the proxy group, which are all publicly
19 traded, investment grade firms with significantly larger utility operations than the
20 Company’s, have published credit ratings. These credit ratings provide investors a

⁴⁷ Minnesota Public Utilities Commission, Docket No. E017/GR-15-1033, Order, August 16, 2016, at 55.

⁴⁸ *Ass’n. of Businesses Advocating Tariff Equity, et. al., v. Midcontinent Indep. Sys. Operator, Inc., et. al.*, 169 FERC ¶ 61,129 (2019) at ¶ 296; *Ass’n. of Businesses Advocating Tariff Equity, et. al., v. Midcontinent Indep. Sys. Operator, Inc., et. al.*, 171 FERC ¶ 61,154 (2020) (“Opinion No. 569-A”), at ¶ 75.

⁴⁹ Opinion No. 569-A, at ¶ 75. The U.S. Court of Appeals recently vacated the FERC Order No. 569 decisions that related to its risk premium model and remanded the case to FERC to reopen the proceedings. However, in its decision, the Court did not reject FERC’s inclusion of the size premium to estimate the CAPM. (*See*, United States Court of Appeals Case No. 16-1325, Decision No. 16-1325, August 9, 2022 at 20).

1 standard framework by which to evaluate the risk associated with creditworthiness. Given
2 that the Company does not have a credit rating, investors do not have the same level of
3 transparency and thus perception of risk relative to the larger companies in the proxy group,
4 which otherwise limits the Company's ability to access capital relative to the proxy group
5 and its financial flexibility to withstand and adapt to changes in market conditions that may
6 otherwise significantly affect cash flow (*e.g.*, loss of one or more industrial customers).

7 **Q. How have you considered the smaller size of OVG's natural gas distribution**
8 **operations in Indiana in your recommended ROE?**

9 A. While I have estimated the effect of the Company's small size of its natural gas operations
10 in Indiana on the cost of equity, I am not proposing a specific adjustment for this risk factor.
11 Rather, I believe it is important to consider the small size of the Company's utility
12 operations in the determination of where, within the range of analytical results, OVG's
13 required cost of equity falls. All else equal, the additional risk associated with the
14 Company's small size supports an ROE toward the upper end of the range of results from
15 the cost of equity estimation models.

16 **d. Business risks**

17 **Q. Please summarize the other significant business risks that affect Ohio Valley Gas.**

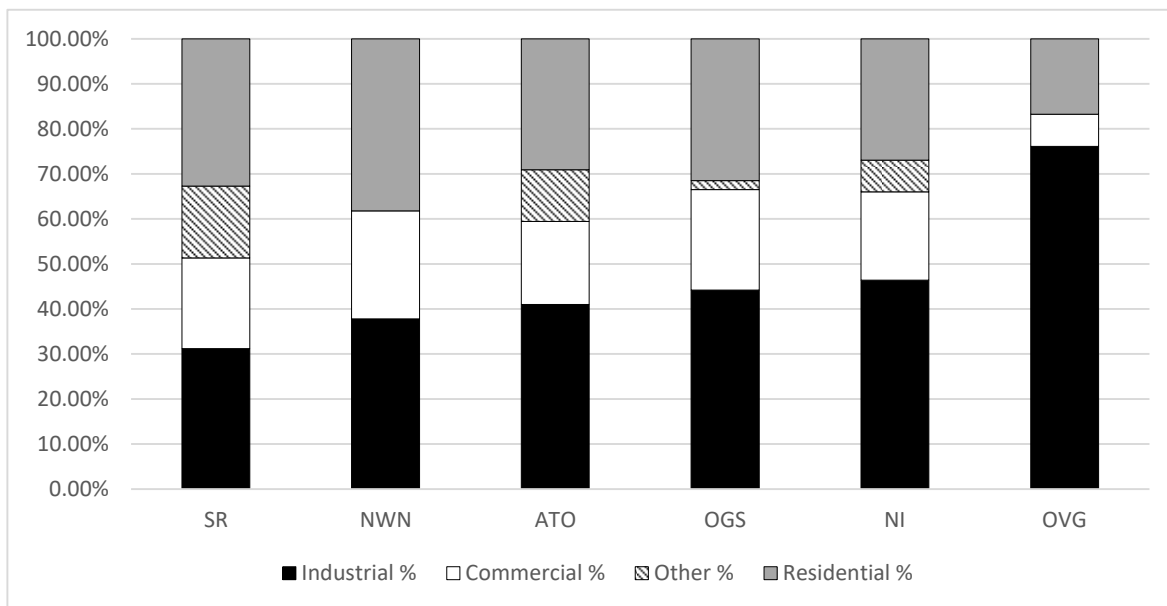
18 A. Ohio Valley Gas faces increased operating risk due to several factors including, 1)
19 customer concentration, 2) increased capital expenditures based on more stringent pipeline
20 safety standards, 3) and significant increases in labor costs due to competition for qualified
21 labor.

1 **e. Customer Concentration**

2 **Q. Please summarize OVG's customer concentration risk.**

3 A. As noted previously, approximately 76 percent of the Company's 2022 gas utilities sales
 4 in Indiana were derived from industrial customers, including transportation customers. As
 5 shown in Figure 13, OVG's industrial sales volume as a percentage of total utility gas sales
 6 was higher than all of the companies in the proxy group by a significant margin. Further,
 7 this segment is highly concentrated in two large customers.

8 **Figure 13: Customer Concentration⁵⁰**



9 **Q. How does customer concentration affect business risk?**

10 A. An extremely high concentration of industrial customers results in higher business risk.
 11 Industrial customers are large and can represent a significant portion of a company's sales

⁵⁰ EIA FORM 176 - Other sales includes Electric Power and Vehicle Fuel Volume

1 that could be lost if a customer goes out of business, relocates, or switches providers. As
2 noted by Dhaliwal, Judd, Serfling and Shaikh (2016):

3 Depending on a major customer for a large portion of sales can be risky
4 for a supplier for two primary reasons. First, a supplier faces the risk of
5 losing substantial future sales if a major customer becomes financially
6 distressed or declares bankruptcy, switches to a different supplier, or
7 decides to develop products internally. Consistent with this notion,
8 Hertz et al. (2008) and Kolay et al. (2015) document negative supplier
9 abnormal stock returns to the announcement that a major customer
10 declares bankruptcy. Further, a customer's weak financial condition or
11 actions could signal inherent problems about the supplier's viability to
12 its remaining customers and lead to compounding losses in sales.
13 Second, a supplier faces the risk of losing anticipated cash flows from
14 being unable to collect outstanding receivables if the customer goes
15 bankrupt. This assertion is consistent with the finding that suppliers
16 offering customers more trade credit experience larger negative
17 abnormal stock returns around the announcement of a customer filing
18 for Chapter 11 bankruptcy (Jorion and Zhang, 2009; Kolay et al.,
19 2015).⁵¹

20 Therefore, a company that has a high degree of customer concentration will be inherently
21 riskier than a company that derived income from a larger customer base. Furthermore, as
22 Dhaliwal, Judd, Serfling and Shaik (2016) detail, the increased risk associated with a more
23 concentrated customer base will have the effect of increasing a company's cost of equity.⁵²

24 **Q. What is your conclusion regarding the Company's customer concentration and its**
25 **effect on the cost of equity for OVG?**

26 A. OVG's sales are highly concentrated in its industrial customer base, and this concentration
27 is higher than all of the proxy group companies. This high degree of customer concentration

⁵¹ Dhaliwal, Dan S., J. Scott Judd, Matthew A. Serfling, and Sarah Shaikh. "Customer Concentration Risk and the Cost of Equity Capital." SSRN Electronic Journal (2016): 1-2.

⁵² *Id.*, at 4.

1 increases the Company's risk related to customer migration, economic conditions or
2 competition.⁵³ Therefore, the risk of eroding revenue resulting from customer
3 concentration is higher for OVG than the proxy group companies on average.

4 **f. Capital Expenditures**

5 **Q. Please summarize the Company's capital expenditure requirements.**

6 A. As of the test year ending September 2023, the Company had net gas utility plant of
7 approximately \$58 million,⁵⁴ and the Company currently projects capital expenditures of
8 approximately \$6.1 million and \$7.2 million in 2024 and 2025 respectively, the majority
9 of which is investments in mains and services.⁵⁵ The Company's total projected capital
10 expenditures of approximately \$13.3 million is significant, at approximately 23 percent of
11 its net utility plant as of test year ending September 30, 2023.

12 **Q. How is the Company's risk profile affected by its capital expenditure requirements?**

13 A. As with any utility faced with substantial capital expenditure requirements, the Company's
14 risk profile may be adversely affected in two significant and related ways: (1) the
15 heightened level of investment increases the risk of under-recovery or delayed recovery of
16 the invested capital; and (2) an inadequate authorized return risks constraining cash flow
17 and increasing financial pressure. Further, to the extent that the Company cannot meet its
18 current bank covenants, the ability to finance the capital plan with additional debt would

⁵³ Conversely, greater customer diversity decreases the effect that any one customer can have on a company's sales.

⁵⁴ Net Plant as of 9/30/2023 as provide in the OVG Revenue Requirement, page 1.

⁵⁵ Plant additions for 2024 and 2025 as provided in the OVG Revenue Requirement, page 9.

1 be limited and may not be on favorable terms. Therefore, in order to meet the capital
2 investment requirements, the Company would be required to finance with equity.

3 **Q. For investor-owned utilities such as in the proxy group, do credit rating agencies**
4 **recognize the risks associated with elevated levels of capital expenditures?**

5 A. Yes. From a credit perspective, the additional pressure on cash flows associated with high
6 levels of capital expenditures exerts corresponding pressure on credit metrics and,
7 therefore, credit ratings. To that point, S&P explains the importance of regulatory support
8 for large capital projects:

9 When applicable, a jurisdiction's willingness to support large capital projects
10 with cash during construction is an important aspect of our analysis. This is
11 especially true when the project represents a major addition to rate base and
12 entails long lead times and technological risks that make it susceptible to
13 construction delays. Broad support for all capital spending is the most credit-
14 sustaining. Support for only specific types of capital spending, such as
15 specific environmental projects or system integrity plans, is less so, but still
16 favorable for creditors. Allowance of a cash return on construction work-in-
17 progress or similar ratemaking methods historically were extraordinary
18 measures for use in unusual circumstances, but when construction costs are
19 rising, cash flow support could be crucial to maintain credit quality through
20 the spending program. Even more favorable are those jurisdictions that
21 present an opportunity for a higher return on capital projects as an incentive
22 to investors.⁵⁶

23 Therefore, similar to investor-owned utilities, to the extent that OVG's rates do not permit
24 the Company to recover its capital investments on a timely basis and provide a reasonable
25 opportunity to earn its authorized return, the Company will face increased cost recovery
26 risk and thus increased pressure on its financial position.

⁵⁶ S&P Global Ratings. "Assessing U.S. Investor-Owned Utility Regulatory Environments." August 10, 2016, at 7.

1 **Q. How do OVG’s prospective capital expenditure requirements compare to those of the**
2 **proxy group companies?**

3 A. As shown in Attachment AEB-10, I calculated the ratio of expected capital expenditures
4 to net utility plant for the Company and each of the companies in the proxy group by
5 dividing each company’s projected capital expenditures for the period from 2024 through
6 2025 by its total net utility plant as of December 31, 2022.⁵⁷ As shown in Attachment
7 AEB-10, the Company’s ratio of capital expenditures as a percentage of net utility plant is
8 25.61 percent, which is slightly above than the median for the proxy group companies of
9 25.35 percent. This result indicates a risk level for OVG that is similar to that the proxy
10 group companies, though the financing terms, as noted previously create greater risk.

11 **Q. Does OVG have a capital tracking mechanism to recover the costs associated with its**
12 **capital expenditures between rate cases?**

13 A. Yes. OVG currently has implemented a recovery mechanism for eligible transmission,
14 distribution, and storage improvement (“TDSIC”) costs. The TDSIC mechanism allows
15 for the recovery of up to 80 percent of capital expenditures and costs of eligible TDSIC
16 projects, while the remaining 20 percent is to be recovered in a future general rate case.
17 However, significant capital programs like OVG’s that drive utility investment
18 requirements generally receive cost recovery through infrastructure and capital trackers.

19 **Q. Are capital cost recovery mechanisms generally prevalent for utilities?**

20 A. Yes. Utilities are capital-intensive businesses, and as a result, generally receive timely cost
21 recovery through various regulatory mechanisms. Specifically, as shown in Attachment

⁵⁷ OVG data based on test year ended September 30, 2022.

1 AEB-11, approximately 71 percent of the operating utilities of the proxy group companies
2 have some form of capital cost recovery mechanisms in place. Therefore, while OVG's
3 use of the TDSIC mechanism mitigates its own cost recovery risk, taking into consideration
4 that the TDSIC only is eligible to recover 80 percent of eligible costs, the appropriate point
5 of comparison is whether or not this tracking mechanism is risk reducing relative to the
6 proxy group. Considering that 71.4 percent of the companies in the proxy group have some
7 form of capital cost recovery mechanism, OVG is consistent with a majority of the proxy
8 group in terms of capital cost recovery.

9 **Q. What are your conclusions regarding the effect of the Company's capital spending**
10 **requirements on its risk profile and cost of capital?**

11 A. The Company's capital expenditure requirements as a percentage of net utility plant are
12 significant. While OVG has capital cost recovery through the TDSIC mechanism
13 consistent with the majority of the operating utilities of the proxy group, the timeliness of
14 OVG's cost recovery is limited in that only 80 percent of the costs for eligible projects are
15 recoverable, while the remainder are deferred for recovery in a future rate proceeding.
16 Therefore, the level of OVG's prospective capital expenditures plan and the limitation on
17 its ability to recover those investments on a timely basis results in a risk profile that is
18 greater than that of the proxy group.

19 **VIII. CONCLUSIONS AND RECOMMENDATIONS**

20 **Q. What is your conclusion regarding a fair ROE for the Company?**

21 A. Based on the various quantitative analyses summarized in Figure 14 and the qualitative
22 analyses presented in my direct testimony, a reasonable range of ROE results for OVG is

1 from 10.25 percent to 11.25 percent. Within that range, I believe that an ROE of 11.00
 2 percent is reasonable and appropriate. The recommended ROE takes into consideration
 3 the current conditions in capital markets including the high interest rates, and elevated
 4 inflationary pressures, both of which increase the cost of capital as well as the relative
 5 business and financial risk of OVG as compared to the proxy group. This ROE would
 6 fairly balance the interests of customers and shareholders.

7 **Figure 14: Summary of Analytical Results**

<i>Constant Growth DCF</i>			
	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Mean Results:			
30-Day Avg. Stock Price	9.89%	10.84%	12.02%
90-Day Avg. Stock Price	9.72%	10.67%	11.85%
180-Day Avg. Stock Price	9.53%	10.48%	11.66%
Average	9.72%	10.66%	11.84%
Median Results:			
30-Day Avg. Stock Price	10.03%	10.30%	11.92%
90-Day Avg. Stock Price	9.97%	10.24%	11.70%
180-Day Avg. Stock Price	9.95%	10.22%	11.38%
Average	9.98%	10.25%	11.67%
<i>CAPM / ECAPM / Bond Yield Risk Premium</i>			
	Current 30-Day Avg. 30-Year Treasury Yield	Near-Term Projected 30-Year Treasury Yield	Longer-Term Projected 30-Year Treasury Yield
CAPM:			
Current <i>Value Line</i> Beta	11.47%	11.43%	11.37%
Current Bloomberg Beta	10.72%	10.66%	10.57%
Long-term Avg. <i>Value Line</i> Beta	10.43%	10.35%	10.25%
ECAPM:			

Current <i>Value Line</i> Beta	11.74%	11.71%	11.67%
Current Bloomberg Beta	11.18%	11.13%	11.06%
Long-term Avg. <i>Value Line</i> Beta	10.96%	10.90%	10.83%
Bond Yield Risk Premium:	10.63%	10.46%	10.25%

1 **Q.** Does this conclude your direct testimony?

2 A. Yes, it does.

VERIFICATION

I, Ann Bulkley, Principal of The Brattle Group, affirm under penalties for perjury that the foregoing is true to the best of my knowledge, information, and belief.

Dated this 7th day of February 2024.

A handwritten signature in black ink that reads "Ann Bulkley". The signature is written in a cursive style with a loop at the end of the last name.

Ann E. Bulkley
Principal
The Brattle Group
One Beacon Street
Boston, MA 02108



Ann E. Bulkley

PRINCIPAL

Boston

508.981.0866

Ann.Bulkley@brattle.com

With more than 25 years of experience in the energy industry, Ms. Bulkley specializes in regulatory economics for the electric and natural gas and water utility sectors, including valuation of regulated and unregulated utility assets, cost of capital, and capital structure issues.

Ms. Bulkley has extensive state and federal regulatory experience, and she has provided expert testimony on the cost of capital in nearly 100 regulatory proceedings before 32 state regulatory commissions and the Federal Energy Regulatory Commission (FERC).

In addition to her regulatory experience, Ms. Bulkley has provided valuation and appraisal services for a variety of purposes, including the sale or acquisition of utility assets, regulated ratemaking, ad valorem tax disputes, and other litigation purposes. In addition, she has experience in the areas of contract and business unit valuation, strategic alliances, market restructuring, and regulatory and litigation support.

Ms. Bulkley is a Certified General Appraiser licensed in the Commonwealth of Massachusetts and the State of New Hampshire.

Prior to joining Brattle, Ms. Bulkley was a Senior Vice President at an economic consultancy and held senior positions at several other consulting firms.

AREAS OF EXPERTISE

- Regulatory Economics, Finance & Rates
- Regulatory Investigations & Enforcement
- Tax Controversy & Transfer Pricing
- Electricity Litigation & Regulatory Disputes
- M&A Litigation



EDUCATION

- **Boston University**
MA in Economics
- **Simmons College**
BA in Economics and Finance

PROFESSIONAL EXPERIENCE

- **The Brattle Group (2022–Present)**
Principal
- **Concentric Energy Advisors, Inc. (2002–2021)**
Senior Vice President
Vice President
Assistant Vice President
Project Manager
- **Navigant Consulting, Inc. (1997–2002)**
Project Manager
- **Reed Consulting Group (1995-1997)**
Consultant- Project Manager
- **Cahners Publishing Company (1995)**
Economist

SELECTED CONSULTING EXPERIENCE & EXPERT TESTIMONY

REGULATORY ANALYSIS AND RATEMAKING

Have provided a range of advisory services relating to regulatory policy analysis and many aspects of utility ratemaking, with specific services including:

- Cost of capital and return on equity testimony, cost of service and rate design analysis and testimony, development of ratemaking strategies
- Development of merchant function exit strategies



- Analysis and program development to address residual energy supply and/or provider of last resort obligations
- Stranded costs assessment and recovery
Performance-based ratemaking analysis and design
- Many aspects of traditional utility ratemaking (e.g., rate design, rate base valuation)

COST OF CAPITAL

Have provided expert testimony on the cost of capital and capital structure in nearly 100 regulatory proceedings before state and federal regulatory commissions in the United States.

RATEMAKING

Have assisted several clients with analysis to support investor-owned and municipal utility clients in the preparation of rate cases. Sample engagements include:

- Assisted several investor-owned and municipal clients on cost allocation and rate design issues including the development of expert testimony supporting recommended rate alternatives.
- Worked with Canadian regulatory staff to establish filing requirements for a rate review of a newly regulated electric utility. Along with analyzing and evaluating rate application, attended hearings and conducted investigation of rate application for regulatory staff and prepared, supported, and defended recommendations for revenue requirements and rates for the company. Additionally, developed rates for gas utility for transportation program and ancillary services.

VALUATION

Have provided valuation services to utility clients, unregulated generators, and private equity clients for a variety of purposes, including ratemaking, fair value, ad valorem tax, litigation and damages, and acquisition. Appraisal practices are consistent with the national standards established by the Uniform Standards of Professional Appraisal Practice.

Representative projects/clients have included:

- Prepared appraisals of electric utility transmission and distribution assets for ad valorem tax purposes.
- Prepared appraisals of hydroelectric generating facilities for ad valorem tax purposes.
- Conducted appraisals of fossil fuel generating facilities for ad valorem tax purposes.
- Conducted appraisals of generating assets for the purposes of unwinding sale-leaseback agreements.
- For a confidential utility client, prepared valuation of fossil and nuclear generation assets for financing purposes for regulated utility client.



- Conducted a strategic review of the acquisition of nuclear generation assets. Review included the evaluation of the operating costs of the facilities and the long-term liabilities associated with the assets including the decommissioning of the assets.
- Prepared a valuation of a portfolio of generation assets for a large energy utility to be used for strategic planning purposes. Valuation approach included an income approach, a real options analysis, and a risk analysis.
- Assisted clients in the restructuring of NUG contracts through the valuation of the underlying assets. Performed analysis to determine the option value of a plant in a competitively priced electricity market following the settlement of the NUG contract.
- Prepared market valuations of several purchase power contracts for large electric utilities in the sale of purchase power contracts. Assignment included an assessment of the regional power market, analysis of the underlying purchase power contracts, and a traditional discounted cash flow valuation approach, as well as a risk analysis. Analyzed bids from potential acquirers using income and risk analysis approached. Prepared an assessment of the credit issues and value at risk for the selling utility.
- Prepared appraisal of a portfolio of generating facilities for a large electric utility to be used for financing purposes.
- Conducted a valuation of regulated utility assets for the fair value rate base estimate used in electric rate proceedings in Indiana.
- Prepared an appraisal of a fleet of fossil generating assets for a large electric utility to establish the value of assets transferred from utility property.
- Conducted due diligence on an electric transmission and distribution system as part of a buy-side due diligence team.
- Provided analytical support and prepared testimony regarding the valuation of electric distribution system assets in five communities in a condemnation proceeding.
- Prepared feasibility reports analyzing the expected net benefits resulting from municipal ownership of investor-owned utility operations.
- Prepared independent analyses of proposal for the proposed government condemnation of the investor-owned utilities in Maine and the formation of a public power district.
- Valued purchase power agreements in the transfer of assets to a deregulated electric market.

STRATEGIC AND FINANCIAL ADVISORY SERVICES

Have assisted several clients across North America with analytically-based strategic planning, due diligence, and financial advisory services.

Representative projects include:





- Preparation of feasibility studies for bond issuances for municipal and district steam clients.
- Assisted in the development of a generation strategy for an electric utility. Analyzed various NERC regions to identify potential market entry points. Evaluated potential competitors and alliance partners. Assisted in the development of gas and electric price forecasts. Developed a framework for the implementation of a risk management program.
- Assisted clients in identifying potential joint venture opportunities and alliance partners. Contacted interviewed and evaluated potential alliance candidates based on company-established criteria for several LDCs and marketing companies. Worked with several LDCs and unregulated marketing companies to establish alliances to enter into the retail energy market. Prepared testimony in support of several merger cases and participated in the regulatory process to obtain approval for these mergers.
- Assisted clients in several buy-side due diligence efforts, providing regulatory insight and developing valuation recommendations for acquisitions of both electric and gas properties.



BULKLEY TESTIMONY LISTING

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Arizona Corporation Commission				
UNS Electric	11/22	UNS Electric	Docket No. E-04204A-15-0251	Return on Equity
Tucson Electric Power Company	6/22	Tucson Electric Power Company	Docket No. G-01933A-22-0107	Return on Equity
Southwest Gas Corporation	12/21	Southwest Gas Corporation	Docket No. G-01551A-21-0368	Return on Equity
Arizona Public Service Company	10/19	Arizona Public Service Company	Docket No. E-01345A-19-0236	Return on Equity
Tucson Electric Power Company	04/19	Tucson Electric Power Company	Docket No. E-01933A-19-0028	Return on Equity
Tucson Electric Power Company	11/15	Tucson Electric Power Company	Docket No. E-01933A-15-0322	Return on Equity
UNS Electric	05/15	UNS Electric	Docket No. E-04204A-15-0142	Return on Equity
UNS Electric	12/12	UNS Electric	Docket No. E-04204A-12-0504	Return on Equity
Arkansas Public Service Commission				
Oklahoma Gas and Electric Co	10/21	Oklahoma Gas and Electric Co	Docket No. D-18-046-FR	Return on Equity
Arkansas Oklahoma Gas Corporation	10/13	Arkansas Oklahoma Gas Corporation	Docket No. 13-078-U	Return on Equity
California Public Utilities Commission				
PacifiCorp, d/b/a Pacific Power	5/22	PacifiCorp, d/b/a Pacific Power	Docket No. A-22-05-006	Return on Equity
San Jose Water Company	05/21	San Jose Water Company	A2105004	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Colorado Public Utilities Commission				
Public Service Company of Colorado	11/22	Public Service Company of Colorado	Docket No. 22AL-0530E	Return on Equity
Public Service Company of Colorado	01/22	Public Service Company of Colorado	Docket No. 22AL-0046G	Return on Equity
Public Service Company of Colorado	07/21	Public Service Company of Colorado	21AL-0317E	Return on Equity
Public Service Company of Colorado	02/20	Public Service Company of Colorado	20AL-0049G	Return on Equity
Public Service Company of Colorado	05/19	Public Service Company of Colorado	19AL-0268E	Return on Equity
Public Service Company of Colorado	01/19	Public Service Company of Colorado	19AL-0063ST	Return on Equity
Atmos Energy Corporation	05/15	Atmos Energy Corporation	Docket No. 15AL-0299G	Return on Equity
Atmos Energy Corporation	04/14	Atmos Energy Corporation	Docket No. 14AL-0300G	Return on Equity
Atmos Energy Corporation	05/13	Atmos Energy Corporation	Docket No. 13AL-0496G	Return on Equity
Connecticut Public Utilities Regulatory Authority				
The Southern Connecticut Gas Company	11/23	The Southern Connecticut Gas Company	Docket No. 23-11-02	Return on Equity
Connecticut Natural Gas Corporation	11/23	Connecticut Natural Gas Corporation	Docket No. 23-11-02	Return on Equity
Connecticut Water Company	10/23	Connecticut Water Company	Docket No. 23-08-32	Return on Equity
United Illuminating	09/22	United Illuminating	Docket No. 22-08-08	Return on Equity
United Illuminating	05/21	United Illuminating	Docket No. 17-12-03RE11	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Connecticut Water Company	01/21	Connecticut Water Company	Docket No. 20-12-30	Return on Equity
Connecticut Natural Gas Corporation	06/18	Connecticut Natural Gas Corporation	Docket No. 18-05-16	Return on Equity
Yankee Gas Services Co. d/b/a Eversource Energy	06/18	Yankee Gas Services Co. d/b/a Eversource Energy	Docket No. 18-05-10	Return on Equity
The Southern Connecticut Gas Company	06/17	The Southern Connecticut Gas Company	Docket No. 17-05-42	Return on Equity
The United Illuminating Company	07/16	The United Illuminating Company	Docket No. 16-06-04	Return on Equity
Federal Energy Regulatory Commission				
Sea Robin Pipeline	12/22	Sea Robin Pipeline	Docket No. RP22-___	Return on Equity
Northern Natural Gas Company	07/22	Northern Natural Gas Company	Docket No. RP22-___	Return on Equity
Transwestern Pipeline Company, LLC	07/22	Transwestern Pipeline Company, LLC	Docket No. RP22-___	Return on Equity
Florida Gas Transmission	02/21	Florida Gas Transmission	Docket No. RP21-441	Return on Equity
TransCanyon	01/21	TransCanyon	Docket No. ER21-1065	Return on Equity
Duke Energy	12/20	Duke Energy	Docket No. EL21-9-000	Return on Equity
Wisconsin Electric Power Company	08/20	Wisconsin Electric Power Company	Docket No. EL20-57-000	Return on Equity
Panhandle Eastern Pipe Line Company, LP	10/19	Panhandle Eastern Pipe Line Company, LP	Docket Nos. RP19-78-000 RP19-78-001	Return on Equity
Panhandle Eastern Pipe Line Company, LP	08/19	Panhandle Eastern Pipe Line Company, LP	Docket Nos. RP19-1523	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Sea Robin Pipeline Company LLC	11/18	Sea Robin Pipeline Company LLC	Docket# RP19-352-000	Return on Equity
Tallgrass Interstate Gas Transmission	10/15	Tallgrass Interstate Gas Transmission	RP16-137	Return on Equity
Idaho Public Utilities Commission				
Intermountain Gas Co	12/22	Intermountain Gas Co	C-INT-G-22-07	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	05/21	PacifiCorp d/b/a Rocky Mountain Power	Case No. PAC-E-21-07	Return on Equity
Illinois Commerce Commission				
Peoples Gas Light & Coke Company	01/23	Peoples Gas Light & Coke Company	D-23-0069	Return on Equity
North Shore Gas Company	01/23	North Shore Gas Company	D-23-0068	Return on Equity
Illinois American Water	02/22	Illinois American Water	Docket No. 22-0210	Return on Equity
North Shore Gas Company	02/21	North Shore Gas Company	No. 20-0810	Return on Equity
Indiana Utility Regulatory Commission				
Southern Indiana Gas and Electric Company d/b/a CenterPoint Energy Indiana South	12/23	Southern Indiana Gas and Electric Company d/b/a CenterPoint Energy Indiana South	IURC Cause No. 45990	Return on Equity
Indiana Michigan Power Co.	08/23	Indiana Michigan Power Co.	IURC Cause No. 45933	Return on Equity
Indiana American Water Company	03/23	Indiana and Michigan American Water Company	IURC Cause No. 45870	Return on Equity
Indiana Michigan Power Co.	07/21	Indiana Michigan Power Co.	IURC Cause No. 45576	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Indiana Gas Company Inc.	12/20	Indiana Gas Company Inc.	IURC Cause No. 45468	Return on Equity
Southern Indiana Gas and Electric Company	10/20	Southern Indiana Gas and Electric Company	IURC Cause No. 45447	Return on Equity
Indiana and Michigan American Water Company	09/18	Indiana and Michigan American Water Company	IURC Cause No. 45142	Return on Equity
Indianapolis Power and Light Company	12/17	Indianapolis Power and Light Company	Cause No. 45029	Fair Value
Northern Indiana Public Service Company	09/17	Northern Indiana Public Service Company	Cause No. 44988	Fair Value
Indianapolis Power and Light Company	12/16	Indianapolis Power and Light Company	Cause No.44893	Fair Value
Northern Indiana Public Service Company	10/15	Northern Indiana Public Service Company	Cause No. 44688	Fair Value
Indianapolis Power and Light Company	09/15	Indianapolis Power and Light Company	Cause No. 44576 Cause No. 44602	Fair Value
Kokomo Gas and Fuel Company	09/10	Kokomo Gas and Fuel Company	Cause No. 43942	Fair Value
Northern Indiana Fuel and Light Company, Inc.	09/10	Northern Indiana Fuel and Light Company, Inc.	Cause No. 43943	Fair Value
Iowa Department of Commerce Utilities Board				
MidAmerican Energy Company	06/23	MidAmerican Energy Company	Docket No. RPU-2023-____	Return on Equity
MidAmerican Energy Company	01/22	MidAmerican Energy Company	Docket No. RPU-2022-0001	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Iowa-American Water Company	08/20	Iowa-American Water Company	Docket No. RPU-2020-0001	Return on Equity
Kansas Corporation Commission				
Evergy Kansas	04/23	Evergy Kansas	Docket No. 23- ____ - ____ -RTS	Return on Equity
Atmos Energy Corporation	08/15	Atmos Energy Corporation	Docket No. 16-ATMG-079-RTS	Return on Equity
Kentucky Public Service Commission				
Kentucky American Water Company	06/23	Kentucky American Water Company	Docket No. 2023- ____	Return on Equity
Kentucky American Water Company	11/18	Kentucky American Water Company	Docket No. 2018-00358	Return on Equity
Maine Public Utilities Commission				
Central Maine Power	08/22	Central Maine Power	Docket No. 2022-00152	Return on Equity
Central Maine Power	10/18	Central Maine Power	Docket No. 2018-194	Return on Equity
Maryland Public Service Commission				
Maryland American Water Company	06/18	Maryland American Water Company	Case No. 9487	Return on Equity
Massachusetts Appellate Tax Board				
Hopkinton LNG Corporation	03/20	Hopkinton LNG Corporation	Docket No.	Valuation of LNG Facility
FirstLight Hydro Generating Company	06/17	FirstLight Hydro Generating Company	Docket No. F-325471 Docket No. F-325472 Docket No. F-325473 Docket No. F-325474	Valuation of Electric Generation Assets
Massachusetts Department of Public Utilities				



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Massachusetts Electric Company Nantucket Electric Company d/b/a National Grid	11/23	Massachusetts Electric Company Nantucket Electric Company d/b/a National Grid	DPU 23-150	Return on Equity
National Grid USA	11/20	Boston Gas Company	DPU 20-120	Return on Equity
Berkshire Gas Company	05/18	Berkshire Gas Company	DPU 18-40	Return on Equity
Unitil Corporation	01/04	Fitchburg Gas and Electric	DTE 03-52	Integrated Resource Plan; Gas Demand Forecast
Michigan Public Service Commission				
Indiana Michigan Power Co.	09/23	Indiana Michigan Power Co.	Case No. U-21461	Return on Equity
Michigan Gas Utilities Corporation	03/23	Michigan Gas Utilities Corporation	Case No. U-21366	Return on Equity
Michigan Gas Utilities Corporation	03/21	Michigan Gas Utilities Corporation	Case No. U-20718	Return on Equity
Wisconsin Electric Power Company	12/11	Wisconsin Electric Power Company	Case No. U-16830	Return on Equity
Michigan Tax Tribunal				
New Covert Generating Co., LLC.	03/18	The Township of New Covert Michigan	MTT Docket No. 000248TT and 16-001888-TT	Valuation of Electric Generation Assets
Covert Township	07/14	New Covert Generating Co., LLC.	Docket No. 399578	Valuation of Electric Generation Assets
Minnesota Public Utilities Commission				



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
ALLETE, Inc. d/b/a Minnesota Power	11/23	Allete, Inc. d/b/a Minnesota Power	D-E-015/GR-23-155	Return on Equity
CenterPoint Energy Resources	11/23	CenterPoint Energy Resources	D-G-008/GR-23-173	Return on Equity
Minnesota Energy Resources Corporation	11/22	Minnesota Energy Resources Corporation	Docket No. G011/GR- 22-504	Return on Equity
CenterPoint Energy Resources	11/21	CenterPoint Energy Resources	D-G-008/GR-21-435	Return on Equity
ALLETE, Inc. d/b/a Minnesota Power	11/21	Allete, Inc. d/b/a Minnesota Power	D-E-015/GR-21-630	Return on Equity
Otter Tail Power Company	11/20	Otter Tail Power Company	E017/GR-20-719	Return on Equity
ALLETE, Inc. d/b/a Minnesota Power	11/19	Allete, Inc. d/b/a Minnesota Power	E015/GR-19-442	Return on Equity
CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	10/19	CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	G-008/GR-19-524	Return on Equity
Great Plains Natural Gas Co.	09/19	Great Plains Natural Gas Co.	Docket No. G004/GR- 19-511	Return on Equity
Minnesota Energy Resources Corporation	10/17	Minnesota Energy Resources Corporation	Docket No. G011/GR- 17-563	Return on Equity
Missouri Public Service Commission				
Ameren Missouri	08/22	Ameren Missouri	File No. ER-2022- 0337	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Missouri American Water Company	07/22	Missouri American Water Company	Case No. WR-2022-0303 Case No. SR-2022-0304	Return on Equity
Evergy Missouri West	1/22	Evergy Missouri West	File No. ER-2022-0130	Return on Equity
Evergy Missouri Metro	1/22	Evergy Missouri Metro	File No. ER-2022-0129	Return on Equity
Ameren Missouri	03/21	Ameren Missouri	Docket No. ER-2021-0240 Docket No. GR-2021-0241	Return on Equity
Missouri American Water Company	06/20	Missouri American Water Company	Case No. WR-2020-0344 Case No. SR-2020-0345	Return on Equity
Missouri American Water Company	06/17	Missouri American Water Company	Case No. WR-17-0285 Case No. SR-17-0286	Return on Equity
Montana Public Service Commission				
Montana-Dakota Utilities Co.	11/22	Montana-Dakota Utilities Co.	D2022.11.099	Return on Equity
Montana-Dakota Utilities Co.	06/20	Montana-Dakota Utilities Co.	D2020.06.076	Return on Equity
Montana-Dakota Utilities Co.	09/18	Montana-Dakota Utilities Co.	D2018.9.60	Return on Equity
New Hampshire - Board of Tax and Land Appeals				
Liberty Utilities (EnergyNorth Natural Gas)	07/23	Liberty Utilities (EnergyNorth Natural Gas)	Docket No. DG 23-067	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Liberty Utilities (Granite State Electric)	05/23	Liberty Utilities (Granite State Electric)	Docket No. DE 23-039	Return on Equity
Public Service Company of New Hampshire d/b/a Eversource Energy	11/19 12/19	Public Service Company of New Hampshire d/b/a Eversource Energy	Master Docket No. 28873-14-15-16-17PT	Valuation of Utility Property and Generating Assets
New Hampshire Public Utilities Commission				
Public Service Company of New Hampshire	05/19	Public Service Company of New Hampshire	DE-19-057	Return on Equity
New Hampshire-Merrimack County Superior Court				
Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	04/18	Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	220-2012-CV-1100	Valuation of Utility Property
New Hampshire-Rockingham Superior Court				
Eversource Energy	05/18	Public Service Commission of New Hampshire	218-2016-CV-00899 218-2017-CV-00917	Valuation of Utility Property
New Jersey Board of Public Utilities				
Public Service Electric and Gas Company	11/23	Public Service Electric and Gas Company	ER23120924 GR23120925	Return on Equity
New Jersey American Water Company, Inc.	01/22	New Jersey American Water Company, Inc.	WR22010019	Return on Equity
Public Service Electric and Gas Company	10/20	Public Service Electric and Gas Company	EO18101115	Return on Equity
New Jersey American Water Company, Inc.	12/19	New Jersey American Water Company, Inc.	WR19121516	Return on Equity
Public Service Electric and Gas Company	04/19	Public Service Electric and Gas Company	EO18060629 GO18060630	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Public Service Electric and Gas Company	02/18	Public Service Electric and Gas Company	GR17070776	Return on Equity
Public Service Electric and Gas Company	01/18	Public Service Electric and Gas Company	ER18010029 GR18010030	Return on Equity
New Mexico Public Regulation Commission				
Southwestern Public Service Company	07/19	Southwestern Public Service Company	19-00170-UT	Return on Equity
Southwestern Public Service Company	10/17	Southwestern Public Service Company	Case No. 17-00255-UT	Return on Equity
Southwestern Public Service Company	12/16	Southwestern Public Service Company	Case No. 16-00269-UT	Return on Equity
Southwestern Public Service Company	10/15	Southwestern Public Service Company	Case No. 15-00296-UT	Return on Equity
Southwestern Public Service Company	06/15	Southwestern Public Service Company	Case No. 15-00139-UT	Return on Equity
New York State Department of Public Service				
Liberty Utilities (New York Water)	5/23	Liberty Utilities (New York Water)	Case 23-W-0235	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/22	New York State Electric and Gas Company Rochester Gas and Electric	22-E-0317 22-G-0318 22-E-0319 22-G-0320	Return on Equity
Corning Natural Gas Corporation	07/21	Corning Natural Gas Corporation	Case No. 21-G-0394	Return on Equity
Central Hudson Gas and Electric Corporation	08/20	Central Hudson Gas and Electric Corporation	Electric 20-E-0428 Gas 20-G-0429	Return on Equity
Niagara Mohawk Power Corporation	07/20	National Grid USA	Case No. 20-E-0380 20-G-0381	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Corning Natural Gas Corporation	02/20	Corning Natural Gas Corporation	Case No. 20-G-0101	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/19	New York State Electric and Gas Company Rochester Gas and Electric	19-E-0378 19-G-0379 19-E-0380 19-G-0381	Return on Equity
Brooklyn Union Gas Company d/b/a National Grid NY KeySpan Gas East Corporation d/b/a National Grid	04/19	Brooklyn Union Gas Company d/b/a National Grid NY KeySpan Gas East Corporation d/b/a National Grid	19-G-0309 19-G-0310	Return on Equity
Central Hudson Gas and Electric Corporation	07/17	Central Hudson Gas and Electric Corporation	Electric 17-E-0459 Gas 17-G-0460	Return on Equity
Niagara Mohawk Power Corporation	04/17	National Grid USA	Case No. 17-E-0238 17-G-0239	Return on Equity
Corning Natural Gas Corporation	06/16	Corning Natural Gas Corporation	Case No. 16-G-0369	Return on Equity
National Fuel Gas Company	04/16	National Fuel Gas Company	Case No. 16-G-0257	Return on Equity
KeySpan Energy Delivery	01/16	KeySpan Energy Delivery	Case No. 15-G-0058 Case No. 15-G-0059	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/15	New York State Electric and Gas Company Rochester Gas and Electric	Case No. 15-E-0283 Case No. 15-G-0284 Case No. 15-E-0285 Case No. 15-G-0286	Return on Equity
North Dakota Public Service Commission				
Otter Tail Power Company	11/23	Otter Tail Power Company	Case No. PU-23-___	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Montana-Dakota Utilities Co.	11/23	Montana-Dakota Utilities Co.	Case No. PU-23-___	Return on Equity
Montana-Dakota Utilities Co.	05/22	Montana-Dakota Utilities Co.	C-PU-22-194	Return on Equity
Montana-Dakota Utilities Co.	08/20	Montana-Dakota Utilities Co.	C-PU-20-379	Return on Equity
Northern States Power Company	12/12	Northern States Power Company	C-PU-12-813	Return on Equity
Northern States Power Company	12/10	Northern States Power Company	C-PU-10-657	Return on Equity
Oklahoma Corporation Commission				
Oklahoma Gas & Electric	12/23	Oklahoma Gas & Electric	Cause No. PUD2023-000087	Return on Equity
Oklahoma Gas & Electric	12/21	Oklahoma Gas & Electric	Cause No. PUD 202100164	Return on Equity
Arkansas Oklahoma Gas Corporation	01/13	Arkansas Oklahoma Gas Corporation	Cause No. PUD 201200236	Return on Equity
Oregon Public Service Commission				
PacifiCorp d/b/a Pacific Power & Light	03/22	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-399	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	02/20	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-374	Return on Equity
Pennsylvania Public Utility Commission				
American Water Works Company Inc.	11/23	Pennsylvania-American Water Company	Docket No. R-2023-3043189 (water) Docket No. R-2023-3043190 (wastewater)	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
American Water Works Company Inc.	04/22	Pennsylvania-American Water Company	Docket No. R-2020-3031672 (water) Docket No. R-2020-3031673 (wastewater)	Return on Equity
American Water Works Company Inc.	04/20	Pennsylvania-American Water Company	Docket No. R-2020-3019369 (water) Docket No. R-2020-3019371 (wastewater)	Return on Equity
American Water Works Company Inc.	04/17	Pennsylvania-American Water Company	Docket No. R-2017-2595853	Return on Equity
South Dakota Public Utilities Commission				
MidAmerican Energy Company	05/22	MidAmerican Energy Company	D-NG22-005	Return on Equity
Northern States Power Company	06/14	Northern States Power Company	Docket No. EL14-058	Return on Equity
Texas Public Utility Commission				
Entergy Texas, Inc.	07/22	Entergy Texas, Inc.	D-53719	Return on Equity
Southwestern Public Service Commission	08/19	Southwestern Public Service Commission	Docket No. D-49831	Return on Equity
Southwestern Public Service Company	01/14	Southwestern Public Service Company	Docket No. 42004	Return on Equity
Texas Railroad Commission				
CenterPoint Energy Entex and CenterPoint Energy Texas Gas	10/23	CenterPoint Energy Entex and CenterPoint Energy Texas Gas	2023 Texas Division Rate Case Case No. OS-23-00015513	Return on Equity
Utah Public Service Commission				



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
PacifiCorp d/b/a Rocky Mountain Power	05/20	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20-035-04	Return on Equity
Virginia State Corporation Commission				
Virginia American Water Company, Inc.	11/23	Virginia American Water Company, Inc.	Docket No. PUR-2023-00194	Return on Equity
Virginia American Water Company, Inc.	11/21	Virginia American Water Company, Inc.	Docket No. PUR-2021-00255	Return on Equity
Virginia American Water Company, Inc.	11/18	Virginia American Water Company, Inc.	Docket No. PUR-2018-00175	Return on Equity
Washington Utilities Transportation Commission				
PacifiCorp d/b/a Pacific Power & Light	03/23	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-230172	Return on Equity
Cascade Natural Gas Corporation	06/20	Cascade Natural Gas Corporation	Docket No. UG-200568	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	12/19	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-191024	Return on Equity
Cascade Natural Gas Corporation	04/19	Cascade Natural Gas Corporation	Docket No. UG-190210	Return on Equity
West Virginia Public Service Commission				
West Virginia American Water Company	05/23	West Virginia American Water Company	Case No. 23-0383-W-42T	Return on Equity
West Virginia American Water Company	04/21	West Virginia American Water Company	Case No. 21-02369-W-42T	Return on Equity
West Virginia American Water Company	04/18	West Virginia American Water Company	Case No. 18-0573-W-42T Case No. 18-0576-S-42T	Return on Equity
Wisconsin Public Service Commission				
Wisconsin Power and Light	05/23	Wisconsin Power and Light	Docket No. 6680-UR-124	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Wisconsin Electric Power Company and Wisconsin Gas LLC	04/22	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-110	Return on Equity
Wisconsin Public Service Corp.	04/22	Wisconsin Public Service Corp.	6690-UR-127	Return on Equity
Alliant Energy		Alliant Energy		Return on Equity
Wisconsin Electric Power Company and Wisconsin Gas LLC	03/19	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-109	Return on Equity
Wisconsin Public Service Corp.	03/19	Wisconsin Public Service Corp.	6690-UR-126	Return on Equity
Wyoming Public Service Commission				
PacifiCorp d/b/a Rocky Mountain Power	02/23	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20000-633-ER-23	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	03/20	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20000-578-ER-20	Return on Equity
Montana-Dakota Utilities Co.	05/19	Montana-Dakota Utilities Co.	30013-351-GR-19	Return on Equity

CERTIFICATIONS/ACCREDITATIONS

Certified General Appraiser, licensed in the Commonwealth of Massachusetts

Joint Petitioners' Exhibit No. 7
Attachments AEB-2 through AEB-11
Filed in Excel Format