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Docket #(s): 6-01551A -16-0107

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Part 3 of 5

**EXHIBIT NO. A-12**

**DIRECT TESTIMONY – ROBERT B. HEVERT**





IN THE MATTER OF  
SOUTHWEST GAS CORPORATION  
DOCKET NO. G-01551A-16-0107

PREPARED DIRECT TESTIMONY  
OF  
ROBERT B. HEVERT

ON BEHALF OF  
SOUTHWEST GAS CORPORATION

MAY 2, 2016

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of  
Prepared Direct Testimony  
of  
ROBERT B. HEVERT

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Appendix A – Summary of Qualifications of Robert B. Hevert

Exhibit No.\_\_(RBH-1)

Exhibit No.\_\_(RBH-2)

Exhibit No.\_\_(RBH-3)

Exhibit No.\_\_(RBH-4)

Exhibit No.\_\_(RBH-5)

Exhibit No.\_\_(RBH-6)

Exhibit No.\_\_\_\_(RBH-7)

Exhibit No.\_\_\_\_(RBH-8)

Exhibit No.\_\_\_\_(RBH-9)

Exhibit No.\_\_\_\_(RBH-10)

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Direct Testimony  
of  
ROBERT B. HEVERT

**I. INTRODUCTION**

Q. 1 Please state your name and business address.

A. 1 My name is Robert B. Hevert. I am Managing Partner of Sussex Economic Advisors, LLC ("Sussex"). My business address is 1900 West Park Drive, Suite 250, Westborough, Massachusetts 01581.

Q. 2 On whose behalf are you submitting this testimony?

A. 2 I am submitting this direct testimony ("Direct Testimony") before the Arizona Corporation Commission ("Commission") on behalf of Southwest Gas Corporation ("Southwest Gas" or the "Company").

Q. 3 Please describe your educational background.

A. 3 I hold a Bachelor's degree in Business and Economics from the University of Delaware, and an MBA with a concentration in Finance from the University of Massachusetts. I also hold the Chartered Financial Analyst designation.

Q. 4 Please describe your experience in the energy and utility industries.

A. 4 I have worked in regulated industries for over twenty-five years, having served as an executive and manager with consulting firms, a financial officer of a publicly-traded natural gas utility (at the time, Bay State Gas Company), and an analyst at a telecommunications utility. In my role as a consultant, I have advised numerous energy and utility clients on a wide range of financial and economic issues including corporate and asset-based transactions, asset and enterprise

1 valuation, transaction due diligence, and strategic matters. As an expert  
2 witness, I have provided testimony in over 150 proceedings regarding various  
3 financial and regulatory matters before numerous state utility regulatory  
4 agencies and the Federal Energy Regulatory Commission. A summary of my  
5 professional and educational background, including a list of my testimony in prior  
6 proceedings, is included in Attachment A to my Direct Testimony.

7 **II. PURPOSE AND OVERVIEW OF TESTIMONY**

8 Q. 5 What is the purpose of your Direct Testimony in this proceeding?

9 A. 5 The purpose of my Direct Testimony is to present evidence and provide a  
10 recommendation regarding the Company's Return on Equity ("ROE").<sup>1</sup> My  
11 analyses and conclusions are supported by the data presented in Exhibit  
12 No.\_\_(RBH-1) through Exhibit No.\_\_(RBH-10), which have been prepared by  
13 me or under my direction.

14 Q. 6 What are your conclusions regarding the appropriate Cost of Equity?

15 A. 6 My analyses indicate that the Company's Cost of Equity currently is in the range  
16 of 10.00 percent to 10.50 percent. Based on the quantitative and qualitative  
17 analyses discussed throughout my Direct Testimony, I conclude that an ROE of  
18 10.25 percent is reasonable and appropriate.

19 Q. 7 Please provide a brief overview of the analyses that led to your ROE  
20 recommendation.

21 A. 7 As discussed in more detail in Section VI, in light of recent market conditions,  
22 and given the fact that equity analysts and investors tend to use multiple  
23 methodologies in developing their return requirements, it is important to consider  
24

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25 <sup>1</sup> Throughout my testimony, I interchangeably use the terms "ROE" and "Cost of Equity".

1 the results of several analytical approaches in determining the Company's ROE.  
2 To develop my ROE recommendation, I therefore applied the Constant Growth  
3 and Multi-Stage forms of the Discounted Cash Flow ("DCF") model, the Capital  
4 Asset Pricing Model ("CAPM"), and the Bond Yield Plus Risk Premium  
5 approach.

6 As discussed throughout my Direct Testimony, it also is important to  
7 consider a range of factors, both quantitative and qualitative, in arriving at an  
8 ROE determination. As such, my recommendation takes into consideration the  
9 capital environment in which the Company operates, the effect of floatation costs  
10 and the increased regulatory risk the Company faces relative to the proxy group.  
11 Although I did not make explicit adjustments to my ROE estimates for those  
12 factors, I did take them into consideration when determining where the  
13 Company's Cost of Equity falls within the reasonable range of analytical results.

### 14 **III. SUMMARY OF CONCLUSIONS**

15 Q. 8 What are the key factors considered in your analyses and upon which you base  
16 your recommended ROE?

17 A. 8 My analyses and recommendations considered the following:

- 18 • The *Hope* and *Bluefield* decisions<sup>2</sup> that established the standards for  
19 determining a fair and reasonable allowed Return on Equity including:  
20 consistency of the allowed return with other businesses having similar risk;  
21 adequacy of the return to provide access to capital and support credit quality;  
22 and that the end result must lead to just and reasonable rates.

23  
24  
25 <sup>2</sup> See, *Bluefield Waterworks & Improvement Co., v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923); *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).

- The effect of the current capital market conditions on investors' return requirements, and in particular, the Company's continuing need to access the capital markets.
- The Company's business risks relative to the proxy group of comparable companies and the implications of those risks in arriving at the appropriate ROE.

Q. 9 What are the results of your analyses?

A. 9 The results of my analyses are summarized in Tables 1a and 1b, below.

**Table 1a: Summary of Discounted Cash Flow Model Results<sup>3</sup>**

	<i>Low</i>	<i>Mean</i>	<i>High</i>
<i>Constant Growth DCF Results</i>			
30-Day Average	8.39%	9.52%	11.30%
90-Day Average	8.50%	9.64%	11.41%
180-Day Average	8.66%	9.79%	11.57%
<i>Multi-Stage DCF Results</i>			
	<i>Low</i>	<i>Mean</i>	<i>High</i>
30-Day Average	9.03%	9.33%	9.82%
90-Day Average	9.16%	9.47%	9.97%
180-Day Average	9.32%	9.65%	10.18%

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25 <sup>3</sup> See also, Exhibit No.\_\_(RBH-1) and Exhibit No.\_\_(RBH-3). Results include estimated flotation costs.

1 **Table 1b: Summary of Risk Premium Results<sup>4</sup>**

2

3

	<i>Bloomberg Derived Market Risk Premium</i>	<i>Value Line Derived Market Risk Premium</i>
<i>Average Bloomberg Beta Coefficient</i>		
Current 30-Year Treasury (2.79%)	9.69%	9.26%
Near Term Projected 30-Year Treasury (3.35%)	10.25%	9.83%
<i>Average Value Line Beta Coefficient</i>		
Current 30-Year Treasury (2.79%)	10.78%	10.28%
Near Term Projected 30-Year Treasury (3.35%)	11.34%	10.85%
<i>Bond Yield Plus Risk Premium Approach</i>		
Current 30-Year Treasury (2.79%)	9.98%	
Near Term Projected 30-Year Treasury (3.35%)	10.02%	
Long Term Projected 30-Year Treasury (4.65%)	10.39%	

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12 Based on the analytical results presented in Tables 1a and 1b, and in light

13 of the considerations discussed throughout the balance of my Direct Testimony,

14 it is my view that a reasonable range of estimates is from 10.00 percent to 10.50

15 percent, and within that range, an ROE of 10.25 percent is reasonable and

16 appropriate, if not somewhat conservative

17 Q. 10 How is the remainder of your Direct Testimony organized?

18 A. 10 The balance of my Direct Testimony is organized as follows:

19 Section IV – Discusses the regulatory guidelines and financial considerations

20 pertinent to the development of the cost of capital;

21 Section V – Explains my selection of the proxy group of natural gas distribution

22 utilities used to develop my analytical results;

23

24

25 <sup>4</sup> See also, Exhibit No.\_\_\_\_(RBH-6) and Exhibit No.\_\_\_\_(RBH-7).



1           Section VI – Explains my analyses and the analytical bases for my ROE  
2           recommendation;

3           Section VII – Provides a discussion of specific business risks and other  
4           considerations that have a direct bearing on the Company's Cost of Equity;

5           Section VIII – Discusses current capital market conditions and the effect of those  
6           conditions on the Company's Cost of Equity;

7           Section IX – Summarizes my conclusions and recommendations for the return  
8           on the original cost rate base;

9           Section X – Discusses the fair value rate base; and

10          Section XI – Summarizes the fair value rate of return.

11   **IV. REGULATORY GUIDELINES AND FINANCIAL CONSIDERATIONS**

12   Q.   11   Before addressing the specific aspects of this proceeding, please provide an  
13           overview of the issues surrounding the Cost of Equity in regulatory proceedings,  
14           generally.

15   A.   11   In very general terms, the Cost of Equity is the return that investors require to  
16           make an equity investment in a firm. That is, investors will only provide funds to  
17           a firm if the return that they *expect* is equal to, or greater than, the return that  
18           they *require*. From the firm's perspective, that required return, whether it is  
19           provided to debt or equity investors, has a cost. Individually, we speak of the  
20           "Cost of Debt" and the "Cost of Equity"; together, they are referred to as the  
21           "Cost of Capital".

22           The Cost of Capital (including the costs of both debt and equity) is based  
23           on the economic principle of "opportunity costs". Investing in any asset, whether  
24           debt or equity securities, implies a forgone opportunity to invest in alternative  
25           assets. For any investment to be sensible, its expected return must be at least

1 equal to the return expected on alternative, comparable investment  
2 opportunities. Because investments with like risks should offer similar returns,  
3 the opportunity cost of an investment should equal the return available on an  
4 investment of comparable risk.

5 Although both debt and equity have required costs, they are different in  
6 certain fundamental ways. Most noticeably, the Cost of Debt is contractually  
7 defined and can be directly observed as the interest rate, or yield, on debt  
8 securities.<sup>5</sup> The Cost of Equity, on the other hand, is neither directly observable  
9 nor a contractual obligation. Rather, equity investors have a claim on the firm's  
10 cash flows only after debt holders are paid; the uncertainty (or risk) associated  
11 with those residual cash flows determines the Cost of Equity. Because equity  
12 investors bear that "residual risk", they take greater risks and require higher  
13 returns than debt holders. In that basic sense, equity and debt investors differ:  
14 They invest in different securities, face different risks, and require different  
15 returns.

16 Whereas the Cost of Debt can be directly observed, the Cost of Equity  
17 must be estimated, or inferred, based on market data and various financial  
18 models. As discussed throughout my Direct Testimony, all of those models are  
19 subject to certain assumptions, which may be more or less applicable under  
20 differing market conditions. In addition, because the Cost of Equity is premised  
21 on opportunity costs, those models typically are applied to a group of  
22 "comparable" or "proxy" companies. The choice of models (including their  
23 inputs), the selection of proxy companies, and the interpretation of the model  
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25 <sup>5</sup> The observed interest rate may be adjusted to reflect issuance or other directly observable costs.

1 results all require the application of judgment. That judgment also should  
2 consider data and information that is not necessarily included in the models  
3 themselves. In the end, however, the estimated Cost of Equity should reflect  
4 the return that investors require in light of the subject company's risks, and the  
5 returns available on comparable investments.

6 Q. 12 Please now provide a brief summary of the regulatory guidelines established for  
7 the purpose of determining the ROE.

8 A. 12 The Court established the guiding principles for establishing a fair return for  
9 capital in two cases: (1) *Bluefield Water Works and Improvement Co. v. Public*  
10 *Service Comm'n. ("Bluefield")*;<sup>6</sup> and (2) *Federal Power Comm'n v. Hope Natural*  
11 *Gas Co. ("Hope")*.<sup>7</sup> In *Bluefield*, the Court stated:

12 A public utility is entitled to such rates as will permit it to earn a  
13 return on the value of the property which it employs for the  
14 convenience of the public equal to that generally being made at the  
15 same time and in the same general part of the country on  
16 investments in other business undertakings which are attended by  
17 corresponding, risks and uncertainties; but it has no constitutional  
18 right to profits such as are realized or anticipated in highly profitable  
19 enterprises or speculative ventures. The return should be  
20 reasonably sufficient to assure confidence in the financial  
21 soundness of the utility and should be adequate, under efficient and  
22 economical management, to maintain and support its credit and  
23 enable it to raise the money necessary for the proper discharge of  
24 its public duties.<sup>8</sup>

25 The Court therefore recognized that: (1) a regulated company cannot  
remain financially sound unless the return it is allowed to earn on its invested  
capital is at least equal to the cost of capital (the principle relating to the demand

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23 <sup>6</sup> *Bluefield Waterworks & Improvement Co., v. Public Service Commission of West Virginia*, 262 U.S. 679,  
24 692-93 (1923).

24 <sup>7</sup> *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944).

25 <sup>8</sup> *Bluefield Waterworks & Improvement Co., v. Public Service Commission of West Virginia*, 262 U.S. 679,  
692-93 (1923).

1 for capital); and (2) a regulated company will not be able to attract capital if it  
2 does not offer investors an opportunity to earn a return on their investment equal  
3 to the return they expect to earn on other investments of the same risk (the  
4 principle relating to the supply of capital).

5 Q. 13 Has the Commission provided similar guidance in establishing the appropriate  
6 Return on Equity?

7 A. 13 Yes. The Commission has noted that under the Arizona Constitution, a public  
8 utility is entitled to a fair return on the fair value of its property devoted to public  
9 uses. The Commission is required to find the fair value of the utility's property  
10 and to use that value to establish just and reasonable rates.<sup>9</sup>

11 Q. 14 Why is it important for a utility to be allowed the opportunity to earn a return  
12 adequate to attract equity capital at reasonable terms?

13 A. 14 A return that is adequate to attract capital at reasonable terms enables the utility  
14 to provide service while maintaining its financial integrity. In keeping with the  
15 *Hope* and *Bluefield* standards, that return should be commensurate with the  
16 returns expected elsewhere in the market for investments of equivalent risk.  
17 Based on those standards, the Commission's decision in this case should  
18 provide the Company with the opportunity to earn an ROE that is: (1) adequate  
19 to attract capital at reasonable terms, thereby enabling it to continue to provide  
20 safe and reliable natural gas service; (2) sufficient to ensure its financial integrity;  
21 and (3) commensurate with returns on investments in enterprises having  
22 corresponding risks. The allowed ROE should enable the Company to finance  
23 capital expenditures at reasonable cost rates and maintain its financial flexibility

24 \_\_\_\_\_  
25 <sup>9</sup> Arizona Corporation Commission Order No. W-02113A-04-0616, Chaparral City Water Company,  
February 13, 2007, at 11. References Ariz. Water co., 85 Ariz. at 203,335, P.2d at 415.

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over the period during which rates are expected to remain in effect. Whereas the “capital attraction” and “financial integrity” standards are important principles in normal economic conditions, the practical implications of those standards are even more pronounced during periods of capital market instability.

Q. 15 How is the Cost of Equity estimated in regulatory proceedings?

A. 15 As noted earlier (and as discussed in more detail throughout my Direct Testimony), the Cost of Equity is estimated by the use of various financial models. By their very nature, those models produce a range of results from which the ROE must be estimated. That estimate must be based on a comprehensive review of relevant data and information, and does not necessarily lend itself to a strict mathematical solution. The key consideration in determining the ROE is to ensure that the overall analysis reasonably reflects investors’ view of the financial markets in general and the subject company (in the context of the proxy companies) in particular. Both practitioners and academics, however, recognize that financial models simply are tools to be used in the ROE estimation process, and that strict adherence to any single approach, or to the specific results of any single approach, can lead to flawed or misleading conclusions. That position is consistent with the *Hope* and *Bluefield* principle that it is the analytical result, as opposed to the methodology, that is controlling in arriving at ROE determinations. Thus, a reasonable ROE estimate appropriately considers alternative methodologies and the reasonableness of their individual and collective results in the context of observable, relevant market information.

1 **V. PROXY GROUP SELECTION**

2 Q. 16 As a preliminary matter, why is it necessary to select a group of proxy companies  
3 to determine the Cost of Equity for Southwest Gas?

4 A. 16 First, it is important to bear in mind that the Cost of Equity for a given enterprise  
5 depends on the risks attendant to the business in which the company is  
6 engaged. According to financial theory, the value of a given company is equal  
7 to the aggregate market value of its constituent business units. The value of the  
8 individual business units reflects the risks and opportunities inherent in the  
9 business sectors in which those units operate. In this proceeding, we are  
10 focused on estimating the Cost of Equity for the Company's Arizona jurisdictional  
11 operations. Because the ROE is a market-based concept, and given the fact  
12 that Southwest Gas's jurisdictional operations within Arizona do not make up the  
13 entirety of the publicly traded parent company, it is necessary to establish a  
14 group of companies that are both publicly traded and comparable to Southwest  
15 Gas to serve as its "proxy" for purposes of the ROE estimation process.

16 Even if Southwest Gas's Arizona jurisdictional assets did constitute the  
17 entirety of the parent company's operations, it is possible that transitory events  
18 could bias its market value in one way or another over a given period of time. A  
19 significant benefit of using a proxy group, therefore, is to moderate the effects of  
20 anomalous, temporary events that may be associated with any one company.

21 Q. 17 Does the selection of a proxy group suggest that analytical results will be tightly  
22 clustered around average (i.e., mean) results?

23 A. 17 Not necessarily. The DCF approach is based on the theory that a stock's current  
24 price represents the present value of its future expected cash flows. The DCF  
25 model is defined as the sum of the expected dividend yield and projected long-

1 term growth. Notwithstanding the care taken to ensure risk comparability,  
2 market expectations with respect to future risks and growth opportunities will  
3 vary from company to company. Therefore, even within a group of similarly  
4 situated companies, it is common for analytical results to reflect a seemingly  
5 wide range. At issue, then, is how to select an ROE estimate from within that  
6 range. That determination necessarily must be based on the informed judgment  
7 and experience of the analyst.

8 Q. 18 Please now provide a summary profile of Southwest Gas.

9 A. 18 Southwest Gas provides natural gas distribution service to approximately  
10 1,045,000 customers in the state of Arizona.<sup>10</sup> The Company also has  
11 operations in Nevada and California serving a total of approximately 1,956,000  
12 customers. Southwest Gas currently has senior unsecured ratings of A3, BBB+,  
13 and A from Moody's Investors Service, Standard & Poor's, and Fitch Ratings,  
14 respectively.<sup>11</sup>

15 Q. 19 How did you select the companies included in your proxy group?

16 A. 19 I began with the universe of companies that Value Line classifies as Natural Gas  
17 Utilities, which includes a group of 12 domestic U.S. utilities, and applied the  
18 following screening criteria:

- 19 • I excluded companies that do not consistently pay quarterly cash dividends;
- 20 • I excluded companies not covered by at least two utility industry equity analysts;
- 21 • I excluded companies that do not have investment grade senior bond and/or  
22 corporate credit ratings from Standard and Poor's;

24 \_\_\_\_\_  
<sup>10</sup> See, Southwest Gas Corp., SEC Form 10-K for the fiscal year ended December 31, 2015, at 10.

25 <sup>11</sup> See, Southwest Gas Corp., SEC Form 10-K for the fiscal year ended December 31, 2015, at 25-26.



- 1 • To incorporate companies that are primarily regulated gas distribution utilities, I
- 2 excluded companies with less than 60.00 percent of net operating income from
- 3 regulated natural gas utility operations; and,
- 4 • I excluded companies that are currently known to be party to a merger, or other
- 5 significant transaction.

6 Q. 20 Did you include Southwest Gas Corporation in your analysis?

7 A. 20 No. In order to avoid the circular logic that otherwise would occur, it has been  
 8 my consistent practice to exclude the subject company (or its parent) from the  
 9 proxy group.

10 Q. 21 What companies met those screening criteria?

11 A. 21 The criteria discussed above resulted in a proxy group of the following six  
 12 companies:

13 **Table 2: Proxy Group Screening Results**

Company	Ticker
Atmos Energy	ATO
Laclede Group, Inc.	LG
New Jersey Resources	NJR
Northwest Natural Gas	NWN
South Jersey Industries	SJI
WGL Holdings, Inc.	WGL

18  
 19 Q. 22 Do you believe that a proxy group of six companies is sufficiently large?

20 A. 22 Yes. The analyses performed in estimating the ROE are more likely to be  
 21 representative of the subject utility's Cost of Equity to the extent that the chosen  
 22 proxy companies are fundamentally comparable to the subject utility. Because  
 23 all analysts use some form of screening process to arrive at a proxy group, the  
 24 group, by definition, is not randomly drawn from a larger population.  
 25 Consequently, there is no reason to place more reliance on the quantitative



1 results of a larger proxy group simply by virtue of the resulting larger number of  
2 observations.

3 **VI. COST OF EQUITY ESTIMATION**

4 Q. 23 Please briefly discuss the ROE in the context of the regulated rate of return.

5 A. 23 Regulated utilities primarily use common stock and long-term debt to finance  
6 their permanent property, plant, and equipment. The overall rate of return  
7 ("ROR") for a regulated utility is based on its weighted average cost of capital,  
8 in which the cost rates of the individual sources of capital are weighted by their  
9 respective book values. Whereas the costs of debt and preferred stock can be  
10 directly observed, the Cost of Equity is market-based and, therefore, must be  
11 estimated based on observable market information.

12 Q. 24 How is the required ROE determined?

13 A. 24 The required ROE is estimated by using one or more analytical techniques that  
14 rely on market-based data to quantify investor expectations regarding required  
15 equity returns, adjusted for certain incremental costs and risks. By their very  
16 nature, quantitative models produce a range of results from which the market  
17 required ROE must be selected. As discussed throughout my Direct Testimony,  
18 that selection must be based on a comprehensive review of relevant data and  
19 information, and does not necessarily lend itself to a strict mathematical solution.  
20 Consequently, the key consideration in determining the Cost of Equity is to  
21 ensure that the methodologies employed reasonably reflect investors' view of  
22 the financial markets in general, and the subject company (in the context of the  
23 proxy group) in particular.

24 Although we cannot directly observe the Cost of Equity, we can observe  
25 the methods frequently used by analysts to arrive at their return requirements

1 and expectations. While investors and analysts tend to use multiple approaches  
2 in developing their estimate of return requirements, each methodology requires  
3 certain judgment with respect to the reasonableness of assumptions and the  
4 validity of proxies in its application. In essence, analysts and academics  
5 understand that ROE models are tools to be used in the ROE estimation process  
6 and that strict adherence to any single approach, or the specific results of any  
7 single approach, can lead to flawed and irrelevant conclusions. That position is  
8 consistent with the *Hope* and *Bluefield* finding that it is the analytical result, as  
9 opposed to the methodology, that is controlling in arriving at ROE  
10 determinations. A reasonable ROE estimate therefore considers alternative  
11 methodologies, observable market data, and the reasonableness of their  
12 individual and collective results.

13 In my view, therefore, it is both prudent and appropriate to use multiple  
14 methodologies to mitigate the effect of assumptions and inputs associated with  
15 relying exclusively on any single approach. Such use, however, must be  
16 tempered with due caution as to the results generated by each individual  
17 approach. As such, I have considered the results of the Constant Growth and  
18 Multi-Stage forms of the DCF model, the Capital Asset Pricing Model, and the  
19 Risk Premium approach.

#### 20 **Constant Growth DCF Model**

21 Q. 25 Are DCF models widely used in regulatory proceedings?

22 A. 25 Yes, in my experience the DCF model is widely recognized in regulatory  
23 proceedings. Nonetheless, neither the DCF nor any other model should be  
24 applied without considerable judgment in the selection of data and the  
25 interpretation of results.

1 Q. 26 Please describe the DCF approach.

2 A. 26 The DCF approach is based on the theory that a stock's current price represents  
3 the present value of all expected future cash flows. In its simplest form, the DCF  
4 model expresses the Cost of Equity as the sum of the expected dividend yield  
5 and long-term growth rate, and is expressed as follows:

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

7

8 Where  $P$  represents the current stock price,  $D_1 \dots D_\infty$  represent expected future  
9 dividends, and  $k$  is the discount rate, or required ROE. Equation [1] is a standard  
10 present value calculation, which can be simplified and rearranged into the  
11 familiar form:

$$12 \quad k = \frac{D_0(1+g)}{P} + g \quad [2]$$

13

14 Equation [2] often is referred to as the "Constant Growth DCF" model, in which  
15 the first term is the expected dividend yield and the second term is the expected  
16 long-term growth rate.

17 As explained more fully below, both consensus forecasts and market data  
18 indicate meaningful increases in long-term interest rates over the next several  
19 years (i.e., the period in which rates will be in effect). Consequently, the  
20 fundamental assumption that the return required today is the same return that  
21 will be required three or more years from now likely does not hold. As also  
22 discussed below, the proxy companies' average P/E multiple recently has traded  
23 well in excess of its historical average and at times, in excess of the market-wide  
24 P/E multiple. As such, market conditions are inconsistent with the Constant  
25 Growth DCF model's fundamental assumptions. As a consequence, the

1 Constant Growth DCF model's results likely understate the required Cost of  
2 Equity since it only measures cash flows related to dividend payments<sup>12</sup>, and  
3 should be interpreted with considerable caution and reasoned judgment.

4 Q. 27 What assumptions are required for the Constant Growth DCF model?

5 A. 27 The Constant Growth DCF model requires the following assumptions: (1) a  
6 constant average growth rate for earnings and dividends; (2) a stable dividend  
7 payout ratio; (3) a constant price-to-earnings multiple; and (4) a discount rate  
8 greater than the expected growth rate. In addition, the Constant Growth DCF  
9 model assumes that the same return will be required every year, in perpetuity  
10 (see Equation [1], above).

11 Q. 28 What market data did you use to calculate the dividend yield component of your  
12 DCF model?

13 A. 28 The dividend yield is based on the proxy companies' current annualized  
14 dividend, and average closing stock prices over the 30-, 90-, and 180-trading  
15 days as of February 12, 2016.

16 Q. 29 Why did you use three averaging periods to calculate the average stock price?

17 A. 29 I did so to ensure that the model's results are not skewed by anomalous events  
18 that may affect stock prices on any given trading day. At the same time, the  
19 averaging period should be reasonably representative of expected capital  
20 market conditions over the long term. In my view, the use of the 30-, 90- and  
21 180-day averaging periods reasonably balances those concerns.

22 Q. 30 Did you make any adjustments to the dividend yield to account for periodic  
23 growth in dividends?

24 \_\_\_\_\_  
25 <sup>12</sup> Ackert, Lucy F., Smith, Brian F., Price Volatility, Ordinary Dividends, and Other Cash Flows to Shareholders, *Journal of Finance*, September 1993.

1 A. 30 Yes, I did. Since utility companies tend to increase their quarterly dividends at  
2 different times throughout the year, it is reasonable to assume that dividend  
3 increases will be evenly distributed over calendar quarters. Given that  
4 assumption, it is appropriate to calculate the expected dividend yield by applying  
5 one-half of the long-term growth rate to the current dividend yield. That  
6 adjustment ensures that the expected dividend yield is, on average,  
7 representative of the coming twelve-month period, and does not overstate the  
8 dividends to be paid during that time.

9 Q. 31 Is it important to select appropriate measures of long-term growth in applying the  
10 DCF model?

11 A. 31 Yes. In its Constant Growth form, the DCF model (i.e., as presented in Equation  
12 [2] above) assumes a single growth estimate in perpetuity. In order to reduce  
13 the long-term growth rate to a single measure, one must assume a constant  
14 payout ratio, and that earnings per share, dividends per share and book value  
15 per share all grow at the same constant rate. Over the long term, however,  
16 dividend growth can only be sustained by earnings growth. Consequently, it is  
17 important to incorporate a variety of measures of long-term earnings growth into  
18 the Constant Growth DCF model.

19 Q. 32 Please summarize the findings of academic research on the appropriate  
20 measure for estimating equity returns using the DCF model.

21 A. 32 The relationship between various growth rates and stock valuation metrics has  
22 been the subject of much academic research.<sup>13</sup> As noted over 40 years ago by  
23 Charles Phillips in The Economics of Regulation:

24 \_\_\_\_\_  
25 <sup>13</sup> See, for example, Harris, Robert, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rate of Return*, Financial Management, Spring 1986.

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For many years, it was thought that investors bought utility stocks largely on the basis of dividends. More recently, however, studies indicate that the market is valuing utility stocks with reference to total per share earnings, so that the earnings-price ratio has assumed increased emphasis in rate cases.<sup>14</sup>

Phillips' conclusion continues to hold true. Subsequent academic research has clearly and consistently indicated that measures of earnings and cash flow are strongly related to returns, and that analysts' forecasts of growth are superior to other measures of growth in predicting stock prices.<sup>15</sup> For example, Vander Weide and Carleton state that, "[our] results... are consistent with the hypothesis that investors use analysts' forecasts, rather than historically oriented growth calculations, in making stock buy-and-sell decisions."<sup>16</sup>

Other research specifically notes the importance of analysts' growth estimates in determining the Cost of Equity, and in the valuation of equity securities. Dr. Robert Harris noted that "a growing body of knowledge shows that analysts' earnings forecast are indeed reflected in stock prices." Citing Cragg and Malkiel, Dr. Harris notes that those authors "found that the evaluations of companies that analysts make are the sorts of ones on which market valuation is based."<sup>17</sup> Similarly, Brigham, Shome and Vinson noted that "evidence in the current literature indicates that (i) analysts' forecasts are

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<sup>14</sup> Charles F. Phillips, Jr., The Economics of Regulation, Revised Edition, 1969, Richard D. Irwin, Inc., at 285.

<sup>15</sup> See, for example, Christofi, Christofi, Lori and Moliver, Evaluating Common Stocks Using Value Line's Projected Cash Flows and Implied Growth Rate, Journal of Investing (Spring 1999); Harris and Marston, Estimating Shareholder Risk Premia Using Analysts Growth Forecasts, Financial Management, 21 (Summer 1992); and Vander Weide and Carleton, Investor Growth Expectations: Analysts vs. History, The Journal of Portfolio Management, Spring 1988.

<sup>16</sup> Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of Portfolio Management, Spring 1988.

<sup>17</sup> Robert S. Harris, Using Analysts' Growth Forecasts to Estimate Shareholder Required Rate of Return, Financial Management, Spring 1986.

1 superior to forecasts based solely on time series data, and (ii) investors do rely  
2 on analysts' forecasts."<sup>18</sup>

3 To that point, the research of Vander Weide and Carleton demonstrates  
4 that earnings growth projections have a statistically significant relationship to  
5 stock valuation levels, while dividend growth projections do not. Those findings  
6 suggest that investors form their investment decisions based on expectations of  
7 growth in earnings, not dividends. Consequently, earnings growth, not dividend  
8 growth, is the appropriate estimate for the purpose of the Constant Growth DCF  
9 model.

10 Q. 33 Please summarize your inputs to the Constant Growth DCF model.

11 A. 33 I applied the DCF model to the proxy group of natural gas utility companies using  
12 the following inputs for the price and dividend terms:

- 13 1. The average daily closing prices for the 30-trading days, 90-trading days,  
14 and 180-trading days ended February 12, 2016 for the term  $P_0$ ; and
- 15 2. The annualized dividend per share as of February 12, 2016 for the term  $D_0$ .

16 I then calculated the DCF results using each of the following growth terms:

- 17 1. The Zacks consensus long-term earnings growth estimates;
- 18 2. The First Call consensus long-term earnings growth estimates;
- 19 3. The Value Line long-term earnings growth estimates;
- 20 4. An estimate of Retention Growth.

21 Q. 34 Please describe the Retention Growth estimate as applied in your Constant  
22 Growth DCF model.

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25 <sup>18</sup> Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, Financial Management, Spring 1985.

1 A. 34 The Retention Growth model, which is a generally recognized and widely taught  
2 method of estimating long-term growth, is an alternative approach to the use of  
3 analysts' earnings growth estimates. In essence, the model is premised on the  
4 proposition that a firm's growth is a function of its expected earnings, and the  
5 extent to which it retains earnings to invest in the enterprise. In its simplest form,  
6 the model represents long-term growth as the product of the retention ratio (i.e.,  
7 the percentage of earnings not paid out as dividends, referred to below as "b")  
8 and the expected return on book equity (referred to below as "r"). Thus, the  
9 simple "b x r" form of the model projects growth as a function of internally  
10 generated funds. That form of the model is limiting, however, in that it does not  
11 provide for growth funded from external equity.

12 The "br + sv" form of the Retention Growth estimate used in my DCF  
13 analysis is meant to reflect growth from both internally generated funds (i.e., the  
14 "br" term) and from issuances of equity (i.e., the "sv" term). The first term, which  
15 is the product of the retention ratio (i.e., "b", or the portion of net income not paid  
16 in dividends) and the expected return on equity (i.e., "r") represents the portion  
17 of net income that is "plowed back" into the Company as a means of funding  
18 growth. The "sv" term is represented as:

19 
$$\left(\frac{m}{b} - 1\right) \times \text{Growth rate in Common Shares [3]}$$

20  
21 In this form, the "sv" term reflects an element of growth as the product of  
22 (a) the growth in shares outstanding, and (b) that portion of the market-to-book  
23 ratio that exceeds unity. As shown in Exhibit No.\_\_\_\_(RBH-2), all of the  
24 components of the Retention Growth Model can be derived from data provided  
25 by Value Line.



1 Q. 35 How did you calculate the high and low DCF results?

2 A. 35 I calculated the proxy-group mean high DCF result by combining each  
3 company's dividend yield with the maximum of (1) its EPS growth rate as  
4 reported by Value Line, Zacks, or First Call or (2) its retention growth estimate  
5 based on Value Line data as described above. The average mean high result  
6 then reflects the average maximum DCF result for the proxy group as a whole.  
7 I used a similar approach to calculate the mean low results, combining dividend  
8 yield with the minimum growth rate data for each proxy group company.

9 Q. 36 What are the results of your DCF analysis?

10 A. 36 My Constant Growth DCF results are summarized in Table 3, below (see also  
11 Exhibit No. \_\_\_(RBH-1).

12 **Table 3: Constant Growth DCF Results<sup>19</sup>**

	Mean Low	Mean	Mean High
30-Day Average	8.39%	9.52%	11.30%
90-Day Average	8.50%	9.64%	11.41%
180-Day Average	8.66%	9.79%	11.57%

17  
18 **Multi-Stage DCF Model**

19 Q. 37 What other forms of the DCF model have you used?

20 A. 37 In order to address certain limiting assumptions underlying the Constant Growth  
21 form of the DCF model, I also considered the results of the Multi-Stage (three-  
22 stage) Discounted Cash Flow Model. The Multi-Stage model, which is an  
23 extension of the Constant Growth form, enables the analyst to specify growth  
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25 <sup>19</sup> Results include estimated flotation costs, which are discussed in Section VII.

1 rates over three distinct stages. As with the Constant Growth form of the DCF  
2 model, the Multi-Stage form defines the Cost of Equity as the discount rate that  
3 sets the current price equal to the discounted value of future cash flows. Unlike  
4 the Constant Growth form, however, the Multi-Stage model must be solved in  
5 an iterative fashion.

6 Q. 38 Please now summarize why you have included the Multi-Stage DCF method in  
7 your Cost of Equity estimation.

8 A. 38 First, as noted earlier, it is both prudent and appropriate to use multiple  
9 methodologies in order to mitigate the effects of assumptions and inputs  
10 associated with any single approach. Second, the Constant Growth DCF model  
11 assumes that earnings, dividends, and book value will grow at the same  
12 constant rate in perpetuity; that the payout ratio will remain constant in  
13 perpetuity; and that the Price/Earnings ratio will remain constant. In addition, the  
14 model assumes that the return required today will be the same return required  
15 every year in the future. However, those assumptions are not likely to hold. In  
16 particular, given near-term capital expenditures associated with infrastructure  
17 replacement and growth needs, it is likely that payout ratios will increase from  
18 their current levels.<sup>20</sup> In my view, the Multi-Stage DCF model enables analysts  
19 to consider such issues, and to address the limiting, and likely unrealistic  
20 assumptions underlying the Constant Growth form of the model.

21 Q. 39 Please generally describe the structure of your Multi-Stage model.

22 A. 39 As noted above, the model sets the subject company's stock price equal to the  
23 present value of future cash flows received over three "stages". In the first two

24 \_\_\_\_\_  
25 <sup>20</sup> See, for example, SNL Energy, *Financial Focus Special Report: Capital Expenditure Update*,  
November 5, 2015.

1 stages, "cash flows" are defined as projected dividends. In the third stage, "cash  
 2 flows" equal both dividends and the expected price at which the stock will be  
 3 sold at the end of the period (i.e., the "terminal price"). I calculated the terminal  
 4 price based on the Gordon model, which defines the price as the expected  
 5 dividend divided by the difference between the Cost of Equity (i.e., the discount  
 6 rate) and the long-term expected growth rate. In essence, the terminal price is  
 7 defined by the present value of the remaining "cash flows" in perpetuity. In each  
 8 of the three stages, the dividend is the product of the projected earnings per  
 9 share and the expected dividend payout ratio. A summary description of the  
 10 model is provided in Table 4 (below).

11 **Table 4: Multi-Stage DCF Structure**

12 <b>Stage</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
13 Cash Flow Component	Initial Stock Price	Expected Dividend	Expected Dividend	Expected Dividend + Terminal Value
14 Inputs	Stock Price Earnings Per Share ("EPS") Dividends Per Share ("DPS")	Expected EPS Expected DPS	Expected EPS Expected DPS	Expected EPS Expected DPS Terminal Value
16 Assumptions	30-, 90-, and 180-day average stock price	EPS Growth Rate Payout Ratio	Growth Rate Change Payout Ratio Change	Long-term Growth Rate Long-term Payout Ratio

19  
 20 Q. 40 What are the analytical benefits of your Multi-Stage model?

21 A. 40 The primary benefits relate to the flexibility provided by the model's formulation.  
 22 Since the models provide the ability to specify near, intermediate, and long-term  
 23 growth rates, for example, it avoids the sometimes limiting assumption that the  
 24 subject company will grow at the same, constant rate during all stages of growth.  
 25 In addition, by calculating the dividend as the product of earnings and the payout

1 ratio, the model enables analysts to reflect assumptions regarding the timing and  
2 extent of changes in the payout ratio to reflect, for example, increases or  
3 decreases in expected capital spending, or transition from current payout levels  
4 to long-term expected levels. In that regard, because the model relies on  
5 multiple sources of earnings growth rate assumptions, it is not limited to a single  
6 source, such as Value Line, for all inputs, and mitigates the potential bias  
7 associated with relying on a single source of growth estimates.<sup>21</sup>

8 The model also enables the analyst to assess the reasonableness of the  
9 inputs and results by reference to certain market-based metrics. For example,  
10 the stock price estimate can be divided by the expected earnings per share in  
11 the final year to calculate an average Price to Earnings ("P/E") ratio. Similarly  
12 the terminal P/E ratio can be divided by the terminal growth rate to develop a  
13 Price to Earnings Growth ("PEG") ratio. To the extent that either the projected  
14 P/E or PEG ratios are inconsistent with either historical or expected levels, it  
15 may indicate incorrect or inconsistent assumptions within the balance of the  
16 model.

17 Q. 41 Please summarize your inputs to the Multi-Stage DCF model.

18 A. 41 I applied the Multi-Stage model to the proxy group described earlier in my Direct  
19 Testimony. My assumptions with respect to the various model inputs are  
20 described in Table 5 (below).

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<sup>21</sup> See, for example, Harris and Marston, *Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts*, Financial Management, 21 (Summer 1992).

**Table 5: Multi-Stage DCF Model Assumptions**

Stage	Initial	First	Transition	Terminal
Stock Price	30-, 90-, and 180-day average stock price as of February 12, 2016			
Earnings Growth	2014 actual EPS escalated by Period 1 growth rate	EPS growth as average of (1) Value Line; (2) Zacks; (3) First Call; (4) Retention Growth rates	Transition to Long-term GDP growth	Long-term GDP growth
Payout Ratio		Value Line company-specific	Transition to long-term industry payout ratio	Long-term expected payout ratio
Terminal Value				Expected dividend in final year divided by solved Cost of Equity less long-term growth rate

Q. 42 How did you calculate the long-term GDP growth rate?

A. 42 The long-term growth rate of 5.31 percent is based on the real Gross Domestic Product (GDP) growth rate of 3.24 percent from 1929 through 2015,<sup>22</sup> and an inflation rate of 2.01 percent.<sup>23</sup> The GDP growth rate is calculated as the compound growth rate in the chain-weighted GDP for the period from 1929 through 2015. The rate of inflation of 2.01 percent is a an average of the compound annual forward rate starting in ten years (i.e., 2025, which is the beginning of the terminal period) and is based on the 180-day average projected

<sup>22</sup> See, Bureau of Economic Analysis, accessed on February 12, 2016.

<sup>23</sup> See, Board of Governors of the Federal Reserve System, Table H.15 Selected Interest Rates and Blue Chip Financial Forecasts December 1, 2015 at 14.

1 inflation based on the spread between yields on long-term nominal Treasury  
2 Securities and long-term Treasury Inflation Protected Securities, known as the  
3 “TIPS spread” of 1.82 percent and the projected Blue Chip Financial Forecast of  
4 CPI for 2022 – 2026 of 2.20 percent.

5 I averaged these two measures of inflation because nominal Treasury  
6 yields are related to inflation, which includes the effect of commodities such as  
7 oil, which may cause the current TIPS spread to somewhat understate long-term  
8 expected inflation. My long-term inflation rate, therefore, is the average of those  
9 two estimates, or 2.01 percent.

10 Q. 43 What were your specific assumptions with respect to the payout ratio?

11 A. 43 As noted in Table 5, for the first two periods I relied on the first year and long-  
12 term projected payout ratios reported by Value Line<sup>24</sup> for each of the proxy group  
13 companies. I then assumed that by the end of the second period (i.e., the end  
14 of year 10), the payout ratio will converge to the industry expected ratio of 67.67  
15 percent.<sup>25</sup>

16 Q. 44 Please summarize the results of your Multi-Stage DCF analyses.

17 A. 44 Table 6 (below) (see also Exhibit No.\_\_\_\_(RBH-3) presents the results of the  
18 Multi-Stage DCF analyses. The Multi-Stage DCF analysis produces a range of  
19 results from 9.03 percent to 10.18 percent.

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25 <sup>24</sup> As reported in the Value Line Investment Survey as “All Div’ds to Net Prof.”

<sup>25</sup> Source: Bloomberg Professional.

Table 6: Multi-Stage Discounted Cash Flow Model Results<sup>26</sup>

	Low	Mean	High
30-Day Average	9.03%	9.33%	9.82%
90-Day Average	9.16%	9.47%	9.97%
180-Day Average	9.32%	9.65%	10.18%

### CAPM Analysis

Q. 45 Please briefly describe the general form of the CAPM analysis.

A. 45 The CAPM is a risk premium model that estimates the Cost of Equity as a function of a risk-free return plus a risk premium (to compensate investors for the non-diversifiable or "systematic" risk of that security). As shown in Equation [4], the CAPM is defined by four components, each of which theoretically is a forward-looking estimate:

$$k = r_f + \beta(r_m - r_f) \quad [4]$$

where:

$k$  = the required market ROE;

$\beta$  = Beta coefficient of an individual security;

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

$r_m$  = the required return on the market as a whole.

In Equation [4], the term  $(r_m - r_f)$  represents the Market Risk Premium. According to the theory underlying the CAPM, since unsystematic risk can be diversified away by adding securities to their investment portfolio, investors should be concerned only with systematic or non-diversifiable risk. Non-diversifiable risk is measured by the Beta coefficient, which is defined as:

<sup>26</sup> Results include estimated flotation costs, which are discussed in Section VII.

$$\beta_j = \frac{\sigma_j}{\sigma_m} \times \rho_{j,m} \text{ [5]}$$

where  $\sigma_j$  is the standard deviation of returns for company "j";  $\sigma_m$  is the standard deviation of returns for the broad market (as measured, for example, by the S&P 500 Index), and  $\rho_{j,m}$  is the correlation of returns in between company j and the broad market. Thus, the Beta coefficient represents both relative volatility (i.e., the standard deviation) of returns, and the correlation in returns between the subject company and the overall market.

9 Q. 46 What assumptions regarding the risk-free rate did you include in your CAPM  
10 analysis?

11 A. 46 Because utility assets represent long-term investments, I used two different  
12 estimates of the risk-free rate: (1) the current 30-day average yield on 30-year  
13 Treasury bonds (i.e., 2.79 percent); and (2) the near-term (that is, through the  
14 second calendar quarter of 2017) projected 30-year Treasury yield (i.e., 3.35  
15 percent).

16 Q. 47 What Market Risk Premium did you use in your CAPM model?

17 A. 47 I developed a forward-looking (*ex-ante*) estimate of the Market Risk Premium.

18 Q. 48 Please describe your *ex-ante* approach to estimating the Market Risk Premium.

19 A. 48 The approach is based on the market required return, less the current 30-year  
20 Treasury bond yield. To do so, I relied on data from two sources: (1) Bloomberg;  
21 and (2) Value Line. For Bloomberg, I calculated the market capitalization  
22 weighted expected dividend yield (using the same one-half growth rate  
23 assumption described earlier), and combined that amount with the market  
24 capitalization weighted projected earnings growth rate to arrive at the market  
25 capitalization weighted average DCF result. I then subtracted the current 30-



1 year Treasury yield from that amount to arrive at the market DCF-derived ex-  
2 ante Market Risk Premium estimate. For Value Line, I calculated the projected  
3 long-term market return based on the implied annual price appreciation and  
4 dividend yield for Value Line's composite index. The results of those two  
5 calculations are provided in Exhibit No.\_\_(RBH-4).

6 Q. 49 How did you apply your expected Market Risk Premium and risk-free rate  
7 estimates?

8 A. 49 I relied on the *ex-ante* Market Risk Premia discussed above, together with the  
9 current and near-term projected 30-year Treasury bond yields as inputs to my  
10 CAPM analyses.

11 Q. 50 What Beta coefficient did you use in your CAPM model?

12 A. 50 As shown in Exhibit No.\_\_(RBH-5), I considered the Beta coefficients reported  
13 by two sources: Bloomberg, and Value Line. Although both services adjust their  
14 calculated (or "raw") Beta coefficients to reflect the tendency of the Beta  
15 coefficient to regress to the market mean of 1.00, Value Line calculates the Beta  
16 coefficient over a five-year period, whereas Bloomberg's calculation is based on  
17 two years of data.

18 Q. 51 What are the results of your CAPM analyses?

19 A. 51 The results of my CAPM analysis are summarized in Table 7 (*see also*, Exhibit  
20 No.\_\_(RBH-6).

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**Table 7: Summary of CAPM Results**

	<b>Bloomberg Derived Market Risk Premium</b>	<b>Value Line Derived Market Risk Premium</b>
<i>Average Bloomberg Beta Coefficient</i>		
Current 30-Year Treasury (2.79%)	9.69%	9.26%
Near Term Projected 30-Year Treasury (3.35%)	10.25%	9.83%
<i>Average Value Line Beta Coefficient</i>		
Current 30-Year Treasury (2.79%)	10.78%	10.28%
Near Term Projected 30-Year Treasury (3.35%)	11.34%	10.85%

**Bond Yield Plus Risk Premium Approach**

Q. 52 Please generally describe the Bond Yield Plus Risk Premium approach.

A. 52 This approach is based on the financial tenet that equity investors bear the residual risk of ownership and therefore require a premium over the returns available to debt holders. Risk premium approaches, therefore, estimate the Cost of Equity as the sum of an Equity Risk Premium and a bond yield. The Equity Risk Premium is the difference between the historical Cost of Equity and long-term Treasury yields. Because we are calculating the risk premium for natural gas utilities, a reasonable approach is to use actual authorized returns for natural gas utilities as the historical measure of the Cost of Equity.

Q. 53 Please now explain how you performed your Bond Yield Plus Risk Premium analysis.

A. 53 As suggested above, I first defined the Risk Premium as the difference between the authorized ROE and the then-prevailing level of long-term (i.e., 30-year) Treasury yield. I then gathered data for 1,031 natural gas rate proceedings between January, 1980 and February 12, 2016 as reported by Regulatory Research Associates ("RRA"). In addition to the authorized ROE, I also calculated the average period between the filing of the case and the date of the

1 final order (the "lag period"). To reflect the prevailing level of interest rates during  
2 the pendency of the proceedings, I calculated the average 30-year Treasury  
3 yield over the average lag period (approximately 188 days).

4 Because the data cover a number of economic cycles,<sup>27</sup> the analysis also  
5 may be used to assess the stability of the Equity Risk Premium. Prior research,  
6 for example, has shown that the Equity Risk Premium is inversely related to the  
7 level of interest rates.<sup>28</sup> That is, although interest rates and the Cost of Equity  
8 generally are directionally related, they do not move in lock-step. That finding is  
9 particularly relevant given the historically low level of current Treasury yields.

10 Q. 54 How did you model the relationship between interest rates and the Equity Risk  
11 Premium?

12 A. 54 The basic method used was regression analysis, in which the observed Equity  
13 Risk Premium is the dependent variable, and the average 30-year Treasury yield  
14 is the independent variable. Because the analytical period includes interest  
15 rates and authorized ROEs that during one period (i.e., the 1980's) are quite  
16 high and another (the post-Lehman bankruptcy period) that are quite low relative  
17 to the long-term historical average, I used the semi-log regression, in which the  
18 Equity Risk Premium is expressed as a function of the natural log of the 30-year  
19 Treasury yield:

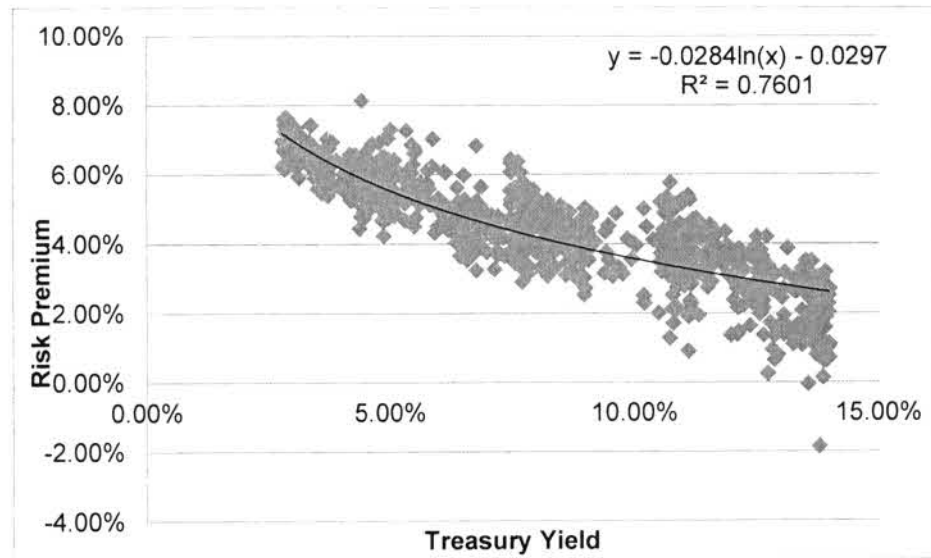
$$20 \quad RP = \alpha + \beta(\text{LN}(T_{30})) \quad [6]$$

22 <sup>27</sup> National Bureau of Economic Research, U.S. Business Cycle Expansion and Contractions.

23 <sup>28</sup> See, for example, Robert S. Harris and Felicia C. Marston, *Estimating Shareholder Risk Premia Using*  
24 *Analysts' Growth Forecasts*, Financial Management, Summer 1992, at 63-70; Eugene F. Brigham, Dilip  
25 K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*,  
Financial Management, Spring 1985, at 33-45; and Farris M. Maddox, Donna T. Pippert, and Rodney N.  
Sullivan, *An Empirical Study of Ex Ante Risk Premiums for the Electric Utility Industry*, Financial  
Management, Autumn 1995, at 89-95.

1 As shown on Chart 1 (below), the semi-log form is useful when measuring  
2 an absolute change in the dependent variable (in this case, the Risk Premium)  
3 relative to a proportional change in the independent variable (the 30-year  
4 Treasury yield).

5 **Chart 1: Equity Risk Premium**



15 As Chart 1 demonstrates, over time there has been a statistically  
16 significant, negative relationship between the 30-year Treasury yield and the  
17 Equity Risk Premium. Consequently, simply applying the long-term average  
18 Equity Risk Premium of 4.52 percent (see Exhibit No.\_\_(RBH-7) would  
19 significantly under-state the Cost of Equity; assuming the near-term projected  
20 30-year Treasury yield of 3.35 percent, for example, the simple average Equity  
21 Risk Premium would suggest an ROE of 7.87.<sup>29</sup> That, of course, is well below  
22 any reasonable estimate. Based on the regression coefficients in Chart 1,

23

24

25 <sup>29</sup> 7.87% = 4.52% + 3.35%

1                   however, the implied ROE ranges from 9.98 percent to 10.39 percent (see  
2                   Exhibit No.\_\_\_\_(RBH-7).

3 **VII. BUSINESS RISKS AND OTHER CONSIDERATIONS**

4 Q.   55    With regard to the DCF and CAPM models, do the mean results for the proxy  
5                   group provide an appropriate estimate of the Cost of Equity for the Company?

6 A.   55    Not necessarily. In my view, there are additional factors that must be considered  
7                   when determining where the Company's Cost of Equity falls within the range of  
8                   results, in particular flotation costs and the increased regulatory risk relative to  
9                   the proxy group.

10 **Flotation Costs**

11 Q.   56    What are flotation costs?

12 A.   56    Flotation costs are the costs associated with the sale of new issues of common  
13                   stock. Such costs include out-of-pocket expenditures for preparation, filing,  
14                   underwriting and other issuance costs of common stock.

15 Q.   57    Why is it important to recognize flotation costs in the allowed ROE?

16 A.   57    To attract and retain new investors, a regulated utility must have the opportunity  
17                   to earn a return that is both competitive and compensatory. To the extent the  
18                   opportunity to recover prudently incurred flotation costs is denied, actual returns  
19                   will fall short of expected (or required) returns, thereby diminishing its ability to  
20                   attract adequate capital on reasonable terms.

21 Q.   58    Are flotation costs part of the utility's invested costs or part of the utility's  
22                   expenses?

23 A.   58    Flotation costs, which are a permanent reduction to common equity, are  
24                   reflected on the balance sheet under "paid in capital." They are not current  
25                   expenses, and therefore are not reflected on the income statement. Rather, like

1 investments in rate base or the issuance costs of long-term debt, flotation costs  
2 are recognized over time. As a result, the great majority of a utility's flotation  
3 cost is incurred prior to the test year, but remains part of the cost structure that  
4 exists during the test year and beyond, and as such, should be recognized for  
5 ratemaking purposes. Therefore, recovery of flotation costs is appropriate even  
6 if no new issuances are planned in the near future because failure to allow such  
7 cost recovery may deny Southwest Gas the opportunity to earn its required rate  
8 of return in the future.

9 Q. 59 Do the DCF and CAPM models already incorporate investor expectations of a  
10 return in order to compensate for flotation costs?

11 A. 59 No. The models used to estimate the appropriate ROE assume no "friction" or  
12 transaction costs, as these costs are not reflected in the market price (in the  
13 case of the DCF model) or risk premium (in the case of the CAPM and the Bond  
14 Yield Plus Risk Premium model). Therefore, it is appropriate to consider flotation  
15 costs when determining where within the range of reasonable results Southwest  
16 Gas' return should fall.

17 Q. 60 Is the need to consider flotation costs recognized by the academic and financial  
18 communities?

19 A. 60 Yes. The need to reimburse investors for equity issuance costs is justified by  
20 the academic and financial communities in the same spirit that investors are  
21 reimbursed for the costs of issuing debt. This treatment is consistent with the  
22 philosophy of a fair rate of return. As explained by Dr. Shannon Pratt:

23 Flotation costs occur when a company issues new stock. The  
24 business usually incurs several kinds of flotation or transaction  
25 costs, which reduce the actual proceeds received by the business.  
Some of these are direct out-of-pocket outlays, such as fees paid  
to underwriters, legal expenses, and prospectus preparation costs.

1 Because of this reduction in proceeds, the business's required  
2 returns must be greater to compensate for the additional costs.  
3 Flotation costs can be accounted for either by amortizing the cost,  
4 thus reducing the net cash flow to discount, or by incorporating the  
cost into the cost of equity capital. Since flotation costs typically are  
not applied to operating cash flow, they must be incorporated into  
the cost of equity capital.<sup>30</sup>

5 Q. 61 Have you calculated the effect of flotation costs on the Return on Equity?

6 A. 61 Yes, I have. I modified the DCF calculation to derive the dividend yield that  
7 would reimburse investors for direct issuance costs. Based on the approximate  
8 issuance cost of 1.00 percent experienced by Southwest Gas in 2015<sup>31</sup> shown  
9 in Exhibit No.\_\_(RBH-8), a reasonable estimate of the effect of flotation costs  
10 on the Company's ROE is approximately 0.03 percent (three basis points).

#### 11 **Regulatory Risks**

12 Q. 62 Is there any precedent that identifies the regulatory risk faced by utilities?

13 A. 62 Yes. In *Hope*, the Supreme Court noted that it is not the theory, but the impact  
14 of the rate order which counts.<sup>32</sup> In *Duquesne*, the Supreme Court noted the  
15 risks to utilities of ratemaking treatment and the importance of establishing  
16 ratemaking treatment that does not continuously favor customers to the  
17 continuous detriment of investors:

18 [t]he risks a utility faces are in large part defined by the rate  
19 methodology because utilities are virtually always public  
20 monopolies dealing in essential service, and so relatively immune  
21 to the usual market risks. Consequently, a State's decision to  
22 arbitrarily switch back and forth between methodologies in a way  
which required investors to bear the risk of bad investments at some  
times while denying them the benefit of good investments at others  
would raise serious constitutional questions.<sup>33</sup>

23 <sup>30</sup> Shannon P. Pratt, Roger J. Grabowski, Cost of Capital: Applications and Examples, 4th ed. (John Wiley  
& Sons, Inc., 2010), at 586.

24 <sup>31</sup> 2015 SEC Form 10-K at page 56.

25 <sup>32</sup> *Hope*, 320 U.S., at 602, 64 S.Ct., at 288.

<sup>33</sup> *Duquesne*, 109 S.Ct. 609 (1989) at 9.

1 Q. 63 How does the regulatory environment in which a utility operates affect its access  
2 to and Cost of Capital?

3 A. 63 The regulatory environment can significantly affect both the access to, and cost  
4 of capital in several ways. First, the proportion and cost of debt capital available  
5 to utility companies are influenced by the rating agencies' assessment of the  
6 regulatory environment. As noted by Moody's, "the predictability and  
7 supportiveness of the regulatory framework in which a regulated utility  
8 operates is a key credit consideration and the one that differentiates the  
9 industry from most other corporate sectors."<sup>34</sup> Moody's further noted that:

10 For a regulated utility company, we consider the characteristics of  
11 the regulatory environment in which it operates. These include how  
12 developed the regulatory framework is; its track record for  
13 predictability and stability in terms of decision making; and the  
14 strength of the regulator's authority over utility regulatory issues. A  
15 utility operating in a stable, reliable, and highly predictable  
16 regulatory environment will be scored higher on this factor than a  
17 utility operating in a regulatory environment that exhibits a high  
18 degree of uncertainty or unpredictability. Those utilities operating  
19 in a less developed regulatory framework or one that is  
20 characterized by a high degree of political intervention in the  
21 regulatory process will receive the lowest scores on this factor.<sup>35</sup>

22 S&P notes that regulatory commissions should eliminate, or at least greatly  
23 reduce, the issue of rate-case lag.<sup>36</sup> Moody's agrees that timely cost recovery is  
24 an important determinant of credit quality, stating that "[t]he ability to recover  
25 prudently incurred costs in a timely manner is perhaps the single most  
important credit consideration for regulated utilities, as the lack of timely  
recovery of such costs has caused financial stress for utilities on several

<sup>34</sup> Moody's Global Infrastructure Finance, Regulated Electric and Gas Utilities, August 2009, at 6.

<sup>35</sup> Ibid.

<sup>36</sup> Standard and Poor's, Assessing Vertically Integrated Utilities' Business Risk Drivers, U.S. Utilities and Power Commentary, November 2006, at 10.



1 occasions"<sup>37</sup> Similarly, Fitch Ratings ("Fitch") notes that in the current  
2 environment of rising costs, utilities will require more frequent rate increases  
3 to maintain financial results, resulting in further exposure to regulatory risks.<sup>38</sup>

4 Q. 64 Please summarize the financial community's perceptions of regulatory risk in  
5 Arizona and how the Commission's focus on regulatory lag has affected those  
6 perceptions.

7 A. 64 In general, the financial community has observed that the Commission's recent  
8 efforts to address regulatory lag by allowing rate mechanisms and shortening  
9 the time needed to complete the rate case process has reduced the effect of  
10 regulatory lag on the Company's credit profile. Moody's, for example, has noted  
11 that "[b]ased on the length of recent rate cases, we believe the ACC is more  
12 committed to finalizing cases in about a year or less, which is more consistent  
13 with the average of utility regulatory commissions across the US."<sup>39</sup> Looking to  
14 the nature of regulation in Arizona in general, Moody's stated, "[w]e believe the  
15 long term credit support provided by the Arizona regulatory environment has  
16 improved significantly over the last 10 years and this has had a positive impact  
17 on the financial performance of its regulated utilities."<sup>40</sup> In general, Moody's  
18 views the regulatory environment in Arizona as becoming increasingly credit  
19 supportive, with reduced rate case lag, and the increased use of rate  
20 mechanisms.

21

22

23 <sup>37</sup> Moody's, Global Infrastructure Finance, Regulated Electric and Gas Utilities, August 2009, at 7.

24 <sup>38</sup> FitchRatings, U.S. Utilities, Power, and Gas 2010 Outlook, December 4, 2009, at 1.

25 <sup>39</sup> Moody's Investors Service, *Arizona's Constructive Regulatory Environment Supports the Credit Quality of Its Investor-Owned Regulated Utilities*, February 23, 2015.

<sup>40</sup> Moody's Investors Service, *Arizona's Constructive Regulatory Environment Supports the Credit Quality of Its Investor-Owned Regulated Utilities*, February 23, 2015.

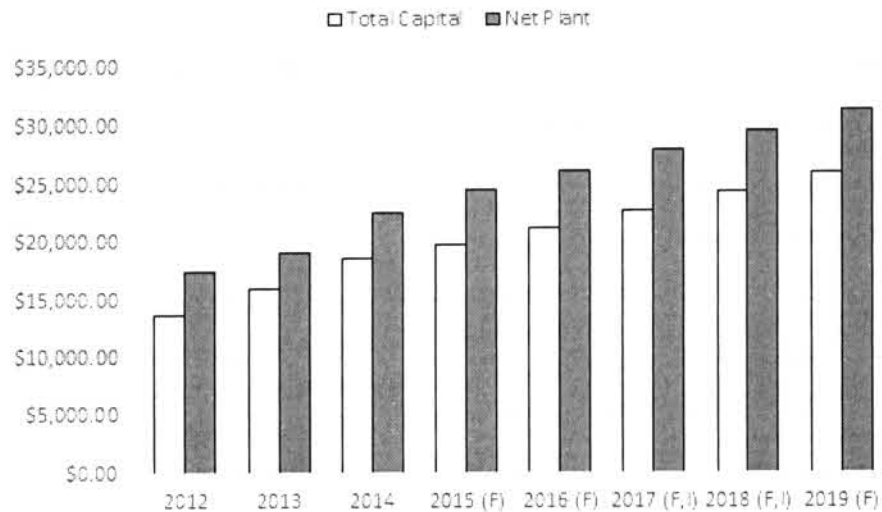
1 Q. 65 Please summarize your conclusions regarding the effect of increasing capital  
2 investments and regulatory lag on the Company's operating income and Cost of  
3 Equity.

4 A. 65 The need to invest significant amounts of capital in non-revenue producing  
5 infrastructure presents financial challenges, in particular as those investments  
6 put pressure on earnings and cash flow. That pressure becomes even more  
7 acute when the rate of capital expenditures accelerates, as currently is the case  
8 for Southwest Gas.

9 Q. 66 Is the need for increased capital investment unique to Southwest Gas?

10 A. 66 No. Value Line has recognized that the natural gas utility industry likely is in a  
11 period of increased capital investment and related funding requirements. In that  
12 regard, Value Line expects significant increases in both Net Plant and Total  
13 Capital within the Proxy Group (see Chart 2, below).

14 **Chart 2: Proxy Group Net Plant and Total Capital, 2012 – 2019 (in millions)<sup>41</sup>**



23

24

25 <sup>41</sup> Source: Value Line. F: Forecast; I: Interpolated

1 Value Line's perspective that Total Capital must increase to support  
2 additional investment is an important consideration. The ability to efficiently  
3 acquire the capital needed to fund the growing level of infrastructure investments  
4 is dependent on the ability to recover that investment in a timely manner. As  
5 noted by the American Gas Association:

6 Timely cost recovery of prudently incurred safety and reliability  
7 investments is of utmost importance to the financial stability of natural  
8 gas utilities. Because traditional ratemaking allows recovery of  
9 infrastructure investments only following approval in a rate case, there  
10 is often a multi-year delay before the recovery of such investments  
11 begins. Investments that are recovered long after they are incurred  
12 cause the utility to bear carrying costs without the opportunity to recover  
13 these prudent expenditures. Credit agencies criticize companies with  
14 lag in the recovery of their costs and assign a lower credit rating to such  
15 utilities that ultimately translates into higher rates for customers. The  
16 only alternative is to file a rate case each year, which is a costly activity  
17 that also leads to higher rates for customers.<sup>42</sup>

13 In essence, absent timely rate relief, increasing capital investment creates  
14 a circumstance in which each dollar of invested assets produces fewer dollars  
15 of revenue. As the American Gas Association noted, absent other solutions the  
16 only alternative to funding those investments is more frequent rate filings.  
17 Otherwise, the Company will be incentivized to reduce its infrastructure  
18 replacement activity and associated capital investment.


19 The combined effect of the factors that determine the Return on Rate Base  
20 can be seen in the following relationships:

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21  
22  
23  
24  
25 <sup>42</sup> American Gas Association, *Infrastructure Cost Recovery Update*, June, 2012, at 2.

1 | **Figure 1: Factors Determining Return on Rate Base**

2 | 
$$\text{Operating Margin} \times \text{Asset Turnover} = \text{Return on Rate Base}$$

3 | 

4 | 
$$\frac{\text{Operating Income}}{\text{Non - Gas Revenue}} \times \frac{\text{Non - Gas Revenue}}{\text{Rate Base}} = \frac{\text{Operating Income}}{\text{Rate Base}}$$

5 |

6 |

7 | Figure 1 notes that in general, the overall Return on Rate Base depends  
8 | on: (1) the percentage of margin generated by each dollar of revenue (*i.e.*, the  
9 | Operating Margin; and (2) the dollars of revenue generated by each dollar of  
10 | assets (*i.e.*, the Asset Turnover). As Figure 1 also suggests, returns are directly  
11 | related to increased non-growth related capital investments, which further  
12 | reduce the Asset Turnover. In very real sense, profitability will be squeezed by  
13 | high investment, despite a continuing focus on operating expense control.

14 | Q. 67 How do the Company's Energy Efficiency Enabling Provision ("EEP") and its  
15 | Gas Infrastructure Modernization (GIM) Mechanism affect the factors that you  
16 | have discussed above?

17 | A. 67 By stabilizing revenue and mitigating the effect of declining use per customer,  
18 | the EEP provides some relief to what otherwise would be a more dilutive effect  
19 | on the ratio of Revenue/Rate Base. Similarly, the Company's proposed GIM  
20 | Mechanism enables the more timely recovery of costs associated with capital  
21 | investments, again helping to contain the dilutive effect of increased, non-growth  
22 | related capital investments.

1 Q. 68 Given those concerns, are decoupling and infrastructure recovery mechanisms  
2 common among the proxy companies?

3 A. 68 Yes. As Exhibit No. \_\_\_\_ (RBH-9) demonstrates, all six companies have both  
4 decoupling and infrastructure mechanisms in place.

5 Q. 69 What conclusions do you draw from the analyses discussed above?

6 A. 69 In essence, the need to invest increasing amounts of capital in non-revenue  
7 producing assets would prevent the Company from earning a reasonable rate of  
8 return. In my view, the increasingly constructive regulatory environment in  
9 Arizona may mitigate the dilutive effect of regulatory lag if it enables the  
10 Company to recover capital investments in a more timely fashion.

11 Because estimating the Cost of Equity is a comparative exercise, the  
12 relevant analytical issue is whether the cost recovery mechanisms are so risk  
13 mitigating relative to mechanisms in place at the proxy companies that investors  
14 would knowingly and measurably reduce their return requirements for  
15 Southwest Gas. As discussed above, decoupling and gas infrastructure  
16 replacement mechanisms are common in the industry in general, and within the  
17 proxy group, in particular. As a result, investors have become accustomed to  
18 these mechanisms and there is no reason to assume that the Company would  
19 be seen as materially less risky than its peers as a result of either the EEP or  
20 the GIM Mechanism.

21 **VIII. CAPITAL MARKET ENVIRONMENT**

22 Q. 75 Do economic conditions influence the required cost of capital and required return  
23 on common equity?

24 A. 75 Yes. As discussed in Section VI, the models used to estimate the Cost of Equity  
25 are meant to reflect, and therefore are influenced by, current and expected

1 capital market conditions. To the extent that certain ROE estimates are  
2 incompatible with such data or inconsistent with basic financial principles, it is  
3 appropriate to consider whether alternative estimation techniques are likely to  
4 provide more meaningful and reliable results.

5 Q. 76 Do you have any general observations regarding the relationship between  
6 current capital market conditions and the Company's Cost of Equity?

7 A. 76 Yes, I do. Much has been reported about the Federal Reserve's market  
8 intervention since 2007, and its effect on interest rates. Although the Federal  
9 Reserve completed its Quantitative Easing initiative in October 2014, it was not  
10 until December 2015 that it raised the Federal Funds rate, and began the  
11 process of rate normalization.<sup>43</sup> A significant issue, then, is how investors will  
12 react as that process continues, and eventually is completed. A viable outcome  
13 is that investors will perceive greater chances for economic growth, which will  
14 increase the growth rates included in the Constant Growth DCF model. At the  
15 same time, higher growth and the absence of Federal market intervention could  
16 provide the opportunity for interest rates to increase, thereby increasing the  
17 dividend yield portion of the DCF model. In that case, both terms of the Constant  
18 Growth DCF model would increase, producing higher ROE estimates.

19 At this time, however, market data remains somewhat disjointed. As a  
20 consequence, it is difficult to rely on a single model to estimate the Company's  
21 Cost of Equity. A more reasoned approach is to understand the relationships  
22 among Federal Reserve policies, interest rates and risk, and assess how those  
23 factors may affect different models and their results. For the reasons discussed  
24

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25 <sup>43</sup> See Federal Reserve Press Release (December 16, 2015).

1 below, the current market is one in which it is very important to consider a broad  
2 range of data and models when determining the Cost of Equity.

3 Q. 77 Please summarize the effect of recent Federal Reserve policies on interest rates  
4 and the cost of capital.

5 A. 77 Beginning in 2008, the Federal Reserve proceeded on a steady path of initiatives  
6 intended to lower long-term Treasury yields.<sup>44</sup> The Federal Reserve policy  
7 actions “were designed to put downward pressure on longer-term interest rates  
8 by having the Federal Reserve take onto its balance sheet some of the duration  
9 and prepayment risks that would otherwise have been borne by private  
10 investors.”<sup>45</sup> Under that policy, “Securities held outright” on the Federal  
11 Reserve’s balance sheet increased from approximately \$489 billion at the  
12 beginning of October 2008 to \$4.24 trillion by mid-February 2016.<sup>46</sup> To put that  
13 increase in context, the securities held by the Federal Reserve represented  
14 approximately 3.29 percent of GDP at the end of September 2008, and had risen  
15 to approximately 23.37 percent of GDP in February 2016.<sup>47</sup> As such, the Federal  
16 Reserve policy actions have represented a significant source of liquidity, and  
17 have had a substantial effect on capital markets.

18 Just as market intervention by the Federal Reserve has reduced interest  
19 rates, it also has had the effect of reducing market volatility. As shown in Chart  
20 3 (below), each time the Federal Reserve began to purchase bonds (as  
21 evidenced by the increase in “Securities Held Outright” on its balance sheet),  
22

23 <sup>44</sup> See Federal Reserve Press Release (June 19, 2013).

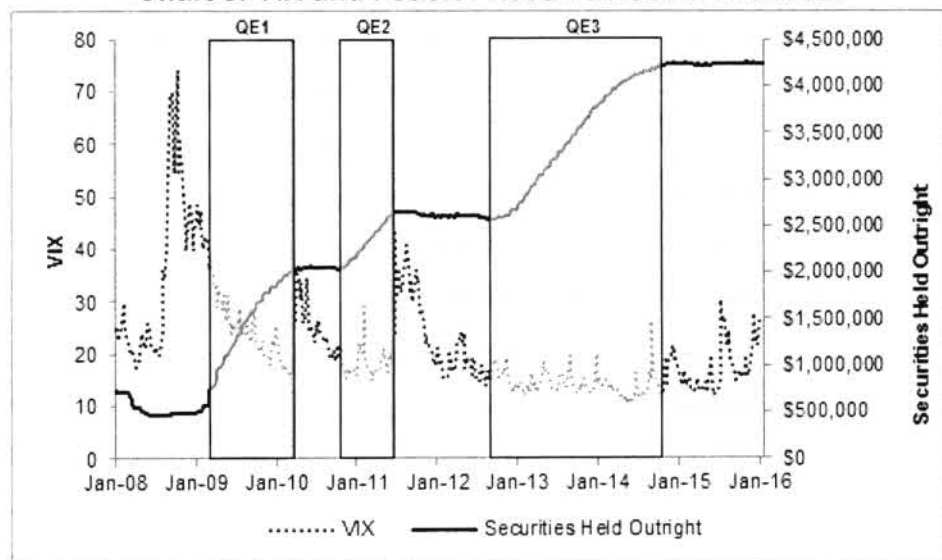
24 <sup>45</sup> Federal Reserve Bank of New York, *Domestic Open Market Operations During 2012*, April 2013, at 29.

25 <sup>46</sup> Source: Federal Reserve Board Schedule H.4.1. “Securities held outright” include U.S. Treasury securities, Federal agency debt securities, and mortgage-backed securities.

<sup>47</sup> Source: Federal Reserve Board Schedule H.4.1; Bureau of Economic Analysis.

1 volatility subsequently declined. In fact, in September 2012, when the Federal  
 2 Reserve began to purchase long-term securities at a pace of \$85 billion per  
 3 month, volatility (as measured by the CBOE Volatility Index, known as the "VIX")  
 4 fell, and through October 2014 remained in a relatively narrow range. The  
 5 reason is quite straight-forward: Investors became confident that the Federal  
 6 Reserve would intervene if markets were to become unstable.

7 **Chart 3: VIX and Federal Reserve Asset Purchases<sup>48</sup>**



17 The important analytical issue is whether we can infer that risk aversion  
 18 among investors is at a historically low level, implying a Cost of Equity that is  
 19 well below recently authorized returns. Given the negative correlation between  
 20 the expansion of the Federal Reserve's balance sheet and the VIX, it is difficult  
 21 to conclude that fundamental risk aversion and investor return requirements  
 22 have fallen. If it were the case that investors believe that volatility will remain at  
 23 low levels (that is, that market risk and uncertainty will remain low), it is not clear

24 <sup>48</sup> Source: Federal Reserve Economic Data (FRED), Federal Reserve Bank of St. Louis; Federal Reserve  
 25 Statistical Release H.4.1, Factors Affecting Reserve Balances.



1 | why they would decrease their return requirements for defensive sectors such  
2 | as utilities. In that respect, it appears that the Constant Growth DCF results are  
3 | at odds with market conditions.

4 | Q. 78 Has the Federal Reserve's quantitative easing policy been associated with  
5 | changes in the proxy companies' trading levels?

6 | A. 78 Yes, that appears to be the case. From January 2000 through the end of August  
7 | 2012 (that is, immediately prior to the third round of Quantitative Easing), the  
8 | proxy group's average P/E ratio traded at a 10.00 percent discount to the market.  
9 | From September 2012 through May 2013, when the Federal Reserve  
10 | announced it would begin to taper its asset purchases, the proxy group traded  
11 | at a 14.00 percent premium to the market. In fact, between September 2012  
12 | and February 12, 2016, the proxy group P/E ratio traded at a 9.00 percent  
13 | premium to the market.

14 | Q. 79 Does your recommendation also consider the interest rate environment?

15 | A. 79 Yes. From an analytical perspective, it is important that the inputs and  
16 | assumptions used to arrive at an ROE recommendation, including assessments  
17 | of capital market conditions, are consistent with the recommendation itself.  
18 | Although I appreciate that all analyses require an element of judgment, the  
19 | application of that judgment must be made in the context of the quantitative and  
20 | qualitative information available to the analyst and the capital market  
21 | environment in which the analyses were undertaken. Because the Cost of  
22 | Equity is forward-looking, the salient issue is whether investors see the likelihood  
23 | of increased interest rates during the period in which the rates set in this  
24 | proceeding will be in effect.  
25 |

1 As to long-term interest rates, the approximately 50 economists surveyed  
2 by Blue Chip Financial Forecast see the 30-year Treasury yield as increasing to  
3 4.00 percent by 2017 and 4.40 percent by 2018.<sup>49</sup> Those projections are  
4 supported by the fact that investors recently have been willing to pay nearly twice  
5 the premium for the option to sell long-term Government bonds in January 2018  
6 (with an exercise price equal to the current price) than they have been willing to  
7 pay for the option to buy those bonds.<sup>50</sup> Because the prices of bonds move  
8 inversely to interest rates,<sup>51</sup> those option prices indicate that investors believe it  
9 is considerably more likely that interest rates will increase over the coming year,  
10 than it is likely that they will decrease. As noted in Section VI (above), all else  
11 remaining equal an increase in interest rates would increase the return required  
12 by equity holders.

13 Given that: (1) Federal monetary policy has begun its process of  
14 "normalization"; and (2) economists and market data indicate expectations for  
15 increasing interest rates into 2018 and beyond, I believe that an ROE in the  
16 range of 10.00 percent to 10.50 percent reflects the prevailing and expected  
17 interest rate environment.

18 Q. 80 What conclusions do you draw from your analyses of capital market conditions?

19 A. 80 From an analytical perspective, it is important that the inputs and assumptions  
20 used to arrive at an ROE determination, including assessments of capital market  
21 conditions, are consistent with the conclusion itself. Although I appreciate that  
22 all analyses require an element of judgment, the application of that judgment  
23

24 <sup>49</sup> See, Blue Chip Financial Forecast, Vol. 34 No. 12, December 1, 2015, at 14.

<sup>50</sup> Source: <http://www.nasdaq.com/symbol/tlt/option-chain?dateindex=7>

25 <sup>51</sup> That is, as interest rates move up (down), bond prices move down (up).

1 must be made in the context of the quantitative and qualitative information  
2 available to the analyst and the capital market environment in which the  
3 analyses were undertaken. Because the application of financial models and  
4 interpretation of their results often is the subject of differences among analysts  
5 in regulatory proceedings, I believe that it is important to review and consider a  
6 variety of data points; doing so enables us to put in context both quantitative  
7 analyses and the associated recommendations.

8 **IX. CONCLUSIONS AND RECOMMENDATIONS FOR THE RATE OF RETURN ON THE**  
9 **ORIGINAL COST RATE BASE**

10 Q. 81 What is your conclusion regarding the company's Cost of Equity?

11 A. 81 I believe that a rate of return on common equity in the range of 10.00 percent to  
12 10.50 percent represents the range of equity investors' required rate of return  
13 for investment in natural gas utilities. Within that range, I recommend an ROE  
14 of 10.25 percent. Tables 10a and 10b summarize my analytical results. In  
15 addition to the methodologies included in Tables 10a and 10b, my  
16 recommendation also takes into consideration the capital environment in which  
17 the Company operates and the Company's small size relative to the proxy  
18 companies.

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1 **Table 10a: Summary of Constant Growth DCF Results<sup>52</sup>**

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3

	<b>Mean Low</b>	<b>Mean</b>	<b>Mean High</b>
<i>Constant Growth DCF Results</i>			
30-Day Average	8.39%	9.52%	11.30%
90-Day Average	8.50%	9.64%	11.41%
180-Day Average	8.66%	9.79%	11.57%
<i>Multi-Stage DCF Results</i>			
	<i>Low</i>	<i>Mean</i>	<i>High</i>
30-Day Average	9.03%	9.33%	9.82%
90-Day Average	9.16%	9.47%	9.97%
180-Day Average	9.32%	9.65%	10.18%

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11 **Table 10b: Summary of Risk Premium Results<sup>53</sup>**

12

<b>Market Risk Premium Derived By</b>	<b>Bloomberg</b>	<b>Value Line</b>
<i>Average Bloomberg Beta Coefficient</i>		
Current 30-Year Treasury (2.79%)	9.69%	9.26%
Near Term Projected 30-Year Treasury (3.35%)	10.25%	9.83%
<i>Average Value Line Beta Coefficient</i>		
Current 30-Year Treasury (2.79%)	10.78%	10.28%
Near Term Projected 30-Year Treasury (3.35%)	11.34%	10.85%
<i>Bond Yield Plus Risk Premium Approach</i>		
Current 30-Year Treasury (2.79%)	9.98%	
Near Term Projected 30-Year Treasury (3.35%)	10.02%	
Long Term Projected 30-Year Treasury (4.65%)	10.39%	

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24 <sup>52</sup> See also, Exhibit No.\_\_(RBH-1) and Exhibit No.\_\_(RBH-3). Results include estimated flotation costs.

25 <sup>53</sup> See also, Exhibit No.\_\_(RBH-6) and Exhibit No.\_\_(RBH-7).

1 **X. FAIR VALUE RATE BASE**

2 Q. 82 Please briefly summarize the Fair Value standard in Arizona.

3 A. 82 As noted in Chapparal,<sup>54</sup> the Arizona Constitution requires the use of a fair value  
4 rate base in establishing rates. Article 15 para. 14 of the Arizona Constitution  
5 states:

6 The corporation commission shall, to aid it- in the proper discharge  
7 of its duties, ascertain the fair value of the property within the state  
8 of every public service corporation doing business therein; and  
9 every public service corporation doing business within the state  
10 shall furnish to the commission all evidence in its possession, and  
11 all assistance in its power, requested by the commission in aid of  
12 the determination of the value of the property within the state of  
13 such public service corporation.

14 Although I am not an attorney, I understand that, as interpreted by the  
15 Arizona Court of Appeals, this paragraph requires the Commission to find the  
16 fair value of a public service corporation's property and to use that value to set  
17 just and reasonable rates.<sup>55</sup>

18 Q. 83 Are you aware of references in academic literature regarding the use of fair value  
19 to set rates?

20 A. 83 Yes. As Phillips states:

21 There is a third measure of value, which depends upon the two  
22 discussed above: fair value. *Fair Value* is a figure somewhere  
23 between original cost and reproduction cost, arrived at by the  
24 exercise of "enlightened judgment" or by specific formula.

25 \*\*\*

With respect to the second question concerning the weighting  
problem, the commissions generally do not allow the full valuation  
estimate based upon reproduction cost or trended original cost. As

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23 <sup>54</sup> In the Matter of the Application of Chapparal City Water Company, an Arizona Corporation, for a  
24 Determination of the Current Fair Value of its Utility Plant and Property and for Increases in its Rates and  
25 Charges for Utility Service Based Thereon, Docket No. W-02113A-04-0616, Arizona Corporation  
Commission Decision No. 70441, July 28, 2008, at 20-21.

<sup>55</sup> Ibid.

1 a result, the final valuation figure chosen represents a  
2 compromise.<sup>56</sup>

3 Q. 84 How did the Company establish the Fair Value Rate Base?

4 A. 84 As is discussed in the testimony of Company witness Cunningham the Company  
5 calculated the fair value rate base ("FVRB") as the simple average of the original  
6 cost rate base ("OCRB") and the reconstruction cost new less depreciation  
7 ("RCND") of the utility system, which is estimated to be \$2,288,780,072.<sup>57</sup> The  
8 OCRB of \$1,336,049,260 is based on the Company's plant accounting records,  
9 as of 11/30/2015, (see page 1 of Exhibit No. \_(RBH-10)). The resulting FVRB  
10 is \$1,812,414,665.

11 Q. 85 Do you agree with the Company's estimate of the FVRB?

12 A. 85 Yes, I believe that the Company's proposed FVRB is a reasonable, if not  
13 conservative estimate of the current market value of the Company's gas  
14 distribution system assets.

15 **XI. FAIR VALUE RATE OF RETURN**

16 Q. 86 Does the Fair Value standard also require consideration of the fair return on the  
17 fair value of the Company's assets?

18 A. 86 Yes. As noted above, the Arizona Constitution requires that the Commission  
19 establish just and reasonable rates using the fair value of the Company's  
20 property. In establishing the revenue requirement, the Commission would also  
21 need to establish the appropriate ROE to apply to the equity component of the  
22 FVRB.

24 <sup>56</sup> Phillips, Charles F., The Regulation of Public Utilities, Third Edition, Public Utilities Reports, Inc., pp.  
319, 339 (*emphasis included*).

25 <sup>57</sup> Prepared direct testimony of Randi L. Cunningham.

1 Q. 87 Have you calculated the fair value of return ("FVROR") on the FVRB?

2 A. 87 Yes. As shown on page 2 of Exhibit No. \_(RBH-10), I estimate that FVROR to  
3 be 6.01 percent.

4 Q. 88 Please Explain How You Calculated the FVROR.

5 A. 88 As shown in Exhibit No. \_(RBH-10), and in Table 11 (below), I calculated the  
6 difference between the OCRB and the Company's proposed FVRB. That this  
7 difference represents the appreciation in the value of the assets based on the  
8 current market value of the OCRB, and has been commonly referred to as the  
9 "fair value increment."<sup>58</sup> I then weighted the OCRB using the Company's  
10 proposed capital structure weighting, which includes the debt and equity  
11 component of the OCRB, and the appreciation in the value of the assets which,  
12 when added to the OCRB, results in the FVRB.

13 Q. 89 How did you apply the equity and debt costs to derive the FVROR?

14 A. 89 As shown in Table 11, I applied the Company's actual cost of debt to the debt  
15 component of the OCRB and my recommended ROE to the equity component  
16 of the OCRB. Consistent with Commission's decision in Decision No. 70665.<sup>59</sup>  
17 I applied 50.00 percent of the risk free rate of return of 1.86 percent to the market  
18 appreciation of the FVRB.

19 Q. 90 How did you estimate the risk free rate of return?  
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22 \_\_\_\_\_  
<sup>58</sup> Arizona Corporation Commission, Decision No. 70665, at 32.

23 <sup>59</sup> Arizona Corporation Commission Decision No. 70665, In the Matter of the Application of Southwest  
24 Gas Corporation for Establishment of Just and Reasonable Rates and Charges Designed to Realize a  
25 Reasonable Rate of Return on the Fair Value of the Properties of Southwest Gas Corporation Devoted to  
its Operations Throughout the State of Arizona, December 24, 2008 at 31. In that decision, the  
Commission determined that the Staff's approach of applying one-half of the risk free rate to the fair value  
increment was appropriate.

1 A. 90 My estimate of the nominal risk free rate of return is the average of the short-  
 2 term projected yield on 30-year Treasury bonds of 3.35 percent and the long-  
 3 term projected yield on the 30-year Treasury bonds of 4.65 percent of as  
 4 reported in the Blue Chip Financial Forecast. I then adjusted the nominal risk  
 5 free rate of 4.00 percent by the rate of inflation, which I estimated to be 2.10  
 6 percent. The resulting real risk free rate is then 1.86 percent.<sup>60</sup>

7 Q. 91 How did you estimate the rate of inflation?

8 A. 91 I calculated the rate of inflation rate of 2.10 percent based on the average of two  
 9 measures of inflation: the *Blue Chip Financial Forecast* estimate of the long term  
 10 change in the Consumer Price Index ("CPI") for 2022 through 2026, which is  
 11 2.20 percent; and the *EIA Annual Energy Outlook* estimate of the change in CPI  
 12 for the period from 2013 through 2040, of 2.00 percent.

13 Q. 92 What is the resulting FVROR using that approach?

14 A. 92 As shown on page 2 of Exhibit No.\_\_(RBH-10), based on the calculation  
 15 discussed previously, the FVROR that would be applied to the FVRB is 6.01  
 16 percent.

17 **Table 11: Calculation of the Fair Value Rate of Return<sup>61</sup>**

<u>Capital</u>	<u>Amount</u>	<u>Percent</u>	<u>Cost Rate</u>	<u>Weighted Cost Rate</u>
Long-Term Debt	\$ 645,445,398	35.61%	5.21%	1.86%
Common Equity	<u>690,603,862</u>	<u>38.10%</u>	10.25%	<u>3.91%</u>
Capital Financing OCRB	\$1,335,140,284	73.71%		5.74%
Appreciation above OCRB not recognized on utility's books	<u>476,365,405</u>	<u>26.28%</u>	0.93%	<u>0.24%</u>
Total	\$1,812,091,361	100.00%		6.01%

24 <sup>60</sup> The real risk free rate = ((1+ nominal Treasury rate)/(inflation rate+1))-1. Please see page 2 of Exhibit  
 No.\_\_(RBH-10),

25 <sup>61</sup> Consistent with the methodology that the Arizona Corporation Commission determined was appropriate  
 in Decision No. 70665, at 31. Amounts may not add due to rounding.



1 Q. 93 Do you believe that the FVROR is a reasonable estimate of the Company's Cost  
2 of Capital?

3 A. 93 The FVROR of 6.01 percent provided in Table 11 (above) is a conservative  
4 estimate of the appropriate cost of capital for Southwest Gas. Applying 50.00  
5 percent weight to the OCRB, which is a measure of book value, and 50.00  
6 percent to the RCND, a measure of market value, produces a conservative  
7 estimate of FVRB, which is a proxy for market value. Further, applying only  
8 50.00 percent of the risk free rate to the appreciation in the fair value increment  
9 also is a conservative estimate of the return that would be required by investors.  
10 In my view, the combined effect of those two approaches is to produce a FVROR  
11 that is somewhat conservative.

12 Q. 94 Does this conclude your prepared direct testimony?

13 A. 94 Yes.

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**Robert B. Hevert, CFA**  
**Managing Partner**  
**Sussex Economic Advisors, LLC**

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Mr. Hevert is a financial and economic consultant with broad experience in the energy and utility industries. He has an extensive background in the areas of corporate finance, mergers and acquisitions, project finance, asset and business unit valuation, rate and regulatory matters, energy market assessment, and corporate strategic planning. Mr. Hevert has provided expert testimony on a wide range of financial, strategic and economic matters on over 100 occasions at both the state and federal levels.

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**REPRESENTATIVE PROJECT EXPERIENCE**

**Litigation Support and Expert Testimony**

Provided expert testimony and support of litigation in various regulatory proceedings on a variety of energy and economic issues including: cost of capital for ratemaking purposes; the proposed transfer of power purchase agreements; procurement of residual service electric supply; the legal separation of generation assets; merger-related synergies; assessment of economic damages; and specific financing transactions. Services provided include collaborating with counsel, business and technical staff to develop litigation strategies, preparing and reviewing discovery and briefing materials, preparing presentation materials and participating in technical sessions with regulators and intervenors.

**Financial and Economic Advisory Services**

Retained by numerous leading energy companies and financial institutions throughout North America to provide services relating to the strategic evaluation, acquisition, sale or development of a variety of regulated and non-regulated enterprises. Specific services have included: developing strategic and financial analyses and managing multi-faceted due diligence reviews of proposed corporate M&A counterparties; developing, screening and recommending potential M&A transactions and facilitating discussions between senior utility executives regarding transaction strategy and structure; performing valuation analyses and financial due diligence reviews of electric generation projects, retail marketing companies, and wholesale trading entities in support of significant M&A transactions.

Specific divestiture-related services have included advising both buy and sell-side clients in transactions for physical and contractual electric generation resources. Sell-side services have included: development and implementation of key aspects of asset divestiture programs such as marketing, offering memorandum development, development of transaction terms and conditions, bid process management, bid evaluation, negotiations, and regulatory approval process. Buy-side services have included comprehensive asset screening, selection, valuation and due diligence reviews. Both buy and sell-side services have included the use of sophisticated asset valuation techniques, and the development and delivery of fairness opinions.

Specific corporate finance experience while a Vice President with Bay State Gas included: negotiation, placement and closing of both private and public long-term debt, preferred and common equity; structured and project financing; corporate cash management; financial analysis, planning and forecasting; and various aspects of investor relations.

**Regulatory Analysis and Ratemaking**

On behalf of electric, natural gas and combination utilities throughout North America, provided services relating to energy industry restructuring including merchant function exit, residual energy supply obligations, and stranded cost assessment and recovery. Specific services provided include: performing strategic review and development of merchant function exit strategies including analysis of provider of last resort

obligations in both electric and gas markets; and developing value optimizing strategies for physical generation assets.

### **Energy Market Assessment**

Retained by numerous leading energy companies and financial institutions nationwide to manage or provide assessments of regional energy markets throughout the U.S. and Canada. Such assessments have included development of electric and natural gas price forecasts, analysis of generation project entry and exit scenarios, assessment of natural gas and electric transmission infrastructure, market structure and regulatory situation analysis, and assessment of competitive position. Market assessment engagements typically have been used as integral elements of business unit or asset-specific strategic plans or valuation analyses.

### **Resource Procurement, Contracting and Analysis**

Assisted various clients in evaluating alternatives for acquiring fuel and power supplies, including the development and negotiation of energy contracts and tolling agreements. Assignments also have included developing generation resource optimization strategies. Provided advice and analyses of transition service power supply contracts in the context of both physical and contractual generation resource divestiture transactions.

### **Business Strategy and Operations**

Retained by numerous leading North American energy companies and financial institutions nationwide to provide services relating to the development of strategic plans and planning processes for both regulated and non-regulated enterprises. Specific services provided include: developing and implementing electric generation strategies and business process redesign initiatives; developing market entry strategies for retail and wholesale businesses including assessment of asset-based marketing and trading strategies; and facilitating executive level strategic planning retreats. As Vice President, of Bay State was responsible for the company's strategic planning and business development processes, played an integral role in developing the company's non-regulated marketing affiliate, EnergyUSA, and managed the company's non-regulated investments, partnerships and strategic alliances.

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## **PROFESSIONAL HISTORY**

**Sussex Economic Advisors, LLC (2012 – Present)**  
Managing Partner

**Concentric Energy Advisors, Inc. (2002 – 2012)**  
President

**Navigant Consulting, Inc. (1997 – 2001)**  
Managing Director (2000 – 2001)  
Director (1998 – 2000)  
Vice President, REED Consulting Group (1997 – 1998)

**Bay State Gas Company (now Columbia Gas Company of Massachusetts) (1987 – 1997)**  
Vice President and Assistant Treasurer

**Boston College (1986 – 1987)**  
Financial Analyst

**General Telephone Company of the South (1984 – 1986)**  
Revenue Requirements Analyst

## **EDUCATION**

M.B.A., University of Massachusetts at Amherst, 1984  
B.S., University of Delaware, 1982

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## **DESIGNATIONS AND PROFESSIONAL AFFILIATIONS**

Chartered Financial Analyst, 1991  
Association for Investment Management and Research  
Boston Security Analyst Society

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## **PUBLICATIONS/PRESENTATIONS**

Has made numerous presentations throughout the United States and Canada on several topics, including:

- Generation Asset Valuation and the Use of Real Options
  - Retail and Wholesale Market Entry Strategies
  - The Use Strategic Alliances in Restructured Energy Markets
  - Gas Supply and Pipeline Infrastructure in the Northeast Energy Markets
  - Nuclear Asset Valuation and the Divestiture Process
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## **AVAILABLE UPON REQUEST**

Extensive client and project listings, and specific references.

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SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
<b>Regulatory Commission of Alaska</b>				
ENSTAR Natural Gas Company	08/14	ENSTAR Natural Gas Company	Matter No. TA 262-4	Return on Equity
<b>Alberta Utilities Commission</b>				
Altalink, L.P., and EPCOR Distribution & Transmission, Inc.	02/16	Altalink, L.P., and EPCOR Distribution & Transmission, Inc.	2016 General Cost of Capital, Proceeding ID. 20622	Rate of Return
<b>Arizona Corporation Commission</b>				
Southwest Gas Corporation	11/10	Southwest Gas Corporation	Docket No. G-01551A-10-0458	Return on Equity
<b>Arkansas Public Service Commission</b>				
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Arkansas Gas	11/15	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Arkansas Gas	Docket No. 15-098-U	Return on Equity
SourceGas Arkansas, Inc.	03/15	SourceGas Arkansas, Inc.	Docket No. 15-011-U	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Arkansas Gas	01/07	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Arkansas Gas	Docket No. 06-161-U	Return on Equity
<b>California Public Utilities Commission</b>				
Southwest Gas Corporation	12/12	Southwest Gas Corporation	Docket No. A-12-12-024	Return on Equity
<b>Colorado Public Utilities Commission</b>				
Xcel Energy, Inc.	03/15	Public Service Company of Colorado	Docket No. 15AL-0135G	Return on Equity (gas)
Xcel Energy, Inc.	06/14	Public Service Company of Colorado	Docket No. 14AL-0660E	Return on Equity (electric)
Xcel Energy, Inc.	12/12	Public Service Company of Colorado	Docket No. 12AL-1268G	Return on Equity (gas)
Xcel Energy, Inc.	11/11	Public Service Company of Colorado	Docket No. 11AL-947E	Return on Equity (electric)

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Xcel Energy, Inc.	12/10	Public Service Company of Colorado	Docket No. 10AL-963G	Return on Equity (electric)
Atmos Energy Corporation	07/09	Atmos Energy Colorado-Kansas Division	Docket No. 09AL-507G	Return on Equity (gas)
Xcel Energy, Inc.	12/06	Public Service Company of Colorado	Docket No. 06S-656G	Return on Equity (gas)
Xcel Energy, Inc.	04/06	Public Service Company of Colorado	Docket No. 06S-234EG	Return on Equity (electric)
Xcel Energy, Inc.	08/05	Public Service Company of Colorado	Docket No. 05S-369ST	Return on Equity (steam)
Xcel Energy, Inc.	05/05	Public Service Company of Colorado	Docket No. 05S-246G	Return on Equity (gas)
<b>Connecticut Public Utilities Regulatory Authority</b>				
Connecticut Light and Power Company	06/14	Connecticut Light and Power Company	Docket No. 14-05-06	Return on Equity
Southern Connecticut Gas Company	09/08	Southern Connecticut Gas Company	Docket No. 08-08-17	Return on Equity
Southern Connecticut Gas Company	12/07	Southern Connecticut Gas Company	Docket No. 05-03-17PH02	Return on Equity
Connecticut Natural Gas Corporation	12/07	Connecticut Natural Gas Corporation	Docket No. 06-03-04PH02	Return on Equity
<b>Delaware Public Service Commission</b>				
Delmarva Power & Light Company	03/13	Delmarva Power & Light Company	Case No. 13-115	Return on Equity
Delmarva Power & Light Company	12/12	Delmarva Power & Light Company	Case No. 12-546	Return on Equity
Delmarva Power & Light Company	03/12	Delmarva Power & Light Company	Case No. 11-528	Return on Equity
<b>District of Columbia Public Service Commission</b>				
Washington Gas Light Company	02/16	Washington Gas Light Company	Formal Case No. FC1137	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Potomac Electric Power Company	03/13	Potomac Electric Power Company	Formal Case No. FC1103-2013-E	Return on Equity
Potomac Electric Power Company	07/11	Potomac Electric Power Company	Formal Case No. FC1087	Return on Equity
<b>Federal Energy Regulatory Commission</b>				
Sabine Pipeline, LLC	09/15	Sabine Pipeline, LLC	Docket No. RP15-1322-000	Return on Equity
Nextera Energy Transmission West, LLC	07/15	Nextera Energy Transmission West, LLC	Docket No. ER15-2239-000	Return on Equity
Maritimes & Northeast Pipeline, LLC	05/15	Maritimes & Northeast Pipeline, LLC	Docket No. RP15-1026-000	Return on Equity
Public Service Company of New Mexico	12/12	Public Service Company of New Mexico	Docket No. ER13-685-000	Return on Equity
Public Service Company of New Mexico	10/10	Public Service Company of New Mexico	Docket No. ER11-1915-000	Return on Equity
Portland Natural Gas Transmission System	05/10	Portland Natural Gas Transmission System	Docket No. RP10-729-000	Return on Equity
Florida Gas Transmission Company, LLC	10/09	Florida Gas Transmission Company, LLC	Docket No. RP10-21-000	Return on Equity
Maritimes and Northeast Pipeline, LLC	07/09	Maritimes and Northeast Pipeline, LLC	Docket No. RP09-809-000	Return on Equity
Spectra Energy	02/08	Saltville Gas Storage	Docket No. RP08-257-000	Return on Equity
Panhandle Energy Pipelines	08/07	Panhandle Energy Pipelines	Docket No. PL07-2-000	Response to draft policy statement regarding inclusion of MLPs in proxy groups for determination of gas pipeline ROEs
Southwest Gas Storage Company	08/07	Southwest Gas Storage Company	Docket No. RP07-541-000	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Southwest Gas Storage Company	06/07	Southwest Gas Storage Company	Docket No. RP07-34-000	Return on Equity
Sea Robin Pipeline LLC	06/07	Sea Robin Pipeline LLC	Docket No. RP07-513-000	Return on Equity
Transwestern Pipeline Company	09/06	Transwestern Pipeline Company	Docket No. RP06-614-000	Return on Equity
GPU International and Aquila	11/00	GPU International	Docket No. EC01-24-000	Market Power Study
<b>Florida Public Service Commission</b>				
Florida Power & Light Company	03/16	Florida Power & Light Company	Docket No. 160021-EI	Return on Equity
Tampa Electric Company	04/13	Tampa Electric Company	Docket No. 130040-EI	Return on Equity
<b>Georgia Public Service Commission</b>				
Atlanta Gas Light Company	05/10	Atlanta Gas Light Company	Docket No. 31647-U	Return on Equity
<b>Hawaii Public Utilities Commission</b>				
Maui Electric Company, Limited	12/14	Maui Electric Company, Limited	Docket No. 2014-0318	Return on Equity
Hawaiian Electric Company	06/14	Hawaiian Electric Light Company	Docket No. 2013-0373	Return on Equity
Hawaii Electric Light Company	08/12	Hawaiian Electric Light Company	Docket No. 2012-0099	Return on Equity
<b>Illinois Commerce Commission</b>				
Ameren Illinois Company d/b/a Ameren Illinois	01/15	Ameren Illinois Company d/b/a Ameren Illinois	Docket No. 15-0142	Return on Equity
Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities	03/14	Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities	Docket No. 14-0371	Return on Equity
Ameren Illinois Company d/b/a Ameren Illinois	01/13	Ameren Illinois Company d/b/a Ameren Illinois	Docket No. 13-0192	Return on Equity
Ameren Illinois Company d/b/a Ameren Illinois	02/11	Ameren Illinois Company d/b/a Ameren Illinois	Docket No. 11-0279	Return on Equity (electric)
Ameren Illinois Company d/b/a Ameren Illinois	02/11	Ameren Illinois Company d/b/a Ameren Illinois	Docket No. 11-0282	Return on Equity (gas)
<b>Indiana Utility Regulatory Commission</b>				
Duke Energy Indiana, Inc.	12/15	Duke Energy Indiana, Inc.	Cause No. 44720	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Duke Energy Indiana, Inc.	12/14	Duke Energy Indiana, Inc.	Cause No. 44526	Return on Equity
Northern Indiana Public Service Company	05/09	Northern Indiana Public Service Company	Cause No. 43894	Assessment of Valuation Approaches
<b>Kansas Corporation Commission</b>				
Kansas City Power & Light Company	01/15	Kansas City Power & Light Company	Docket No. 15-KCPE-116-RTS	Return on Equity
<b>Maine Public Utilities Commission</b>				
Central Maine Power Company	06/11	Central Maine Power Company	Docket No. 2010-327	Response to Bench Analysis provided by Commission Staff relating to the Company's credit and collections processes
<b>Maryland Public Service Commission</b>				
Potomac Electric Power Company	12/13	Potomac Electric Power Company	Case No. 9336	Return on Equity
Delmarva Power & Light Company	03/13	Delmarva Power & Light Company	Case No. 9317	Return on Equity
Potomac Electric Power Company	11/12	Potomac Electric Power Company	Case No. 9311	Return on Equity
Potomac Electric Power Company	12/11	Potomac Electric Power Company	Case No. 9286	Return on Equity
Delmarva Power & Light Company	12/11	Delmarva Power & Light Company	Case No. 9285	Return on Equity
Delmarva Power & Light Company	12/10	Delmarva Power & Light Company	Case No. 9249	Return on Equity
<b>Massachusetts Department of Public Utilities</b>				
National Grid	11/15	Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid	DPU 15-155	Return on Equity
Fitchburg Gas and Electric Light Company d/b/a Unifit	06/15	Fitchburg Gas and Electric Light Company d/b/a Unifit	DPU 15-80	Return on Equity
NSTAR Gas Company	12/14	NSTAR Gas Company	DPU 14-150	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Fitchburg Gas and Electric Light Company d/b/a Unittel	07/13	Fitchburg Gas and Electric Light Company d/b/a Unittel	DPU 13-90	Return on Equity
Bay State Gas Company d/b/a Columbia Gas of Massachusetts	04/12	Bay State Gas Company d/b/a Columbia Gas of Massachusetts	DPU 12-25	Capital Cost Recovery
National Grid	08/09	Massachusetts Electric Company d/b/a National Grid	DPU 09-39	Revenue Decoupling and Return on Equity
National Grid	08/09	Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid	DPU 09-38	Return on Equity – Solar Generation
Bay State Gas Company	04/09	Bay State Gas Company	DPU 09-30	Return on Equity
NSTAR Electric	09/04	NSTAR Electric	DTE 04-85	Divestiture of Power Purchase Agreement
NSTAR Electric	08/04	NSTAR Electric	DTE 04-78	Divestiture of Power Purchase Agreement
NSTAR Electric	07/04	NSTAR Electric	DTE 04-68	Divestiture of Power Purchase Agreement
NSTAR Electric	07/04	NSTAR Electric	DTE 04-61	Divestiture of Power Purchase Agreement
NSTAR Electric	06/04	NSTAR Electric	DTE 04-60	Divestiture of Power Purchase Agreement
Unittel Corporation	01/04	Fitchburg Gas and Electric	DTE 03-52	Integrated Resource Plan; Gas Demand Forecast
Bay State Gas Company	01/93	Bay State Gas Company	DPU 93-14	Divestiture of Shelf Registration
Bay State Gas Company	01/91	Bay State Gas Company	DPU 91-25	Divestiture of Shelf Registration
<b>Minnesota Public Utilities Commission</b>				
Minnesota Energy Resources Corporation	09/15	Minnesota Energy Resources Corporation	Docket No. G-011/GR-15-736	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas	08/15	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas	Docket No. G-008/GR-15-424	Return on Equity
Xcel Energy, Inc.	11/13	Northern States Power Company	Docket No. E002/GR-13-868	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas	08/13	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas	Docket No. G-008/GR-13-316	Return on Equity
Xcel Energy, Inc.	11/12	Northern States Power Company	Docket No. E002/GR-12-961	Return on Equity
Otter Tail Power Corporation	04/10	Otter Tail Power Company	Docket No. E-017/GR-10-239	Return on Equity
Minnesota Power a division of ALLETE, Inc.	11/09	Minnesota Power	Docket No. E-015/GR-09-1151	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas	11/08	CenterPoint Energy Minnesota Gas	Docket No. G-008/GR-08-1075	Return on Equity
Otter Tail Power Corporation	10/07	Otter Tail Power Company	Docket No. E-017/GR-07-1178	Return on Equity
Xcel Energy, Inc.	11/05	Northern States Power Company - Minnesota	Docket No. E-002/GR-05-1428	Return on Equity (electric)
Xcel Energy, Inc.	09/04	Northern States Power Company - Minnesota	Docket No. G-002/GR-04-1511	Return on Equity (gas)
<b>Mississippi Public Service Commission</b>				
CenterPoint Energy Resources, Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Mississippi Gas	07/09	CenterPoint Energy Mississippi Gas	Docket No. 09-UN-334	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
<b>Missouri Public Service Commission</b>				
Kansas City Power & Light Company	02/16	Kansas City Power & Light Company	Case No. ER-2016-0156	Return on Equity (electric)
Kansas City Power & Light Company	10/14	Kansas City Power & Light Company	Case No. ER-2014-0370	Return on Equity (electric)
Union Electric Company d/b/a Ameren Missouri	07/14	Union Electric Company d/b/a Ameren Missouri	Case No. ER-2014-0258	Return on Equity (electric)
Union Electric Company d/b/a Ameren Missouri	06/14	Union Electric Company d/b/a Ameren Missouri	Case No. EC-2014-0223	Return on Equity (electric)
Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities	02/14	Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities	Case No. GR-2014-0152	Return on Equity
Laclede Gas Company	12/12	Laclede Gas Company	Case No. GR-2013-0171	Return on Equity
Union Electric Company d/b/a Ameren Missouri	02/12	Union Electric Company d/b/a Ameren Missouri	Case No. ER-2012-0166	Return on Equity (electric)
Union Electric Company d/b/a AmerenUE	09/10	Union Electric Company d/b/a AmerenUE	Case No. ER-2011-0028	Return on Equity (electric)
Union Electric Company d/b/a AmerenUE	06/10	Union Electric Company d/b/a AmerenUE	Case No. GR-2010-0363	Return on Equity (gas)
<b>Montana Public Service Commission</b>				
Northwestern Corporation	09/12	Northwestern Corporation d/b/a Northwestern Energy	Docket No. D2012.9.94	Return on Equity (gas)
<b>Nevada Public Utilities Commission</b>				
Southwest Gas Corporation	04/12	Southwest Gas Corporation	Docket No. 12-04005	Return on Equity (gas)
Nevada Power Company	06/11	Nevada Power Company	Docket No. 11-06006	Return on Equity (electric)
<b>New Hampshire Public Utilities Commission</b>				
Liberty Utilities d/b/a EnergyNorth Natural Gas	08/14	Liberty Utilities d/b/a EnergyNorth Natural Gas	Docket No. DG 14-180	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Liberty Utilities d/b/a Granite State Electric Company	03/13	Liberty Utilities d/b/a Granite State Electric Company	Docket No. DE 13-063	Return on Equity
EnergyNorth Natural Gas d/b/a National Grid NH	02/10	EnergyNorth Natural Gas d/b/a National Grid NH	Docket No. DG 10-017	Return on Equity
Unitil Energy Systems, Inc. ("Unitil"), EnergyNorth Natural Gas, Inc. d/b/a National Grid NH, Granite State Electric Company d/b/a National Grid, and Northern Utilities, Inc. – New Hampshire Division	08/08	Unitil Energy Systems, Inc. ("Unitil"), EnergyNorth Natural Gas, Inc. d/b/a National Grid NH, Granite State Electric Company d/b/a National Grid, and Northern Utilities, Inc. – New Hampshire Division	Docket No. DG 07-072	Carrying Charge Rate on Cash Working Capital
<b>New Jersey Board of Public Utilities</b>				
The Southern Company; AGL Resources Inc.; AMS Corp. and Pivotal Holdings, Inc. d/b/a Elizabethtown Gas	04/16	The Southern Company; AGL Resources Inc.; AMS Corp. and Pivotal Holdings, Inc. d/b/a Elizabethtown Gas	BPU Docket No. GM15101196	Merger Approval
Pepco Holdings, Inc.	04/14	Atlantic City Electric Company	Docket No. ER14030245	Return on Equity
Orange and Rockland Utilities	11/13	Rockland Electric Company	Docket No. ER13111135	Return on Equity
Atlantic City Electric Company	12/12	Atlantic City Electric Company	Docket No. ER12121071	Return on Equity
Atlantic City Electric Company	08/11	Atlantic City Electric Company	Docket No. ER11080469	Return on Equity
Pepco Holdings, Inc.	09/06	Atlantic City Electric Company	Docket No. EM06090638	Divestiture and Valuation of Electric Generating Assets
Pepco Holdings, Inc.	12/05	Atlantic City Electric Company	Docket No. EM05121058	Market Value of Electric Generation Assets; Auction
Conectiv	06/03	Atlantic City Electric Company	Docket No. EO03020091	Market Value of Electric Generation Assets; Auction Process

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
<b>New Mexico Public Regulation Commission</b>				
Public Service Company of New Mexico	08/15	Public Service Company of New Mexico	Case No. 15-00261-UT	Return on Equity (electric)
Public Service Company of New Mexico	12/14	Public Service Company of New Mexico	Case No. 14-00332-UT	Return on Equity (electric)
Public Service Company of New Mexico	12/14	Public Service Company of New Mexico	Case No. 13-00390-UT	Cost of Capital and Financial Integrity
Southwestern Public Service Company	02/11	Southwestern Public Service Company	Case No. 10-00395-UT	Return on Equity (electric)
Public Service Company of New Mexico	06/10	Public Service Company of New Mexico	Case No. 10-00086-UT	Return on Equity (electric)
Public Service Company of New Mexico	09/08	Public Service Company of New Mexico	Case No. 08-00273-UT	Return on Equity (electric)
Xcel Energy, Inc.	07/07	Southwestern Public Service Company	Case No. 07-00319-UT	Return on Equity (electric)
<b>New York State Public Service Commission</b>				
Consolidated Edison Company of New York, Inc.	01/15	Consolidated Edison Company of New York, Inc.	Case No. 15-E-0050	Return on Equity (electric)
Orange and Rockland Utilities, Inc.	11/14	Orange and Rockland Utilities, Inc.	Case Nos. 14-E-0493 and 14-G-0494	Return on Equity (electric and gas)
Consolidated Edison Company of New York, Inc.	01/13	Consolidated Edison Company of New York, Inc.	Case No. 13-E-0030	Return on Equity (electric)
Niagara Mohawk Corporation d/b/a National Grid for Electric Service	04/12	Niagara Mohawk Corporation d/b/a National Grid for Electric Service	Case No. 12-E-0201	Return on Equity (electric)
Niagara Mohawk Corporation d/b/a National Grid for Gas Service	04/12	Niagara Mohawk Corporation d/b/a National Grid for Gas Service	Case No. 12-G-0202	Return on Equity (gas)
Orange and Rockland Utilities, Inc.	07/11	Orange and Rockland Utilities, Inc.	Case No. 11-E-0408	Return on Equity (electric)



SPONSOR	DATE	CASE/APPLICANT	DOCKET No.	SUBJECT
Orange and Rockland Utilities, Inc.	07/10	Orange and Rockland Utilities, Inc.	Case No. 10-E-0362	Return on Equity (electric)
Consolidated Edison Company of New York, Inc.	11/09	Consolidated Edison Company of New York, Inc.	Case No. 09-G-0795	Return on Equity (gas)
Consolidated Edison Company of New York, Inc.	11/09	Consolidated Edison Company of New York, Inc.	Case No. 09-S-0794	Return on Equity (steam)
Niagara Mohawk Power Corporation	07/01	Niagara Mohawk Power Corporation	Case No. 01-E-1046	Power Purchase and Sale Agreement; Standard Offer Service Agreement
<b>North Carolina Utilities Commission</b>				
Duke Energy Carolinas, LLC	02/13	Duke Energy Carolinas, LLC	Docket No. E-7, Sub 1026	Return on Equity
Carolina Power & Light Company d/b/a Progress Energy Carolinas, Inc.	10/12	Carolina Power & Light Company d/b/a Progress Energy Carolinas, Inc.	Docket No. E-2, Sub 1023	Return on Equity
Virginia Electric and Power Company d/b/a Dominion North Carolina Power	03/12	Virginia Electric and Power Company d/b/a Dominion North Carolina Power	Docket No. E-22, Sub 479	Return on Equity (electric)
Duke Energy Carolinas, LLC	07/11	Duke Energy Carolinas, LLC	Docket No. E-7, Sub 989	Return on Equity (electric)
<b>North Dakota Public Service Commission</b>				
Otter Tail Power Company	11/08	Otter Tail Power Company	Docket No. 08-862	Return on Equity (electric)
<b>Oklahoma Corporation Commission</b>				
CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Oklahoma Gas	03/16	CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Oklahoma Gas	Cause No. PUD201600094	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Oklahoma Gas & Electric Company	12/15	Oklahoma Gas & Electric Company	Cause No. PUD201500273	Return on Equity
Public Service Company of Oklahoma	07/15	Public Service Company of Oklahoma	Cause No. PUD201500208	Return on Equity
Oklahoma Gas & Electric Company	07/11	Oklahoma Gas & Electric Company	Cause No. PUD201100087	Return on Equity
CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Oklahoma Gas	03/09	CenterPoint Energy Oklahoma Gas	Cause No. PUD200900055	Return on Equity
<b>Pennsylvania Public Utility Commission</b>				
Pike County Light & Power Company	01/14	Pike County Light & Power Company	Docket No. R-2013-2397237	Return on Equity (electric & gas)
Veolia Energy Philadelphia, Inc.	12/13	Veolia Energy Philadelphia, Inc.	Docket No. R-2013-2386293	Return on Equity (steam)
<b>Rhode Island Public Utilities Commission</b>				
The Narragansett Electric Company d/b/a National Grid	04/12	The Narragansett Electric Company d/b/a National Grid	Docket No. 4323	Return on Equity (electric & gas)
National Grid RI – Gas	08/08	National Grid RI – Gas	Docket No. 3943	Revenue Decoupling and Return on Equity
<b>South Carolina Public Service Commission</b>				
Duke Energy Carolinas, LLC	03/13	Duke Energy Carolinas, LLC	Docket No. 2013-59-E	Return on Equity
South Carolina Electric & Gas	06/12	South Carolina Electric & Gas	Docket No. 2012-218-E	Return on Equity
Duke Energy Carolinas, LLC	08/11	Duke Energy Carolinas, LLC	Docket No. 2011-271-E	Return on Equity
South Carolina Electric & Gas	03/10	South Carolina Electric & Gas	Docket No. 2009-489-E	Return on Equity
<b>South Dakota Public Utilities Commission</b>				
Otter Tail Power Company	08/10	Otter Tail Power Company	Docket No. EL10-011	Return on Equity (electric)
Northern States Power Company	06/09	South Dakota Division of Northern States Power	Docket No. EL09-009	Return on Equity (electric)



SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Otter Tail Power Company	10/08	Otter Tail Power Company	Docket No. EL08-030	Return on Equity (electric)
<b>Texas Public Utility Commission</b>				
Southwestern Public Service Company	02/16	Southwestern Public Service Company	Docket No. 44524	Return on Equity (electric)
Wind Energy Transmission Texas, LLC	05/15	Wind Energy Transmission Texas, LLC	Docket No. 44746	Return on Equity
Cross Texas Transmission	12/14	Cross Texas Transmission	Docket No. 43950	Return on Equity
Southwestern Public Service Company	12/14	Southwestern Public Service Company	Docket No. 43695	Return on Equity (electric)
Sharyland Utilities, L.P.	05/13	Sharyland Utilities, L.P.	Docket No. 41474	Return on Equity
Wind Energy Texas Transmission, LLC	08/12	Wind Energy Texas Transmission, LLC	Docket No. 40606	Return on Equity
Southwestern Electric Power Company	07/12	Southwestern Electric Power Company	Docket No. 40443	Return on Equity
Oncor Electric Delivery Company, LLC	01/11	Oncor Electric Delivery Company, LLC	Docket No. 38929	Return on Equity
Texas-New Mexico Power Company	08/10	Texas-New Mexico Power Company	Docket No. 38480	Return on Equity (electric)
CenterPoint Energy Houston Electric LLC	06/10	CenterPoint Energy Houston Electric LLC	Docket No. 38339	Return on Equity
Xcel Energy, Inc.	05/10	Southwestern Public Service Company	Docket No. 38147	Return on Equity (electric)
Texas-New Mexico Power Company	08/08	Texas-New Mexico Power Company	Docket No. 36025	Return on Equity (electric)
Xcel Energy, Inc.	05/06	Southwestern Public Service Company	Docket No. 32766	Return on Equity (electric)
<b>Texas Railroad Commission</b>				

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	03/15	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	GUD 10432	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	07/12	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	GUD 10182	Return on Equity
Atmos Energy Corporation – West Texas Division	06/12	Atmos Energy Corporation – West Texas Division	GUD 10175	Return on Equity
Atmos Energy Corporation – Mid-Texas Division	06/12	Atmos Energy Corporation – Mid-Texas Division	GUD 10171	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	12/10	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	GUD 10038	Return on Equity
Atmos Pipeline – Texas	09/10	Atmos Pipeline - Texas	GUD 10000	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	07/09	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Entex and CenterPoint Energy Texas Gas	GUD 9902	Return on Equity
CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Texas Gas	03/08	CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Texas Gas	GUD 9791	Return on Equity
<b>Utah Public Service Commission</b>				
Questar Gas Company	12/07	Questar Gas Company	Docket No. 07-057-13	Return on Equity
<b>Vermont Public Service Board</b>				
Central Vermont Public Service Corporation; Green Mountain Power	02/12	Central Vermont Public Service Corporation; Green Mountain Power	Docket No. 7770	Merger Policy

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Central Vermont Public Service Corporation	12/10	Central Vermont Public Service Corporation	Docket No. 7627	Return on Equity (electric)
Green Mountain Power	04/06	Green Mountain Power	Docket Nos. 7175 and 7176	Return on Equity (electric)
Vermont Gas Systems, Inc.	12/05	Vermont Gas Systems	Docket Nos. 7109 and 7160	Return on Equity (gas)
<b>Virginia State Corporation Commission</b>				
Virginia Electric and Power Company	12/15	Virginia Electric and Power Company	Case Nos. PUE-2015-0058; PUE-2015-0059; PUE-2015-0060; PUE-2015-0061; PUE-2015-0075; PUE-2015-0089; PUE-2015-0102; PUE-2015-0104	Return on Equity
Virginia Electric and Power Company	03/15	Virginia Electric and Power Company	Case No. PUE-2015-00027	Return on Equity
Virginia Electric and Power Company	03/13	Virginia Electric and Power Company	Case No. PUE-2013-00020	Return on Equity
Virginia Natural Gas, Inc.	02/11	Virginia Natural Gas, Inc.	Case No. PUE-2010-00142	Capital Structure
Columbia Gas Of Virginia, Inc.	06/06	Columbia Gas Of Virginia, Inc.	Case No. PUE-2005-00098	Merger Synergies
Dominion Resources	10/01	Virginia Electric and Power Company	Case No. PUE000584	Corporate Structure and Electric Generation Strategy

**Expert Report**

<b>United States District Court, Western District of Texas, Austin Division</b>				
Southwestern Public Service Company	02/12	Southwestern Public Service Company	C.A. No. A-09-CA-917-SS	PURPA and FERC regulations

Constant Growth Discounted Cash Flow Model  
30 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Retention Growth Estimate	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$1.68	\$65.65	2.56%	2.65%	6.60%	6.40%	7.00%	8.21%	7.05%	9.04%	9.70%	10.87%
Laclede Group, Inc. (The)	LG	\$1.96	\$61.14	3.21%	3.30%	4.80%	4.78%	10.00%	4.90%	6.12%	8.06%	9.42%	13.37%
New Jersey Resources Corporation	NJR	\$0.96	\$34.36	2.79%	2.87%	6.50%	6.50%	4.00%	5.81%	5.70%	6.85%	8.58%	9.38%
Northwest Natural Gas Company	NWN	\$1.87	\$51.25	3.65%	3.73%	4.00%	4.00%	7.00%	3.73%	4.68%	7.45%	8.42%	10.78%
South Jersey Industries, Inc.	SJI	\$1.06	\$24.21	4.36%	4.50%	NA	6.00%	7.50%	6.56%	6.69%	10.49%	11.19%	12.02%
WGL Holdings, Inc.	WGL	\$1.95	\$64.08	3.04%	3.14%	7.30%	8.00%	5.50%	5.11%	6.48%	8.23%	9.62%	11.16%
Proxy Group Mean				3.27%	3.37%	5.84%	5.95%	6.83%	5.72%	6.12%	8.35%	9.49%	11.26%
Proxy Group Median				3.12%	3.22%	6.50%	6.20%	7.00%	5.46%	6.30%	8.14%	9.52%	11.02%
Flotation Costs											0.03%	0.03%	0.03%
Proxy Group Mean including Flotation Costs											8.39%	9.52%	11.30%
Proxy Group Median including Flotation Costs											8.18%	9.56%	11.05%

Notes:

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals indicated number of trading day average as of February 12, 2016
- [3] Equals [1] / [2]
- [4] Equals [3] x (1 + 0.5 x [9])
- [5] Source: Zacks
- [6] Source: Yahoo! Finance
- [7] Source: Value Line
- [8] Source: Exhibit No. (RBH-2), Value Line
- [9] Equals Average([5], [6], [7], [8])
- [10] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7], [8])) + Minimum([5], [6], [7], [8])
- [11] Equals [4] + [9]
- [12] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7], [8])) + Maximum([5], [6], [7], [8])

Constant Growth Discounted Cash Flow Model  
90 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Retention Growth Estimate	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$1.68	\$62.93	2.67%	2.76%	6.60%	6.40%	7.00%	8.21%	7.05%	9.16%	9.82%	10.99%
Laclede Group, Inc. (The)	LG	\$1.96	\$58.86	3.33%	3.43%	4.80%	4.78%	10.00%	4.90%	6.12%	8.19%	9.55%	13.50%
New Jersey Resources Corporation	NJR	\$0.96	\$31.87	3.01%	3.10%	6.50%	6.50%	4.00%	5.81%	5.70%	7.07%	8.80%	9.61%
Northwest Natural Gas Company	NWN	\$1.87	\$49.19	3.80%	3.89%	4.00%	4.00%	7.00%	3.73%	4.68%	7.61%	8.57%	10.93%
South Jersey Industries, Inc.	SJI	\$1.06	\$24.38	4.33%	4.47%	NA	6.00%	7.50%	6.56%	6.69%	10.46%	11.16%	11.99%
WGL Holdings, Inc.	WGL	\$1.95	\$62.07	3.14%	3.24%	7.30%	8.00%	5.50%	5.11%	6.48%	8.33%	9.72%	11.27%
Proxy Group Mean				3.38%	3.48%	5.84%	5.95%	6.83%	5.72%	6.12%	8.47%	9.60%	11.38%
Proxy Group Median				3.24%	3.34%	6.50%	6.20%	7.00%	5.46%	6.30%	8.26%	9.64%	11.13%
Flotation Costs											0.03%	0.03%	0.03%
Proxy Group Mean including Flotation Costs											8.50%	9.64%	11.41%
Proxy Group Median including Flotation Costs											8.29%	9.67%	11.16%

Notes:

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals indicated number of trading day average as of February 12, 2016
- [3] Equals [1] / [2]
- [4] Equals [3] x (1 + 0.5 x [9])
- [5] Source: Zacks
- [6] Source: Yahoo! Finance
- [7] Source: Value Line
- [8] Source: Exhibit No. (RBH-2), Value Line
- [9] Equals Average([5], [6], [7], [8])
- [10] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7], [8])) + Minimum([5], [6], [7], [8])
- [11] Equals [4] + [9]
- [12] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7], [8])) + Maximum([5], [6], [7], [8])

Constant Growth Discounted Cash Flow Model  
180 Day Average Stock Price

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Retention Growth Estimate	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	\$1.68	\$58.64	2.86%	2.97%	6.60%	6.40%	7.00%	8.21%	7.05%	9.36%	10.02%	11.19%
Laclede Group, Inc. (The)	LG	\$1.96	\$55.96	3.50%	3.61%	4.80%	4.78%	10.00%	4.90%	6.12%	8.37%	9.73%	13.68%
New Jersey Resources Corporation	NJR	\$0.96	\$30.17	3.18%	3.27%	6.50%	6.50%	4.00%	5.81%	5.70%	7.25%	8.98%	9.79%
Northwest Natural Gas Company	NWN	\$1.87	\$46.50	4.02%	4.12%	4.00%	4.00%	7.00%	3.73%	4.68%	7.83%	8.80%	11.16%
South Jersey Industries, Inc.	SJI	\$1.06	\$24.55	4.30%	4.44%	NA	6.00%	7.50%	6.56%	6.69%	10.43%	11.13%	11.96%
WGL Holdings, Inc.	WGL	\$1.95	\$58.67	3.32%	3.43%	7.30%	8.00%	5.50%	5.11%	6.48%	8.51%	9.91%	11.46%
Proxy Group Mean				3.53%	3.64%	5.84%	5.95%	6.83%	5.72%	6.12%	8.62%	9.76%	11.54%
Proxy Group Median				3.41%	3.52%	6.50%	6.20%	7.00%	5.46%	6.30%	8.44%	9.82%	11.32%
Flotation Costs											0.03%	0.03%	0.03%
Proxy Group Mean including Flotation Costs											8.66%	9.79%	11.57%
Proxy Group Median including Flotation Costs											8.47%	9.85%	11.36%

Notes:

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals indicated number of trading day average as of February 12, 2016
- [3] Equals [1] / [2]
- [4] Equals  $[3] \times (1 + 0.5 \times [9])$
- [5] Source: Zacks
- [6] Source: Yahoo! Finance
- [7] Source: Value Line
- [8] Source: Exhibit No. (RBH-2), Value Line
- [9] Equals Average([5], [6], [7], [8])
- [10] Equals  $[3] \times (1 + 0.5 \times \text{Minimum}([5], [6], [7], [8])) + \text{Minimum}([5], [6], [7], [8])$
- [11] Equals [4] + [9]
- [12] Equals  $[3] \times (1 + 0.5 \times \text{Maximum}([5], [6], [7], [8])) + \text{Maximum}([5], [6], [7], [8])$

Retention Growth Estimate

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	
Company	Tracker	Projected Earnings per share 2018-20	Projected Dividend per share 2018-20	Retention Ratio (6)	Projected Book Value per Share 2018-20	Return on Book Value (R)	B x R	Projected Common Shares Outstanding 2018	Projected Common Shares Outstanding 2018-20	Common Shares Growth Rate	2015 High Price	2015 Low Price	2015 price midpoint	Projected Book Value per Share 2015	Market/Book Ratio	*S*	"V"	S x V	BR + SV
Ames Energy Corporation	ATO	3.80	1.95	48.68%	36.65	10.37%	5.05%	107.00	120.00	3.86%	\$ 63.80	\$ 50.80	\$ 57.30	31.50	1.82	7.01%	45.03%	3.16%	8.21%
Laclede Group, Inc. (The)	LG	4.20	2.20	47.62%	48.10	8.73%	4.16%	43.00	45.00	1.51%	\$ 59.40	\$ 49.10	\$ 54.25	36.34	1.49	2.26%	33.01%	0.74%	4.90%
New Jersey Resources Corporation	NJR	1.95	1.00	48.72%	16.35	11.93%	5.81%	85.00	85.00	0.00%	\$ 33.70	\$ 26.80	\$ 30.25	12.99	2.33	0.00%	57.06%	0.00%	5.81%
Northwest Natural Gas Company	NWN	3.30	2.10	36.36%	33.85	9.75%	3.55%	27.75	28.00	0.30%	\$ 52.30	\$ 42.00	\$ 47.15	28.85	1.63	0.48%	38.81%	0.19%	3.73%
South Jersey Industries, Inc.	SJI	2.30	1.35	41.30%	18.40	12.50%	5.16%	72.00	76.00	1.80%	\$ 30.40	\$ 22.90	\$ 26.65	15.00	1.78	3.20%	43.71%	1.40%	6.56%
WGL Holdings, Inc.	WGL	3.55	1.99	43.94%	30.55	11.62%	5.11%	50.00	50.00	0.00%	\$ 63.20	\$ 50.90	\$ 57.05	24.97	2.28	0.00%	56.23%	0.00%	5.11%
																	Average:		5.72%

Notes:

- [1] Source: Value Line
- [2] Source: Value Line
- [3] Equals 1 - [2] / [1]
- [4] Source: Value Line
- [5] Equals [1] / [4]
- [6] Equals [3] x [5]
- [7] Source: Value Line
- [8] Source: Value Line
- [9] Equals ([8] / [7]) \* 0.33 - 1
- [10] Source: Value Line
- [11] Source: Value Line
- [12] Equals Average ([10], [11])
- [13] Source: Value Line
- [14] Equals [12] / [13]
- [15] Equals [9] x [14]
- [16] Equals 1 - (1 / [14])
- [17] Equals [15] x [16]
- [18] Equals [6] + [17]

Multi-Stage Growth Discounted Cash Flow Model  
30 Day Average Stock Price  
Average EPS Growth Rate Estimate in First Stage

Inputs	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]				
	Stock	EPS Growth Rate Estimates					Long-Term	Payout Ratio			Relative Solution		Terminal	Terminal				
Company	Ticker	Price	Zacks	First Call	Value Line	Retention	Average	Growth	2016	2019	2026	Proof	IRR	P/E Ratio	PEG Ratio			
Atmos Energy Corporation	ATO	\$65.65	6.60%	6.40%	7.00%	8.21%	7.05%	5.31%	51.00%	51.00%	67.67%	(\$0.00)	9.15%	18.56	3.49			
Laclede Group, Inc. (The)	LG	\$61.14	4.80%	4.78%	10.00%	4.90%	6.12%	5.31%	56.00%	52.00%	67.67%	(\$0.00)	8.41%	23.03	4.34			
New Jersey Resources Corporation	NJR	\$34.36	6.50%	6.50%	4.00%	5.81%	5.70%	5.31%	58.00%	51.00%	67.67%	(\$0.00)	10.03%	15.10	2.84			
Northwest Natural Gas Company	NWN	\$51.25	4.00%	4.00%	7.00%	3.73%	4.68%	5.31%	87.00%	64.00%	67.67%	(\$0.00)	8.52%	22.25	4.19			
South Jersey Industries, Inc.	SJI	\$24.21	NA	6.00%	7.50%	6.56%	6.69%	5.31%	69.00%	59.00%	67.67%	(\$0.00)	10.88%	12.81	2.41			
WGL Holdings, Inc.	WGL	\$64.08	7.30%	8.00%	5.50%	5.11%	6.48%	5.31%	60.00%	56.00%	67.67%	(\$0.00)	8.80%	20.43	3.84			
												Mean	9.30%					
												Max	10.88%					
												Min	8.41%					
															Including Flotation Costs			
															Mean	9.33%		
															Max	10.91%		
															Min	8.44%		
Projected Annual Earnings per Share		[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
Company	Ticker	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Atmos Energy Corporation	ATO	\$2.96	\$3.17	\$3.39	\$3.63	\$3.89	\$4.16	\$4.46	\$4.76	\$5.06	\$5.38	\$5.69	\$6.01	\$6.33	\$6.67	\$7.02	\$7.40	\$7.79
Laclede Group, Inc. (The)	LG	\$2.35	\$2.49	\$2.65	\$2.81	\$2.98	\$3.16	\$3.36	\$3.56	\$3.77	\$3.98	\$4.20	\$4.43	\$4.67	\$4.92	\$5.18	\$5.45	\$5.74
New Jersey Resources Corporation	NJR	\$2.10	\$2.22	\$2.35	\$2.48	\$2.62	\$2.77	\$2.93	\$3.09	\$3.27	\$3.45	\$3.63	\$3.83	\$4.03	\$4.25	\$4.47	\$4.71	\$4.96
Northwest Natural Gas Company	NWN	\$2.16	\$2.26	\$2.37	\$2.48	\$2.59	\$2.72	\$2.84	\$2.98	\$3.12	\$3.28	\$3.45	\$3.63	\$3.82	\$4.02	\$4.24	\$4.46	\$4.70
South Jersey Industries, Inc.	SJI	\$1.57	\$1.67	\$1.79	\$1.91	\$2.03	\$2.17	\$2.32	\$2.46	\$2.62	\$2.78	\$2.94	\$3.10	\$3.26	\$3.44	\$3.62	\$3.81	\$4.01
WGL Holdings, Inc.	WGL	\$2.68	\$2.85	\$3.04	\$3.24	\$3.44	\$3.67	\$3.91	\$4.15	\$4.40	\$4.66	\$4.93	\$5.20	\$5.48	\$5.77	\$6.07	\$6.40	\$6.74
Projected Annual Dividend Payout Ratio		[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	[46]	[47]	
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Atmos Energy Corporation	ATO	51.00%	51.00%	51.00%	51.00%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	
Laclede Group, Inc. (The)	LG	56.00%	54.67%	53.33%	53.33%	52.00%	54.24%	56.48%	58.72%	60.95%	63.19%	65.43%	67.67%	67.67%	67.67%	67.67%	67.67%	
New Jersey Resources Corporation	NJR	58.00%	55.67%	53.33%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
Northwest Natural Gas Company	NWN	87.00%	79.33%	71.67%	64.00%	64.52%	65.05%	65.57%	66.10%	66.62%	67.15%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
South Jersey Industries, Inc.	SJI	69.00%	65.67%	62.33%	59.00%	60.24%	61.48%	62.72%	63.95%	65.19%	66.43%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
WGL Holdings, Inc.	WGL	60.00%	58.67%	57.33%	56.00%	57.67%	59.33%	61.00%	62.67%	64.34%	66.00%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
Projected Annual Cash Flows		[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	[62]	[63]	[64]
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Terminal Value
Atmos Energy Corporation	ATO	\$1.73	\$1.85	\$1.98	\$2.12	\$2.38	\$2.65	\$2.94	\$3.25	\$3.58	\$3.93	\$4.29	\$4.51	\$4.75	\$5.01	\$5.27	\$5.48	\$144.60
Laclede Group, Inc. (The)	LG	\$1.48	\$1.54	\$1.59	\$1.64	\$1.82	\$2.01	\$2.21	\$2.43	\$2.66	\$2.90	\$3.16	\$3.33	\$3.50	\$3.69	\$3.89	\$3.98	\$132.23
New Jersey Resources Corporation	NJR	\$1.36	\$1.38	\$1.40	\$1.41	\$1.56	\$1.73	\$1.90	\$2.09	\$2.29	\$2.50	\$2.73	\$2.87	\$3.03	\$3.19	\$3.36	\$3.46	\$74.90
Northwest Natural Gas Company	NWN	\$2.06	\$1.97	\$1.86	\$1.74	\$1.83	\$1.94	\$2.05	\$2.17	\$2.30	\$2.44	\$2.59	\$2.72	\$2.87	\$3.02	\$3.18	\$3.38	\$104.54
South Jersey Industries, Inc.	SJI	\$1.23	\$1.25	\$1.27	\$1.28	\$1.39	\$1.52	\$1.64	\$1.77	\$1.91	\$2.06	\$2.21	\$2.33	\$2.45	\$2.58	\$2.72	\$2.86	\$51.40
WGL Holdings, Inc.	WGL	\$1.82	\$1.90	\$1.97	\$2.05	\$2.25	\$2.46	\$2.69	\$2.92	\$3.17	\$3.43	\$3.71	\$3.90	\$4.11	\$4.33	\$4.56	\$4.80	\$137.60
Projected Annual Data Investor Cash Flows		[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]	[79]	[80]	[81]
Company	Ticker	Initial	2/12/16	12/31/16	6/30/17	6/30/18	6/30/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30
Atmos Energy Corporation	ATO	(\$65.65)	\$0.00	\$1.79	\$1.85	\$1.98	\$2.12	\$2.38	\$2.65	\$2.94	\$3.25	\$3.58	\$3.93	\$4.29	\$4.51	\$4.75	\$5.01	\$148.87
Laclede Group, Inc. (The)	LG	(\$61.14)	\$0.00	\$1.53	\$1.54	\$1.59	\$1.64	\$1.82	\$2.01	\$2.21	\$2.43	\$2.66	\$2.90	\$3.16	\$3.33	\$3.50	\$3.69	\$136.12
New Jersey Resources Corporation	NJR	(\$34.36)	\$0.00	\$1.40	\$1.38	\$1.40	\$1.41	\$1.56	\$1.73	\$1.90	\$2.09	\$2.29	\$2.50	\$2.73	\$2.87	\$3.03	\$3.19	\$78.25
Northwest Natural Gas Company	NWN	(\$51.25)	\$0.00	\$2.11	\$1.97	\$1.86	\$1.74	\$1.83	\$1.94	\$2.05	\$2.17	\$2.30	\$2.44	\$2.59	\$2.72	\$2.87	\$3.02	\$107.72
South Jersey Industries, Inc.	SJI	(\$24.21)	\$0.00	\$1.27	\$1.25	\$1.27	\$1.28	\$1.39	\$1.52	\$1.64	\$1.77	\$1.91	\$2.06	\$2.21	\$2.33	\$2.45	\$2.58	\$54.11
WGL Holdings, Inc.	WGL	(\$64.08)	\$0.00	\$1.88	\$1.90	\$1.97	\$2.05	\$2.25	\$2.46	\$2.69	\$2.92	\$3.17	\$3.43	\$3.71	\$3.90	\$4.11	\$4.33	\$142.16



Multi-Stage Growth Discounted Cash Flow Model  
30 Day Average Stock Price  
Low EPS Growth Rate Estimate in First Stage

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]			
Stock		EPS Growth Rate Estimates					Long-Term	Payout Ratio			Iterative Solution	Terminal	Terminal					
Company	Ticker	Price	Zacks	First Call	Value Line	Retention Growth	Low Growth	Growth	2016	2019	2026	Proof	IRR	PE Ratio	PEG Ratio			
Atmos Energy Corporation	ATO	\$65.65	6.60%	6.40%	7.00%	8.21%	6.40%	5.31%	51.00%	51.00%	67.67%	(\$0.00)	8.98%	19.45	3.66			
Laclede Group, Inc. (The)	LG	\$61.14	4.80%	4.78%	10.00%	4.90%	4.78%	5.31%	56.00%	52.00%	67.67%	(\$0.00)	8.11%	25.44	4.79			
New Jersey Resources Corporation	NJR	\$34.36	6.50%	6.50%	4.00%	5.81%	4.00%	5.31%	58.00%	51.00%	67.67%	(\$0.00)	9.49%	17.06	3.21			
Northwest Natural Gas Company	NWN	\$51.25	4.00%	4.00%	7.00%	3.73%	3.73%	5.31%	87.00%	84.00%	67.67%	(\$0.00)	8.29%	23.93	4.50			
South Jersey Industries, Inc.	SJI	\$24.21	NA	6.00%	7.50%	6.56%	6.00%	5.31%	69.00%	59.00%	67.67%	(\$0.00)	10.62%	13.44	2.53			
WGL Holdings, Inc.	WGL	\$64.08	7.30%	8.00%	5.50%	5.11%	5.11%	5.31%	60.00%	56.00%	67.67%	(\$0.00)	8.47%	22.59	4.25			
												Including Flotation Costs						
												Mean	8.99%	Mean	9.03%			
												Max	10.62%	Max	10.65%			
												Min	8.11%	Min	8.15%			
Projected Annual Earnings per Share		[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
Company	Ticker	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Atmos Energy Corporation	ATO	\$2.96	\$3.15	\$3.35	\$3.57	\$3.79	\$4.04	\$4.29	\$4.56	\$4.84	\$5.12	\$5.41	\$5.71	\$6.01	\$6.33	\$6.67	\$7.02	\$7.39
Laclede Group, Inc. (The)	LG	\$2.35	\$2.46	\$2.58	\$2.70	\$2.83	\$2.97	\$3.11	\$3.26	\$3.42	\$3.60	\$3.78	\$3.98	\$4.19	\$4.41	\$4.65	\$4.89	\$5.15
New Jersey Resources Corporation	NJR	\$2.10	\$2.18	\$2.27	\$2.36	\$2.46	\$2.55	\$2.66	\$2.77	\$2.89	\$3.03	\$3.17	\$3.34	\$3.51	\$3.70	\$3.90	\$4.10	\$4.32
Northwest Natural Gas Company	NWN	\$2.16	\$2.24	\$2.32	\$2.41	\$2.50	\$2.59	\$2.69	\$2.80	\$2.92	\$3.05	\$3.20	\$3.36	\$3.54	\$3.72	\$3.92	\$4.13	\$4.35
South Jersey Industries, Inc.	SJI	\$1.57	\$1.66	\$1.76	\$1.87	\$1.98	\$2.10	\$2.23	\$2.36	\$2.49	\$2.64	\$2.78	\$2.93	\$3.09	\$3.25	\$3.42	\$3.61	\$3.80
WGL Holdings, Inc.	WGL	\$2.68	\$2.82	\$2.96	\$3.11	\$3.27	\$3.44	\$3.61	\$3.80	\$4.00	\$4.20	\$4.42	\$4.66	\$4.91	\$5.17	\$5.44	\$5.73	\$6.03
Projected Annual Dividend Payout Ratio		[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	[46]	[47]	
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Atmos Energy Corporation	ATO	51.00%	51.00%	51.00%	51.00%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	
Laclede Group, Inc. (The)	LG	56.00%	54.67%	53.33%	52.00%	54.24%	56.48%	58.72%	60.95%	63.19%	65.43%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
New Jersey Resources Corporation	NJR	58.00%	55.87%	53.33%	51.00%	53.38%	55.70%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
Northwest Natural Gas Company	NWN	87.00%	79.33%	71.67%	64.00%	64.52%	65.05%	65.57%	66.10%	66.62%	67.15%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
South Jersey Industries, Inc.	SJI	69.00%	65.67%	62.33%	59.00%	60.24%	61.48%	62.72%	63.95%	65.19%	66.43%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
WGL Holdings, Inc.	WGL	60.00%	58.67%	57.33%	56.00%	57.67%	59.33%	61.00%	62.67%	64.34%	66.00%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
Projected Annual Cash Flows		[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	[62]	[63]	[64]
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Terminal Value
Atmos Energy Corporation	ATO	\$1.71	\$1.82	\$1.93	\$2.06	\$2.29	\$2.54	\$2.81	\$3.10	\$3.40	\$3.73	\$4.07	\$4.28	\$4.51	\$4.75	\$5.00	\$143.81	
Laclede Group, Inc. (The)	LG	\$1.44	\$1.48	\$1.51	\$1.54	\$1.69	\$1.84	\$2.01	\$2.19	\$2.39	\$2.60	\$2.83	\$2.99	\$3.14	\$3.31	\$3.49	\$131.08	
New Jersey Resources Corporation	NJR	\$1.32	\$1.31	\$1.31	\$1.30	\$1.42	\$1.54	\$1.68	\$1.83	\$2.00	\$2.18	\$2.38	\$2.50	\$2.64	\$2.78	\$2.92	\$73.73	
Northwest Natural Gas Company	NWN	\$2.02	\$1.91	\$1.79	\$1.66	\$1.74	\$1.82	\$1.91	\$2.02	\$2.13	\$2.25	\$2.39	\$2.52	\$2.65	\$2.79	\$2.94	\$104.06	
South Jersey Industries, Inc.	SJI	\$1.22	\$1.23	\$1.24	\$1.24	\$1.34	\$1.45	\$1.56	\$1.69	\$1.81	\$1.95	\$2.09	\$2.20	\$2.32	\$2.44	\$2.57	\$51.05	
WGL Holdings, Inc.	WGL	\$1.78	\$1.83	\$1.88	\$1.93	\$2.08	\$2.25	\$2.44	\$2.63	\$2.85	\$3.07	\$3.32	\$3.50	\$3.68	\$3.88	\$4.08	\$136.32	
Projected Annual Data Investor Cash Flows		[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]	[79]	[80]	[81]
Company	Ticker	Initial Outflow	2/12/16	12/31/16	6/30/17	6/30/18	6/30/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30
Atmos Energy Corporation	ATO	(\$65.65)	\$0.00	\$1.76	\$1.82	\$1.93	\$2.06	\$2.29	\$2.54	\$2.81	\$3.10	\$3.40	\$3.73	\$4.07	\$4.28	\$4.51	\$4.75	\$148.81
Laclede Group, Inc. (The)	LG	(\$61.14)	\$0.00	\$1.48	\$1.48	\$1.51	\$1.54	\$1.69	\$1.84	\$2.01	\$2.19	\$2.39	\$2.60	\$2.83	\$2.99	\$3.14	\$3.31	\$134.57
New Jersey Resources Corporation	NJR	(\$34.36)	\$0.00	\$1.34	\$1.31	\$1.31	\$1.30	\$1.42	\$1.54	\$1.68	\$1.83	\$2.00	\$2.18	\$2.38	\$2.50	\$2.64	\$2.78	\$76.66
Northwest Natural Gas Company	NWN	(\$51.25)	\$0.00	\$2.06	\$1.91	\$1.79	\$1.66	\$1.74	\$1.82	\$1.91	\$2.02	\$2.13	\$2.25	\$2.39	\$2.52	\$2.65	\$2.79	\$107.00
South Jersey Industries, Inc.	SJI	(\$24.21)	\$0.00	\$1.25	\$1.23	\$1.24	\$1.24	\$1.34	\$1.45	\$1.56	\$1.69	\$1.81	\$1.95	\$2.09	\$2.20	\$2.32	\$2.44	\$53.62
WGL Holdings, Inc.	WGL	(\$64.08)	\$0.00	\$1.82	\$1.83	\$1.88	\$1.93	\$2.08	\$2.25	\$2.44	\$2.63	\$2.85	\$3.07	\$3.32	\$3.50	\$3.68	\$3.88	\$140.40

Multi-Stage Growth Discounted Cash Flow Model  
30 Day Average Stock Price  
High EPS Growth Rate Estimate in First Stage

Inputs	[1] Stock	[2]	[3] [4] [5] [6] EPS Growth Rate Estimates				[7] Long-Term Growth	[8]	[9] [10] [11] Payout Ratio			[12] Iterative Solution	[13] Terminal	[14] Terminal				
			Price	Zacks	First Call	Value			Retention	High	2016				2019	2026	Proof	IRR
Company	Ticker	Price	Zacks	First Call	Value	Retention	High	Growth	2016	2019	2026	Proof	IRR	P/E Ratio	PEG Ratio			
Atmos Energy Corporation	ATO	\$65.65	6.60%	6.40%	7.00%	8.21%	8.21%	5.31%	51.00%	51.00%	67.67%	(60.00)	9.48%	17.12	3.22			
Laclede Group, Inc. (The)	LG	\$61.14	4.80%	4.78%	10.00%	4.90%	10.00%	5.31%	56.00%	52.00%	67.67%	(60.00)	9.39%	17.50	3.29			
New Jersey Resources Corporation	NJR	\$34.36	6.50%	6.50%	4.00%	5.81%	6.50%	5.31%	58.00%	51.00%	67.67%	(60.00)	10.30%	14.28	2.69			
Northwest Natural Gas Company	NWN	\$51.25	4.00%	4.00%	7.00%	3.73%	7.00%	5.31%	87.00%	64.00%	67.67%	(60.00)	9.12%	18.72	3.52			
South Jersey Industries, Inc.	SJI	\$24.21	NA	6.00%	7.50%	6.56%	7.50%	5.31%	69.00%	59.00%	67.67%	(60.00)	11.20%	12.11	2.28			
WGL Holdings, Inc.	WGL	\$64.08	7.30%	8.00%	5.50%	5.11%	8.00%	5.31%	60.00%	56.00%	67.67%	(60.00)	9.20%	18.31	3.45			
																Including Flotation Costs		
																Mean 9.82%		
																Max 11.23%		
																Min 9.15%		
Projected Annual Earnings per Share		[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
Company	Ticker	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Atmos Energy Corporation	ATO	\$2.96	\$3.20	\$3.47	\$3.75	\$4.06	\$4.39	\$4.75	\$5.12	\$5.49	\$5.86	\$6.23	\$6.59	\$6.94	\$7.31	\$7.70	\$8.10	\$8.54
Laclede Group, Inc. (The)	LG	\$2.35	\$2.59	\$2.84	\$3.13	\$3.44	\$3.78	\$4.16	\$4.55	\$4.93	\$5.31	\$5.67	\$6.02	\$6.34	\$6.68	\$7.03	\$7.40	\$7.80
New Jersey Resources Corporation	NJR	\$2.10	\$2.24	\$2.38	\$2.54	\$2.70	\$2.88	\$3.06	\$3.26	\$3.46	\$3.66	\$3.87	\$4.08	\$4.30	\$4.53	\$4.77	\$5.02	\$5.29
Northwest Natural Gas Company	NWN	\$2.16	\$2.31	\$2.47	\$2.65	\$2.83	\$3.03	\$3.24	\$3.46	\$3.68	\$3.91	\$4.14	\$4.37	\$4.60	\$4.85	\$5.10	\$5.38	\$5.66
South Jersey Industries, Inc.	SJI	\$1.57	\$1.69	\$1.81	\$1.95	\$2.10	\$2.25	\$2.42	\$2.60	\$2.77	\$2.95	\$3.13	\$3.30	\$3.48	\$3.67	\$3.86	\$4.07	\$4.28
WGL Holdings, Inc.	WGL	\$2.68	\$2.89	\$3.13	\$3.38	\$3.65	\$3.94	\$4.25	\$4.57	\$4.90	\$5.23	\$5.55	\$5.87	\$6.18	\$6.51	\$6.86	\$7.22	\$7.60
Projected Annual Dividend Payout Ratio		[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	[46]	[47]	
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Atmos Energy Corporation	ATO		51.00%	51.00%	51.00%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	
Laclede Group, Inc. (The)	LG		56.00%	54.67%	53.33%	52.00%	54.24%	56.48%	58.72%	60.95%	63.19%	65.43%	67.67%	67.67%	67.67%	67.67%	67.67%	
New Jersey Resources Corporation	NJR		58.00%	55.67%	53.33%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	
Northwest Natural Gas Company	NWN		87.00%	79.33%	71.67%	64.00%	64.52%	65.05%	65.57%	66.10%	66.62%	67.15%	67.67%	67.67%	67.67%	67.67%	67.67%	
South Jersey Industries, Inc.	SJI		69.00%	65.67%	62.33%	59.00%	60.24%	61.48%	62.72%	63.95%	65.19%	66.43%	67.67%	67.67%	67.67%	67.67%	67.67%	
WGL Holdings, Inc.	WGL		60.00%	58.67%	57.33%	56.00%	57.67%	59.33%	61.00%	62.67%	64.34%	66.00%	67.67%	67.67%	67.67%	67.67%	67.67%	
Projected Annual Cash Flows		[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	[62]	[63]	[64] Terminal
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Value
Atmos Energy Corporation	ATO	\$1.77	\$1.91	\$2.07	\$2.24	\$2.42	\$2.54	\$2.85	\$3.19	\$3.55	\$3.92	\$4.30	\$4.70	\$4.94	\$5.21	\$5.48	\$5.76	\$146.11
Laclede Group, Inc. (The)	LG	\$1.59	\$1.71	\$1.84	\$1.97	\$2.26	\$2.57	\$2.90	\$3.24	\$3.58	\$3.94	\$4.29	\$4.52	\$4.76	\$5.01	\$5.28	\$5.56	\$136.42
New Jersey Resources Corporation	NJR	\$1.38	\$1.41	\$1.44	\$1.47	\$1.64	\$1.82	\$2.01	\$2.22	\$2.43	\$2.67	\$2.91	\$3.06	\$3.23	\$3.40	\$3.58	\$3.75	\$75.50
Northwest Natural Gas Company	NWN	\$2.15	\$2.10	\$2.03	\$1.94	\$2.09	\$2.25	\$2.41	\$2.58	\$2.76	\$2.93	\$3.11	\$3.28	\$3.45	\$3.64	\$3.83	\$3.63	\$105.96
South Jersey Industries, Inc.	SJI	\$1.25	\$1.28	\$1.31	\$1.33	\$1.46	\$1.60	\$1.74	\$1.89	\$2.04	\$2.20	\$2.36	\$2.48	\$2.61	\$2.75	\$2.90	\$51.83	
WGL Holdings, Inc.	WGL	\$1.88	\$1.98	\$2.09	\$2.21	\$2.45	\$2.71	\$2.99	\$3.27	\$3.57	\$3.87	\$4.18	\$4.40	\$4.64	\$4.89	\$5.14	\$139.23	
Projected Annual Data Investor Cash Flows		[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]	[79]	[80]	[81]
Company	Ticker	Initial	2/12/16	12/31/16	6/30/17	6/30/18	6/30/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30
Atmos Energy Corporation	ATO	(\$65.65)	\$0.00	\$1.84	\$1.91	\$2.07	\$2.24	\$2.54	\$2.85	\$3.19	\$3.55	\$3.92	\$4.30	\$4.70	\$4.94	\$5.21	\$5.48	\$151.89
Laclede Group, Inc. (The)	LG	(\$61.14)	\$0.00	\$1.67	\$1.71	\$1.84	\$1.97	\$2.26	\$2.57	\$2.90	\$3.24	\$3.58	\$3.94	\$4.29	\$4.52	\$4.76	\$5.01	\$141.69
New Jersey Resources Corporation	NJR	(\$34.36)	\$0.00	\$1.43	\$1.41	\$1.44	\$1.47	\$1.64	\$1.82	\$2.01	\$2.22	\$2.43	\$2.67	\$2.91	\$3.06	\$3.23	\$3.40	\$79.08
Northwest Natural Gas Company	NWN	(\$51.25)	\$0.00	\$2.23	\$2.10	\$2.03	\$1.94	\$2.09	\$2.25	\$2.41	\$2.58	\$2.76	\$2.93	\$3.11	\$3.28	\$3.45	\$3.64	\$109.79
South Jersey Industries, Inc.	SJI	(\$24.21)	\$0.00	\$1.30	\$1.28	\$1.31	\$1.33	\$1.46	\$1.60	\$1.74	\$1.89	\$2.04	\$2.20	\$2.36	\$2.48	\$2.61	\$2.75	\$54.73
WGL Holdings, Inc.	WGL	(\$64.08)	\$0.00	\$1.95	\$1.98	\$2.09	\$2.21	\$2.45	\$2.71	\$2.99	\$3.27	\$3.57	\$3.87	\$4.18	\$4.40	\$4.64	\$4.89	\$144.37

Multi-Stage Growth Discounted Cash Flow Model  
90 Day Average Stock Price  
Average EPS Growth Rate Estimate in First Stage

Inputs	[1] Stock	[2] Price	[3] [4] [5] [6] EPS Growth Rate Estimates				[7] Average	[8] Growth	[9] [10] [11] Payout Ratio			[12] IRR	[13] P/E Ratio	[14] Terminal	[15] Terminal			
			Zacks	First Call	Value Line	Retention			2016	2019	2026					Proof		
Company	Ticker																	
Atmos Energy Corporation	ATO	\$62.93	6.80%	6.40%	7.00%	8.21%	7.05%	5.31%	51.00%	51.00%	67.67%	(60.00)	9.31%	17.82	3.35			
Laclede Group, Inc. (The)	LG	\$58.86	4.80%	4.78%	10.00%	4.90%	6.12%	5.31%	56.00%	52.00%	67.67%	(60.00)	8.52%	22.19	4.18			
New Jersey Resources Corporation	NJR	\$31.87	6.50%	6.50%	4.00%	5.81%	5.70%	5.31%	58.00%	51.00%	67.67%	(60.00)	10.39%	14.03	2.64			
Northwest Natural Gas Company	NWN	\$49.19	4.00%	4.00%	7.00%	3.73%	4.68%	5.31%	87.00%	64.00%	67.67%	(60.00)	8.66%	21.32	4.01			
South Jersey Industries, Inc.	SJI	\$24.38	NA	6.00%	7.50%	6.56%	6.69%	5.31%	69.00%	59.00%	67.67%	(60.00)	10.84%	12.90	2.43			
WGL Holdings, Inc.	WGL	\$62.07	7.30%	8.00%	5.50%	5.11%	6.48%	5.31%	60.00%	56.00%	67.67%	(60.00)	8.91%	19.80	3.73			
																	Including Flotation Costs	
																	Mean 9.47%	
																	Max 10.87%	
																	Min 8.56%	
Projected Annual Earnings per Share		[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
Company	Ticker	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Atmos Energy Corporation	ATO	\$2.96	\$3.17	\$3.39	\$3.63	\$3.89	\$4.16	\$4.46	\$4.76	\$5.06	\$5.38	\$5.69	\$6.01	\$6.33	\$6.67	\$7.02	\$7.40	\$7.79
Laclede Group, Inc. (The)	LG	\$2.35	\$2.49	\$2.65	\$2.81	\$2.98	\$3.16	\$3.36	\$3.56	\$3.77	\$3.98	\$4.20	\$4.43	\$4.67	\$4.92	\$5.18	\$5.45	\$5.74
New Jersey Resources Corporation	NJR	\$2.10	\$2.22	\$2.35	\$2.48	\$2.62	\$2.77	\$2.93	\$3.09	\$3.27	\$3.45	\$3.63	\$3.83	\$4.03	\$4.25	\$4.47	\$4.71	\$4.96
Northwest Natural Gas Company	NWN	\$2.16	\$2.26	\$2.37	\$2.48	\$2.59	\$2.72	\$2.84	\$2.98	\$3.12	\$3.28	\$3.45	\$3.63	\$3.82	\$4.02	\$4.24	\$4.46	\$4.70
South Jersey Industries, Inc.	SJI	\$1.57	\$1.67	\$1.79	\$1.91	\$2.03	\$2.17	\$2.32	\$2.46	\$2.62	\$2.78	\$2.94	\$3.10	\$3.26	\$3.44	\$3.62	\$3.81	\$4.01
WGL Holdings, Inc.	WGL	\$2.68	\$2.85	\$3.04	\$3.24	\$3.44	\$3.67	\$3.91	\$4.15	\$4.40	\$4.66	\$4.93	\$5.20	\$5.48	\$5.77	\$6.07	\$6.40	\$6.74
Projected Annual Dividend Payout Ratio		[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	[46]	[47]	
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Atmos Energy Corporation	ATO		51.00%	51.00%	51.00%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	
Laclede Group, Inc. (The)	LG		56.00%	54.67%	53.33%	52.00%	54.24%	56.48%	58.72%	60.95%	63.19%	65.43%	67.67%	67.67%	67.67%	67.67%	67.67%	
New Jersey Resources Corporation	NJR		58.00%	55.67%	53.33%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	
Northwest Natural Gas Company	NWN		87.00%	79.33%	71.67%	64.00%	64.52%	65.05%	65.57%	66.10%	66.62%	67.15%	67.67%	67.67%	67.67%	67.67%	67.67%	
South Jersey Industries, Inc.	SJI		69.00%	65.67%	62.33%	59.00%	60.24%	61.48%	62.72%	63.95%	65.19%	66.43%	67.67%	67.67%	67.67%	67.67%	67.67%	
WGL Holdings, Inc.	WGL		60.00%	58.67%	57.33%	56.00%	57.67%	59.33%	61.00%	62.67%	64.34%	66.00%	67.67%	67.67%	67.67%	67.67%	67.67%	
Projected Annual Cash Flows		[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	[62]	[63]	[64] Terminal
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Value
Atmos Energy Corporation	ATO	\$1.73	\$1.85	\$1.98	\$2.12	\$2.28	\$2.46	\$2.65	\$2.84	\$3.05	\$3.28	\$3.53	\$3.80	\$4.09	\$4.41	\$4.75	\$5.11	\$138.83
Laclede Group, Inc. (The)	LG	\$1.48	\$1.54	\$1.59	\$1.64	\$1.69	\$1.74	\$1.79	\$1.84	\$1.89	\$1.94	\$1.99	\$2.04	\$2.09	\$2.14	\$2.19	\$2.24	\$127.41
New Jersey Resources Corporation	NJR	\$1.36	\$1.38	\$1.40	\$1.41	\$1.42	\$1.43	\$1.44	\$1.45	\$1.46	\$1.47	\$1.48	\$1.49	\$1.50	\$1.51	\$1.52	\$1.53	\$69.61
Northwest Natural Gas Company	NWN	\$2.06	\$1.97	\$1.86	\$1.74	\$1.63	\$1.53	\$1.44	\$1.36	\$1.28	\$1.20	\$1.12	\$1.04	\$0.96	\$0.88	\$0.80	\$0.72	\$100.20
South Jersey Industries, Inc.	SJI	\$1.23	\$1.25	\$1.27	\$1.28	\$1.29	\$1.30	\$1.31	\$1.32	\$1.33	\$1.34	\$1.35	\$1.36	\$1.37	\$1.38	\$1.39	\$1.40	\$51.76
WGL Holdings, Inc.	WGL	\$1.82	\$1.90	\$1.97	\$2.05	\$2.13	\$2.21	\$2.29	\$2.37	\$2.45	\$2.53	\$2.61	\$2.69	\$2.77	\$2.85	\$2.93	\$3.01	\$133.35
Projected Annual Data Investor Cash Flows		[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]	[79]	[80]	[81]
Company	Ticker	Initial	2/12/16	12/31/16	6/30/17	6/30/18	6/30/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30
Atmos Energy Corporation	ATO	(\$62.93)	\$0.00	\$1.79	\$1.85	\$1.98	\$2.12	\$2.28	\$2.46	\$2.65	\$2.84	\$3.05	\$3.28	\$3.53	\$3.80	\$4.09	\$4.41	\$144.10
Laclede Group, Inc. (The)	LG	(\$58.86)	\$0.00	\$1.53	\$1.54	\$1.59	\$1.64	\$1.69	\$1.74	\$1.79	\$1.84	\$1.89	\$1.94	\$1.99	\$2.04	\$2.09	\$2.14	\$131.30
New Jersey Resources Corporation	NJR	(\$31.87)	\$0.00	\$1.40	\$1.38	\$1.40	\$1.41	\$1.42	\$1.43	\$1.44	\$1.45	\$1.46	\$1.47	\$1.48	\$1.49	\$1.50	\$1.51	\$72.96
Northwest Natural Gas Company	NWN	(\$49.19)	\$0.00	\$2.11	\$1.97	\$1.86	\$1.74	\$1.63	\$1.53	\$1.44	\$1.36	\$1.28	\$1.20	\$1.12	\$1.04	\$0.96	\$0.88	\$103.38
South Jersey Industries, Inc.	SJI	(\$24.38)	\$0.00	\$1.27	\$1.25	\$1.27	\$1.28	\$1.29	\$1.30	\$1.31	\$1.32	\$1.33	\$1.34	\$1.35	\$1.36	\$1.37	\$1.38	\$54.47
WGL Holdings, Inc.	WGL	(\$62.07)	\$0.00	\$1.88	\$1.90	\$1.97	\$2.05	\$2.13	\$2.21	\$2.29	\$2.37	\$2.45	\$2.53	\$2.61	\$2.69	\$2.77	\$2.85	\$137.91

Multi-Stage Growth Discounted Cash Flow Model  
90 Day Average Stock Price  
Low EPS Growth Rate Estimate in First Stage

Inputs	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]		
	Stock	EPS Growth Rate Estimates				Long-Term		Payout Ratio			Iterative Solution		Terminal	Terminal		
Company	Ticker	Price	Zacks	First Call	Value Line	Retention Growth	Low Growth	Growth	2016	2019	2026	Proof	IRR	P/E Ratio	PEG Ratio	
Almos Energy Corporation	ATO	\$62.93	6.60%	6.40%	7.00%	8.21%	6.40%	5.31%	51.00%	51.00%	67.67%	(0.00)	9.13%	18.67	3.51	
Laclede Group, Inc. (The)	LG	\$58.86	4.80%	4.78%	10.00%	4.90%	4.78%	5.31%	56.00%	52.00%	67.67%	(0.00)	8.22%	24.50	4.51	
New Jersey Resources Corporation	NJR	\$31.87	6.50%	6.50%	4.00%	5.81%	4.00%	5.31%	58.00%	51.00%	67.67%	(0.00)	9.81%	15.84	2.98	
Northwest Natural Gas Company	NWN	\$49.19	4.00%	4.00%	7.00%	3.73%	3.73%	5.31%	87.00%	64.00%	67.67%	(0.00)	8.42%	22.93	4.32	
South Jersey Industries, Inc.	SJI	\$24.38	NA	6.00%	7.50%	6.56%	6.00%	5.31%	69.00%	59.00%	67.67%	(0.00)	10.58%	13.53	2.55	
WGL Holdings, Inc.	WGL	\$62.07	7.30%	8.00%	5.50%	5.11%	5.11%	5.31%	60.00%	56.00%	67.67%	(0.00)	8.57%	21.89	4.12	
												Mean	9.12%			
												Max	10.58%			
												Min	8.22%			
															Including Flotation Costs	
															Mean	9.16%
															Max	10.61%
															Min	8.26%

Projected Annual Earnings per Share	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]	
Company	Ticker	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Almos Energy Corporation	ATO	\$2.96	\$3.15	\$3.35	\$3.57	\$3.79	\$4.04	\$4.29	\$4.56	\$4.84	\$5.12	\$5.41	\$5.71	\$6.01	\$6.33	\$6.67	\$7.02	\$7.39
Laclede Group, Inc. (The)	LG	\$2.35	\$2.46	\$2.58	\$2.70	\$2.83	\$2.97	\$3.11	\$3.26	\$3.42	\$3.60	\$3.78	\$3.98	\$4.19	\$4.41	\$4.65	\$4.89	\$5.15
New Jersey Resources Corporation	NJR	\$2.10	\$2.18	\$2.27	\$2.36	\$2.46	\$2.55	\$2.66	\$2.77	\$2.89	\$3.03	\$3.17	\$3.34	\$3.51	\$3.70	\$3.90	\$4.10	\$4.32
Northwest Natural Gas Company	NWN	\$2.16	\$2.24	\$2.32	\$2.41	\$2.50	\$2.59	\$2.69	\$2.80	\$2.92	\$3.05	\$3.20	\$3.36	\$3.54	\$3.72	\$3.92	\$4.13	\$4.35
South Jersey Industries, Inc.	SJI	\$1.57	\$1.66	\$1.76	\$1.87	\$1.98	\$2.10	\$2.23	\$2.36	\$2.49	\$2.64	\$2.78	\$2.93	\$3.09	\$3.25	\$3.42	\$3.61	\$3.80
WGL Holdings, Inc.	WGL	\$2.68	\$2.82	\$2.96	\$3.11	\$3.27	\$3.44	\$3.61	\$3.80	\$4.00	\$4.20	\$4.42	\$4.66	\$4.91	\$5.17	\$5.44	\$5.73	\$6.03

Projected Annual Dividend Payout Ratio	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	[46]	[47]	
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Almos Energy Corporation	ATO	51.00%	51.00%	51.00%	51.00%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%
Laclede Group, Inc. (The)	LG	56.00%	54.67%	53.33%	52.00%	54.24%	56.48%	58.72%	60.95%	63.19%	65.43%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%
New Jersey Resources Corporation	NJR	58.00%	55.67%	53.33%	51.00%	53.38%	55.78%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%
Northwest Natural Gas Company	NWN	87.00%	79.33%	71.67%	64.00%	64.52%	65.05%	65.57%	66.10%	66.62%	67.15%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%
South Jersey Industries, Inc.	SJI	69.00%	65.67%	62.33%	59.00%	60.24%	61.48%	62.72%	63.95%	65.19%	66.43%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%
WGL Holdings, Inc.	WGL	60.00%	58.67%	57.33%	56.00%	57.67%	59.33%	61.00%	62.67%	64.34%	66.00%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%

Projected Annual Cash Flows	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	[62]	[63]	[64]	
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Terminal Value
Almos Energy Corporation	ATO	\$1.71	\$1.82	\$1.93	\$2.06	\$2.29	\$2.54	\$2.81	\$3.10	\$3.40	\$3.73	\$4.07	\$4.28	\$4.51	\$4.75	\$5.00	\$138.04	
Laclede Group, Inc. (The)	LG	\$1.44	\$1.48	\$1.51	\$1.54	\$1.69	\$1.84	\$2.01	\$2.19	\$2.39	\$2.60	\$2.83	\$2.99	\$3.14	\$3.31	\$3.49	\$126.26	
New Jersey Resources Corporation	NJR	\$1.32	\$1.31	\$1.31	\$1.30	\$1.42	\$1.54	\$1.68	\$1.83	\$2.00	\$2.18	\$2.38	\$2.50	\$2.64	\$2.78	\$2.92	\$68.46	
Northwest Natural Gas Company	NWN	\$2.02	\$1.91	\$1.79	\$1.66	\$1.74	\$1.82	\$1.91	\$2.02	\$2.13	\$2.25	\$2.39	\$2.52	\$2.65	\$2.79	\$2.94	\$99.72	
South Jersey Industries, Inc.	SJI	\$1.22	\$1.23	\$1.24	\$1.24	\$1.34	\$1.45	\$1.56	\$1.69	\$1.81	\$1.95	\$2.09	\$2.20	\$2.32	\$2.44	\$2.57	\$51.41	
WGL Holdings, Inc.	WGL	\$1.78	\$1.83	\$1.88	\$1.93	\$2.08	\$2.25	\$2.44	\$2.63	\$2.85	\$3.07	\$3.32	\$3.50	\$3.68	\$3.88	\$4.08	\$132.08	

Projected Annual Data Investor Cash Flows	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]	[79]	[80]	[81]	
Company	Ticker	Initial	2/12/16	12/31/16	6/30/17	6/30/18	6/30/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30
Almos Energy Corporation	ATO	(\$62.93)	\$0.00	\$1.76	\$1.82	\$1.93	\$2.06	\$2.29	\$2.54	\$2.81	\$3.10	\$3.40	\$3.73	\$4.07	\$4.28	\$4.51	\$4.75	\$143.04
Laclede Group, Inc. (The)	LG	(\$58.86)	\$0.00	\$1.48	\$1.48	\$1.51	\$1.54	\$1.69	\$1.84	\$2.01	\$2.19	\$2.39	\$2.60	\$2.83	\$2.99	\$3.14	\$3.31	\$129.75
New Jersey Resources Corporation	NJR	(\$31.87)	\$0.00	\$1.34	\$1.31	\$1.31	\$1.30	\$1.42	\$1.54	\$1.68	\$1.83	\$2.00	\$2.18	\$2.38	\$2.50	\$2.64	\$2.78	\$71.38
Northwest Natural Gas Company	NWN	(\$49.19)	\$0.00	\$2.06	\$1.91	\$1.79	\$1.66	\$1.74	\$1.82	\$1.91	\$2.02	\$2.13	\$2.25	\$2.39	\$2.52	\$2.65	\$2.79	\$102.66
South Jersey Industries, Inc.	SJI	(\$24.38)	\$0.00	\$1.25	\$1.23	\$1.24	\$1.24	\$1.34	\$1.45	\$1.56	\$1.69	\$1.81	\$1.95	\$2.09	\$2.20	\$2.32	\$2.44	\$53.98
WGL Holdings, Inc.	WGL	(\$62.07)	\$0.00	\$1.82	\$1.83	\$1.88	\$1.93	\$2.08	\$2.25	\$2.44	\$2.63	\$2.85	\$3.07	\$3.32	\$3.50	\$3.68	\$3.88	\$136.16

Multi-Stage Growth Discounted Cash Flow Model  
90 Day Average Stock Price  
High EPS Growth Rate Estimate in First Stage

Inputs	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	
Stock	EPS Growth Rate Estimates						Long-Term	Payout Ratio			Iterative Solution		Terminal	Terminal	
Company	Ticker	Price	Zacks	First Call	Value Line	Retention Growth	High Growth	2016	2019	2026	Proof	IRR	P/E Ratio	PEG Ratio	
Atmos Energy Corporation	ATO	\$62.93	6.60%	6.40%	7.00%	8.21%	8.21%	5.31%	51.00%	51.00%	67.67%	9.65%	16.44	3.09	
Laclede Group, Inc. (The)	LG	\$58.86	4.80%	4.78%	10.00%	4.90%	10.00%	5.31%	56.00%	52.00%	67.67%	9.54%	16.87	3.18	
New Jersey Resources Corporation	NJR	\$31.87	6.50%	6.50%	4.00%	5.81%	6.50%	5.31%	58.00%	51.00%	67.67%	10.88%	13.27	2.50	
Northwest Natural Gas Company	NWN	\$49.19	4.00%	4.00%	7.00%	3.73%	7.00%	5.31%	87.00%	64.00%	67.67%	9.28%	17.95	3.38	
South Jersey Industries, Inc.	SJI	\$24.38	NA	6.00%	7.50%	6.56%	7.50%	5.31%	69.00%	59.00%	67.67%	11.16%	12.19	2.29	
WGL Holdings, Inc.	WGL	\$62.07	7.30%	8.00%	5.50%	5.11%	8.00%	5.31%	60.00%	56.00%	67.67%	9.33%	17.75	3.34	
											Mean	9.94%			
											Max	11.16%			
											Min	9.28%			
														Including Flotation Costs	
														Mean	9.97%
														Max	11.19%
														Min	9.32%

Projected Annual Earnings per Share	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]	
Company	Ticker	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Atmos Energy Corporation	ATO	\$2.96	\$3.20	\$3.47	\$3.75	\$4.06	\$4.39	\$4.75	\$5.12	\$5.49	\$5.86	\$6.23	\$6.59	\$6.94	\$7.31	\$7.70	\$8.10	\$8.54
Laclede Group, Inc. (The)	LG	\$2.35	\$2.59	\$2.84	\$3.13	\$3.44	\$3.78	\$4.16	\$4.55	\$4.93	\$5.31	\$5.67	\$6.02	\$6.34	\$6.68	\$7.03	\$7.40	\$7.80
New Jersey Resources Corporation	NJR	\$2.10	\$2.24	\$2.39	\$2.54	\$2.70	\$2.88	\$3.06	\$3.26	\$3.46	\$3.66	\$3.87	\$4.08	\$4.30	\$4.53	\$4.77	\$5.02	\$5.29
Northwest Natural Gas Company	NWN	\$2.16	\$2.31	\$2.47	\$2.65	\$2.83	\$3.03	\$3.24	\$3.46	\$3.68	\$3.91	\$4.14	\$4.37	\$4.60	\$4.85	\$5.10	\$5.38	\$5.66
South Jersey Industries, Inc.	SJI	\$1.57	\$1.69	\$1.81	\$1.95	\$2.10	\$2.25	\$2.42	\$2.60	\$2.77	\$2.95	\$3.13	\$3.30	\$3.48	\$3.67	\$3.86	\$4.07	\$4.28
WGL Holdings, Inc.	WGL	\$2.68	\$2.89	\$3.13	\$3.38	\$3.65	\$3.94	\$4.25	\$4.57	\$4.90	\$5.23	\$5.55	\$5.87	\$6.18	\$6.51	\$6.86	\$7.22	\$7.60

Projected Annual Dividend Payout Ratio	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	[46]	[47]	
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Atmos Energy Corporation	ATO	51.00%	51.00%	51.00%	51.00%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%
Laclede Group, Inc. (The)	LG	56.00%	54.67%	53.33%	52.00%	54.24%	56.48%	58.72%	60.95%	63.19%	65.43%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%
New Jersey Resources Corporation	NJR	58.00%	55.67%	53.33%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%
Northwest Natural Gas Company	NWN	87.00%	79.33%	71.67%	64.00%	64.52%	65.05%	65.57%	66.10%	66.62%	67.15%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%
South Jersey Industries, Inc.	SJI	69.00%	65.67%	62.33%	59.00%	60.24%	61.48%	62.72%	63.95%	65.19%	66.43%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%
WGL Holdings, Inc.	WGL	60.00%	58.67%	57.33%	56.00%	57.67%	59.33%	61.00%	62.67%	64.34%	66.00%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%

Projected Annual Cash Flows	[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	[62]	[63]	[64]	
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Terminal Value
Atmos Energy Corporation	ATO		\$1.77	\$1.91	\$2.07	\$2.24	\$2.54	\$2.85	\$3.19	\$3.55	\$3.92	\$4.30	\$4.70	\$4.94	\$5.21	\$5.48	\$5.78	\$140.33
Laclede Group, Inc. (The)	LG		\$1.59	\$1.71	\$1.84	\$1.97	\$2.26	\$2.57	\$2.90	\$3.24	\$3.58	\$3.94	\$4.29	\$4.52	\$4.76	\$5.01	\$5.28	\$131.57
New Jersey Resources Corporation	NJR		\$1.38	\$1.41	\$1.44	\$1.47	\$1.64	\$1.82	\$2.01	\$2.22	\$2.43	\$2.67	\$2.91	\$3.06	\$3.23	\$3.40	\$3.58	\$70.20
Northwest Natural Gas Company	NWN		\$2.15	\$2.10	\$2.03	\$1.94	\$2.09	\$2.25	\$2.41	\$2.58	\$2.76	\$2.93	\$3.11	\$3.28	\$3.45	\$3.64	\$3.83	\$101.61
South Jersey Industries, Inc.	SJI		\$1.25	\$1.28	\$1.31	\$1.33	\$1.46	\$1.60	\$1.74	\$1.89	\$2.04	\$2.20	\$2.36	\$2.48	\$2.61	\$2.75	\$2.90	\$52.19
WGL Holdings, Inc.	WGL		\$1.88	\$1.98	\$2.09	\$2.21	\$2.45	\$2.71	\$2.99	\$3.27	\$3.57	\$3.87	\$4.18	\$4.40	\$4.64	\$4.89	\$5.14	\$134.97

Projected Annual Data Investor Cash Flows	[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]	[79]	[80]	[81]	
Company	Ticker	Initial	2/12/16	12/31/16	6/30/17	6/30/18	6/30/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30
Atmos Energy Corporation	ATO	(\$62.93)	\$0.00	\$1.84	\$1.91	\$2.07	\$2.24	\$2.54	\$2.85	\$3.19	\$3.55	\$3.92	\$4.30	\$4.70	\$4.94	\$5.21	\$5.48	\$146.10
Laclede Group, Inc. (The)	LG	(\$58.86)	\$0.00	\$1.67	\$1.71	\$1.84	\$1.97	\$2.26	\$2.57	\$2.90	\$3.24	\$3.58	\$3.94	\$4.29	\$4.52	\$4.76	\$5.01	\$136.85
New Jersey Resources Corporation	NJR	(\$31.87)	\$0.00	\$1.43	\$1.41	\$1.44	\$1.47	\$1.64	\$1.82	\$2.01	\$2.22	\$2.43	\$2.67	\$2.91	\$3.06	\$3.23	\$3.40	\$73.78
Northwest Natural Gas Company	NWN	(\$49.19)	\$0.00	\$2.23	\$2.10	\$2.03	\$1.94	\$2.09	\$2.25	\$2.41	\$2.58	\$2.76	\$2.93	\$3.11	\$3.28	\$3.45	\$3.64	\$105.44
South Jersey Industries, Inc.	SJI	(\$24.38)	\$0.00	\$1.30	\$1.28	\$1.31	\$1.33	\$1.46	\$1.60	\$1.74	\$1.89	\$2.04	\$2.20	\$2.36	\$2.48	\$2.61	\$2.75	\$55.09
WGL Holdings, Inc.	WGL	(\$62.07)	\$0.00	\$1.95	\$1.98	\$2.09	\$2.21	\$2.45	\$2.71	\$2.99	\$3.27	\$3.57	\$3.87	\$4.18	\$4.40	\$4.64	\$4.89	\$140.12

Multi-Stage Growth Discounted Cash Flow Model  
180 Day Average Stock Price  
Average EPS Growth Rate Estimate in First Stage

Inputs	[1] Stock	[2]	[3] [4] [5] [6] EPS Growth Rate Estimates				[7] Long-Term Growth	[8] [9] [10] Payout Ratio			[11] Iterative Solution Proof	[12] IRR	[13] Terminal P/E Ratio	[14] Terminal PEG Ratio				
			Zacks	First Call	Value	Retention		2016	2019	2026								
Company	Ticker	Price		Line	Growth	Average												
Almos Energy Corporation	ATO	\$58.64	6.50%	6.40%	7.05%	8.21%	7.05%	5.31%	51.00%	51.00%	67.67%	(40.00)	9.58%	18.65	3.13			
Laclede Group, Inc. (The)	LG	\$55.96	4.80%	4.78%	10.00%	4.90%	6.12%	5.31%	56.00%	52.00%	67.67%	(40.00)	8.69%	21.12	3.98			
New Jersey Resources Corporation	NJR	\$30.17	6.50%	6.50%	4.00%	5.81%	5.70%	5.31%	58.00%	51.00%	67.67%	(40.00)	10.67%	13.30	2.50			
Northwest Natural Gas Company	NWN	\$46.50	4.00%	4.00%	7.00%	3.73%	4.68%	5.31%	87.00%	64.00%	67.67%	(40.00)	8.85%	20.12	3.79			
South Jersey Industries, Inc.	SJI	\$24.55	NA	6.00%	7.50%	6.56%	6.69%	5.31%	69.00%	59.00%	67.67%	(40.00)	10.80%	12.99	2.44			
WGL Holdings, Inc.	WGL	\$58.67	7.30%	8.00%	5.50%	5.11%	6.48%	5.31%	60.00%	56.00%	67.67%	(40.00)	9.12%	18.73	3.53	Including Flotation Costs		
													Mean 9.62%			Mean 9.65%		
													Max 10.80%			Max 10.83%		
													Min 8.69%			Min 8.72%		
Projected Annual Earnings per Share		[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
Company	Ticker	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Almos Energy Corporation	ATO	\$2.98	\$3.17	\$3.39	\$3.63	\$3.89	\$4.16	\$4.46	\$4.76	\$5.06	\$5.38	\$5.69	\$6.01	\$6.33	\$6.67	\$7.02	\$7.40	\$7.79
Laclede Group, Inc. (The)	LG	\$2.35	\$2.49	\$2.65	\$2.81	\$2.98	\$3.16	\$3.36	\$3.56	\$3.77	\$3.98	\$4.20	\$4.43	\$4.67	\$4.92	\$5.18	\$5.45	\$5.74
New Jersey Resources Corporation	NJR	\$2.10	\$2.22	\$2.35	\$2.48	\$2.62	\$2.77	\$2.93	\$3.09	\$3.27	\$3.45	\$3.63	\$3.83	\$4.03	\$4.25	\$4.47	\$4.71	\$4.96
Northwest Natural Gas Company	NWN	\$2.16	\$2.26	\$2.37	\$2.48	\$2.59	\$2.72	\$2.84	\$2.98	\$3.12	\$3.28	\$3.45	\$3.63	\$3.82	\$4.02	\$4.24	\$4.46	\$4.70
South Jersey Industries, Inc.	SJI	\$1.57	\$1.67	\$1.79	\$1.91	\$2.03	\$2.17	\$2.32	\$2.46	\$2.62	\$2.78	\$2.94	\$3.10	\$3.26	\$3.44	\$3.62	\$3.81	\$4.01
WGL Holdings, Inc.	WGL	\$2.68	\$2.85	\$3.04	\$3.24	\$3.44	\$3.67	\$3.91	\$4.15	\$4.40	\$4.66	\$4.93	\$5.20	\$5.48	\$5.77	\$6.07	\$6.40	\$6.74
Projected Annual Dividend Payout Ratio		[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	[46]	[47]	
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Almos Energy Corporation	ATO		51.00%	51.00%	51.00%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	
Laclede Group, Inc. (The)	LG		56.00%	54.67%	53.33%	52.00%	54.24%	56.48%	58.72%	60.95%	63.19%	65.43%	67.67%	67.67%	67.67%	67.67%	67.67%	
New Jersey Resources Corporation	NJR		58.00%	55.67%	53.33%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	
Northwest Natural Gas Company	NWN		87.00%	79.33%	71.67%	64.00%	64.52%	65.05%	65.57%	66.10%	66.62%	67.15%	67.67%	67.67%	67.67%	67.67%	67.67%	
South Jersey Industries, Inc.	SJI		69.00%	65.67%	62.33%	59.00%	60.24%	61.48%	62.72%	63.95%	65.19%	66.43%	67.67%	67.67%	67.67%	67.67%	67.67%	
WGL Holdings, Inc.	WGL		60.00%	58.67%	57.33%	56.00%	57.67%	59.33%	61.00%	62.67%	64.34%	66.00%	67.67%	67.67%	67.67%	67.67%	67.67%	
Projected Annual Cash Flows		[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	[62]	[63]	[64] Terminal Value
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Almos Energy Corporation	ATO	\$1.73	\$1.85	\$1.98	\$2.12	\$2.28	\$2.46	\$2.65	\$2.84	\$3.05	\$3.28	\$3.53	\$3.79	\$4.06	\$4.34	\$4.63	\$5.01	
Laclede Group, Inc. (The)	LG	\$1.48	\$1.54	\$1.59	\$1.64	\$1.68	\$1.73	\$1.78	\$1.83	\$1.88	\$1.93	\$1.98	\$2.03	\$2.08	\$2.13	\$2.18	\$2.23	
New Jersey Resources Corporation	NJR	\$1.36	\$1.38	\$1.40	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	
Northwest Natural Gas Company	NWN	\$2.06	\$1.97	\$1.86	\$1.74	\$1.63	\$1.52	\$1.41	\$1.30	\$1.19	\$1.08	\$0.97	\$0.86	\$0.75	\$0.64	\$0.53	\$0.42	
South Jersey Industries, Inc.	SJI	\$1.23	\$1.25	\$1.27	\$1.28	\$1.29	\$1.30	\$1.31	\$1.32	\$1.33	\$1.34	\$1.35	\$1.36	\$1.37	\$1.38	\$1.39	\$1.40	
WGL Holdings, Inc.	WGL	\$1.82	\$1.90	\$1.97	\$2.05	\$2.13	\$2.21	\$2.29	\$2.37	\$2.45	\$2.53	\$2.61	\$2.69	\$2.77	\$2.85	\$2.93	\$3.01	
Projected Annual Data Investor Cash Flows		[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]	[79]	[80]	[81]
Company	Ticker	Initial	2/12/16	12/31/16	6/30/17	6/30/18	6/30/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30
Almos Energy Corporation	ATO	(\$58.64)	\$0.00	\$1.79	\$1.85	\$1.98	\$2.12	\$2.28	\$2.46	\$2.65	\$2.84	\$3.05	\$3.28	\$3.53	\$3.79	\$4.06	\$4.34	\$5.01
Laclede Group, Inc. (The)	LG	(\$55.96)	\$0.00	\$1.53	\$1.54	\$1.59	\$1.64	\$1.68	\$1.73	\$1.78	\$1.83	\$1.88	\$1.93	\$1.98	\$2.03	\$2.08	\$2.13	\$2.23
New Jersey Resources Corporation	NJR	(\$30.17)	\$0.00	\$1.40	\$1.38	\$1.40	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41	\$1.41
Northwest Natural Gas Company	NWN	(\$46.50)	\$0.00	\$2.11	\$1.97	\$1.86	\$1.74	\$1.63	\$1.52	\$1.41	\$1.30	\$1.19	\$1.08	\$0.97	\$0.86	\$0.75	\$0.64	\$0.53
South Jersey Industries, Inc.	SJI	(\$24.55)	\$0.00	\$1.27	\$1.25	\$1.27	\$1.28	\$1.29	\$1.30	\$1.31	\$1.32	\$1.33	\$1.34	\$1.35	\$1.36	\$1.37	\$1.38	\$1.40
WGL Holdings, Inc.	WGL	(\$58.67)	\$0.00	\$1.88	\$1.90	\$1.97	\$2.05	\$2.13	\$2.21	\$2.29	\$2.37	\$2.45	\$2.53	\$2.61	\$2.69	\$2.77	\$2.85	\$3.01

Multi-Stage Growth Discounted Cash Flow Model  
180 Day Average Stock Price  
Low EPS Growth Rate Estimate in First Stage

Inputs	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]				
	Stock	EPS Growth Rate Estimates			Long-Term			Payout Ratio			Iterative Solution		Terminal	Terminal				
Company	Ticker	Price	Zacks	First Call	Value	Retention	Low	Growth	2016	2019	2026	Proof	IRR	P/E Ratio	PEG Ratio			
Atmos Energy Corporation	ATO	\$58.64	6.60%	6.40%	7.00%	8.21%	6.40%	5.31%	51.00%	51.00%	67.67%	(60.00)	9.40%	17.44	3.28			
Laclede Group, Inc. (The)	LG	\$55.96	4.80%	4.78%	10.00%	4.90%	4.78%	5.31%	58.00%	52.00%	67.67%	(60.00)	8.37%	23.31	4.39			
New Jersey Resources Corporation	NJR	\$30.17	6.50%	6.50%	4.00%	5.81%	4.00%	5.31%	58.00%	51.00%	67.67%	(60.00)	10.06%	15.01	2.82			
Northwest Natural Gas Company	NWN	\$46.50	4.00%	4.00%	7.00%	3.73%	3.73%	5.31%	87.00%	64.00%	67.67%	(60.00)	8.61%	21.63	4.07			
South Jersey Industries, Inc.	SJI	\$24.55	NA	6.00%	7.50%	6.56%	6.00%	5.31%	69.00%	59.00%	67.67%	(60.00)	10.54%	13.63	2.57			
WGL Holdings, Inc.	WGL	\$58.67	7.30%	8.00%	5.50%	5.11%	5.11%	5.31%	60.00%	56.00%	67.67%	(60.00)	8.76%	20.70	3.80			
												Mean	9.29%					
												Max	10.54%					
												Min	8.37%					
															Mean	9.32%		
															Max	10.58%		
															Min	8.40%		
Projected Annual Earnings per Share		[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
Company	Ticker	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Atmos Energy Corporation	ATO	\$2.96	\$3.15	\$3.35	\$3.57	\$3.79	\$4.04	\$4.29	\$4.56	\$4.84	\$5.12	\$5.41	\$5.71	\$6.01	\$6.33	\$6.67	\$7.02	\$7.39
Laclede Group, Inc. (The)	LG	\$2.35	\$2.46	\$2.58	\$2.70	\$2.83	\$2.97	\$3.11	\$3.26	\$3.42	\$3.60	\$3.78	\$3.98	\$4.19	\$4.41	\$4.65	\$4.89	\$5.15
New Jersey Resources Corporation	NJR	\$2.10	\$2.18	\$2.27	\$2.36	\$2.46	\$2.55	\$2.66	\$2.77	\$2.89	\$3.03	\$3.17	\$3.34	\$3.51	\$3.70	\$3.90	\$4.10	\$4.32
Northwest Natural Gas Company	NWN	\$2.16	\$2.24	\$2.32	\$2.41	\$2.50	\$2.59	\$2.69	\$2.80	\$2.92	\$3.05	\$3.20	\$3.36	\$3.54	\$3.72	\$3.92	\$4.13	\$4.35
South Jersey Industries, Inc.	SJI	\$1.57	\$1.66	\$1.76	\$1.87	\$1.98	\$2.10	\$2.23	\$2.36	\$2.49	\$2.64	\$2.78	\$2.93	\$3.09	\$3.25	\$3.42	\$3.61	\$3.80
WGL Holdings, Inc.	WGL	\$2.68	\$2.82	\$2.96	\$3.11	\$3.27	\$3.44	\$3.61	\$3.80	\$4.00	\$4.20	\$4.42	\$4.66	\$4.91	\$5.17	\$5.44	\$5.73	\$6.03
Projected Annual Dividend Payout Ratio		[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	[46]	[47]	
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Atmos Energy Corporation	ATO		51.00%	51.00%	51.00%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	
Laclede Group, Inc. (The)	LG		56.00%	54.67%	53.33%	52.00%	54.24%	56.48%	58.72%	60.95%	63.19%	65.43%	67.67%	67.67%	67.67%	67.67%	67.67%	
New Jersey Resources Corporation	NJR		58.00%	55.67%	53.33%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	
Northwest Natural Gas Company	NWN		87.00%	79.33%	71.67%	64.00%	64.52%	65.05%	65.57%	66.10%	66.62%	67.15%	67.67%	67.67%	67.67%	67.67%	67.67%	
South Jersey Industries, Inc.	SJI		69.00%	65.67%	62.33%	59.00%	60.24%	61.48%	62.72%	63.95%	65.19%	66.43%	67.67%	67.67%	67.67%	67.67%	67.67%	
WGL Holdings, Inc.	WGL		60.00%	58.67%	57.33%	56.00%	57.67%	59.33%	61.00%	62.67%	64.34%	66.00%	67.67%	67.67%	67.67%	67.67%	67.67%	
Projected Annual Cash Flows		[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	[62]	[63]	[64]
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Terminal Value
Atmos Energy Corporation	ATO	\$1.71	\$1.82	\$1.93	\$2.06	\$2.29	\$2.54	\$2.81	\$3.10	\$3.40	\$3.73	\$4.07	\$4.28	\$4.51	\$4.75	\$5.00	\$128.95	
Laclede Group, Inc. (The)	LG	\$1.44	\$1.48	\$1.51	\$1.54	\$1.69	\$1.84	\$2.01	\$2.19	\$2.39	\$2.60	\$2.83	\$2.99	\$3.14	\$3.31	\$3.49	\$120.12	
New Jersey Resources Corporation	NJR	\$1.32	\$1.31	\$1.31	\$1.30	\$1.42	\$1.54	\$1.68	\$1.83	\$2.00	\$2.18	\$2.38	\$2.50	\$2.64	\$2.78	\$2.92	\$64.85	
Northwest Natural Gas Company	NWN	\$2.02	\$1.91	\$1.79	\$1.66	\$1.74	\$1.82	\$1.91	\$2.02	\$2.13	\$2.25	\$2.39	\$2.52	\$2.65	\$2.79	\$2.94	\$94.08	
South Jersey Industries, Inc.	SJI	\$1.22	\$1.23	\$1.24	\$1.24	\$1.34	\$1.45	\$1.56	\$1.69	\$1.81	\$1.95	\$2.09	\$2.20	\$2.32	\$2.44	\$2.57	\$51.77	
WGL Holdings, Inc.	WGL	\$1.78	\$1.83	\$1.88	\$1.93	\$2.08	\$2.25	\$2.44	\$2.63	\$2.85	\$3.07	\$3.32	\$3.50	\$3.68	\$3.88	\$4.08	\$124.90	
Projected Annual Data Investor Cash Flows		[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]	[79]	[80]	[81]
Company	Ticker	Initial	2/12/16	12/31/16	6/30/17	6/30/18	6/30/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30
Atmos Energy Corporation	ATO	(\$58.64)	\$0.00	\$1.76	\$1.82	\$1.93	\$2.06	\$2.29	\$2.54	\$2.81	\$3.10	\$3.40	\$3.73	\$4.07	\$4.28	\$4.51	\$4.75	\$133.95
Laclede Group, Inc. (The)	LG	(\$55.96)	\$0.00	\$1.48	\$1.48	\$1.51	\$1.54	\$1.69	\$1.84	\$2.01	\$2.19	\$2.39	\$2.60	\$2.83	\$2.99	\$3.14	\$3.31	\$123.61
New Jersey Resources Corporation	NJR	(\$30.17)	\$0.00	\$1.34	\$1.31	\$1.31	\$1.30	\$1.42	\$1.54	\$1.68	\$1.83	\$2.00	\$2.18	\$2.38	\$2.50	\$2.64	\$2.78	\$67.78
Northwest Natural Gas Company	NWN	(\$46.50)	\$0.00	\$2.06	\$1.91	\$1.79	\$1.66	\$1.74	\$1.82	\$1.91	\$2.02	\$2.13	\$2.25	\$2.39	\$2.52	\$2.65	\$2.79	\$97.02
South Jersey Industries, Inc.	SJI	(\$24.55)	\$0.00	\$1.25	\$1.23	\$1.24	\$1.24	\$1.34	\$1.45	\$1.56	\$1.69	\$1.81	\$1.95	\$2.09	\$2.20	\$2.32	\$2.44	\$54.34
WGL Holdings, Inc.	WGL	(\$58.67)	\$0.00	\$1.82	\$1.83	\$1.88	\$1.93	\$2.08	\$2.25	\$2.44	\$2.63	\$2.85	\$3.07	\$3.32	\$3.50	\$3.68	\$3.88	\$128.99

Multi-Stage Growth Discounted Cash Flow Model  
180 Day Average Stock Price  
High EPS Growth Rate Estimate in First Stage

Inputs	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]				
	Stock	EPS Growth Rate Estimates				Long-Term	Payout Ratio				Iterative Solution	Terminal	Terminal					
Company	Ticker	Price	Zacks	First Call	Value Line	Retention Growth	High Growth	2016	2019	2026	Proof	IRR	P/E Ratio	PEG Ratio				
Atmos Energy Corporation	ATO	\$58.64	6.60%	6.40%	7.00%	8.21%	8.21%	5.31%	51.00%	51.00%	67.67%	(90.00)	9.95%	15.37	2.89			
Laclede Group, Inc. (The)	LG	\$55.96	4.80%	4.78%	10.00%	4.90%	10.00%	5.31%	56.00%	52.00%	67.67%	(90.00)	9.74%	16.08	3.03			
New Jersey Resources Corporation	NJR	\$30.17	6.50%	6.50%	4.00%	5.81%	6.50%	5.31%	58.00%	51.00%	67.67%	(90.00)	10.97%	12.59	2.37			
Northwest Natural Gas Company	NWN	\$46.50	4.00%	4.00%	7.00%	3.73%	7.00%	5.31%	87.00%	64.00%	67.67%	(90.00)	9.52%	16.95	3.19			
South Jersey Industries, Inc.	SJI	\$24.55	NA	6.00%	7.50%	6.56%	7.50%	5.31%	69.00%	59.00%	67.67%	(90.00)	11.12%	12.28	2.31			
WGL Holdings, Inc.	WGL	\$58.67	7.30%	8.00%	5.50%	5.11%	8.00%	5.31%	60.00%	56.00%	67.67%	(90.00)	9.55%	16.81	3.16			
												Mean	10.14%		Including Flotation Costs			
												Max	11.12%		Mean			
												Min	9.52%		Max			
															Min			
Projected Annual Earnings per Share		[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
Company	Ticker	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Atmos Energy Corporation	ATO	\$2.98	\$3.20	\$3.47	\$3.75	\$4.06	\$4.39	\$4.75	\$5.12	\$5.49	\$5.86	\$6.23	\$6.59	\$6.94	\$7.31	\$7.70	\$8.10	\$8.54
Laclede Group, Inc. (The)	LG	\$2.35	\$2.59	\$2.84	\$3.13	\$3.44	\$3.78	\$4.16	\$4.55	\$4.93	\$5.31	\$5.67	\$6.02	\$6.34	\$6.68	\$7.03	\$7.40	\$7.80
New Jersey Resources Corporation	NJR	\$2.10	\$2.24	\$2.38	\$2.54	\$2.70	\$2.88	\$3.06	\$3.26	\$3.46	\$3.66	\$3.87	\$4.08	\$4.30	\$4.53	\$4.77	\$5.02	\$5.29
Northwest Natural Gas Company	NWN	\$2.16	\$2.31	\$2.47	\$2.65	\$2.83	\$3.03	\$3.24	\$3.46	\$3.68	\$3.91	\$4.14	\$4.37	\$4.60	\$4.85	\$5.10	\$5.38	\$5.66
South Jersey Industries, Inc.	SJI	\$1.57	\$1.69	\$1.81	\$1.95	\$2.10	\$2.25	\$2.42	\$2.60	\$2.77	\$2.95	\$3.13	\$3.30	\$3.48	\$3.67	\$3.86	\$4.07	\$4.28
WGL Holdings, Inc.	WGL	\$2.68	\$2.89	\$3.13	\$3.38	\$3.65	\$3.94	\$4.25	\$4.57	\$4.90	\$5.23	\$5.55	\$5.87	\$6.18	\$6.51	\$6.86	\$7.22	\$7.60
Projected Annual Dividend Payout Ratio		[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]	[44]	[45]	[46]	[47]	
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Atmos Energy Corporation	ATO	51.00%	51.00%	51.00%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
Laclede Group, Inc. (The)	LG	56.00%	54.67%	53.33%	52.00%	54.24%	56.48%	58.72%	60.95%	63.19%	65.43%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
New Jersey Resources Corporation	NJR	58.00%	55.67%	53.33%	51.00%	53.38%	55.76%	58.14%	60.53%	62.91%	65.29%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
Northwest Natural Gas Company	NWN	87.00%	79.33%	71.67%	64.00%	64.52%	65.05%	65.57%	66.10%	66.62%	67.15%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
South Jersey Industries, Inc.	SJI	69.00%	65.67%	62.33%	59.00%	60.24%	61.48%	62.72%	63.95%	65.19%	66.43%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
WGL Holdings, Inc.	WGL	60.00%	58.67%	57.33%	56.00%	57.67%	59.33%	61.00%	62.67%	64.34%	66.00%	67.67%	67.67%	67.67%	67.67%	67.67%	67.67%	
Projected Annual Cash Flows		[48]	[49]	[50]	[51]	[52]	[53]	[54]	[55]	[56]	[57]	[58]	[59]	[60]	[61]	[62]	[63]	[64]
Company	Ticker	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Terminal Value
Atmos Energy Corporation	ATO	\$1.77	\$1.91	\$2.07	\$2.24	\$2.54	\$2.85	\$3.19	\$3.55	\$3.92	\$4.30	\$4.70	\$4.94	\$5.21	\$5.48	\$5.78	\$131.20	
Laclede Group, Inc. (The)	LG	\$1.59	\$1.71	\$1.84	\$1.97	\$2.26	\$2.57	\$2.90	\$3.24	\$3.58	\$3.94	\$4.29	\$4.52	\$4.76	\$5.01	\$5.28	\$125.39	
New Jersey Resources Corporation	NJR	\$1.38	\$1.41	\$1.44	\$1.47	\$1.64	\$1.82	\$2.01	\$2.22	\$2.43	\$2.67	\$2.91	\$3.06	\$3.23	\$3.40	\$3.58	\$66.58	
Northwest Natural Gas Company	NWN	\$2.15	\$2.10	\$2.03	\$1.94	\$2.09	\$2.25	\$2.41	\$2.58	\$2.76	\$2.93	\$3.11	\$3.28	\$3.45	\$3.64	\$3.83	\$95.96	
South Jersey Industries, Inc.	SJI	\$1.25	\$1.28	\$1.31	\$1.33	\$1.46	\$1.60	\$1.74	\$1.89	\$2.04	\$2.20	\$2.36	\$2.46	\$2.61	\$2.75	\$2.90	\$52.56	
WGL Holdings, Inc.	WGL	\$1.88	\$1.98	\$2.09	\$2.21	\$2.45	\$2.71	\$2.99	\$3.27	\$3.57	\$3.87	\$4.18	\$4.40	\$4.64	\$4.89	\$5.14	\$127.77	
Projected Annual Data Investor Cash Flows		[65]	[66]	[67]	[68]	[69]	[70]	[71]	[72]	[73]	[74]	[75]	[76]	[77]	[78]	[79]	[80]	[81]
Company	Ticker	Initial	2/12/16	12/31/16	6/30/17	6/30/18	6/30/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25	6/30/26	6/30/27	6/30/28	6/30/29	6/30/30
Atmos Energy Corporation	ATO	(\$58.64)	\$0.00	\$1.84	\$1.91	\$2.07	\$2.24	\$2.54	\$2.85	\$3.19	\$3.55	\$3.92	\$4.30	\$4.70	\$4.94	\$5.21	\$5.48	\$136.98
Laclede Group, Inc. (The)	LG	(\$55.96)	\$0.00	\$1.67	\$1.71	\$1.84	\$1.97	\$2.26	\$2.57	\$2.90	\$3.24	\$3.58	\$3.94	\$4.29	\$4.52	\$4.76	\$5.01	\$130.67
New Jersey Resources Corporation	NJR	(\$30.17)	\$0.00	\$1.43	\$1.41	\$1.44	\$1.47	\$1.64	\$1.82	\$2.01	\$2.22	\$2.43	\$2.67	\$2.91	\$3.06	\$3.23	\$3.40	\$70.16
Northwest Natural Gas Company	NWN	(\$46.50)	\$0.00	\$2.23	\$2.10	\$2.03	\$1.94	\$2.09	\$2.25	\$2.41	\$2.58	\$2.76	\$2.93	\$3.11	\$3.28	\$3.45	\$3.64	\$99.79
South Jersey Industries, Inc.	SJI	(\$24.55)	\$0.00	\$1.30	\$1.28	\$1.31	\$1.33	\$1.46	\$1.60	\$1.74	\$1.89	\$2.04	\$2.20	\$2.36	\$2.48	\$2.61	\$2.75	\$55.45
WGL Holdings, Inc.	WGL	(\$58.67)	\$0.00	\$1.95	\$1.98	\$2.09	\$2.21	\$2.45	\$2.71	\$2.99	\$3.27	\$3.57	\$3.87	\$4.18	\$4.40	\$4.64	\$4.89	\$132.82



Multi-Stage DCF Notes:

- [1] Source: Bloomberg; based on 30-, 90-, and 180-day historical average as of February 12, 2016
- [2] Source: Zacks
- [3] Source: Yahoo! Finance
- [4] Source: Value Line
- [5] Source: Exhibit No. \_\_\_\_ (RBH-2), Value Line
- [6] Equals indicated value (average, minimum, maximum) from Columns [2], [3], [4], [5]
- [7] Source: Federal Reserve, Bureau of Economic Analysis, Blue Chip Financial Forecasts
- [8] Source: Value Line
- [9] Source: Value Line
- [10] Source: Bloomberg Professional
- [11] Equals Column [1] + Column [65]
- [12] Equals result of Excel Solver function; goal: Column [11] equals \$0.00
- [13] Equals Column [64] / Column [31]
- [14] Equals Column [13] / (Column [7] x 100)
- [15] Source: Value Line
- [16] Equals Column [15] x (1 + Column [6])
- [17] Equals Column [16] x (1 + Column [6])
- [18] Equals Column [17] x (1 + Column [6])
- [19] Equals Column [18] x (1 + Column [6])
- [20] Equals Column [19] x (1 + Column [6])
- [21] Equals Column [20] x (1 + Column [6])
- [22] Equals (1 + (Column [6] + (((Column [7] - Column [6]) / (2026 - 2021 + 1)) x (2021 - 2020)))) x Column [21]
- [23] Equals (1 + (Column [6] + (((Column [7] - Column [6]) / (2026 - 2021 + 1)) x (2022 - 2020)))) x Column [22]
- [24] Equals (1 + (Column [6] + (((Column [7] - Column [6]) / (2026 - 2021 + 1)) x (2023 - 2020)))) x Column [23]
- [25] Equals (1 + (Column [6] + (((Column [7] - Column [6]) / (2026 - 2020 + 1)) x (2024 - 2020)))) x Column [24]
- [26] Equals (1 + (Column [6] + (((Column [7] - Column [6]) / (2026 - 2020 + 1)) x (2025 - 2019)))) x Column [24]
- [27] Equals Column [26] x (1 + Column [7])
- [28] Equals Column [27] x (1 + Column [7])
- [29] Equals Column [28] x (1 + Column [7])
- [30] Equals Column [29] x (1 + Column [7])
- [31] Equals Column [30] x (1 + Column [7])
- [32]
- [33] Equals Column [8]
- [34] Equals Column [33] + ((Column [36] - Column [33]) / 3)
- [35] Equals Column [34] + ((Column [36] - Column [33]) / 3)
- [36] Equals Column [9]
- [37] Equals Column [36] + ((Column [43] - Column [36]) / 7)
- [38] Equals Column [37] + ((Column [43] - Column [36]) / 7)
- [39] Equals Column [38] + ((Column [43] - Column [36]) / 7)
- [40] Equals Column [39] + ((Column [43] - Column [36]) / 7)
- [41] Equals Column [40] + ((Column [43] - Column [36]) / 7)
- [42] Equals Column [41] + ((Column [43] - Column [36]) / 7)
- [43] Equals Column [10]
- [44] Equals Column [10]
- [45] Equals Column [10]
- [46] Equals Column [10]
- [47] Equals Column [10]
- [48]
- [49] Equals Column [17] x Column [33]
- [50] Equals Column [18] x Column [34]
- [51] Equals Column [19] x Column [35]
- [52] Equals Column [20] x Column [36]
- [53] Equals Column [21] x Column [37]
- [54] Equals Column [22] x Column [38]
- [55] Equals Column [23] x Column [39]
- [56] Equals Column [24] x Column [40]
- [57] Equals Column [25] x Column [41]
- [58] Equals Column [26] x Column [42]
- [59] Equals Column [27] x Column [43]
- [60] Equals Column [28] x Column [44]
- [61] Equals Column [29] x Column [45]
- [62] Equals Column [30] x Column [46]
- [63] Equals Column [31] x Column [47]
- [64] Equals (Column [63] x (1 + Column [7])) / (Column [12] - Column [7])
- [65] Equals negative net present value; discount rate equals Column [12], cash flows equal Column [66] through Column [81]
- [66] Equals \$0.00
- [67] Equals Column [48] x (1 + (0.5 x Column [6]))
- [68] Equals Column [50]
- [69] Equals Column [51]
- [70] Equals Column [52]
- [71] Equals Column [53]
- [72] Equals Column [54]
- [73] Equals Column [55]
- [74] Equals Column [56]
- [75] Equals Column [57]
- [76] Equals Column [58]
- [77] Equals Column [59]
- [78] Equals Column [60]
- [79] Equals Column [61]
- [80] Equals Column [62]
- [81] Equals Column [63] + [64]

Ex-Ante Market Risk Premium  
Market DCF Method Based - Bloomberg

[1]	[2]	[3]
S&P 500	Current 30-Year	
Est. Required	Treasury (30-day	Implied Market
Market Return	average)	Risk Premium
13.44%	2.79%	10.65%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
AGILENT TECHNOLOGIES INC	A	11,871.79	0.07%	1.31%	9.60%	10.97%	0.0076%
ALCOA INC	AA	10,075.13	0.06%	1.56%	9.77%	11.40%	0.0067%
AMERICAN AIRLINES GROUP INC	AAL	23,838.91	0.14%	1.15%	9.17%	10.37%	0.0144%
ADVANCE AUTO PARTS INC	AAP	10,309.52	0.06%	0.17%	11.80%	11.98%	0.0072%
APPLE INC	AAPL	521,135.36	3.03%	2.30%	14.40%	16.87%	0.5116%
ABBVIE INC	ABBV	85,954.99	0.50%	4.32%	12.10%	16.68%	0.0835%
AMERISOURCEBERGEN CORP	ABC	17,589.64	0.10%	1.55%	12.50%	14.14%	0.0145%
ABBOTT LABORATORIES	ABT	55,387.56	0.32%	2.81%	11.59%	14.56%	0.0469%
ACCENTURE PLC-CL A	ACN	62,308.34	0.36%	2.31%	9.85%	12.28%	0.0445%
ADOBE SYSTEMS INC	ADBE	38,206.99	0.22%	0.00%	21.33%	21.33%	0.0474%
ANALOG DEVICES INC	ADI	15,418.66	0.09%	3.28%	11.00%	14.46%	0.0130%
ARCHER-DANIELS-MIDLAND CO	ADM	19,364.21	0.11%	3.68%	7.72%	11.54%	0.0130%
AUTOMATIC DATA PROCESSING	ADP	37,392.06	0.22%	2.51%	10.29%	12.92%	0.0281%
ALLIANCE DATA SYSTEMS CORP	ADS	11,166.91	0.07%	0.00%	14.00%	14.00%	0.0091%
AUTODESK INC	ADSK	10,121.52	0.06%	0.00%	15.83%	15.83%	0.0093%
ADT CORP/THE	ADT	4,441.92	0.03%	3.21%	6.47%	9.78%	0.0025%
AMEREN CORPORATION	AEE	10,979.22	0.06%	3.67%	6.61%	10.40%	0.0066%
AMERICAN ELECTRIC POWER	AEP	29,743.53	0.17%	3.72%	5.56%	9.38%	0.0162%
AES CORP	AES	6,170.15	0.04%	4.36%	3.95%	8.39%	0.0030%
AETNA INC	AET	34,625.91	0.20%	1.04%	11.83%	12.93%	0.0261%
AFLAC INC	AFL	24,456.39	0.14%	2.91%	8.70%	11.74%	0.0167%
ALLERGAN PLC	AGN	110,544.05	0.64%	0.00%	12.01%	12.01%	0.0773%
AMERICAN INTERNATIONAL GROUP	AIG	65,561.66	0.38%	2.38%	9.50%	11.99%	0.0458%
APARTMENT INVT & MGMT CO -A	AIV	5,639.07	0.03%	3.67%	11.91%	15.79%	0.0052%
ASSURANT INC	AIZ	4,415.83	0.03%	3.08%	7.08%	10.27%	0.0026%
AKAMAI TECHNOLOGIES INC	AKAM	9,032.18	0.05%	0.00%	16.83%	16.83%	0.0088%
ALLSTATE CORP	ALL	24,752.74	0.14%	2.00%	10.02%	12.12%	0.0175%
ALLEGION PLC	ALLE	5,514.94	0.03%	0.82%	13.72%	14.59%	0.0047%
ALEXION PHARMACEUTICALS INC	ALXN	31,790.86	0.19%	0.00%	23.90%	23.90%	0.0442%
APPLIED MATERIALS INC	AMAT	18,322.65	0.11%	2.57%	14.06%	16.81%	0.0179%
AMETEK INC	AME	10,854.58	0.06%	0.87%	8.59%	9.49%	0.0060%
AFFILIATED MANAGERS GROUP	AMG	6,723.28	0.04%	0.00%	13.06%	13.06%	0.0051%
AMGEN INC	AMGN	108,842.62	0.63%	2.77%	8.70%	11.59%	0.0734%
AMERIPRISE FINANCIAL INC	AMP	13,955.04	0.08%	3.66%	13.00%	16.89%	0.0137%
AMERICAN TOWER CORP	AMT	36,287.26	0.21%	2.10%	13.81%	16.06%	0.0339%
AMAZON.COM INC	AMZN	238,754.58	1.39%	0.00%	41.88%	41.88%	0.5820%
AUTONATION INC	AN	5,163.95	0.03%	0.00%	8.74%	8.74%	0.0026%
ANTHEM INC	ANTM	31,722.56	0.18%	2.10%	9.06%	11.25%	0.0208%
AON PLC	AON	25,693.40	0.15%	1.36%	11.17%	12.60%	0.0188%
APACHE CORP	APA	13,808.86	0.08%	2.74%	0.60%	3.35%	0.0027%
ANADARKO PETROLEUM CORP	APC	19,212.88	0.11%	2.86%	2.17%	5.06%	0.0057%
AIR PRODUCTS & CHEMICALS INC	APD	28,110.02	0.16%	2.53%	6.11%	8.72%	0.0143%
AMPHENOL CORP-CL A	APH	15,271.26	0.09%	1.17%	9.27%	10.49%	0.0093%
AIRGAS INC	ARG	10,147.23	0.06%	1.70%	10.00%	11.79%	0.0070%
ACTIVISION BLIZZARD INC	ATVI	20,560.89	0.12%	0.92%	12.00%	12.98%	0.0155%
AVALONBAY COMMUNITIES INC	AVB	22,505.35	0.13%	3.28%	6.18%	9.56%	0.0125%
BROADCOM LTD	AVGO	50,052.57	0.29%	1.45%	17.86%	19.44%	0.0566%
AVERY DENNISON CORP	AVY	5,828.72	0.03%	2.46%	6.55%	9.09%	0.0031%
AMERICAN EXPRESS CO	AXP	51,830.39	0.30%	2.29%	8.57%	10.96%	0.0331%
AUTOZONE INC	AZO	22,040.58	0.13%	0.00%	12.37%	12.37%	0.0159%
BOEING CO/THE	BA	71,967.79	0.42%	3.83%	11.39%	15.43%	0.0647%
BANK OF AMERICA CORP	BAC	124,429.13	0.72%	2.27%	24.88%	27.43%	0.1987%
BAXTER INTERNATIONAL INC	BAX	20,026.32	0.12%	1.26%	10.50%	11.83%	0.0138%
BED BATH & BEYOND INC	BBBY	7,024.45	0.04%	0.00%	6.23%	6.23%	0.0025%
BB&T CORP	BBT	24,637.14	0.14%	3.60%	10.69%	14.49%	0.0208%
BEST BUY CO INC	BBY	9,637.28	0.06%	4.28%	9.60%	14.08%	0.0079%
CR BARD INC	BCR	13,545.08	0.08%	0.53%	14.08%	14.65%	0.0115%
BECTON DICKINSON AND CO	BDX	29,614.07	0.17%	1.89%	11.26%	13.26%	0.0229%
FRANKLIN RESOURCES INC	BEN	19,154.32	0.11%	2.30%	3.99%	6.33%	0.0071%
BROWN-FORMAN CORP-CLASS B	BF/B	20,369.85	0.12%	1.38%	8.28%	9.71%	0.0115%
BAKER HUGHES INC	BHI	17,399.86	0.10%	1.66%	-4.10%	-2.48%	-0.0025%
BIOGEN INC	BIIB	54,060.27	0.31%	0.00%	9.61%	9.61%	0.0302%
BANK OF NEW YORK MELLON CORP	BK	36,974.59	0.22%	2.19%	9.95%	12.25%	0.0264%
BLACKROCK INC	BLK	50,967.95	0.30%	2.99%	11.53%	14.69%	0.0436%
BALL CORP	BLL	9,237.50	0.05%	0.67%	8.27%	8.96%	0.0048%
BRISTOL-MYERS SQUIBB CO	BMJ	100,501.44	0.59%	2.56%	19.53%	22.33%	0.1306%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
BERKSHIRE HATHAWAY INC-CL B	BRK/B	317,235.55	1.85%	0.00%	6.05%	6.05%	0.1117%
BOSTON SCIENTIFIC CORP	BSX	22,384.05	0.13%	0.00%	10.51%	10.51%	0.0137%
BORGWARNER INC	BWA	6,939.59	0.04%	1.70%	9.45%	11.23%	0.0045%
BAXALTA INC	BXLT	26,268.05	N/A	0.72%	N/A	N/A	N/A
BOSTON PROPERTIES INC	BXP	16,679.92	0.10%	2.84%	6.51%	9.43%	0.0092%
CITIGROUP INC	C	111,831.30	0.65%	1.11%	14.48%	15.67%	0.1020%
CA INC	CA	11,544.33	0.07%	3.62%	8.50%	12.27%	0.0082%
CONAGRA FOODS INC	CAG	18,059.79	0.11%	2.41%	8.17%	10.68%	0.0112%
CARDINAL HEALTH INC	CAH	25,967.59	0.15%	1.81%	11.70%	13.61%	0.0206%
CAMERON INTERNATIONAL CORP	CAM	12,331.31	0.07%	0.00%	5.05%	5.05%	0.0036%
CATERPILLAR INC	CAT	36,768.06	0.21%	4.92%	9.00%	14.14%	0.0303%
CHUBB LTD	CB	52,712.10	0.31%	2.45%	10.00%	12.57%	0.0386%
CBRE GROUP INC - A	CBG	8,133.61	0.05%	0.00%	12.50%	12.50%	0.0059%
CBS CORP-CLASS B NON VOTING	CBS	20,024.82	0.12%	1.55%	14.36%	16.02%	0.0187%
COCA-COLA ENTERPRISES	CCE	10,955.43	0.06%	2.37%	6.55%	9.00%	0.0057%
CROWN CASTLE INTL CORP	CCI	27,746.44	0.16%	4.32%	15.50%	20.16%	0.0326%
CARNIVAL CORP	CCL	34,730.93	0.20%	2.80%	17.70%	20.74%	0.0419%
CELGENE CORP	CELG	80,081.53	0.47%	0.00%	21.32%	21.32%	0.0994%
CERNER CORP	CERN	18,781.55	0.11%	0.00%	17.28%	17.28%	0.0189%
CF INDUSTRIES HOLDINGS INC	CF	6,992.26	0.04%	4.00%	20.00%	24.40%	0.0099%
CITIZENS FINANCIAL GROUP	CFG	9,967.06	0.06%	2.55%	10.00%	12.67%	0.0074%
CHURCH & DWIGHT CO INC	CHD	11,614.87	0.07%	1.61%	9.11%	10.79%	0.0073%
CHESAPEAKE ENERGY CORP	CHK	1,057.46	0.01%	12.96%	0.62%	13.61%	0.0008%
C.H. ROBINSON WORLDWIDE INC	CHRW	10,076.72	0.06%	2.41%	9.68%	12.21%	0.0072%
CIGNA CORP	CI	33,565.27	0.20%	0.03%	11.21%	11.25%	0.0220%
CINCINNATI FINANCIAL CORP	CINF	10,121.13	N/A	N/A	N/A	N/A	N/A
COLGATE-PALMOLIVE CO	CL	58,927.78	0.34%	2.43%	8.25%	10.78%	0.0370%
CLOROX COMPANY	CLX	16,509.49	0.10%	2.43%	6.57%	9.08%	0.0087%
COMERICA INC	CMA	5,818.11	0.03%	2.65%	8.60%	11.36%	0.0038%
COMCAST CORP-CLASS A	CMCSA	138,679.38	0.81%	1.96%	12.62%	14.71%	0.1187%
CME GROUP INC	CME	30,830.25	0.18%	5.71%	12.79%	18.86%	0.0339%
CHIPOTLE MEXICAN GRILL INC	CMG	14,438.37	0.08%	0.00%	17.57%	17.57%	0.0148%
CUMMINS INC	CMI	16,910.86	0.10%	4.18%	4.45%	8.73%	0.0086%
CMS ENERGY CORP	CMS	10,893.65	0.06%	3.16%	6.31%	9.58%	0.0061%
CENTERPOINT ENERGY INC	CNP	7,731.81	0.05%	5.51%	5.33%	10.99%	0.0049%
CONSOL ENERGY INC	CNX	1,784.33	0.01%	0.51%	20.55%	21.12%	0.0022%
CAPITAL ONE FINANCIAL CORP	COF	33,274.11	0.19%	2.71%	6.55%	9.34%	0.0181%
CABOT OIL & GAS CORP	COG	8,174.02	0.05%	0.41%	36.06%	36.54%	0.0174%
COACH INC	COH	9,588.85	0.06%	3.91%	10.17%	14.28%	0.0080%
ROCKWELL COLLINS INC	COL	10,615.09	0.06%	1.63%	8.89%	10.59%	0.0065%
CONOCOPHILLIPS	COP	40,619.72	0.24%	3.04%	6.00%	9.13%	0.0216%
COSTCO WHOLESALE CORP	COST	65,372.89	0.38%	1.12%	9.55%	10.73%	0.0408%
CAMPBELL SOUP CO	CPB	18,056.18	0.11%	2.33%	3.85%	6.22%	0.0065%
COLUMBIA PIPELINE GROUP	CPGX	6,334.81	N/A	2.13%	N/A	N/A	N/A
SALESFORCE.COM INC	CRM	39,627.52	0.23%	0.00%	29.70%	29.70%	0.0685%
CISCO SYSTEMS INC	CSCO	127,460.35	0.74%	3.74%	7.56%	11.44%	0.0849%
CSRA INC	CSRA	4,177.43	0.02%	41.55%	10.00%	53.63%	0.0130%
CSX CORP	CSX	23,298.60	0.14%	3.10%	5.96%	9.15%	0.0124%
CINTAS CORP	CTAS	8,975.91	0.05%	1.25%	12.18%	13.51%	0.0071%
CENTURYLINK INC	CTL	15,707.01	0.09%	7.55%	-0.95%	6.57%	0.0060%
COGNIZANT TECH SOLUTIONS-A	CTSH	32,756.67	0.19%	0.00%	15.87%	15.87%	0.0303%
CITRIX SYSTEMS INC	CTXS	9,892.45	0.06%	0.00%	19.98%	19.98%	0.0115%
CABLEVISION SYSTEMS-NY GRP-A	CVC	8,974.02	0.05%	1.57%	8.25%	9.89%	0.0052%
CVS HEALTH CORP	CVS	105,301.33	0.61%	1.75%	14.17%	16.04%	0.0983%
CHEVRON CORP	CVX	160,782.40	0.94%	5.06%	-3.58%	1.39%	0.0130%
DOMINION RESOURCES INC/N/A	D	41,042.30	0.24%	4.03%	6.56%	10.72%	0.0256%
DELTA AIR LINES INC	DAL	33,468.09	0.19%	1.40%	23.70%	25.27%	0.0492%
DU PONT (E.I.) DE NEMOURS	DD	50,906.17	0.30%	2.69%	8.30%	11.10%	0.0329%
DEERE & CO	DE	24,750.86	0.14%	3.13%	5.52%	8.73%	0.0126%
DISCOVER FINANCIAL SERVICES	DFS	19,031.58	0.11%	2.69%	7.28%	10.07%	0.0112%
DOLLAR GENERAL CORP	DG	20,499.25	0.12%	1.25%	12.95%	14.27%	0.0170%
QUEST DIAGNOSTICS INC	DGX	8,873.35	0.05%	2.53%	8.78%	11.42%	0.0059%
DR HORTON INC	DHI	8,952.10	0.05%	1.32%	14.06%	15.47%	0.0081%
DANAHER CORP	DHR	58,194.43	0.34%	0.68%	12.15%	12.87%	0.0436%
WALT DISNEY CO/THE	DIS	148,717.62	0.87%	1.60%	10.15%	11.83%	0.1024%
DISCOVERY COMMUNICATIONS-A	DISCA	16,077.25	0.09%	0.00%	15.17%	15.17%	0.0142%
DELPHI AUTOMOTIVE PLC	DLPH	16,996.16	0.10%	1.88%	10.54%	12.52%	0.0124%
DOLLAR TREE INC	DLTR	17,663.70	0.10%	0.00%	20.67%	20.67%	0.0212%
DUN & BRADSTREET CORP	DNB	3,448.90	0.02%	1.98%	7.35%	9.40%	0.0019%
DIAMOND OFFSHORE DRILLING	DO	2,320.73	0.01%	0.92%	14.27%	15.25%	0.0021%
DOVER CORP	DOV	9,175.01	0.05%	2.92%	10.68%	13.75%	0.0073%
DOW CHEMICAL CO/THE	DOW	51,398.34	0.30%	3.97%	6.00%	10.09%	0.0302%
DR PEPPER SNAPPLE GROUP INC	DPS	17,372.40	0.10%	2.09%	7.70%	9.86%	0.0100%
DARDEN RESTAURANTS INC	DRI	7,523.63	0.04%	3.49%	12.39%	16.09%	0.0070%
DTE ENERGY COMPANY	DTE	15,025.70	0.09%	3.55%	5.29%	8.93%	0.0078%
DUKE ENERGY CORP	DUK	52,478.61	0.31%	4.29%	4.41%	8.79%	0.0269%
DAVITA HEALTHCARE PARTNERS I	DVA	13,200.16	0.08%	0.00%	11.15%	11.15%	0.0086%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
DEVON ENERGY CORP	DVN	8,914.59	0.05%	4.43%	5.40%	9.94%	0.0052%
ELECTRONIC ARTS INC	EA	18,326.59	0.11%	0.00%	11.70%	11.70%	0.0125%
EBAY INC	EBAY	26,509.08	0.15%	0.00%	7.25%	7.25%	0.0112%
ECOLAB INC	ECL	31,488.21	0.18%	1.22%	13.22%	14.52%	0.0266%
CONSOLIDATED EDISON INC	ED	20,734.56	0.12%	3.68%	2.99%	6.72%	0.0081%
EQUIFAX INC	EFX	11,547.82	0.07%	1.35%	9.37%	10.78%	0.0072%
EDISON INTERNATIONAL	EIX	20,122.10	0.12%	2.73%	5.10%	7.90%	0.0093%
ESTEE LAUDER COMPANIES-CL A	EL	32,548.96	0.19%	1.29%	11.69%	13.05%	0.0247%
EMC CORP/MA	EMC	46,805.69	0.27%	2.00%	10.94%	13.05%	0.0355%
EASTMAN CHEMICAL CO	EMN	9,014.53	0.05%	2.79%	5.70%	8.57%	0.0045%
EMERSON ELECTRIC CO	EMR	29,596.19	0.17%	4.15%	7.20%	11.50%	0.0198%
ENDO INTERNATIONAL PLC	ENDP	11,342.85	0.07%	0.00%	11.03%	11.03%	0.0073%
EOG RESOURCES INC	EOG	37,216.96	0.22%	0.88%	1.26%	2.14%	0.0046%
EQUINIX INC	EQIX	17,653.69	0.10%	2.37%	17.00%	19.57%	0.0201%
EQUITY RESIDENTIAL	EQR	25,968.23	0.15%	15.59%	6.26%	22.34%	0.0338%
EQT CORP	EQT	9,018.29	0.05%	3.57%	25.00%	29.01%	0.0152%
EVERSOURCE ENERGY	ES	16,972.90	0.10%	3.33%	6.67%	10.12%	0.0100%
EXPRESS SCRIPTS HOLDING CO	ESRX	45,540.43	0.27%	0.00%	13.60%	13.60%	0.0361%
ESSEX PROPERTY TRUST INC	ESS	12,912.51	0.08%	3.22%	5.84%	9.15%	0.0069%
ENSCO PLC-CL A	ESV	1,973.28	0.01%	7.16%	-4.00%	3.02%	0.0003%
E*TRADE FINANCIAL CORP	ETFC	6,196.27	0.04%	0.04%	19.10%	19.14%	0.0069%
EATON CORP PLC	ETN	25,083.76	0.15%	4.39%	8.40%	12.97%	0.0189%
ENTERGY CORP	ETR	12,565.57	0.07%	4.75%	2.76%	7.58%	0.0055%
EDWARDS LIFESCIENCES CORP	EW	17,481.11	0.10%	0.00%	16.40%	16.40%	0.0167%
EXELON CORP	EXC	28,020.91	0.16%	4.12%	6.36%	10.62%	0.0173%
EXPEDITORS INTL WASH INC	EXPD	8,519.09	0.05%	1.56%	9.16%	10.79%	0.0054%
EXPEDIA INC	EXPE	15,396.85	0.09%	0.88%	24.01%	25.00%	0.0224%
EXTRA SPACE STORAGE INC	EXR	10,048.16	0.06%	2.75%	7.06%	9.91%	0.0058%
FORD MOTOR CO	F	45,847.88	0.27%	6.08%	10.85%	17.25%	0.0460%
FASTENAL CO	FAST	12,412.90	0.07%	2.89%	13.68%	16.77%	0.0121%
FACEBOOK INC-A	FB	290,349.07	1.69%	0.00%	29.67%	29.67%	0.5015%
FREEMPORT-MCMORAN INC	FCX	6,391.96	0.04%	0.74%	-38.33%	-37.73%	-0.0140%
FEDEX CORP	FDX	35,444.12	0.21%	0.78%	13.50%	14.33%	0.0296%
FIRSTENERGY CORP	FE	13,909.61	0.08%	4.38%	2.89%	7.33%	0.0059%
F5 NETWORKS INC	FFIV	6,038.63	0.04%	0.00%	12.77%	12.77%	0.0045%
FIDELITY NATIONAL INFO SERV	FIS	16,243.58	0.09%	1.90%	12.75%	14.77%	0.0140%
FISERV INC	FISV	21,270.10	0.12%	0.00%	12.25%	12.25%	0.0152%
FIFTH THIRD BANCORP	FITB	11,811.70	0.07%	3.77%	4.20%	8.05%	0.0055%
FLIR SYSTEMS INC	FLIR	4,109.28	0.02%	1.57%	12.50%	14.17%	0.0034%
FLUOR CORP	FLR	6,179.97	0.04%	1.92%	5.73%	7.71%	0.0028%
FLOWSERVE CORP	FLS	5,342.08	0.03%	1.76%	7.54%	9.36%	0.0029%
FMC CORP	FMC	4,682.15	0.03%	1.90%	10.30%	12.30%	0.0034%
TWENTY-FIRST CENTURY FOX-A	FOXA	47,181.94	0.27%	1.30%	14.39%	15.78%	0.0433%
FEDERAL REALTY INVS TRUST	FRT	10,094.47	0.06%	2.68%	5.32%	8.07%	0.0047%
FIRST SOLAR INC	FSLR	6,155.12	0.04%	0.00%	1.67%	1.67%	0.0006%
FMC TECHNOLOGIES INC	FTI	5,270.91	0.03%	0.00%	-11.80%	-11.80%	-0.0036%
FRONTIER COMMUNICATIONS CORP	FTR	4,953.22	0.03%	9.91%	3.00%	13.05%	0.0038%
AGL RESOURCES INC	GAS	7,780.44	0.05%	3.28%	7.00%	10.40%	0.0047%
GENERAL DYNAMICS CORP	GD	40,507.04	0.24%	2.25%	8.93%	11.28%	0.0266%
GENERAL ELECTRIC CO	GE	266,714.27	1.55%	3.37%	8.58%	12.09%	0.1877%
GENERAL GROWTH PROPERTIES	GGP	22,556.57	0.13%	3.03%	7.49%	10.63%	0.0140%
GILEAD SCIENCES INC	GILD	128,899.16	0.75%	2.10%	3.26%	5.40%	0.0405%
GENERAL MILLS INC	GIS	33,755.41	0.20%	3.15%	7.54%	10.81%	0.0212%
CORNING INC	GLW	20,465.08	0.12%	2.88%	6.38%	9.35%	0.0111%
GENERAL MOTORS CO	GM	42,797.89	0.25%	5.40%	9.66%	15.31%	0.0382%
KEURIG GREEN MOUNTAIN INC	GMCR	13,461.91	0.08%	1.43%	15.00%	16.53%	0.0130%
GAMESTOP CORP-CLASS A	GME	2,824.01	0.02%	3.56%	11.78%	15.55%	0.0026%
ALPHABET INC-CL C	GOOG	476,820.49	2.78%	0.00%	16.54%	16.54%	0.4592%
GENUINE PARTS CO	GPC	13,246.06	N/A	2.92%	N/A	N/A	N/A
GAP INC/THE	GPS	9,537.14	0.06%	3.87%	8.01%	12.04%	0.0067%
GARMIN LTD	GRMN	6,540.15	0.04%	5.85%	5.07%	11.07%	0.0042%
GOLDMAN SACHS GROUP INC	GS	65,077.99	0.38%	1.86%	15.20%	17.20%	0.0652%
GOODYEAR TIRE & RUBBER CO	GT	7,928.49	0.05%	0.96%	7.00%	7.99%	0.0037%
VW GRAINGER INC	GWV	13,254.03	0.08%	2.34%	9.92%	12.37%	0.0095%
HALLIBURTON CO	HAL	24,986.34	0.15%	2.51%	12.46%	15.13%	0.0220%
HARMAN INTERNATIONAL	HAR	4,995.63	0.03%	2.02%	16.00%	18.18%	0.0053%
HASBRO INC	HAS	8,733.62	0.05%	2.82%	9.97%	12.92%	0.0066%
HUNTINGTON BANCSHARES INC	HBAN	6,723.81	0.04%	3.48%	6.48%	10.08%	0.0039%
HANESBRANDS INC	HBI	10,410.61	0.06%	1.64%	15.58%	17.34%	0.0105%
HCA HOLDINGS INC	HCA	26,910.14	0.16%	0.00%	10.75%	10.75%	0.0168%
WELLTOWER INC	HCN	19,251.05	0.11%	6.07%	4.43%	10.63%	0.0119%
HCP INC	HCP	12,224.86	0.07%	8.79%	2.58%	11.49%	0.0082%
HOME DEPOT INC	HD	147,479.95	0.86%	2.02%	14.07%	16.24%	0.1394%
HESS CORP	HES	12,624.83	0.07%	2.50%	-16.88%	-14.59%	-0.0107%
HARTFORD FINANCIAL SVCS GRP	HIG	16,707.99	0.10%	2.17%	9.00%	11.27%	0.0110%
HARLEY-DAVIDSON INC	HOG	7,428.82	0.04%	3.46%	11.38%	15.03%	0.0065%
HONEYWELL INTERNATIONAL INC	HON	79,609.53	0.46%	2.34%	9.19%	11.64%	0.0539%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
STARWOOD HOTELS & RESORTS	HOT	10,817.34	0.06%	2.34%	8.23%	10.67%	0.0067%
HELMERICH & PAYNE	HP	5,120.78	0.03%	5.80%	10.00%	16.09%	0.0048%
HEWLETT PACKARD ENTERPRIS	HPE	21,381.04	0.12%	1.79%	4.51%	6.34%	0.0079%
HP INC	HPQ	16,265.11	0.09%	5.23%	2.58%	7.88%	0.0075%
H&R BLOCK INC	HRB	7,956.23	0.05%	2.39%	11.00%	13.52%	0.0063%
HORMEL FOODS CORP	HRL	21,930.99	0.13%	1.30%	7.15%	8.49%	0.0108%
HARRIS CORP	HRS	8,982.58	N/A	2.80%	N/A	N/A	N/A
HENRY SCHEIN INC	HSIC	13,027.97	0.08%	0.00%	10.78%	10.78%	0.0082%
HOST HOTELS & RESORTS INC	HST	10,838.23	0.06%	5.55%	5.67%	11.37%	0.0072%
HERSHEY CO/THE	HSY	19,446.36	0.11%	2.70%	8.18%	10.98%	0.0124%
HUMANA INC	HUM	23,770.67	0.14%	0.74%	12.94%	13.73%	0.0190%
INTL BUSINESS MACHINES CORP	IBM	117,422.13	0.68%	4.38%	6.75%	11.28%	0.0771%
INTERCONTINENTAL EXCHANGE INC	ICE	28,090.78	0.16%	1.44%	14.37%	15.91%	0.0260%
INTL FLAVORS & FRAGRANCES	IFF	8,566.71	0.05%	2.11%	9.10%	11.31%	0.0056%
ILLUMINA INC	ILMN	20,894.21	0.12%	0.00%	17.52%	17.52%	0.0213%
INTEL CORP	INTC	135,295.36	0.79%	3.60%	8.69%	12.44%	0.0980%
INTUIT INC	INTU	24,964.25	0.15%	1.27%	17.21%	18.59%	0.0270%
INTERNATIONAL PAPER CO	IP	14,161.61	0.08%	5.23%	6.90%	12.31%	0.0102%
INTERPUBLIC GROUP OF COS INC	IPG	8,289.50	0.05%	2.70%	6.50%	9.28%	0.0045%
INGERSOLL-RAND PLC	IR	13,181.44	0.08%	2.51%	8.78%	11.40%	0.0087%
IRON MOUNTAIN INC	IRM	5,785.59	0.03%	6.98%	7.30%	14.54%	0.0049%
INTUITIVE SURGICAL INC	ISRG	19,859.39	0.12%	0.00%	12.31%	12.31%	0.0142%
ILLINOIS TOOL WORKS	ITW	33,422.90	0.19%	2.42%	7.70%	10.22%	0.0199%
INVESCO LTD	IVZ	11,232.35	0.07%	4.29%	9.53%	14.02%	0.0092%
HUNT (JB) TRANSPRT SVCS INC	JBHT	8,529.83	0.05%	1.19%	15.60%	16.88%	0.0084%
JOHNSON CONTROLS INC	JCI	22,565.07	0.13%	3.27%	9.28%	12.70%	0.0167%
JACOBS ENGINEERING GROUP INC	JEC	4,421.14	0.03%	0.00%	8.45%	8.45%	0.0022%
JOHNSON & JOHNSON	JNJ	281,730.20	1.64%	3.05%	6.07%	9.20%	0.1509%
JUNIPER NETWORKS INC	JNPR	8,427.01	0.05%	1.88%	9.57%	11.54%	0.0057%
JPMORGAN CHASE & CO	JPM	211,628.15	1.23%	3.23%	7.70%	11.06%	0.1362%
NORDSTROM INC	JWN	8,992.98	0.05%	12.86%	7.78%	21.14%	0.0111%
KELLOGG CO	K	26,569.20	0.15%	2.77%	5.50%	8.35%	0.0129%
KEYCORP	KEY	8,674.44	0.05%	3.22%	6.44%	9.77%	0.0049%
KRAFT HEINZ CO/THE	KHC	87,271.74	0.51%	2.67%	16.75%	19.64%	0.0998%
KIMCO REALTY CORP	KIM	10,865.93	0.06%	3.91%	4.90%	8.91%	0.0056%
KLA-TENCOR CORP	KLAC	9,929.85	0.06%	3.26%	13.12%	16.59%	0.0096%
KIMBERLY-CLARK CORP	KMB	46,422.53	0.27%	2.84%	7.79%	10.74%	0.0290%
KINDER MORGAN INC	KMI	33,384.08	0.19%	3.35%	6.47%	9.92%	0.0193%
CARMAX INC	KMX	8,539.67	0.05%	0.00%	13.53%	13.53%	0.0067%
COCA-COLA CO/THE	KO	187,484.75	1.09%	3.25%	6.16%	9.51%	0.1037%
MICHAEL KORS HOLDINGS LTD	KORS	8,894.39	0.05%	0.00%	4.63%	4.63%	0.0024%
KROGER CO	KR	37,361.12	0.22%	1.07%	10.39%	11.51%	0.0250%
KOHL'S CORP	KSS	7,746.56	0.05%	4.41%	6.52%	11.07%	0.0050%
KANSAS CITY SOUTHERN	KSU	8,614.80	0.05%	1.74%	8.30%	10.11%	0.0051%
LOEWS CORP	L	12,706.73	N/A	0.74%	N/A	N/A	N/A
L BRANDS INC	LB	23,695.99	0.14%	4.95%	11.03%	16.26%	0.0224%
LEGGETT & PLATT INC	LEG	5,760.93	N/A	3.04%	N/A	N/A	N/A
LENNAR CORP-A	LEN	8,151.52	0.05%	0.40%	12.13%	12.58%	0.0060%
LABORATORY CRP OF AMER HLDGS	LH	10,425.62	0.06%	0.00%	10.26%	10.26%	0.0062%
L-3 COMMUNICATIONS HOLDINGS	LLL	9,040.46	0.05%	2.46%	5.02%	7.55%	0.0040%
LINEAR TECHNOLOGY CORP	LLTC	9,968.75	0.06%	2.97%	6.66%	9.73%	0.0056%
ELI LILLY & CO	LLY	78,972.62	0.46%	2.87%	12.87%	15.92%	0.0732%
LEGG MASON INC	LM	2,869.34	0.02%	3.01%	14.95%	18.19%	0.0030%
LOCKHEED MARTIN CORP	LMT	63,327.46	0.37%	3.26%	7.21%	10.58%	0.0390%
LINCOLN NATIONAL CORP	LNC	8,079.93	0.05%	3.07%	10.30%	13.53%	0.0064%
LOWE'S COS INC	LOW	59,362.84	0.35%	1.64%	17.02%	18.79%	0.0649%
LAM RESEARCH CORP	LRCX	10,494.94	0.06%	1.80%	8.34%	10.21%	0.0062%
LEUCADIA NATIONAL CORP	LUK	5,355.36	0.03%	1.69%	18.00%	19.84%	0.0062%
SOUTHWEST AIRLINES CO	LUV	23,123.66	0.13%	0.91%	15.07%	16.04%	0.0216%
LEVEL 3 COMMUNICATIONS INC	LVL	16,623.42	0.10%	0.00%	-1.51%	-1.51%	-0.0015%
LYONDELLBASELL INDU-CL A	LYB	34,364.47	0.20%	4.19%	4.18%	8.46%	0.0169%
MACY'S INC	M	12,338.93	0.07%	3.51%	6.60%	10.23%	0.0073%
MASTERCARD INC-CLASS A	MA	94,290.61	0.55%	0.90%	15.23%	16.20%	0.0889%
MACERICH CO/THE	MAC	11,920.49	0.07%	6.30%	5.86%	12.34%	0.0086%
MARRIOTT INTERNATIONAL -CL A	MAR	16,404.82	0.10%	1.49%	12.23%	13.81%	0.0132%
MASCO CORP	MAS	8,622.11	0.05%	1.47%	13.40%	14.97%	0.0075%
MATTEL INC	MAT	10,438.53	0.06%	5.00%	8.97%	14.19%	0.0086%
MCDONALD'S CORP	MCD	108,286.84	0.63%	3.09%	9.81%	13.06%	0.0823%
MICROCHIP TECHNOLOGY INC	MCHP	8,223.48	0.05%	3.49%	7.81%	11.44%	0.0055%
MCKESSON CORP	MCK	34,523.49	0.20%	0.69%	12.78%	13.51%	0.0272%
MOODY'S CORP	MCO	16,272.69	0.09%	1.81%	13.00%	14.93%	0.0141%
MONDELEZ INTERNATIONAL INC-A	MDLZ	60,547.28	0.35%	1.83%	11.80%	13.73%	0.0484%
MEDTRONIC PLC	MDT	103,211.83	0.60%	2.07%	8.84%	11.00%	0.0661%
METLIFE INC	MET	41,608.18	0.24%	4.38%	8.60%	13.17%	0.0319%
MCGRAW HILL FINANCIAL INC	MHFI	22,688.46	0.13%	1.69%	10.88%	12.66%	0.0167%
MOHAWK INDUSTRIES INC	MHK	11,474.17	N/A	N/A	N/A	N/A	N/A
MEAD JOHNSON NUTRITION CO	MJN	13,146.79	0.08%	2.57%	9.15%	11.84%	0.0091%



Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
MCCORMICK & CO-NON VTG SHRS	MKC	11,392.14	0.07%	1.92%	6.50%	8.48%	0.0056%
MARTIN MARIETTA MATERIALS	MLM	8,787.43	0.05%	1.26%	21.93%	23.33%	0.0119%
MARSH & MCLENNAN COS	MMC	29,254.03	0.17%	2.33%	11.69%	14.16%	0.0241%
3M CO	MMM	93,151.68	0.54%	2.90%	9.13%	12.15%	0.0659%
MALLINCKRODT PLC	MNK	6,977.89	0.04%	0.00%	8.44%	8.44%	0.0034%
MONSTER BEVERAGE CORP	MNST	24,987.14	0.15%	0.00%	19.38%	19.38%	0.0282%
ALTRIA GROUP INC	MO	117,581.95	0.68%	3.97%	7.64%	11.76%	0.0805%
MONSANTO CO	MON	38,324.13	0.22%	2.50%	9.74%	12.36%	0.0276%
MOSAIC CO/THE	MOS	8,076.12	0.05%	4.85%	13.40%	18.57%	0.0087%
MARATHON PETROLEUM CORP	MPC	16,911.27	0.10%	4.20%	2.34%	6.59%	0.0065%
MERCK & CO. INC.	MRK	136,967.42	0.80%	3.76%	7.28%	11.17%	0.0891%
MARATHON OIL CORP	MRO	5,072.68	0.03%	9.08%	7.67%	17.09%	0.0050%
MORGAN STANLEY	MS	44,707.41	0.26%	3.00%	16.32%	19.56%	0.0509%
MICROSOFT CORP	MSFT	399,419.79	2.32%	2.79%	9.60%	12.52%	0.2911%
MOTOROLA SOLUTIONS INC	MSI	10,907.98	0.06%	2.25%	9.00%	11.36%	0.0072%
M & T BANK CORP	MTB	18,831.20	0.11%	2.72%	3.75%	6.52%	0.0071%
MICRON TECHNOLOGY INC	MU	10,395.31	0.06%	0.00%	-0.14%	-0.14%	-0.0001%
MURPHY OIL CORP	MUR	2,888.30	N/A	8.30%	N/A	N/A	N/A
MYLAN NV	MYL	20,566.98	0.12%	0.00%	9.92%	9.92%	0.0119%
NAVIENT CORP	NAVI	3,307.88	N/A	7.19%	N/A	N/A	N/A
NOBLE ENERGY INC	NBL	12,297.41	0.07%	2.52%	0.92%	3.46%	0.0025%
NASDAQ INC	NDAQ	10,069.34	0.06%	1.67%	7.90%	9.63%	0.0056%
NEXTERA ENERGY INC	NEE	51,428.04	0.30%	3.11%	6.42%	9.63%	0.0288%
NEWMONT MINING CORP	NEM	13,640.65	0.08%	0.40%	1.43%	1.83%	0.0015%
NETFLIX INC	NFLX	37,414.30	0.22%	0.00%	39.63%	39.63%	0.0863%
NEWFIELD EXPLORATION CO	NFX	3,949.68	0.02%	0.00%	4.68%	4.68%	0.0011%
NISOURCE INC	NI	6,781.32	0.04%	3.90%	4.00%	7.98%	0.0031%
NIKE INC -CL B	NKE	96,091.63	0.56%	1.08%	13.98%	15.14%	0.0847%
NIELSEN HOLDINGS PLC	NLSN	17,216.30	0.10%	2.50%	12.33%	14.98%	0.0150%
NORTHROP GRUMMAN CORP	NOC	32,795.96	0.19%	1.86%	6.90%	8.83%	0.0168%
NATIONAL OILWELL VARCO INC	NOV	10,351.85	0.06%	6.67%	-11.14%	-4.84%	-0.0029%
NRG ENERGY INC	NRG	3,009.81	0.02%	6.10%	-24.70%	-19.36%	-0.0034%
NORFOLK SOUTHERN CORP	NSC	21,637.29	0.13%	3.33%	5.00%	8.42%	0.0106%
NETAPP INC	NTAP	6,399.41	0.04%	3.29%	8.87%	12.30%	0.0046%
NORTHERN TRUST CORP	NTRS	13,144.87	0.08%	2.64%	11.48%	14.28%	0.0109%
NUCOR CORP	NUE	12,794.18	0.07%	3.75%	11.63%	15.61%	0.0116%
VIDIA CORP	NVDA	13,842.74	0.08%	1.53%	8.53%	10.13%	0.0082%
NEWELL RUBBERMAID INC	NWL	9,292.41	0.05%	2.35%	8.48%	10.93%	0.0059%
NEWS CORP - CLASS A	NWSA	6,343.33	0.04%	1.86%	11.45%	13.42%	0.0050%
REALTY INCOME CORP	O	15,152.55	0.09%	3.88%	4.41%	8.38%	0.0074%
OWENS-ILLINOIS INC	OI	2,099.21	0.01%	0.00%	9.09%	9.09%	0.0011%
ONEOK INC	OKE	4,223.22	0.02%	12.10%	8.25%	20.85%	0.0051%
OMNICOM GROUP	OMC	17,573.97	0.10%	2.87%	5.75%	8.70%	0.0089%
ORACLE CORP	ORCL	149,311.36	0.87%	1.71%	7.75%	9.53%	0.0828%
O'REILLY AUTOMOTIVE INC	ORLY	24,957.88	0.15%	0.00%	15.69%	15.69%	0.0228%
OCCIDENTAL PETROLEUM CORP	OXY	51,216.13	0.30%	4.51%	8.00%	12.69%	0.0378%
PAYCHEX INC	PAYX	17,664.71	0.10%	3.43%	9.33%	12.92%	0.0133%
PEOPLE'S UNITED FINANCIAL	PBCT	4,454.95	0.03%	4.71%	12.40%	17.40%	0.0045%
PITNEY BOWES INC	PBI	3,326.21	0.02%	4.44%	14.00%	18.75%	0.0036%
PACCAR INC	PCAR	17,672.79	0.10%	4.10%	8.60%	12.87%	0.0132%
P G & E CORP	PCG	27,077.96	0.16%	3.30%	5.75%	9.14%	0.0144%
PLUM CREEK TIMBER CO	PCL	6,269.21	0.04%	4.94%	22.48%	27.98%	0.0102%
PRICELINE GROUP INC/THE	PCLN	52,671.85	0.31%	0.00%	18.62%	18.62%	0.0571%
PATTERSON COS INC	PDCO	4,223.79	0.02%	2.15%	9.93%	12.19%	0.0030%
PUBLIC SERVICE ENTERPRISE GP	PEG	21,194.74	0.12%	3.72%	3.76%	7.55%	0.0093%
PEPSICO INC	PEP	142,358.70	0.83%	3.01%	6.57%	9.68%	0.0802%
PFIZER INC	PFE	181,239.34	1.05%	4.07%	5.37%	9.55%	0.1008%
PRINCIPAL FINANCIAL GROUP	PFG	10,317.71	0.06%	4.56%	9.02%	13.79%	0.0083%
PROCTER & GAMBLE CO/THE	PG	219,042.76	1.28%	3.34%	7.35%	10.81%	0.1378%
PROGRESSIVE CORP	PGR	18,343.00	0.11%	2.08%	9.25%	11.43%	0.0122%
PARKER HANNIFIN CORP	PH	13,138.73	0.08%	2.59%	8.57%	11.27%	0.0086%
PULTEGROUP INC	PHM	5,589.87	0.03%	2.25%	12.20%	14.59%	0.0047%
PERKINELMER INC	PKI	4,971.00	0.03%	0.63%	11.51%	12.18%	0.0035%
PROLOGIS INC	PLD	18,902.38	0.11%	4.60%	4.11%	8.80%	0.0097%
PHILIP MORRIS INTERNATIONAL	PM	137,980.27	0.80%	4.69%	7.49%	12.35%	0.0992%
PNC FINANCIAL SERVICES GROUP	PNC	41,096.72	0.24%	2.64%	7.66%	10.40%	0.0249%
PENTAIR PLC	PNR	8,003.26	0.05%	3.02%	8.06%	11.20%	0.0052%
PINNACLE WEST CAPITAL	PNW	7,451.32	0.04%	3.59%	4.87%	8.55%	0.0037%
PEPCO HOLDINGS INC	POM	6,743.68	0.04%	4.06%	6.00%	10.18%	0.0040%
PPG INDUSTRIES INC	PPG	24,713.53	0.14%	1.61%	8.40%	10.08%	0.0145%
PPL CORP	PPL	24,047.50	0.14%	4.27%	4.66%	9.03%	0.0126%
PERRIGO CO PLC	PRGO	20,291.33	0.12%	0.37%	12.57%	12.96%	0.0153%
PRUDENTIAL FINANCIAL INC	PRU	27,676.36	0.16%	4.61%	10.67%	15.52%	0.0250%
PUBLIC STORAGE	PSA	40,450.88	N/A	2.78%	N/A	N/A	N/A
PHILLIPS 66	PSX	40,114.71	0.23%	3.15%	7.61%	10.88%	0.0254%
PVH CORP	PVH	6,010.75	0.03%	0.20%	7.47%	7.88%	0.0027%
QUANTA SERVICES INC	PWR	2,821.33	0.02%	0.00%	8.00%	8.00%	0.0013%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
PRAXAIR INC	PX	29,575.51	0.17%	2.86%	8.23%	11.21%	0.0193%
PIONEER NATURAL RESOURCES CO	PXD	18,631.53	0.11%	0.09%	0.15%	0.24%	0.0003%
PAYPAL HOLDINGS INC	PYPL	41,937.78	0.24%	0.00%	16.67%	16.67%	0.0407%
QUALCOMM INC	QCOM	66,612.18	0.39%	4.35%	10.80%	15.39%	0.0597%
QORVO INC	QRVO	5,148.28	0.03%	0.00%	14.64%	14.64%	0.0044%
RYDER SYSTEM INC	R	2,896.15	0.02%	3.14%	7.63%	10.88%	0.0018%
REYNOLDS AMERICAN INC	RAI	68,226.92	0.40%	3.53%	10.08%	13.78%	0.0547%
ROYAL CARIBBEAN CRUISES LTD	RCL	15,129.08	0.09%	2.23%	26.52%	29.04%	0.0256%
REGENERON PHARMACEUTICALS	REGN	39,715.75	0.23%	0.00%	20.92%	20.92%	0.0484%
REGIONS FINANCIAL CORP	RF	9,921.56	0.06%	3.49%	4.47%	8.03%	0.0046%
ROBERT HALF INTL INC	RHI	4,954.50	0.03%	2.27%	11.45%	13.84%	0.0040%
RED HAT INC	RHT	11,708.10	0.07%	0.00%	18.03%	18.03%	0.0123%
TRANSOCEAN LTD	RIG	3,286.77	0.02%	11.85%	10.02%	22.47%	0.0043%
RALPH LAUREN CORP	RL	7,304.24	0.04%	2.31%	12.77%	15.23%	0.0065%
ROCKWELL AUTOMATION INC	ROK	12,659.98	0.07%	3.00%	6.82%	9.92%	0.0073%
ROPER TECHNOLOGIES INC	ROP	16,490.72	0.10%	0.70%	11.53%	12.27%	0.0118%
ROSS STORES INC	ROST	21,769.02	0.13%	0.87%	10.63%	11.55%	0.0146%
RANGE RESOURCES CORP	RRC	4,645.81	0.03%	0.59%	3.25%	3.85%	0.0010%
REPUBLIC SERVICES INC	RSG	15,243.24	0.09%	2.77%	5.97%	8.82%	0.0078%
RAYTHEON COMPANY	RTN	35,951.52	0.21%	2.37%	7.65%	10.11%	0.0212%
STARBUCKS CORP	SBUX	82,566.67	0.48%	1.47%	17.91%	19.51%	0.0938%
SCANA CORP	SCG	9,203.85	0.05%	3.38%	5.55%	9.02%	0.0048%
SCHWAB (CHARLES) CORP	SCHW	30,043.06	0.17%	1.27%	18.63%	20.01%	0.0350%
SPECTRA ENERGY CORP	SE	19,128.49	0.11%	5.71%	5.40%	11.27%	0.0125%
SEALED AIR CORP	SEE	8,536.61	0.05%	1.26%	6.58%	7.88%	0.0039%
SHERWIN-WILLIAMS CO/THE	SHW	23,894.25	0.14%	1.23%	15.15%	16.47%	0.0229%
SIGNET JEWELERS LTD	SIG	7,844.24	0.05%	0.86%	15.20%	16.13%	0.0074%
JM SMUCKER CO/THE	SJM	15,189.14	0.09%	2.12%	11.37%	13.61%	0.0120%
SCHLUMBERGER LTD	SLB	88,227.98	0.51%	2.92%	11.40%	14.49%	0.0744%
SL GREEN REALTY CORP	SLG	8,181.97	0.05%	3.63%	4.26%	7.97%	0.0038%
SNAP-ON INC	SNA	8,133.46	0.05%	2.21%	3.40%	5.64%	0.0027%
SANDISK CORP	SNDK	13,566.46	0.08%	1.63%	9.75%	11.46%	0.0091%
SCRIPPS NETWORKS INTER-CL A	SNI	6,906.61	0.04%	1.69%	10.08%	11.86%	0.0048%
SOUTHERN CO/THE	SO	43,547.26	0.25%	4.66%	3.92%	8.67%	0.0220%
SIMON PROPERTY GROUP INC	SPG	56,787.50	0.33%	3.61%	7.55%	11.29%	0.0373%
STAPLES INC	SPLS	5,354.94	0.03%	5.77%	3.21%	9.07%	0.0028%
STERICYCLE INC	SRCL	9,086.57	0.05%	0.00%	15.60%	15.60%	0.0083%
SEMPRA ENERGY	SRE	23,200.23	0.14%	2.97%	8.94%	12.04%	0.0163%
SUNTRUST BANKS INC	STI	17,087.32	0.10%	3.05%	10.57%	13.79%	0.0137%
ST JUDE MEDICAL INC	STJ	14,246.08	0.08%	2.43%	11.17%	13.74%	0.0114%
STATE STREET CORP	STT	22,062.62	0.13%	2.63%	7.83%	10.57%	0.0136%
SEAGATE TECHNOLOGY	STX	8,857.09	0.05%	7.77%	5.42%	13.41%	0.0069%
CONSTELLATION BRANDS INC-A	STZ	27,474.65	0.16%	0.90%	13.68%	14.64%	0.0234%
STANLEY BLACK & DECKER INC	SWK	13,738.89	0.08%	2.40%	10.67%	13.20%	0.0106%
SKYWORX SOLUTIONS INC	SWKS	11,045.85	0.06%	1.85%	17.69%	19.70%	0.0127%
SOUTHWESTERN ENERGY CO	SWN	3,433.39	0.02%	0.00%	5.61%	5.61%	0.0011%
SYNCHRONY FINANCIAL	SYF	21,154.16	0.12%	0.98%	5.84%	6.84%	0.0084%
STRYKER CORP	SYK	36,302.36	0.21%	1.55%	12.11%	13.76%	0.0291%
SYMANTEC CORP	SYMC	12,490.06	0.07%	3.16%	7.37%	10.65%	0.0077%
SYSCO CORP	SYO	24,396.51	0.14%	2.84%	8.75%	11.71%	0.0166%
AT&T INC	T	224,363.44	1.31%	5.28%	3.80%	9.19%	0.1200%
MOLSON COORS BREWING CO -B	TAP	18,016.83	0.10%	2.03%	13.30%	15.47%	0.0162%
TERADATA CORP	TDC	3,068.31	0.02%	0.00%	7.69%	7.69%	0.0014%
TECO ENERGY INC	TE	6,393.57	0.04%	3.39%	6.02%	9.51%	0.0035%
TE CONNECTIVITY LTD	TEL	20,143.73	0.12%	2.55%	10.00%	12.68%	0.0149%
TEGNA INC	TGNA	4,914.93	N/A	2.53%	N/A	N/A	N/A
TARGET CORP	TGT	43,092.81	0.25%	3.07%	10.49%	13.71%	0.0344%
TENET HEALTHCARE CORP	THC	2,392.06	0.01%	0.00%	18.95%	18.95%	0.0026%
TIFFANY & CO	TIF	7,914.52	0.05%	2.55%	9.05%	11.72%	0.0054%
TJX COMPANIES INC	TJX	46,780.00	0.27%	1.20%	10.89%	12.15%	0.0331%
TORCHMARK CORP	TMK	6,181.31	0.04%	1.14%	7.56%	8.74%	0.0031%
THERMO FISHER SCIENTIFIC INC	TMO	50,477.88	0.29%	0.49%	12.57%	13.09%	0.0385%
TRIPADVISOR INC	TRIP	8,636.78	0.05%	0.00%	17.66%	17.66%	0.0089%
T ROWE PRICE GROUP INC	TROW	16,764.51	0.10%	3.30%	9.24%	12.69%	0.0124%
TRAVELERS COS INC/THE	TRV	31,707.12	0.18%	2.36%	8.25%	10.71%	0.0198%
TRACTOR SUPPLY COMPANY	TSCO	11,214.20	0.07%	0.99%	15.41%	16.47%	0.0108%
TYSON FOODS INC-CL A	TSN	23,767.41	0.14%	1.06%	10.53%	11.65%	0.0161%
TESORO CORP	TSO	8,556.15	0.05%	2.87%	5.39%	8.33%	0.0042%
TOTAL SYSTEM SERVICES INC	TSS	7,245.50	0.04%	1.03%	10.00%	11.08%	0.0047%
TIME WARNER CABLE	TWC	52,402.19	0.31%	1.67%	7.73%	9.47%	0.0289%
TIME WARNER INC	TWX	49,775.63	0.29%	2.52%	13.06%	15.75%	0.0456%
TEXAS INSTRUMENTS INC	TXN	51,877.03	0.30%	3.00%	9.58%	12.72%	0.0384%
TEXTRON INC	TXT	8,779.35	0.05%	0.34%	9.59%	9.95%	0.0051%
TYCO INTERNATIONAL PLC	TYC	14,233.21	0.08%	2.60%	10.60%	13.34%	0.0110%
UNDER ARMOUR INC-CLASS A	UA	16,464.59	0.10%	0.00%	22.74%	22.74%	0.0218%
UNITED CONTINENTAL HOLDINGS	UAL	18,469.77	0.11%	0.00%	19.92%	19.92%	0.0214%
UNIVERSAL HEALTH SERVICES-B	UHS	10,286.33	0.06%	0.38%	10.35%	10.76%	0.0064%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
UNITEDHEALTH GROUP INC	UNH	106,304.37	0.62%	1.82%	13.35%	15.29%	0.0946%
UNUM GROUP	UNM	6,120.27	0.04%	3.04%	9.00%	12.18%	0.0043%
UNION PACIFIC CORP	UNP	65,343.19	0.38%	2.95%	8.34%	11.42%	0.0434%
UNITED PARCEL SERVICE-CL B	UPS	86,592.83	0.50%	3.19%	9.93%	13.28%	0.0669%
URBAN OUTFITTERS INC	URBN	2,910.74	0.02%	0.00%	12.69%	12.69%	0.0022%
UNITED RENTALS INC	URI	4,134.60	0.02%	0.00%	12.64%	12.64%	0.0030%
US BANCORP	USB	68,565.55	0.40%	2.74%	5.40%	8.22%	0.0328%
UNITED TECHNOLOGIES CORP	UTX	71,891.33	0.42%	3.14%	9.01%	12.30%	0.0515%
VISA INC-CLASS A SHARES	V	169,110.53	0.98%	0.80%	17.12%	17.99%	0.1771%
VARIAN MEDICAL SYSTEMS INC	VAR	7,244.82	0.04%	0.00%	15.00%	15.00%	0.0063%
VF CORP	VFC	25,062.71	0.15%	2.25%	10.68%	13.05%	0.0190%
VIACOM INC-CLASS B	VIAB	13,178.02	0.08%	4.90%	9.50%	14.63%	0.0112%
VALERO ENERGY CORP	VLO	27,806.82	0.16%	4.11%	4.49%	8.69%	0.0141%
VULCAN MATERIALS CO	VMC	12,268.01	0.07%	0.58%	28.41%	29.08%	0.0208%
VORNADO REALTY TRUST	VNO	15,296.32	N/A	3.11%	N/A	N/A	N/A
VERISK ANALYTICS INC	VRSK	11,531.29	0.07%	0.00%	12.00%	12.00%	0.0081%
VERISIGN INC	VRSN	8,582.71	0.05%	0.00%	9.75%	9.75%	0.0049%
VERTEX PHARMACEUTICALS INC	VRTX	20,451.05	0.12%	0.00%	45.07%	45.07%	0.0536%
VENTAS INC	VTR	16,275.89	0.09%	6.21%	2.57%	8.86%	0.0084%
VERIZON COMMUNICATIONS INC	VZ	203,891.23	1.19%	4.56%	5.30%	9.98%	0.1184%
WATERS CORP	WAT	9,669.81	0.06%	0.00%	9.39%	9.39%	0.0053%
WALGREENS BOOTS ALLIANCE INC	WBA	83,149.81	0.48%	1.89%	12.27%	14.27%	0.0691%
WESTERN DIGITAL CORP	WDC	9,562.20	0.06%	4.96%	10.00%	15.20%	0.0085%
WEC ENERGY GROUP INC	WEC	17,574.15	0.10%	3.51%	5.54%	9.15%	0.0094%
WELLS FARGO & CO	WFC	241,650.63	1.41%	3.30%	9.14%	12.59%	0.1772%
WHOLE FOODS MARKET INC	WFM	10,054.42	0.06%	1.78%	9.75%	11.62%	0.0068%
WHIRLPOOL CORP	WHR	10,336.52	0.06%	2.93%	16.71%	19.88%	0.0120%
WILLIS TOWERS WATSON PLC	WLTW	14,891.11	0.09%	1.65%	10.00%	11.73%	0.0102%
WASTE MANAGEMENT INC	WM	24,101.82	0.14%	2.83%	8.33%	11.29%	0.0158%
WILLIAMS COS INC	WMB	10,099.33	0.06%	18.19%	-3.60%	14.26%	0.0084%
WAL-MART STORES INC	WMT	211,901.29	1.23%	2.96%	0.36%	3.33%	0.0410%
WESTROCK CO	WRK	7,876.95	0.05%	4.83%	1.63%	6.51%	0.0030%
WESTERN UNION CO	WU	8,872.73	0.05%	3.62%	5.85%	9.58%	0.0049%
WEYERHAEUSER CO	WY	11,536.80	0.07%	5.69%	5.33%	11.17%	0.0075%
WYNDHAM WORLDWIDE CORP	WYN	7,379.40	0.04%	2.93%	8.75%	11.81%	0.0051%
WYNN RESORTS LTD	WYNN	7,022.45	0.04%	2.95%	8.93%	12.02%	0.0049%
CIMAREX ENERGY CO	XEC	8,006.36	0.05%	0.76%	-6.02%	-5.29%	-0.0025%
XCEL ENERGY INC	XEL	19,701.03	0.11%	3.48%	5.13%	8.70%	0.0100%
XL GROUP PLC	XL	10,296.52	0.06%	2.40%	9.50%	12.01%	0.0072%
XILINX INC	XLNX	12,176.48	0.07%	2.60%	8.87%	11.58%	0.0082%
EXXON MOBIL CORP	XOM	337,322.91	1.96%	3.66%	13.22%	17.13%	0.3363%
DENTSPLY INTERNATIONAL INC	XRAY	7,668.88	0.04%	0.51%	10.30%	10.84%	0.0048%
XEROX CORP	XRX	8,878.77	0.05%	3.59%	8.55%	12.30%	0.0064%
XYLEM INC	XYL	6,643.72	0.04%	1.65%	11.30%	13.04%	0.0050%
YAHOO! INC	YHOO	25,535.36	0.15%	0.00%	8.97%	8.97%	0.0133%
YUM! BRANDS INC	YUM	29,039.81	0.17%	2.81%	11.85%	14.83%	0.0251%
ZIMMER BIOMET HOLDINGS INC	ZBH	18,485.76	0.11%	0.99%	10.61%	11.66%	0.0125%
ZIONS BANCORPORATION	ZION	4,288.14	0.02%	1.45%	9.00%	10.51%	0.0026%
ZOETIS INC	ZTS	20,130.92	N/A	0.92%	N/A	N/A	N/A
ZIONS BANCORPORATION	ZION	5,577.24	0.03%	0.81%	7.15%	7.98%	0.0026%
ZIONTS INC	ZTS	23,860.35	0.14%	0.69%	10.23%	10.96%	0.0152%
Total Market Capitalization:		17,179,578.30					13.44%

Notes:

- [1] Equals sum of Col. [9]
- [2] Source: Bloomberg Professional
- [3] Equals [1] - [2]
- [4] Source: Bloomberg Professional
- [5] Equals weight in S&P 500 based on market capitalization
- [6] Source: Bloomberg Professional
- [7] Source: Bloomberg Professional
- [8] Equals ([6] x (1 + (0.5 x [7]))) + [7]
- [9] Equals Col. [5] x Col. [8]



Ex-Ante Market Risk Premium  
Market DCF Method Based - Value Line

[1]	[2]	[3]
S&P 500	Current 30-Year	
Est. Required	Treasury (30-	Implied Market
Market Return	day average)	Risk Premium
12.78%	2.79%	9.99%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
AGILENT TECHNOLOGIES INC	A	\$ 11,710.45	0.08%	1.30%	2.50%	3.82%	0.0029%
ALCOA INC	AA	\$ 9,602.48	0.06%	1.64%	17.00%	18.78%	0.0117%
AMERICAN AIRLINES GROUP INC	AAL	\$ 23,357.54	N/A	1.10%	N/A	N/A	N/A
ADVANCE AUTO PARTS INC	AAP	\$ 10,136.32	0.07%	0.17%	13.50%	13.68%	0.0090%
APPLE INC	AAPL	\$ 519,518.40	3.37%	2.38%	14.00%	16.55%	0.5570%
ABBVIE INC	ABBV	\$ 85,301.10	N/A	4.37%	N/A	N/A	N/A
AMERISOURCEBERGEN CORP	ABC	\$ 17,444.02	0.11%	1.61%	13.50%	15.22%	0.0172%
ABBOTT LABORATORIES	ABT	\$ 54,209.10	0.35%	2.86%	1.00%	3.87%	0.0136%
ACCENTURE PLC-CL A	ACN	\$ 60,594.11	0.39%	2.42%	8.00%	10.52%	0.0413%
ADOBE SYSTEMS INC	ADBE	\$ 37,305.81	0.24%	0.00%	37.50%	37.50%	0.0906%
ANALOG DEVICES INC	ADI	\$ 15,241.06	0.10%	3.28%	13.00%	16.49%	0.0163%
ARCHER-DANIELS-MIDLAND CO	ADM	\$ 19,009.63	0.12%	3.79%	8.00%	11.94%	0.0147%
AUTOMATIC DATA PROCESSING	ADP	\$ 36,792.33	0.24%	2.87%	9.00%	12.00%	0.0286%
ALLIANCE DATA SYSTEMS CORP	ADS	\$ 11,029.65	0.07%	0.00%	15.00%	15.00%	0.0107%
AUTODESK INC	ADSK	\$ 9,747.47	0.06%	0.00%	13.50%	13.50%	0.0085%
ADT CORP/THE	ADT	\$ 4,358.80	0.03%	3.34%	10.50%	14.02%	0.0040%
AMEREN CORPORATION	AEE	\$ 11,006.76	0.07%	3.79%	7.00%	10.92%	0.0078%
AMERICAN ELECTRIC POWER	AEP	\$ 30,091.25	0.19%	3.70%	5.00%	8.79%	0.0171%
AES CORP	AES	\$ 6,070.15	0.04%	4.89%	8.00%	13.09%	0.0051%
AETNA INC	AET	\$ 34,109.84	0.22%	1.02%	11.00%	12.08%	0.0267%
AFLAC INC	AFL	\$ 23,772.72	0.15%	2.99%	4.50%	7.56%	0.0116%
ALLERGAN PLC	AGN	\$ 108,172.70	0.70%	0.00%	17.00%	17.00%	0.1191%
AMERICAN INTERNATIONAL GROUP	AIG	\$ 62,988.08	0.41%	2.22%	5.00%	7.28%	0.0297%
APARTMENT INVT & MGMT CO -A	AIV	\$ -	N/A	3.69%	N/A	N/A	N/A
ASSURANT INC	AIZ	\$ 4,466.04	0.03%	2.99%	3.50%	6.54%	0.0019%
AKAMAI TECHNOLOGIES INC	AKAM	\$ 8,743.87	0.06%	0.00%	15.50%	15.50%	0.0088%
ALLSTATE CORP	ALL	\$ 24,304.80	0.16%	1.93%	7.50%	9.50%	0.0150%
ALLEGION PLC	ALLE	\$ 5,442.05	N/A	0.85%	N/A	N/A	N/A
ALEXION PHARMACEUTICALS INC	ALXN	\$ 30,589.33	0.20%	0.00%	25.50%	25.50%	0.0505%
APPLIED MATERIALS INC	AMAT	\$ 18,142.40	0.12%	2.56%	18.50%	21.30%	0.0250%
AMETEK INC	AME	\$ 10,711.87	0.07%	0.80%	7.50%	8.33%	0.0058%
AFFILIATED MANAGERS GROUP	AMG	\$ 6,573.24	0.04%	0.00%	13.00%	13.00%	0.0055%
AMGEN INC	AMGN	\$ 106,788.10	0.69%	2.83%	9.50%	12.46%	0.0862%
AMERIPRISE FINANCIAL INC	AMP	\$ 13,348.85	0.09%	3.51%	13.50%	17.25%	0.0149%
AMERICAN TOWER CORP	AMT	\$ 35,429.76	0.23%	2.44%	14.50%	17.12%	0.0393%
AMAZON.COM INC	AMZN	\$ 236,291.60	N/A	0.00%	N/A	N/A	N/A
AUTONATION INC	AN	\$ 5,193.84	0.03%	0.00%	11.50%	11.50%	0.0039%
ANTHEM INC	ANTM	\$ 31,318.26	0.20%	2.08%	9.00%	11.17%	0.0227%
AON PLC	AON	\$ 25,387.79	0.16%	1.30%	13.50%	14.89%	0.0245%
APACHE CORP	APA	\$ 12,996.12	0.08%	2.91%	-3.00%	-0.13%	-0.0001%
ANADARKO PETROLEUM CORP	APC	\$ 18,129.01	0.12%	0.56%	10.00%	10.59%	0.0124%
AIR PRODUCTS & CHEMICALS INC	APD	\$ 27,432.84	0.18%	2.55%	13.00%	15.72%	0.0279%
AMPHENOL CORP-CL A	APH	\$ 15,104.88	0.10%	1.14%	9.50%	10.69%	0.0105%
AIRGAS INC	ARG	\$ 10,072.34	0.07%	1.80%	10.00%	11.89%	0.0078%
ACTIVISION BLIZZARD INC	ATVI	\$ 22,308.41	0.14%	0.85%	10.00%	10.89%	0.0157%
AVALONBAY COMMUNITIES INC	AVB	\$ -	N/A	3.34%	N/A	N/A	N/A
BROADCOM LTD	AVGO	\$ 31,974.55	0.21%	1.51%	15.50%	17.13%	0.0355%
AVERY DENNISON CORP	AVY	\$ 5,673.83	0.04%	2.41%	7.50%	10.00%	0.0037%
AMERICAN EXPRESS CO	AXP	\$ 50,304.76	0.33%	2.45%	3.50%	5.99%	0.0195%
AUTOZONE INC	AZO	\$ 21,530.75	0.14%	0.00%	13.00%	13.00%	0.0181%
BOEING CO/THE	BA	\$ 72,759.02	0.47%	4.02%	11.00%	15.24%	0.0718%
BANK OF AMERICA CORP	BAC	\$ 116,368.70	0.75%	2.15%	27.00%	29.44%	0.2220%
BAXTER INTERNATIONAL INC	BAX	\$ 19,619.86	0.13%	1.28%	-7.00%	-5.76%	-0.0073%
BED BATH & BEYOND INC	BBBY	\$ 6,901.74	0.04%	0.00%	4.00%	4.00%	0.0018%
BB&T CORP	BBT	\$ 23,622.94	0.15%	3.86%	6.50%	10.49%	0.0160%
BEST BUY CO INC	BBY	\$ 9,287.16	0.06%	3.42%	6.50%	10.03%	0.0060%
CR BARD INC	BCR	\$ 13,410.31	0.09%	0.56%	9.00%	9.59%	0.0083%
BECTON DICKINSON AND CO	BDX	\$ 28,513.49	0.18%	2.04%	9.50%	11.64%	0.0215%
FRANKLIN RESOURCES INC	BEN	\$ 18,719.95	0.12%	2.39%	8.50%	10.99%	0.0133%
BROWN-FORMAN CORP-CLASS B	BF/B	\$ 19,244.27	0.12%	1.44%	9.00%	10.50%	0.0131%
BAKER HUGHES INC	BHI	\$ 17,347.54	0.11%	1.71%	2.00%	3.73%	0.0042%
BIOPEN INC	BIIB	\$ 54,635.75	0.35%	0.00%	16.50%	16.50%	0.0584%
BANK OF NEW YORK MELLON CORP	BK	\$ 35,783.28	0.23%	2.08%	11.50%	13.70%	0.0318%
BLACKROCK INC	BLK	\$ 48,227.50	0.31%	3.11%	8.50%	11.74%	0.0367%
BALL CORP	BLL	\$ 8,678.87	0.06%	0.81%	9.50%	10.35%	0.0058%
BRISTOL-MYERS SQUIBB CO	BMY	\$ 99,296.38	0.64%	2.55%	14.50%	17.23%	0.1109%

Company	Ticker	[4]	[5]	[6]	[7]	[8]	[9]
		Market Capitalization	Weight in Index	Estimated Dividend Yield	Long-Term Growth Est.	DCF Result	Weighted DCF Result
BERKSHIRE HATHAWAY INC-CL B	BRK/B	\$ 156.11	N/A	0.00%	N/A	N/A	N/A
BOSTON SCIENTIFIC CORP	BSX	\$ 22,297.83	0.14%	0.00%	15.00%	15.00%	0.0217%
BORGWARNER INC	BWA	\$ 6,766.94	0.04%	1.72%	8.50%	10.29%	0.0045%
BAXALTA INC	BXLT	N/A	N/A	0.00%	N/A	N/A	N/A
BOSTON PROPERTIES INC	BXP	\$ -	N/A	2.59%	N/A	N/A	N/A
CITIGROUP INC	C	\$ 104,205.10	0.68%	0.57%	13.50%	14.11%	0.0953%
CA INC	CA	\$ 11,197.80	0.07%	3.83%	5.00%	8.93%	0.0065%
CONAGRA FOODS INC	CAG	\$ 17,478.07	0.11%	2.48%	6.50%	9.06%	0.0103%
CARDINAL HEALTH INC	CAH	\$ 25,449.60	0.16%	2.27%	14.00%	16.43%	0.0271%
CAMERON INTERNATIONAL CORP	CAM	\$ 12,007.86	0.08%	0.00%	3.50%	3.50%	0.0027%
CATERPILLAR INC	CAT	\$ 35,754.99	0.23%	5.02%	2.50%	7.58%	0.0176%
CHUBB LTD	CB	\$ 35,919.03	0.23%	2.42%	8.00%	10.52%	0.0245%
CBRE GROUP INC - A	CBG	\$ 7,862.95	0.05%	0.00%	12.50%	12.50%	0.0064%
CBS CORP-CLASS B NON VOTING	CBS	\$ 20,652.18	0.13%	1.38%	12.50%	13.97%	0.0187%
COCA-COLA ENTERPRISES	CCE	\$ 10,714.40	0.07%	2.54%	5.00%	7.60%	0.0053%
CROWN CASTLE INTL CORP	CCI	\$ 27,205.67	0.18%	4.34%	23.50%	28.35%	0.0500%
CARNIVAL CORP	CCL	\$ 33,601.82	0.22%	2.78%	14.00%	16.97%	0.0370%
CELGENE CORP	CELG	\$ 78,397.24	0.51%	0.00%	16.50%	16.50%	0.0838%
CERNER CORP	CERN	\$ 18,456.51	0.12%	0.00%	17.00%	17.00%	0.0203%
CF INDUSTRIES HOLDINGS INC	CF	\$ 6,768.44	0.04%	4.82%	6.50%	11.48%	0.0050%
CITIZENS FINANCIAL GROUP	CFG	\$ 9,571.34	N/A	2.21%	N/A	N/A	N/A
CHURCH & DWIGHT CO INC	CHD	\$ 11,346.61	0.07%	1.64%	8.50%	10.21%	0.0075%
CHESAPEAKE ENERGY CORP	CHK	\$ 1,180.98	0.01%	0.00%	7.00%	7.00%	0.0005%
C.H. ROBINSON WORLDWIDE INC	CHRW	\$ 9,918.95	0.06%	2.50%	6.50%	9.08%	0.0058%
CIGNA CORP	CI	\$ 32,972.67	0.21%	0.03%	14.50%	14.53%	0.0310%
CINCINNATI FINANCIAL CORP	CINF	\$ 9,911.54	0.06%	3.17%	7.50%	10.79%	0.0069%
COLGATE-PALMOLIVE CO	CL	\$ 57,797.66	0.37%	2.50%	11.00%	13.64%	0.0511%
CLOROX COMPANY	CLX	\$ 16,425.75	0.11%	2.47%	8.00%	10.57%	0.0112%
COMERICA INC	CMA	\$ 5,495.32	0.04%	2.71%	7.50%	10.31%	0.0037%
COMCAST CORP-CLASS A	CMCSA	\$ 137,703.20	0.89%	1.96%	10.00%	12.06%	0.1076%
CME GROUP INC	CME	\$ 30,077.53	0.19%	2.69%	10.00%	12.82%	0.0250%
CHIPOTLE MEXICAN GRILL INC	CMG	\$ 14,392.14	0.09%	0.00%	16.50%	16.50%	0.0154%
CUMMINS INC	CMI	\$ 16,918.40	0.11%	4.09%	6.50%	10.72%	0.0118%
CMS ENERGY CORP	CMS	\$ 10,881.72	0.07%	3.16%	5.50%	8.75%	0.0062%
CENTERPOINT ENERGY INC	CNP	\$ 7,594.13	N/A	5.84%	N/A	N/A	N/A
CONSOL ENERGY INC	CNX	\$ 1,681.26	0.01%	0.55%	8.00%	8.57%	0.0009%
CAPITAL ONE FINANCIAL CORP	COF	\$ 32,174.60	0.21%	2.66%	3.50%	6.21%	0.0129%
CABOT OIL & GAS CORP	COG	\$ 8,223.68	0.05%	0.40%	30.50%	30.96%	0.0165%
COACH INC	COH	\$ 9,339.05	0.06%	4.01%	2.00%	6.05%	0.0037%
ROCKWELL COLLINS INC	COL	\$ 10,272.96	0.07%	1.72%	7.00%	8.78%	0.0058%
CONOCOPHILLIPS	COP	\$ 39,360.39	0.26%	3.14%	2.50%	5.68%	0.0145%
COSTCO WHOLESALE CORP	COST	\$ 64,493.29	0.42%	1.12%	10.50%	11.68%	0.0488%
CAMPBELL SOUP CO	CPB	\$ 17,772.30	0.12%	2.18%	4.50%	6.73%	0.0077%
COLUMBIA PIPELINE GROUP	CPGX	N/A	N/A	0.00%	N/A	N/A	N/A
SALESFORCE.COM INC	CRM	\$ 39,335.36	N/A	0.00%	N/A	N/A	N/A
CISCO SYSTEMS INC	CSCO	\$ 125,423.80	0.81%	4.21%	6.50%	10.85%	0.0881%
CSRA INC	CSRA	\$ -	N/A	1.62%	N/A	N/A	N/A
CSX CORP	CSX	\$ 22,823.44	0.15%	3.08%	9.00%	12.22%	0.0181%
CINTAS CORP	CTAS	\$ 8,879.64	0.06%	1.28%	13.50%	14.87%	0.0086%
CENTURYLINK INC	CTL	\$ 15,121.12	0.10%	7.92%	15.00%	23.51%	0.0230%
COGNIZANT TECH SOLUTIONS-A	CTSH	\$ 31,682.88	0.21%	0.00%	15.50%	15.50%	0.0318%
CITRIX SYSTEMS INC	CTXS	\$ 18,596.23	0.12%	0.00%	14.00%	14.00%	0.0169%
CABLEVISION SYSTEMS-NY GRP-A	CVC	\$ 8,861.84	0.06%	0.00%	13.00%	13.00%	0.0075%
CVS HEALTH CORP	CVS	\$ 104,195.70	0.68%	1.81%	13.00%	14.93%	0.1008%
CHEVRON CORP	CVX	\$ 156,190.30	1.01%	5.16%	2.50%	7.72%	0.0782%
DOMINION RESOURCES INC/VA	D	\$ 41,203.00	0.27%	4.13%	8.00%	12.30%	0.0328%
DELTA AIR LINES INC	DAL	\$ 33,647.60	0.22%	1.59%	16.00%	17.72%	0.0386%
DU PONT (E.I.) DE NEMOURS	DD	\$ 49,616.45	0.32%	2.79%	6.00%	8.87%	0.0285%
DEERE & CO	DE	\$ 24,198.05	N/A	3.14%	N/A	N/A	N/A
DISCOVER FINANCIAL SERVICES	DFS	\$ 18,576.61	0.12%	2.59%	4.00%	6.64%	0.0080%
DOLLAR GENERAL CORP	DG	\$ 20,001.78	0.13%	1.46%	14.00%	15.56%	0.0202%
QUEST DIAGNOSTICS INC	DGX	\$ 8,827.20	0.06%	2.61%	9.00%	11.73%	0.0067%
DR HORTON INC	DHI	\$ 8,588.76	0.06%	1.38%	15.00%	16.48%	0.0092%
DANAHER CORP	DHR	\$ 57,275.86	0.37%	0.65%	13.00%	13.69%	0.0508%
WALT DISNEY CO/THE	DIS	\$ 144,496.00	0.94%	1.57%	12.00%	13.66%	0.1279%
DISCOVERY COMMUNICATIONS-A	DISCA	\$ 10,473.65	0.07%	0.00%	18.00%	18.00%	0.0122%
DELPHI AUTOMOTIVE PLC	DLPH	\$ 16,452.46	0.11%	1.98%	15.50%	17.63%	0.0188%
DOLLAR TREE INC	DLTR	\$ 17,241.36	0.11%	0.00%	17.50%	17.50%	0.0195%
DUN & BRADSTREET CORP	DNB	\$ 3,225.17	0.02%	2.07%	4.50%	6.62%	0.0014%
DIAMOND OFFSHORE DRILLING	DO	\$ 2,363.25	0.02%	0.00%	-2.00%	-2.00%	-0.0003%
DOVER CORP	DOV	\$ 8,871.75	0.06%	2.93%	2.50%	5.47%	0.0031%
DOW CHEMICAL CO/THE	DOW	\$ 51,905.96	0.34%	4.11%	12.50%	16.87%	0.0567%
DR PEPPER SNAPPLE GROUP INC	DPS	\$ 16,942.63	0.11%	2.23%	9.00%	11.33%	0.0124%
DARDEN RESTAURANTS INC	DRI	\$ 7,327.41	0.05%	3.50%	11.50%	15.20%	0.0072%
DTE ENERGY COMPANY	DTE	\$ 15,090.34	0.10%	3.57%	5.00%	8.66%	0.0085%
DUKE ENERGY CORP	DUK	\$ 52,838.40	0.34%	4.41%	5.00%	9.52%	0.0326%
DAVITA HEALTHCARE PARTNERS I	DVA	\$ 13,202.90	0.09%	0.00%	11.50%	11.50%	0.0098%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
DEVON ENERGY CORP	DVN	\$ 8,733.75	0.06%	4.52%	6.00%	10.66%	0.0060%
ELECTRONIC ARTS INC	EA	\$ 18,097.09	0.12%	0.00%	16.50%	16.50%	0.0193%
EBAY INC	EBAY	\$ 26,510.42	0.17%	0.00%	3.00%	3.00%	0.0052%
ECOLAB INC	ECL	\$ 30,504.49	0.20%	1.36%	11.00%	12.43%	0.0246%
CONSOLIDATED EDISON INC	ED	\$ 19,471.34	0.13%	3.74%	2.50%	6.29%	0.0079%
EQUIFAX INC	EFX	\$ 11,055.13	0.07%	1.41%	9.00%	10.47%	0.0075%
EDISON INTERNATIONAL	EIX	\$ 20,314.31	0.13%	3.13%	3.50%	6.68%	0.0088%
ESTEE LAUDER COMPANIES-CL A	EL	\$ 32,153.65	0.21%	1.38%	9.00%	10.44%	0.0218%
EMC CORP/MA	EMC	\$ 46,846.24	0.30%	1.90%	3.50%	5.43%	0.0165%
EASTMAN CHEMICAL CO	EMN	\$ 8,681.67	0.06%	3.15%	9.50%	12.80%	0.0072%
EMERSON ELECTRIC CO	EMR	\$ 29,216.03	0.19%	4.18%	2.00%	6.22%	0.0118%
ENDO INTERNATIONAL PLC	ENDP	\$ 10,978.96	N/A	0.00%	N/A	N/A	N/A
EOG RESOURCES INC	EOG	\$ 36,036.30	0.23%	1.11%	2.00%	3.12%	0.0073%
EQUINIX INC	EQIX	\$ 15,756.51	0.10%	2.46%	25.50%	28.27%	0.0289%
EQUITY RESIDENTIAL	EQR	\$ -	N/A	3.37%	N/A	N/A	N/A
EQT CORP	EQT	\$ 8,714.61	0.06%	0.21%	14.00%	14.22%	0.0080%
EVERSOURCE ENERGY	ES	\$ 17,096.60	0.11%	3.36%	7.00%	10.48%	0.0116%
EXPRESS SCRIPTS HOLDING CO	ESRX	\$ 44,886.03	0.29%	0.00%	17.50%	17.50%	0.0509%
ESSEX PROPERTY TRUST INC	ESS	\$ -	N/A	3.33%	N/A	N/A	N/A
ENSCO PLC-CL A	ESV	\$ 1,896.18	0.01%	7.45%	-18.50%	-11.74%	-0.0014%
E*TRADE FINANCIAL CORP	ETFC	\$ 5,875.36	0.04%	0.00%	32.50%	32.50%	0.0124%
EATON CORP PLC	ETN	\$ 24,574.68	0.16%	4.14%	5.00%	9.24%	0.0147%
ENTERGY CORP	ETR	\$ 12,583.42	0.08%	4.85%	-1.00%	3.83%	0.0031%
EDWARDS LIFESCIENCES CORP	EW	\$ 17,025.21	0.11%	0.00%	15.00%	15.00%	0.0165%
EXELON CORP	EXC	\$ 27,871.99	0.18%	4.19%	6.50%	10.83%	0.0196%
EXPEDITORS INTL WASH INC	EXPD	\$ 8,320.52	0.05%	1.61%	10.50%	12.19%	0.0066%
EXPEDIA INC	EXPE	\$ 13,418.56	0.09%	0.93%	22.00%	23.03%	0.0200%
EXTRA SPACE STORAGE INC	EXR	N/A	N/A	0.00%	N/A	N/A	N/A
FORD MOTOR CO	F	\$ 43,538.18	0.28%	5.91%	7.00%	13.12%	0.0370%
FASTENAL CO	FAST	\$ 12,168.37	0.08%	2.86%	8.50%	11.48%	0.0091%
FACEBOOK INC-A	FB	\$ 287,997.70	1.87%	0.00%	34.50%	34.50%	0.6438%
FREEMPORT-MCMORAN INC	FCX	\$ 5,564.82	0.04%	0.00%	-0.50%	-0.50%	-0.0002%
FEDEX CORP	FDX	\$ 34,292.02	0.22%	0.80%	15.00%	15.86%	0.0352%
FIRSTENERGY CORP	FE	\$ 13,879.97	0.09%	4.39%	7.50%	12.05%	0.0108%
F5 NETWORKS INC	FFIV	\$ 5,978.59	0.04%	0.00%	9.00%	9.00%	0.0035%
FIDELITY NATIONAL INFO SERV	FIS	\$ 15,921.72	0.10%	1.84%	12.50%	14.46%	0.0149%
FISERV INC	FISV	\$ 21,040.56	0.14%	0.00%	10.50%	10.50%	0.0143%
FIFTH THIRD BANCORP	FITB	\$ 11,088.42	0.07%	4.02%	4.00%	8.10%	0.0058%
FLIR SYSTEMS INC	FLIR	\$ 3,953.22	0.03%	1.68%	6.50%	8.23%	0.0021%
FLUOR CORP	FLR	\$ 5,936.22	0.04%	2.01%	7.50%	9.59%	0.0037%
FLOWSERVE CORP	FLS	\$ 5,187.12	0.03%	1.81%	10.00%	11.90%	0.0040%
FMC CORP	FMC	\$ 4,480.38	0.03%	2.15%	4.50%	6.70%	0.0019%
TWENTY-FIRST CENTURY FOX-A	FOXA	\$ 48,768.96	0.32%	1.22%	6.50%	7.76%	0.0245%
FEDERAL REALTY INVS TRUST	FRT	\$ -	N/A	2.65%	N/A	N/A	N/A
FIRST SOLAR INC	FSLR	\$ 6,192.39	0.04%	0.00%	7.50%	7.50%	0.0030%
FMC TECHNOLOGIES INC	FTI	\$ 5,193.84	0.03%	0.00%	3.00%	3.00%	0.0010%
FRONTIER COMMUNICATIONS CORP	FTR	\$ 4,871.47	0.03%	10.07%	18.00%	28.98%	0.0091%
AGL RESOURCES INC	GAS	\$ 7,777.70	0.05%	3.28%	6.50%	9.89%	0.0050%
GENERAL DYNAMICS CORP	GD	\$ 40,009.08	0.26%	2.15%	9.00%	11.25%	0.0292%
GENERAL ELECTRIC CO	GE	\$ 277,498.60	1.80%	3.35%	9.00%	12.50%	0.2248%
GENERAL GROWTH PROPERTIES	GGP	\$ -	N/A	3.07%	N/A	N/A	N/A
GILEAD SCIENCES INC	GILD	\$ 126,584.60	0.82%	1.97%	22.50%	24.69%	0.2025%
GENERAL MILLS INC	GIS	\$ 33,212.94	0.22%	3.23%	5.50%	8.82%	0.0190%
CORNING INC	GLW	\$ 21,087.04	0.14%	3.03%	6.00%	9.12%	0.0125%
GENERAL MOTORS CO	GM	\$ 43,040.00	0.28%	5.35%	10.00%	15.62%	0.0436%
KEURIG GREEN MOUNTAIN INC	GMCR	\$ 13,406.03	0.09%	1.45%	8.50%	10.01%	0.0087%
GAMESTOP CORP-CLASS A	GME	\$ 2,797.68	0.02%	5.40%	7.50%	13.10%	0.0024%
ALPHABET INC-CL C	GOOG	\$ 469,770.00	3.04%	0.00%	16.50%	16.50%	0.5022%
GENUINE PARTS CO	GPC	\$ 13,031.95	0.08%	2.85%	7.00%	9.95%	0.0084%
GAP INC/THE	GPS	\$ 9,061.72	0.06%	4.24%	4.00%	8.32%	0.0049%
GARMIN LTD	GRMN	\$ 6,441.17	0.04%	6.12%	-2.00%	4.06%	0.0017%
GOLDMAN SACHS GROUP INC	GS	\$ 60,009.35	0.39%	1.85%	7.00%	8.91%	0.0347%
GOODYEAR TIRE & RUBBER CO	GT	\$ 7,696.09	0.05%	0.98%	10.50%	11.53%	0.0058%
VWV GRAINGER INC	GWV	\$ 12,832.19	0.08%	2.29%	9.00%	11.39%	0.0095%
HALLIBURTON CO	HAL	\$ 24,624.00	0.16%	2.50%	2.00%	4.53%	0.0072%
HARMAN INTERNATIONAL	HAR	\$ 4,809.64	0.03%	2.07%	20.00%	22.28%	0.0069%
HASBRO INC	HAS	\$ 8,674.69	0.06%	2.93%	10.00%	13.08%	0.0073%
HUNTINGTON BANCSHARES INC	HBAN	\$ 6,381.24	0.04%	3.50%	9.00%	12.66%	0.0052%
HANESBRANDS INC	HBI	\$ 9,871.12	0.06%	1.75%	16.50%	18.39%	0.0118%
HCA HOLDINGS INC	HCA	\$ 26,511.99	0.17%	0.00%	12.50%	12.50%	0.0215%
WELLTOWER INC	HCN	\$ -	N/A	6.41%	N/A	N/A	N/A
HCP INC	HCP	\$ -	0.00%	8.80%	89.00%	101.72%	0.0000%
HOME DEPOT INC	HD	\$ 143,626.40	0.93%	2.23%	13.50%	15.88%	0.1478%
HESS CORP	HES	\$ 11,137.76	0.07%	2.57%	-10.00%	-7.56%	-0.0055%
HARTFORD FINANCIAL SVCS GRP	HIG	\$ 15,889.06	0.10%	2.17%	13.50%	15.82%	0.0163%
HARLEY-DAVIDSON INC	HOG	\$ 7,313.70	0.05%	3.67%	10.50%	14.36%	0.0068%
HONEYWELL INTERNATIONAL INC	HON	\$ 78,255.96	0.51%	2.34%	8.50%	10.94%	0.0555%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
STARWOOD HOTELS & RESORTS	HOT	\$ 10,515.66	0.07%	2.42%	6.50%	9.00%	0.0061%
HELMERICH & PAYNE	HP	\$ 4,930.39	0.03%	6.01%	-10.00%	-4.29%	-0.0014%
HEWLETT PACKARD ENTERPRIS	HPE	N/A	N/A	0.00%	N/A	N/A	N/A
HP INC	HPQ	N/A	N/A	0.00%	N/A	N/A	N/A
H&R BLOCK INC	HRB	\$ 7,824.07	0.05%	2.41%	9.50%	12.02%	0.0061%
HORMEL FOODS CORP	HRL	\$ 22,029.50	0.14%	1.39%	14.50%	15.99%	0.0228%
HARRIS CORP	HRS	\$ 8,921.51	0.06%	2.85%	7.00%	9.95%	0.0058%
HENRY SCHEIN INC	HSIC	\$ 13,167.33	0.09%	0.00%	9.00%	9.00%	0.0077%
HOST HOTELS & RESORTS INC	HST	\$ -	N/A	5.98%	N/A	N/A	N/A
HERSHEY CO/THE	HSY	\$ 19,184.01	0.12%	2.63%	7.00%	9.72%	0.0121%
HUMANA INC	HUM	\$ 23,422.20	0.15%	0.73%	10.00%	10.77%	0.0163%
INTL BUSINESS MACHINES CORP	IBM	\$ 114,327.50	N/A	4.41%	N/A	N/A	N/A
INTERCONTINENTAL EXCHANGE INC	ICE	\$ 25,650.90	0.17%	1.46%	13.50%	15.06%	0.0250%
INTL FLAVORS & FRAGRANCES	IFF	\$ 8,074.98	0.05%	2.23%	6.50%	8.80%	0.0046%
ILLUMINA INC	ILMN	\$ 20,270.54	0.13%	0.00%	27.50%	27.50%	0.0361%
INTEL CORP	INTC	\$ 133,480.60	0.86%	3.69%	10.00%	13.87%	0.1200%
INTUIT INC	INTU	\$ 24,163.78	0.16%	1.31%	14.00%	15.40%	0.0241%
INTERNATIONAL PAPER CO	IP	\$ 13,730.00	0.09%	5.31%	15.50%	21.22%	0.0189%
INTERPUBLIC GROUP OF COS INC	IPG	\$ 8,498.26	0.06%	2.75%	12.50%	15.42%	0.0085%
INGERSOLL-RAND PLC	IR	\$ 12,788.79	0.08%	2.61%	9.50%	12.23%	0.0101%
IRON MOUNTAIN INC	IRM	\$ 5,616.92	0.04%	7.29%	6.50%	14.03%	0.0051%
INTUITIVE SURGICAL INC	ISRG	\$ 19,088.73	0.12%	0.00%	9.50%	9.50%	0.0117%
ILLINOIS TOOL WORKS	ITW	\$ 32,568.88	0.21%	2.46%	10.00%	12.58%	0.0266%
INVESCO LTD	IVZ	\$ 10,757.62	0.07%	4.26%	14.00%	18.56%	0.0129%
HUNT (JB) TRANSPRT SVCS INC	JBHT	\$ 8,362.51	0.05%	1.21%	12.00%	13.28%	0.0072%
JOHNSON CONTROLS INC	JCI	\$ 22,176.12	0.14%	3.39%	10.00%	13.56%	0.0195%
JACOBS ENGINEERING GROUP INC	JEC	\$ 4,304.56	0.03%	0.00%	6.00%	6.00%	0.0017%
JOHNSON & JOHNSON	JNJ	\$ 281,432.50	1.82%	3.15%	5.50%	8.74%	0.1593%
JUNIPER NETWORKS INC	JNPR	\$ 8,350.16	0.05%	2.12%	16.00%	18.29%	0.0099%
JPMORGAN CHASE & CO	JPM	\$ 195,357.60	1.27%	3.43%	7.00%	10.55%	0.1335%
NORDSTROM INC	JWN	\$ 9,119.83	0.06%	3.17%	4.50%	7.74%	0.0046%
KELLOGG CO	K	\$ 26,115.52	0.17%	2.82%	4.00%	6.88%	0.0116%
KEYCORP	KEY	\$ 8,352.85	0.05%	3.40%	6.50%	10.01%	0.0054%
KRAFT HEINZ CO/THE	KHC	\$ 28,430.26	N/A	3.22%	N/A	N/A	N/A
KIMCO REALTY CORP	KIM	\$ -	N/A	3.96%	N/A	N/A	N/A
KLA-TENCOR CORP	KLAC	\$ 9,788.22	0.06%	3.31%	12.50%	16.02%	0.0102%
KIMBERLY-CLARK CORP	KMB	\$ 45,889.70	0.30%	2.78%	7.00%	9.88%	0.0294%
KINDER MORGAN INC	KMI	\$ 31,101.40	0.20%	3.58%	13.00%	16.81%	0.0339%
CARMAX INC	KMX	\$ 8,327.28	0.05%	0.00%	12.50%	12.50%	0.0067%
COCA-COLA CO/THE	KO	\$ 184,398.70	1.19%	3.30%	4.50%	7.87%	0.0941%
MICHAEL KORS HOLDINGS LTD	KORS	\$ 8,816.01	0.06%	0.00%	10.50%	10.50%	0.0060%
KROGER CO	KR	\$ 35,191.38	0.23%	1.26%	11.50%	12.83%	0.0293%
KOHL'S CORP	KSS	\$ 7,533.96	0.05%	4.84%	6.50%	11.50%	0.0056%
KANSAS CITY SOUTHERN	KSU	\$ 8,462.41	0.05%	1.70%	13.00%	14.81%	0.0081%
LOEWS CORP	L	\$ 12,683.94	0.08%	0.70%	11.00%	11.74%	0.0096%
L BRANDS INC	LB	\$ 24,444.00	0.16%	2.86%	9.00%	11.99%	0.0190%
LEGGETT & PLATT INC	LEG	\$ 5,604.43	0.04%	3.11%	11.50%	14.79%	0.0054%
LENNAR CORP-A	LEN	\$ 7,941.37	0.05%	0.42%	19.50%	19.96%	0.0103%
LABORATORY CRP OF AMER HLDGS	LH	\$ 10,261.68	0.07%	0.00%	9.00%	9.00%	0.0060%
L-3 COMMUNICATIONS HOLDINGS	LLL	\$ 9,064.13	0.06%	2.44%	6.00%	8.51%	0.0050%
LINEAR TECHNOLOGY CORP	LLTC	\$ 9,852.90	0.06%	3.11%	6.50%	9.71%	0.0062%
ELI LILLY & CO	LLY	\$ 79,138.86	0.51%	2.86%	8.00%	10.97%	0.0563%
LEGG MASON INC	LM	\$ 2,714.04	0.02%	3.18%	12.00%	15.37%	0.0027%
LOCKHEED MARTIN CORP	LMT	\$ 63,665.38	0.41%	3.26%	9.00%	12.41%	0.0512%
LINCOLN NATIONAL CORP	LNC	\$ 7,616.97	0.05%	3.41%	8.00%	11.55%	0.0057%
LOWE'S COS INC	LOW	\$ 58,137.80	0.38%	1.86%	15.50%	17.50%	0.0659%
LAM RESEARCH CORP	LRCX	\$ 10,181.65	0.07%	1.87%	19.50%	21.55%	0.0142%
LEUCADIA NATIONAL CORP	LUK	N/A	N/A	0.00%	N/A	N/A	N/A
SOUTHWEST AIRLINES CO	LUV	\$ 22,886.25	0.15%	0.85%	29.00%	29.97%	0.0444%
LEVEL 3 COMMUNICATIONS INC	LVLT	\$ 16,323.09	N/A	0.00%	N/A	N/A	N/A
LYONDELLBASELL INDU-CL A	LYB	\$ 33,252.41	0.22%	4.25%	10.50%	14.97%	0.0323%
MACY'S INC	M	\$ 11,914.55	0.08%	3.80%	3.50%	7.37%	0.0057%
MASTERCARD INC-CLASS A	MA	\$ 92,317.34	0.60%	0.93%	12.50%	13.49%	0.0807%
MACERICH CO/THE	MAC	\$ -	N/A	3.74%	N/A	N/A	N/A
MARRIOTT INTERNATIONAL -CL A	MAR	\$ 15,836.57	0.10%	1.62%	16.00%	17.75%	0.0182%
MASCO CORP	MAS	\$ 8,287.54	0.05%	1.52%	18.50%	20.16%	0.0108%
MATTTEL INC	MAT	\$ 10,165.43	0.07%	5.07%	4.00%	9.17%	0.0060%
MCDONALD'S CORP	MCD	\$ 107,181.50	0.69%	3.05%	4.50%	7.62%	0.0529%
MICROCHIP TECHNOLOGY INC	MCHP	\$ 8,051.01	0.05%	3.63%	9.50%	13.30%	0.0069%
MCKESSON CORP	MCK	\$ 34,294.91	0.22%	0.75%	12.00%	12.80%	0.0284%
MOODY'S CORP	MCO	\$ 15,512.70	0.10%	1.89%	10.00%	11.98%	0.0120%
MONDELEZ INTERNATIONAL INC-A	MDLZ	\$ 59,956.08	0.39%	1.91%	11.00%	13.02%	0.0506%
MEDTRONIC PLC	MDT	\$ 102,115.00	0.66%	2.18%	7.00%	9.26%	0.0612%
METLIFE INC	MET	\$ 39,250.84	0.25%	4.66%	6.00%	10.80%	0.0275%
MCGRAW HILL FINANCIAL INC	MHFI	\$ 22,234.88	N/A	1.75%	N/A	N/A	N/A
MOHAWK INDUSTRIES INC	MHK	\$ 11,295.84	0.07%	0.00%	15.50%	15.50%	0.0113%
MEAD JOHNSON NUTRITION CO	MJN	\$ 13,643.26	0.09%	2.38%	6.50%	8.96%	0.0079%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
MCCORMICK & CO-NON VTG SHRS	MKC	\$ 11,567.67	0.07%	1.90%	8.50%	10.48%	0.0079%
MARTIN MARIETTA MATERIALS	MLM	\$ 8,558.65	0.06%	1.24%	26.50%	27.90%	0.0155%
MARSH & MCLENNAN COS	MMC	\$ 28,700.38	0.19%	2.26%	10.50%	12.88%	0.0239%
3M CO	MMM	\$ 92,769.48	0.60%	2.95%	8.00%	11.07%	0.0665%
MALLINCKRODT PLC	MNK	\$ 6,811.83	N/A	0.00%	N/A	N/A	N/A
MONSTER BEVERAGE CORP	MNST	\$ 24,104.71	0.16%	0.00%	16.50%	16.50%	0.0258%
ALTRIA GROUP INC	MO	\$ 117,621.10	0.76%	3.77%	9.50%	13.45%	0.1025%
MONSANTO CO	MON	\$ 37,726.65	0.24%	2.52%	6.50%	9.10%	0.0222%
MOSAIC CO/THE	MOS	\$ 8,724.18	0.06%	4.77%	5.50%	10.40%	0.0059%
MARATHON PETROLEUM CORP	MPC	\$ 16,463.22	0.11%	4.15%	9.00%	13.34%	0.0142%
MERCK & CO. INC.	MRK	\$ 136,889.10	0.89%	3.77%	4.00%	7.85%	0.0696%
MARATHON OIL CORP	MRO	\$ 4,779.62	0.03%	2.83%	1.00%	3.84%	0.0012%
MORGAN STANLEY	MS	\$ 41,996.68	0.27%	2.77%	24.50%	27.61%	0.0751%
MICROSOFT CORP	MSFT	\$ 393,793.30	2.55%	2.90%	8.00%	11.02%	0.2811%
MOTOROLA SOLUTIONS INC	MSI	\$ 10,687.83	0.07%	2.81%	4.50%	7.37%	0.0051%
M & T BANK CORP	MTB	\$ 13,435.08	0.09%	2.78%	5.50%	8.36%	0.0073%
MICRON TECHNOLOGY INC	MU	\$ 10,533.03	0.07%	0.00%	1.00%	1.00%	0.0007%
MURPHY OIL CORP	MUR	\$ 2,747.24	0.02%	8.77%	-4.00%	4.59%	0.0008%
MYLAN NV	MYL	\$ 20,367.70	0.13%	0.00%	21.00%	21.00%	0.0277%
NAVIENT CORP	NAVI	\$ 3,047.01	N/A	7.61%	N/A	N/A	N/A
NOBLE ENERGY INC	NBL	\$ 12,029.21	0.08%	1.43%	4.50%	5.96%	0.0046%
NASDAQ INC	NDAQ	\$ 9,839.70	0.06%	1.67%	9.00%	10.75%	0.0069%
NEXTERA ENERGY INC	NEE	\$ 51,585.90	0.33%	3.24%	7.00%	10.35%	0.0346%
NEWMONT MINING CORP	NEM	\$ 13,249.12	0.09%	0.40%	-12.00%	-11.62%	-0.0100%
NETFLIX INC	NFLX	\$ 36,952.62	0.24%	0.00%	37.50%	37.50%	0.0898%
NEWFIELD EXPLORATION CO	NFX	\$ 4,410.30	0.03%	0.00%	9.50%	9.50%	0.0027%
NISOURCE INC	NI	\$ 6,719.82	0.04%	2.94%	-1.50%	1.42%	0.0006%
NIKE INC -CL B	NKE	\$ 95,592.00	0.62%	1.14%	16.00%	17.23%	0.1067%
NIELSEN HOLDINGS PLC	NLSN	\$ 17,230.87	0.11%	2.37%	10.50%	12.99%	0.0145%
NORTHROP GRUMMAN CORP	NOC	\$ 33,622.98	0.22%	1.74%	7.50%	9.31%	0.0203%
NATIONAL OILWELL VARCO INC	NOV	\$ 9,896.86	0.06%	6.99%	-10.50%	-3.88%	-0.0025%
NRG ENERGY INC	NRG	\$ 3,066.26	0.02%	6.05%	23.50%	30.26%	0.0060%
NORFOLK SOUTHERN CORP	NSC	\$ 21,398.44	0.14%	3.29%	8.00%	11.42%	0.0158%
NETAPP INC	NTAP	\$ 6,345.16	0.04%	3.31%	5.50%	8.90%	0.0037%
NORTHERN TRUST CORP	NTRS	\$ 12,601.49	0.08%	2.64%	9.50%	12.27%	0.0100%
NUCOR CORP	NUE	\$ 12,257.20	0.08%	3.91%	22.50%	26.85%	0.0213%
NVIDIA CORP	NVDA	\$ 13,611.40	0.09%	1.82%	9.00%	10.90%	0.0096%
NEWELL RUBBERMAID INC	NWL	\$ 9,017.30	0.06%	2.25%	14.00%	16.41%	0.0096%
NEWS CORP - CLASS A	NWSA	\$ 6,046.58	0.04%	1.92%	33.50%	35.74%	0.0140%
REALTY INCOME CORP	O	\$ -	N/A	3.96%	N/A	N/A	N/A
OWENS-ILLINOIS INC	OI	\$ 2,023.34	0.01%	0.00%	5.50%	5.50%	0.0007%
ONEOK INC	OKE	\$ 4,105.94	0.03%	13.41%	9.50%	23.55%	0.0063%
OMNICOM GROUP	OMC	\$ 17,415.71	0.11%	2.99%	9.00%	12.12%	0.0137%
ORACLE CORP	ORCL	\$ 146,606.70	0.95%	1.72%	7.00%	8.78%	0.0834%
O'REILLY AUTOMOTIVE INC	ORLY	\$ 24,632.10	0.16%	0.00%	13.50%	13.50%	0.0215%
OCCIDENTAL PETROLEUM CORP	OXY	\$ 50,559.32	0.33%	4.53%	-4.00%	0.44%	0.0014%
PAYCHEX INC	PAYX	\$ 17,229.37	0.11%	3.71%	9.50%	13.39%	0.0149%
PEOPLE'S UNITED FINANCIAL	PBCT	\$ 4,289.35	0.03%	4.91%	11.00%	16.18%	0.0045%
PITNEY BOWES INC	PBI	\$ 3,243.23	0.02%	4.56%	4.00%	8.65%	0.0018%
PACCAR INC	PCAR	\$ 17,075.34	0.11%	4.56%	7.00%	11.72%	0.0130%
P G & E CORP	PCG	\$ 27,038.22	0.18%	3.30%	10.50%	13.97%	0.0245%
PLUM CREEK TIMBER CO	PCL	\$ 6,136.76	0.04%	4.98%	9.50%	14.72%	0.0059%
PRICELINE GROUP INC/THE	PCLN	\$ 52,950.89	0.34%	0.00%	16.50%	16.50%	0.0566%
PATTERSON COS INC	PDCO	\$ 4,122.37	0.03%	2.32%	9.50%	11.93%	0.0032%
PUBLIC SERVICE ENTERPRISE GP	PEG	\$ 21,167.77	0.14%	3.92%	4.00%	8.00%	0.0110%
PEPSICO INC	PEP	\$ 141,667.80	0.92%	2.96%	6.00%	9.05%	0.0831%
PFIZER INC	PFE	\$ 179,819.50	1.17%	4.12%	9.50%	13.82%	0.1610%
PRINCIPAL FINANCIAL GROUP	PFG	\$ 10,078.79	0.07%	4.43%	6.50%	11.07%	0.0072%
PROCTER & GAMBLE CO/THE	PG	\$ 216,094.80	1.40%	3.32%	7.50%	10.94%	0.1532%
PROGRESSIVE CORP	PGR	\$ 17,672.46	0.11%	2.28%	11.50%	13.91%	0.0159%
PARKER HANNIFIN CORP	PH	\$ 13,090.13	0.08%	2.60%	6.50%	9.18%	0.0078%
PULTEGROUP INC	PHM	\$ 5,362.75	0.03%	2.34%	14.00%	16.50%	0.0057%
PERKINELMER INC	PKI	\$ 4,857.80	0.03%	0.65%	6.50%	7.17%	0.0023%
PROLOGIS INC	PLD	\$ -	N/A	4.50%	N/A	N/A	N/A
PHILIP MORRIS INTERNATIONAL	PM	\$ 136,864.70	0.89%	4.62%	2.00%	6.67%	0.0591%
PNC FINANCIAL SERVICES GROUP	PNC	\$ 42,368.14	0.27%	2.61%	4.50%	7.17%	0.0197%
PENTAIR PLC	PNR	\$ 7,765.30	0.05%	3.06%	15.00%	18.29%	0.0092%
PINNACLE WEST CAPITAL	PNW	\$ 7,491.04	0.05%	3.79%	4.00%	7.87%	0.0038%
PEPCO HOLDINGS INC	POM	\$ 6,674.49	0.04%	4.10%	8.50%	12.77%	0.0055%
PPG INDUSTRIES INC	PPG	\$ 24,037.64	0.16%	1.61%	12.50%	14.21%	0.0221%
PPL CORP	PPL	\$ 24,117.33	0.16%	4.23%	3.00%	7.29%	0.0114%
PERRIGO CO PLC	PRGO	\$ 19,774.25	0.13%	0.37%	14.50%	14.90%	0.0191%
PRUDENTIAL FINANCIAL INC	PRU	\$ 26,647.75	0.17%	4.83%	4.50%	9.44%	0.0163%
PUBLIC STORAGE	PSA	\$ -	N/A	2.95%	N/A	N/A	N/A
PHILLIPS 66	PSX	\$ 38,887.77	0.25%	3.28%	5.00%	8.36%	0.0211%
PVH CORP	PVH	\$ 5,783.43	0.04%	0.21%	6.00%	6.22%	0.0023%
QUANTA SERVICES INC	PWR	\$ 2,705.14	0.02%	0.00%	10.00%	10.00%	0.0018%



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PRAXAIR INC	PX	\$ 29,071.38	0.19%	2.94%	7.50%	10.55%	0.0199%
PIONEER NATURAL RESOURCES CO	PXD	\$ 16,543.61	0.11%	0.07%	11.50%	11.57%	0.0124%
PAYPAL HOLDINGS INC	PYPL	\$ 40,927.91	N/A	0.00%	N/A	N/A	N/A
QUALCOMM INC	QCOM	\$ 64,285.00	0.42%	4.88%	4.50%	9.49%	0.0395%
QORVO INC	QRVO	\$ 4,867.90	N/A	0.00%	N/A	N/A	N/A
RYDER SYSTEM INC	R	\$ 2,803.21	0.02%	3.13%	11.50%	14.81%	0.0027%
REYNOLDS AMERICAN INC	RAI	\$ 69,311.40	0.45%	2.97%	13.50%	16.67%	0.0749%
ROYAL CARIBBEAN CRUISES LTD	RCL	\$ 14,952.52	0.10%	2.21%	21.50%	23.95%	0.0232%
REGENERON PHARMACEUTICALS	REGN	\$ 37,508.43	0.24%	0.00%	24.50%	24.50%	0.0595%
REGIONS FINANCIAL CORP	RF	\$ 9,527.19	0.06%	3.81%	6.00%	9.92%	0.0061%
ROBERT HALF INTL INC	RHI	\$ 4,861.70	0.03%	2.29%	12.50%	14.93%	0.0047%
RED HAT INC	RHT	\$ 11,316.90	0.07%	0.00%	15.50%	15.50%	0.0114%
TRANSOCEAN LTD	RIG	\$ 3,131.63	0.02%	0.00%	-15.50%	-15.50%	-0.0031%
RALPH LAUREN CORP	RL	\$ 7,045.35	0.05%	2.65%	6.50%	9.24%	0.0042%
ROCKWELL AUTOMATION INC	ROK	\$ 12,350.29	0.08%	3.09%	6.00%	9.18%	0.0073%
ROPER TECHNOLOGIES INC	ROP	\$ 16,125.78	0.10%	0.75%	8.00%	8.78%	0.0092%
ROSS STORES INC	ROST	\$ 21,287.06	0.14%	1.03%	9.00%	10.08%	0.0139%
RANGE RESOURCES CORP	RRC	\$ 4,556.13	0.03%	0.60%	10.00%	10.63%	0.0031%
REPUBLIC SERVICES INC	RSG	\$ 15,215.97	0.10%	2.78%	8.00%	10.89%	0.0107%
RAYTHEON COMPANY	RTN	\$ 36,776.18	0.24%	2.19%	8.50%	10.78%	0.0257%
STARBUCKS CORP	SBUX	\$ 81,589.15	0.53%	1.46%	17.00%	18.58%	0.0982%
SCANA CORP	SCG	\$ 9,224.20	0.06%	3.50%	4.50%	8.08%	0.0048%
SCHWAB (CHARLES) CORP	SCHW	\$ 29,250.12	0.19%	1.08%	14.50%	15.66%	0.0297%
SPECTRA ENERGY CORP	SE	\$ 18,512.89	0.12%	5.87%	5.00%	11.02%	0.0132%
SEALED AIR CORP	SEE	\$ 8,360.64	0.05%	1.23%	19.50%	20.85%	0.0113%
SHERWIN-WILLIAMS CO/THE	SHW	\$ 23,077.88	0.15%	1.29%	13.00%	14.37%	0.0215%
SIGNET JEWELERS LTD	SIG	\$ 7,529.45	0.05%	1.06%	14.50%	15.64%	0.0076%
JM SMUCKER CO/THE	SJM	\$ 15,097.25	0.10%	2.17%	7.50%	9.75%	0.0095%
SCHLUMBERGER LTD	SLB	\$ 86,801.79	0.56%	2.91%	7.00%	10.01%	0.0563%
SL GREEN REALTY CORP	SLG	\$ -	N/A	3.58%	N/A	N/A	N/A
SNAP-ON INC	SNA	\$ 8,015.26	0.05%	1.77%	9.50%	11.35%	0.0059%
SANDISK CORP	SNDK	\$ 13,504.50	0.09%	0.00%	1.50%	1.50%	0.0013%
SCRIPPS NETWORKS INTER-CL A	SNI	\$ 6,830.71	0.04%	1.73%	9.00%	10.81%	0.0048%
SOUTHERN CO/THE	SO	\$ 43,663.04	0.28%	4.66%	2.50%	7.22%	0.0204%
SIMON PROPERTY GROUP INC	SPG	\$ -	N/A	3.53%	N/A	N/A	N/A
STAPLES INC	SPLS	\$ 5,271.10	0.03%	5.86%	-2.00%	3.80%	0.0013%
STERICYCLE INC	SRCL	\$ 9,008.10	0.06%	0.00%	10.00%	10.00%	0.0058%
SEMPRA ENERGY	SRE	\$ 23,443.43	0.15%	2.97%	9.50%	12.61%	0.0192%
SUNTRUST BANKS INC	STI	\$ 16,122.36	0.10%	3.70%	9.00%	12.87%	0.0134%
ST JUDE MEDICAL INC	STJ	\$ 13,969.93	0.09%	2.51%	5.00%	7.57%	0.0069%
STATE STREET CORP	STT	\$ 21,150.62	0.14%	2.71%	6.50%	9.30%	0.0127%
SEAGATE TECHNOLOGY	STX	\$ 8,600.37	0.06%	8.68%	2.00%	10.77%	0.0060%
CONSTELLATION BRANDS INC-A	STZ	\$ 27,016.90	0.18%	1.00%	17.00%	18.09%	0.0317%
STANLEY BLACK & DECKER INC	SWK	\$ 13,496.30	0.09%	2.44%	10.00%	12.56%	0.0110%
SKYWOKS SOLUTIONS INC	SWKS	\$ 10,700.86	0.07%	1.86%	21.00%	23.06%	0.0160%
SOUTHWESTERN ENERGY CO	SWN	\$ 3,133.72	0.02%	0.00%	-4.00%	-4.00%	-0.0008%
SYNCHRONY FINANCIAL	SYF	\$ 20,428.69	N/A	0.00%	N/A	N/A	N/A
STRYKER CORP	SYK	\$ 36,156.16	0.23%	1.58%	15.50%	17.20%	0.0403%
SYMANTEC CORP	SYMC	\$ 12,331.89	0.08%	3.20%	-3.50%	-0.36%	-0.0003%
SYSCO CORP	SYI	\$ 24,143.76	0.16%	2.91%	12.00%	15.08%	0.0236%
AT&T INC	T	\$ 222,772.60	1.44%	5.30%	5.50%	10.95%	0.1580%
MOLSON COORS BREWMG CO -B	TAP	\$ 15,479.91	0.10%	1.96%	8.50%	10.54%	0.0106%
TERADATA CORP	TDC	\$ 3,028.82	0.02%	0.00%	3.50%	3.50%	0.0007%
TECO ENERGY INC	TE	\$ 6,371.57	0.04%	3.43%	5.50%	9.02%	0.0037%
TE CONNECTIVITY LTD	TEL	\$ 20,159.74	0.13%	2.46%	9.00%	11.57%	0.0151%
TEGNA INC	TGNA	\$ 4,806.28	0.03%	2.58%	-0.50%	2.07%	0.0006%
TARGET CORP	TGT	\$ 42,095.73	0.27%	3.38%	9.00%	12.53%	0.0342%
TENET HEALTHCARE CORP	THC	\$ 2,329.46	0.02%	0.00%	28.00%	28.00%	0.0042%
TIFFANY & CO	TIF	\$ 7,788.15	0.05%	2.73%	12.50%	15.40%	0.0078%
TJX COMPANIES INC	TJX	\$ 45,467.72	0.29%	1.24%	10.00%	11.30%	0.0333%
TORCHMARK CORP	TMK	\$ 6,010.17	0.04%	1.11%	7.50%	8.65%	0.0034%
THERMO FISHER SCIENTIFIC INC	TMO	\$ 49,208.79	0.32%	0.49%	12.50%	13.02%	0.0415%
TRIPADVISOR INC	TRIP	\$ 8,804.34	0.06%	0.00%	18.50%	18.50%	0.0106%
T ROWE PRICE GROUP INC	TROW	\$ 16,481.58	0.11%	3.36%	9.50%	13.02%	0.0139%
TRAVELERS COS INC/THE	TRV	\$ 31,566.84	0.20%	2.35%	4.50%	6.90%	0.0141%
TRACTOR SUPPLY COMPANY	TSCO	\$ 10,999.15	0.07%	1.13%	15.50%	16.72%	0.0119%
TYSON FOODS INC-CL A	TSN	\$ 22,158.45	0.14%	1.00%	12.50%	13.56%	0.0195%
TESORO CORP	TSO	\$ 8,696.22	0.06%	2.78%	12.50%	15.45%	0.0087%
TOTAL SYSTEM SERVICES INC	TSS	\$ 7,075.79	0.05%	1.04%	11.50%	12.60%	0.0058%
TIME WARNER CABLE	TWC	\$ 50,791.92	0.33%	1.67%	6.00%	7.72%	0.0254%
TIME WARNER INC	TWX	\$ 50,042.96	0.32%	2.58%	12.00%	14.73%	0.0478%
TEXAS INSTRUMENTS INC	TXN	\$ 51,368.96	0.33%	3.02%	11.50%	14.69%	0.0489%
TEXTRON INC	TXT	\$ 8,519.85	0.06%	0.26%	17.00%	17.28%	0.0095%
TYCO INTERNATIONAL PLC	TYC	\$ 14,103.25	0.09%	2.47%	11.50%	14.11%	0.0129%
UNDER ARMOUR INC-CLASS A	UA	\$ 15,663.93	0.10%	0.00%	23.50%	23.50%	0.0239%
UNITED CONTINENTAL HOLDINGS	UAL	\$ 17,557.84	0.11%	0.00%	24.50%	24.50%	0.0279%
UNIVERSAL HEALTH SERVICES-B	UHS	\$ 10,009.78	0.06%	0.39%	12.00%	12.41%	0.0081%

Company	Ticker	[4] Market Capitalization	[5] Weight in Index	[6] Estimated Dividend Yield	[7] Long-Term Growth Est.	[8] DCF Result	[9] Weighted DCF Result
UNITEDHEALTH GROUP INC	UNH	\$ 105,420.90	0.68%	1.81%	12.50%	14.42%	0.0985%
UNUM GROUP	UNM	\$ 5,859.17	0.04%	3.07%	11.00%	14.24%	0.0054%
UNION PACIFIC CORP	UNP	\$ 64,640.86	0.42%	2.91%	10.00%	13.06%	0.0547%
UNITED PARCEL SERVICE-CL B	UPS	\$ 84,725.19	0.55%	3.32%	10.50%	13.99%	0.0768%
URBAN OUTFITTERS INC	URBN	\$ 2,904.95	0.02%	0.00%	15.00%	15.00%	0.0028%
UNITED RENTALS INC	URI	\$ 4,023.12	0.03%	0.00%	16.00%	16.00%	0.0042%
US BANCORP	USB	\$ 65,672.13	0.43%	2.72%	5.50%	8.29%	0.0353%
UNITED TECHNOLOGIES CORP	UTX	\$ 75,095.20	0.49%	3.02%	7.00%	10.13%	0.0493%
VISA INC-CLASS A SHARES	V	\$ 149,949.30	0.97%	0.88%	13.00%	13.94%	0.1354%
VARIAN MEDICAL SYSTEMS INC	VAR	\$ 7,373.88	0.05%	0.00%	7.50%	7.50%	0.0036%
VF CORP	VFC	\$ 24,215.26	0.16%	2.61%	12.00%	14.77%	0.0232%
VIACOM INC-CLASS B	VIAB	\$ 12,838.72	0.08%	4.96%	9.00%	14.18%	0.0118%
VALERO ENERGY CORP	VLO	\$ 26,841.59	0.17%	4.32%	10.00%	14.54%	0.0253%
VULCAN MATERIALS CO	VMC	\$ 11,997.02	0.08%	0.44%	47.50%	48.04%	0.0373%
VORNADO REALTY TRUST	VNO	\$ 15,111.56	0.10%	3.14%	6.50%	9.74%	0.0095%
VERISK ANALYTICS INC	VRSK	\$ 11,220.05	0.07%	0.00%	12.50%	12.50%	0.0091%
VERISIGN INC	VRSN	\$ 8,297.84	0.05%	0.00%	11.00%	11.00%	0.0059%
VERTEX PHARMACEUTICALS INC	VRTX	\$ 19,580.44	N/A	0.00%	N/A	N/A	N/A
VENTAS INC	VTR	\$ -	N/A	6.49%	N/A	N/A	N/A
VERIZON COMMUNICATIONS INC	VZ	\$ 200,967.90	1.30%	4.58%	5.50%	10.21%	0.1329%
WATERS CORP	WAT	\$ 9,509.43	0.06%	0.00%	8.00%	8.00%	0.0049%
WALGREENS BOOTS ALLIANCE INC	WBA	\$ 81,999.59	0.53%	1.91%	15.00%	17.05%	0.0906%
WESTERN DIGITAL CORP	WDC	\$ 9,263.10	0.06%	4.99%	2.00%	7.04%	0.0042%
WEC ENERGY GROUP INC	WEC	\$ 17,596.22	0.11%	3.55%	6.00%	9.66%	0.0110%
WELLS FARGO & CO	WFC	\$ 230,698.70	1.49%	3.50%	5.50%	9.10%	0.1360%
WHOLE FOODS MARKET INC	WFM	\$ 10,093.68	0.07%	1.87%	8.50%	10.45%	0.0068%
WHIRLPOOL CORP	WHR	\$ 10,119.72	0.07%	2.78%	13.50%	16.47%	0.0108%
WLLIS TOWERS WATSON PLC	WLTW	N/A	N/A	0.00%	N/A	N/A	N/A
WASTE MANAGEMENT INC	WM	\$ 23,644.73	0.15%	2.97%	7.00%	10.07%	0.0154%
WILLIAMS COS INC	WMB	\$ 9,954.21	0.06%	19.26%	16.00%	36.80%	0.0237%
WAL-MART STORES INC	WMT	\$ 209,677.20	1.36%	3.06%	1.50%	4.58%	0.0623%
WESTROCK CO	WRK	\$ 7,694.58	N/A	5.01%	N/A	N/A	N/A
WESTERN UNION CO	WU	\$ 8,541.28	0.06%	3.79%	6.00%	9.90%	0.0055%
WEYERHAEUSER CO	WY	\$ 11,355.15	0.07%	5.58%	12.50%	18.43%	0.0136%
WYNDHAM WORLDWIDE CORP	WYN	\$ 7,385.27	0.05%	2.64%	8.50%	11.25%	0.0054%
WYNN RESORTS LTD	WYNN	\$ 6,061.10	0.04%	3.35%	3.50%	6.91%	0.0027%
CIMAREX ENERGY CO	XEC	\$ 7,674.41	0.05%	0.79%	4.00%	4.81%	0.0024%
XCEL ENERGY INC	XEL	\$ 19,778.34	0.13%	3.49%	4.50%	8.07%	0.0103%
XL GROUP PLC	XL	\$ 8,472.08	0.05%	2.41%	9.00%	11.52%	0.0063%
XILINX INC	XLNX	\$ 12,074.26	0.08%	2.62%	17.00%	19.84%	0.0155%
EXXON MOBIL CORP	XOM	\$ 331,374.80	2.15%	3.67%	2.50%	6.22%	0.1335%
DENTSPLY INTERNATIONAL INC	XRAY	\$ 7,900.10	0.05%	0.51%	9.00%	9.53%	0.0049%
XEROX CORP	XRX	\$ 8,797.78	0.06%	3.57%	1.50%	5.10%	0.0029%
XYLEM INC	XYL	\$ 6,494.84	0.04%	1.71%	9.50%	11.29%	0.0048%
YAHOO! INC	YHOO	\$ 25,248.81	0.16%	0.00%	1.50%	1.50%	0.0025%
YUM! BRANDS INC	YUM	\$ 28,118.44	0.18%	2.88%	8.50%	11.50%	0.0210%
ZIMMER BIOMET HOLDINGS INC	ZBH	\$ 18,611.04	0.12%	0.98%	10.50%	11.53%	0.0139%
ZIONS BANCORPORATION	ZION	\$ 4,065.15	0.03%	1.31%	10.00%	11.38%	0.0030%
ZOETIS INC	ZTS	\$ 19,614.39	N/A	0.97%	N/A	N/A	N/A
Total Market Capitalization:		15,433,945.18					12.78%

Notes:

- [1] Equals sum of Col. [9]
- [2] Source: Bloomberg Professional
- [3] Equals [1] - [2]
- [4] Source: Value Line
- [5] Equals weight in S&P 500 based on market capitalization
- [6] Source: Value Line
- [7] Source: Value Line
- [8] Equals (([6] x (1 + (0.5 x [7]))) + [7])
- [9] Equals Col. [5] x Col. [8]

Bloomberg, Value Line, and Calculated Beta Coefficients

Company	Ticker	[1] Bloomberg	[2] Value Line
Atmos Energy Corporation	ATO	0.633	0.80
Laclede Group, Inc. (The)	LG	0.657	0.70
New Jersey Resources Corporation	NJR	0.680	0.80
Northwest Natural Gas Company	NWN	0.611	0.65
South Jersey Industries, Inc.	SJI	0.644	0.80
WGL Holdings, Inc.	WGL	0.663	0.75
Mean		0.648	0.750

Notes:

[1] Source: Bloomberg Professional

[2] Source: Value Line



Capital Asset Pricing Model Results  
Bloomberg, and Value Line Derived Market Risk Premium

	[1]	[2]	[3]	[4]	[5]	[6]
	Risk-Free Rate	Average Beta Coefficient	Bloomberg Market DCF Derived	Value Line Market DCF Derived	Bloomberg Market DCF Derived	Value Line Market DCF Derived
<b>PROXY GROUP AVERAGE BLOOMBERG BETA COEFFICIENT</b>						
Current 30-Year Treasury [7]	2.79%	0.648	10.65%	9.99%	9.69%	9.26%
Projected 30-Year Treasury [8]	3.35%	0.648	10.65%	9.99%	10.25%	9.83%
Mean					9.97%	9.54%

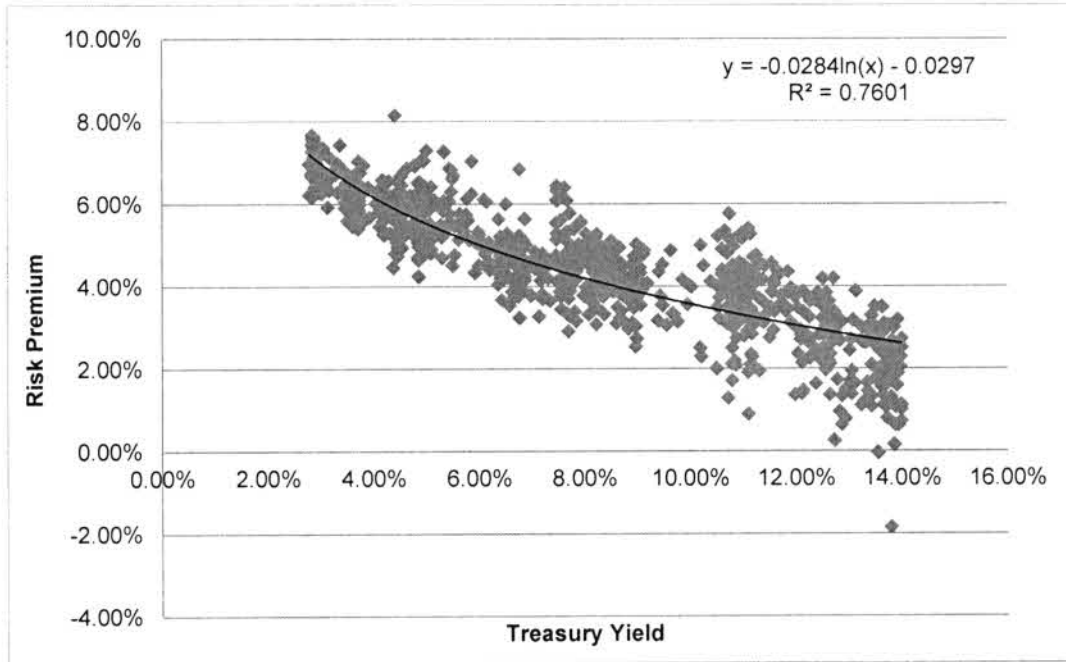
	[1]	[2]	[3]	[4]	[5]	[6]
	Risk-Free Rate	Average Beta Coefficient	Bloomberg Market DCF Derived	Value Line Market DCF Derived	Bloomberg Market DCF Derived	Value Line Market DCF Derived
<b>PROXY GROUP AVERAGE VALUE LINE AVERAGE BETA COEFFICIENT</b>						
Current 30-Year Treasury [7]	2.79%	0.750	10.65%	9.99%	10.78%	10.28%
Projected 30-Year Treasury [8]	3.35%	0.750	10.65%	9.99%	11.34%	10.85%
Mean					11.06%	10.56%

Notes:

- [1] See Note [7] and [8].
- [2] Source: Exhibit No. \_\_\_ (RBH-5).
- [3] Source: Exhibit No. \_\_\_ (RBH-4).
- [4] Source: Source: Exhibit No. \_\_\_ (RBH-4).
- [5] Equals Col. [1] + (Col. [2] x Col. [3])
- [6] Equals Col. [1] + (Col. [2] x Col. [4])
- [7] Source: Bloomberg Professional
- [8] Source: Blue Chip Financial Forecasts, Vol. 35, No. , February 1, 2016, at 2

Bond Yield Plus Risk Premium

[1]	[2]	[3]	[4]	[5]
Constant	Slope	30-Year Treasury Yield	Risk Premium	Return on Equity
-2.97%	-2.84%			
Current 30-Year Treasury		2.79%	7.20%	9.98%
Near-Term Projected 30-Year Treasury		3.35%	6.67%	10.02%
Long-Term Projected 30-Year Treasury		4.65%	5.74%	10.39%



Notes:

- [1] Constant of regression equation
- [2] Slope of regression equation
- [3] Source: Current = Bloomberg Professional,  
Near Term Projected = Blue Chip Financial Forecasts, Vol. 35, No. 2, February 1, 2016, at 2,  
Long Term Projected = Blue Chip Financial Forecasts, Vol. 34, No. 12, December 1, 2015, at 14
- [4] Equals [1] + ln([3]) x [2]
- [5] Equals [3] + [4]
- [6] Source: SNL Financial
- [7] Source: SNL Financial
- [8] Source: Bloomberg Professional, equals 188-trading day average (i.e. lag period) as of February 12, 2015
- [9] Equals [7] - [8]

[6]	[7]	[8]	[9]
Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
1/3/1980	12.55%	9.39%	3.16%
1/4/1980	13.75%	9.40%	4.35%
1/14/1980	13.20%	9.44%	3.76%
1/18/1980	14.00%	9.47%	4.53%
1/31/1980	12.61%	9.56%	3.05%
2/8/1980	14.50%	9.63%	4.87%
2/14/1980	13.00%	9.67%	3.33%
2/15/1980	13.00%	9.69%	3.31%
2/29/1980	14.00%	9.85%	4.15%
3/5/1980	14.00%	9.90%	4.10%
3/7/1980	13.50%	9.94%	3.56%
3/14/1980	14.00%	10.03%	3.97%
3/27/1980	12.69%	10.19%	2.50%
4/1/1980	14.75%	10.25%	4.50%
4/29/1980	12.50%	10.50%	2.00%
5/7/1980	14.27%	10.55%	3.72%
5/8/1980	13.75%	10.55%	3.20%
5/19/1980	15.50%	10.61%	4.89%
5/27/1980	14.60%	10.64%	3.96%
5/29/1980	16.00%	10.66%	5.34%
6/10/1980	13.78%	10.70%	3.08%
6/25/1980	14.25%	10.73%	3.52%
7/9/1980	14.51%	10.77%	3.74%
7/17/1980	12.90%	10.78%	2.12%
7/18/1980	13.80%	10.79%	3.01%
7/22/1980	14.10%	10.79%	3.31%
7/23/1980	14.19%	10.79%	3.40%
8/1/1980	12.50%	10.80%	1.70%
8/11/1980	14.85%	10.81%	4.04%
8/21/1980	13.03%	10.84%	2.19%
8/28/1980	13.61%	10.87%	2.74%
8/28/1980	14.00%	10.87%	3.13%
9/4/1980	14.00%	10.89%	3.11%
9/24/1980	15.00%	10.98%	4.02%
10/9/1980	14.50%	11.05%	3.45%
10/9/1980	14.50%	11.05%	3.45%
10/24/1980	14.00%	11.09%	2.91%
10/27/1980	15.20%	11.10%	4.10%
10/27/1980	15.20%	11.10%	4.10%
10/28/1980	12.00%	11.10%	0.90%
10/28/1980	13.00%	11.10%	1.90%
10/31/1980	14.50%	11.12%	3.38%
11/4/1980	15.00%	11.13%	3.87%
11/6/1980	14.35%	11.13%	3.22%
11/10/1980	13.25%	11.14%	2.11%
11/17/1980	15.50%	11.15%	4.35%
11/19/1980	13.50%	11.15%	2.35%
12/5/1980	14.60%	11.14%	3.46%
12/8/1980	16.40%	11.14%	5.26%
12/12/1980	15.45%	11.15%	4.30%
12/17/1980	14.20%	11.16%	3.04%
12/17/1980	14.40%	11.16%	3.24%
12/18/1980	14.00%	11.17%	2.83%
12/22/1980	13.45%	11.16%	2.29%
12/26/1980	14.00%	11.15%	2.85%
12/30/1980	14.50%	11.15%	3.35%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
12/31/1980	14.56%	11.15%	3.41%
1/7/1981	14.30%	11.14%	3.16%
1/12/1981	14.95%	11.14%	3.81%
1/26/1981	15.25%	11.20%	4.05%
1/30/1981	13.25%	11.23%	2.02%
2/11/1981	14.50%	11.33%	3.17%
2/20/1981	14.50%	11.39%	3.11%
3/12/1981	15.65%	11.59%	4.06%
3/25/1981	15.30%	11.73%	3.57%
4/1/1981	15.30%	11.81%	3.49%
4/9/1981	15.00%	11.90%	3.10%
4/29/1981	13.50%	12.11%	1.39%
4/29/1981	14.25%	12.11%	2.14%
4/30/1981	13.60%	12.13%	1.47%
4/30/1981	15.00%	12.13%	2.87%
5/21/1981	14.00%	12.37%	1.63%
6/3/1981	14.67%	12.45%	2.22%
6/22/1981	16.00%	12.57%	3.43%
6/25/1981	14.75%	12.59%	2.16%
7/2/1981	14.00%	12.64%	1.36%
7/10/1981	16.00%	12.68%	3.32%
7/14/1981	16.90%	12.71%	4.19%
7/21/1981	15.78%	12.77%	3.01%
7/27/1981	13.77%	12.82%	0.95%
7/27/1981	15.50%	12.82%	2.68%
7/31/1981	13.50%	12.86%	0.64%
7/31/1981	14.20%	12.86%	1.34%
8/12/1981	13.72%	12.93%	0.79%
8/12/1981	13.72%	12.93%	0.79%
8/12/1981	14.41%	12.93%	1.48%
8/25/1981	15.45%	13.01%	2.44%
8/27/1981	14.43%	13.04%	1.39%
8/28/1981	15.00%	13.05%	1.95%
9/23/1981	14.34%	13.23%	1.11%
9/24/1981	16.25%	13.25%	3.00%
9/29/1981	14.50%	13.30%	1.20%
9/30/1981	15.94%	13.32%	2.62%
10/2/1981	14.80%	13.35%	1.45%
10/12/1981	16.25%	13.42%	2.83%
10/20/1981	15.25%	13.49%	1.76%
10/20/1981	16.50%	13.49%	3.01%
10/20/1981	17.00%	13.49%	3.51%
10/23/1981	15.50%	13.53%	1.97%
10/26/1981	13.50%	13.55%	-0.05%
10/29/1981	16.50%	13.59%	2.91%
11/4/1981	15.33%	13.62%	1.71%
11/6/1981	15.17%	13.63%	1.54%
11/12/1981	15.00%	13.64%	1.36%
11/25/1981	15.25%	13.66%	1.59%
11/25/1981	16.10%	13.66%	2.44%
11/25/1981	16.10%	13.66%	2.44%
11/30/1981	16.75%	13.65%	3.10%
12/1/1981	15.70%	13.65%	2.05%
12/1/1981	16.00%	13.65%	2.35%
12/15/1981	15.81%	13.68%	2.13%
12/17/1981	14.75%	13.70%	1.05%
12/22/1981	15.70%	13.71%	1.99%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
12/22/1981	16.00%	13.71%	2.29%
12/30/1981	16.00%	13.74%	2.26%
12/30/1981	16.25%	13.74%	2.51%
1/4/1982	15.50%	13.74%	1.76%
1/14/1982	11.95%	13.80%	-1.85%
1/25/1982	16.25%	13.84%	2.41%
1/27/1982	16.84%	13.85%	2.99%
1/31/1982	14.00%	13.85%	0.15%
2/2/1982	16.24%	13.86%	2.38%
2/8/1982	15.50%	13.87%	1.63%
2/9/1982	14.95%	13.88%	1.07%
2/9/1982	15.75%	13.88%	1.87%
2/11/1982	16.00%	13.89%	2.11%
3/1/1982	15.96%	13.91%	2.05%
3/3/1982	15.00%	13.91%	1.09%
3/8/1982	17.10%	13.91%	3.19%
3/26/1982	16.00%	13.96%	2.04%
3/31/1982	16.25%	13.97%	2.28%
4/1/1982	16.50%	13.98%	2.52%
4/6/1982	15.00%	13.98%	1.02%
4/9/1982	16.50%	13.99%	2.51%
4/12/1982	15.10%	13.98%	1.12%
4/12/1982	16.70%	13.98%	2.72%
4/18/1982	14.70%	13.98%	0.72%
4/27/1982	15.00%	13.97%	1.03%
5/10/1982	14.57%	13.94%	0.63%
5/14/1982	15.80%	13.92%	1.88%
5/20/1982	15.82%	13.91%	1.91%
5/21/1982	15.50%	13.90%	1.60%
5/25/1982	16.25%	13.90%	2.35%
6/2/1982	14.50%	13.87%	0.63%
6/7/1982	16.00%	13.86%	2.14%
6/23/1982	15.50%	13.81%	1.69%
6/25/1982	16.50%	13.81%	2.69%
7/1/1982	15.55%	13.80%	1.75%
7/1/1982	16.00%	13.80%	2.20%
7/2/1982	15.10%	13.79%	1.31%
7/13/1982	16.80%	13.76%	3.04%
7/22/1982	14.50%	13.72%	0.78%
7/28/1982	16.10%	13.69%	2.41%
7/30/1982	14.82%	13.67%	1.15%
8/4/1982	15.58%	13.65%	1.93%
8/6/1982	16.50%	13.63%	2.87%
8/11/1982	17.11%	13.62%	3.49%
8/25/1982	16.00%	13.58%	2.42%
8/30/1982	16.25%	13.58%	2.67%
9/3/1982	15.50%	13.56%	1.94%
9/9/1982	16.04%	13.55%	2.49%
9/15/1982	16.04%	13.52%	2.52%
9/17/1982	15.25%	13.51%	1.74%
9/29/1982	14.50%	13.43%	1.07%
9/30/1982	14.74%	13.42%	1.32%
9/30/1982	15.50%	13.42%	2.08%
9/30/1982	16.50%	13.42%	3.08%
9/30/1982	16.70%	13.42%	3.28%
10/1/1982	16.50%	13.41%	3.09%
10/8/1982	15.00%	13.34%	1.66%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
10/15/1982	15.90%	13.26%	2.64%
10/19/1982	15.90%	13.23%	2.67%
10/27/1982	17.00%	13.13%	3.87%
10/28/1982	14.75%	13.11%	1.64%
11/2/1982	16.25%	13.08%	3.17%
11/4/1982	15.75%	13.04%	2.71%
11/5/1982	14.73%	13.02%	1.71%
11/17/1982	16.00%	12.87%	3.13%
11/23/1982	15.50%	12.79%	2.71%
11/24/1982	14.50%	12.78%	1.72%
11/24/1982	16.02%	12.78%	3.24%
11/30/1982	12.98%	12.73%	0.25%
11/30/1982	15.50%	12.73%	2.77%
11/30/1982	15.50%	12.73%	2.77%
11/30/1982	15.65%	12.73%	2.92%
11/30/1982	16.00%	12.73%	3.27%
11/30/1982	16.10%	12.73%	3.37%
12/3/1982	15.33%	12.68%	2.65%
12/8/1982	15.75%	12.64%	3.11%
12/13/1982	16.00%	12.59%	3.41%
12/14/1982	16.40%	12.57%	3.83%
12/17/1982	16.25%	12.53%	3.72%
12/20/1982	15.00%	12.51%	2.49%
12/21/1982	15.70%	12.50%	3.20%
12/28/1982	15.25%	12.43%	2.82%
12/28/1982	15.25%	12.43%	2.82%
12/29/1982	16.25%	12.41%	3.84%
12/29/1982	16.25%	12.41%	3.84%
1/11/1983	15.90%	12.26%	3.64%
1/12/1983	15.50%	12.25%	3.25%
1/18/1983	15.00%	12.19%	2.81%
1/24/1983	15.50%	12.14%	3.36%
1/24/1983	16.00%	12.14%	3.86%
1/28/1983	14.90%	12.09%	2.81%
1/31/1983	15.00%	12.07%	2.93%
2/10/1983	15.00%	11.98%	3.02%
2/25/1983	15.70%	11.85%	3.85%
3/2/1983	15.25%	11.80%	3.45%
3/16/1983	16.00%	11.64%	4.36%
3/21/1983	14.96%	11.58%	3.38%
3/23/1983	15.40%	11.54%	3.86%
3/23/1983	16.10%	11.54%	4.56%
3/24/1983	15.00%	11.53%	3.47%
4/12/1983	13.25%	11.31%	1.94%
4/29/1983	15.05%	11.11%	3.94%
5/3/1983	15.40%	11.08%	4.32%
5/9/1983	15.50%	11.01%	4.49%
5/19/1983	14.85%	10.90%	3.95%
5/31/1983	14.00%	10.85%	3.15%
6/2/1983	14.50%	10.83%	3.67%
6/7/1983	14.50%	10.81%	3.69%
6/9/1983	14.85%	10.80%	4.05%
6/20/1983	14.15%	10.74%	3.41%
6/20/1983	16.50%	10.74%	5.76%
6/27/1983	14.50%	10.72%	3.78%
6/30/1983	14.80%	10.71%	4.09%
6/30/1983	15.90%	10.71%	5.19%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
7/1/1983	14.80%	10.70%	4.10%
7/5/1983	15.00%	10.70%	4.30%
7/8/1983	15.50%	10.69%	4.81%
7/19/1983	15.00%	10.71%	4.29%
7/19/1983	15.10%	10.71%	4.39%
8/18/1983	15.30%	10.81%	4.49%
8/19/1983	15.79%	10.82%	4.97%
8/29/1983	16.00%	10.85%	5.15%
8/31/1983	14.75%	10.86%	3.89%
8/31/1983	15.25%	10.86%	4.39%
9/8/1983	14.75%	10.89%	3.86%
9/16/1983	15.51%	10.93%	4.58%
9/26/1983	14.50%	10.96%	3.54%
9/28/1983	14.25%	10.97%	3.28%
9/30/1983	16.15%	10.98%	5.17%
9/30/1983	16.25%	10.98%	5.27%
10/1/1983	16.25%	10.98%	5.27%
10/13/1983	15.52%	11.02%	4.50%
10/19/1983	15.20%	11.04%	4.16%
10/26/1983	14.75%	11.06%	3.69%
10/27/1983	14.88%	11.07%	3.81%
10/27/1983	15.33%	11.07%	4.26%
11/9/1983	14.82%	11.10%	3.72%
11/9/1983	16.51%	11.10%	5.41%
11/9/1983	16.51%	11.10%	5.41%
12/1/1983	14.50%	11.17%	3.33%
12/8/1983	15.90%	11.20%	4.70%
12/9/1983	15.30%	11.21%	4.09%
12/12/1983	14.50%	11.21%	3.29%
12/12/1983	15.50%	11.21%	4.29%
12/20/1983	15.40%	11.26%	4.14%
12/20/1983	16.00%	11.26%	4.74%
12/22/1983	15.75%	11.27%	4.48%
12/29/1983	15.00%	11.29%	3.71%
12/30/1983	15.00%	11.30%	3.70%
1/10/1984	15.90%	11.34%	4.56%
1/13/1984	15.50%	11.36%	4.14%
1/18/1984	15.53%	11.38%	4.15%
1/26/1984	15.90%	11.41%	4.49%
2/14/1984	14.25%	11.50%	2.75%
2/28/1984	14.50%	11.58%	2.92%
3/20/1984	16.00%	11.69%	4.31%
3/23/1984	15.50%	11.72%	3.78%
4/9/1984	15.20%	11.81%	3.39%
4/18/1984	16.20%	11.85%	4.35%
4/27/1984	15.85%	11.90%	3.95%
5/15/1984	13.35%	11.99%	1.36%
5/16/1984	15.00%	12.00%	3.00%
5/22/1984	14.40%	12.03%	2.37%
6/13/1984	15.50%	12.18%	3.32%
7/10/1984	16.00%	12.36%	3.64%
8/7/1984	16.69%	12.50%	4.19%
8/9/1984	15.33%	12.51%	2.82%
8/17/1984	14.82%	12.53%	2.29%
8/21/1984	14.64%	12.54%	2.10%
8/27/1984	14.52%	12.56%	1.96%
8/28/1984	14.75%	12.56%	2.19%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
8/30/1984	15.60%	12.57%	3.03%
9/12/1984	15.60%	12.60%	3.00%
9/12/1984	15.90%	12.60%	3.30%
9/25/1984	16.25%	12.61%	3.64%
10/2/1984	14.80%	12.62%	2.18%
10/9/1984	14.75%	12.63%	2.12%
10/10/1984	15.50%	12.63%	2.87%
10/18/1984	15.00%	12.64%	2.36%
10/24/1984	15.50%	12.64%	2.86%
11/7/1984	15.00%	12.64%	2.36%
11/20/1984	15.92%	12.62%	3.30%
11/30/1984	15.50%	12.60%	2.90%
12/18/1984	15.00%	12.55%	2.45%
12/20/1984	15.00%	12.53%	2.47%
12/28/1984	15.75%	12.51%	3.24%
12/28/1984	16.25%	12.51%	3.74%
1/2/1985	16.00%	12.50%	3.50%
1/31/1985	14.75%	12.37%	2.38%
2/7/1985	14.85%	12.33%	2.52%
2/15/1985	15.00%	12.28%	2.72%
2/20/1985	14.50%	12.26%	2.24%
2/22/1985	14.86%	12.26%	2.60%
3/14/1985	15.50%	12.17%	3.33%
3/28/1985	14.80%	12.09%	2.71%
4/9/1985	15.50%	12.03%	3.47%
4/16/1985	15.70%	11.97%	3.73%
6/10/1985	15.75%	11.59%	4.16%
6/26/1985	14.82%	11.47%	3.35%
7/9/1985	15.00%	11.39%	3.61%
7/26/1985	14.50%	11.27%	3.23%
8/29/1985	14.50%	11.12%	3.38%
8/30/1985	14.38%	11.11%	3.27%
9/12/1985	15.25%	11.07%	4.18%
9/23/1985	15.30%	11.04%	4.26%
9/25/1985	14.50%	11.03%	3.47%
9/26/1985	13.80%	11.02%	2.78%
9/26/1985	14.50%	11.02%	3.48%
10/25/1985	15.25%	10.92%	4.33%
11/8/1985	12.94%	10.86%	2.08%
11/20/1985	14.90%	10.81%	4.09%
11/25/1985	13.30%	10.79%	2.51%
12/6/1985	12.00%	10.72%	1.28%
12/11/1985	14.90%	10.69%	4.21%
12/20/1985	14.88%	10.60%	4.28%
12/20/1985	15.00%	10.60%	4.40%
12/20/1985	15.00%	10.60%	4.40%
12/30/1985	15.75%	10.53%	5.22%
12/31/1985	14.00%	10.52%	3.48%
12/31/1985	14.50%	10.52%	3.98%
1/17/1986	14.50%	10.38%	4.12%
2/11/1986	12.50%	10.21%	2.29%
2/12/1986	15.20%	10.20%	5.00%
3/11/1986	14.00%	9.98%	4.02%
4/2/1986	12.90%	9.77%	3.13%
4/28/1986	13.01%	9.47%	3.54%
5/21/1986	13.25%	9.19%	4.06%
5/28/1986	14.00%	9.12%	4.88%



Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
5/29/1986	13.90%	9.11%	4.79%
6/2/1986	13.00%	9.08%	3.92%
6/11/1986	14.00%	8.98%	5.02%
6/13/1986	13.55%	8.95%	4.60%
6/27/1986	11.88%	8.78%	3.10%
7/14/1986	12.60%	8.60%	4.00%
7/30/1986	13.30%	8.39%	4.91%
8/14/1986	13.50%	8.23%	5.27%
9/5/1986	13.30%	8.03%	5.27%
9/23/1986	12.75%	7.91%	4.84%
10/30/1986	13.00%	7.68%	5.32%
10/31/1986	13.75%	7.67%	6.08%
11/10/1986	14.00%	7.62%	6.38%
11/19/1986	13.75%	7.57%	6.18%
11/25/1986	13.15%	7.54%	5.61%
12/22/1986	13.80%	7.48%	6.32%
12/30/1986	13.90%	7.47%	6.43%
1/20/1987	12.75%	7.47%	5.28%
1/23/1987	13.55%	7.47%	6.08%
1/27/1987	12.16%	7.47%	4.69%
2/13/1987	12.60%	7.47%	5.13%
2/24/1987	12.00%	7.47%	4.53%
3/30/1987	12.20%	7.46%	4.74%
3/31/1987	13.00%	7.46%	5.54%
5/5/1987	12.85%	7.60%	5.25%
5/28/1987	13.50%	7.72%	5.78%
6/15/1987	13.20%	7.80%	5.40%
6/30/1987	12.60%	7.85%	4.75%
7/10/1987	12.90%	7.88%	5.02%
7/27/1987	13.50%	7.93%	5.57%
8/25/1987	11.40%	8.08%	3.32%
9/18/1987	13.00%	8.27%	4.73%
10/20/1987	12.60%	8.54%	4.06%
10/20/1987	12.98%	8.54%	4.44%
11/12/1987	12.75%	8.67%	4.08%
11/13/1987	12.75%	8.68%	4.07%
11/24/1987	12.50%	8.73%	3.77%
12/8/1987	12.50%	8.81%	3.69%
12/22/1987	12.00%	8.90%	3.10%
12/31/1987	12.85%	8.93%	3.92%
12/31/1987	13.25%	8.93%	4.32%
1/15/1988	13.15%	8.98%	4.17%
1/20/1988	12.75%	8.99%	3.76%
1/29/1988	13.20%	8.99%	4.21%
2/4/1988	12.60%	8.99%	3.61%
3/23/1988	13.00%	8.94%	4.06%
5/27/1988	13.18%	9.02%	4.16%
6/14/1988	13.50%	9.00%	4.50%
6/17/1988	11.72%	8.99%	2.73%
6/24/1988	11.50%	8.97%	2.53%
7/1/1988	12.75%	8.95%	3.80%
7/8/1988	12.00%	8.94%	3.06%
7/18/1988	12.00%	8.91%	3.09%
7/20/1988	13.40%	8.90%	4.50%
8/8/1988	12.74%	8.90%	3.84%
9/20/1988	12.90%	8.93%	3.97%
9/26/1988	12.40%	8.93%	3.47%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
9/27/1988	13.65%	8.93%	4.72%
9/30/1988	13.25%	8.94%	4.31%
10/13/1988	13.10%	8.93%	4.17%
10/21/1988	12.80%	8.93%	3.87%
10/25/1988	13.25%	8.94%	4.31%
10/26/1988	13.50%	8.94%	4.56%
10/27/1988	12.95%	8.94%	4.01%
10/28/1988	13.00%	8.94%	4.06%
11/15/1988	12.00%	8.97%	3.03%
11/29/1988	12.75%	9.01%	3.74%
12/19/1988	13.00%	9.05%	3.95%
12/21/1988	12.90%	9.05%	3.85%
12/22/1988	13.50%	9.05%	4.45%
1/26/1989	12.60%	9.06%	3.54%
1/27/1989	13.00%	9.06%	3.94%
2/8/1989	13.37%	9.05%	4.32%
3/8/1989	13.00%	9.04%	3.96%
5/4/1989	13.00%	9.04%	3.96%
6/8/1989	13.50%	8.96%	4.54%
7/19/1989	11.80%	8.84%	2.96%
7/25/1989	12.80%	8.82%	3.98%
7/31/1989	13.00%	8.80%	4.20%
8/14/1989	12.50%	8.76%	3.74%
8/22/1989	12.80%	8.73%	4.07%
8/23/1989	12.90%	8.73%	4.17%
9/21/1989	12.10%	8.63%	3.47%
10/6/1989	13.00%	8.58%	4.42%
10/17/1989	12.41%	8.54%	3.87%
10/18/1989	13.25%	8.54%	4.71%
10/20/1989	12.90%	8.53%	4.37%
10/31/1989	13.60%	8.50%	5.10%
11/3/1989	12.93%	8.48%	4.45%
11/5/1989	13.20%	8.48%	4.72%
11/9/1989	12.60%	8.46%	4.14%
11/9/1989	13.00%	8.46%	4.54%
11/28/1989	12.75%	8.37%	4.38%
12/7/1989	13.25%	8.33%	4.92%
12/15/1989	13.00%	8.28%	4.72%
12/20/1989	12.90%	8.26%	4.64%
12/21/1989	12.80%	8.26%	4.54%
12/21/1989	12.90%	8.26%	4.64%
12/27/1989	12.50%	8.24%	4.26%
1/9/1990	13.00%	8.19%	4.81%
1/18/1990	12.50%	8.17%	4.33%
1/26/1990	12.10%	8.15%	3.95%
3/21/1990	12.80%	8.15%	4.65%
3/28/1990	13.00%	8.16%	4.84%
4/5/1990	12.20%	8.17%	4.03%
4/12/1990	13.25%	8.19%	5.06%
4/30/1990	12.45%	8.24%	4.21%
5/31/1990	12.40%	8.31%	4.09%
6/15/1990	13.20%	8.33%	4.87%
6/27/1990	12.90%	8.34%	4.56%
6/29/1990	13.25%	8.34%	4.91%
7/6/1990	12.10%	8.35%	3.75%
7/19/1990	11.70%	8.38%	3.32%
8/31/1990	12.50%	8.52%	3.98%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
8/31/1990	12.50%	8.52%	3.98%
9/13/1990	12.50%	8.58%	3.92%
9/18/1990	12.75%	8.60%	4.15%
9/20/1990	12.50%	8.61%	3.89%
10/2/1990	13.00%	8.65%	4.35%
10/17/1990	11.90%	8.68%	3.22%
10/31/1990	12.95%	8.70%	4.25%
11/9/1990	13.25%	8.70%	4.55%
11/19/1990	13.00%	8.70%	4.30%
11/21/1990	12.10%	8.70%	3.40%
11/21/1990	12.50%	8.70%	3.80%
11/28/1990	12.75%	8.70%	4.05%
11/29/1990	12.75%	8.70%	4.05%
12/18/1990	13.10%	8.68%	4.42%
12/20/1990	12.50%	8.67%	3.83%
12/21/1990	12.50%	8.67%	3.83%
12/21/1990	13.00%	8.67%	4.33%
12/21/1990	13.60%	8.67%	4.93%
1/3/1991	13.02%	8.66%	4.36%
1/16/1991	13.25%	8.64%	4.61%
1/25/1991	11.70%	8.61%	3.09%
2/15/1991	12.70%	8.56%	4.14%
2/15/1991	12.80%	8.56%	4.24%
4/3/1991	13.00%	8.51%	4.49%
4/30/1991	12.45%	8.48%	3.97%
4/30/1991	13.00%	8.48%	4.52%
6/25/1991	11.70%	8.35%	3.35%
6/28/1991	12.50%	8.34%	4.16%
7/1/1991	11.70%	8.34%	3.36%
7/19/1991	12.10%	8.31%	3.79%
7/19/1991	12.30%	8.31%	3.99%
7/22/1991	12.90%	8.31%	4.59%
8/15/1991	12.25%	8.28%	3.97%
8/29/1991	13.30%	8.26%	5.04%
9/27/1991	12.50%	8.23%	4.27%
9/30/1991	12.40%	8.23%	4.17%
10/3/1991	11.30%	8.22%	3.08%
10/9/1991	11.70%	8.21%	3.49%
10/15/1991	13.40%	8.20%	5.20%
11/1/1991	12.90%	8.20%	4.70%
11/8/1991	12.75%	8.20%	4.55%
11/26/1991	11.60%	8.18%	3.42%
11/26/1991	12.00%	8.18%	3.82%
11/27/1991	12.70%	8.18%	4.52%
12/6/1991	12.70%	8.16%	4.54%
12/10/1991	11.75%	8.16%	3.59%
12/19/1991	12.60%	8.14%	4.46%
12/19/1991	12.80%	8.14%	4.66%
12/30/1991	12.10%	8.11%	3.99%
1/22/1992	12.84%	8.05%	4.79%
1/31/1992	12.00%	8.03%	3.97%
2/20/1992	13.00%	8.00%	5.00%
2/27/1992	11.75%	7.99%	3.76%
3/18/1992	12.50%	7.95%	4.55%
5/15/1992	12.75%	7.87%	4.88%
6/24/1992	12.20%	7.85%	4.35%
6/29/1992	11.00%	7.85%	3.15%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
7/14/1992	12.00%	7.83%	4.17%
7/22/1992	11.20%	7.82%	3.38%
8/10/1992	12.10%	7.79%	4.31%
8/26/1992	12.43%	7.75%	4.68%
9/30/1992	11.60%	7.72%	3.88%
10/6/1992	12.25%	7.72%	4.53%
10/13/1992	12.75%	7.71%	5.04%
10/23/1992	11.65%	7.71%	3.94%
10/28/1992	12.25%	7.71%	4.54%
10/29/1992	12.75%	7.71%	5.04%
10/30/1992	11.40%	7.70%	3.70%
11/9/1992	10.60%	7.70%	2.90%
11/25/1992	11.00%	7.68%	3.32%
11/25/1992	12.00%	7.68%	4.32%
12/3/1992	11.85%	7.67%	4.18%
12/16/1992	11.90%	7.64%	4.26%
12/22/1992	12.30%	7.63%	4.67%
12/22/1992	12.40%	7.63%	4.77%
12/30/1992	12.00%	7.61%	4.39%
12/31/1992	12.00%	7.61%	4.39%
1/12/1993	12.00%	7.59%	4.41%
1/12/1993	12.00%	7.59%	4.41%
2/2/1993	11.40%	7.53%	3.87%
2/22/1993	11.60%	7.48%	4.12%
4/23/1993	11.75%	7.27%	4.48%
5/3/1993	11.50%	7.25%	4.25%
5/3/1993	11.75%	7.25%	4.50%
6/3/1993	12.00%	7.20%	4.80%
6/7/1993	11.50%	7.20%	4.30%
6/22/1993	11.75%	7.16%	4.59%
7/21/1993	11.78%	7.07%	4.71%
7/21/1993	11.90%	7.07%	4.83%
7/23/1993	11.50%	7.06%	4.44%
7/29/1993	11.50%	7.03%	4.47%
8/12/1993	10.75%	6.98%	3.77%
8/24/1993	11.50%	6.92%	4.58%
8/31/1993	11.90%	6.88%	5.02%
9/1/1993	11.25%	6.88%	4.37%
9/1/1993	11.47%	6.88%	4.59%
9/27/1993	10.50%	6.74%	3.76%
9/29/1993	11.00%	6.73%	4.27%
9/30/1993	11.60%	6.72%	4.88%
10/8/1993	11.50%	6.68%	4.82%
10/14/1993	11.20%	6.65%	4.55%
10/15/1993	11.75%	6.65%	5.10%
10/25/1993	11.55%	6.60%	4.95%
10/28/1993	11.50%	6.58%	4.92%
10/29/1993	10.10%	6.58%	3.52%
10/29/1993	10.20%	6.58%	3.62%
10/29/1993	11.25%	6.58%	4.67%
11/2/1993	10.80%	6.56%	4.24%
11/12/1993	11.80%	6.53%	5.27%
11/23/1993	12.50%	6.51%	5.99%
11/26/1993	11.00%	6.50%	4.50%
12/1/1993	11.45%	6.49%	4.96%
12/16/1993	10.60%	6.46%	4.14%
12/16/1993	11.20%	6.46%	4.74%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
12/21/1993	11.30%	6.45%	4.85%
12/22/1993	11.00%	6.44%	4.56%
12/23/1993	10.10%	6.44%	3.66%
1/5/1994	11.50%	6.41%	5.09%
1/10/1994	11.00%	6.40%	4.60%
1/25/1994	12.00%	6.37%	5.63%
2/2/1994	10.40%	6.35%	4.05%
2/9/1994	10.70%	6.34%	4.36%
4/6/1994	11.24%	6.35%	4.89%
4/25/1994	11.00%	6.39%	4.61%
6/16/1994	10.50%	6.63%	3.87%
6/23/1994	10.60%	6.67%	3.93%
7/19/1994	10.70%	6.83%	3.87%
9/29/1994	10.90%	7.20%	3.70%
9/29/1994	11.00%	7.20%	3.80%
10/7/1994	11.87%	7.25%	4.62%
10/18/1994	11.50%	7.31%	4.19%
10/18/1994	11.50%	7.31%	4.19%
10/24/1994	11.00%	7.35%	3.65%
11/22/1994	12.12%	7.52%	4.60%
11/29/1994	11.30%	7.55%	3.75%
12/1/1994	11.00%	7.56%	3.44%
12/8/1994	11.50%	7.59%	3.91%
12/8/1994	11.70%	7.59%	4.11%
12/12/1994	11.82%	7.60%	4.22%
12/14/1994	11.50%	7.61%	3.89%
12/19/1994	11.50%	7.62%	3.88%
4/19/1995	11.00%	7.71%	3.29%
9/11/1995	11.30%	7.16%	4.14%
9/15/1995	10.40%	7.13%	3.27%
9/29/1995	11.50%	7.06%	4.44%
10/13/1995	10.76%	6.99%	3.77%
11/7/1995	12.50%	6.87%	5.63%
11/8/1995	11.10%	6.86%	4.24%
11/8/1995	11.30%	6.86%	4.44%
11/17/1995	10.90%	6.81%	4.09%
11/20/1995	11.40%	6.80%	4.60%
11/27/1995	13.60%	6.77%	6.83%
12/14/1995	11.30%	6.68%	4.62%
12/20/1995	11.60%	6.65%	4.95%
1/31/1996	11.30%	6.46%	4.84%
3/11/1996	11.60%	6.40%	5.20%
4/3/1996	11.13%	6.41%	4.72%
4/15/1996	10.50%	6.41%	4.09%
4/17/1996	10.77%	6.41%	4.36%
4/26/1996	10.60%	6.40%	4.20%
5/10/1996	11.00%	6.41%	4.59%
5/13/1996	11.25%	6.41%	4.84%
7/3/1996	11.25%	6.49%	4.76%
7/22/1996	11.25%	6.54%	4.71%
10/3/1996	10.00%	6.77%	3.23%
10/29/1996	11.30%	6.84%	4.46%
11/26/1996	11.30%	6.86%	4.44%
11/27/1996	11.30%	6.86%	4.44%
11/29/1996	11.00%	6.85%	4.15%
12/12/1996	11.96%	6.85%	5.11%
12/17/1996	11.50%	6.85%	4.65%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
1/22/1997	11.30%	6.83%	4.47%
1/27/1997	11.25%	6.83%	4.42%
1/31/1997	11.25%	6.83%	4.42%
2/13/1997	11.00%	6.82%	4.18%
2/13/1997	11.80%	6.82%	4.98%
2/20/1997	11.80%	6.81%	4.99%
3/27/1997	10.75%	6.79%	3.96%
4/29/1997	11.70%	6.80%	4.90%
7/17/1997	12.00%	6.77%	5.23%
10/29/1997	10.75%	6.70%	4.05%
10/31/1997	11.25%	6.70%	4.55%
12/24/1997	10.75%	6.53%	4.22%
4/28/1998	10.90%	6.11%	4.79%
4/30/1998	12.20%	6.10%	6.10%
6/30/1998	11.00%	5.94%	5.06%
8/26/1998	10.93%	5.82%	5.11%
9/3/1998	11.40%	5.80%	5.60%
9/15/1998	11.90%	5.77%	6.13%
10/7/1998	11.06%	5.70%	5.36%
10/30/1998	11.40%	5.63%	5.77%
12/10/1998	12.20%	5.52%	6.68%
12/17/1998	12.10%	5.49%	6.61%
2/19/1999	11.15%	5.32%	5.83%
3/1/1999	10.65%	5.31%	5.34%
3/1/1999	10.65%	5.31%	5.34%
6/8/1999	11.25%	5.35%	5.90%
11/12/1999	10.25%	5.92%	4.33%
12/14/1999	10.50%	5.99%	4.51%
1/28/2000	10.71%	6.16%	4.55%
2/17/2000	10.60%	6.20%	4.40%
5/25/2000	10.80%	6.19%	4.61%
6/19/2000	11.05%	6.18%	4.87%
6/22/2000	11.25%	6.18%	5.07%
7/17/2000	11.06%	6.15%	4.91%
7/20/2000	12.20%	6.14%	6.06%
8/11/2000	11.00%	6.11%	4.89%
9/27/2000	11.25%	6.01%	5.24%
9/29/2000	11.16%	6.00%	5.16%
10/5/2000	11.30%	5.98%	5.32%
11/28/2000	12.90%	5.87%	7.03%
11/30/2000	12.10%	5.87%	6.23%
2/5/2001	11.50%	5.76%	5.74%
3/15/2001	11.25%	5.67%	5.58%
5/8/2001	10.75%	5.61%	5.14%
10/24/2001	10.30%	5.54%	4.76%
10/24/2001	11.00%	5.54%	5.46%
1/9/2002	10.00%	5.50%	4.50%
1/30/2002	11.00%	5.47%	5.53%
1/31/2002	11.00%	5.47%	5.53%
4/17/2002	11.50%	5.44%	6.06%
4/29/2002	11.00%	5.45%	5.55%
6/11/2002	11.77%	5.48%	6.29%
6/20/2002	12.30%	5.47%	6.83%
8/28/2002	11.00%	5.49%	5.51%
9/11/2002	11.20%	5.45%	5.75%
9/12/2002	12.30%	5.45%	6.85%
10/28/2002	11.30%	5.35%	5.95%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
10/30/2002	10.60%	5.34%	5.26%
11/1/2002	12.60%	5.34%	7.26%
11/7/2002	11.40%	5.33%	6.07%
11/8/2002	10.75%	5.33%	5.42%
11/20/2002	10.00%	5.30%	4.70%
11/20/2002	10.50%	5.30%	5.20%
12/4/2002	10.75%	5.27%	5.48%
12/30/2002	11.20%	5.19%	6.01%
1/6/2003	11.25%	5.17%	6.08%
2/28/2003	12.30%	5.01%	7.29%
3/7/2003	9.96%	4.99%	4.97%
3/12/2003	11.40%	4.97%	6.43%
3/20/2003	12.00%	4.95%	7.05%
4/3/2003	12.00%	4.93%	7.07%
5/2/2003	11.40%	4.88%	6.52%
5/15/2003	11.05%	4.87%	6.18%
6/26/2003	11.00%	4.80%	6.20%
7/1/2003	11.00%	4.80%	6.20%
7/29/2003	11.71%	4.78%	6.93%
8/22/2003	10.20%	4.82%	5.38%
9/17/2003	9.90%	4.84%	5.06%
9/25/2003	10.25%	4.85%	5.40%
10/17/2003	10.54%	4.87%	5.67%
10/22/2003	10.46%	4.87%	5.59%
10/22/2003	10.71%	4.87%	5.84%
10/30/2003	11.00%	4.88%	6.12%
10/31/2003	10.20%	4.88%	5.32%
10/31/2003	10.75%	4.88%	5.87%
11/10/2003	10.60%	4.89%	5.71%
12/9/2003	10.50%	4.93%	5.57%
12/18/2003	10.50%	4.94%	5.56%
12/19/2003	12.00%	4.94%	7.06%
12/19/2003	12.00%	4.94%	7.06%
1/13/2004	10.25%	4.95%	5.30%
1/13/2004	12.00%	4.95%	7.05%
2/9/2004	11.25%	4.98%	6.27%
3/16/2004	10.90%	5.05%	5.85%
3/16/2004	10.90%	5.05%	5.85%
5/25/2004	10.00%	5.06%	4.94%
6/2/2004	11.22%	5.07%	6.15%
6/30/2004	10.50%	5.10%	5.40%
7/8/2004	10.00%	5.10%	4.90%
7/22/2004	10.25%	5.10%	5.15%
8/26/2004	10.50%	5.10%	5.40%
8/26/2004	10.50%	5.10%	5.40%
9/9/2004	10.40%	5.10%	5.30%
9/21/2004	10.50%	5.09%	5.41%
9/27/2004	10.30%	5.09%	5.21%
9/27/2004	10.50%	5.09%	5.41%
10/20/2004	10.20%	5.08%	5.12%
11/30/2004	10.60%	5.08%	5.52%
12/8/2004	9.90%	5.09%	4.81%
12/21/2004	11.50%	5.09%	6.41%
12/22/2004	11.50%	5.09%	6.41%
12/28/2004	10.25%	5.09%	5.16%
2/18/2005	10.30%	4.95%	5.35%
3/29/2005	11.00%	4.86%	6.14%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
4/13/2005	10.60%	4.84%	5.76%
4/28/2005	11.00%	4.80%	6.20%
5/17/2005	10.00%	4.77%	5.23%
6/8/2005	10.18%	4.71%	5.47%
6/10/2005	10.90%	4.71%	6.19%
7/6/2005	10.50%	4.65%	5.85%
7/19/2005	11.50%	4.63%	6.87%
8/11/2005	10.40%	4.60%	5.80%
9/19/2005	9.45%	4.53%	4.92%
9/30/2005	10.51%	4.52%	5.99%
10/4/2005	9.90%	4.52%	5.38%
10/4/2005	10.75%	4.52%	6.23%
10/14/2005	10.40%	4.52%	5.88%
10/31/2005	10.25%	4.53%	5.72%
11/2/2005	9.70%	4.53%	5.17%
11/30/2005	10.00%	4.54%	5.46%
12/9/2005	9.70%	4.53%	5.17%
12/12/2005	11.00%	4.53%	6.47%
12/20/2005	10.13%	4.53%	5.60%
12/21/2005	10.40%	4.53%	5.87%
12/21/2005	11.00%	4.53%	6.47%
12/22/2005	10.20%	4.53%	5.67%
12/22/2005	11.00%	4.53%	6.47%
12/28/2005	10.00%	4.52%	5.48%
1/5/2006	11.00%	4.52%	6.48%
1/25/2006	11.20%	4.52%	6.68%
1/25/2006	11.20%	4.52%	6.68%
2/3/2006	10.50%	4.52%	5.98%
2/15/2006	9.50%	4.53%	4.97%
4/26/2006	10.60%	4.65%	5.95%
7/24/2006	9.60%	4.86%	4.74%
7/24/2006	10.00%	4.86%	5.14%
9/20/2006	11.00%	4.93%	6.07%
9/26/2006	10.75%	4.93%	5.82%
10/20/2006	9.80%	4.96%	4.84%
11/2/2006	9.71%	4.96%	4.75%
11/9/2006	10.00%	4.97%	5.03%
11/21/2006	11.00%	4.98%	6.02%
12/5/2006	10.20%	4.97%	5.23%
1/5/2007	10.40%	4.95%	5.45%
1/9/2007	11.00%	4.94%	6.06%
1/11/2007	10.90%	4.94%	5.96%
1/19/2007	10.80%	4.93%	5.87%
1/26/2007	10.00%	4.92%	5.08%
2/8/2007	10.40%	4.91%	5.49%
3/14/2007	10.10%	4.86%	5.24%
3/20/2007	10.25%	4.85%	5.40%
3/21/2007	11.35%	4.84%	6.51%
3/22/2007	10.50%	4.84%	5.66%
3/29/2007	10.00%	4.83%	5.17%
6/13/2007	10.75%	4.81%	5.94%
6/29/2007	9.53%	4.84%	4.69%
6/29/2007	10.10%	4.84%	5.26%
7/3/2007	10.25%	4.85%	5.40%
7/13/2007	9.50%	4.86%	4.64%
7/24/2007	10.40%	4.87%	5.53%
8/1/2007	10.15%	4.88%	5.27%



Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
8/29/2007	10.50%	4.91%	5.59%
9/10/2007	9.71%	4.91%	4.80%
9/19/2007	10.00%	4.91%	5.09%
9/25/2007	9.70%	4.91%	4.79%
10/8/2007	10.48%	4.92%	5.56%
10/19/2007	10.50%	4.91%	5.59%
10/25/2007	9.65%	4.91%	4.74%
11/15/2007	10.00%	4.89%	5.11%
11/20/2007	9.90%	4.89%	5.01%
11/27/2007	10.00%	4.88%	5.12%
11/29/2007	10.90%	4.88%	6.02%
12/14/2007	10.80%	4.87%	5.93%
12/18/2007	10.40%	4.86%	5.54%
12/19/2007	9.80%	4.86%	4.94%
12/19/2007	9.80%	4.86%	4.94%
12/19/2007	10.20%	4.86%	5.34%
12/21/2007	9.10%	4.86%	4.24%
1/8/2008	10.75%	4.83%	5.92%
1/17/2008	10.75%	4.81%	5.94%
1/17/2008	10.75%	4.81%	5.94%
2/5/2008	9.99%	4.78%	5.21%
2/5/2008	10.19%	4.78%	5.41%
2/13/2008	10.20%	4.76%	5.44%
3/31/2008	10.00%	4.63%	5.37%
5/28/2008	10.50%	4.53%	5.97%
6/24/2008	10.00%	4.52%	5.48%
6/27/2008	10.00%	4.52%	5.48%
7/31/2008	10.70%	4.50%	6.20%
7/31/2008	10.82%	4.50%	6.32%
8/27/2008	10.25%	4.50%	5.75%
9/2/2008	10.25%	4.50%	5.75%
9/19/2008	10.70%	4.48%	6.22%
9/24/2008	10.68%	4.48%	6.20%
9/24/2008	10.68%	4.48%	6.20%
9/24/2008	10.68%	4.48%	6.20%
9/30/2008	10.20%	4.48%	5.72%
10/3/2008	10.30%	4.47%	5.83%
10/8/2008	10.15%	4.47%	5.68%
10/20/2008	10.06%	4.47%	5.59%
10/24/2008	10.60%	4.46%	6.14%
10/24/2008	10.60%	4.46%	6.14%
11/21/2008	10.50%	4.42%	6.08%
11/21/2008	10.50%	4.42%	6.08%
11/21/2008	10.50%	4.42%	6.08%
11/24/2008	10.50%	4.42%	6.08%
12/3/2008	10.39%	4.37%	6.02%
12/24/2008	10.00%	4.26%	5.74%
12/26/2008	10.10%	4.24%	5.86%
12/29/2008	10.20%	4.23%	5.97%
1/13/2009	10.45%	4.14%	6.31%
2/2/2009	10.05%	4.04%	6.01%
3/9/2009	10.30%	3.90%	6.40%
3/25/2009	10.17%	3.84%	6.33%
4/2/2009	10.75%	3.81%	6.94%
5/5/2009	10.75%	3.71%	7.04%
5/15/2009	10.20%	3.70%	6.50%
5/29/2009	9.54%	3.70%	5.84%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
6/3/2009	10.10%	3.71%	6.39%
6/22/2009	10.00%	3.73%	6.27%
6/29/2009	10.21%	3.74%	6.47%
6/30/2009	9.31%	3.74%	5.57%
7/17/2009	9.26%	3.75%	5.51%
7/17/2009	10.50%	3.75%	6.75%
10/16/2009	10.40%	4.09%	6.31%
10/26/2009	10.10%	4.11%	5.99%
10/28/2009	10.15%	4.11%	6.04%
10/28/2009	10.15%	4.11%	6.04%
10/30/2009	9.95%	4.12%	5.83%
11/20/2009	9.45%	4.18%	5.27%
12/14/2009	10.50%	4.24%	6.26%
12/16/2009	10.75%	4.25%	6.50%
12/17/2009	10.30%	4.25%	6.05%
12/18/2009	10.40%	4.26%	6.14%
12/18/2009	10.40%	4.26%	6.14%
12/18/2009	10.50%	4.26%	6.24%
12/22/2009	10.20%	4.27%	5.93%
12/22/2009	10.40%	4.27%	6.13%
12/28/2009	10.85%	4.29%	6.56%
12/29/2009	10.38%	4.29%	6.09%
1/11/2010	10.24%	4.34%	5.90%
1/21/2010	10.23%	4.37%	5.86%
1/21/2010	10.33%	4.37%	5.96%
1/26/2010	10.40%	4.37%	6.03%
2/10/2010	10.00%	4.39%	5.61%
2/23/2010	10.50%	4.40%	6.10%
3/9/2010	9.60%	4.40%	5.20%
3/24/2010	10.13%	4.42%	5.71%
3/31/2010	10.70%	4.43%	6.27%
4/1/2010	9.50%	4.43%	5.07%
4/2/2010	10.10%	4.44%	5.66%
4/8/2010	10.35%	4.44%	5.91%
4/29/2010	9.19%	4.46%	4.73%
4/29/2010	9.40%	4.46%	4.94%
4/29/2010	9.40%	4.46%	4.94%
5/17/2010	10.55%	4.46%	6.09%
5/24/2010	10.05%	4.46%	5.59%
6/3/2010	11.00%	4.46%	6.54%
6/16/2010	10.00%	4.45%	5.55%
6/18/2010	10.30%	4.45%	5.85%
8/9/2010	12.55%	4.41%	8.14%
8/17/2010	10.10%	4.40%	5.70%
9/16/2010	9.60%	4.31%	5.29%
9/16/2010	10.00%	4.31%	5.69%
9/16/2010	10.00%	4.31%	5.69%
9/16/2010	10.30%	4.31%	5.99%
10/21/2010	10.40%	4.20%	6.20%
11/2/2010	9.75%	4.18%	5.57%
11/2/2010	9.75%	4.18%	5.57%
11/3/2010	10.75%	4.17%	6.58%
11/19/2010	10.20%	4.15%	6.05%
12/1/2010	10.00%	4.13%	5.87%
12/6/2010	9.56%	4.12%	5.44%
12/6/2010	10.09%	4.12%	5.97%
12/9/2010	10.25%	4.12%	6.13%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
12/14/2010	10.33%	4.12%	6.21%
12/17/2010	10.10%	4.11%	5.99%
12/20/2010	10.10%	4.11%	5.99%
12/23/2010	9.92%	4.11%	5.81%
1/6/2011	10.35%	4.09%	6.26%
1/12/2011	10.30%	4.09%	6.21%
1/13/2011	10.30%	4.09%	6.21%
3/10/2011	10.10%	4.16%	5.94%
3/31/2011	9.45%	4.20%	5.25%
4/18/2011	10.05%	4.23%	5.82%
5/26/2011	10.50%	4.31%	6.19%
6/21/2011	10.00%	4.36%	5.64%
6/29/2011	8.83%	4.37%	4.46%
8/1/2011	9.20%	4.41%	4.79%
9/1/2011	10.10%	4.33%	5.77%
11/14/2011	9.60%	3.93%	5.67%
12/13/2011	9.50%	3.76%	5.74%
12/20/2011	10.00%	3.72%	6.28%
12/22/2011	10.40%	3.70%	6.70%
1/10/2012	9.06%	3.60%	5.46%
1/10/2012	9.45%	3.60%	5.85%
1/10/2012	9.45%	3.60%	5.85%
1/23/2012	10.20%	3.53%	6.67%
1/31/2012	10.00%	3.49%	6.51%
4/24/2012	9.50%	3.16%	6.34%
4/24/2012	9.75%	3.16%	6.59%
5/7/2012	9.80%	3.13%	6.67%
5/22/2012	9.60%	3.10%	6.50%
5/24/2012	9.70%	3.09%	6.61%
6/7/2012	10.30%	3.06%	7.24%
6/15/2012	10.40%	3.05%	7.35%
6/18/2012	9.60%	3.05%	6.55%
7/2/2012	9.75%	3.04%	6.71%
10/24/2012	10.30%	2.92%	7.38%
10/26/2012	9.50%	2.92%	6.58%
10/31/2012	9.30%	2.92%	6.38%
10/31/2012	9.90%	2.92%	6.98%
10/31/2012	10.00%	2.92%	7.08%
11/1/2012	9.45%	2.92%	6.53%
11/8/2012	10.10%	2.91%	7.19%
11/9/2012	10.30%	2.91%	7.39%
11/26/2012	10.00%	2.89%	7.11%
11/28/2012	10.40%	2.88%	7.52%
11/28/2012	10.50%	2.88%	7.62%
12/4/2012	10.00%	2.87%	7.13%
12/4/2012	10.50%	2.87%	7.63%
12/20/2012	9.50%	2.84%	6.66%
12/20/2012	10.10%	2.84%	7.26%
12/20/2012	10.25%	2.84%	7.41%
12/20/2012	10.30%	2.84%	7.46%
12/20/2012	10.40%	2.84%	7.56%
12/20/2012	10.50%	2.84%	7.66%
12/26/2012	9.80%	2.83%	6.97%
2/22/2013	9.60%	2.86%	6.74%
3/14/2013	9.30%	2.89%	6.41%
3/27/2013	9.80%	2.91%	6.89%
4/23/2013	9.80%	2.95%	6.85%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
5/10/2013	9.25%	2.96%	6.29%
6/13/2013	9.40%	3.01%	6.39%
6/18/2013	9.28%	3.02%	6.26%
6/18/2013	9.28%	3.02%	6.26%
6/25/2013	9.80%	3.04%	6.76%
9/23/2013	9.60%	3.32%	6.28%
11/6/2013	10.20%	3.42%	6.78%
11/13/2013	9.84%	3.44%	6.40%
11/14/2013	10.25%	3.44%	6.81%
11/22/2013	9.50%	3.47%	6.03%
12/5/2013	10.20%	3.50%	6.70%
12/13/2013	9.60%	3.52%	6.08%
12/16/2013	9.73%	3.52%	6.21%
12/17/2013	10.00%	3.53%	6.47%
12/18/2013	9.08%	3.53%	5.55%
12/23/2013	9.72%	3.54%	6.18%
12/30/2013	10.00%	3.57%	6.43%
1/21/2014	9.65%	3.65%	6.00%
1/22/2014	9.18%	3.66%	5.52%
2/20/2014	9.30%	3.71%	5.59%
2/21/2014	9.85%	3.71%	6.14%
2/28/2014	9.55%	3.72%	5.83%
3/16/2014	9.72%	3.73%	5.99%
4/21/2014	9.50%	3.73%	5.77%
4/22/2014	9.80%	3.73%	6.07%
5/8/2014	9.10%	3.71%	5.39%
5/8/2014	9.59%	3.71%	5.88%
6/6/2014	10.40%	3.66%	6.74%
6/12/2014	10.10%	3.66%	6.44%
6/12/2014	10.10%	3.66%	6.44%
6/12/2014	10.10%	3.66%	6.44%
7/7/2014	9.30%	3.63%	5.67%
7/25/2014	9.30%	3.60%	5.70%
7/31/2014	9.90%	3.59%	6.31%
9/4/2014	9.10%	3.51%	5.59%
9/24/2014	9.35%	3.46%	5.89%
9/30/2014	9.75%	3.45%	6.30%
10/29/2014	10.80%	3.37%	7.43%
11/6/2014	10.20%	3.35%	6.85%
11/14/2014	10.20%	3.33%	6.87%
11/14/2014	10.30%	3.33%	6.97%
11/26/2014	10.20%	3.31%	6.89%
12/3/2014	10.00%	3.29%	6.71%
1/13/2015	10.30%	3.16%	7.14%
1/21/2015	9.05%	3.13%	5.92%
1/21/2015	9.05%	3.13%	5.92%
4/9/2015	9.50%	2.88%	6.62%
5/11/2015	9.80%	2.82%	6.98%
6/17/2015	9.00%	2.79%	6.21%
8/21/2015	9.75%	2.78%	6.97%
10/7/2015	9.55%	2.82%	6.73%
10/13/2015	9.75%	2.83%	6.92%
10/15/2015	9.00%	2.83%	6.17%
10/30/2015	9.80%	2.86%	6.94%
11/19/2015	10.00%	2.89%	7.11%
12/3/2015	10.00%	2.91%	7.09%
12/9/2015	9.60%	2.92%	6.68%

Date of Natural Gas Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
12/11/2015	9.90%	2.92%	6.98%
12/18/2015	9.50%	2.93%	6.57%
1/6/2016	9.50%	2.96%	6.54%
1/6/2016	9.50%	2.96%	6.54%
1/28/2016	9.40%	2.97%	6.43%
2/10/2016	9.60%	2.95%	6.65%
		Average:	4.52%
		Count:	1,031

Flotation Cost Adjustment

From Southwest Gas Corporation 2015 SEC Form 10-K page 56

Company	Date	Shares Issued	Agent Commissions	Gross Equity Issue Before Costs	Net Proceeds	Flotation Cost Percentage
Southwest Gas Corporation	Shelf	645,225	\$355,228	\$35,522,812	\$35,167,584	1.000%
Mean						

Constant Growth Discounted Cash Flow Model Adjusted for Flotation Costs - 30 Day Average Stock Price

Company	Ticker	Annualized Dividend [1]	Average Stock Price [2]	Dividend Yield [3]	Expected Dividend Yield [4]		Zacks Earnings Growth [6]	First Call Earnings Growth [7]	Value Line Earnings Growth [8]		Value Line Retention Growth [9]		Average Earnings Growth [10]	DCF k(e) [11]	Flotation Adjusted DCF k(e) [12]
					Current	Adjusted for Flot. Costs			Earnings Growth	Earnings Growth	Retention Growth				
Atmos Energy Corporation	ATO	\$1.68	\$65.65	2.56%	2.65%	2.68%	6.60%	6.40%	7.00%	8.21%	8.21%	7.05%	9.70%	9.73%	
Laclede Group, Inc.	LG	\$1.96	\$61.14	3.21%	3.30%	3.34%	4.80%	4.78%	10.00%	4.90%	4.90%	6.12%	9.42%	9.46%	
New Jersey Resources Corporation	NJR	\$0.96	\$34.36	2.79%	2.87%	2.90%	6.50%	6.50%	4.00%	5.81%	5.81%	5.70%	8.56%	8.61%	
Northwest Natural Gas Company	NWN	\$1.87	\$51.25	3.65%	3.73%	3.77%	4.00%	4.00%	7.00%	3.73%	3.73%	4.68%	8.42%	8.46%	
South Jersey Industries, Inc.	SJI	\$1.06	\$24.21	4.36%	4.50%	4.55%	NA	6.00%	7.50%	6.56%	6.56%	6.69%	11.19%	11.24%	
WGL Holdings, Inc.	WGL	\$1.95	\$64.08	3.04%	3.14%	3.17%	7.30%	8.00%	5.50%	5.11%	5.11%	6.48%	9.62%	9.65%	
PROXY GROUP MEAN															
9.49%															

DCF Result Adjusted For Flotation Costs: 9.52%  
 DCF Result Unadjusted For Flotation Costs: 9.49%  
 Difference (Flotation Cost Adjustment): 0.03% [13]

Notes:  
 The proxy group DCF result is adjusted for flotation costs by dividing each company's expected dividend yield by (1 - flotation cost). The flotation cost adjustment is derived as the difference between the unadjusted DCF result and the DCF result adjusted for flotation costs.

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional
- [3] Equals [1] / [2]
- [4] Equals [3] x (1 + 0.5 x [10])
- [5] Equals [4] / (1 - 0%)
- [6] Source: Zacks
- [7] Source: Yahoo! Finance
- [8] Source: Value Line
- [9] Source: RBH-1, Value Line
- [10] Equals Average([6], [7], [8], [9])
- [11] Equals [4] + [10]
- [12] Equals [5] + [10]
- [13] Equals average [12] - average [11]

Review of Rate Mechanisms

Company	Ticker	Decoupling -				Straight-Fixed Variable	Infrastructure Cost Recovery
		Conservation/ Efficiency	Weather	Economic/ Other			
<b>Atmos Energy</b>	<b>ATO</b>	✓	✓			✓	
Atmos Energy (Colorado)						✓	
Atmos Energy (Kansas)			✓			✓	
Atmos Energy (Kentucky)		✓	✓			✓	
Atmos Energy (Louisiana)			✓			✓	
Atmos Energy (Mississippi)			✓			✓	
Atmos Energy (Tennessee)			✓			✓	
Atmos Energy (Texas)			✓			✓	
Atmos Energy (Virginia)			✓			✓	
<b>Laclede Group</b>	<b>LG</b>	✓	✓	✓		✓	
Laclede Gas Company (Missouri)			✓	✓	✓	✓	
Missouri Gas Energy (Missouri)						✓	
Alagasco (Alabama)			✓		✓	✓	
<b>New Jersey Resources</b>	<b>NJR</b>	✓	✓	✓		✓	
New Jersey Natural Gas		✓	✓	✓		✓	
<b>Northwest Natural Gas</b>	<b>NWN</b>	✓	✓			✓	
Northwest Natural Gas (Oregon)		✓	✓			✓	
Northwest Natural Gas (Washington)							
<b>South Jersey Industries</b>	<b>SJI</b>	✓	✓	✓		✓	
South Jersey Gas		✓	✓	✓		✓	
<b>WGL Holdings, Inc</b>	<b>WGL</b>	✓	✓	✓		✓	
Washington Gas Light Company (Maryland)		✓		✓		✓	
Washington Gas Light Company (Virginia)		✓	✓	✓		✓	
Washington Gas Light Company (Washington, D.C.)						✓	

Sources: American Gas Association: Innovative Rates, Non-Volumetric Rates, and Tracking Mechanisms: Current List as of November 2015. SEC Form 10-K.

Review of Decoupling Mechanisms

Company	Ticker	Disclosed in SEC Form 10-K Filing
Atmos Energy	ATO	<p>Atmos Energy has WNA mechanisms in seven states that serve to minimize the effects of weather on approximately 97 percent of our natural gas distribution gross margin. (pg 7) All subsidiaries have some form of infrastructure rider in place (pg 8)</p> <p>Atmos Energy has weather-normalized rates for over 95 percent of our residential and commercial meters in our regulated distribution business, which substantially mitigates the adverse effects of warmer-than-normal weather for meters in those service areas. However, there is no assurance that we will continue to receive such regulatory protection from adverse weather in our rates in the future. The loss of such weather-normalized rates could have an adverse effect on our operations and financial results (pg 15).</p>
Laclede Group	LG	<p>The Utilities' earnings are primarily generated by the sale of heating energy. The Missouri Utilities have weather mitigation rates designs and the Alabama Utility has a Temperature Adjustment Rider (TAR), each of which is approved by the respective state regulatory body, which provide better assurance of the recovery of fixed costs and margins during winter months despite variations in sales volumes due to the impacts of weather and other factors that affect customer usage. (pg 20)</p> <p>Furthermore, continuation of the weather mitigation rate design at Laclede Gas, the rate design where distribution costs are recovered predominately through fixed monthly charges at MGE, or the Rate Stabilization and Equalization (RSE) at Alagasco are subject to regulatory discretion. (pg 20) Missouri Utilities have an Infrastructure System Replacement Surcharge for recovery of investments in between rate cases. (pg. 39)</p>
New Jersey Resources	NJR	<p>Conservation Incentive Program (CIP) - The CIP stabilizes New Jersey Natural Gas Company's (NJNG's) utility gross margin regardless of variations in weather. In addition, the CIP decouples the link between utility gross margin and customer usage, allowing NJNG to promote energy conservation measures. The NJ BPU approved the continuation of the CIP program with no expiration date; however, the program will be subject to review in a future tariff rate filing in 2017. (pg 8) NJR has a capital infrastructure plan named NJ RISE for storm hardening and mitigation projects (pg. 36)</p>
Northwest Natural Gas	NWN	<p>Decoupling is intended to break the link between utility earnings and the quantity of gas consumed by customers, removing any financial incentive by the utility to discourage customers' efforts to conserve energy. The Oregon decoupling mechanism was reauthorized in the 2012 Oregon general rate case with the baseline determined in our 2012 general rate case being used in base rates. This mechanism employs a use-per-customer decoupling calculation, which adjusts margin revenues to account for the difference between actual and expected customer volumes. (pg 29-30)</p> <p>In Oregon, we have an approved weather normalization mechanism, which is applied to residential and commercial customer bills. This mechanism is designed to help stabilize the collection of fixed costs by adjusting residential and commercial customer billings based on temperature variances from average weather, with rate decreases when the weather is colder than average and rate increases when the weather is warmer than average. The mechanism is applied to bills from December through May of each heating season. The mechanism adjusts the margin component of customers' rates to reflect average weather, which uses the 25-year average temperature for each day of the billing period. Daily average temperatures and 25-year average temperatures are based on a set point temperature of 59 degrees Fahrenheit for residential customers and 58 degrees Fahrenheit for commercial customers. This weather normalization mechanism was reauthorized in the 2012 Oregon general rate case without an expiration date. (pg 30) In Oregon, NWN has a System Integrity Program (SIP), which provides cost recovery of pipeline system integrity programs. (pg. 3)</p>
South Jersey Industries	SJI	<p>Conservation Incentive Program (CIP) - The primary purpose of the CIP is to promote conservation efforts, without negatively impacting financial stability, and to base SJG's profit margin on the number of customers rather than the amount of natural gas distributed to customers. In October 2006, the BPU approved SJG's CIP as a three-year pilot program. In January 2010, the BPU approved an extension of this program through September 2013, with an automatic one year extension through September 2014 if a request for an extension was filed by March 2013. A petition was filed in March 2013 to extend the CIP program and in May 2014 the BPU approved the continuation of the CIP. Each CIP year begins October 1 and ends September 30 of the subsequent year. On a monthly basis during the CIP year, SJG records adjustments to earnings based on weather and customer usage factors, as incurred. Subsequent to each year, SJG makes filings with the BPU to review and approve amounts recorded under the CIP. BPU approved cash inflows or outflows generally will not begin until the next CIP year. (pg 71) SJI's infrastructure replacement program is known as SHARP (Storm Hardening and Reliability Program). (p. 19)</p>
WGL Holdings, Inc.	WGL	<p>For each jurisdiction in which Washington Gas operates, changes in customer usage profiles are reflected in rate case proceedings and rates are adjusted accordingly. Changes in customer usage by existing customers that occur subsequent to rate case proceedings in Maryland generally will not change revenues because the RNA mechanism stabilizes the level of delivery charge revenues received from customers. In Virginia, decoupling rate mechanisms for residential, small commercial and industrial and group metered apartment customers permit Washington Gas to adjust revenues for non-weather related changes in customer usage. The WNA and the CRA are billing mechanisms that together eliminate the effects of both weather and other factors such as conservation. (pp 8-9). Infrastructure replacement programs in DC, MD, and VA are known as ACRP, STRIDE, and SAVE respectively (p. 50).</p>

Source: 2014, 2015 SEC Form 10-K



**CALCULATION OF THE FAIR VALUE RATE BASE**

<u>Rate Base Estimate</u>	<u>Amount</u>	<u>Weighting</u>	<u>Weighted Amount</u>
Original Cost Rate Base (OCRB)	\$ 1,336,049,260	50%	\$ 668,024,630 [1]
RCND Rate Base	2,288,780,072	50%	\$ 1,144,390,036 [2]
Fair Value Rate Base (FVRB)			\$ 1,812,414,665 [3]
Appreciation above OCRB FV/OCRB Multiple	1.36		\$ 476,365,405 [4]

**CALCULATION OF THE FAIR VALUE RATE OF RETURN**

<u>Capital</u>	<u>Amount</u>	<u>Percent</u>	<u>Cost Rate</u>	<u>Weighted Cost Rate</u>
Authorized Capital Structure Original Cost Rate Base				
Long-Term Debt	\$ 645,445,398	48.31%	5.21% [5]	2.52%
Common Equity	690,603,862	51.69%	10.25% [6]	5.30%
Capital Financing OCRB	\$ 1,336,049,260	100.00%		7.82%
Authorized Capital Structure Fair Value Rate Base				
Long-Term Debt	\$ 645,445,398	35.61%	5.21%	1.86%
Common Equity	690,603,862	38.10%	10.25%	3.91%
Appreciation above OCRB not recognized on utility's books	\$ 476,365,405	26.28%	0.93% [7]	0.24%
	<u>1,812,414,665</u>	<u>100.00%</u>		<u>6.01% [8]</u>

Notes:

- [1] Direct Testimony of Randi Cunningham
- [2] Direct Testimony of Randi Cunningham
- [3] Equals [1] + [2]
- [4] Equals [3] - OCRB
- [5] Schedule D-1
- [6] Recommended ROE on OCRB
- [7] 50 percent of long-term inflation rate derived on page 2 of this Exhibit
- [8] FVRB Return equals OCRB Return - Inflation Rate

LONG-TERM INFLATION RATE ESTIMATE

Description (a)	Value (b)
Long-Term Nominal Treasury Rate [1]	4.00%
Real-Risk Free Rate of Return [2]	<u>2.10%</u>
Long-term Expected Inflation Rate [3]	1.86%

---

[1] Inflation Rate =  $\left( \frac{1 + \text{Nominal Rate}}{1 + \text{Real Rate}} \right) - 1$

Sources:

- [1] Average of the near term and long term projected Nominal 30-Year Treasury rate  
Blue Chip Financial Forecast, Vol 34, December, 1, 2015, p. 14 and Vol 35, February 1, 2015, p. 2.
- [2] Average of the EIA Annual Energy Outlook Rate of Change in CPI from 2015-2040 and  
Blue Chip Financial Forecast, Vol 34, December, 1, 2015, p. 14 and Vol 35, February 1, 2015, p. 2.
- [3] Real Risk Free Rate =  $\left( \frac{1 + \text{Nominal Treasury Rate}}{\text{Inflation} + 1} \right) - 1$

**EXHIBIT NO. A-13**

**DIRECT TESTIMONY – CHRISTY M. BERGER**



IN THE MATTER OF  
SOUTHWEST GAS CORPORATION  
DOCKET NO. G-01551A-16-0107

PREPARED DIRECT TESTIMONY  
OF  
CHRISTY M. BERGER

ON BEHALF OF  
SOUTHWEST GAS CORPORATION

May 2, 2016

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of  
Prepared Direct Testimony  
of  
CHRISTY M. BERGER

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VI. MINOR AND CONFORMING TARIFF CHANGES.....	10

Appendix A – Summary of Qualifications of Christy M. Berger

Exhibit No.\_\_(CMB-1)

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Direct Testimony  
of  
CHRISTY M. BERGER

**I. INTRODUCTION**

Q. 1 Please state your name and business address.

A. 1 My name is Christy M. Berger. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150.

Q. 2 By whom and in what capacity are you employed?

A. 2 I am employed by Southwest Gas Corporation (Southwest Gas or the Company) in the Rates and Regulatory Analysis Department. My title is Manager.

Q. 3 Please summarize your educational background and relevant business experience.

A. 3 My educational background and relevant business experience are summarized in Appendix A to this testimony.

Q. 4 Have you previously testified before any regulatory commission?

A. 4 Yes. I have previously testified before the Arizona Corporation Commission (Commission) and the Public Utilities Commission of Nevada.

Q. 5 What is the purpose of your prepared direct testimony in this proceeding?

A. 5 I sponsor the Company's rate design proposals and the supporting H Schedules. Consistent with the settlement agreement in Decision No. 72723, an inclining block rate design is also presented. Additionally, I support tariff changes that encompass a variety of updates including: 1) a modification to Rule No. 6, Service and Main Extensions; 2) the addition of a Compression Services

1 Schedule; 3) modifying the definition of winter months to be inclusive of the four-  
2 month period of December through March and corresponding modification of the  
3 definition of summer months to be inclusive of the eight-month period of April  
4 through November; and 4) housekeeping changes that correct minor  
5 inconsistencies and conform the tariff to Southwest Gas' current business  
6 practices.

7 Q. 6 Please summarize your prepared direct testimony.

8 A. 6 My prepared direct testimony consists of the following key issues:

- 9 • The Company's proposed rate design, including the Energy Efficiency  
10 Enabling Provision (EEP);
- 11 • A presentation of an inclining block rate design in compliance with Decision  
12 No. 72723;
- 13 • The proposed addition of a new methodology to Rule No. 6 when considering  
14 service and main extensions for multi-family projects;
- 15 • A proposal for a Compression Tariff (Rate Schedule G-50) to address  
16 compression services provided by utility ownership and operation of facilities  
17 on customer premises; and
- 18 • Minor tariff changes that correct inconsistencies and update the tariff to  
19 reflect current business practices.

20 **II. RATE DESIGN**

21 Q. 7 What considerations guided Southwest Gas' proposed rate design?

22 A. 7 The Company focused on the following key objectives in developing the rate  
23 design proposal presented in this application: 1) the fair and equitable recovery  
24 of costs; 2) rates that work well in concert with the EEP; 3) customer acceptance  
25



1 and understandability; and 4) the effect of the rate design on the promotion of  
2 the Company's energy efficiency and conservation efforts.

3 Q. 8 Please explain how the concepts of fairness and equality affected Southwest  
4 Gas' rate design decisions.

5 A. 8 Nearly 100% of Southwest Gas' cost of providing service is fixed and does not  
6 increase or decrease with changes in customer consumption. These fixed costs  
7 are classified as customer- and demand-related. Customer costs are incurred  
8 as a result of connecting a customer to the distribution system, and are relatively  
9 equal for all residential customers. Demand costs are determined by how much  
10 gas customers need during the peak demands on the distribution system. When  
11 customer- and demand-related fixed costs are recovered through variable  
12 charges, Southwest Gas will not recover the full cost of providing service from  
13 its low-use customers, while recovering more than it cost to provide service from  
14 its high-use customers. If this shift of cost responsibility amongst similarly  
15 situated customers becomes too great, the fairness and equality of the rate  
16 design come into question. A true cost-based rate design would recover the  
17 entire customer and demand costs in monthly fixed charges. However,  
18 Southwest Gas' proposed rate design balances cost of service rate principles  
19 with the recognition of past Commission policy and decisions requiring that a  
20 certain portion of the fixed cost of service be collected in the variable charge.

21 Q. 9 Is the Company proposing an increase to monthly basic service charges as part  
22 of its rate design proposal?

23 A. 9 No. Southwest Gas is not proposing to increase the basic service charge  
24 associated with any rate schedule as part of its proposed rate design.

25

1 Q. 10 How does Southwest Gas' proposed rate design accomplish the objective of  
2 working in tandem with the EEP?

3 A. 10 Cost-based rates recognize the difference between fixed and variable costs  
4 associated with providing service and assign the costs to fixed and variable rate  
5 components accordingly. Under a cost-based rate design, fixed rates recover  
6 the fixed costs, and variable rates recover the variable costs. However, for  
7 various reasons, gas distribution rate design may deviate from cost-based  
8 factors, with some portion of the fixed cost of service being recovered through  
9 volumetric rates. The greater this deviation from cost-based rates, the greater  
10 the potential that actual cost recovery will vary from the authorized cost-of-  
11 service.

12 As previously stated, Southwest Gas is not proposing full cost-based fixed  
13 charges in this proceeding. The basic service charges are unchanged and the  
14 entire revenue deficiency will be recovered in the variable charge, which will  
15 facilitate providing customers an incentive to be more energy efficient. Although  
16 Southwest Gas' proposed rates do not recover all fixed costs in fixed monthly  
17 charges, a portion of fixed costs are recovered in fixed charges, and mitigate  
18 deferrals associated with the EEP.

19 Q. 11 How does Southwest Gas' proposed rate design achieve the objective of  
20 customer acceptance and understandability?

21 A. 11 Southwest Gas is proposing to retain the existing monthly basic service charges  
22 and existing rate structures of its current rate design, and simply adjust the  
23 commodity rates to recover the proposed revenue deficiency. The Company's  
24 Arizona customers have had many years of experience with the current rate  
25 design, as it has been in place since the Company's 2007 general rate case. In

1 Southwest Gas' last general rate case (Docket No. G-01551A-10-0458), the  
2 EEP was added and customers have gained a level of experience,  
3 understandability, and acceptance in the intervening years since that component  
4 became part of the rate structure in January 2012.

5 Southwest Gas' customers are also accustomed to periodic adjustments  
6 between rate cases. For example, the gas cost rate is adjusted monthly, the  
7 gas cost surcharge is adjusted as necessary, and various other surcharges are  
8 adjusted annually.

9 Q. 12 Is the Company proposing any other changes that will have an impact on rate  
10 design?

11 A. 12 Yes. Southwest Gas is proposing to modify the definition of "winter season" to  
12 be inclusive of the four-month period of December through March, replacing the  
13 current definition of winter as the six-month period November through April. This  
14 modification also includes the corresponding definition of "summer season" to  
15 be inclusive of the eight-month period of April through November, which  
16 supplants the current summer definition of May through October. The relatively  
17 mild Arizona climate directly influences the consumption patterns of customers  
18 and the weather in the months of November and April is more characteristic of  
19 weather in the summer months of May through October. Additional information  
20 regarding this proposal can be found in the prepared direct testimonies of  
21 Company witnesses Carla Ayala and Edward Giesecking.

22 Q. 13 Which schedules illustrate the impact of the Company's rate design proposals  
23 on its customers?

24 A. 13 Statement H reflects the impact of Southwest Gas' proposed changes in revenue  
25 by rate schedule, bill comparisons at present and proposed rates by customer

1 class at various consumption levels, and the inputs used to develop Southwest  
2 Gas' proposed rates.

3 **III. INCLINING BLOCK RATES**

4 Q. 14 Does the Company's application include an inclining block rate design?

5 A. 14 Yes. In compliance with Decision No. 72723, Southwest Gas has included an  
6 inclining block rate design with its application. However, the Company believes  
7 the rate design described in Section II of my testimony is the more reasonable  
8 of the two approaches.

9 Q. 15 What is an inclining block rate design and why is it typically used?

10 A. 15 An inclining block rate design has two or more tiers or "blocks" where the rate  
11 per therm increases in each block, consistent with increased usage. Inclining  
12 block rate structures are typically used to encourage more conservation-minded  
13 customer behavior. However, the increase in the second block rate requires a  
14 decrease in the first block rate over current rate levels. Given Southwest Gas'  
15 customer usage characteristics, more than half of all usage falls within the first  
16 block. This type of change in the rate structure would likely have a negligible  
17 conservation effect, but would add a level of complication that does not currently  
18 exist.

19 In addition, as a commodity, natural gas tends to have a fairly inelastic  
20 demand especially as it relates to residential customer use, which was detailed  
21 in the testimony of Company witness James L. Cattnach (Docket No. G-  
22 01551A-04-0876). With the primary purpose of inclining block rate design to  
23 encourage conservation through changes in price, the relative insensitivity to  
24 changes in price are unlikely to yield the conservation effect that one would  
25 expect when compared with a commodity exhibiting a more elastic demand.

- 1 Q. 16 Which rate schedules are included in the Company's inclining block rate design  
2 presentation?
- 3 A. 16 Southwest Gas has included Single-Family Residential, Multi-Family Residential  
4 and Single-Family Low Income Residential and Multi-Family Low Income  
5 Residential rate schedules in its presentation.
- 6 Q. 17 Please summarize the elements of the inclining block rate design.
- 7 A. 17 The inclining block rate design includes an increase in the monthly basic service  
8 charge and variable charge for the second block as compared to the currently  
9 effective rates.
- 10 Q. 18 Why is an increase in the monthly basic service charge necessary under the  
11 inclining block rate design?
- 12 A. 18 Inclining block rate structures shift more cost recovery into higher levels of  
13 consumption making recovery of fixed costs more uncertain. In order to mitigate  
14 some of this uncertainty and maintain equity and fairness in rate design by  
15 alleviating potential increases in intra-class subsidies, more of the fixed costs  
16 that would otherwise be recovered through a flat volumetric rate are being  
17 recovered through the basic service charge.
- 18 Q. 19 Has the Company prepared schedules to illustrate the impact of an inclining  
19 block rate design on customers?
- 20 A. 19 Yes. Exhibit No.\_\_(CMB-1) reflects the impact of Southwest Gas' proposed  
21 changes in revenue by rate schedule, bill comparisons at present and proposed  
22 rates by customer class at various consumption levels, and the inputs used to  
23 develop the inclining block rate design.  
24  
25

1 **IV. SERVICE AND MAIN EXTENSIONS**

2 Q. 20 Please provide a summary of the revisions the Company proposes to Rule No. 6,  
3 Service and Main Extensions.

4 A. 20 The Company proposes a change with respect to potential new-construction  
5 multi-family projects, which allows utility contributions to the  
6 customer/developer's beyond the meter gas facilities in cases where the design  
7 cost, as calculated using the incremental contribution method (ICM) prescribed  
8 in Rule No. 6, provides a rate of return on investment in excess of the overall  
9 rate of return authorized by the Commission in the Company's most recent  
10 general rate case.

11 Q. 21 What is the purpose of a utility contribution to the customer/developer?

12 A. 21 Any available contribution calculated under this method would be for the purpose  
13 of offsetting costs incurred for the installation of gas piping in the  
14 customer/developer premise, also known as "first costs".

15 Q. 22 Are "first costs" a significant barrier for developers of multi-family projects?

16 A. 22 Yes. The upfront costs associated with installing natural gas into a multi-family  
17 building can be considerable, ranging from several thousand to millions of  
18 dollars. These costs are attributable to the extensive additional piping and  
19 venting required throughout a multi-family building. Even if natural gas service  
20 can be brought to the building at no cost to the developer of a project, these  
21 additional costs within the building itself often economically preclude the  
22 installation of natural gas by the developer. These high upfront costs are the  
23 primary impediment for multi-family developers that may wish to provide natural  
24 gas to building occupants. For example, in 2015, only 12% of the multi-family  
25

1 units constructed in the Phoenix and Tucson metropolitan areas used natural  
2 gas on an individual unit level.

3 Q. 23 How does this proposal complement the existing requirements of Rule No. 6?

4 A. 23 This proposal provides consideration to new-construction multi-family projects  
5 that are deemed economic as calculated using the ICM under the existing Rule  
6 No. 6 provisions. While this proposal adds new language to work in conjunction  
7 with the existing language, it does not alter the overall objective of assuring that  
8 new load does not place a burden on existing customers.

9 Q. 24 In practice, how will this proposal operate?

10 A. 24 When a project provides a rate of return in excess of that required, as calculated  
11 using the ICM, the dollar amount attributable to the excess rate of return may be  
12 provided as a utility contribution. Any contribution provided by the utility will not  
13 exceed the actual cost, nor will it cause the costs as calculated using the ICM to  
14 result in less than the authorized rate of return. Please refer to the Company's  
15 proposed revised tariff, filed concurrently herewith in Volume I of Southwest Gas'  
16 application, for additional detail.

17 **V. COMPRESSION TARIFF**

18 Q. 25 Please provide a summary of Southwest Gas' proposed Compression Tariff  
19 (Rate Schedule G-50).

20 A. 25 The Company has identified opportunities to provide high pressure compression  
21 service through facilities owned and operated by the Company, located on a  
22 customer's premises. Because each potential project would be unique, the  
23 proposed tariff describes the specific components of the rate structure which will  
24 be designed to recover the depreciation, return on capital investment, income  
25

1 taxes, property taxes, and operating expenses associated with the high pressure  
2 equipment.

3 In addition to specifying applicable rates, the proposed Compression Tariff  
4 identifies both customer and Utility responsibilities, as well as definitions specific  
5 to the proposed Rate Schedule G-50.

6 Q. 26 Does the Company currently own and operate facilities located on the customer  
7 premise?

8 A. 26 Yes, it is normal practice to locate Company owned and operated facilities on  
9 the customer premise in order to provide utility service. A typical customer  
10 installation includes Company owned and operated service lines, pressure  
11 regulation equipment and meters, all located on the customer premise.  
12 Additionally, some of the Company's larger customers have Company owned  
13 and operated gas sampling and communications equipment.

14 Q. 27 What type of customer needs high pressure compression facilities?

15 A. 27 Typical customers are enterprises with large vehicle fleets that could use natural  
16 gas as a transportation fuel, and natural gas fueling stations. The Compression  
17 Tariff is not intended for residential applications. Please refer to the Company's  
18 proposed revised tariff, filed concurrently herewith in Volume I of Southwest Gas'  
19 application, for additional detail.

20 **VI. MINOR AND CONFORMING TARIFF CHANGES**

21 Q. 28 Is Southwest Gas proposing any other tariff changes in addition to those you  
22 previously discussed?

23 A. 28 Yes. Southwest Gas proposes the following minor and conforming changes to  
24 its tariff.

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- The discontinuance of the Field Collection Fee as currently set forth in the Other Service Charges. For the safety of employees, no cash payments are accepted in the field; only checks are accepted. However, over the last several years, the Company has added numerous alternate and more convenient methods for customers to pay their bills; including the ability to pay with a check over the phone without being assessed a service fee. This provides customers who are needing to pay their bill with a check, but who have not previously submitted their payment through other means, the same option to pay their bill in order to avoid the termination of service, without incurring additional fees. It also provides customers the convenience to pay their bill after business hours and on weekends.
- A variety of housekeeping changes to clarify Southwest Gas' tariff and conform to current business practices. In addition, these proposed changes correct minor inconsistencies in references found throughout the tariff. Please refer to the Company's proposed revised tariff, filed concurrently herewith in Volume I of Southwest Gas' application, for additional detail.

Q. 29 Does this conclude your prepared direct testimony?

A. 29 Yes.

**SUMMARY OF QUALIFICATIONS  
CHRISTY M. BERGER**

I received a Bachelor of Science degree in Accounting from the University of Nevada, Las Vegas in 1994, and later that year, I began my employment with Southwest Gas and have held a variety of positions of increasing responsibility.

From 1994 to 1997, I was a Corporate Accountant, and subsequently an Analyst, in the Company's Gas and Regulatory Accounting department, where my responsibilities included accounting and billing with respect to Southwest Gas' largest transportation customers, in addition to calculating and developing accounting entries for gas costs related to the Company's various rate jurisdictions.

In February 1998, I began a 15-month training program in Southwest Gas' Pricing and State Regulatory Affairs departments. As part of this program, I had a rotational assignment spending six months in the Pricing and Tariffs department, six months in the Revenue Requirements department, and three months in the State Regulatory Affairs department. At the conclusion of this training program, I was permanently assigned to the Pricing and Tariffs department in May 1999, where I held the positions of Specialist and Senior Specialist. My responsibilities included the development of Class Cost of Service Studies, as well as other rate case related duties, in addition to various pricing and tariff analyses.

In March 2007, I was promoted to Supervisor of the Company's Gas Scheduling department. My responsibilities included all gas scheduling activities for both the Company's sales customers, as well as confirmation of scheduled volumes for Southwest Gas' transportation customers on seven pipelines serving the Company's three-state jurisdiction.

In July 2009, I was promoted to Manager of State Regulatory Affairs, where I was responsible for all regulatory activity related to the three state regulatory commissions under which the Company operates.

In October 2014, I moved to my current position as Manager of Rates and Regulatory Analysis. I report to the Director of Regulation and Energy Efficiency. My primary responsibilities include all aspects of regulatory analysis related to Southwest Gas' various rate jurisdictions, including the calculation and implementation of customer rates, revenue requirement analyses, and tariff administration.

**SOUTHWEST GAS CORPORATION  
ARIZONA GENERAL RATE CASE  
SUMMARY OF PRESENT RATES AND REVENUES WITH INCLINING BLOCK RATES  
FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**

Line No.	Description	Billing Determinants				Revenue with Inclined Block Rates							Line No.													
		Proposed Schedule Number	Number of Bills [1]	Sales (Terms) [1]	(d)	Basic Service Charge [2]	(e)	Delivery Charge [2]	(f)	Basic Service Charge [2]	(g)	Delivery Charge [2]		(h)	Total Margin	(i)	Gas Cost [3]	(j)	Total Revenue	(k)	Revenue at Present Rates [1]	(l)	Increase / Decrease Dollars	(m)	Percent	(n)
<b>G-5 Single-Family Residential Gas Service</b>																										
<b>Summer (April-November)</b>																										
1	Basic Service Charge per Month	5,471,571		\$	11.75	\$	64,290,959		\$	64,290,959		\$	64,290,959		\$	58,545,810		\$	5,745,149		9.8%	1				
2	Commodity Charge per Therm		20,392,714		\$	0.51527		\$	10,507,754		\$	9,901,886		\$	20,409,640		\$	(3,831,179)		\$	(15.8%)	2				
3	First 9 Therms		73,901,819		\$	0.78203		\$	56,315,076		\$	35,883,767		\$	92,198,843		\$	(4,351,751)		\$	(5.0%)	3				
4	Over 9 Therms																									
<b>Winter (December-March)</b>																										
4	Basic Service Charge per Month	5,525,070		\$	11.75	\$	64,919,573		\$	64,919,573		\$	64,919,573		\$	59,118,249		\$	5,801,324		9.8%	4				
5	Commodity Charge per Therm		34,588,609		\$	0.51527		\$	17,827,625		\$	16,799,701		\$	34,627,326		\$	(6,500,041)		\$	(15.8%)	5				
6	First 35 Therms		152,961,038		\$	0.78203		\$	116,560,222		\$	74,271,762		\$	190,831,884		\$	(181,824,786)		\$	(5.0%)	6				
7	Over 35 Therms		281,854,180		\$	0.78203		\$	207,210,877		\$	136,857,116		\$	467,278,325		\$	(452,704,123)		\$	(3.2%)	7				
<b>Total Single-Family Residential</b>																										
<b>G-6 Multi-Family Residential Gas Service</b>																										
<b>Summer (April-November)</b>																										
8	Basic Service Charge per Month	208,043		\$	10.25	\$	2,132,441		\$	2,132,441		\$	2,132,441		\$	2,018,017		\$	114,424		5.7%	8				
9	Commodity Charge per Therm		672,861		\$	0.51527		\$	346,705		\$	326,714		\$	673,419		\$	(126,411)		\$	(15.8%)	9				
10	First 8 Therms		2,080,651		\$	0.78203		\$	1,585,509		\$	1,010,281		\$	2,595,190		\$	(222,520)		\$	(5.0%)	10				
<b>Winter (December-March)</b>																										
11	Basic Service Charge per Month	210,511		\$	10.25	\$	2,157,738		\$	2,157,738		\$	2,157,738		\$	2,041,957		\$	115,781		5.7%	11				
12	Commodity Charge per Therm		795,619		\$	0.51527		\$	409,959		\$	386,321		\$	796,280		\$	(148,472)		\$	(15.8%)	12				
13	First 19 Therms		2,705,920		\$	0.78203		\$	2,061,980		\$	1,313,887		\$	3,216,527		\$	(159,340)		\$	(5.0%)	13				
14	Over 19 Therms		6,255,051		\$	0.78203		\$	4,404,153		\$	3,037,203		\$	11,731,535		\$	(236,182)		\$	(2.1%)	14				
<b>Total Multi-Family Residential</b>																										
<b>G-10 Single-Family Low Income Residential Gas Service</b>																										
<b>Summer (April-November)</b>																										
15	Basic Service Charge per Month	230,881		\$	7.75	\$	1,789,328		\$	1,789,328		\$	1,789,328		\$	1,731,608		\$	57,720		3.3%	15				
16	Commodity Charge per Therm		784,015		\$	0.51527		\$	403,979		\$	380,686		\$	784,965		\$	(91,659)		\$	(147,294)		(15.8%)	16		
17	First 9 Therms		3,152,320		\$	0.78203		\$	2,402,148		\$	1,530,640		\$	3,932,786		\$	(3,747,163)		\$	(5.0%)	17				
<b>Winter (December-March)</b>																										
18	Basic Service Charge per Month	233,375		\$	7.75	\$	1,808,656		\$	1,808,656		\$	1,808,656		\$	1,750,313		\$	58,343		3.3%	18				
19	Commodity Charge per Therm		1,453,104		\$	0.51527		\$	748,741		\$	705,569		\$	1,454,310		\$	(272,995)		\$	(15.8%)	19				
20	First 35 Therms		6,043,034		\$	0.78203		\$	4,604,946		\$	2,934,256		\$	7,539,202		\$	(7,183,355)		\$	(5.0%)	20				
21	Over 35 Therms		11,432,473		\$	0.78203		\$	8,159,914		\$	5,551,151		\$	17,308,949		\$	(17,071,702)		\$	(1.4%)	21				
<b>Total Single-Family Low Income</b>																										
<b>G-11 Multi-Family Low Income Residential Gas Service</b>																										
<b>Summer (April-November)</b>																										
22	Basic Service Charge per Month	20,185		\$	7.75	\$	156,434		\$	156,434		\$	156,434		\$	151,388		\$	5,046		3.3%	22				
23	Commodity Charge per Therm		60,601		\$	0.51527		\$	31,226		\$	29,425		\$	60,651		\$	(72,036)		\$	(11.385)	(15.8%)	23			
24	First 8 Therms		245,079		\$	0.78203		\$	186,756		\$	119,001		\$	305,757		\$	(291,325)		\$	(5.0%)	24				
<b>Winter (December-March)</b>																										
25	Basic Service Charge per Month	20,559		\$	7.75	\$	159,332		\$	159,332		\$	159,332		\$	154,193		\$	5,139		3.3%	25				
26	Commodity Charge per Therm		63,076		\$	0.51527		\$	32,601		\$	30,627		\$	63,078		\$	(74,878)		\$	(11.850)	(15.8%)	26			
27	First 19 Therms		30,010		\$	0.78203		\$	24,360		\$	16,450		\$	43,210		\$	(41,381)		\$	(20.429)	(5.0%)	27			
28	Over 19 Therms		715,674		\$	0.78203		\$	514,843		\$	347,503		\$	1,178,112		\$	(1,156,303)		\$	(21,809)	(1.9%)	28			
<b>Total Multi-Family Low Income</b>																										
29	Total Tariff Residential Sales	11,920,195		\$		\$	214,289,487		\$	351,703,948		\$	145,792,973		\$	482,427,480		\$	(15,069,441)		\$	(3.1%)	29			
30	Total Revenue Requirement																									
31	Over/(Under)																									

[1] Schedule H-6, Sheet 1-16.  
[2] Calculated rates to recover proposed Margin with Inclining Block Rate Design per Schedule H-1, Sheet 2.  
[3] Present Gas Cost rate effective November 30, 2015.  
[4] Schedule H-2, Sheet 1-4.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**SUMMARY OF PRESENT AND INCLINING BLOCK RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**

Line No.	Description (a)	Present Rates					Inclining Block Rates					
		Schedule (b)	Delivery Charge [1] (c)	Rate Adjustment [2] (d)	Gas Cost [2] (e)	Currently Effective Tariff Rate (f)	Schedule (h)	Delivery Charge [3] (i)	Rate Adjustment [2] (j)	Gas Cost [2] (k)	Effective Tariff Rate (l)	
1	Single-Family Residential Gas Service	G-5					G-5					
2	Basic Service Charge per Month		\$ 10.70			\$ 10.70		\$ 11.75			\$ 11.75	1
3	Commodity Charge per Therm											2
4	All Usage		\$ 0.70314	\$ 0.00628	\$ 0.48556	\$ 1.19498		\$ 0.51527	\$ 0.00074	\$ 0.48556	\$ 1.00157	3
5								0.76203	0.00074	0.48556	1.24833	4
6												5
7	Winter (December-March)							\$ 11.75			\$ 11.75	6
8	Basic Service Charge per Month							\$ 0.51527	\$ 0.00074	\$ 0.48556	\$ 1.00157	7
9	Commodity Charge per Therm							0.76203	0.00074	0.48556	1.24833	8
10	All Usage											9
11	Multi-Family Residential Gas Service	G-6					G-6					10
12	Basic Service Charge per Month		\$ 9.70			\$ 9.70		\$ 10.25			\$ 10.25	11
13	Commodity Charge per Therm											12
14	All Usage		\$ 0.70314	\$ 0.00628	\$ 0.48556	\$ 1.19498		\$ 0.51527	\$ 0.00074	\$ 0.48556	\$ 1.00157	13
15								0.76203	0.00074	0.48556	1.24833	14
16												15
17	Winter (December-March)							\$ 10.25			\$ 10.25	16
18	Basic Service Charge per Month							\$ 0.51527	\$ 0.00074	\$ 0.48556	\$ 1.00157	17
19	Commodity Charge per Therm							0.76203	0.00074	0.48556	1.24833	18
20	All Usage											19
21	Single-Family Low Income Residential Gas Service	G-10					G-10					20
22	Basic Service Charge per Month		\$ 7.50			\$ 7.50		\$ 7.75			\$ 7.75	21
23	Commodity Charge per Therm											22
24	All Usage		\$ 0.70314	(0.01879)	\$ 0.48556	\$ 1.16991		\$ 0.51527	(0.02001)	\$ 0.48556	\$ 0.98082	23
25	Winter (November-April)							0.76203	(0.02001)	0.48556	1.22758	24
26	First 150 Therms											25
27	Over 150 Therms											26
28	Multi-Family Low Income Residential Gas Service	G-11					G-11					27
29	Basic Service Charge per Month		\$ 7.50			\$ 7.50		\$ 7.75			\$ 7.75	28
30	Commodity Charge per Therm											29
31	All Usage		\$ 0.70314	(0.01879)	\$ 0.48556	\$ 1.16991		\$ 0.51527	(0.02001)	\$ 0.48556	\$ 0.98082	30
32	Winter (November-April)							0.76203	(0.02001)	0.48556	1.22758	31
33	First 150 Therms											32
34	Over 150 Therms											33
35	Service Establishment Charge							\$ 0.22162	(0.02001)	\$ 0.48556	\$ 0.68717	34
36	Normal							0.76203	(0.02001)	0.48556	1.22758	35
37	Expedited											36

[1] Present Margin rates effective January 1, 2012.  
[2] Present Rate Adjustment and Gas Cost rates effective November 30, 2015.  
[3] Calculated rates to recover proposed Margin with Inclining Block Rate Design per Schedule H-1, Sheet 2.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - INCLINING RATES VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**SINGLE-FAMILY RESIDENTIAL GAS SERVICE**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates (c)	At Inclining Block Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	8	\$ 20.26	\$ 19.76	\$ (0.50)	-2.47%	1
2	Average Summer Use [1]	11	23.84	23.26	(0.58)	-2.43%	2
3	125 Percent Average Use	14	27.43	27.01	(0.42)	-1.53%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	30	\$ 46.55	\$ 41.80	\$ (4.75)	-10.20%	4
5	Average Winter Use [1]	40	58.50	53.05	(5.45)	-9.32%	5
6	125 Percent Average Use	50	70.45	65.53	(4.92)	-6.98%	6
7	Annual Average Use	26	41.77	37.79	(3.98)	-9.53%	7
<u>Effective Tariff Rates [2]</u>		<u>Amount</u>					
Basic Service Charge per Month		\$ 10.70					
Commodity Charge							
All Usage		\$ 1.19498					
<u>Inclining Block Rates</u>							
Basic Service Charge per Month		\$ 11.75					
Commodity Charge							
<u>Summer (May-October)</u>							
First 9 Therms		\$ 1.00157					
Over 9 Therms		1.24833					
<u>Winter (November-April)</u>							
First 35 Therms		\$ 1.00157					
Over 35 Therms		1.24833					

[1] Workpapers Schedule H-2, Sheets 50-54.

[2] Rates effective November 30, 2015 including all adjustments.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - INCLINING RATES VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**MULTI-FAMILY RESIDENTIAL GAS SERVICE**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates (c)	At Inclining Block Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	7	\$ 18.06	\$ 17.26	\$ (0.80)	-4.43%	1
2	Average Summer Use [1]	9	20.45	19.51	(0.94)	-4.60%	2
3	125 Percent Average Use	11	22.84	22.01	(0.83)	-3.63%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	16	\$ 28.82	\$ 26.28	\$ (2.54)	-8.81%	4
5	Average Winter Use [1]	21	34.79	31.78	(3.01)	-8.65%	5
6	125 Percent Average Use	26	40.77	38.02	(2.75)	-6.75%	6
7	Annual Average Use	15	27.56	25.22	(2.34)	-8.49%	7

<u>Effective Tariff Rates [2]</u>	<u>Amount</u>
Basic Service Charge per Month	\$ 9.70
Commodity Charge All Usage	\$ 1.19498

<u>Inclining Block Rates</u>	<u>Amount</u>
Basic Service Charge per Month	\$ 10.25
Commodity Charge	
<u>Summer (May-October)</u>	
First 9 Therms	\$ 1.00157
Over 9 Therms	1.24833
<u>Winter (November-April)</u>	
First 35 Therms	\$ 1.00157
Over 35 Therms	1.24833

[1] Workpapers Schedule H-2, Sheets 50-54.

[2] Rates effective November 30, 2015 including all adjustments.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - INCLINING RATES VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**SINGLE-FAMILY LOW INCOME RESIDENTIAL GAS SERVICE**

Line No.	Description	Monthly Consumption (Therms)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates	At Inclining Block Rates	Dollars	Percent	
	(a)	(b)	(c)	(d)	(e)	(f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	8	\$ 16.86	\$ 15.60	\$ (1.26)	-7.47%	1
2	Average Summer Use [1]	11	20.37	19.03	(1.34)	-6.58%	2
3	125 Percent Average Use	14	23.88	22.72	(1.16)	-4.86%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	29	\$ 31.27	\$ 27.68	\$ (3.59)	-11.48%	4
5	Average Winter Use [1]	38	38.64	35.48	(3.16)	-8.18%	5
6	125 Percent Average Use	48	46.84	47.76	0.92	1.96%	6

<u>Effective Tariff Rates [2]</u>	<u>Amount</u>
Basic Service Charge per Month	\$ 7.50
Commodity Charge	
<u>Summer (May-October)</u>	
All Usage	\$ 1.16991
<u>Winter (November-April)</u>	
First 150 Therms	\$ 0.81954
Over 150 Therms	1.16991
<u>Inclining Block Rates</u>	
Basic Service Charge per Month	\$ 7.75
Commodity Charge	
<u>Summer (May-October)</u>	
First 9 Therms	\$ 0.98082
Over 9 Therms	1.22758
<u>Winter (November-April)</u>	
First 35 Therms	\$ 0.68717
Over 35 Therms	1.22758

[1] Workpapers Schedule H-2, Sheets 50-54.

[2] Rates effective November 30, 2015 including all adjustments.



**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - INCLINING RATES VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**MULTI-FAMILY LOW INCOME RESIDENTIAL GAS SERVICE**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates (c)	At Inclining Block Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	8	\$ 16.86	\$ 15.60	\$ (1.26)	-7.47%	1
2	Average Summer Use [1]	10	19.20	18.05	(1.15)	-5.99%	2
3	125 Percent Average Use	13	22.71	21.73	(0.98)	-4.32%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	19	\$ 23.07	\$ 20.81	\$ (2.26)	-9.80%	4
5	Average Winter Use [1]	25	27.99	28.17	0.18	0.64%	5
6	125 Percent Average Use	31	32.91	35.54	2.63	7.99%	6

<u>Effective Tariff Rates [2]</u>	<u>Amount</u>
Basic Service Charge per Month	\$ 7.50
Commodity Charge	
<u>Summer (May-October)</u>	
All Usage	\$ 1.16991
<u>Winter (November-April)</u>	
First 150 Therms	\$ 0.81954
Over 150 Therms	1.16991
<u>Inclining Block Rates</u>	
Basic Service Charge per Month	\$ 7.75
Commodity Charge	
<u>Summer (May-October)</u>	
First 9 Therms	\$ 0.98082
Over 9 Therms	1.22758
<u>Winter (November-April)</u>	
First 35 Therms	\$ 0.68717
Over 35 Therms	1.22758

[1] Workpapers Schedule H-2, Sheets 50-54.

[2] Rates effective November 30, 2015 including all adjustments.

**EXHIBIT NO. A-14**

**DIRECT TESTIMONY – EDWARD GIESEKING**



IN THE MATTER OF  
SOUTHWEST GAS CORPORATION  
DOCKET NO. G-01551A-16-0107

PREPARED DIRECT TESTIMONY  
OF  
EDWARD GIESEKING

ON BEHALF OF  
SOUTHWEST GAS CORPORATION

MAY 2, 2016

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of  
Prepared Direct Testimony  
of  
EDWARD GIESEKING

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Appendix A – Summary of Qualifications of Edward Giesecking

Exhibit No.\_\_(EG-1)

Exhibit No.\_\_(EG-2)

Exhibit No.\_\_(EG-3)

Exhibit No.\_\_(EG-4)

Exhibit No.\_\_(EG-5)

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Direct Testimony  
of  
Edward Giesecking

**I. INTRODUCTION**

Q. 1 Please state your name and business address.

A. 1 My name is Edward Giesecking. My business address is 5241 Spring Mountain Road, Las Vegas Nevada.

Q. 2 By whom and in what capacity are you employed?

A. 2 I am employed by Southwest Gas Corporation (Southwest Gas or the Company) in the Regulation and Energy Efficiency department. My title is Director.

Q. 3 Please summarize your educational background and relevant business experience.

A. 3 My educational background and relevant business experience are summarized in Appendix A to this testimony.

Q. 4 Have you previously testified before any regulatory commission?

A. 4 Yes. I have previously testified before the Arizona Corporation Commission (Commission), the California Public Utilities Commission, the Public Utilities Commission of Nevada and the Federal Energy Regulatory Commission.

Q. 5 What is the purpose of your prepared direct testimony in this proceeding?

A. 5 I am sponsoring the Company's proposals to establish a regulatory mechanism to reflect changes in the property tax liability, and to expand the Company's infrastructure recovery mechanism. Additionally, I am sponsoring cost recovery treatment of the currently approved liquefied natural gas (LNG) storage facility

1 in southern Arizona, as well as subtle refinements to the Company's Energy  
2 Efficiency Enabling Provision (EEP).

3 Q. 6 Please summarize your prepared direct testimony.

4 A. 6 My prepared direct testimony consists of the following key issues:

- 5 • Implementation of a Property Tax True-up Mechanism;
- 6 • Expansion of the currently authorized infrastructure recovery mechanism to  
7 both expand the Customer Owned Yard Line (COYL) program and to  
8 facilitate the replacement of other aging gas infrastructure and investment in  
9 gas infrastructure modernization;
- 10 • Cost recovery for the currently approved LNG facility; and
- 11 • Subtle enhancements to the EEP.

## 12 **II. REGULATORY MECHANISMS**

13 Q. 7 What is meant by the phrase "regulatory mechanism"?

14 A. 7 The phrase "regulatory mechanism" is intended to capture various types of cost  
15 recovery and rate design mechanisms that are commonly used in the utility  
16 industry, and that are departure from the traditional ratemaking methodologies.  
17 The American Gas Association (AGA) periodically publishes a report identifying  
18 the prevalence of various innovative regulatory mechanisms in the natural gas  
19 industry, among other topics. A copy of the AGA document is attached as Exhibit  
20 No.\_\_(EG-1).

21 Q. 8 Why is it appropriate for the Commission to consider regulatory mechanisms?

22 A. 8 The rates established in the general rate case process are based on a level of  
23 cost that is expected to occur during the period that rates will be effective. Thus,  
24 there is an expectation that the Company will have a reasonable opportunity to  
25 recover those costs of providing utility service. Sometimes situations require a

1 departure from this traditional rate making process and merit being recovered  
2 outside of a general rate case through appropriate regulatory mechanisms.  
3 Typically, these costs have one or more of the following characteristics that  
4 make them eligible for recovery outside of general rates: 1) they are not included  
5 in the development of the authorized revenue requirement and are therefore not  
6 included in the development of general rates, 2) management has limited or no  
7 power or influence over the incurrence of these costs, and/or 3) the amount of  
8 these costs actually incurred can change significantly from year to year and  
9 could deviate significantly from an amount incurred within a general rate case  
10 test period.

11 Q. 9 What regulatory mechanisms does Southwest Gas currently utilize in Arizona?

12 A. 9 The Company currently utilizes three types of regulatory mechanisms. First,  
13 cost trackers are designed to track certain narrowly defined operating expenses  
14 and treat them as a pass through. The Company currently utilizes five different  
15 cost trackers to recover the following costs outside of general rates: 1) gas  
16 commodity and related costs, 2) energy efficiency expenditures, 3) low income  
17 discounts, 4) research and development (R&D) costs, and 5) federally mandated  
18 pipeline safety costs. The second type of regulatory mechanism is an  
19 infrastructure recovery mechanism. These mechanisms are utilized to provide  
20 a revenue stream for investments do not otherwise result in an increase in  
21 customers or throughput, and therefore do not result in any incremental increase  
22 in revenue to the Company. The Company's COYL program utilizes this type of  
23 regulatory mechanism by allowing the Company to recover the revenue  
24 requirement associated with non-revenue producing infrastructure replacement  
25 activity. The third type of regulatory mechanism is the EEP or decoupling

1 mechanism. The Company utilizes a margin per customer decoupling  
 2 mechanism to ensure that the fixed costs that have been approved by the  
 3 Commission are actually recovered from customers regardless of changes in  
 4 consumption. In addition, because the Company is indifferent to its level of  
 5 sales, it is better positioned to help customers use less natural gas through the  
 6 promotion of energy efficiency programs.

7 Q. 10 How do the three criteria you listed above apply to the regulatory mechanisms  
 8 used by Southwest Gas?

9 A. 10 The following table shows how each of those criteria apply to the specific  
 10 programs that utilize a regulatory mechanism:

Rate Adjustment	Criteria 1	Criteria 2	Criteria 3
Gas Cost	X	X	X
EE	X	X	X
Low Income	X	X	X
R&D	X		
Safety	X	X	X
COYL	X		X
EEP	X	X	X

16 Q. 11 Is Southwest Gas proposing any changes to its currently approved regulatory  
 17 mechanisms in this proceeding?

18 A. 11 Yes. Southwest Gas seeks to continue each of the three regulatory  
 19 mechanisms, and proposes a few modifications to the various programs whose  
 20 costs are recovered through the mechanisms. The Company proposes to  
 21 implement a cost tracker for property tax expense and proposes to rebrand its  
 22 infrastructure recovery mechanism to facilitate additional recovery of non-  
 23 revenue producing investment from an expanded COYL program and a new pre-  
 24 1970's vintage steep pipe (VSP) replacement program. Also, Southwest Gas  
 25 proposes to discontinue the cost tracker for R&D costs. The Company's



1 | proposal for the recovery of R&D costs is addressed by Company witness Randi  
2 | L. Cunningham.

3 | **A. Property Tax True-Up**

4 | Q. 12 What qualifying criteria does the property tax expense possess that makes that  
5 | cost eligible for tracking in a regulatory mechanism?

6 | A. 12 By definition, incremental changes in the Company's property tax expense would  
7 | not be included in general rates until the next general rate case. Also, property  
8 | tax assessments are imposed by governmental agencies and are wholly outside  
9 | the control of management. Finally, changes in property taxes can be significant  
10 | between general rate cases and deviate significantly from amounts included in  
11 | a general rate case test period. These points are more fully addressed in the  
12 | prepared direct testimony of Company witness Byron C. Williams.

13 | Q. 13 Please describe the Company's property tax true-up mechanism proposal.

14 | A. 13 Each tax year, the difference between the property tax included in general rates  
15 | and the change in the property tax expense would be calculated as explained  
16 | below, and deferred into a tracking/balancing account. Annually, the Company  
17 | will make a filing with the Commission to establish a surcharge or surcredit to  
18 | recover or refund the balance in the account.

19 | Q. 14 How will incremental changes in property taxes be calculated?

20 | A. 14 The Company proposes that for each tax year, a calculation be performed that  
21 | recognizes changes in the Company's taxable property, the current year  
22 | statutory assessment ratio, the effective composite property tax rate and the  
23 | capitalized property tax and therefore the Company's property tax expense. A  
24 | hypothetical example of the calculation is shown below.

25 |

1	Current Year Taxable Property	\$1,700,000,000 (A)
2	Current Year Statutory Assessment Ratio	18.0% (B)
3	Assessed Value	\$306,000,000 (C = A x B)
4	Current Year Composite Property Tax Rate	14.0% (D)
5	Current Year Property Tax Liability	\$42,840,000 (E = C x D)
6	Capitalized Property Tax	\$1,831,351 (F)
7	Current Year Property Tax Expense	\$41,008,649 (G = E - F)
8	Test Year Annualized Property Tax Expense	\$41,584,263 (H)
9	Property Tax Deferral	(\$575,614) (I = G - H)

10 Q. 15 How will the annual inputs be determined in the above calculation?

11 A. 15 The Current Year Taxable Property amount (or Full Cash Value) is determined  
12 annually by the Arizona Department of Revenue and reported to the Company  
13 on a Notice of Value. The Current Year Statutory Assessment Ratio is  
14 determined by the Arizona Legislature and is detailed in Ariz. Rev. Stat. § 42-  
15 15001. The Current Year Composite Property Tax Rate is based on rates as  
16 determined by the local governments in areas where Southwest Gas owns  
17 property. The Capitalized Property Tax is the amount recorded in the taxable  
18 property year. Finally, the Test Year Annualized Property Tax Expense is  
19 detailed in the instant proceeding per Adjustment No. 15.

20 Q. 16 How would these property tax deferrals be recovered from or returned to  
21 customers?

22 A. 16 Annually, similar to the other cost trackers utilized by the Company, Southwest  
23 Gas proposes to make a filing with the Commission to establish a rate to  
24 amortize the deferred balance over an anticipated 12-month rate effective  
25 period. The amounts recovered through the property tax amortization rate would

1 be recorded in the property tax true-up balancing account to offset the recorded  
2 incremental property tax change. Thus, the Company would only recover/refund  
3 the actual property tax expense - no more, no less.

4 **B. Gas Infrastructure Modernization Mechanism**

5 Q. 17 What is the GIM mechanism?

6 A. 17 The GIM mechanism is simply a rebranding of Southwest Gas' existing  
7 infrastructure recovery mechanism. The intent of rebranding this mechanism is  
8 to facilitate the inclusion of other non-revenue producing investment activity.

9 Q. 18 Are infrastructure recovery mechanisms prevalent for natural gas distribution  
10 companies?

11 A. 18 Yes. The issue of providing utilities the opportunity to more timely recover their  
12 investments from non-revenue producing work – namely replacing aging natural  
13 gas infrastructure, has been recognized throughout the country, and has been  
14 addressed by regulators in many states through the establishment of various  
15 cost recovery mechanisms. The recently published AGA assessment attached  
16 as Exhibit No.\_\_(EG-1) shows that 99 utilities in 37 states have regulatory  
17 mechanisms that provide for the recovery of costs associated with gas  
18 infrastructure replacement.<sup>1</sup> This assessment also shows 7 additional gas  
19 utilities with pending mechanisms.

20 Q. 19 What non-revenue producing investment does Southwest Gas propose to  
21 include in the GIM mechanism?

22 A. 19 Southwest Gas proposes to include its COYL program and its proposed pre-  
23 1970's VSP replacement programs as part of the GIM mechanism.

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<sup>1</sup> Exhibit No.\_\_(EG-1), p. 2-4.

1 Q. 20 What qualifying criteria do COYL and pre-1970's VSP possess that make them  
2 eligible for regulatory mechanism treatment?

3 A. 20 These costs are not included in the development of the general rates requested  
4 in this proceeding. Further, the replacement of these facilities does not  
5 otherwise result in an increase in customers or throughput, and therefore does  
6 not result in any incremental increase in revenue to the Company. Accordingly,  
7 regulatory mechanisms are necessary to facilitate the replacement, or the  
8 accelerated replacement, of non-revenue producing facilities.

9 Q. 21 In addition to the criteria you have outlined, are there other reasons that support  
10 the Company's proposed GIM mechanism?

11 A. 21 Yes. The level of depreciation expense currently included in rates funds only a  
12 portion of infrastructure replacement related to normal business activity.  
13 Therefore none of the depreciation expense that the Company will incur as a  
14 result of the non-revenue investments contemplated with the GIM mechanism  
15 will be recovered in the Company's base rates. This situation will be further  
16 worsened with the reduction in depreciation rates proposed in this application.  
17 The Company will require a regulatory mechanism designed to recover the costs  
18 associated with a more robust infrastructure modernization effort between rate  
19 cases.

20 A proactive approach to replacing aging infrastructure will also mitigate the  
21 potential for rate shock in the future. As discussed by Southwest Gas witness  
22 Lang, the Company operates and maintains a substantial amount of natural gas  
23 infrastructure in Arizona. While these facilities are being operated in a safe and  
24 reliable manner, it is inevitable that all facilities will require replacement at some  
25 point, either due to normal wear and tear or due to regulatory directives. The

1 Company's proposed GIM mechanism will achieve the controlled replacement  
2 of these facilities over time, with gradual adjustments to rates, compared to a  
3 reactive and concentrated effort that would result in a much larger rate  
4 adjustment and potential rate shock.

5 Q. 22 Besides the COYL program and the proposed pre-1970's VSP program, what  
6 type of investments does the Company believe could be included in the GIM  
7 mechanism?

8 A. 22 The Company's proposed GIM mechanism would allow the Commission the  
9 flexibility to consider a wide range of activities, including unfunded government  
10 mandates and non-revenue producing investments in infrastructure that provide  
11 operational benefits. For example, as discussed by Company witness Lang,  
12 unfunded government mandates that may be imposed on natural gas distribution  
13 companies by the Pipeline and Hazardous Materials Safety Administration may  
14 require significant non-revenue producing investment and the use of regulatory  
15 mechanisms can help alleviate the financial burden associated with compliance.

16 Q. 23 What changes is Southwest Gas proposing with respect to the COYL program?

17 A. 23 As described in more detail in the testimony of Company witness Lang,  
18 Southwest Gas is proposing to expand the COYL program to include a targeted  
19 approach to identifying and replacing COYL.

20 Q. 24 What is the Company proposing with respect to establishing a pre-1970's VSP  
21 program?

22 A. 24 As described in more detail in the testimony of Company witness Lang,  
23 Southwest Gas is proposing to accelerate the replacement of pre-1970's vintage  
24 steel distribution and transmission pipe.

25

- 1 Q. 25 What is the Company's proposal for the GIM mechanism and the cost recovery  
2 of COYL and pre-1970's VSP?
- 3 A. 25 The proposed cost recovery for the GIM mechanism will function in a similar  
4 manner to the currently-authorized COYL program. Annually, the Company will  
5 file an application with the Commission seeking authority to establish a  
6 surcharge to recover the revenue requirement on the capital investment  
7 associated with the GIM mechanism – which would include COYL and pre-  
8 1970's VSP replacement activity. Similar to the existing COYL program, the  
9 amounts used to calculate the surcharge established under the GIM mechanism  
10 will be equal to the depreciation and authorized pre-tax rate of return associated  
11 with the actual GIM investment costs.
- 12 Q. 26 What consumer protections are included in the GIM mechanism?
- 13 A. 26 The current limitation on rate changes of \$0.01 per therm per year will remain,  
14 except Southwest Gas proposes to expand the existing rate per therm limitation  
15 to \$0.03 per therm per year to accommodate the proposed expansion of the  
16 COYL program and the new pre-1970's VSP program.
- 17 Q. 27 What is the expected bill impact of increasing the GIM mechanism rate limitation  
18 to \$0.03 per therm?
- 19 A. 27 For a single family residential customer, the most rates could change would be  
20 approximately \$0.77 per month for an average annual bill.
- 21 Q. 28 Would the GIM mechanism demonstrate the calculation of a fair value  
22 determination?
- 23 A. 28 Yes. The GIM mechanism revenue requirement development provides a  
24 demonstration of the fair value rate base and rate of return, applying the  
25 methodology used in the determination of fair value on the Company's plant

1 investment included in the general rate case test period. This is discussed more  
2 fully in the prepared direct testimony of Company witness Theodore Wood.  
3 Attached as Exhibit No.\_\_(EG-2) is a demonstration of the revenue requirement  
4 and rate calculation that would be included in the GIM mechanism filing using  
5 the data that was included in the Company's most recent COYL mechanism  
6 filing.

7 Q. 29 What other information will the Company provide to allow for a complete review  
8 of the GIM mechanism activity?

9 A. 29 Similar to how COYL has operated over the last five years, concurrent with the  
10 annual GIM mechanism filing, the Company will include a report on the GIM  
11 activity – for both COYL and pre-1970's VSP. The GIM annual report will provide  
12 detailed information on the activities completed under the GIM mechanism and  
13 an accounting of the costs associated with the GIM-related activity. Attached as  
14 Exhibit No.\_\_(EG-3) is the Plan of Administration for the GIM mechanism.

15 Q. 30 In addition to the operational benefits discussed by Southwest Gas witness  
16 Lang, can the Company quantify other benefits associated with the  
17 modernization of Arizona's natural gas infrastructure?

18 A. 30 Yes. The Company commissioned IHS Economics Consulting to perform an  
19 economic impact analysis to quantify the economic benefit associated with the  
20 Company's capital investment budget in Arizona. The study looked at the three  
21 year period 2016 through 2018, which included capital expenditure for gas  
22 infrastructure investments of \$211 million in year 1, increasing to \$313 million in  
23 year three. The study shows the increase in the Arizona sales activity,  
24 employment, labor income and gross state product associated with the  
25 modernization of Arizona's natural gas infrastructure by investment in

1 nonrevenue-producing natural gas facilities. The analysis quantified substantial  
2 economic benefits that Arizona will enjoy as a result of the Company's capital  
3 investment activity. These benefits will directly and/or indirectly benefit all  
4 citizens of Arizona, including the Company's natural gas customers.

5 For the purpose of visualizing the economic benefits associated with  
6 ongoing incremental infrastructure modernization investments, IHS also  
7 analyzed the economic benefit associated with an annual capital investment of  
8 \$100 million. The economic benefits are scalable to the level of investment, so  
9 if the Company is able to invest in multiples or fractions of \$100 million the  
10 economic benefits can be readily quantified. Some of the study's key findings  
11 are:

- 12 • Every million dollars of capex that Southwest Gas directly spends locally  
13 supports 11 jobs in Arizona.
- 14 • Every Southwest Gas FTE dedicated to these projects represents another  
15 17 jobs supported across the state. In the case of the GIM Programs, this  
16 ratio jumps to 25 jobs.
- 17 • Every dollar of capex that Southwest Gas spends in Arizona leads to an  
18 additional dollar of contribution to Arizona's gross state product.
- 19 • The Company's local construction and maintenance capex will drive an  
20 estimated \$13.4 million of state & local taxes in Arizona during 2018. About  
21 \$5.7 million will be as a result of the GIM programs.

22 A copy of the economic impact analysis is attached as Exhibit No.\_\_(EG-4).

23 **C. Southern Arizona LNG Facility**

24 Q. 31 What is the Company proposing with respect to cost recovery for the currently  
25 approved LNG facility?



1 A. 31 Southwest Gas proposes that following the completion of construction and after  
2 the facility is placed into service that it be permitted to include the LNG facility in  
3 the GIM mechanism for purposes of timely cost recovery. Alternatively, if the  
4 Commission does not approve the GIM mechanism, Southwest Gas requests  
5 the deferral account that was approved as part of the LNG facility pre-approval  
6 process be extended.

7 Q. 32 Please further explain the Company's proposal to include the LNG facility in the  
8 proposed GIM mechanism?

9 A. 32 As previously discussed with respect to the GIM mechanism and the need for  
10 regulatory mechanisms for non-revenue producing investment activity, the  
11 Company's LNG facility is an example of a gas system modernization effort that  
12 will require a significant capital investment, but will not result in any additional  
13 revenue to the Company. Since the LNG facility is a non-revenue producing  
14 investment activity it would qualify under the GIM mechanism.

15 Q. 33 Please further explain your alternative cost recovery proposal for the LNG  
16 facility?

17 A. 33 In its order approving the construction of the LNG facility, the Commission  
18 approved the Company's request to defer the revenue requirement associated  
19 with the LNG facility investment for consideration in a future rate case. The  
20 revenue requirement was defined as the depreciation expense, operations and  
21 maintenance expense, carrying costs, and property taxes associated with the  
22 LNG facility. If the LNG facility is not granted cost recovery approval through the  
23 GIM mechanism, Southwest Gas requests that it be allowed to defer the revenue  
24 requirement associated with the LNG facility until rates in a future general rate  
25 case proceeding are established. However, if the Company's Property Tax True-

1 up mechanism is approved, the Company proposes that the revenue  
2 requirement associated with the LNG facility investment be modified to include  
3 depreciation expense, operations and maintenance expense, and carrying  
4 costs.

5 **D. Energy Efficiency Enabling Provision**

6 Q. 34 What is the EEP?

7 A. 34 The EEP, authorized in the Company's last general rate case, is a mechanism  
8 that effectively decouples the recovery of the authorized delivery system  
9 revenue requirement from the amount of gas that is consumed. This is  
10 accomplished through a two part mechanism that includes a monthly weather  
11 normalization adjustment to customer bills during the winter months when the  
12 actual weather is warmer or colder than normal, and an annual true-up  
13 calculation that limits the amount recovered from customers to the authorized  
14 margin per customer established by the Commission in the general rate case.  
15 The annual true-up is accomplished through a per therm surcharge or credit.

16 Each quarter, the Company provides the Commission a status report  
17 on the customer impacts associated with the EEP. Additionally, the Company  
18 makes an annual filing to establish the annual true-up rate, which includes  
19 additional details on the mechanism. A copy the EEP Plan of Administration is  
20 attached as Exhibit No.\_\_(EG-5).

21 Q. 35 What is the Company's recommendation regarding the EEP?

22 A. 35 Southwest Gas recommends continuing the mechanism, with minor  
23 enhancements. As acknowledged by the Commission in its Orders on each of  
24  
25

1 the EEP annual filings,<sup>2</sup> the mechanism has performed as intended and has  
2 benefited Arizona customers. During the winter months, bills have been adjusted  
3 upward during periods of warmer than normal weather and adjusted downward  
4 during periods of colder than normal weather. These adjustments ensure  
5 customers never overpay for the delivery charges associated with providing  
6 natural gas service. In addition, the Company has recorded credits for  
7 customers of \$26,485,829 since the inception of the mechanism through  
8 November 2015, limiting the Company's recovery of margin to the authorized  
9 margin per customer approved by the Commission in the last general rate case  
10 - no more, no less.

11 Q. 36 What enhancements to the EEP is the Company recommending?

12 A. 36 The Company recommends refining the monthly weather adjustment  
13 mechanism in two ways, to ensure the mechanism only adjusts bills for weather  
14 sensitive usage. First, the Company recommends that the EEP monthly weather  
15 adjustment be applicable to the months December through March for each  
16 heating season. Next, the Company proposes that the "normal" heating degree  
17 days used in the calculation of the monthly weather adjustor be updated at the  
18 end of each heating season. Combined, the Company believes these two  
19 enhancements will continue to ensure that monthly weather adjustments are  
20 reflective of changes in customer's weather sensitive consumption.

21 Q. 37 Why is the Company seeking to modify the effective months for the weather  
22 adjustment from the current six-month period November through April to the  
23 four-month period December through March?

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24  
25 <sup>2</sup> Docket No. G-01551A-10-0458; Decision Nos. 74252, 74862, and 75356.

1 A. 37 Mild winter weather in the Company's Arizona service territories results in a very  
2 limited number of heating degree days in the months of November and April.  
3 The definition of "winter" was original based upon the commonly used definition  
4 in the industry of November to April. However, as the Company continues to  
5 closely monitor the EEP and its performance, as well as the unique climate in  
6 Arizona, the Company determined that changing the definition of "winter" in the  
7 tariff to the period December through March and synchronizing the monthly  
8 weather adjustment to that period will better align the adjustments with  
9 customers' experience of winter weather.

10 Q. 38 What is the benefit of updating the "normal" heating degree days used in the  
11 monthly weather adjustment at the end of each heating season?

12 A. 38 Updating the HDDs used in the monthly weather calculation will address trends  
13 in normal weather and will more closely model changes in weather sensitive  
14 customer use when there is a trending change in normal weather. In the  
15 Company's last general rate case, the Commission approved the  
16 implementation of the EEP monthly weather adjustment as proposed by  
17 Southwest Gas. The Company proposed the use of the normal heating degree  
18 days used in the development of rates to weather normalize its customer bills.  
19 While theoretically sound, using the heating degree days from the Company's  
20 last general rate case does not recognize trend changes in weather that may  
21 occur between general rate cases. In order to recognize trend changes in  
22 weather, the Company proposes that the normal heating degree days used in  
23 the weather normalization process be updated at the end of each winter season.  
24 This change will better recognize customers' weather sensitive consumption and  
25 limit weather adjustments to the customers' weather sensitive use.

1 Q. 39 How will the Company make the Commission and its customers aware of any  
2 change in the normal heating degree days used in the monthly weather  
3 adjustment?

4 A. 39 The Company would include the results of its normal weather updates in its  
5 annual report and would update the values on its website.

6 Q. 40 Does this conclude your prepared direct testimony?

7 A. 40 Yes.

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**SUMMARY OF QUALIFICATIONS  
EDWARD GIESEKING**

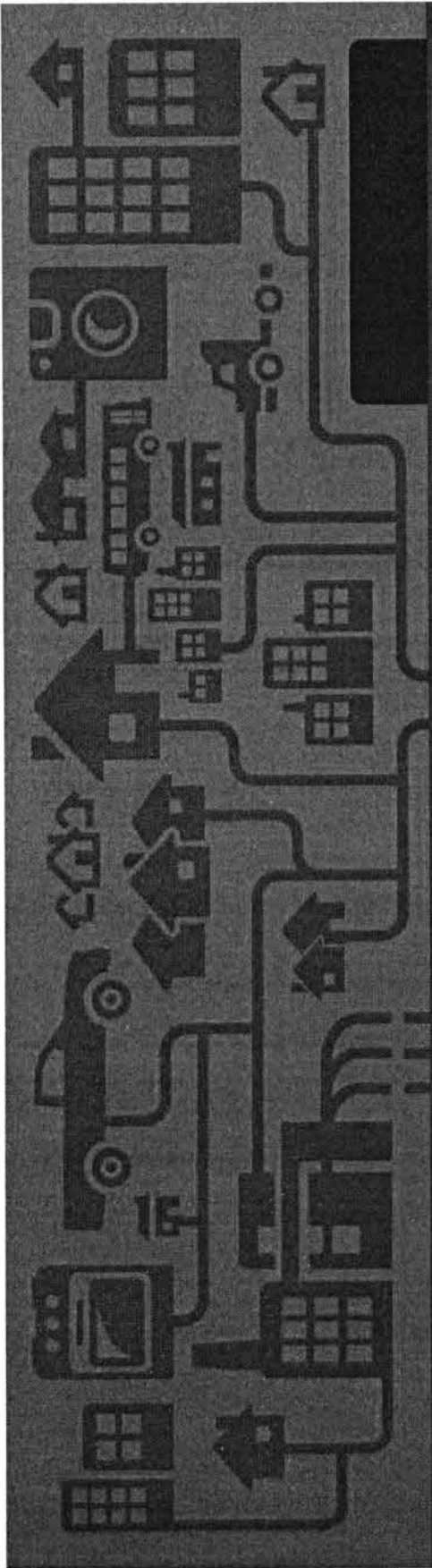
Mr. Giesecking is the Director of the Regulation and Energy Efficiency department at Southwest Gas Corporation. As Director of the Regulation and Energy Efficiency department, he contributes to the formulation of the Company's regulatory policies and is responsible for ensuring policy compliance. Additionally, he directs the development of revenue requirement, rate design and tariff proposals for Southwest Gas and Paiute Pipeline Company and the development and implementation of the Company's energy efficiency programs.

Mr. Giesecking graduated from Sonoma State University in 1985 with a Bachelor of Arts degree in Business Management with an emphasis in accounting. In 1993 he was awarded a Master of Arts degree in Economics from New Mexico State University.

From 1983 through 1993, he was employed by Pacific Gas and Electric Company in various capacities, including the position of Regulatory Analyst in the Revenue Requirement and Rate departments where his responsibilities primarily involved the development of pricing structures and supporting regulatory filings before the California Public Utilities Commission.

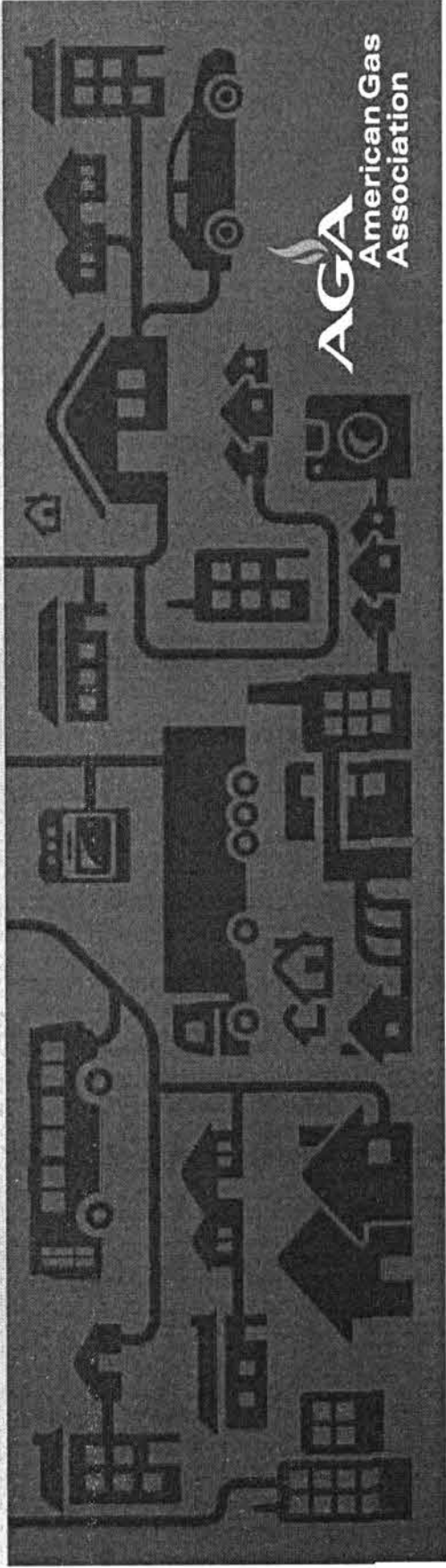
In 1993, he began his career with Southwest Gas Corporation as a Specialist in the Rate department. In 1995 he was promoted to Senior Specialist in the Regulatory Affairs department and subsequently promoted to Manager of the department in 1998. In addition to the day-to-day management of the department, his responsibilities included the supervision of regulatory filings to ensure timely and accurate submittals, and serving as the Company liaison with state regulatory agency and state consumer advocate professionals.

On August 12 2002, Mr. Giesecking was promoted to the position of Senior Manager of the Pricing and Tariffs department and on July 14, 2003 was promoted to Director of the department. On October 6, 2014, Mr. Giesecking was promoted to his current position.



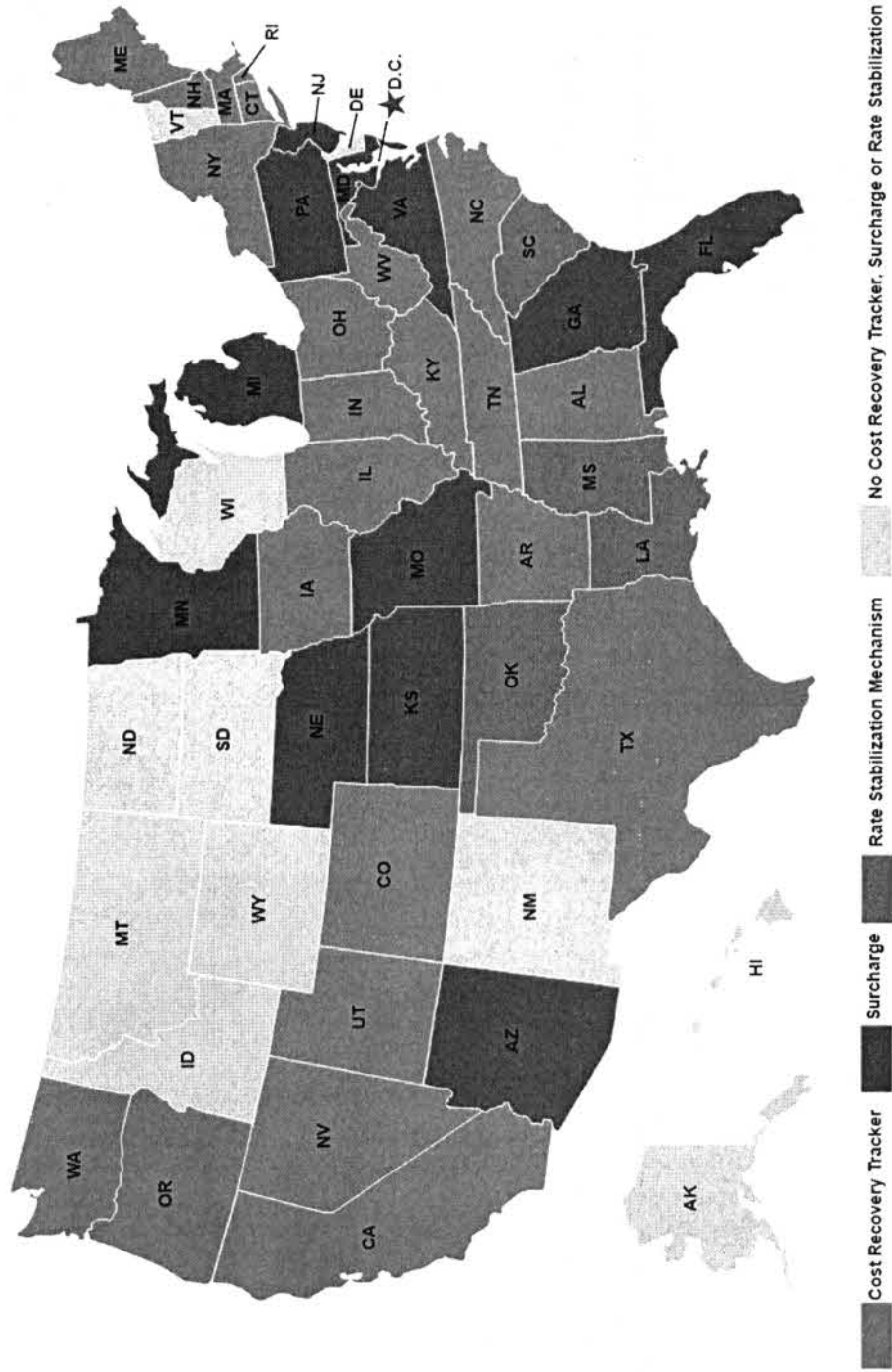
# Innovative Rates, Non-Volumetric Rates, and Tracking Mechanisms: Current List

As of February 2016





# States with Accelerated Infrastructure Cost Recovery





# Utilities with Full Infrastructure Cost Recovery Mechanisms

AL – Alabama Gas Company	MA – Columbia Gas of Massachusetts	OK – CenterPoint Energy
AL – Mobile Gas Service	MA – National Grid Massachusetts	OR – Avista Corp.
AR – Arkansas Oklahoma Gas	MA – Eversource Energy	OR – NW Natural
AR – SourceGas	MA – Liberty Utilities	PA – Columbia Gas of Pennsylvania
AR – CenterPoint Energy	MA – Unitil	PA – Equitable Gas
CA – San Diego Gas and Electric	MD – Baltimore Gas and Electric	PA – Peoples Gas Company
CA – Southern California Gas	MD – Columbia Gas of Maryland	PA – Peoples TWP
CA – Southwest Gas	MD – Washington Gas	PA – UGI Central Penn Gas
CO – Public Service Co. of Colorado	MI – Consumers Energy	PA – UGI Penn Natural Gas
CT – Connecticut Natural Gas	MI – DTE	PA – PECO
DC – Washington Gas	MI – SEMCO Energy	PA – Philadelphia Gas Works
FL – Chesapeake Utilities	MN – Xcel Energy	RI – National Grid Narragansett Gas
FL – Florida Public Utilities Company	MO – Ameren Missouri	SC – Piedmont Natural Gas
FL – Florida City Gas	MO – Liberty Utilities	SC – South Carolina Electric and Gas
FL – TECO Peoples Gas	MO – Laclede Gas	TN – Atmos Energy
GA – Atlanta Gas Light	MO – Missouri Gas Energy	TN – Piedmont Natural Gas
GA – Liberty Utilities	MS – Atmos Energy	TX – Atmos Energy
IL – Ameren Illinois	MS – CenterPoint Energy	TX – CenterPoint Energy
IL – NICOR Gas	NC – Piedmont Natural Gas	TX – Texas Gas Service
IL – Peoples Gas	NH – Liberty Utilities	UT – Questar Gas
IN – Vectren North Indiana Gas	NJ – New Jersey Natural	VA – Atmos Energy
IN – Vectren South SIGECO	NJ – Elizabethtown Gas	VA – Columbia Gas of Virginia
IN – NIPSCO	NJ – Public Service Electric and Gas	VA – Virginia Natural Gas
KS – Atmos Energy	NJ – South Jersey Gas	VA – Washington Gas
KS – Black Hills	NV – Southwest Gas	WA – Avista Corporation
KS – Kansas Gas Service	OH – Columbia Gas of Ohio	WA – Puget Sound Energy, Inc.
KY – Atmos Energy	OH – Dominion East Ohio	WA – Cascade Natural Gas Company
KY – Columbia Gas of Kentucky	OH – Duke Energy	WA – Northwest Natural Gas Company
KY – Delta Natural Gas	OH – Vectren Ohio	WV – Mountaineer Gas Company
KY – Duke Energy Kentucky		
LA – CenterPoint Energy		
LA – Energy Gulf States		
MA – Berkshire Gas		

# Limited and Pending Infrastructure Mechanisms

## LIMITED – 3 States

- AZ – Southwest Gas
- ME – Northern Utilities
- NY – Consolidated Edison
- NY – Corning Natural Gas
- NY – National Grid NYC
- NY – National Grid Long Island
- NY – National Grid Niagara Mohawk
- NY – Orange and Rockland

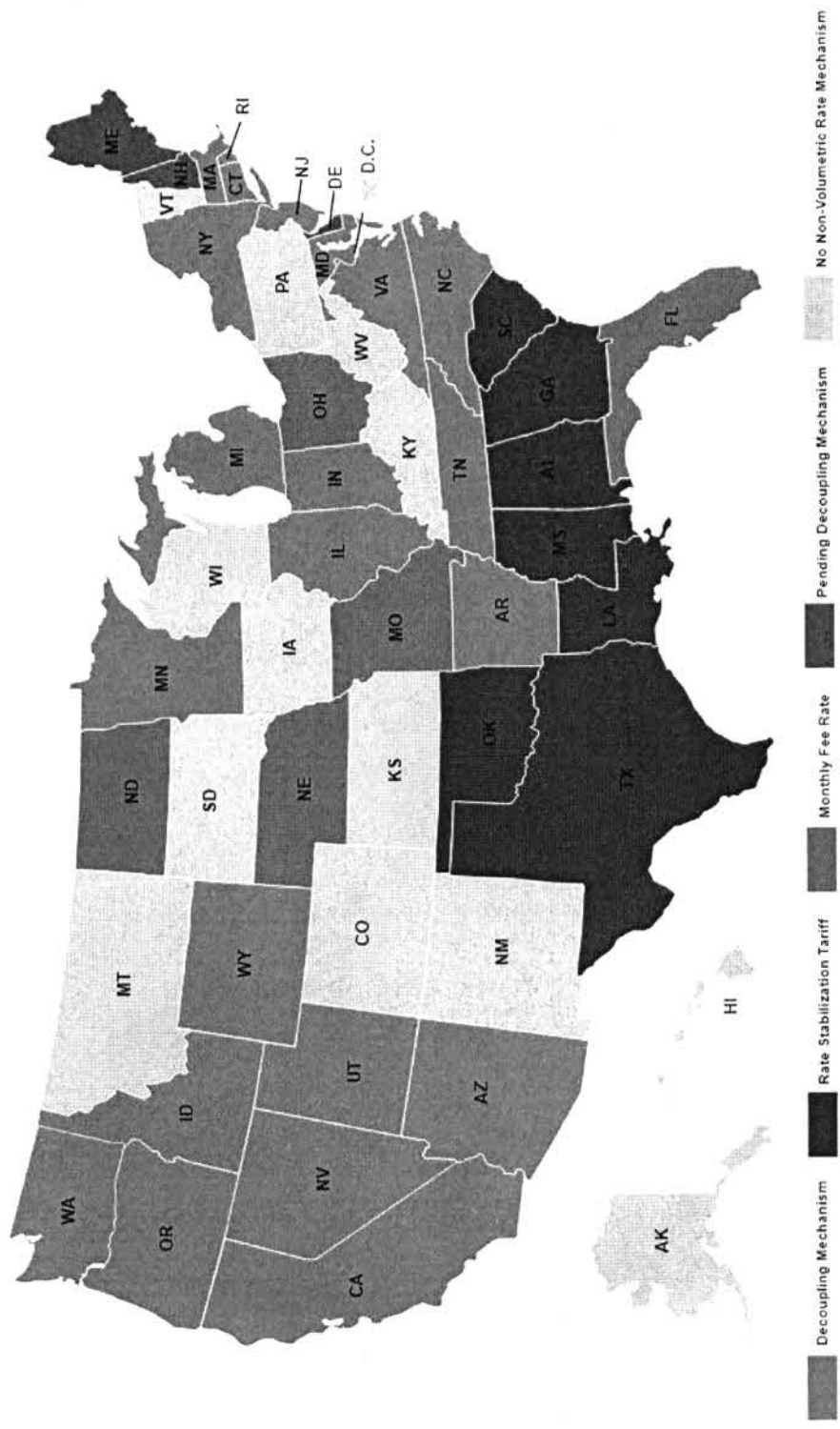
## PENDING – 4 States

- CO – Atmos Energy
- NJ – Elizabethtown Gas
- NY – Central Hudson Gas and Electric
- NY – Consolidated Edison
- NY – National Grid
- NY – All utilities
- WV – Mountaineer Gas

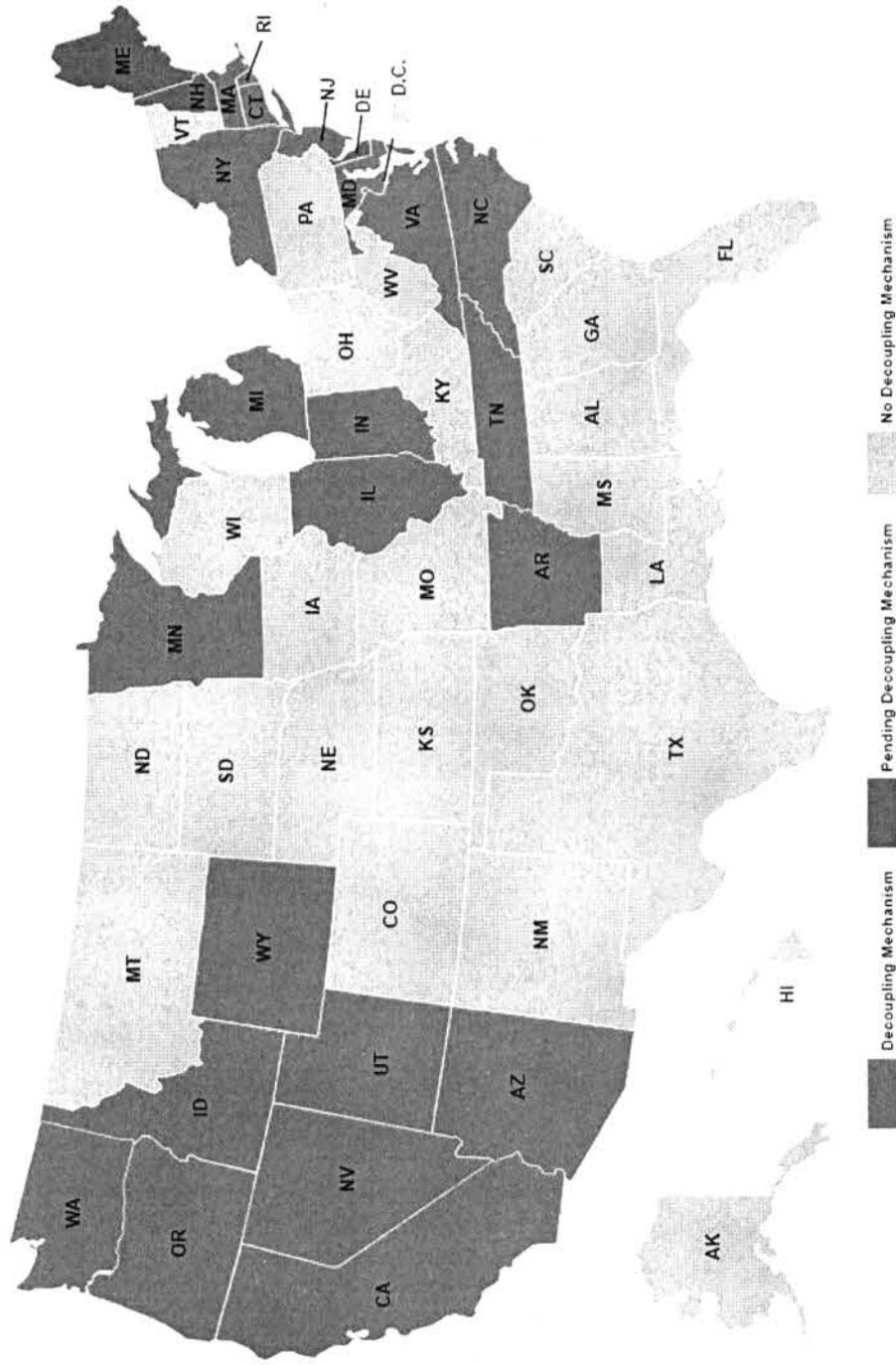
## GENERIC RULINGS OR LEGISLATION – 3 States

- Iowa – All utilities may apply
- Nebraska – All utilities may apply
- West Virginia – All utilities may apply

# States with Non-Volumetric Rate Designs



# Current Status of Decoupling Mechanisms



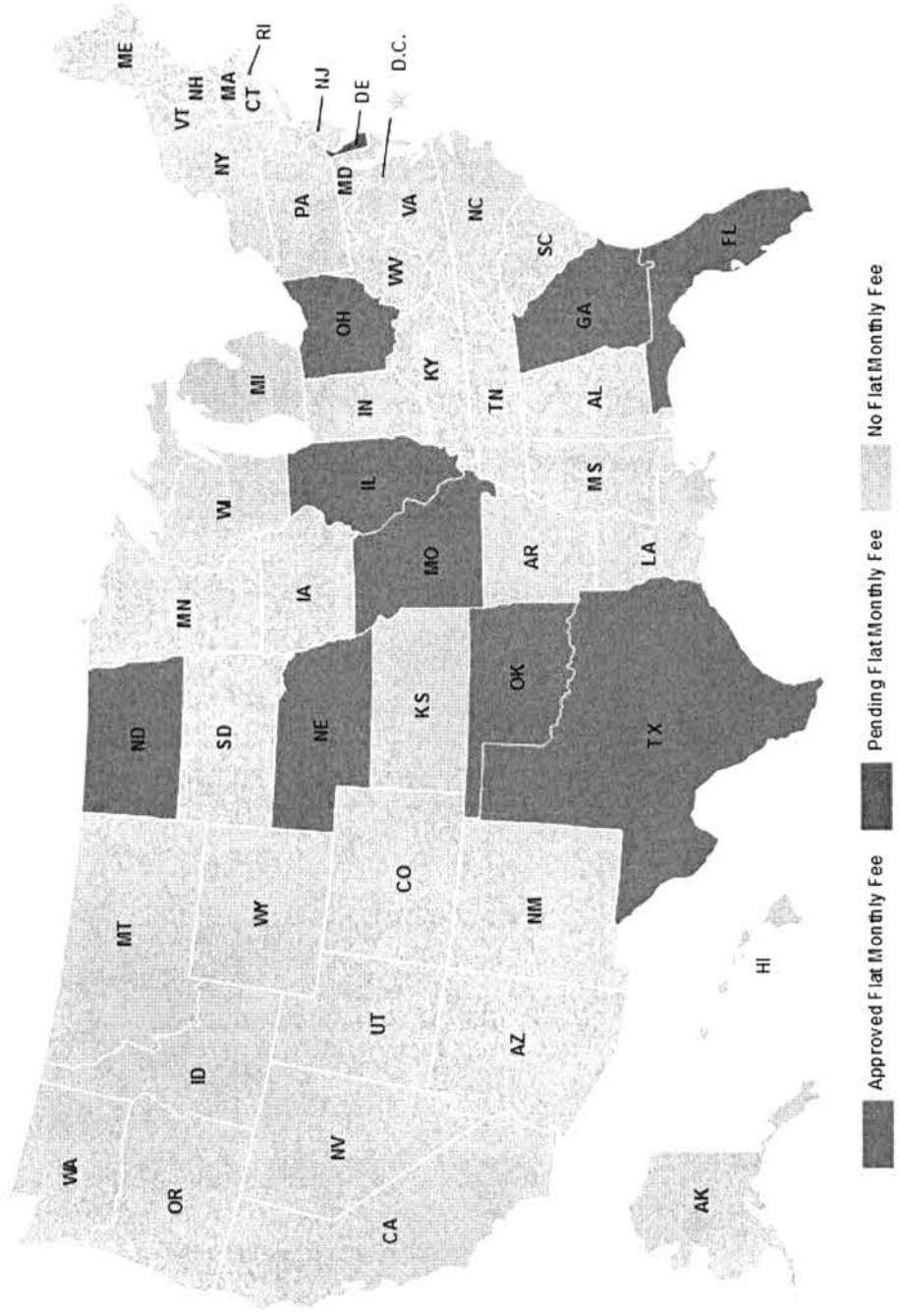
# Utilities with Approved Decoupling Mechanisms

AR – Arkansas Oklahoma Gas	MN – Minnesota Energy Resources
AR – SourceGas	NC – Piedmont Natural Gas
AR – CenterPoint Energy	NC – Public Service Company of North Carolina
AZ – Southwest Gas	NJ – New Jersey Natural Gas
AZ – UNS Gas	NJ – South Jersey Gas
CA – Pacific Gas and Electric	NV – Southwest Gas
CA – San Diego Gas and Electric	NY – Corning Natural Gas
CA – Southern California Gas	NY – National Grid NYC
CA – Southwest Gas	NY – National Grid Long Island
CT – Connecticut Natural Gas	NY – National Grid Niagara Mohawk
GA – Liberty Utilities	NY – National Fuel Distribution
ID – Avista	NY – New York State Electric and Gas
IL – Ameren Illinois	NY – Orange and Rockland
IL – Peoples Gas	NY – Rochester Gas and Electric
IL – North Shore Gas	NY – Central Hudson Gas and Electric
IN – Citizens Energy Group	OR – Cascade Natural Gas
IN – Vectren North Indiana Gas	OR – Northwest Natural Gas
IN – Vectren South SIGECO	RI – National Grid Narragansett
MA – Columbia Gas of Massachusetts	TN – Chattanooga Gas
MA – Fitchburg Gas and Electric	UT – Questar Gas
MA – National Grid Massachusetts	VA – Columbia Gas of Virginia
MA – Eversource Energy	VA – Virginia Natural Gas
MA – Liberty Utilities	VA – Washington Gas
MD – Baltimore Gas and Electric	WA – Avista Corp.
MD – Columbia Gas of Maryland	WA – Puget Sound Energy
MD – Washington Gas	WY – SourceGas
MI – Consumers Energy	WY – Questar Gas
MI – DTE	
MN – CenterPoint Energy	

## Pending Mechanisms

DE – Delmarva Power and Light  
 ME – Maine Natural Gas  
 NH – Passed Legislation  
 OR – Avista Corp.  
 WA – Cascade Natural Gas

# Current Status of Flat Monthly Fee Rate Designs (SFV)



# Utilities with Flat Monthly Fee Rate Designs (SFV)

## Approved SFV

- GA – Atlanta Gas Light – Individually determined monthly demand charge
- MO – Missouri Gas Energy – Flat monthly fee
- ND – Montana-Dakota Utilities
- ND – Xcel Energy – Flat monthly fee
- OH – Columbia Gas of Ohio – Flat monthly fee
- OH – Dominion East Ohio – Flat monthly fee
- OH – Duke Energy – Flat monthly fee
- OH – Vectren Ohio – Flat monthly fee

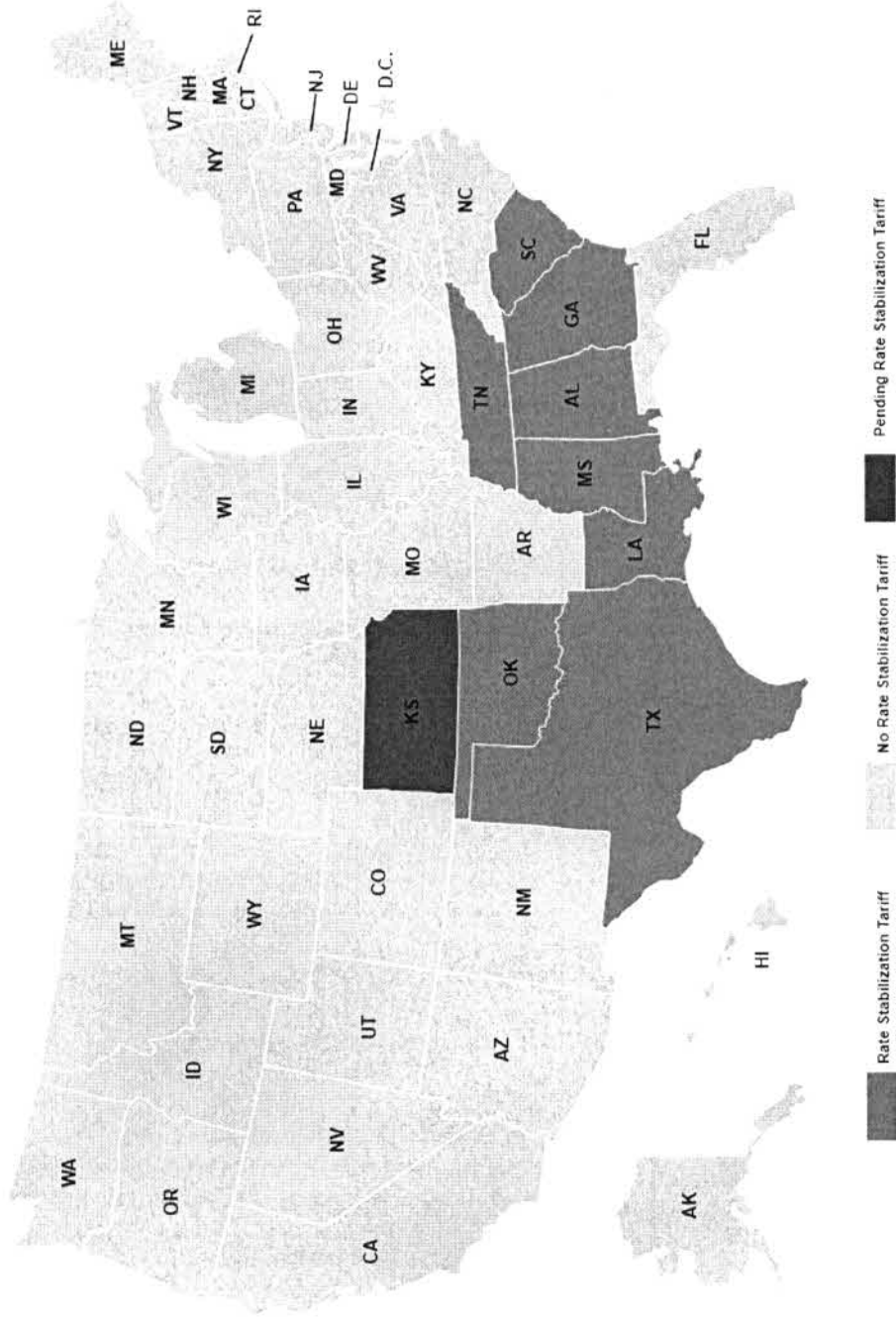
## Similar to SFV

- FL – TECO Peoples Gas – Three-tier monthly charge plus a small variable charge
- IL – Ameren Illinois – 80% revenue for Residential and Small GS Customers per flat fee plus small variable charge
- IL – Nicor Gas – Flat fee plus a small variable charge
- MO – Ameren – Modified rate blocks for Residential Service customers
- MO – Liberty Utilities – Flat fee plus a small variable charge
- MO – Laclede Gas – Modified rate blocks
- NE – Black Hills – Declining rate blocks
- NE – SourceGas – Modified rate blocks
- OK – Oklahoma Natural Gas – Two-tier plan – Offers customers a choice
- TX – Texas Gas Service – Flat fee up to 200 ccf/month

## Pending

- DE – Delmarva Power and Light

# Current Status of Rate Stabilization Tariffs





# Current Status of Rate Stabilization Tariffs

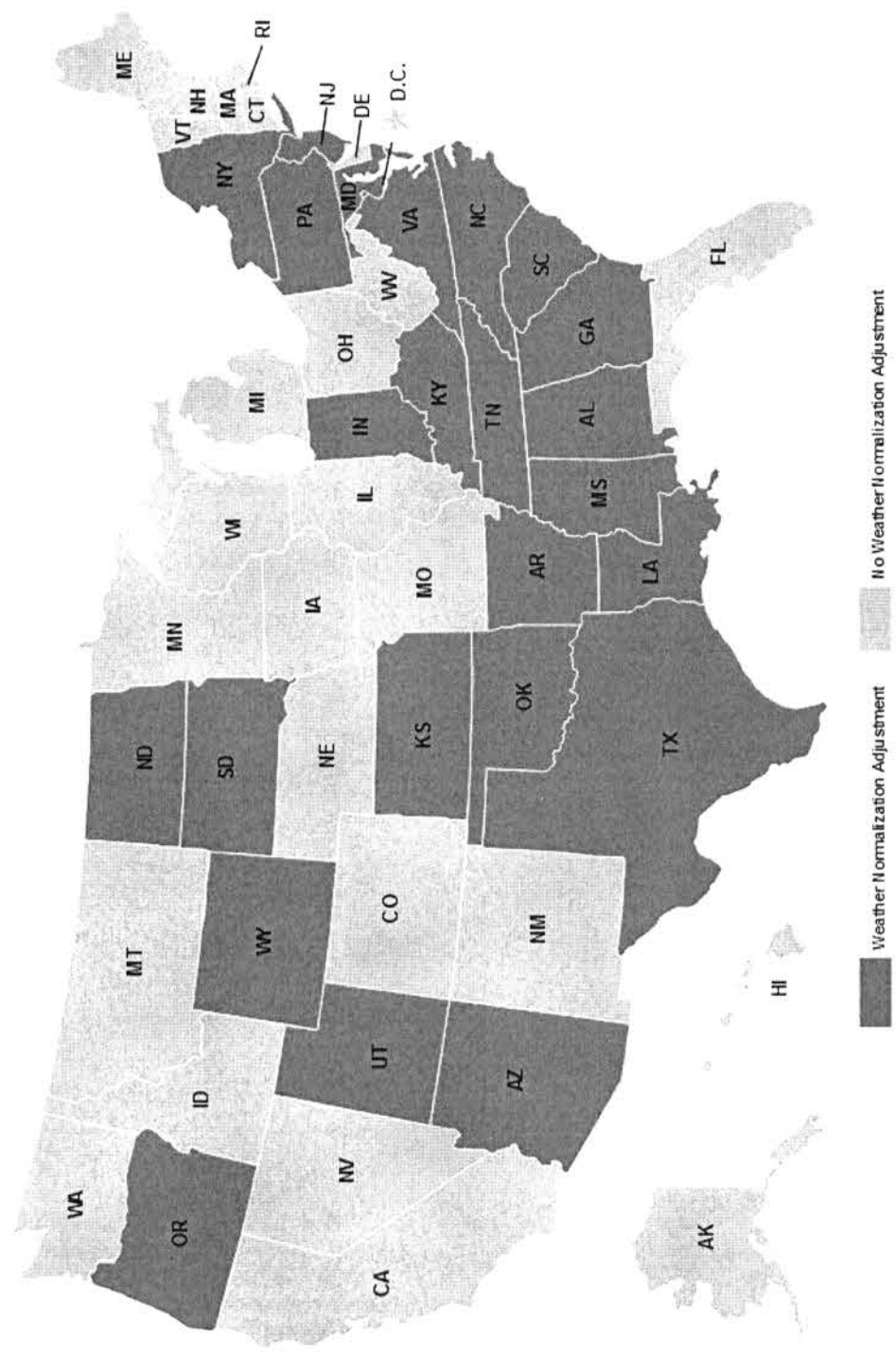
## Approved

AL – Alabama Gas  
AL – Mobile Gas  
GA – Liberty Utilities  
LA – Atmos Energy  
LA – CenterPoint Energy  
LA – Entergy  
MS – Atmos Energy  
MS – CenterPoint Energy  
OK – CenterPoint Energy  
OK – Oklahoma Natural Gas  
SC – Piedmont Natural Gas  
SC – South Carolina Electric and Gas  
TN – Atmos Energy  
TX – Atmos Energy

## Pending

KS – Atmos Energy

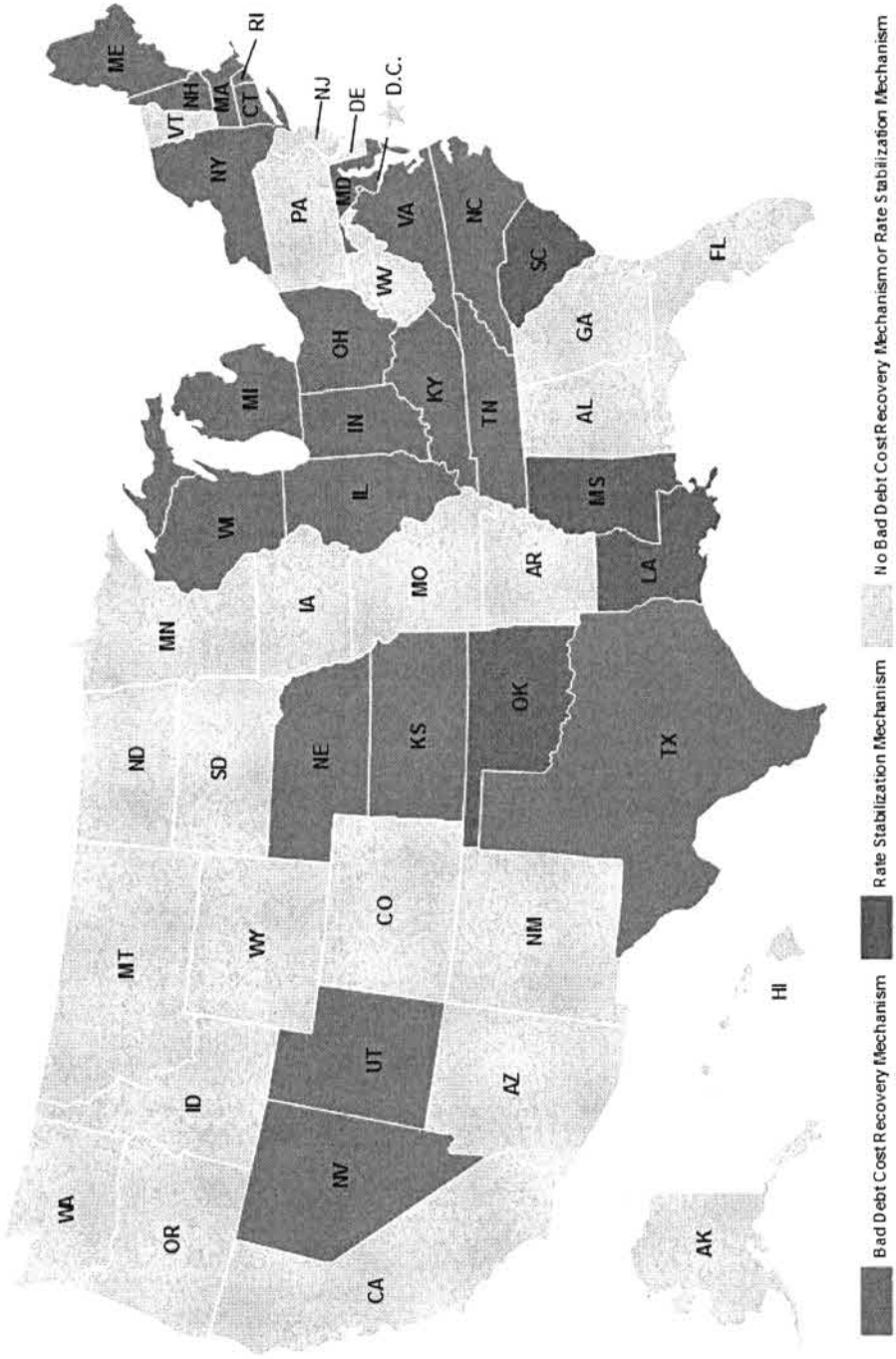
# Current Status of Weather Normalization Adjustments



# Utilities with Approved Weather Normalization Adjustments

AZ – Southwest Gas	NY – National Grid Long Island
AL – Alabama Gas	NY – National Grid Niagara Mohawk
AL – Mobile Gas	NY – National Grid NYC
AR – SourceGas	NY – New York State Electric and Gas
AR – CenterPoint Energy	NY – Orange and Rockland Utilities
GA – Liberty Utilities	NY – Rochester Gas and Electric
IN – Citizens Energy Group	OK – CenterPoint Energy
IN – Vectren North Indiana Gas	OK – Oklahoma Natural Gas
IN – Vectren South SIGECO	OR – Northwest Natural Gas
KS – Atmos Energy	PA – Columbia Gas of Pennsylvania
KS – Black Hills	PA – Philadelphia Gas Works
KS – Kansas Gas Service	SC – Piedmont Natural Gas
KY – Atmos Energy	SC – South Carolina Electric and Gas
KY – Columbia Gas of Kentucky	SD – Montana-Dakota Utilities
KY – Delta Natural Gas	TN – Atmos Energy
KY – Louisville Gas and Electric	TN – Chattanooga Gas
LA – Atmos – Louisiana Gas Service	TN – Piedmont Natural Gas
LA – Atmos – Trans Louisiana	TX – Atmos Energy
LA – CenterPoint Energy	TX – Texas Gas Service
MD – Chesapeake Utilities	UT – Questar Gas
MD – Columbia Gas of Maryland	VA – Atmos Energy
MS – Atmos Energy	VA – City of Richmond Dept. of Public Utilities
MS – CenterPoint Energy	VA – Columbia Gas of Virginia
ND – Montana-Dakota Utilities	VA – Roanoke Natural Gas
NJ – Elizabethtown Gas	VA – Southwestern Virginia Natural Gas
NJ – New Jersey Natural Gas	VA – Virginia Natural Gas
NJ – Public Service Electric and Gas	VA – Washington Gas
NY – Central Hudson Gas and Electric	
NY – Consolidated Edison	
NY – National Fuel Gas Distribution	

# Current Status of Bad Debt Cost Recovery



# Utilities with Bad Debt Cost Recovery

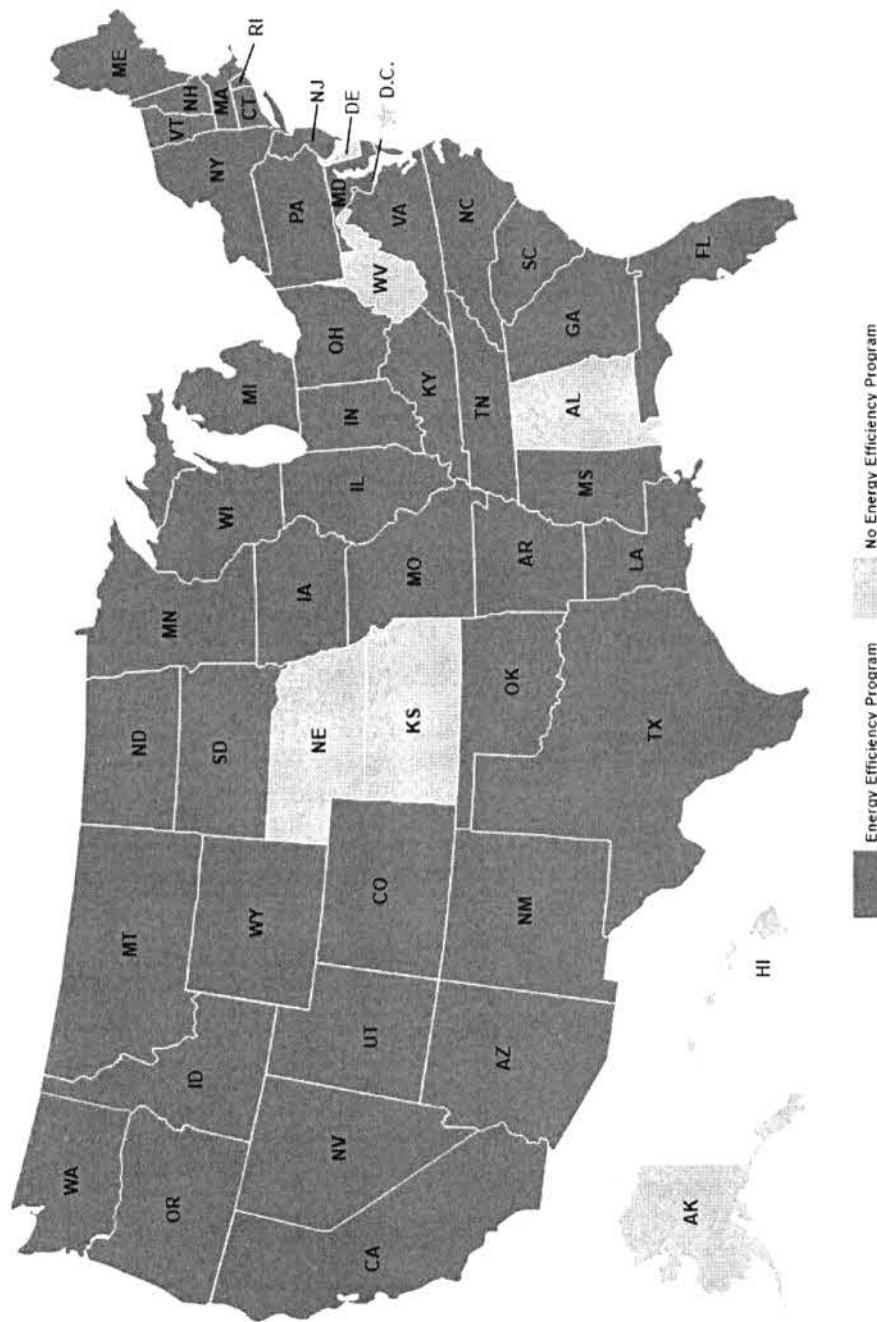
CT – Connecticut Natural Gas	NE – Black Hills	VA – Atmos Energy
CT – Southern Connecticut Natural Gas	NE – SourceGas	VA – Columbia Gas of Virginia
CT – Yankee Gas	NH – Liberty Utilities	VA – Virginia Natural Gas
DC – Washington Gas	NH – Northern Utilities	WI – Wisconsin Gas
IL – Ameren Illinois	NV – Southwest Gas	
IL – Peoples Gas	NY – Central Hudson Gas and Electric	
IL – North Shore Gas	NY – Consolidated Edison	
IL – Nicor Gas	NY – National Fuel Gas Distribution	
IN – Citizens Energy Group	NY – National Grid Long Island	
IN – NIPSCO	NY – National Grid Niagara Mohawk	
IN – Vectren North Indiana Gas	NY – National Grid NYC	
IN – Vectren South SIGECO	NY – New York State Electric and Gas	
KS – Atmos Energy	NY – Orange and Rockland Utilities	
KS – Black Hills	OH – Columbia Gas of Ohio	
KS – Kansas Gas Service	OH – Dominion East Ohio	
KY – Atmos Energy	OH – Eastern Natural Gas	
KY – Columbia Gas of Kentucky	OH – Pike Natural Gas	
KY – Delta Natural Gas	OH – Vectren Energy Delivery of Ohio	
KY – Duke Energy	OK – CenterPoint Energy	
LA – CenterPoint Energy	OK – Oklahoma Natural Gas	
MA – Columbia Gas of Massachusetts	RI – National Grid	
MA – National Grid	SC – Piedmont Natural Gas	
MA – NSTAR Gas	SC – South Carolina Electric and Gas	
MD – Baltimore Gas and Electric	TN – Atmos Energy	
MD – Washington Gas	TN – Chattanooga Gas	
ME – Northern Utilities	TN – Piedmont Natural Gas	
MI – DTE	TX – Atmos Energy	
MI – Michigan Gas Utilities	TX – Texas Gas Service	
MS – CenterPoint Energy	UT – Questar Gas	
NC – Piedmont Natural Gas	VA – Washington Gas	



# Utilities with Pension and OPEB Cost Recovery

- CA – San Diego Gas and Electric
- CA – Southern California Gas
- DC – Washington Gas
- KS – Atmos Energy
- KS – Black Hills
- KS – Kansas Gas Service
- LA – Atmos Energy
- LA – CenterPoint Energy
- MA – Columbia Gas of Massachusetts
- MA – Fitchburg Gas and Electric Light Co.
- MA – National Grid
- MA – NSTAR Gas Co.
- MD – Baltimore Gas and Electric Co.
- MI – DTE
- MO – Ameren Missouri
- MO – Laclede Gas
- MO – Missouri Gas Energy
- MS – Atmos Energy
- MS – CenterPoint Energy
- NY – Central Hudson Gas and Electric
- NY – Consolidated Edison
- NY – Orange and Rockland Utilities
- NY – National Grid NYC
- OH – Columbia Gas of Ohio
- OK – CenterPoint Energy
- OK – Oklahoma Natural Gas
- PA – Philadelphia Gas Works
- RI – National Grid
- SC – Piedmont Natural Gas
- SC – South Carolina Electric and Gas
- TN – Piedmont Natural Gas
- TX – Atmos Energy
- TX – CenterPoint Energy
- WI – Wisconsin Power and Light

# Current Status of Natural Gas Energy Efficiency Programs





# Utilities with Natural Gas Energy Efficiency Programs

AR – Arkansas Oklahoma Gas	IL – Nicor Gas	MO – Empire Natural Gas
AR – SourceGas	IL – North Shore Gas	MO – Laclede Gas
AR – CenterPoint Energy	IL – Peoples Gas	MO – Missouri Gas Energy
AZ – Southwest Gas	KY – Atmos Energy	MS – Atmos Energy
CA – Pacific Gas and Electric	KY – Columbia Gas of Kentucky	MS – CenterPoint Energy
CA – San Diego Gas and Electric	KY – Delta Natural Gas	MT – Montana-Dakota Utilities
CA – Southern California Gas	KY – Duke Energy Kentucky	NC – Piedmont Natural Gas
CA – Southwest Gas	KY – Louisville Gas and Electric	NC – Public Service Co. of NC
CO – Atmos Energy	LA – Atmos Energy	ND – Montana-Dakota Utilities
CO – Black Hills Energy	LA – CenterPoint Energy	NH – Liberty Utilities
CO – Colorado Natural Gas	MA – Columbia Gas of Massachusetts	NH – Northern Utilities
CO – SourceGas	MA – Berkshire Gas	NJ – Elizabethtown Gas
CO – Public Service Co. of Colorado	MA – Fitchburg Gas and Electric Light	NJ – New Jersey Natural Gas
CT – Connecticut Natural Gas	MA – Liberty Utilities	NJ – Public Service Electric and Gas
CT – Southern Connecticut Natural Gas	MA – National Grid Massachusetts	NJ – South Jersey Gas
CT – Yankee Gas Service	MA – NSTAR Gas and Electric	NM – New Mexico Gas
FL – TECO Peoples Gas	MD – Baltimore Gas and Electric	NV – NV Energy
GA – Atlanta Gas Light	MD – Columbia Gas of Maryland	NV – Southwest Gas
IA – Liberty Utilities	MD – Washington Gas	NY – Central Hudson Gas and Electric
IA – Black Hills Energy	ME – Northern Utilities	NY – Consolidated Edison
IA – Interstate Power and Light	MI – Consumers Energy	NY – National Fuel Gas
IA – MidAmerican Energy	MI – DTE	NY – National Grid NY
IN – Citizens Energy Group	MI – Michigan Gas Utilities	NY – National Grid Long Island
IN – NIPSCO	MN – CenterPoint Energy	NY – National Grid Niagara Mohawk
IN – Vectren North Indiana Gas	MN – Great Plains Natural Gas	NY – Orange and Rockland Utilities
IN – Vectren South SIGECO	MN – Interstate Power and Light	NY – St. Lawrence Gas
ID – Avista Utilities	MN – Minnesota Energy Resources	OH – Columbia Gas of Ohio
ID – Intermountain Gas	MN – Xcel Energy	OH – Dominion East Ohio
IL – Ameren Illinois	MO – Ameren	OH – Duke Energy
IL – MidAmerican Energy	MO – Liberty Utilities	OH – Vectren Energy Delivery of Ohio

# Utilities with Natural Gas Energy Efficiency Programs (Cont.)

OK – CenterPoint Energy	UT – Questar Gas
OK – Oklahoma Natural Gas	VA – Columbia Gas of Virginia
OR – Avista Utilities	VA – Virginia Natural Gas
OR – Cascade Natural Gas	VA – Washington Gas
OR – Northwest Natural Gas	VT – Vermont Gas Systems
PA – Columbia Gas of Pennsylvania	WA – Avista Utilities
PA – Equitable Gas	WA – Cascade Natural Gas
PA – PECO	WA – Northwest Natural Gas
PA – Peoples Natural Gas	WA – Puget Sound Energy
PA – Philadelphia Gas Works	WI – City Gas
PA – UGI Central Penn Gas	WI – Madison Gas And Electric
PA – UGI Penn Natural Gas	WI – Midwest Natural Gas
PA – UGI Utilities	WI – St. Croix Valley Natural Gas
RI – National Grid	WI – Superior Water, Light and Power
SC – Piedmont Natural Gas	WI – We Energies
SC – South Carolina Electric and Gas	WI – Wisconsin Light and Power
SD – MidAmerican Energy	WI – Wisconsin Public Service
SD – Montana-Dakota Utilities	WI – Xcel Energy
TN – Chattanooga Gas	WY – Montana-Dakota Utilities
TX – Atmos Energy	WY – Questar Gas
TX – Texas Gas Service	

**SOUTHWEST GAS CORPORATION**  
**ARIZONA**  
**CUSTOMER OWNED YARD LINE (COYL) PROGRAM**  
**ILLUSTRATIVE FAIR VALUE SURCHARGE CALCULATION**  
**AS OF DECEMBER 31, 2015**

Line No.	Description (a)	Reference (b)	Original Cost (c)	RCN (d)	FV	Line No.
1	Gross COYL Plant	Company Records	\$ 23,102,623	\$ 23,504,682		1
2	Accumulated Provision for Depreciation	Company Records	<u>(1,510,441)</u>	<u>(1,555,818)</u>		2
3	Net COYL Plant	Ln 1 + Ln 2	\$ 21,592,182	\$ 21,948,864		3
4	Accumulated Deferred Income Taxes	Company Records	<u>(4,080,931)</u>	<u>(4,080,931)</u>		4
5	COYL Rate Base	Ln 3 + Ln 4	\$ 17,511,252	\$ 17,867,933	17,689,593	5
6	FV Return on COYL Rate Base	8.87% * Ln 5			1,568,334	6
7	Income Tax Factor	Settlement Agreement			<u>0.6579</u>	7
8	Income Taxes	Auth. Cost of Equity (9.5%) * Ln 5 * Ln 7			\$ 1,105,608	8
9	Depreciation Expense	Company Records			<u>1,002,866</u>	9
10	Revenue Requirement	Ln 6 + Ln 8 + Ln 9			\$ 3,676,809	10
11	2015 Full Margin Therms	Company Records			<u>611,117,827</u>	11
12	Surcharge	Ln 10 / Ln 11			<u><u>0.00602</u></u>	12

**SOUTHWEST GAS CORPORATION**  
**Incremental COYL Investment**  
**Fair Value Rate of Return**

Line No.	Line No.
<b>Authorized Fair Value Rate Base</b>	
1	Original Cost Rate Base (OCRB) <span style="float: right;">1</span>
2	Reconstruction Cost New Depreciated (RCND) rate base <span style="float: right;">2</span>
3	Fair Value Rate Base (FVRB) <span style="float: right;">3</span>
4	FVRB/OCRB Multiple <span style="float: right;">4</span>
<b>Authorized Capital Structure OCRB</b>	
5	Common Equity <span style="float: right;">5</span>
6	Long-Term Debt <span style="float: right;">6</span>
7	Total Capital <span style="float: right;">7</span>
<b>Authorized Fair Value Rate of Return (FVROR)</b>	
8	Common Equity <span style="float: right;">8</span>
9	Long-Term Debt <span style="float: right;">9</span>
10	FVRB Increment Above OCRB <span style="float: right;">10</span>
11	Total Capital <span style="float: right;">11</span>

**Notes:**

- [1] FVRB = 0.5 X OCRB + 0.5 RCND
- [2] 0.93% = 0.5 x Real Risk-Free Rate of Return of 1.86%
- [3] Grossed up for taxes using the authorized gross-up factor of 1.6579

**SOUTHWEST GAS CORPORATION  
 TOTAL ARIZONA  
 COYL PROJECT  
 RCN COST OF GAS PLANT IN SERVICE AS OF DECEMBER 31, 2015**

Line No.	Year Installed	Account 380 - Services - Plastic			RCN Total Arizona	Line No.
		Original Cost Total Arizona	H - W Index	Ratio To Current Index		
	(a)	(b)	(c)	(d)	(e)	
1	2010	0	440	1.11	0	1
2	2011	0	454	1.07	0	2
3	2012	4,148,620	469	1.04	4,314,565	3
4	2013	5,768,730	473	1.03	5,941,792	4
5	2014	6,305,185	481	1.01	6,368,237	5
6	2015	6,880,088	488	1.00	6,880,088	6
7	Total	\$ <u>23,102,623</u>			\$ <u>23,504,682</u>	7

**RCN COST OF RESERVE AS OF DECEMBER 31, 2015**

1	2010	0	440	1.11	0	1
2	2011	0	454	1.07	0	2
3	2012	(672,254)	469	1.04	(699,144)	3
4	2013	(525,485)	473	1.03	(541,250)	4
5	2014	(272,201)	481	1.01	(274,923)	5
6	2015	(40,501)	488	1.00	(40,501)	6
7	Total	\$ <u>(1,510,441)</u>			\$ <u>(1,555,818)</u>	7

Southwest Gas Corporation  
Docket No. G-01551A-16-0107

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Gas Infrastructure Modernization  
Plan of Administration

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## Gas Infrastructure Modernization Plan of Administration

### I. GENERAL DESCRIPTION

This document describes the Plan of Administration (POA) for the Gas Infrastructure Modernization (GIM) mechanism. The GIM mechanism provides for the timely recovery of the capital costs (pre-tax return on investment and depreciation expense, net of associated retirements) associated with investments in the modernization of the natural gas delivery system infrastructure. To qualify for recovery under this mechanism, these costs must: (1) not be included in rate base for recovery in the Company's general rates, (2) have been approved for inclusion in the mechanism by order of the Commission, and (3) have been constructed and placed in service prior to the GIM Surcharge filing.

### II. DEFINITIONS

- A. GIM Cost or Revenue Requirement - An amount equal to the pre-tax return and depreciation expense, net of associated retirements, if any, associated with an investment in Commission authorized gas infrastructure modernization projects or programs.
- B. GIM Surcharge - the rate necessary to recover the GIM revenue requirement. The GIM surcharge will be recovered from all tariff rate customer classes.

### III. GIM RELATED FILINGS

- A. Authorization for Inclusion in the GIM Mechanism - Prior to including a gas infrastructure modernization investment in the GIM mechanism, the Company must obtain authorization from the Commission. The Company can make this request in a general rate case, standalone filing, or in any other manner allowed by the Commission's regulations.
- B. Surcharge Adjustment - The Company will make annual filings to establish and adjust the GIM surcharge. The Company will provide the following in each GIM surcharge adjustment filing:
  - 1. A description of the project work authorized by the Commission for inclusion in the GIM mechanism;
  - 2. Identification of the approved work that has been completed, placed in service, and included for cost recovery in the GIM mechanism; and
  - 3. A schedule showing the calculation of the GIM revenue requirement and surcharge.

The GIM Surcharge Adjustment filing will be made on or about March 1 each year and will include calendar activity for the prior calendar year. The Arizona Corporation Commission Staff will endeavor to review the Company's filing and make its recommendation to the Commission within 45 days of the filing such

that the surcharge may go into effect by June 1 of each year.

#### IV. GIM ANNUAL CAP

The GIM Surcharge Adjustment will be subject to an annual year over year cap of \$0.03 per therm. If the calculation of the GIM Surcharge Adjustment would result in an increase greater than the \$0.03 per therm cap, any GIM mechanism cost not recovered in the \$0.03 annual adjustment will be deferred for recovery in a subsequent GIM Surcharge Adjustment filing, however such subsequent filing(s) will be subject to the \$0.03 per therm annual cap. Where the cap limits the recovery of deferrals in any year, and thus defers recovery of a portion of GIM costs to the following year, the surcharge in the following year will first recover any such carried over amounts, and then recover new amounts arising in that following year. Monthly, interest will be applied to the deferred balance equal to the one-year nominal Treasury constant maturities rate.



IHS ECONOMICS & COUNTRY RISK

# Economic Impact of Southwest Gas' Capital Investment Projects in Arizona

April 2016

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USF – Bureau of Land Management – Bureau of Land Management – Bureau of Land Management – Bureau of Land Management – Bureau of Land Management

CHAPTER 1

## Executive Summary

Southwest Gas commissioned IHS to conduct an economic impact analysis to estimate the direct, indirect and induced economic benefits to Arizona's economy from its capital investment budget, including those resulting from the acceleration of certain pipe replacement activities under the company's proposed Gas Infrastructure Modernization (GIM) Mechanism. The primary goal of these capital expenditures is to enhance the safety and reliability of the company's natural gas distribution system.

#### Key Findings:

- Every million dollars of capex that Southwest Gas directly spends locally supports 11 jobs in Arizona.
- Every Southwest Gas FTE dedicated to these projects represents another 17 jobs supported across the state. In the case of the GIM Programs, this ratio jumps to 25 jobs.
- The average wage for jobs supported by Southwest Gas' capex will be about 20% higher than the statewide average in 2018.
- Every dollar of capex that Southwest Gas spends in Arizona leads to an additional dollar of contribution to Arizona's gross state product.
- IHS estimates that Southwest Gas' local construction and maintenance capex will drive \$13.4 million of state & local taxes in Arizona during 2018. About \$5.7 million will be as a result of the GIM programs.

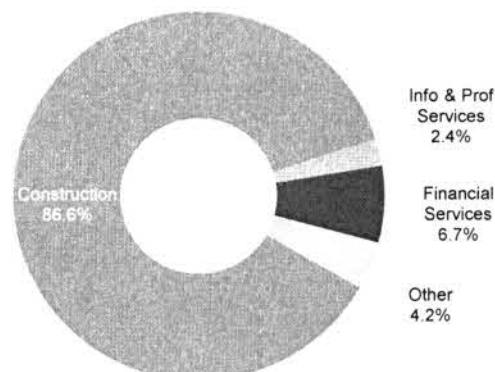
In this study, IHS first quantified the economic contribution Southwest Gas' local spending on all Arizona-based projects for the period 2016 to 2018. By "local spending" we mean spending that directly enters the Arizona economy. Any spending on products or services sourced from outside Arizona was excluded from the main analysis. To illustrate: in 2016 Southwest Gas expects to spend \$210.7 million, exclusive of wages paid to Southwest Gas employees, for construction and maintenance projects in Arizona. Of this, IHS estimated \$172.9 million will enter the Arizona economy through spending directly with Arizona-based suppliers and service providers. The remaining \$37.8 million, which will flow to goods and services (e.g., steel pipes) sourced outside of Arizona, is not included in the analysis. By 2018, total capex will rise to \$313.4 million, with \$243.9 million of local capex directly entering the Arizona economy.

Then, IHS isolated the combined economic contribution associated with three components under the Southwest Gas' GIM Mechanism including the Customer-owned Yard Line (COYL) Program, the building of a new Liquefied Natural Gas (LNG) facility and the replacement of Vintage Steel Pipe (VSP). The COYL Program is ongoing, with capital expenditures in each of the three years. Capex for the LNG Program will occur during 2017 and 2018 while the VSP Program will begin in 2018. IHS estimated that the combined non-labor spending on these three components will rise from \$9.9 million (about 4.7% of total spending) in 2016 to \$110.0 million (about 35.1% of total spending) in 2018, with the launch of the VSP Program.

IHS analyzed Southwest Gas' average direct local capital expenditures expected for the period 2016 to 2018. As shown in the graph, the analysis revealed that most of the capex will

directly enter the Arizona economy in three industries: Construction (86.6%); Financial Services (6.7%); and Information & Professional Services (2.4%). This direct spending initially triggers economic activity throughout Southwest Gas' local supply chain, followed by ripples of consumer spending activity as workers at Southwest Gas and its supply network spend portions of their wages in the Arizona economy.

**Average Distributon of Direct Capital Expenditures (2016-2018)**



The table below summarizes IHS' findings relative to the employment, value added, labor income, output and taxes accruing to Arizona due to Southwest Gas' capital projects within the state. IHS estimates that Southwest Gas will dedicate the equivalent of 155 full time workers (FTEs) from its existing employee base to these projects. Referring to the highlighted "SW Gas Direct Spending in AZ Supply Chain" row, the \$243.9 million of capex that Southwest Gas plans to spend with local Arizona suppliers and service providers in 2018 will support another 2,616 local jobs. Thus, every Southwest Gas FTE represents another 17 jobs across the state. Viewed differently, every million dollars of capex that Southwest Gas spends locally will support 11 jobs in Arizona. These workers will bring home \$161.0 million in wages or an average salary of \$61.5K, which is about 11% above IHS's forecast for the statewide average of \$55.7K in 2018.

<b>Economic Contribution - All Arizona-based Projects*</b>			
<b>Indicator</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Employment (Number of workers)</b>	<b>2,089</b>	<b>2,036</b>	<b>2,771</b>
Southwest Gas FTEs	153	156	155
Direct Arizona Supply Chain	991	958	1,351
Indirect Arizona Supply Chain	318	310	436
Induced (Consumer Spending) Activity	627	613	828
<b>Value Added Contribution to GSP (US\$M)</b>	<b>175.7</b>	<b>174.2</b>	<b>248.2</b>
Direct Arizona Supply Chain	93.1	92.1	133.2
Indirect Arizona Supply Chain	29.1	28.9	41.6
Induced (Consumer Spending) Activity	53.4	53.3	73.5
<b>Labor Income (US\$M)</b>	<b>125.4</b>	<b>125.1</b>	<b>172.7</b>
Southwest Gas FTEs	11.0	11.4	11.7
Direct Arizona Supply Chain	65.5	65.1	92.8
Indirect Arizona Supply Chain	19.2	19.1	27.5
Induced (Consumer Spending) Activity	29.6	29.5	40.7
<b>Output (US\$M)</b>	<b>306.4</b>	<b>302.5</b>	<b>430.5</b>
SW Gas Direct Spending in AZ Supply Chain	172.9	169.5	243.9
Indirect Arizona Supply Chain Activity	48.5	48.0	69.2
Induced (Consumer Spending) Activity	85.0	84.9	117.4
<b>Taxes (US\$M)</b>	<b>26.7</b>	<b>26.5</b>	<b>38.5</b>
State & Local Taxes	9.1	9.1	13.4
Federal Taxes	17.6	17.5	25.0

\* IHS assumed the capital expenditures would not effect SW Gas' expected sales revenue (output) and value added contribution to GSP). Also, while IHS does not anticipate SW Gas to hire additional employees specifically for these projects, the dedicated labor and corresponding wages are included in the employment and labor income effects (on an FTE basis) in this economic contribution summary.

At the time this study was conducted, Southwest Gas had yet to finalize capital investment schedules beyond 2018. Therefore, based on local 2018 capex spending patterns, IHS estimated the average economic contributions from \$100 million of local spending through the GIM Mechanism. This provides a set of metrics that can be used to calibrate the expected economic contributions beyond 2018. For example, every \$100 million that Southwest Gas directly spends with local suppliers and service providers (shown in the “SW Gas Direct Spending in AZ Supply Chain” row in the table below) will support 1,062 jobs above and beyond the 42 Southwest Gas FTEs working on GIM projects post-2018. This level of local spending will also generate \$100.8 million of contribution to Arizona’s gross state product and \$5.7 million in state & local taxes.

<b>Economic Contribution - Gas Infrastructure Modernization*</b>				
<b>Indicator</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Post-2018**</b>
<b>Employment (Number of workers)</b>	<b>114</b>	<b>356</b>	<b>1,215</b>	<b>1,104</b>
Southwest Gas FTEs	6	10	46	42
Direct Arizona Supply Chain	57	180	610	555
Indirect Arizona Supply Chain	18	58	198	180
Induced (Consumer Spending) Activity	34	108	361	328
<b>Value Added Contribution to GSP (US\$M)</b>	<b>9.9</b>	<b>31.2</b>	<b>110.9</b>	<b>100.8</b>
Direct Arizona Supply Chain	5.3	16.6	60.2	54.7
Indirect Arizona Supply Chain	1.6	5.3	18.8	17.1
Induced (Consumer Spending) Activity	2.9	9.4	32.0	29.1
<b>Labor Income (US\$M)</b>	<b>6.8</b>	<b>22.0</b>	<b>75.2</b>	<b>68.4</b>
Southwest Gas FTEs	0.4	0.7	3.3	3.0
Direct Arizona Supply Chain	3.7	12.7	41.8	38.0
Indirect Arizona Supply Chain	1.1	3.5	12.4	11.3
Induced (Consumer Spending) Activity	1.6	5.2	17.7	16.1
<b>Output (US\$M)</b>	<b>17.3</b>	<b>53.6</b>	<b>192.4</b>	<b>174.9</b>
SW Gas Direct Spending in AZ Supply Chain	9.9	29.9	110.0	100.0
Indirect Arizona Supply Chain Activity	2.7	8.7	31.3	28.4
Induced (Consumer Spending) Activity	4.6	15.0	51.1	46.5
<b>Taxes (US\$M)</b>	<b>1.5</b>	<b>4.9</b>	<b>17.5</b>	<b>15.9</b>
State & Local Taxes	0.5	1.6	6.2	5.7
Federal Taxes	1.0	3.3	11.3	10.3

\* IHS assumed the capital expenditures would not effect SW Gas' expected sales revenue (output) and value added contribution to GSP). Also, while IHS does not anticipate SW Gas to hire additional employees specifically for these projects, the dedicated labor and corresponding wages are included in the employment and labor income effects (on an FTE basis) in this economic contribution summary.

\*\* Assumes \$100M in direct capital expenditures in Arizona each year.

Based on the research and analysis that was conducted for this study, IHS finds the construction and maintenance capital projects undertaken by Southwest Gas in Arizona have and will continue to make positive contributions to Arizona in terms of key economic indicators such as jobs, contribution to gross state product, wages and taxes.

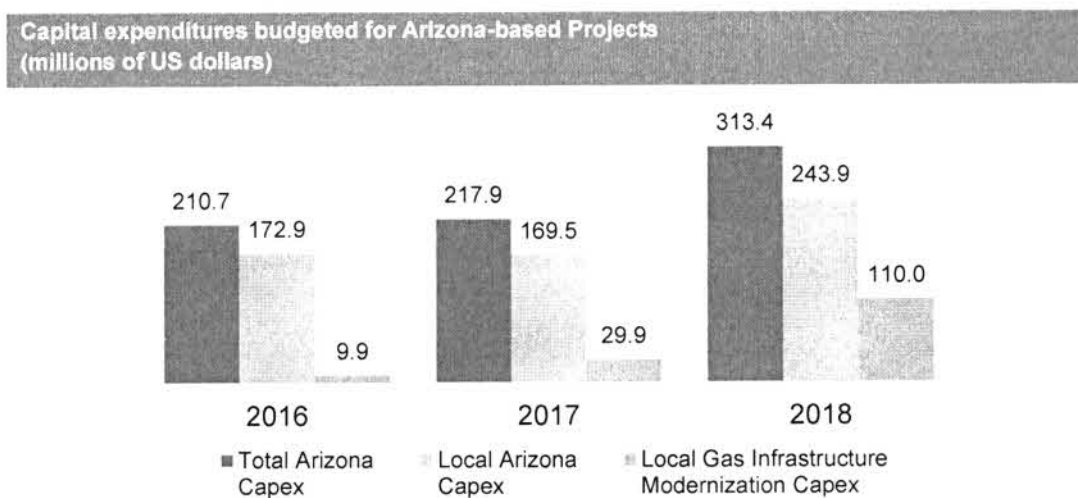
Final Report on the Study of the Human Impact of the Western Long-Eared Bat (Lasiurus longiears) by IHS Inc.

## CHAPTER 2 Introduction

Southwest Gas is the largest distributor of natural gas in Arizona – selling and transporting natural gas in most of central and southern Arizona, including the Phoenix and Tucson metropolitan areas.

Southwest Gas commissioned IHS to conduct an economic impact analysis to estimate the direct, indirect and induced economic benefits to Arizona’s economy from its capital investment budget including those resulting from the acceleration of certain pipe replacement activities through the company’s GIM Mechanism. The primary goal of these programs is to enhance the safety and reliability of the company’s natural gas distribution.

In this study, IHS first quantified the economic contribution Southwest Gas’ local spending on all Arizona-based projects for the period 2016 to 2018. By “local spending” we mean spending that directly enters the Arizona economy. Any spending on products or services sourced from outside Arizona was excluded from the main analysis. To illustrate: in 2016 Southwest Gas expects to spend \$210.7 million, exclusive of wages paid to Southwest Gas employees, for construction and maintenance projects in Arizona. Of this, IHS estimated \$172.9 million will enter the Arizona economy through direct spending with Arizona-based suppliers and service providers. The remaining \$37.8 million will flow to goods and services sourced outside of Arizona, such as steel pipes. By 2018, total capex will rise to \$313.4 million, with \$243.9 million of local capex directly entering the Arizona economy.



Source: IHS analysis of Southwest Gas data

Then, IHS isolated the combined economic contribution associated with three components of Southwest Gas’ GIM Mechanism including the Customer-owned Yard Line (COYL) Program, the building of a new Liquefied Natural Gas (LNG) facility and the replacement of Vintage Steel Pipe (VSP). The VSP program is intended to be a proactive program in which older pipeline is updated and replaced at a controlled pace, rather than a series of a reactive response to system failures. The COYL Program is ongoing, with capital expenditures in each of the three years. Capex for the LNG Program will occur during 2017 and 2018 while



the VSP Program will begin in 2018. IHS estimated that the combined non-labor spending on these three components will rise from \$9.9 million (about 4.7% of total spending) in 2016 to \$110.0 million (about 35.1% of total spending) in 2018, with the launch of the VSP Program.

At the time this study was conducted, Southwest Gas had yet to finalize capital investment schedules beyond 2018. Therefore, based on local 2018 capex spending patterns, IHS estimated the average economic contributions from \$100 million of local spending on their GIM Mechanism. This provides a set of metrics that can be used to calibrate the expected contributions beyond 2018. For example, every \$100 million that Southwest Gas directly spends with local suppliers and service providers will support 1,062 jobs above and beyond the 42 Southwest Gas FTEs working on GIM projects post-2018. This level of local spending will also generate \$100.8 million of contribution to Arizona's gross state product.

## Economic Landscape of Arizona

Over the last decade, Arizona has begun to emerge as a center for high-tech electronics and telecommunications manufacturing, attracting growth from nearby California. The state is also home to many defense-oriented manufacturing companies, which have seen steady growth because of wartime contracts from the federal government and contracts with international buyers.

### Labor force and demographics

In 2014, Arizona maintained its rank as the 15th-largest state in the nation, with a population of 6.7 million. From 2013 to 2014, the state population increased by 1.4%, the largest annual increase since 2008, but still pale in comparison to the boom years of the early 2000s. Net migration was also the highest it has been since 2007. Just over 62,000 people came to Arizona in 2014. More than 46,000 came from the United States, while nearly 15,000 came from abroad. An overwhelming majority of Arizona's population is located in its two largest metro areas: Phoenix and Tucson. Together, the two make up 82% of the state's total population and 83% of its labor force. In terms of age, the population distribution is larger at the extremes. Arizona has a large number of retirees and the share of the population 65 and over is 15.9%, compared with 14.5% nationwide. Conversely, it also has a considerably larger youth population, with 34.1% in the 24 and under category versus 32.9% for the United States.

### Real estate and construction

The housing and credit crunch hit Arizona harder than many other places. The state continues to feel the effects of the market retreating from an unprecedented boom that brought significant price appreciation, along with a spate of new-home building, much of which was speculative. The enormous backlog of unsold or vacated homes has taken years to work off, but is at last approaching normality. Housing starts in Arizona fell to a low of less than 13,000 in 2010, down from a peak of more than 88,000 units in 2004: we expect over 40,000 starts in 2016 (up from a little over 30,000 in 2015) and almost 50,000 in 2017 as the market recovers. Meanwhile, home prices have bounced up sharply as the unsold inventory left from the bust has evaporated—prices are increasing at double-digit rates.

### The outlook

The medium-term outlook for this Sun Belt state remains robust as the demographic center of the United States continues to push south and west. We expect that strong growth in population and households will be a driving force of economic expansion over the next five years. The state's population will rise at a 1.6% average annual pace through 2020. This is twice the rate of the United States, which will add people at a 0.8% rate. Significant increases in the resident population will be bolstered by further domestic and international immigration. All of those new people will create strong demand for services and new housing. The healthcare sector will add jobs at a 2.6% pace. Construction will add jobs at a 6.1% pace as it recovers from abysmal recessionary lows. Business services will be crucial as well, expanding by an average of 3.9% each year.

## CHAPTER 3 Methodology

Each component of the Southwest Gas GIM Mechanism uses notable amounts of fixed capital (i.e., equipment) and variable inputs (i.e., labor) during their life cycle to deliver on the intended mission. The impact of the resulting economic activity can be measured by examining the transactions that occur between businesses, the wages paid to employees, and the headcount needed to realize each project's objective. There are also impacts that are generated through tax transfers to governments.

Input-output analysis was used in this study to quantify how these direct impacts flow through the economy. Further, the extent to which the ripple effect results from linkages to other businesses is measured by the indirect impacts while the spending that occurs by employees and owners of these businesses is captured through the induced impacts.

To accurately estimate the indirect economic impact of a given firm it is necessary to know the input requirements – the types, sources and quantities of goods and services needed in production – of the business. These flows between businesses are captured in input-output table for a regional economy. Induced impacts are estimated by applying wage and dividends generated by the firm to an average household expenditure pattern (i.e., destination and quantity of expenditure), and then by estimating the ways in which these expenditures produce further economic activity.

IHS sourced an IMPLAN model to serve as the initial foundation from which to quantify the economic impacts of Southwest Gas' service activity in Arizona and its modernization programs. The IMPLAN model closely follows the accounting conventions such as those used in the US Bureau of Economic Analysis's study, Input-Output Study of the US Economy, and is flexible enough to evaluate changes via the value of output or employment from the source industry. Using data from our World Industry Services, World Economic Services and other IHS-proprietary data assets, we customized and refined the modeling environment.

The direct, indirect, and induced job estimates in this report were quantified through input-output modeling and social accounting matrices using the customized IMPLAN model. Input-output accounting describes commodity flows from producers to intermediates and final consumers. The total industry purchases of commodities, services, employment compensation, value added, and imports are equal to the value of the commodities produced.

The notion of a multiplier rests upon the difference between the initial effect of a change in final demand and the total effects of that change. Total effects can be calculated either as direct and indirect effects or as direct, indirect, and induced effects. Direct effects are production changes associated with the immediate effects or final-demand changes. Indirect effects are production changes in backward-linked industries caused by the changing input needs of directly affected industries (for example, additional purchases to produce additional output). Induced effects are the changes in regional household spending patterns caused by changes in household income generated from the direct and indirect effects.

A Type I multiplier is the direct effect produced by a change in final demand plus the indirect effect, divided by the direct effect. Increased demands are assumed to lead to increased employment and population, with the average income level remaining constant. The Leontief

inverse (Type I multipliers matrix) is derived by inverting the direct coefficients matrix. The result is a matrix of total requirement coefficients, the amount each industry must produce for the purchasing industry to deliver one dollar's worth of output to final demand.

Type SAM multipliers incorporate “induced” effects resulting from the household expenditures from new labor income. The linear relationship between labor income and household expenditure can be customized in the IMPLAN software. The default relationship is PCE and total household expenditure. Each dollar of workplace- based income is spent based on the SAM relationship generated by IMPLAN.

The direct, indirect and induced impacts are reported via five measures, which are defined below. Each impact is calculated for each measure across 440 sectors in the economy and then aggregated to higher level industry totals. This bottom-up approach is inherent in the modeling system used for this economic impact study.

1. Output: The value of sales or revenue accrued to a company or industry from transactions with other businesses or consumers.
2. Employment (number of jobs): Includes all wage or salary jobs and those self-employed within an economy.
3. Total value added (contribution to GSP): The difference between the production cost of products or services and the sales price (i.e., total value added is revenue less outside purchases of material and services). The frequently cited Gross Domestic Product (GDP) or Gross State Product (GSP) is simply the sum of value added across all products and services produced within an economy. GDP is generally considered the broadest measure of the health of an economy.
4. Labor income (value of payments to workers through wages and benefits and owners)
5. Taxes (personal and corporate tax transfers to federal, state and local governments): Increased sales activity in will increase government revenues and taxes paid by Southwest Gas, its employees, its extensive supply chain, companies in ancillary industries, and so on.

CHAPTER 4

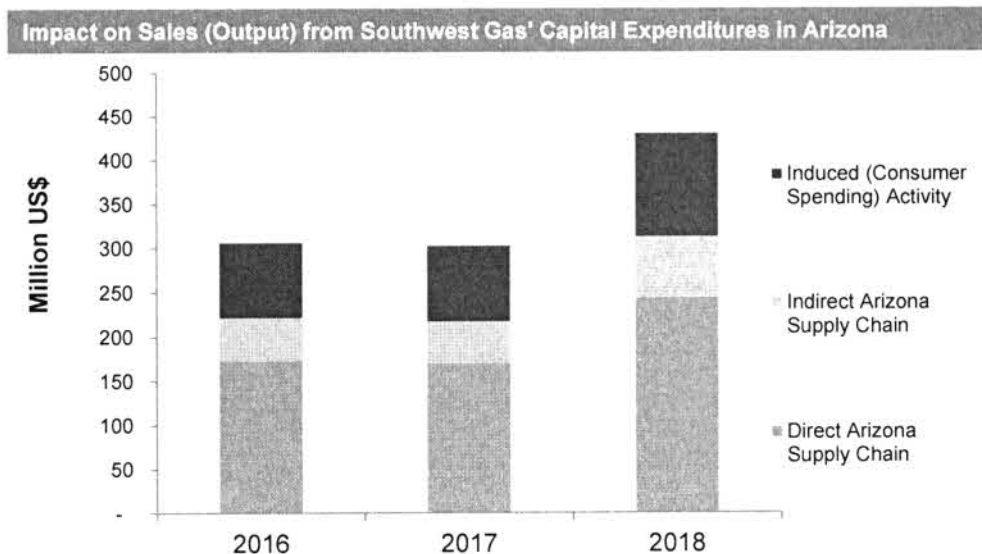
# Economic Impact of Southwest Gas Capital Investment Projects in Arizona

The tables presented throughout the following section summarize IHS' findings relative to the output, employment, value added, labor income, and taxes accruing to Arizona due to Southwest Gas' construction and maintenance projects within the state. The results are consistent with IHS' analysis of Southwest Gas' average direct capital expenditures expected for the period 2016 to 2018, which revealed that most of the capex will directly enter the Arizona economy in three industries: Construction (86.6%); Financial Services (6.7%); and Information & Professional Services (2.4%). None of these industries have extensive supply chains, thus the indirect supply chain effects are muted relative to the direct supply chain effects. A similar pattern occurs for the GIM Programs as well.

### Output (Value of Sales Transactions)

Referring to the "SW Gas Direct Spending in AZ Supply Chain" row under "Output by Type" in the table below, Southwest Gas is expecting to spend \$172.9 million directly with Arizona-based suppliers and service providers for construction and maintenance projects in 2016. By 2018, this capex entering directly in the state's economy is expected to rise to \$243.9 million. An additional \$69.2 million in indirect spending will be supported through the supply chain and another \$117.4 in consumer spending will be induced as workers use a portion of their income to make purchases during the year.

<b>Economic Contribution - All Arizona-based Projects</b>			
<b>Output (millions of US \$)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Output by Type</b>	<b>306.4</b>	<b>302.5</b>	<b>430.5</b>
SW Gas Direct Spending in AZ Supply Chain	172.9	169.5	243.9
Indirect Arizona Supply Chain	48.5	48.0	69.2
Induced (Consumer Spending) Activity	85.0	84.9	117.4
<b>Output by Industry</b>	<b>306.4</b>	<b>302.5</b>	<b>430.5</b>
Natural Resources	0.6	0.5	0.8
Transportation & Utilities	8.5	8.4	13.7
Construction	152.5	146.5	214.5
Manufacturing	8.5	8.4	12.0
Wholesale & Retail Trade	20.2	19.8	30.8
Information & Professional Services	58.6	60.5	79.4
Financial Services	40.3	41.0	56.2
Leisure & Other Services	12.8	12.8	17.8
Government	4.5	4.6	5.3

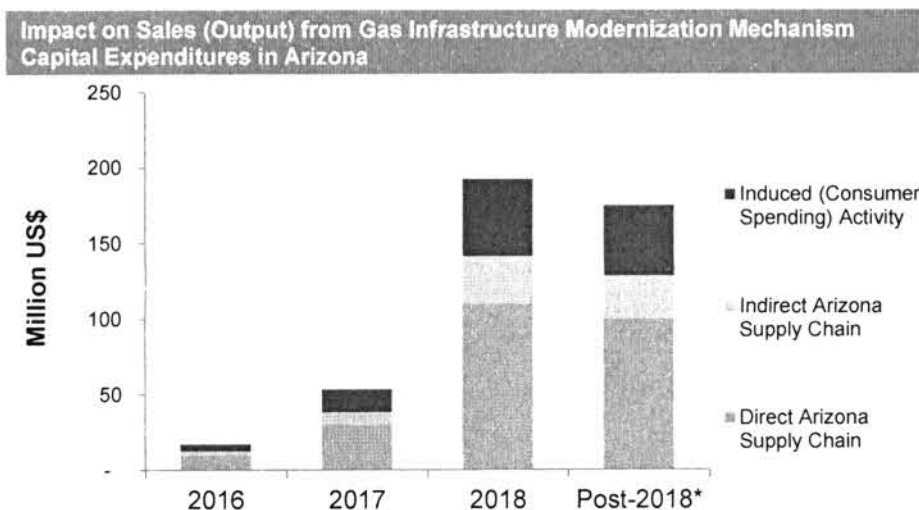


Within this budget is the combined spending on the three components of the GIM Mechanism. This will rise from \$9.9 million in 2016 to \$110.0 million in 2018, when the VSP Program begins. The proportional impact on the supply chain and consumer spending will be relative to Southwest Gas' overall spending in the state. At the time this study was conducted, Southwest Gas had yet to finalize capital investment schedules beyond 2018. Therefore, based on local 2018 capex spending patterns, IHS estimated the average economic contributions from \$100 million of local spending through the GIM Mechanism (highlighted in the "SW Gas Direct Spending in AZ Supply Chain" row under "Output by Type" in the table below). This level of direct spending will drive an additional \$74.9 million of sales activity in Arizona (\$28.4 million of indirect and \$46.5 million of induced activity)

Economic Contribution - Gas Infrastructure Modernization				
Output (millions of US \$)	2016	2017	2018	Post-2018**
<b>Output by Type</b>	<b>17.3</b>	<b>53.6</b>	<b>192.4</b>	<b>174.9</b>
SW Gas Direct Spending in AZ Supply Chain	9.9	29.9	110.0	100.0
Indirect Arizona Supply Chain	2.7	8.7	31.3	28.4
Induced (Consumer Spending) Activity	4.6	15.0	51.1	46.5
<b>Output by Industry</b>	<b>17.3</b>	<b>53.6</b>	<b>192.4</b>	<b>174.9</b>
Natural Resources	0.0	0.1	0.3	0.3
Transportation & Utilities	0.4	1.3	7.0	6.4
Construction	9.5	22.3	96.5	87.7
Manufacturing	0.5	1.4	5.3	4.8
Wholesale & Retail Trade	1.1	3.2	15.3	13.9
Information & Professional Services	2.8	15.9	34.0	30.9
Financial Services	2.1	6.6	24.2	22.0
Leisure & Other Services	0.7	2.3	7.8	7.1
Government	0.3	0.5	2.0	1.9

\*\* Assumes \$100M in direct capital expenditures in Arizona each year

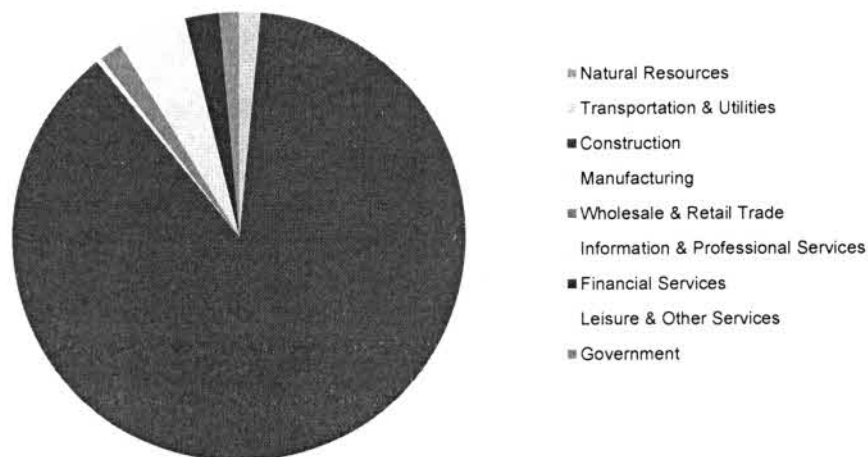




\* Per \$100 million of direct spending by Southwest Gas in the local Arizona Supply Chain

A pronounced share of the capital Southwest Gas is expected to deploy in 2018 will go to companies involved primarily in construction activities. This is a common allocation for capital projects within the scope of the utilities industry, as Southwest Gas is associated. A little over 40% of the company's spending directly in Arizona's economy will be allocated to the GIM Mechanism, where construction will be a major category for spending in the year.

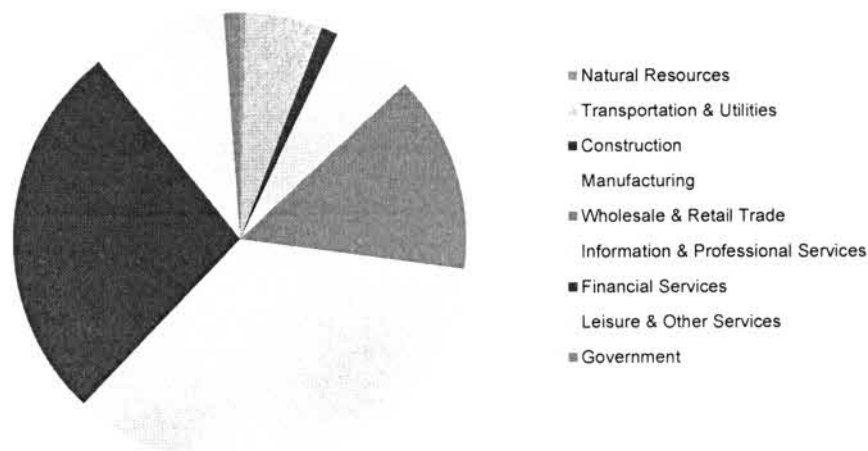
Distribution of Capex across Major Industries (2018)



However, looking at the impact further into the supply chain and down to the consumer level, the distribution of impact on industries is much more diverse. The chart below is an example of how Southwest Gas' spending will reach many sectors across the Arizona economy. Although there is a big share of the budget being spent directly in construction, it requires goods and services sourced from companies in mainly information/professional services, financial services and wholesale/retail trade to accommodate those orders. In addition, the

employees being paid to service the orders in any capacity are subsequently spending their money on goods and services with a decent share going towards leisure and other services. Typically consumers in higher income brackets tend to use a larger portion of their earnings on these types of services – an indication that the workers in Southwest Gas' extended supply chain are amongst the higher paid in the economy.

**Distribution of Indirect and Induced Impacts across Major Industries (2018)**



### Employment

In order to complete a sale, a company must rely on its employees. Likewise, in order to produce the good or service being sold, a company needs inputs from other businesses that rely on their employees to facilitate, and so on. Lastly, when these employees purchase consumer goods and services, the businesses providing the goods and services require workers to fulfil those transactions. This cycle depicts how deep the impact of sales on employment in an economy reaches.

From 2016 to 2018, IHS estimates Southwest Gas will devote approximately 155 FTEs of labor to the company's Arizona-based capital investment projects. The number of workers needed in the company's entire supply chain is much higher. In 2016, 1,309 jobs will be supported in Southwest Gas' direct and indirect supply chains. This means for every Southwest Gas FTE devoted to Arizona-based capital investment projects, there are another 9 workers being supported in its supply chain. Put another way, for every \$1 million spent directly with Southwest Gas' immediate suppliers, about 8 jobs are being supported throughout the entire supply chain. If the induced effects are factored in, by 2018 each Southwest Gas FTE will support another 17 jobs in the Arizona Economy.

<b>Economic Contribution - All Arizona-based Projects</b>			
<b>Employment (number of workers)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Employment by Type</b>	<b>2,089</b>	<b>2,036</b>	<b>2,771</b>
Southwest Gas FTEs	153	156	155
Direct Arizona Supply Chain	991	958	1,351
Indirect Arizona Supply Chain	318	310	436
Induced (Consumer Spending) Activity	627	613	828
<b>Employment by Industry</b>	<b>2,089</b>	<b>2,036</b>	<b>2,771</b>
Southwest Gas FTEs	153	156	155
Natural Resources	3	3	3
Transportation & Utilities	42	41	70
Construction	871	826	1,195
Manufacturing	26	25	36
Wholesale & Retail Trade	166	161	235
Information & Professional Services	483	485	624
Financial Services	137	136	183
Leisure & Other Services	187	182	247
Government	21	21	23

IHS does not anticipate Southwest Gas will hire additional employees for its GIM Mechanism. Rather, the company will dedicate approximately 6 FTEs to these projects 2016, increasing to about 46 FTEs in 2018 as the VSP program ramps up. Meanwhile, transactions made through the direct and indirect supply chains to deliver on GIM projects will support almost 75 jobs in 2016 and over 800 jobs in 2018. Similar to the figures seen from overall spending in Arizona, for every \$1 million spent with direct suppliers through the GIM Mechanism, about 8 jobs are supported in the direct and indirect supply chains, rising to 11 jobs when induced effects are included.

<b>Economic Contribution - Gas Infrastructure Modernization</b>				
<b>Employment (number of workers)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Post-2018**</b>
<b>Employment by Type</b>	<b>115</b>	<b>356</b>	<b>1,215</b>	<b>1,104</b>
Southwest Gas FTEs	6	10	46	42
Direct Arizona Supply Chain	57	180	610	555
Indirect Arizona Supply Chain	18	58	198	180
Induced (Consumer Spending) Activity	34	108	361	328
<b>Employment by Industry</b>	<b>115</b>	<b>356</b>	<b>1,215</b>	<b>1,104</b>
Southwest Gas FTEs	6	10	46	42
Natural Resources	0	0	1	1
Transportation & Utilities	2	6	38	35
Construction	54	126	537	488
Manufacturing	1	4	16	15
Wholesale & Retail Trade	9	27	111	101
Information & Professional Services	23	125	269	244
Financial Services	7	23	79	72
Leisure & Other Services	10	33	108	98
Government	1	2	9	8

\*\* Assumes \$100M in direct capital expenditures in Arizona each year

## Value added

Production or output metrics such as sales revenues, while informative, have an inherent disadvantage of double-counting revenues for component goods and services (i.e., tires) that may be sold and resold during the creation of the final product (i.e., a car) that is purchased by a consumer. Measuring value added provides a means for removing these distortions.

Value added is the difference between the non-labor production costs of products or services (intermediate inputs) and their selling prices. As its name implies, value added measures how much more valuable a final product is relative to its component, non-labor inputs. Thus, it measures the ability of a firm to transform raw inputs into higher-value final products and services. Value added is often aggregated to measure the economic performance of a specific industry or region.

The ubiquitously cited GDP measure is simply the sum of value added across all products and services produced in an economy – it is generally considered the broadest measure of the health of an economy. Analogously, gross state product (GSP) is the sum of value added within a state.

Value added also corresponds to the pool of money a firm realizes after deducting the cost of intermediate inputs from its sales revenue. The firm draws from this pool to compensate employees, pay taxes and derive profits. As such, it provides insights into the ability of a firm or industry to attract and retain employees (through wages) as well as invest in capital projects (from profits) that can support future growth.

The table below summarizes the findings for value added by type (direct, indirect and induced) and industry sector. As previously noted, the direct effects were the most impactful, accounting for approximately \$133.2 million (or 54%) of the \$248.2 million of value added in 2018. On an industry level, \$115.7 million (47%) of the value added will be generated by the construction sector. In 2018, IHS forecasts the GSP of Arizona will be \$347.7 billion. Thus, Southwest Gas' contribution of \$248.2 million will account for about 0.07% of Arizona's GSP.

<b>Economic Contribution - All Arizona-based Projects</b>			
<b>Value Added (millions of US \$)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Value Added by Type</b>	<b>175.7</b>	<b>174.2</b>	<b>248.2</b>
Direct Arizona Supply Chain	93.1	92.1	133.2
Indirect Arizona Supply Chain	29.1	28.9	41.6
Induced (Consumer Spending) Activity	53.4	53.3	73.5
<b>Value Added by Industry</b>	<b>175.7</b>	<b>174.2</b>	<b>248.2</b>
Natural Resources	0.3	0.3	0.4
Transportation & Utilities	4.8	4.8	7.7
Construction	81.0	78.4	115.7
Manufacturing	2.2	2.2	3.2
Wholesale & Retail Trade	14.4	14.3	22.3
Information & Professional Services	36.8	37.7	49.3
Financial Services	26.2	26.6	36.4
Leisure & Other Services	7.6	7.6	10.5
Government	2.3	2.3	2.7

The table below presents the value added results for just the GIM Mechanism. Assuming Southwest Gas continues to annually devote \$100 million to direct capital expenditures in Arizona beyond 2018, just over \$100 million of value added will be generated. In other words, every dollar of capex that Southwest Gas spends in Arizona will grow the Arizona economy by one dollar.

<b>Economic Contribution - Gas Infrastructure Modernization</b>				
<b>Value Added (millions of US \$)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Post-2018**</b>
<b>Value Added by Type</b>	<b>9.9</b>	<b>31.2</b>	<b>110.9</b>	<b>100.8</b>
Direct Arizona Supply Chain	5.3	16.6	60.2	54.7
Indirect Arizona Supply Chain	1.6	5.3	18.8	17.1
Induced (Consumer Spending) Activity	2.9	9.4	32.0	29.1
<b>Value Added by Industry</b>	<b>9.9</b>	<b>31.2</b>	<b>110.9</b>	<b>100.8</b>
Natural Resources	0.0	0.1	0.2	0.2
Transportation & Utilities	0.2	0.7	3.8	3.5
Construction	5.0	11.9	52.0	47.3
Manufacturing	0.1	0.4	1.4	1.3
Wholesale & Retail Trade	0.8	2.3	11.0	10.0
Information & Professional Services	1.7	9.9	21.1	19.2
Financial Services	1.4	4.3	15.6	14.2
Leisure & Other Services	0.4	1.4	4.6	4.2
Government	0.1	0.3	1.0	1.0

\*\* Assumes \$100M in direct capital expenditures on modernization in Arizona each year

## Labor Income

As a subset of value added, the labor income results parallel the value added results. In general, labor income accounts for approximately 70% of value added. Thus, total employee and proprietor income supported by Southwest Gas capital investment projects in Arizona is expected to reach \$172.7 million in 2018 from \$125.4 million in 2016. About \$84.7 million in 2016 and \$120.3 million in 2018 will occur in the direct and indirect supply chains. On a per-employee basis, that represents an average income across the supply chain of almost \$65,000 in 2016 and over \$67,000 in 2018, approximately 20% higher than IHS' forecast of Arizona's average nonfarm annual wage in those years. Across all job classes (direct, indirect and induced) the average income will exceed \$61,500 in 2018 or 11% above the state average.

<b>Economic Contribution - All Arizona-based Projects</b>			
<b>Labor Income (millions of US \$)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Labor Income by Type</b>	<b>125.4</b>	<b>125.1</b>	<b>172.7</b>
Southwest Gas FTEs	11.0	11.4	11.7
Direct Arizona Supply Chain	65.5	65.1	92.8
Indirect Arizona Supply Chain	19.2	19.1	27.5
Induced (Consumer Spending) Activity	29.6	29.5	40.7
<b>Labor Income by Industry</b>	<b>125.4</b>	<b>125.1</b>	<b>172.7</b>
Southwest Gas FTEs	11.0	11.4	11.7
Natural Resources	0.1	0.1	0.2
Transportation & Utilities	2.8	2.8	4.6
Construction	55.3	53.5	79.0
Manufacturing	1.6	1.6	2.3
Wholesale & Retail Trade	9.0	8.9	13.9
Information & Professional Services	30.6	31.5	40.6
Financial Services	7.2	7.4	10.0
Leisure & Other Services	6.1	6.1	8.5
Government	1.7	1.7	2.0

Looking beyond 2018, the GIM Mechanism will generate approximately \$68.4 million of labor income annually in Arizona, assuming Southwest Gas maintains local capital expenditures of \$100 million. Almost half of these wages (\$32.3 million) will occur in the construction industry.

<b>Economic Contribution - Gas Infrastructure Modernization</b>				
<b>Labor Income (millions of US \$)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Post-2018**</b>
<b>Labor Income by Type</b>	<b>6.8</b>	<b>22.0</b>	<b>75.2</b>	<b>68.4</b>
Southwest Gas FTEs	0.4	0.7	3.3	3.0
Direct Arizona Supply Chain	3.7	12.7	41.8	38.0
Indirect Arizona Supply Chain	1.1	3.5	12.4	11.3
Induced (Consumer Spending) Activity	1.6	5.2	17.7	16.1
<b>Labor Income by Industry</b>	<b>6.8</b>	<b>22.0</b>	<b>75.2</b>	<b>68.4</b>
Southwest Gas FTEs	0.4	0.7	3.3	3.0
Natural Resources	0.0	0.0	0.1	0.1
Transportation & Utilities	0.1	0.4	2.4	2.2
Construction	3.4	8.1	35.5	32.3
Manufacturing	0.1	0.3	1.0	0.9
Wholesale & Retail Trade	0.5	1.4	6.8	6.2
Information & Professional Services	1.4	8.7	17.4	15.8
Financial Services	0.4	1.1	4.2	3.8
Leisure & Other Services	0.3	1.1	3.7	3.4
Government	0.1	0.2	0.8	0.7

\*\* Assumes \$100M in direct capital expenditures in Arizona each year

## Taxes

Finally, the additional economic activity stimulated by Southwest Gas' construction and maintenance capital expenditures in Arizona will generate both federal and state & local tax revenues. These are summarized below.

<b>Economic Contribution - All Arizona-based Projects</b>				
<b>Indicator</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	
<b>Taxes (Million US\$)</b>	<b>26.7</b>	<b>26.5</b>	<b>38.5</b>	
State & Local Taxes	9.1	9.1	13.4	
Federal Taxes	17.6	17.5	25.0	

Looking beyond 2018 – and once again assuming \$100 in annual capital expenditures – the GIM Mechanism will generate \$5.7 million in state & local taxes within Arizona.

<b>Economic Contribution - Gas Infrastructure Modernization</b>				
<b>Indicator</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Post-2018**</b>
<b>Taxes (Million US\$)</b>	<b>1.5</b>	<b>4.9</b>	<b>17.5</b>	<b>15.9</b>
State & Local Taxes	0.5	1.6	6.2	5.7
Federal Taxes	1.0	3.3	11.3	10.3

Hydrological and Geology Task Force Report of the Hydrology Chapter, Washoe County, Nevada

CHAPTER 5  
**Appendix**



## Economic Contribution Summary Tables

Economic Contribution - All Arizona-based Projects*			
Indicator	2016	2017	2018
<b>Employment (Number of workers)</b>	<b>2,089</b>	<b>2,036</b>	<b>2,771</b>
Southwest Gas FTEs	153	156	155
Direct Arizona Supply Chain	991	958	1,351
Indirect Arizona Supply Chain	318	310	436
Induced (Consumer Spending) Activity	627	613	828
<b>Value Added Contribution to GSP (US\$M)</b>	<b>175.7</b>	<b>174.2</b>	<b>248.2</b>
Direct Arizona Supply Chain	93.1	92.1	133.2
Indirect Arizona Supply Chain	29.1	28.9	41.6
Induced (Consumer Spending) Activity	53.4	53.3	73.5
<b>Labor Income (US\$M)</b>	<b>125.4</b>	<b>125.1</b>	<b>172.7</b>
Southwest Gas FTEs	11.0	11.4	11.7
Direct Arizona Supply Chain	65.5	65.1	92.8
Indirect Arizona Supply Chain	19.2	19.1	27.5
Induced (Consumer Spending) Activity	29.6	29.5	40.7
<b>Output (US\$M)</b>	<b>306.4</b>	<b>302.5</b>	<b>430.5</b>
SW Gas Direct Spending in AZ Supply Chain	172.9	169.5	243.9
Indirect Arizona Supply Chain Activity	48.5	48.0	69.2
Induced (Consumer Spending) Activity	85.0	84.9	117.4
<b>Taxes (US\$M)</b>	<b>26.7</b>	<b>26.5</b>	<b>38.5</b>
State & Local Taxes	9.1	9.1	13.4
Federal Taxes	17.6	17.5	25.0

\* IHS assumed the capital expenditures would not effect SW Gas' expected sales revenue (output) and value added contribution to GSP. Also, while IHS does not anticipate SW Gas to hire additional employees specifically for these projects, the dedicated labor and corresponding wages are included in the employment and labor income effects (on an FTE basis) in this economic contribution summary.

Economic Contribution - Gas Infrastructure Modernization*				
Indicator	2016	2017	2018	Post-2018**
<b>Employment (Number of workers)</b>	<b>114</b>	<b>356</b>	<b>1,215</b>	<b>1,104</b>
Southwest Gas FTEs	6	10	46	42
Direct Arizona Supply Chain	57	180	610	555
Indirect Arizona Supply Chain	18	58	198	180
Induced (Consumer Spending) Activity	34	108	361	328
<b>Value Added Contribution to GSP (US\$M)</b>	<b>9.9</b>	<b>31.2</b>	<b>110.9</b>	<b>100.8</b>
Direct Arizona Supply Chain	5.3	16.6	60.2	54.7
Indirect Arizona Supply Chain	1.6	5.3	18.8	17.1
Induced (Consumer Spending) Activity	2.9	9.4	32.0	29.1
<b>Labor Income (US\$M)</b>	<b>6.8</b>	<b>22.0</b>	<b>75.2</b>	<b>68.4</b>
Southwest Gas FTEs	0.4	0.7	3.3	3.0
Direct Arizona Supply Chain	3.7	12.7	41.8	38.0
Indirect Arizona Supply Chain	1.1	3.5	12.4	11.3
Induced (Consumer Spending) Activity	1.6	5.2	17.7	16.1
<b>Output (US\$M)</b>	<b>17.3</b>	<b>53.6</b>	<b>192.4</b>	<b>174.9</b>
SW Gas Direct Spending in AZ Supply Chain	9.9	29.9	110.0	100.0
Indirect Arizona Supply Chain Activity	2.7	8.7	31.3	28.4
Induced (Consumer Spending) Activity	4.6	15.0	51.1	46.5
<b>Taxes (US\$M)</b>	<b>1.5</b>	<b>4.9</b>	<b>17.5</b>	<b>15.9</b>
State & Local Taxes	0.5	1.6	6.2	5.7
Federal Taxes	1.0	3.3	11.3	10.3

\* IHS assumed the capital expenditures would not effect SW Gas' expected sales revenue (output) and value added contribution to GSP. Also, while IHS does not anticipate SW Gas to hire additional employees specifically for these projects, the dedicated labor and corresponding wages are included in the employment and labor income effects (on an FTE basis) in this economic contribution summary.

\*\* Assumes \$100M in direct capital expenditures in Arizona each year.

## Economic Contribution of All Arizona-based Projects

<b>Economic Contribution - All Arizona-based Projects</b>			
<b>Output (millions of US \$)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>SW Gas Direct Spending in AZ Supply Chain</b>	<b>172.9</b>	<b>169.5</b>	<b>243.9</b>
Natural Resources	0.0	0.0	0.0
Transportation & Utilities	1.3	1.3	3.5
Construction	150.8	144.8	212.3
Manufacturing	0.6	0.7	1.0
Wholesale & Retail Trade	1.0	1.0	4.6
Information & Professional Services	12.2	14.0	13.8
Financial Services	3.9	4.6	5.6
Leisure & Other Services	0.0	0.0	0.0
Government	3.0	3.1	3.2
<b>Indirect Arizona Supply Chain Output</b>	<b>48.5</b>	<b>48.0</b>	<b>69.2</b>
Natural Resources	0.2	0.2	0.3
Transportation & Utilities	2.8	2.8	4.3
Construction	0.9	0.9	1.2
Manufacturing	5.3	5.2	7.6
Wholesale & Retail Trade	6.0	5.8	8.4
Information & Professional Services	21.0	21.0	30.1
Financial Services	8.8	8.7	12.4
Leisure & Other Services	3.1	3.1	4.4
Government	0.4	0.4	0.5
<b>Arizona Supply Chain (Direct + Indir) Output</b>	<b>221.4</b>	<b>217.6</b>	<b>313.1</b>
Natural Resources	0.2	0.2	0.3
Transportation & Utilities	4.2	4.2	7.8
Construction	151.7	145.7	213.5
Manufacturing	6.0	5.9	8.6
Wholesale & Retail Trade	7.0	6.8	13.0
Information & Professional Services	33.2	34.9	43.9
Financial Services	12.7	13.3	18.0
Leisure & Other Services	3.1	3.1	4.3
Government	3.3	3.5	3.7
<b>Induced Arizona Output</b>	<b>85.0</b>	<b>84.9</b>	<b>117.4</b>
Natural Resources	0.4	0.3	0.5
Transportation & Utilities	4.3	4.3	5.9
Construction	0.8	0.8	1.1
Manufacturing	2.5	2.5	3.4
Wholesale & Retail Trade	13.1	13.0	17.8
Information & Professional Services	25.4	25.5	35.5
Financial Services	27.6	27.6	38.2
Leisure & Other Services	9.7	9.7	13.4
Government	1.2	1.2	1.6
<b>Total Arizona Output Contribution</b>	<b>306.4</b>	<b>302.5</b>	<b>430.5</b>
Natural Resources	0.6	0.5	0.8
Transportation & Utilities	8.5	8.4	13.7
Construction	152.5	146.5	214.5
Manufacturing	8.5	8.4	12.0
Wholesale & Retail Trade	20.2	19.8	30.8
Information & Professional Services	58.6	60.5	79.4
Financial Services	40.3	41.0	56.2
Leisure & Other Services	12.8	12.8	17.8
Government	4.5	4.6	5.3

<b>Economic Contribution - All Arizona-based Projects</b>			
<b>Employment (number of workers)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Southwest Gas FTEs</b>	<b>153</b>	<b>156</b>	<b>155</b>
<b>Direct Arizona Supply Chain Employment</b>	<b>991</b>	<b>958</b>	<b>1,351</b>
Natural Resources	0	0	0
Transportation & Utilities	8	8	21
Construction	862	817	1,182
Manufacturing	2	2	3
Wholesale & Retail Trade	5	4	21
Information & Professional Services	89	100	96
Financial Services	11	12	14
Leisure & Other Services	1	0	0
Government	14	14	14
<b>Indirect Arizona Supply Chain Employment</b>	<b>318</b>	<b>310</b>	<b>436</b>
Natural Resources	1	1	1
Transportation & Utilities	15	15	23
Construction	5	5	7
Manufacturing	19	18	25
Wholesale & Retail Trade	28	27	39
Information & Professional Services	172	168	235
Financial Services	39	38	53
Leisure & Other Services	38	37	51
Government	1	1	2
<b>Arizona Supply Chain (Direct + Indirect) Emp</b>	<b>1,309</b>	<b>1,267</b>	<b>1,787</b>
Natural Resources	1	1	1
Transportation & Utilities	23	22	44
Construction	867	822	1,189
Manufacturing	20	20	29
Wholesale & Retail Trade	33	32	60
Information & Professional Services	262	268	331
Financial Services	49	50	67
Leisure & Other Services	38	37	51
Government	16	16	16
<b>Induced Arizona Employment</b>	<b>627</b>	<b>613</b>	<b>828</b>
Natural Resources	2	2	3
Transportation & Utilities	20	19	26
Construction	4	4	6
Manufacturing	5	5	7
Wholesale & Retail Trade	133	130	175
Information & Professional Services	222	217	293
Financial Services	88	86	116
Leisure & Other Services	149	145	196
Government	5	5	7
<b>Total Arizona Employment Contribution</b>	<b>2,089</b>	<b>2,036</b>	<b>2,771</b>
Southwest Gas FTEs	153	156	155
Natural Resources	3	3	3
Transportation & Utilities	42	41	70
Construction	871	826	1,195
Manufacturing	26	25	36
Wholesale & Retail Trade	166	161	235
Information & Professional Services	483	485	624
Financial Services	137	136	183
Leisure & Other Services	187	182	247
Government	21	21	23

<b>Economic Contribution - All Arizona-based Projects</b>			
<b>Value Added (millions of US \$)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Direct Arizona Supply Chain Value Added</b>	<b>93.1</b>	<b>92.1</b>	<b>133.2</b>
Natural Resources	0.0	0.0	0.0
Transportation & Utilities	0.7	0.7	1.7
Construction	80.1	77.5	114.5
Manufacturing	0.2	0.2	0.3
Wholesale & Retail Trade	0.7	0.7	3.2
Information & Professional Services	7.5	8.6	8.4
Financial Services	2.6	3.0	3.6
Leisure & Other Services	0.0	0.0	0.0
Government	1.4	1.5	1.5
<b>Indirect Arizona Supply Chain Value Added</b>	<b>29.1</b>	<b>28.9</b>	<b>41.6</b>
Natural Resources	0.1	0.1	0.2
Transportation & Utilities	1.6	1.6	2.5
Construction	0.5	0.5	0.6
Manufacturing	1.5	1.4	2.1
Wholesale & Retail Trade	4.1	4.0	5.9
Information & Professional Services	13.5	13.4	19.2
Financial Services	5.7	5.7	8.1
Leisure & Other Services	1.9	1.9	2.7
Government	0.2	0.2	0.3
<b>Arizona Supply Chain (Direct + Indirect) VA</b>	<b>122.3</b>	<b>121.0</b>	<b>174.7</b>
Natural Resources	0.1	0.1	0.2
Transportation & Utilities	2.3	2.3	4.2
Construction	80.6	78.0	115.1
Manufacturing	1.6	1.6	2.4
Wholesale & Retail Trade	4.8	4.7	9.1
Information & Professional Services	21.0	22.0	27.6
Financial Services	8.3	8.7	11.7
Leisure & Other Services	1.9	1.9	2.7
Government	1.6	1.7	1.8
<b>Induced Arizona Value Added</b>	<b>53.4</b>	<b>53.3</b>	<b>73.5</b>
Natural Resources	0.2	0.2	0.2
Transportation & Utilities	2.5	2.5	3.5
Construction	0.4	0.4	0.6
Manufacturing	0.6	0.6	0.8
Wholesale & Retail Trade	9.6	9.6	13.2
Information & Professional Services	15.8	15.7	21.7
Financial Services	18.0	17.9	24.7
Leisure & Other Services	5.7	5.7	7.9
Government	0.7	0.7	0.9
<b>Total Arizona Value Added Contribution</b>	<b>175.7</b>	<b>174.2</b>	<b>248.2</b>
Natural Resources	0.3	0.3	0.4
Transportation & Utilities	4.8	4.8	7.7
Construction	81.0	78.4	115.7
Manufacturing	2.2	2.2	3.2
Wholesale & Retail Trade	14.4	14.3	22.3
Information & Professional Services	36.8	37.7	49.3
Financial Services	26.2	26.6	36.4
Leisure & Other Services	7.6	7.6	10.5
Government	2.3	2.3	2.7

<b>Economic Contribution - All Arizona-based Projects</b>			
<b>Labor Income (millions of US \$)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Southwest Gas FTEs</b>	<b>11.0</b>	<b>11.4</b>	<b>11.7</b>
<b>Direct Arizona Supply Chain Labor Income</b>	<b>65.5</b>	<b>65.1</b>	<b>92.8</b>
Natural Resources	0.0	0.0	0.0
Transportation & Utilities	0.5	0.5	1.2
Construction	54.7	52.9	78.2
Manufacturing	0.1	0.2	0.2
Wholesale & Retail Trade	0.4	0.4	1.9
Information & Professional Services	7.3	8.4	8.2
Financial Services	1.4	1.6	2.0
Leisure & Other Services	0.0	0.0	0.0
Government	1.1	1.2	1.2
<b>Indirect Arizona Supply Chain Labor Income</b>	<b>19.2</b>	<b>19.1</b>	<b>27.5</b>
Natural Resources	0.0	0.0	0.1
Transportation & Utilities	1.0	1.0	1.5
Construction	0.3	0.3	0.4
Manufacturing	1.2	1.1	1.7
Wholesale & Retail Trade	2.5	2.4	3.6
Information & Professional Services	10.5	10.4	14.9
Financial Services	2.1	2.0	2.9
Leisure & Other Services	1.6	1.6	2.3
Government	0.1	0.1	0.2
<b>Arizona Supply Chain (Direct + Indirect) LI</b>	<b>84.8</b>	<b>84.2</b>	<b>120.3</b>
Natural Resources	0.0	0.0	0.1
Transportation & Utilities	1.4	1.4	2.8
Construction	55.0	53.2	78.6
Manufacturing	1.3	1.3	1.9
Wholesale & Retail Trade	2.9	2.8	5.5
Information & Professional Services	17.8	18.8	23.0
Financial Services	3.4	3.7	4.9
Leisure & Other Services	1.6	1.6	2.3
Government	1.2	1.3	1.4
<b>Induced Arizona Labor Income</b>	<b>29.6</b>	<b>29.5</b>	<b>40.7</b>
Natural Resources	0.1	0.1	0.1
Transportation & Utilities	1.4	1.4	1.9
Construction	0.3	0.3	0.4
Manufacturing	0.3	0.3	0.4
Wholesale & Retail Trade	6.1	6.1	8.4
Information & Professional Services	12.8	12.8	17.6
Financial Services	3.7	3.7	5.1
Leisure & Other Services	4.5	4.5	6.2
Government	0.4	0.4	0.6
<b>Total Arizona Labor Income Contribution</b>	<b>125.4</b>	<b>125.1</b>	<b>172.7</b>
Southwest Gas FTEs	11.0	11.4	11.7
Natural Resources	0.1	0.1	0.2
Transportation & Utilities	2.8	2.8	4.6
Construction	55.3	53.5	79.0
Manufacturing	1.6	1.6	2.3
Wholesale & Retail Trade	9.0	8.9	13.9
Information & Professional Services	30.6	31.5	40.6
Financial Services	7.2	7.4	10.0
Leisure & Other Services	6.1	6.1	8.5
Government	1.7	1.7	2.0

## Economic Contribution of Gas Infrastructure Modernization Projects

<b>Economic Contribution - Gas Infrastructure Modernization</b>				
<b>Output (millions of US \$)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Post-2018**</b>
<b>SW Gas Direct Spending in AZ Supply Chain</b>	<b>9.9</b>	<b>29.9</b>	<b>110.0</b>	<b>100.0</b>
Natural Resources	0.0	0.0	0.0	0.0
Transportation & Utilities	0.0	0.1	2.4	2.1
Construction	9.4	22.0	95.5	86.9
Manufacturing	0.0	0.1	0.4	0.3
Wholesale & Retail Trade	0.0	0.0	3.7	3.4
Information & Professional Services	0.2	7.4	5.0	4.5
Financial Services	0.1	0.1	1.9	1.7
Leisure & Other Services	0.0	0.0	0.0	0.0
Government	0.2	0.2	1.1	1.0
<b>Indirect Arizona Supply Chain Output</b>	<b>2.7</b>	<b>8.7</b>	<b>31.3</b>	<b>28.4</b>
Natural Resources	0.0	0.0	0.1	0.1
Transportation & Utilities	0.2	0.5	2.1	1.9
Construction	0.0	0.1	0.5	0.5
Manufacturing	0.3	0.8	3.4	3.1
Wholesale & Retail Trade	0.4	0.9	3.8	3.5
Information & Professional Services	1.2	4.0	13.5	12.3
Financial Services	0.5	1.6	5.6	5.1
Leisure & Other Services	0.2	0.6	1.9	1.8
Government	0.0	0.1	0.2	0.2
<b>Arizona Supply Chain (Direct + Indir) Output</b>	<b>12.7</b>	<b>38.6</b>	<b>141.3</b>	<b>128.4</b>
Natural Resources	0.0	0.0	0.1	0.1
Transportation & Utilities	0.2	0.5	4.5	4.0
Construction	9.5	22.2	96.0	87.3
Manufacturing	0.3	0.9	3.8	3.5
Wholesale & Retail Trade	0.4	0.9	7.5	6.8
Information & Professional Services	1.4	11.4	18.5	16.9
Financial Services	0.6	1.8	7.5	6.8
Leisure & Other Services	0.2	0.6	1.9	1.8
Government	0.2	0.3	1.3	1.2
<b>Induced Arizona Output</b>	<b>4.6</b>	<b>15.0</b>	<b>51.1</b>	<b>46.5</b>
Natural Resources	0.0	0.1	0.2	0.2
Transportation & Utilities	0.2	0.8	2.6	2.3
Construction	0.0	0.1	0.5	0.4
Manufacturing	0.1	0.4	1.5	1.4
Wholesale & Retail Trade	0.7	2.3	7.8	7.0
Information & Professional Services	1.4	4.5	15.4	14.0
Financial Services	1.5	4.9	16.7	15.1
Leisure & Other Services	0.5	1.7	5.8	5.3
Government	0.1	0.2	0.7	0.6
<b>Total Arizona Output Contribution</b>	<b>17.3</b>	<b>53.6</b>	<b>192.4</b>	<b>174.9</b>
Natural Resources	0.0	0.1	0.3	0.3
Transportation & Utilities	0.4	1.3	7.0	6.4
Construction	9.5	22.3	96.5	87.7
Manufacturing	0.5	1.4	5.3	4.8
Wholesale & Retail Trade	1.1	3.2	15.3	13.9
Information & Professional Services	2.8	15.9	34.0	30.9
Financial Services	2.1	6.6	24.2	22.0
Leisure & Other Services	0.7	2.3	7.8	7.1
Government	0.3	0.5	2.0	1.9

<b>Economic Contribution - Gas Infrastructure Modernization</b>				
<b>Employment (number of workers)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Post-2018**</b>
<b>Southwest Gas FTEs</b>	<b>6</b>	<b>10</b>	<b>46</b>	<b>42</b>
<b>Direct Arizona Supply Chain Employment</b>	<b>57</b>	<b>180</b>	<b>610</b>	<b>555</b>
Natural Resources	0	0	0	0
Transportation & Utilities	0	0	15	14
Construction	54	124	532	484
Manufacturing	0	0	2	1
Wholesale & Retail Trade	0	0	17	15
Information & Professional Services	2	53	35	32
Financial Services	0	0	5	4
Leisure & Other Services	0	0	0	0
Government	1	1	5	5
<b>Indirect Arizona Supply Chain Employment</b>	<b>18</b>	<b>58</b>	<b>198</b>	<b>180</b>
Natural Resources	0	0	0	0
Transportation & Utilities	1	2	12	11
Construction	0	1	3	3
Manufacturing	1	3	11	10
Wholesale & Retail Trade	2	4	18	16
Information & Professional Services	9	33	106	96
Financial Services	2	7	24	22
Leisure & Other Services	2	8	23	21
Government	0	0	1	1
<b>Arizona Supply Chain (Direct + Indirect) Emp</b>	<b>74</b>	<b>238</b>	<b>808</b>	<b>735</b>
Natural Resources	0	0	0	0
Transportation & Utilities	1	3	27	24
Construction	54	125	535	486
Manufacturing	1	3	13	12
Wholesale & Retail Trade	2	4	35	31
Information & Professional Services	11	86	141	128
Financial Services	2	7	29	26
Leisure & Other Services	2	8	23	21
Government	1	1	6	5
<b>Induced Arizona Employment</b>	<b>34</b>	<b>108</b>	<b>361</b>	<b>328</b>
Natural Resources	0	0	1	1
Transportation & Utilities	1	3	11	10
Construction	0	1	2	2
Manufacturing	0	1	3	3
Wholesale & Retail Trade	7	23	76	69
Information & Professional Services	12	38	128	116
Financial Services	5	15	51	46
Leisure & Other Services	8	26	85	78
Government	0	1	3	3
<b>Total Arizona Employment Contribution</b>	<b>115</b>	<b>356</b>	<b>1,215</b>	<b>1,104</b>
Southwest Gas FTEs	6	10	46	42
Natural Resources	0	0	1	1
Transportation & Utilities	2	6	38	35
Construction	54	126	537	488
Manufacturing	1	4	16	15
Wholesale & Retail Trade	9	27	111	101
Information & Professional Services	23	125	269	244
Financial Services	7	23	79	72
Leisure & Other Services	10	33	108	98
Government	1	2	9	8

\*\* Assumes \$100M in direct capital expenditures in Arizona each year

<b>Economic Contribution - Gas Infrastructure Modernization</b>				
<b>Value Added (millions of US \$)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Post-2018**</b>
<b>Direct Arizona Supply Chain Value Added</b>	<b>5.3</b>	<b>16.6</b>	<b>60.2</b>	<b>54.7</b>
Natural Resources	0.0	0.0	0.0	0.0
Transportation & Utilities	0.0	0.0	1.1	1.0
Construction	5.0	11.8	51.5	46.8
Manufacturing	0.0	0.0	0.1	0.1
Wholesale & Retail Trade	0.0	0.0	2.6	2.3
Information & Professional Services	0.1	4.5	3.0	2.8
Financial Services	0.1	0.1	1.3	1.1
Leisure & Other Services	0.0	0.0	0.0	0.0
Government	0.1	0.1	0.5	0.5
<b>Indirect Arizona Supply Chain Value Added</b>	<b>1.6</b>	<b>5.3</b>	<b>18.8</b>	<b>17.1</b>
Natural Resources	0.0	0.0	0.1	0.1
Transportation & Utilities	0.1	0.3	1.2	1.1
Construction	0.0	0.1	0.3	0.2
Manufacturing	0.1	0.2	1.0	0.9
Wholesale & Retail Trade	0.2	0.6	2.7	2.4
Information & Professional Services	0.8	2.6	8.6	7.8
Financial Services	0.3	1.1	3.6	3.3
Leisure & Other Services	0.1	0.4	1.2	1.1
Government	0.0	0.0	0.1	0.1
<b>Arizona Supply Chain (Direct + Indirect) VA</b>	<b>6.9</b>	<b>21.8</b>	<b>78.9</b>	<b>71.8</b>
Natural Resources	0.0	0.0	0.1	0.1
Transportation & Utilities	0.1	0.3	2.3	2.1
Construction	5.0	11.9	51.8	47.1
Manufacturing	0.1	0.3	1.1	1.0
Wholesale & Retail Trade	0.2	0.6	5.3	4.8
Information & Professional Services	0.9	7.1	11.7	10.6
Financial Services	0.4	1.2	4.9	4.4
Leisure & Other Services	0.1	0.4	1.2	1.1
Government	0.1	0.1	0.7	0.6
<b>Induced Arizona Value Added</b>	<b>2.9</b>	<b>9.4</b>	<b>32.0</b>	<b>29.1</b>
Natural Resources	0.0	0.0	0.1	0.1
Transportation & Utilities	0.1	0.4	1.5	1.4
Construction	0.0	0.1	0.3	0.2
Manufacturing	0.0	0.1	0.3	0.3
Wholesale & Retail Trade	0.5	1.7	5.8	5.2
Information & Professional Services	0.9	2.8	9.5	8.6
Financial Services	1.0	3.1	10.7	9.8
Leisure & Other Services	0.3	1.0	3.4	3.1
Government	0.0	0.1	0.4	0.4
<b>Total Arizona Value Added Contribution</b>	<b>9.9</b>	<b>31.2</b>	<b>110.9</b>	<b>100.8</b>
Natural Resources	0.0	0.1	0.2	0.2
Transportation & Utilities	0.2	0.7	3.8	3.5
Construction	5.0	11.9	52.0	47.3
Manufacturing	0.1	0.4	1.4	1.3
Wholesale & Retail Trade	0.8	2.3	11.0	10.0
Information & Professional Services	1.7	9.9	21.1	19.2
Financial Services	1.4	4.3	15.6	14.2
Leisure & Other Services	0.4	1.4	4.6	4.2
Government	0.1	0.3	1.0	1.0

\*\* Assumes \$100M in direct capital expenditures in Arizona each year



<b>Economic Contribution - Gas Infrastructure Modernization</b>				
<b>Labor Income (millions of US \$)</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Post-2018**</b>
<b>Southwest Gas FTEs</b>	<b>0.4</b>	<b>0.7</b>	<b>3.3</b>	<b>3.0</b>
<b>Direct Arizona Supply Chain Labor Income</b>	<b>3.7</b>	<b>12.7</b>	<b>41.8</b>	<b>38.0</b>
Natural Resources	0.0	0.0	0.0	0.0
Transportation & Utilities	0.0	0.0	0.9	0.8
Construction	3.4	8.0	35.2	32.0
Manufacturing	0.0	0.0	0.1	0.1
Wholesale & Retail Trade	0.0	0.0	1.6	1.4
Information & Professional Services	0.1	4.5	3.0	2.7
Financial Services	0.0	0.0	0.7	0.6
Leisure & Other Services	0.0	0.0	0.0	0.0
Government	0.1	0.1	0.4	0.4
<b>Indirect Arizona Supply Chain Labor Income</b>	<b>1.1</b>	<b>3.5</b>	<b>12.4</b>	<b>11.3</b>
Natural Resources	0.0	0.0	0.0	0.0
Transportation & Utilities	0.1	0.2	0.8	0.7
Construction	0.0	0.1	0.2	0.2
Manufacturing	0.1	0.2	0.7	0.7
Wholesale & Retail Trade	0.1	0.4	1.6	1.5
Information & Professional Services	0.6	2.0	6.7	6.1
Financial Services	0.1	0.4	1.3	1.2
Leisure & Other Services	0.1	0.3	1.0	0.9
Government	0.0	0.0	0.1	0.1
<b>Arizona Supply Chain (Direct + Indirect) LI</b>	<b>4.7</b>	<b>16.2</b>	<b>54.2</b>	<b>49.3</b>
Natural Resources	0.0	0.0	0.0	0.0
Transportation & Utilities	0.1	0.2	1.6	1.5
Construction	3.4	8.1	35.4	32.1
Manufacturing	0.1	0.2	0.8	0.8
Wholesale & Retail Trade	0.1	0.4	3.2	2.9
Information & Professional Services	0.7	6.5	9.7	8.8
Financial Services	0.1	0.4	2.0	1.8
Leisure & Other Services	0.1	0.3	1.0	0.9
Government	0.1	0.1	0.5	0.4
<b>Induced Arizona Labor Income</b>	<b>1.6</b>	<b>5.2</b>	<b>17.7</b>	<b>16.1</b>
Natural Resources	0.0	0.0	0.1	0.1
Transportation & Utilities	0.1	0.2	0.8	0.7
Construction	0.0	0.0	0.2	0.1
Manufacturing	0.0	0.1	0.2	0.2
Wholesale & Retail Trade	0.3	1.1	3.7	3.3
Information & Professional Services	0.7	2.2	7.7	7.0
Financial Services	0.2	0.7	2.2	2.0
Leisure & Other Services	0.2	0.8	2.7	2.4
Government	0.0	0.1	0.3	0.2
<b>Total Arizona Labor Income Contribution</b>	<b>6.8</b>	<b>22.0</b>	<b>75.2</b>	<b>68.4</b>
Southwest Gas FTEs	0.4	0.7	3.3	3.0
Natural Resources	0.0	0.0	0.1	0.1
Transportation & Utilities	0.1	0.4	2.4	2.2
Construction	3.4	8.1	35.5	32.3
Manufacturing	0.1	0.3	1.0	0.9
Wholesale & Retail Trade	0.5	1.4	6.8	6.2
Information & Professional Services	1.4	8.7	17.4	15.8
Financial Services	0.4	1.1	4.2	3.8
Leisure & Other Services	0.3	1.1	3.7	3.4
Government	0.1	0.2	0.8	0.7

\*\* Assumes \$100M in direct capital expenditures in Arizona each year

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Southwest Gas Corporation  
Docket No. G-01551A-16-0107

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Energy Efficiency Enabling Provision  
Plan of Administration

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## Energy Efficiency Enabling Provision Plan of Administration

### I. OVERVIEW

This document describes the plan of administration (POA) for the Southwest Gas Corporation (Southwest Gas or Company) Energy Efficiency Enabling Provision (EEP). The Arizona Corporation Commission (ACC or Commission) approved the EEP in Decision No. 72723 (Docket No. G-01551A-10-0458). The EEP is a revenue decoupling mechanism comprised of two components: (1) a monthly weather adjustment that provides “real-time” bill adjustments when actual weather during the winter months differs from the average weather, and (2) an annual non-weather component that ensures Southwest Gas recovers its Commission-authorized revenue per customer. The EEP POA specifies the accounting procedures and rate setting adjustments necessary to assure the Company neither over-recovers, nor under-recovers the margin-per-customer amounts authorized in its most recent general rate case proceeding.

The EEP Weather Adjustment accounts for variations between the actual temperatures and normal temperatures for each winter day in the customer’s billing cycle. When actual temperatures are colder than normal, the delivery charge portion of customer bills will be adjusted downward to reflect what the customer would have used under normal temperature conditions. When actual temperatures are warmer than normal, the delivery charge portion of customer bills will be adjusted upward to reflect what the customer would have used under normal temperature conditions. Weather is quantified in Heating Degree Days (HDD). The EEP Weather Adjustment applies to consumption during the winter season months of December through March.

The EEP Annual Adjustment recovers or refunds any difference between the Company’s billed margin and the margin amounts authorized in the Company’s most recent general rate case proceeding.

### II. DEFINITIONS

**Decoupling:** A rate design that separates the recovery of a utility’s delivery costs from the amount of gas sold.

**Delivery Charge:** Per month and per therm charges that recover the costs incurred in the delivery of natural gas. Delivery charges do not include the cost of gas purchased for customer use.

**Commodity Charge:** The per therm charge applied to each unit of billed usage.

**Heating Degree Days:** A measurement used to reflect the demand for energy needed to heat a building. It is derived from measurements of outside air temperature and is calculated as the difference between 65 degrees Fahrenheit and the average daily temperature when the average daily temperature is below 65 degrees. When the average daily temperature is equal to or greater than 65 degrees, there are zero HDD.

Winter: The months of December through March.

### III. APPLICABILITY

The EEP applies to residential Rate Schedule Nos. G-5, G-6, G-10 and G-11 and to General Service Schedule Nos. G-25(Small), G-25(Medium), G-25(Large-1) and G-25(Large-2) included in this Arizona Gas Tariff.

### IV. EEP WEATHER ADJUSTMENT

The EEP Weather Adjustment accounts for variations between the actual temperatures and normal temperatures for each winter day in each customer's billing cycle. When actual temperatures are colder than normal, bills will be adjusted downward to reflect the delivery charge the customer would have incurred under normal temperature conditions. When actual temperatures are warmer than normal, bills will be adjusted upward to reflect the delivery charge the customer would have incurred under normal temperature conditions. Weather is quantified in Heating Degree Days (HDD). The EEP Weather Adjustment applies to consumption during the winter season. Three customer usage analyses are used in the determination of each customer's weather sensitive use: (1) an analysis of the customer's current billing cycle weather sensitivity, (2) an analysis of the customer's multi-season billing cycle weather sensitivity, and (3) the customer's current month metered use. Refer to Schedule 1 for an example of the current billing cycle analysis. Refer to Schedule 2 for an example of the multi-season analysis.

A. Billing Cycle Analysis - The billing cycle analysis uses the customer's current billing cycle HDD variance and billing cycle use per HDD to determine weather sensitive gas use and to calculate the billing cycle analysis volume adjustment.

#### 1. Determine Billing Cycle HDD Variance

Normal HDD = The sum of the ten-year average HDDs for each day in the customer's billing cycle

Actual HDD = The sum of the actual HDDs for each day in the customer's billing cycle

HDD Variance = Normal HDDs less the Actual HDDs

2. Determine Billing Cycle Use per HDD - Billing cycle use per HDD is calculated for each customer's bill by subtracting the customer's billing cycle base load volume from current monthly metered use and dividing the difference by the billing cycle actual HDDs.

Billing cycle base load volume is equal to the customer's base load volume per day multiplied by the number of days in the customer's billing cycle. Base load volume per day for each customer is used to establish monthly non-temperature sensitive usage. The base load volume per day is equal to the customer's lowest average daily use for the May through October summer billing periods. Average daily use is the customer's total monthly use divided by the number of days in the

billing cycle. For new customers, base load volume per day will be the average base load volume per day in the customer's operating district.

3. Calculate Billing Cycle Analysis Volume Adjustment - The billing cycle analysis volume adjustment is calculated by multiplying the customer's billing cycle HDD variance by the billing cycle use per HDD.
- B. Multi-Season Analysis - The multi-season analysis uses winter billing data from the previous 24 months to determine weather-sensitive gas use and to calculate the multi-season analysis volume adjustment. A linear regression is used to compare the customer's historical monthly metered use to the actual weather in each billing cycle to determine use per HDD. The multi-season analysis volume adjustment is calculated by multiplying the result of the linear regression by the billing cycle HDD variance for the customer's current billing cycle.
- C. Bill Adjustment - The bill adjustment for the EEP weather adjustment is calculated by multiplying the applicable volume adjustment by the Commodity component of the customer's delivery charge. The applicable volume adjustment is whichever of the following three quantities is the closest to zero: (1) the billing cycle analysis volume adjustment, (2) the multi-season analysis volume adjustment, or (3) the customer's current monthly metered use.

However, in instances where the customer's billing cycle base load volume is greater than the customer's current monthly metered use or the sum of the actual HDDs in the customer's current billing cycle is equal to zero, the volume adjustment will be equal to zero and there will be no EEP Weather Adjustment to the customer's bill.

## V. EEP ANNUAL ADJUSTMENT

The EEP Annual Adjustment recovers or refunds any differences between the Company's billed margin and the margin amounts authorized in its most recent general rate case proceeding. The process is set forth below.

- A. EEP Balancing Account - Southwest Gas maintains accounting records that accumulate the difference between authorized and actual billed margin. Entries are recorded to the EEP Balancing Account (EEPBA) each month as follows:
1. A debit or credit entry equal to the difference between authorized margin and actual billed margin for each rate schedule subject to this provision. Authorized margin is the product of the monthly margin-per-customer authorized in Southwest Gas' last general rate case, and the actual number of customers billed during the month.
  2. A debit or credit entry equal to the therms billed during the month under the schedules subject to this provision multiplied by the EEP Annual Adjustment Rate.

3. A debit or credit entry for interest to be applied to over- and under-collected bank balances based on the monthly one-year nominal Treasury Constant Maturities rate.
- B. EEP Annual Adjustment Rate - The EEP Annual Adjustment Rate applicable to each schedule subject to this provision shall be revised annually to reflect the difference between the margin-per-customer authorized in the Company's last general rate case and the margin billed. The EEP Annual Adjustment Rate will be calculated by dividing the balance in the EEPBA by the most recent 12-month volume of natural gas for the customer class included in the EEP.

The Company shall file its EEP Annual Adjustment Rate revisions with the Commission in accordance with all statutory and regulatory requirements following twelve (12) months of activity in the EEPBA. The EEP Annual Adjustment Rate shall be effective on the date of the first bill cycle in the month following the Commission's approval unless otherwise provided for by the Commission.

- C. Amounts Recovered and Refunded - Southwest Gas is prohibited from recovering any under-collections in the EEPBA to the extent that recovery would increase earnings such that the Company would be earning more than its authorized return on common equity. In addition, the amount of deferred amounts to be recovered in any amortization period shall not exceed 5 percent of the test year average non-gas revenue per customer. Deferred amounts exceeding 5 percent of the test year average non-gas revenue per customer will be carried forward for recovery in the next year and subsequent years with no carrying charges. All over-collected balances in the EEPBA will be refunded, without limitation, over the next amortization period.

#### VI. EEP-RELATED COMPLIANCE FILINGS

The Company shall submit quarterly and annual compliance filings to the Commission pursuant to Decision No. 72723.

Schedule 1  
**Billing Cycle Calculation**  
*(All numbers are used for illustrative purposes.)*

Line No.	Description	Reference	Totals
1	Normal HDD	A	34
2	Actual HDD	B	60
3	Billing Cycle HDD Variance (A - B)	C	-26
4	Current Month Metered Use	D	129
5	Billing Cycle Base Load Volume	E	4
6	Line 4 - Line 5	F	125
7	Actual HDD	G	60
8	Billing Cycle Use Per HDD (F/G)	H	2.083333
9	Billing Cycle Analysis Volume Adjustment	C * H	-54



Schedule 2  
**Multi-Season Analysis – Linear Regression**  
(All numbers are used for illustrative purposes.)

Month	Billing Cycle	Monthly	Current Monthly	Currently Month	(c)*(d)	(c) * (c)
	Actual HDDs	Metered Use	Actual HDDs - Average	Metered Use - Average		
	(a)	(b)	(c)	(d)	(e)	(f)
April -16	5.0	8	-139.3000	-30.5000	4248.6500	19404.49
March-16	9.0	11	-135.3000	-27.5000	3720.7500	18306.09
February-16	87.0	31	-57.3000	-7.5000	429.7500	3283.29
January-16	243.0	60	98.7000	21.5000	2122.0500	9741.69
December-15	222.0	45	77.7000	6.5000	505.0500	6037.29
April-15	4.0	9	-140.3000	-29.5000	4138.8500	19684.09
March-15	139.0	37	-5.3000	-1.5000	7.9500	28.09
February-15	188.0	60	43.7000	21.5000	939.5500	1909.69
January-15	463.0	101	318.7000	62.5000	19918.7500	101569.69
December-14	83.0	23	-61.3000	-15.5000	950.1500	3757.69
Average	144.3000	38.5000		Total	36981.50	183722.10

Linear Regression Result = Total Column (e) / Total Column (f) **0.2013**  
 Current Billing Cycle HDD Variance **-26**  
 Multi-Season Analysis Volume Adjustment = Linear Regression Result x Billing Cycle HDD Variance **-5**

**EXHIBIT NO. A-15**

**PROPOSED SETTLEMENT AGREEMENT**





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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

- 3 TOM FORESE – CHAIRMAN
- 4 BOB BURNS
- 5 DOUG LITTLE
- 6 ANDY TOBIN
- 7 BOYD W. DUNN

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7 IN THE MATTER OF THE APPLICATION OF  
8 SOUTHWEST GAS CORPORATION FOR  
9 THE ESTABLISHMENT OF JUST AND  
10 REASONABLE RATES AND CHARGES  
11 DESIGNED TO REALIZE A REASONABLE  
12 RATE OF RETURN ON THE FAIR VALUE  
13 OF THE PROPERTIES OF SOUTHWEST GAS  
14 CORPORATION DEVOTED TO ITS  
15 ARIZONA OPERATIONS.

DOCKET NO. G-01551A-16-0107

**STAFF'S NOTICE OF FILING  
SUPPLEMENT TO SETTLEMENT  
AGREEMENT**

13 On January 20, 2017 The Utilities Division (“Staff”) of the Arizona Corporation Commission  
14 (“Commission”), filed on behalf of the Signatory Parties of the Settlement Agreement  
15 (“Agreement”), in the above-referenced matter on behalf of the Signatory Parties to the Agreement.

16 Staff is now supplementing the Agreement by filing the signature pages of the Residential  
17 Utility Consumer Office (“RUCO”) and Property Owners and Residents Association (“PORA”).

18 RESPECTFULLY SUBMITTED this 23<sup>th</sup> day of January, 2017.

Arizona Corporation Commission  
**DOCKETED**

JAN 23 2017

DOCKETED BY

Charles H. Hains  
Robert Geake  
Attorneys, Legal Division  
Arizona Corporation Commission  
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Phoenix, Arizona 85007  
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1 On this 23<sup>th</sup> day of January, 2017, the foregoing document was filed with Docket Control as  
2 an Utilities Division Settlement Agreement, and copies of the foregoing were mailed on behalf of the  
3 Utilities Division to the following who have not consented to email service. On this date or as soon as  
possible thereafter, the Commission's eDocket program will automatically email a link to the  
foregoing to the following who have consented to email service.

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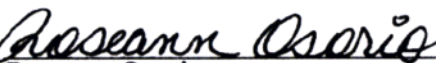
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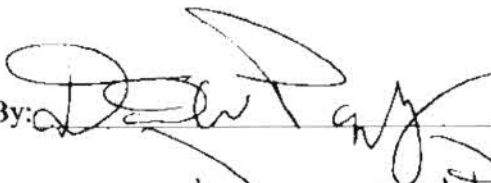
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**Consented to Service by Email**

By:   
Roseann Osorio  
Executive Legal Assistant

Dated this 20<sup>th</sup> day of January, 2017

By: 

Printed Name: Daniel W. Pozetisky

Company: PUCO

Title: Chief Counsel

Dated this 20<sup>th</sup> day of January, 2017

By: 

Printed Name:

Robert Miller

Company:

PORA

Title:

Director

**EXHIBIT NO. A-16**

**PROPOSED SETTLEMENT AGREEMENT –  
ADDITIONAL SIGNATURES**



1 **BEFORE THE ARIZONA CORPORATION COMMISSION**

2 **COMMISSIONERS**

3 TOM FORESE – CHAIRMAN  
4 BOB BURNS  
5 DOUG LITTLE  
6 ANDY TOBIN  
7 BOYD W. DUNN

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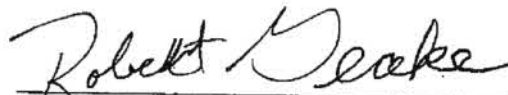
7 IN THE MATTER OF THE APPLICATION OF  
8 SOUTHWEST GAS CORPORATION FOR  
9 THE ESTABLISHMENT OF JUST AND  
10 REASONABLE RATES AND CHARGES  
11 DESIGNED TO REALIZE A REASONABLE  
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13 OF THE PROPERTIES OF SOUTHWEST GAS  
14 CORPORATION DEVOTED TO ITS  
15 ARIZONA OPERATIONS.

DOCKET NO. G-01551A-16-0107

**STAFF'S NOTICE OF FILING  
SETTLEMENT AGREEMENT**

13 The Utilities Division ("Staff") of the Arizona Corporation Commission ("Commission"), on  
14 behalf of the Signatory Parties of the Settlement Agreement ("Agreement"), files the Agreement in  
15 the above-referenced matter. The Residential Utility Consumer Office ("RUCO") and Property  
16 Owners and Residents Association ("PORA") were unable to sign the Agreement today. Staff will  
17 docket signature pages for both parties as soon as possible.

18 RESPECTFULLY SUBMITTED this 20<sup>th</sup> day of January, 2017.

19  
20 

21 Charles H. Hains  
22 Robert Geake  
23 Attorneys, Legal Division  
24 Arizona Corporation Commission  
25 1200 West Washington Street  
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27 (602) 542-3402  
28



1 On this 20<sup>th</sup> day of January, 2017, the foregoing document was filed with Docket Control as  
2 an Utilities Division Settlement Agreement, and copies of the foregoing were mailed on behalf of the  
3 Utilities Division to the following who have not consented to email service. On this date or as soon as  
4 possible thereafter, the Commission's eDocket program will automatically email a link to the  
5 foregoing to the following who have consented to email service.

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By:   
Roseann Osorio  
Executive Legal Assistant

**PROPOSED SETTLEMENT AGREEMENT OF DOCKET NO. G-01551A-16-0107 SOUTHWEST GAS CORPORATION REQUEST FOR RATE ADJUSTMENT**

The purpose of this Settlement Agreement ("Agreement") is to settle disputed issues related to Docket No. G-01551A-16-0107, Southwest Gas Corporation's ("SWG" or "Company") application to increase rates. This Agreement is entered into by the following entities:

Arizona Corporation Commission Utilities Division Staff ("Staff")  
Southwest Gas Corporation ("SWG")  
Residential Utility Consumer Office ("RUCO")

...

*Arizona Community Action Association ("ACAA")*  
*Property Owners and Residents Association ("PORA")*  
*Desert Valley Natural Gas, LLC ("Desert Valley")*  
*Arizona Investment Council ("AIC")*

These entities shall be referred to collectively as "Signatories;" a single entity shall be referred to as "Signatory."

## I. RECITALS

- 1.1 SWG filed the rate application underlying Docket No. G-01551A-16-0107 on May 2, 2016. Staff found the application sufficient on June 1, 2016.
- 1.2 Subsequently, the Arizona Corporation Commission (“Commission”) approved applications to intervene filed by September 2, 2016.
- 1.3 SWG filed a notice of settlement discussions on December 12, 2016. Settlement discussions began on December 15, 2016. The settlement discussions were open, transparent, and inclusive of all parties to this Docket who desired to participate. All parties to this Docket were notified of the settlement discussion process, were encouraged to participate in the negotiations, and were provided with an equal opportunity to participate. SWG filed a Preliminary Term Sheet regarding this matter on December 29, 2016.
- 1.4 The terms of this Agreement are just, reasonable, fair, and in the public interest in that they, among other things, establish just and reasonable rates and ensure continued safe and reliable natural gas service for SWG customers; promote the convenience, comfort and safety, and the preservation of health, of the employees and patrons of SWG; resolve the issues raised during this proceeding; and avoid unnecessary litigation expense and delay.
- 1.5 The Signatories believe that this Agreement balances the interests of both SWG and its customers. The significant provisions of this Agreement include:
  - A \$16 million base rate increase;
  - No change to the approved Return on Equity of 9.5 percent;
  - A three-year rate case stay out, in which SWG agrees not to file any new general rate case filing until at least May 1, 2019;
  - Retention of the Company’s full revenue decoupling mechanism with modifications to simplify and improve the methodology;
  - Increasing eligibility for the low income ratepayer assistance program to 200% of the federal poverty guideline level;
  - Implementation of a Vintage Steel Pipe replacement program to improve safe and reliable operation of the Company’s system.

- 1.6 The Signatories agree to ask the Commission (1) to find that the terms and conditions of this Agreement are just and reasonable and in the public interest, along with any and all other necessary findings, and (2) to approve the Agreement and order that it and the rates contained herein become effective following the issuance of a final Order in this Docket by the Commission. The Signatories agree to work together to pursue an effective date of May 1, 2017.

## **TERMS AND CONDITIONS**

### **II. RATE CASE STABILITY PROVISION**

- 2.1 SWG agrees not to file its next general rate case prior to May 1, 2019.

### **III. RATE INCREASE**

- 3.1 SWG shall receive a base rate increase of \$16 million over its adjusted test year margin of \$481,681,406, for a total revenue requirement of \$497,681,406.
- 3.2 The Company's jurisdictional fair value rate base used to establish the rates agreed to herein is \$1,801,065,079.

### **IV. BILL IMPACT**

- 4.1 When new rates become effective, the average annual bill for residential customers will increase by 1.09 percent.

### **V. COST OF CAPITAL**

- 5.1 A capital structure comprised of 48.3 percent long-term debt and 51.7 percent common equity shall be adopted.
- 5.2 A return on common equity of 9.5 percent and an embedded cost of long-term debt of 5.2 percent shall be adopted.
- 5.3 An overall fair value rate of return of 5.71 percent with a cost rate of 0.93 percent on fair value rate base increment shall be adopted.
- 5.4 The provisions set forth herein regarding the quantification of cost of capital, fair value rate base, fair value rate of return, and the revenue requirement are made for purposes of settlement only and should not be construed as admissions against interest or waivers of litigation positions related to other or future cases.

## **VI. DEPRECIATION**

- 6.1 The depreciation rates set forth on Attachment 1 to this Agreement shall be adopted. The estimated overall reduction in the Company's depreciation expense is \$44,743,206.
- 6.2 In conjunction with the Company's next general rate case filing, SWG will perform a detailed and objective cost of removal study to determine the validity of significant increases in cost of removal charges recorded in 2015, and for any that may occur after 2015 and before the next rate case. In the meantime, the Company shall review the cost of removal charges recorded in mains and services accumulated depreciation accounts in 2015 to determine whether charges, if any, should be transferred to operations, maintenance, or other accounts. This review would help ensure the account balances of mains and services accumulated depreciation are fairly stated going forward into the next rate case. SWG shall provide the results of such study and review as part of its next general rate case filing.

## **VII. CUSTOMER OWNED YARD LINE EXPANSION**

- 7.1 SWG shall be allowed to expand its Customer Owned Yard Line ("COYL") program as discussed within the Pre-filed Direct Testimony of Company Witnesses Lang and Giesecking.
- 7.2 SWG will work with Staff to develop a Plan of Administration for the COYL program consistent with Section 17.2 of this Agreement, to include revised annual reports consistent with the expanded COYL program. The annual rate adjustment for the COYL program surcharge will continue to be capped at \$0.01 per therm per year, and shall apply to all recorded full margin therms sold.

## **VIII. VINTAGE STEEL PIPE REPLACEMENT**

- 8.1 The Company shall be allowed to implement its proposed Vintage Steel Pipe ("VSP") replacement program. The annual rate adjustment for the VSP program surcharge will be capped at \$0.015 per therm per year and shall apply to all recorded full margin therms sold.
- 8.2 The effective period for replacements under the VSP program will be until the effective date of new permanent rates approved by the Commission in SWG's next general rate case application unless extended by the Commission.

8.3 The Company, Staff, and RUCO shall work to jointly develop a draft Plan of Administration that will be circulated to the parties to this docket, and will present the Plan of Administration for Commission consideration in conjunction with its consideration of the Administrative Law Judge's recommendation regarding the terms of this Agreement.

## **IX. LIQUIFIED NATURAL GAS FACILITY**

9.1 The Company shall be authorized to extend the deferral of the revenue requirement associated with all costs flowing from the construction of the Tucson LNG Facility incurred before December 31, 2020.

9.2 The deferred amounts may be considered for recovery during the Company's next general rate case proceeding.

## **X. REVENUE DECOUPLING MECHANISM**

10.1 The Company shall continue to utilize a full revenue decoupling mechanism subject to the modification that the Energy Efficiency Enabling Provision ("EEP") will no longer utilize a monthly weather adjustor as discussed in the Pre-filed Rate Design Direct Testimony of Staff Witness Lubow.

10.2 The Company shall modify its tariff to change the name of its decoupling mechanism from "Energy Efficiency Enabling Provision" to "Delivery Charge Adjustment Provision", and will make any other changes necessary, including changes to its website and other outreach materials, to reflect the elimination of a separate monthly weather adjustor.

10.3 Southwest Gas shall file in April each year a revised annual report and application to adjust rates to reflect any differences between the authorized margin per customer and the actual margin per customer collected during the year.

The revised annual report shall replace the annual report previously filed for the Company's annual rate adjustment for revenue decoupling. The revised annual report shall reflect Southwest Gas' experience from the previous year and include sufficient information for Staff to audit the proposed rate change.

## **XI. LOW INCOME PROGRAMS**

11.1 The Company shall increase its Low Income Ratepayer Assistance ("LIRA") program eligibility to customers whose incomes are less than or equal to 200% of the Federal Poverty Income Guidelines.



11.2 The Company shall be allowed to collect 100% of the discount through the LIRA surcharge.

## **XII. BILL PRESENTATION**

12.1 The Company will advise customers of their option to request a detailed bill, both on its website and on the bill insert that notifies customers of the rate changes approved in this proceeding. The Company shall also provide such advice to customers at least once a year.

12.2 The Company's full revenue decoupling adjustment will be included on customer bills as a separate line item, and will be referred to as the "Delivery Charge Adjustment" instead of the "EEP Annual Adjustment" to better reflect the nature of the rate adjustment.

## **XIII. RATE DESIGN**

13.1 Staff's recommended rate design and cost allocation presented by Staff Witness Lubow shall be adopted, subject to any conforming changes necessary to effectuate the overall cost of service adopted by this Agreement.

13.2 As recommended by Staff Witness Lubow, SWG shall file a minimum system study in its next general rate case to support the class cost of service study included in that filing.

13.3 SWG will not establish a Multi-Family Dwelling Service and Main Extension tariff at this time.

13.4 SWG shall be allowed to implement its requested Compression Service tariff, subject to 50/50 risk sharing between shareholders and ratepayers for any losses resulting from this tariff.

13.5 SWG shall not implement its proposed Property Tax Adjustor Mechanism at this time. In its place, SWG shall be permitted to implement a Property Tax Mechanism that establishes a regulatory asset account to defer any changes in property tax expense for recovery in the Company's next general rate case.

## **XIV. CUSTOMER CHOICE GAS SUPPLIER PILOT IMPLEMENTATION**

14.1 SWG commits to work with Desert Valley Natural Gas (DVNG) and Staff to develop a new tariff, or modifications to the Company's existing tariff, as well as a Plan of Administration that will govern a pilot program for an expanded

transportation service for certain qualifying Southwest Gas non-residential customers in Arizona. The Tariff and Plan of Administration must address the following key principles:

14.2 Revenue neutral:

The program must be revenue neutral and include sufficient regulatory mechanisms to address the recovery of incremental costs to ensure revenue neutrality, including reasonable limitations on customers switching between rate schedules.

14.3 No Interclass Subsidies:

The program must be designed to ensure that any incremental costs of the program are borne by the customer class availing themselves of the pilot program.

14.4 Governance structure:

- (a) There must be processes in place for allowing all eligible third-party providers the opportunity to participate in the pilot, addressing customer complaints against third-party providers, Commission registration of third-party providers, customers that change third-party providers during the course of the pilot program or wish to voluntarily exit the pilot program, and communications (including the delivery of the bill and the billing process) from third-party providers to Southwest Gas customers.
- (b) Process for filing with the ACC the proposed customer communication plan to be utilized by each third-party provider and the proposed Code of Conduct to be adhered to by third-party suppliers.
- (c) Periodic ACC review process to ensure the program is running as intended and operating within the key parameters identified by the parties, including identifying and quantifying the benefits to Southwest Gas customers who participate in the program – with findings as to the continuation of the pilot program, and any requested program modifications or expansions.

14.5 Gradualism:

Parties must define the appropriate scope of the pilot program – including identifying sufficient parameters on eligible customers (usage level) and a reasonable cap on the number of participating customers to minimize the risk of



not being revenue neutral and the retain the ability to address unintended consequences of the program.

14.6 Beta Test:

The Plan of Administration will include provisions for a Beta Test that, once the Tariff and Plan of Administration are approved, will test the pilot program framework on a group of five mutually agreed upon Southwest Gas commercial customers (Test Group). The Test Group will be based in a single delivery code, but will represent different industries. The Beta Test will help ensure that the pilot program framework is functioning as anticipated, prior to opening the pilot program up to other suppliers and Southwest Gas customers.

14.7 Upon agreement of SWG, DVNG and Staff as to the above, the draft Tariff and Plan of Administration will be circulated to the parties to this docket, with the intent of presenting them for Commission consideration in conjunction with its consideration of the Administrative Law Judge's recommendation regarding the terms of this Agreement. In no event shall the Tariff and Plan of Administration be submitted for Commission consideration later than 60 days after the effective date of an order approving this agreement.

## **XV. TARIFF AND RATE SCHEDULES**

15.1 The Company's proposed tariff changes contained within the Pre-filed Direct Testimony of Company Witness Berger are accepted subject to the modifications provided in the Pre-filed Direct Testimony of Staff Witness McNeely-Kirwin.

## **XVI. GAS PROCUREMENT**

16.1 The Company shall include with its Annual Gas Procurement Plan filings information showing its hedging activities by month such that it reflects the volume and percentage of gas hedged. SWG shall include with the filing a summary of the 12-month gas price volatility with and without Arizona Price Stability Purchases ("APSP"), and illustrate any price differences resulting from the hedging practices and procedures it employs in Arizona.

16.2 As recommended in the Pre-filed Direct Testimony of Staff Witness Lubow, the Company shall modify its APSP program to limit the amount of gas hedged to not more than 25 percent of the annual forecasted demand in Arizona for any forecast period, unless the Company first sends a letter to Staff advising of its intent to hedge above this level.

## **XVII. COMPLIANCE MATTERS**

17.1 All compliance items identified in the Pre-filed Direct Testimony of Staff Witness Bozzo shall be eliminated, including the quarterly decoupling reports.

17.2 The Company shall work with Staff to develop a Plan of Administration for each of its adjuster mechanisms as recommended in the Pre-filed Direct Testimony of Staff Witness Paladino. The Plans of Administration shall be filed for Staff evaluation no later than 60 days after the effective date of a Commission order approving this Agreement.

## **XVIII. FORCE MAJEURE PROVISION**

18.1 Nothing in this Agreement shall prevent SWG from requesting a change to its base rates in the event of conditions or circumstances that constitute an emergency. For the purposes of this Agreement, the term "emergency" is limited to an extraordinary event that, in the Commission's judgment, requires base rate relief in order to protect the public interest. This provision is not intended to preclude SWG from seeking rate relief or any Signatory from petitioning the Commission to examine the reasonableness of SWG's rates pursuant to this Section in the event of significant regulatory developments that materially impact the financial results expected under the terms of this Agreement. This provision is not intended to

preclude any party, including any Signatory to this Agreement, from opposing an application for rate relief filed by SWG pursuant to this paragraph. Nothing in this provision is intended to limit the Commission's ability to change rates at any time pursuant to its lawful authority.

## **XIX. COMMISSION EVALUATION OF PROPOSED SETTLEMENT**

- 19.1 All currently filed testimony and exhibits shall be offered into the Commission's record as evidence. The filing and submission of rebuttal testimony and exhibits from Southwest Gas, the filing and submission of surrebuttal testimony and exhibits from Staff and Intervenors, and the filing and submission of rejoinder testimony and exhibits by Southwest Gas shall be waived.
- 19.2 The Signatories recognize that Staff does not have the power to bind the Commission. For purposes of proposing a settlement agreement, Staff acts in the same manner as any party to a Commission proceeding.
- 19.3 This Agreement shall serve as a procedural device by which the Signatories will submit their proposed settlement of SWG's pending rate case, Docket No. G-01551A-16-0107, to the Commission.
- 19.4 The Signatories recognize that the Commission will independently consider and evaluate the terms of this Agreement. If the Commission issues an order adopting all material terms of this Agreement, such action shall constitute Commission approval of the Agreement. Thereafter, the Signatories shall abide by the terms as approved by the Commission.
- 19.5 If the Commission fails to issue an order adopting all material terms of this Agreement, any or all of the Signatories may withdraw from this Agreement, and such Signatory or Signatories may pursue without prejudice their respective remedies at law. For purposes of this Agreement, whether a term is material shall be left to the discretion of the Signatory choosing to withdraw from the Agreement. If a Signatory withdraws from the Agreement pursuant to this paragraph and files an application for rehearing, the other Signatories, except for Staff, shall support the application for rehearing by filing a document with the Commission that supports approval of the Agreement in its entirety. Staff shall not be obligated to file any document or take any position regarding the withdrawing Signatory's application for rehearing.

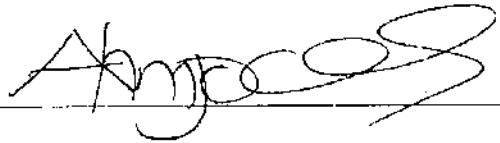
## **XX. MISCELLANEOUS PROVISIONS**

- 20.1 This case has attracted a number of participants with widely diverse interests. To achieve consensus for settlement, many participants are accepting positions that, in any other circumstances, they would be unwilling to accept. They are doing so because this Agreement, as a whole, is consistent with their long-term interests and with the broad public interest. The acceptance by any Signatory of a specific element of this Agreement shall not be considered as precedent for acceptance of that element in any other context.
- 20.2 No Signatory is bound by any position asserted in negotiations, except as expressly stated in this Agreement. No Signatory shall offer evidence of conduct or statements made in the course of negotiating this Agreement before this Commission, any other regulatory agency, or any court.
- 20.3 Nothing in this Agreement shall be construed as an admission by any Signatory as to the reasonableness or unreasonableness, or lawfulness or unlawfulness, of any position previously taken by any other Signatory in this proceeding.
- 20.4 Neither this Agreement nor any of the positions taken in this Agreement by any of the Signatories may be referred to, cited, or relied upon as precedent in any proceeding before the Commission, any other regulatory agency, or any court for any purpose except to secure approval of this Agreement and enforce its terms.
- 20.5 To the extent any provision of this Agreement is inconsistent with any existing Commission order, rule, or regulation, this Agreement shall control.
- 20.6 Each of the terms of this Agreement is in consideration of all other terms of this Agreement. Accordingly, the terms are not severable.
- 20.7 The Signatories shall make reasonable and good faith efforts necessary to obtain a Commission order approving this Agreement. The Signatories shall support and defend this Agreement before the Commission. Subject to paragraph 20.2, if the Commission adopts an order approving all material terms of the Agreement, the Signatories will support and defend the Commission's order before any court or regulatory agency in which it may be at issue.
- 20.8 This Agreement may be executed in any number of counterparts and by each Signatory on separate counterparts, each of which when so executed and delivered shall be deemed an original and all of which taken together shall constitute one and the same instrument. This Agreement may also be executed electronically or by facsimile.

# **ATTACHMENT A**

**Southwest Gas Corporation**  
**Docket No. G-01551A-16-0107**  
**Settlement Depreciation Rates**

Account	Description	Existing Company Rates	Staff Proposed Rates	Company Proposed Rates	Settlement Proposal
<u>Arizona Direct</u>					
301.00	Organization	---non-depreciable/fully depreciated/amortized---			
302.00	Franchise & Consents	---non-depreciable/fully depreciated/amortized---			
303.00	Miscellaneous Intangible	---non-depreciable/fully depreciated/amortized---			
374.10	Land & Land Rights	---non-depreciable/fully depreciated/amortized---			
374.20	Rights of Way	2.15%	1.37%	1.38%	1.37%
375.00	Structures & Improvement	1.15%	3.35%	0.30%	3.35%
376.00	Mains	3.82%	1.81%	2.29%	1.81%
378.00	Measuring & Reg Stations	4.12%	3.87%	3.44%	3.87%
380.00	Services	5.30%	2.82%	2.96%	2.82%
381.00	Meters	1.98%	4.15%	2.72%	4.15%
385.00	Industrial Measuring & Reg Sta	4.31%	1.78%	2.06%	1.78%
387.00	Miscellaneous Equipment	5.26%	0.00%	0.00%	0.00%
389.00	Land & Land Rights	0.00%	0.00%	0.00%	0.00%
390.10	Structures & Improv - Co. Owned	1.84%	2.79%	1.98%	2.79%
390.20	Structures & Improv - Leasehold	---non-depreciable/fully depreciated/amortized---			
391.00	Office Equipment	2.73%	7.29%	5.56%	7.29%
391.10	Computer Equipment	14.87%	21.94%	20.00%	21.94%
392.11	Transportation Equipment - Light	7.65%	14.37%	9.38%	14.37%
392.12	Transportation Equipment - Heavy	7.65%	4.07%	6.83%	4.07%
393.00	Stores Equipment	2.08%	3.73%	4.00%	3.73%
394.00	Tools, Shop, & Garage Equip.	2.17%	10.39%	6.67%	10.39%
395.00	Laboratory Equipment	3.93%	5.48%	4.00%	5.48%
396.00	Power Operated Equipment	3.88%	3.46%	5.00%	3.46%
397.00	Communication Equipment	8.88%	-1.11%	7.69%	-1.11%
397.20	Telemetry Equipment	6.19%	21.96%	10.00%	21.96%
398.00	Miscellaneous Equipment	4.53%	6.38%	6.25%	6.38%
<u>System Allocable</u>					
301.00	Organization	---non-depreciable/fully depreciated/amortized---			
303.00	Miscellaneous Intangible	---non-depreciable/fully depreciated/amortized---			
389.00	Land & Land Rights	---non-depreciable/fully depreciated/amortized---			
390.10	Structures & Improv - Co. Owned	2.30%	2.79%	2.30%	2.30%
390.20	Structures & Improv - Leasehold	12.31%	2.79%	12.31%	12.31%
391.00	Office Equipment	6.67%	7.29%	6.67%	6.67%
391.10	Computer Equipment	20.00%	21.94%	20.00%	20.00%
392.11	Transportation Equipment - Light	10.37%	14.37%	10.37%	10.37%
392.12	Transportation Equipment - Heavy	8.18%	4.07%	8.18%	8.18%
392.21	Transportation Equipment - Aircraft	4.00%	0.00%	4.00%	4.00%
393.00	Stores Equipment	6.67%	3.73%	6.67%	6.67%
394.00	Tools, Shop, & Garage Equip.	6.67%	10.39%	6.67%	6.67%
395.00	Laboratory Equipment	5.00%	5.48%	5.00%	5.00%
396.00	Power Operated Equipment	5.66%	3.46%	5.66%	5.66%
397.00	Communication Equipment	6.67%	-1.11%	6.67%	6.67%
397.20	Telemetry Equipment	16.66%	21.96%	16.66%	16.66%
398.00	Miscellaneous Equipment	6.67%	6.38%	6.67%	6.67%

By: 

Printed Name: Elijah Abinah

Company: ARIZONA CORPORATION COMMISSION

Title: Acting Director: Utilities Div.

Dated this 20<sup>th</sup> day of January, 2017

By: Catherine M. Mazzeo

Printed Name: Catherine M. Mazzeo

Company: Southwest Gas Corporation

Title: Assistant General Counsel



Dated this 20<sup>th</sup> day of January, 2017

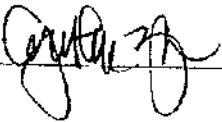
By: 

Printed Name: Tyler J Rohach

Company: Desert Valley Natural Gas LLC

Title: President

Dated this 20<sup>th</sup> day of January, 2017

By:  \_\_\_\_\_

Printed Name: \_\_\_ Cynthia Zwick

Company: \_\_\_ Arizona Community Action Association

Title: \_\_\_ Executive Director

Dated this 20<sup>th</sup> day of January, 2017

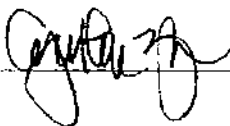
By: 

Printed Name: Elijah Abinah

Company: Arizona Corporation Commission

Title: Acting Director, Utilities Division

Dated this 20<sup>th</sup> day of January, 2017

By:  \_\_\_\_\_

Printed Name: \_\_\_ Cynthia Zwick

Company: \_\_\_ Arizona Community Action Association

Title: \_\_\_\_\_ Executive Director

Dated this 20<sup>th</sup> day of January, 2017

By: Meghan H. Grabel

Printed Name: Meghan H. Grabel

Company: Osborn Maledon, P.A.

Title: Attorney for Arizona Investment Council

**EXHIBIT NO. A-17**

**SCHEDULES IN SUPPORT OF PROPOSED  
SETTLEMENT AGREEMENT**





# **SOUTHWEST GAS CORPORATION**

February 3, 2017

Arizona Corporation Commission  
Docket Control  
1200 West Washington Street  
Phoenix, AZ 85007-2996

**Re: Docket No. G-01551A-16-0107**

Southwest Gas Corporation respectfully submits schedules supporting the proposed Settlement Agreement in the above-referenced docket.

If you have any questions, please do not hesitate to contact me at 602-395-4058.

Respectfully submitted,

Matthew D. Derr  
Regulatory Manager/Arizona

Cc: Service List

BEFORE THE ARIZONA CORPORATION COMMISSION

**COMMISSIONERS**

TOM FORESE - Chairman

BOB BURNS

DOUG LITTLE

ANDY TOBIN

BOYD DUNN

In the Matter of the Application of  
Southwest Gas Corporation for the  
Establishment of Just and Reasonable  
Rates and Charges Designed to Realize a  
Reasonable Rate of Return on the Fair  
Value of the Properties of Southwest Gas  
Corporation Devoted to its Arizona  
Operations

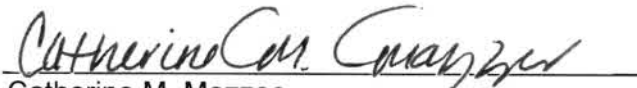
DOCKET NO.: G-01551-A-16-0107

**SCHEDULES IN SUPPORT OF  
PROPOSED SETTLEMENT  
AGREEMENT**

Southwest Gas Corporation (Southwest Gas or Company) hereby submits  
schedules supporting the proposed Settlement Agreement in this proceeding.

Respectfully submitted this 3<sup>rd</sup> day of February, 2017.

SOUTHWEST GAS CORPORATION



Catherine M. Mazzeo

Arizona Bar No. 028939

5241 Spring Mountain Road

Las Vegas, NV 89150-0002

(702) 876-7250

(702) 252-7283 *facsimile*

catherine.mazzeo@swgas.com

*Attorney for Southwest Gas Corporation*



1 Original and 13 copies of the foregoing were filed  
2 this 3<sup>rd</sup> day of February, 2017 with:

3 Docket Control  
4 Arizona Corporation Commission  
5 1200 West Washington Street  
6 Phoenix, Arizona 85007

7 Copies of the foregoing were hand-delivered/mailed/e-mailed  
8 this 3<sup>rd</sup> day of February, 2017 to:

9 Dwight D. Nodes  
10 Chief Administrative Law Judge  
11 Hearing Division  
12 Arizona Corporation Commission  
13 1200 West Washington Street  
14 Phoenix, Arizona 85007

15 Timothy LaSota  
16 Janet Wagner  
17 Legal Division  
18 Arizona Corporation Commission  
19 1200 West Washington Street  
20 Phoenix, Arizona 85007  
21 LegalDiv@azcc.gov  
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Phoenix, Arizona 85007

David Tenney, Director  
Residential Utility Consumer Office  
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6 Michael Patten  
7 Jason Gellman  
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an employee of Southwest Gas Corporation

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**SUMMARY OF MARGIN AT PRESENT AND PROPOSED RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**

Line No.	Description (a)	Schedule Number (b)	Margin at Present Rates (c)		Margin Adjusted Revenue at Present Rates (3)		Cost of Service Adjustment (4)		Proposed Rates (5)		Increase/(Decrease)		Line No.
			Present Rates [1]	Adjustment [2]	Present Rates [3]	Adjustment [4]	Dollars (h)	Percent (i)	Dollars (h)	Percent (i)			
	<b>Residential Service</b>												
1	Single-Family Residential Gas Service	G-5	\$ 315,847,007	\$ (4,706,214)	\$ 311,140,793	\$ 11,078,937	\$ 322,219,730	\$ 11,078,937	\$ 11,078,937	3.56%	1		
2	Multi-Family Residential Gas Service	G-6	8,458,151	139,995	8,598,146	172,579	8,770,725	172,579	172,579	2.01%	2		
3	Single-Family Low Income Residential Gas Service	G-10	11,520,549	123,378	11,643,927	1,620,729	13,264,656	1,620,729	1,620,729	13.92%	[6]		
4	Multi-Family Low Income Residential Gas Service	G-11	808,799	32,565	841,364	92,835	934,199	92,835	92,835	11.03%	[7]		
5	Special Residential Gas Service for Air Conditioning	G-15	39,174	0	39,174	1,359	40,533	1,359	1,359	3.47%	5		
6	Master-Metered Mobile Home Park Gas Service	G-20	871,574	0	871,574	16,354	887,928	16,354	16,354	1.88%	6		
	<b>General Gas Service</b>												
7	Small	G-25	9,644,983	(460,535)	9,184,448	262,537	9,446,985	262,537	262,537	2.86%	7		
8	Medium		27,968,332	(3,045,587)	24,922,745	783,788	25,706,533	783,788	783,788	3.14%	8		
9	Large-1		51,900,764	(4,398,336)	47,502,428	1,218,768	48,721,196	1,218,768	1,218,768	2.57%	9		
10	Large-2		12,803,643	(473,743)	12,329,900	303,121	12,633,021	303,121	303,121	2.46%	10		
11	Transportation Eligible		29,933,973	0	29,933,973	756,300	30,690,273	756,300	756,300	2.53%	11		
12	Optional Gas Service	G-30	999,902	0	999,902	0	999,902	0	0	0.00%	12		
13	Air Conditioning Gas Service	G-40	77,021	0	77,021	4,594	81,615	4,594	4,594	5.96%	13		
14	Street Lighting Gas Service	G-45	6,286	0	6,286	387	6,673	387	387	6.16%	14		
	<b>Gas Service for Compression on Customer's Premises</b>												
15	Residential	G-55	16,099	0	16,099	191	16,290	191	191	1.19%	15		
16	Small		20,868	0	20,868	345	21,213	345	345	1.65%	16		
17	Large		1,367,145	0	1,367,145	27,808	1,394,953	27,808	27,808	2.03%	17		
18	Electric Generation Gas Service	G-60	3,083,432	0	3,083,432	97,065	3,180,497	97,065	97,065	3.15%	18		
19	Small Essential Agriculture User Gas Service	G-75	1,380,577	0	1,380,577	32,385	1,412,962	32,385	32,385	2.35%	19		
20	Natural Gas Engine Gas Service	G-80	2,621,268	0	2,621,268	38,796	2,660,064	38,796	38,796	1.48%	20		
21	Total Sales and Full Margin Transportation		\$ 479,369,547	\$ (12,788,478)	\$ 466,581,069	\$ 16,508,879	\$ 483,089,948	\$ 16,508,879	\$ 16,508,879	3.54%	21		
22	Special Contract Service	B-1	4,602,262	0	4,602,262	(509,013)	4,093,249	(509,013)	(509,013)	-11.06%	22		
23	Other Operating Revenue		10,498,074	0	10,498,074	0	10,498,074	0	0	0.00%	23		
24	Total Arizona Margin		\$ 494,469,883	\$ (12,788,478)	\$ 481,681,406	\$ 15,999,866	\$ 497,681,271	\$ 15,999,866	\$ 15,999,866	3.32%	24		
25	Total Margin Requirement [8]						\$ 497,681,406				25		
26	Over/(Under) Requirement						\$ (134)				26		

[1] Schedule H-2, Sheets 5-8.  
 [2] Adjustment to authorized margin per customer for test period volumes.  
 [3] Test period margin at authorized margin per customer from 2010 Arizona General Rate Case.  
 [4] Adjustment to reflect the cost of service.  
 [5] Schedule H-2, Sheets 1-4.  
 [6] Amount shown in proposed rates includes the change in cost recovery of the low income basic service charge.  
 Actual Single Family Low Income Residential Gas Service margin increase is \$135,110 or 1.16%.  
 [7] Amount shown in proposed rates includes the change in cost recovery of the low income basic service charge.  
 Actual Multi Family Low Income Residential Gas Service margin increase is \$3,196 or 0.36%.  
 [8] Total Revenue Requirement includes \$16 million increase as part of Settlement Agreement plus Special Contract Service adjustment reflected on Line 22.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**SUMMARY OF PRESENT AND PROPOSED RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**

Line No.	Description (a)	Schedule (b)	Present Rates			Currently Effective Tariff Rate (f)	Description (g)	Schedule (h)	Proposed Rates			Line No.
			Delivery Charge [1] (c)	Rate Adjustment [2] (d)	Gas Cost [2] (e)				Delivery Charge [3] (i)	Rate Adjustment [2] (j)	Gas Cost [2] (k)	
1	Single-Family Residential Gas Service Basic Service Charge per Month	G-5	\$ 10.70		\$ 0.39003	\$ 10.70	Single-Family Residential Gas Service Basic Service Charge per Month	G-5	\$ 10.70		\$ 0.39003	1
2	Commodity Charge per Therm All Usage		\$ 0.70314	\$(0.07614)	\$ 0.39003	\$ 1.01703	Commodity Charge per Therm All Usage		\$ 0.72575	\$(0.08313)	\$ 0.39003	2
3	Multi-Family Residential Gas Service Basic Service Charge per Month	G-6	\$ 9.70			\$ 9.70	Multi-Family Residential Gas Service Basic Service Charge per Month	G-6	\$ 9.70			3
4	Commodity Charge per Therm All Usage		\$ 0.70314	\$(0.07614)	\$ 0.39003	\$ 1.01703	Commodity Charge per Therm All Usage		\$ 0.75311	\$(0.08313)	\$ 0.39003	4
5	Single-Family Low Income Residential Gas Service Basic Service Charge per Month	G-10	\$ 7.50			\$ 7.50	Single-Family Low Income Residential Gas Service Basic Service Charge per Month	G-10	\$ 7.50			5
6	Commodity Charge per Therm Summer (May - October)		\$ 0.70314	\$(0.09350)	\$ 0.39003	\$ 0.99967	Commodity Charge per Therm Summer (May - October)		\$ 0.72575	\$(0.09449)	\$ 0.39003	6
7	All Usage Winter (November - April)		\$ 0.40384	\$(0.09350)	\$ 0.39003	\$ 0.70037	All Usage Winter (November - April)		\$ 0.41996	\$(0.09449)	\$ 0.39003	7
8	First 150 Therms Over 150 Therms		\$ 0.70314	\$(0.09350)	\$ 0.39003	\$ 0.99967	First 150 Therms Over 150 Therms		\$ 0.72575	\$(0.09449)	\$ 0.39003	8
9	Multi-Family Low Income Residential Gas Service Basic Service Charge per Month	G-11	\$ 7.50			\$ 7.50	Multi-Family Low Income Residential Gas Service Basic Service Charge per Month	G-11	\$ 7.50			9
10	Commodity Charge per Therm Summer (May - October)		\$ 0.70314	\$(0.09350)	\$ 0.39003	\$ 0.99967	Commodity Charge per Therm Summer (May - October)		\$ 0.75311	\$(0.09449)	\$ 0.39003	10
11	All Usage Winter (November - April)		\$ 0.40384	\$(0.09350)	\$ 0.39003	\$ 0.70037	All Usage Winter (November - April)		\$ 0.41996	\$(0.09449)	\$ 0.39003	11
12	First 150 Therms Over 150 Therms		\$ 0.70314	\$(0.09350)	\$ 0.39003	\$ 0.99967	First 150 Therms Over 150 Therms		\$ 0.75311	\$(0.09449)	\$ 0.39003	12
13	Special Residential Gas Service for Air Conditioning Basic Service Charge per Month	G-15	\$ 10.70			\$ 10.70	Special Residential Gas Service for Air Conditioning Basic Service Charge per Month	G-15	\$ 10.70			13
14	Commodity Charge per Therm Summer (May - October)		\$ 0.70314	\$(0.04476)	\$ 0.39003	\$ 1.04841	Commodity Charge per Therm Summer (May - October)		\$ 0.60445	\$(0.05175)	\$ 0.39003	14
15	First 15 Therms Over 15 Therms		\$ 0.13077	\$(0.04476)	\$ 0.39003	\$ 0.47604	First 15 Therms Over 15 Therms		\$ 0.13935	\$(0.05175)	\$ 0.39003	15
16	Winter (November - April) All Usage		\$ 0.70314	\$(0.04476)	\$ 0.39003	\$ 1.04841	Winter (November - April) All Usage		\$ 0.60445	\$(0.05175)	\$ 0.39003	16
17	Master-Metered Mobile Home Park Gas Service Basic Service Charge per Month	G-20	\$ 66.00			\$ 66.00	Master-Metered Mobile Home Park Gas Service Basic Service Charge per Month	G-20	\$ 66.00			17
18	Commodity Charge per Therm All Usage		\$ 0.47189	\$(0.03561)	\$ 0.39003	\$ 0.82631	Commodity Charge per Therm All Usage		\$ 0.48181	\$(0.04260)	\$ 0.39003	18

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**SUMMARY OF PRESENT AND PROPOSED RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**

Line No.	Description (a)	Present Rates				Proposed Rates			
		Delivery Charge [1] (c)	Rate Adjustment [2] (d)	Gas Cost [2] (e)	Currently Effective Tariff Rate (f)	Delivery Charge [3] (i)	Rate Adjustment [2] (j)	Gas Cost [2] (k)	Effective Tariff Rate (l)
	Schedule (b)								
		G-25							
	General Gas Service								
1	Basic Service Charge per Month								
2	Small	\$ 27.50		\$	27.50	\$	27.50		27.50
3	Medium	43.50			43.50		43.50		43.50
4	Large-1	80.00			80.00		80.00		80.00
5	Large-2	470.00			470.00		470.00		470.00
6	Transportation Eligible	950.00			950.00		950.00		950.00
7	Commodity Charge per Therm								
8	Small, All Usage	\$ 0.63914	\$ (0.08529)	\$ 0.39003	1.14388	\$ (0.09228)	\$ 0.39003	\$ 1.09344	0.70498
9	Medium, All Usage	0.45834	(0.08529)	0.39003	0.76308	(0.09228)	0.39003	0.70498	0.70498
10	Large-1, All Usage	0.41263	(0.08529)	0.39003	0.71737	(0.09228)	0.39003	0.68149	0.68149
11	Large-2, All Usage	0.28856	(0.08529)	0.39003	0.59330	(0.09228)	0.39003	0.58161	0.58161
12	Transportation Eligible, All Usage	0.10823	(0.04476)	0.39003	0.45450	(0.05175)	0.39003	0.45249	0.45249
13	Demand Charge per Month								
14	Transportation Eligible	\$ 0.082459			0.082459			\$ 0.083393	0.083393
	Optional Gas Service								
15	Basic Service Charge per Month								
16	Commodity Charge per Therm								
17	All Usage	As Specified on A.C.C. Sheet No. 27.						As Specified on A.C.C. Sheet No. 27.	
18	Air Conditioning Gas Service								
19	Basic Service Charge per Month								
20	Commodity Charge per Therm								
21	All Usage	As Specified on A.C.C. Sheet No. 28.						As Specified on A.C.C. Sheet No. 28.	
22	Street Lighting Gas Service								
23	Commodity Charge per Therm								
24	of Rated Capacity								
25	All Usage	As Specified on A.C.C. Sheet No. 32.						As Specified on A.C.C. Sheet No. 32.	
26	Basic Service Charge per Month	\$ 0.13077	(0.04476)	\$ 0.39003	0.47604		\$ 0.13935	\$ 0.47763	0.47763
27	Commodity Charge per Therm								
28	All Usage	\$ 0.69242	(0.04476)	\$ 0.39003	1.03769		\$ 0.73507	\$ 1.07335	1.07335
29	Compression Gas Service								
30	Basic Service Charge per Month								
31	Commodity Charge per Therm								
32	All Usage	As Specified on A.C.C. Sheet No. 36.					As Specified on A.C.C. Sheet No. 36.		
33	Basic Service Charge per Month								
34	Commodity Charge per Therm								
35	All Usage	As Specified on A.C.C. Sheet No. 36.					As Specified on A.C.C. Sheet No. 36.		

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**SUMMARY OF PRESENT AND PROPOSED RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**

Line No.	Description (a)	Schedule (b)	Present Rates			Description (g)	Schedule (h)	Proposed Rates				
			Delivery Charge [1] (c)	Rate Adjustment [2] (d)	Gas Cost [2] (e)			Delivery Charge [3] (i)	Rate Adjustment [2] (j)	Gas Cost [2] (k)	Effective Tariff Rate (l)	
	<u>Gas Service for Compression on Customer's Premises</u>											
	<u>Basic Service Charge per Month</u>	G-55					G-55					
1	Small		\$ 27.50			Basic Service Charge per Month		\$ 27.50			\$ 27.50	1
2	Large		250.00			Small		250.00			250.00	2
3	Residential		10.70			Large		10.70			10.70	3
4	Commodity Charge per Therm					Residential						
	All Usage		\$ 0.21470	\$ (0.04476)	\$ 0.39003	Commodity Charge per Therm		\$ 0.21935	\$ (0.05175)	\$ 0.39003	\$ 0.55763	4
						All Usage						
	<u>Electric Generation Gas Service</u>						G-60					
5	Basic Service Charge per Month	G-60				Electric Generation Gas Service						5
6	Commodity Charge per Therm					Basic Service Charge per Month						
	All Usage		\$ 0.15421	\$ (0.04476)	\$ 0.39003	Commodity Charge per Therm		\$ 0.15923	\$ (0.05175)	\$ 0.39003	\$ 0.49751	6
						All Usage						
	<u>Small Essential Agriculture User Gas Service</u>						G-75					
7	Basic Service Charge per Month	G-75	\$ 120.00			Small Essential Agriculture User Gas Service		\$ 120.00			\$ 120.00	7
8	Commodity Charge per Therm					Basic Service Charge per Month						
	All Usage		\$ 0.28037	\$ (0.04476)	\$ 0.39003	Commodity Charge per Therm		\$ 0.28755	\$ (0.05175)	\$ 0.39003	\$ 0.62583	8
						All Usage						
	<u>Natural Gas Engine Gas Service</u>						G-80					
9	Basic Service Charge per Month	G-80				Natural Gas Engine Gas Service						
10	Off-Peak Season (October - March)		\$ 0.00			Basic Service Charge per Month		\$ 0.00			\$ 0.00	9
	Peak Season (April - September)		125.00			Off-Peak Season (October - March)		125.00			125.00	10
	Commodity Charge per Therm					Peak Season (April - September)						
	All Usage		\$ 0.22065	\$ 0.01385	\$ 0.29380	Commodity Charge per Therm		\$ 0.22430	\$ 0.00686	\$ 0.29380	\$ 0.52476	11
						All Usage						
12	Service Establishment Charge					Service Establishment Charge						12
13	Normal					Normal					\$ 35.00	13
	Expedited					Expedited					\$ 50.00	

[1] Present Margin rates effective January 1, 2012.  
[2] Rate Adjustment and Gas Cost rates effective January 1, 2017.  
[3] Calculated rates to recover proposed Margin per Schedule H-1, Sheet 2 of 2.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**SUMMARY OF PRESENT AND PROPOSED REVENUES BY RATE COMPONENT**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**

Line No.	Description (a)	Proposed Schedule Number (b)	Billing Determinants				Revenue at Proposed Rates						Revenue at Present Rates (l)	Increase / Decrease Dollars (m)	Percent (n)	Line No.
			Number of Bills (c)	Sales (Therms) (d)	Basic Service Charge (e)	Delivery Charge (f)	Basic Service Charge (g)	Delivery Charge (h)	Total Margin (i)	Gas Cost (j)	Total Revenue (k)					
<b>G-5</b>																
1	Single-Family Residential Gas Service		10,996,641		\$ 10.70	\$ 117,664,059	\$ 117,664,059	\$ 117,664,059	\$ 117,664,059	\$ 117,664,059	\$ 117,664,059	\$ 117,664,059	\$ 117,664,059	\$ 0	0.00%	1
2	Basic Service Charge per Month			281,854,180	\$ 0.72575	\$ 204,555,671	\$ 204,555,671	\$ 204,555,671	\$ 109,931,586	\$ 314,487,257	\$ 330,333,850	\$ 330,333,850	\$ 330,333,850	(\$ 15,846,593)	-4.80%	2
3	All Usage Commodity Charge per Therm		10,996,641	281,854,180		\$ 204,555,671	\$ 204,555,671	\$ 322,219,730	\$ 109,931,586	\$ 432,151,316	\$ 447,997,909	\$ 447,997,909	\$ 447,997,909	(\$ 15,846,593)	-3.54%	3
4	Total Single-Family Residential					\$ 117,664,059	\$ 117,664,059	\$ 4,059,974	\$ 4,059,974	\$ 4,059,974	\$ 3,970,337	\$ 3,970,337	\$ 3,970,337	\$ 89,637	2.26%	4
<b>G-6</b>																
4	Multi-Family Residential Gas Service		418,554		\$ 9.70	\$ 4,059,974	\$ 4,059,974	\$ 4,059,974	\$ 2,439,658	\$ 7,150,409	\$ 7,665,011	\$ 7,665,011	\$ 7,665,011	(\$ 514,602)	-6.71%	5
5	Basic Service Charge per Month			6,255,051	\$ 0.75311	\$ 4,710,751	\$ 4,710,751	\$ 4,710,751	\$ 2,439,658	\$ 7,150,409	\$ 7,665,011	\$ 7,665,011	\$ 7,665,011	(\$ 514,602)	-6.71%	5
6	All Usage Commodity Charge per Therm		418,554	6,255,051		\$ 4,710,751	\$ 4,710,751	\$ 8,770,725	\$ 2,439,658	\$ 11,210,383	\$ 11,835,349	\$ 11,835,349	\$ 11,835,349	(\$ 624,966)	-5.36%	6
7	Total Multi-Family Residential					\$ 4,059,974	\$ 4,059,974	\$ 4,059,974	\$ 2,439,658	\$ 7,150,409	\$ 7,665,011	\$ 7,665,011	\$ 7,665,011	(\$ 514,602)	-6.71%	5
<b>G-10</b>																
7	Single-Family Low Income Residential Gas Service		464,256		\$ 10.70	\$ 4,967,539	\$ 4,967,539	\$ 4,967,539	\$ 3,481,920	\$ 1,485,619	\$ 1,485,619	\$ 1,485,619	\$ 1,485,619	\$ 0	0.00%	7
8	Basic Service Charge per Month			2,478,418	\$ 0.72575	\$ 1,798,712	\$ 1,798,712	\$ 1,798,712	\$ 986,857	\$ 2,765,369	\$ 2,972,843	\$ 2,972,843	\$ 2,972,843	(\$ 207,474)	-6.98%	8
9	Summer (May - October)			8,519,734	0.72575	\$ 6,183,197	\$ 6,183,197	\$ 6,183,197	\$ 3,322,952	\$ 9,506,149	\$ 10,219,352	\$ 10,219,352	\$ 10,219,352	(\$ 713,203)	-6.98%	9
10	Winter (November - April)			434,321	0.72575	\$ 315,208	\$ 315,208	\$ 315,208	\$ 169,398	\$ 484,606	\$ 520,965	\$ 520,965	\$ 520,965	(\$ 36,359)	-6.98%	10
11	All Usage Commodity Charge per Therm		464,256	11,432,473		\$ 8,297,117	\$ 8,297,117	\$ 13,264,656	\$ 4,459,007	\$ 17,723,663	\$ 17,195,079	\$ 17,195,079	\$ 17,195,079	\$ 528,584	3.07%	11
12	Total Single-Family Low Income					\$ 4,967,539	\$ 4,967,539	\$ 4,967,539	\$ 3,481,920	\$ 1,485,619	\$ 1,485,619	\$ 1,485,619	\$ 1,485,619	\$ 0	0.00%	7
<b>G-11</b>																
12	Multi-Family Low Income Residential Gas Service		40,744		\$ 9.70	\$ 395,217	\$ 395,217	\$ 395,217	\$ 305,580	\$ 89,637	\$ 89,637	\$ 89,637	\$ 89,637	\$ 0	0.00%	12
13	Basic Service Charge per Month			205,581	\$ 0.75311	\$ 154,825	\$ 154,825	\$ 154,825	\$ 80,183	\$ 235,008	\$ 253,729	\$ 253,729	\$ 253,729	(\$ 18,721)	-7.38%	13
14	Summer (May - October)			505,885	0.75311	\$ 380,988	\$ 380,988	\$ 380,988	\$ 197,310	\$ 578,298	\$ 624,365	\$ 624,365	\$ 624,365	(\$ 46,067)	-7.38%	14
15	Winter (November - April)			4,208	0.75311	\$ 3,169	\$ 3,169	\$ 3,169	\$ 1,641	\$ 4,810	\$ 5,193	\$ 5,193	\$ 5,193	(\$ 383)	-7.38%	15
16	All Usage Commodity Charge per Therm		40,744	715,674		\$ 538,962	\$ 538,962	\$ 934,199	\$ 279,134	\$ 1,213,333	\$ 1,188,867	\$ 1,188,867	\$ 1,188,867	\$ 24,466	2.06%	16
<b>G-15</b>																
17	Special Residential Gas Service for Air Conditioning		912		\$ 10.70	\$ 9,758	\$ 9,758	\$ 9,758	\$ 9,758	\$ 9,758	\$ 9,758	\$ 9,758	\$ 9,758	\$ 0	0.00%	17
18	Basic Service Charge per Month			12,746	\$ 0.60445	\$ 7,704	\$ 7,704	\$ 7,704	\$ 4,971	\$ 12,675	\$ 2,582	\$ 2,582	\$ 2,582	10,093	390.90%	18
19	Summer (May - October)			10,570	0.13935	\$ 1,473	\$ 1,473	\$ 1,473	\$ 412	\$ 5,596	\$ 13,032	\$ 13,032	\$ 13,032	(\$ 7,436)	-57.06%	19
20	Winter (November - April)			35,731	0.60445	\$ 21,598	\$ 21,598	\$ 21,598	\$ 13,936	\$ 35,534	\$ 42,474	\$ 42,474	\$ 42,474	(\$ 6,940)	-16.34%	20
21	All Usage Commodity Charge per Therm		912	59,047		\$ 30,775	\$ 30,775	\$ 40,533	\$ 23,030	\$ 63,563	\$ 67,846	\$ 67,846	\$ 67,846	(\$ 4,283)	-6.31%	21
22	Total Special Residential AC			300,316,425		\$ 218,133,296	\$ 218,133,296	\$ 345,229,843	\$ 117,132,415	\$ 462,362,258	\$ 478,085,050	\$ 478,085,050	\$ 478,085,050	(\$ 15,722,792)	-3.29%	22
<b>G-20</b>																
23	Master-Metered Mobile Home Park Gas Service		1,416		\$ 66.00	\$ 93,456	\$ 93,456	\$ 93,456	\$ 93,456	\$ 93,456	\$ 93,456	\$ 93,456	\$ 93,456	\$ 0	0.00%	23
24	Basic Service Charge per Month			1,648,939	\$ 0.48181	\$ 794,472	\$ 794,472	\$ 794,472	\$ 643,136	\$ 1,437,608	\$ 1,578,777	\$ 1,578,777	\$ 1,578,777	(\$ 141,169)	-8.94%	24
25	All Usage Commodity Charge per Therm		1,416	1,648,939		\$ 794,472	\$ 794,472	\$ 887,928	\$ 643,136	\$ 1,531,064	\$ 1,672,233	\$ 1,672,233	\$ 1,672,233	(\$ 141,169)	-8.44%	25

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**SUMMARY OF PRESENT AND PROPOSED REVENUES BY RATE COMPONENT**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**

Line No.	Description (a)	Billing Determinants										Revenue at Proposed Rates		Line No.	
		Proposed Schedule Number (b)	Number of Bills (c)	Sales (Therms) (d)	Basic Service Charge (e)	Delivery Charge [1] (f)	Basic Service Charge (g)	Delivery Charge (h)	Total Margin (i)	Gas Cost [2] (j)	Total Revenue (k)	Revenue at Present Rates [3] (l)	Increase / Decrease Dollars (m)		Percent (n)
<b>G-25(S)</b>															
1	General Gas Service - Small														
2	Basic Service Charge Per Month		211,588		\$ 27.50		\$ 5,818,670	\$ 5,818,670		\$ 5,818,670	\$ 5,818,670	\$ 0	0.00%	1	
3	Sales Customers		84		27.50		2,310	2,310		2,310	2,310	0	0.00%	2	
4	Transportation Customers			4,555,014		\$ 0.79569	\$ 3,624,384	\$ 3,624,384	\$ 1,776,592	\$ 5,400,976	\$ 5,573,688	(172,722)	-3.10%	3	
5	Commodity Charge per Therm All Usage			2,037		0.79569	1,621	1,621	0	1,621	1,503	118	7.82%	4	
6	Transportation Customers		211,672	4,557,051		\$ 5,820,980	\$ 3,626,005	\$ 9,446,985	\$ 1,776,592	\$ 11,223,577	\$ 11,396,161	\$ (172,604)	-1.51%	5	
<b>G-25(M)</b>															
6	General Gas Service - Medium														
7	Basic Service Charge Per Month		175,737		\$ 43.50		\$ 7,644,560	\$ 7,644,560		\$ 7,644,560	\$ 7,644,560	\$ 0	0.00%	6	
8	Sales Customers		924		43.50		40,194	40,194		40,194	40,194	0	0.00%	7	
9	Transportation Customers			43,884,689		\$ 0.40723	\$ 17,871,206	\$ 17,871,206	\$ 17,116,345	\$ 34,987,551	\$ 38,402,617	\$ (3,415,066)	-8.89%	8	
10	Commodity Charge per Therm All Usage			369,748		0.40723	150,573	150,573	0	150,573	144,024	6,549	4.55%	9	
11	Transportation Customers		176,661	44,254,437		\$ 7,684,754	\$ 18,021,779	\$ 25,706,533	\$ 17,116,345	\$ 42,822,878	\$ 46,231,395	\$ (3,408,517)	-7.37%	10	
<b>G-25(L1)</b>															
11	General Gas Service - Large-1														
12	Basic Service Charge Per Month		79,399		\$ 80.00		\$ 6,351,920	\$ 6,351,920		\$ 6,351,920	\$ 6,351,920	\$ 0	0.00%	11	
13	Sales Customers		1,728		80.00		138,240	138,240		138,240	138,240	0	0.00%	12	
14	Transportation Customers			107,375,670		\$ 0.38374	\$ 41,204,168	\$ 41,204,168	\$ 41,879,733	\$ 83,083,901	\$ 92,152,365	\$ (9,068,464)	-9.84%	13	
15	Commodity Charge per Therm All Usage			2,675,958		0.38374	1,026,868	1,026,868	0	1,026,868	987,233	29,635	2.97%	14	
16	Transportation Customers		81,127	110,051,628		\$ 6,490,160	\$ 42,231,036	\$ 48,721,196	\$ 41,879,733	\$ 90,600,929	\$ 99,639,758	\$ (9,038,829)	-9.07%	15	
<b>G-25(L2)</b>															
16	General Gas Service - Large-2														
17	Basic Service Charge Per Month		4,183		\$ 470.00		\$ 1,970,710	\$ 1,970,710		\$ 1,970,710	\$ 1,970,710	\$ 0	0.00%	16	
18	Sales Customers		768		470.00		360,960	360,960		360,960	360,960	0	0.00%	17	
19	Transportation Customers			30,237,104		\$ 0.28386	\$ 8,583,057	\$ 8,583,057	\$ 11,793,378	\$ 20,376,435	\$ 23,012,426	\$ (2,635,991)	-11.45%	18	
20	Commodity Charge per Therm All Usage			6,053,347		0.28386	1,718,284	1,718,284	0	1,718,284	1,667,732	50,562	3.03%	19	
21	Transportation Customers		4,961	36,290,451		\$ 2,331,670	\$ 10,301,351	\$ 12,633,021	\$ 11,793,378	\$ 24,426,399	\$ 27,011,828	\$ (2,585,429)	-9.57%	20	
<b>G-25(TE)</b>															
21	General Gas Service - Transportation Eligible														
22	Basic Service Charge Per Month		768		\$ 950.00		\$ 729,600	\$ 729,600		\$ 729,600	\$ 729,600	\$ 0	0.00%	21	
23	Sales Customers		1,536		950.00		1,459,200	1,459,200		1,459,200	1,459,200	0	0.00%	22	
24	Demand Charge per Month			3,503,428		\$ 3,505,936	\$ 3,505,936	\$ 3,505,936		\$ 3,505,936	\$ 3,466,670	\$ 39,266	1.13%	23	
25	Sales Customers			11,484,035		11,492,258	11,492,258	11,492,258		11,492,258	11,363,545	\$ 128,713	1.13%	24	
26	Transportation Customers			23,424,358		\$ 0.11421	\$ 2,675,198	\$ 2,675,198	\$ 9,136,202	\$ 11,811,400	\$ 13,932,574	\$ (2,121,174)	-15.25%	25	
27	Commodity Charge per Therm (All Usage)			94,812,002		0.11421	10,828,081	10,828,081	0	10,828,081	10,356,315	\$ 471,766	4.56%	26	
28	Transportation Customers		2,304	118,236,360		\$ 2,188,800	\$ 28,501,473	\$ 30,690,273	\$ 9,136,202	\$ 39,826,475	\$ 41,307,904	\$ (1,481,429)	-3.59%	27	
29	Total Transportation Eligible General		476,725	313,389,927		\$ 24,516,364	\$ 102,681,644	\$ 127,198,008	\$ 81,702,250	\$ 208,900,258	\$ 225,587,066	\$ (16,686,808)	-7.40%	28	



**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**SUMMARY OF PRESENT AND PROPOSED REVENUES BY RATE COMPONENT**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**

Line No.	Description (a)	Billing Determinants				Revenue at Proposed Rates				Revenue at Present Rates (l)	Increase / Decrease Dollars (m)	Percent (n)	Line No.			
		Proposed Schedule Number (b)	Number of Bills (c)	Sales (Therms) (d)	Basic Service Charge (e)	Delivery Charge (f)	Basic Service Charge (g)	Delivery Charge (h)	Total Margin (i)					Gas Cost (j)	Total Revenue (k)	
<b>G-40</b>																
	<b>Air Conditioning Gas Service</b>															
1	Basic Service Charge															
2	Sales - With Other Service - No BSC		60	\$	0.00	\$	0	\$	0	\$	0	\$	0	0.00%	1	
3	General Service - Small		168		27.50		4,620		4,620		4,620		4,620	0.00%	2	
4	General Service - Medium		0		43.50		0		0		0		0	0.00%	3	
5	General Service - Large		12		80.00		960		960		960		960	0.00%	4	
6	Essential Agricultural		12		120.00		1,440		1,440		1,440		1,440	0.00%	5	
7	Transportation - With Other Service - No BSC		12		0.00		0.00		0.00		0.00		0.00	0.00%	6	
8	Commodity Charge per Therm All Usage															
9	Sales Customers			231,679		\$	0.13935	\$	32,285	\$	90,362		122,647		7	
10	Transportation Customers			303,619			0.13935		42,310		0		42,310		8	
11	Total Air Conditioning		264	535,298		\$	7,020	\$	74,595	\$	90,362		171,977	\$	189,515	9
<b>G-45</b>																
	<b>Street Lighting Gas Service</b>															
12	Commodity Charge per Therm of Rated Capacity															
13	All Usage		72	9,078		\$	0.73507	\$	6,673	\$	3,541		10,214	\$	10,694	10
14	Total Street Lighting		72	9,078			6,673		6,673		3,541		10,214		10,694	11
<b>G-55</b>																
	<b>Gas Service for Compression on Customer's Premises</b>															
15	Basic Service Charge															
16	Small		180	\$	27.50		4,950		4,950		4,950		4,950	0.00%	12	
17	Large		168		250.00		42,000		42,000		42,000		42,000	0.00%	13	
18	Residential		684		10.70		7,319		7,319		7,319		7,319	0.00%	14	
19	Transportation Customers		168		250.00		42,000		42,000		42,000		42,000	0.00%	15	
20	Commodity Charge per Therm All Usage															
21	Sales Customers			74,140		\$	0.21935	\$	16,263	\$	28,917		45,180		16	
22	Large			1,296,754			0.21935		284,447		505,773		790,220		17	
23	Residential			40,896			0.21935		8,971		15,951		24,922		18	
24	Transportation Customers			4,679,701			0.21935		1,026,506		0		1,026,506		19	
25	Total CNG		1,200	6,991,491		\$	95,269	\$	1,336,187	\$	550,641		1,985,997	\$	2,089,620	20
<b>G-60</b>																
	<b>Electric Generation Gas Service</b>															
26	Basic Service Charge															
27	General Service - Small		96	\$	27.50		2,640		2,640		2,640		2,640	0.00%	21	
28	General Service - Medium		48		43.50		2,088		2,088		2,088		2,088	0.00%	22	
29	General Service - Large		24		80.00		1,920		1,920		1,920		1,920	0.00%	23	
30	Essential Agricultural		12		950.00		11,400		11,400		11,400		11,400	0.00%	24	
31	Transportation - General Service - Small		12		120.00		1,440		1,440		1,440		1,440	0.00%	25	
32	Transportation - General Service - TE		12		27.50		330		330		330		330	0.00%	26	
33	Commodity Charge per Therm All Usage															
34	Sales Customers			330,378		\$	0.15923	\$	52,605	\$	128,857		181,462		27	
35	Transportation Customers			19,018,647			0.15923		3,028,274		0		3,028,274		28	
36	Total Electric Generation		288	19,349,025		\$	99,618	\$	3,080,879	\$	128,857		3,309,354	\$	3,243,850	29
<b>G-75</b>																
	<b>Small Essential Agriculture User Gas Service</b>															
37	Basic Service Charge Per Month															
38	Sales Customers		887	\$	120.00		106,440		106,440		106,440		106,440	0.00%	31	
39	Transportation Customers		84		120.00		10,080		10,080		10,080		10,080	0.00%	32	
40	Commodity Charge per Therm All Usage															
41	Sales Customers			3,115,979		\$	0.28755	\$	896,009	\$	1,215,325		2,111,334		33	
42	Transportation Customers			1,392,553			0.28755		400,433		0		400,433		34	
43	Total Small Essential Agricultural		971	4,508,532		\$	116,520	\$	1,296,442	\$	1,215,325		2,626,287	\$	2,893,572	35

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**SUMMARY OF PRESENT AND PROPOSED REVENUES BY RATE COMPONENT**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**

Line No.	Description	Proposed Schedule Number		Billing Determinants										Revenue at Proposed Rates		Line No.			
		(b)	(a)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)				
	Natural Gas Engine Gas Service																		
	Basic Service Charge																		
1	Off-Peak Season (October - March)			2,208	\$ 0.00	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	0.00%	
2	Peak Season (April - September)			2,208	125.00	275,938	275,938	275,938	0	0	0	0	0	0	0	0	0	0	0.00%
3	Transportation Customers - Off-Peak			0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
4	Transportation Customers - Peak			0	125.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
5	Commodity Charge per Therm All Usage																		
6	Sales Customers				10,629,186	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
7	Transportation Customers				10,629,186	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
	Total Natural Gas Engine			4,415	10,629,186	275,938	275,938	275,938	0	0	0	0	0	0	0	0	0	0	0.00%
8	Total Tariff Sales			12,406,458	656,477,901	152,301,732	482,090,046	329,788,314	482,090,046	204,589,382	686,679,428	718,800,159	33,120,732	4.60%					
9	Optional Gas Service			24	6,863,992	999,902	999,902	999,902	999,902	2,432,333	3,432,235	3,432,235	0	0.00%					
10	Potential Bypass/Standby Gas Service			256	32,351,848	4,093,249	4,093,249	4,093,249	4,093,249	4,093,249	4,602,262	509,013	-11.06%						
11	Other Operating Revenues					10,498,074	10,498,074	10,498,074	10,498,074	10,498,074	10,498,074	10,498,074	0	0.00%					
12	Total			12,406,738	695,693,741	162,799,806	497,681,271	329,788,314	497,681,271	207,021,715	704,702,986	738,332,731	33,629,745	4.55%					
13	Total Revenue Requirement [4]																		
14	Over/(Under)						497,681,406												
							\$ (134)												

[1] Calculated rates to recover proposed Margin per Schedule H-T, Sheet 2.  
 [2] Gas Cost rate effective on November 30, 2015.  
 [3] Schedule H-2, Sheets 5-8, including EEP Adjustment.  
 [4] Total Revenue Requirement includes \$16 million increase to the Company's filed revenues at present rates.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**SINGLE-FAMILY RESIDENTIAL GAS SERVICE**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates [4] (c)	At Proposed Tariff Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	8	\$ 18.84	\$ 18.96	\$ 0.12	0.64%	1
2	Average Summer Use [1]	11	21.89	22.06	0.17	0.78%	2
3	125 Percent Average Use	14	24.94	25.16	0.22	0.88%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	30	\$ 41.21	\$ 41.68	\$ 0.47	1.14%	4
5	Average Winter Use [1]	40	51.38	52.01	0.63	1.23%	5
6	125 Percent Average Use	50	61.55	62.33	0.78	1.27%	6
7	Annual Average Use	26	36.77	37.17	0.40	1.09%	7
<u>Effective Tariff Rates [2]</u>		<u>Amount</u>					
Basic Service Charge per Month		\$ 10.70					
Commodity Charge							
All Usage		\$ 1.01703					
<u>Proposed Tariff Rates [3]</u>							
Basic Service Charge per Month		\$ 10.70					
Commodity Charge							
All Usage		\$ 1.03265					

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.

[4] This does not reflect \$(4,706,214) EEP adjustment associated with this customer class.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**MULTI-FAMILY RESIDENTIAL GAS SERVICE**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates [4] (c)	At Proposed Tariff Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	7	\$ 16.82	\$ 17.12	\$ 0.30	1.78%	1
2	Average Summer Use [1]	9	18.85	19.24	0.39	2.07%	2
3	125 Percent Average Use	11	20.89	21.36	0.47	2.25%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	16	\$ 25.97	\$ 26.66	\$ 0.69	2.66%	4
5	Average Winter Use [1]	21	31.06	31.96	0.90	2.90%	5
6	125 Percent Average Use	26	36.14	37.26	1.12	3.10%	6
7	Annual Average Use	15	24.90	25.54	0.64	2.57%	7

<u>Effective Tariff Rates [2]</u>	<u>Amount</u>
Basic Service Charge per Month	\$ 9.70
Commodity Charge All Usage	\$ 1.01703

<u>Proposed Tariff Rates [3]</u>	<u>Amount</u>
Basic Service Charge per Month	\$ 9.70
Commodity Charge All Usage	\$ 1.06001

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.

[4] This does not reflect \$139,995 EEP adjustment associated with this customer class.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**SINGLE-FAMILY LOW INCOME RESIDENTIAL GAS SERVICE**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates [4] (c)	At Proposed Tariff Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	8	\$ 15.50	\$ 15.67	\$ 0.17	1.10%	1
2	Average Summer Use [1]	11	18.50	18.73	0.23	1.24%	2
3	125 Percent Average Use	14	21.50	21.80	0.30	1.40%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	29	\$ 27.81	\$ 28.25	\$ 0.44	1.58%	4
5	Average Winter Use [1]	38	34.11	34.69	0.58	1.70%	5
6	125 Percent Average Use	48	41.12	41.84	0.72	1.75%	6
<u>Effective Tariff Rates [2]</u>		<u>Amount</u>					
Basic Service Charge per Month		\$ 7.50					
Commodity Charge							
<u>Summer (May-October)</u>							
All Usage		\$ 0.99967					
<u>Winter (November-April)</u>							
First 150 Therms		\$ 0.70037					
Over 150 Therms		0.99967					
<u>Proposed Tariff Rates [3]</u>							
Basic Service Charge per Month		\$ 7.50					
Commodity Charge							
<u>Summer (May-October)</u>							
All Usage		\$ 1.02129					
<u>Winter (November-April)</u>							
First 150 Therms		\$ 0.71550					
Over 150 Therms		1.02129					

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.

[4] This does not reflect \$123,378 EEP adjustment associated with this customer class.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**MULTI-FAMILY LOW INCOME RESIDENTIAL GAS SERVICE**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	At Currently Effective Rates [4] (c)	At Proposed Tariff Rates (d)	Increase/(Decrease)		Line No.
					Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	8	\$ 15.50	\$ 15.89	\$ 0.39	2.52%	1
2	Average Summer Use [1]	10	17.50	17.99	0.49	2.80%	2
3	125 Percent Average Use	13	20.50	21.13	0.63	3.07%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	19	\$ 20.81	\$ 21.09	\$ 0.28	1.35%	4
5	Average Winter Use [1]	25	25.01	25.39	0.38	1.52%	5
6	125 Percent Average Use	31	29.21	29.68	0.47	1.61%	6
<u>Effective Tariff Rates [2]</u>		<u>Amount</u>					
Basic Service Charge per Month		\$ 7.50					
Commodity Charge							
<u>Summer (May-October)</u>							
All Usage		\$ 0.99967					
<u>Winter (November-April)</u>							
First 150 Therms		\$ 0.70037					
Over 150 Therms		0.99967					
<u>Proposed Tariff Rates [3]</u>							
Basic Service Charge per Month		\$ 7.50					
Commodity Charge							
<u>Summer (May-October)</u>							
All Usage		\$ 1.04865					
<u>Winter (November-April)</u>							
First 150 Therms		\$ 0.71550					
Over 150 Therms		1.04865					

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.

[4] This does not reflect \$32,565 EEP adjustment associated with this customer class.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**MASTER-METERED MOBILE HOME PARK GAS SERVICE**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates (c)	At Proposed Tariff Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	353	\$ 357.69	\$ 358.72	\$ 1.03	0.29%	1
2	Average Summer Use [1]	470	454.37	455.74	1.37	0.30%	2
3	125 Percent Average Use	588	551.87	553.59	1.72	0.31%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	1,394	\$ 1,217.88	\$ 1,221.96	\$ 4.08	0.34%	4
5	Average Winter Use [1]	1,859	1,602.11	1,607.55	5.44	0.34%	5
6	125 Percent Average Use	2,324	1,986.34	1,993.15	6.81	0.34%	6
7	Annual Average Use	1,165	1,028.65	1,032.06	3.41	0.33%	7

<u>Effective Tariff Rates [2]</u>	<u>Amount</u>
Basic Service Charge	\$ 66.00
Commodity Charge	
All Usage	\$ 0.82631

<u>Proposed Tariff Rates [3]</u>	<u>Amount</u>
Basic Service Charge	\$ 66.00
Commodity Charge	
All Usage	\$ 0.82924

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**GENERAL GAS SERVICE - SMALL**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates [4] (c)	At Proposed Tariff Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	6	\$ 34.36	\$ 34.06	\$( 0.30)	-0.87%	1
2	Average Summer Use [1]	8	36.65	36.25	(0.40)	-1.09%	2
3	125 Percent Average Use	10	38.94	38.43	(0.51)	-1.31%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	26	\$ 57.24	\$ 55.93	\$( 1.31)	-2.29%	4
5	Average Winter Use [1]	35	67.54	65.77	(1.77)	-2.62%	5
6	125 Percent Average Use	44	77.83	75.61	(2.22)	-2.85%	6
7	Annual Average Use	22	52.67	51.56	(1.11)	-2.11%	7

<u>Effective Tariff Rates [2]</u>	<u>Amount</u>
Basic Service Charge	\$ 27.50
Commodity Charge All Usage	\$ 1.14388

<u>Proposed Tariff Rates [3]</u>	<u>Amount</u>
Basic Service Charge	\$ 27.50
Commodity Charge All Usage	\$ 1.09344

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.

[4] This does not reflect \$(460,535) EEP adjustment associated with this customer class.



**SOUTHWEST GAS CORPORATION  
ARIZONA GENERAL RATE CASE  
TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES  
FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015  
GENERAL GAS SERVICE - MEDIUM**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates [4] (c)	At Proposed Tariff Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	127	\$ 140.41	\$ 133.03	\$( 7.38)	-5.26%	1
2	Average Summer Use [1]	169	172.46	162.64	(9.82)	-5.69%	2
3	125 Percent Average Use	211	204.51	192.25	(12.26)	-5.99%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	248	\$ 232.74	\$ 218.34	\$( 14.40)	-6.19%	4
5	Average Winter Use [1]	330	295.32	276.14	(19.18)	-6.49%	5
6	125 Percent Average Use	413	358.65	334.66	(23.99)	-6.69%	6
7	Annual Average Use	250	234.27	219.75	(14.52)	-6.20%	7

<u>Effective Tariff Rates [2]</u>	<u>Amount</u>
Basic Service Charge	\$ 43.50
Commodity Charge	
All Usage	\$ 0.76308

<u>Proposed Tariff Rates [3]</u>	<u>Amount</u>
Basic Service Charge	\$ 43.50
Commodity Charge	
All Usage	\$ 0.70498

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.

[4] This does not reflect \$(3,045,587) EEP adjustment associated with this customer class.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**GENERAL GAS SERVICE - LARGE-1**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates [4] (c)	At Proposed Tariff Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	713	\$ 591.48	\$ 565.90	\$( 25.58)	-4.32%	1
2	Average Summer Use [1]	950	761.50	727.41	(34.09)	-4.48%	2
3	125 Percent Average Use	1,188	932.24	889.61	(42.63)	-4.57%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	1,315	\$ 1,023.34	\$ 976.16	\$( 47.18)	-4.61%	4
5	Average Winter Use [1]	1,753	1,337.55	1,274.65	(62.90)	-4.70%	5
6	125 Percent Average Use	2,191	1,651.76	1,573.14	(78.62)	-4.76%	6
7	Annual Average Use	1,352	1,049.88	1,001.37	(48.51)	-4.62%	7

<u>Effective Tariff Rates [2]</u>	<u>Amount</u>
Basic Service Charge	\$ 80.00
Commodity Charge	
All Usage	\$ 0.71737
<u>Proposed Tariff Rates [3]</u>	
Basic Service Charge	\$ 80.00
Commodity Charge	
All Usage	\$ 0.68149

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.

[4] This does not reflect \$(4,398,336) EEP adjustment associated with this customer class.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**GENERAL GAS SERVICE - LARGE-2**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates [4] (c)	At Proposed Tariff Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	4,006	\$ 2,846.76	\$ 2,799.92	\$( 46.84)	-1.65%	1
2	Average Summer Use [1]	5,341	3,638.82	3,576.37	(62.45)	-1.72%	2
3	125 Percent Average Use	6,676	4,430.87	4,352.82	(78.05)	-1.76%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	6,808	\$ 4,509.19	\$ 4,429.59	\$( 79.60)	-1.77%	4
5	Average Winter Use [1]	9,077	5,855.38	5,749.26	(106.12)	-1.81%	5
6	125 Percent Average Use	11,346	7,201.58	7,068.93	(132.65)	-1.84%	6
7	Annual Average Use	7,211	4,748.29	4,663.98	(84.31)	-1.78%	7
<u>Effective Tariff Rates [2]</u>		<u>Amount</u>					
Basic Service Charge		\$ 470.00					
Commodity Charge							
All Usage		\$ 0.59330					
<u>Proposed Tariff Rates [3]</u>		<u>Amount</u>					
Basic Service Charge		\$ 470.00					
Commodity Charge							
All Usage		\$ 0.58161					

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.

[4] This does not reflect \$(473,743) EEP adjustment associated with this customer class.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**GAS SERVICE FOR COMPRESSION ON CUSTOMER'S PREMISES - SMALL**

Line No.	Description	Monthly Consumption (Therms)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates	At Proposed Tariff Rates	Dollars	Percent	
	(a)	(b)	(c)	(d)	(e)	(f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	296	\$ 193.25	\$ 192.56	\$( 0.69)	-0.36%	1
2	Average Summer Use [1]	395	248.69	247.76	(0.93)	-0.37%	2
3	125 Percent Average Use	494	304.13	302.97	(1.16)	-0.38%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	322	\$ 207.81	\$ 207.06	\$( 0.75)	-0.36%	4
5	Average Winter Use [1]	429	267.73	266.72	(1.01)	-0.38%	5
6	125 Percent Average Use	536	327.64	326.39	(1.25)	-0.38%	6
7	Annual Average Use	412	258.21	257.24	(0.97)	-0.38%	7

<u>Effective Tariff Rates [2]</u>	<u>Amount</u>
Basic Service Charge	\$ 27.50
Commodity Charge	
All Usage	\$ 0.55997

<u>Proposed Tariff Rates [3]</u>	<u>Amount</u>
Basic Service Charge	\$ 27.50
Commodity Charge	
All Usage	\$ 0.55763

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**GAS SERVICE FOR COMPRESSION ON CUSTOMER'S PREMISES - LARGE**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates (c)	At Proposed Tariff Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	6,158	\$ 3,698.30	\$ 3,683.90	\$( 14.40)	-0.39%	1
2	Average Summer Use [1]	8,210	4,847.35	4,828.17	(19.18)	-0.40%	2
3	125 Percent Average Use	10,263	5,996.97	5,972.99	(23.98)	-0.40%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	5,420	\$ 3,285.04	\$ 3,272.37	\$( 12.67)	-0.39%	4
5	Average Winter Use [1]	7,227	4,296.90	4,280.01	(16.89)	-0.39%	5
6	125 Percent Average Use	9,034	5,308.77	5,287.65	(21.12)	-0.40%	6
7	Annual Average Use	7,719	4,572.41	4,554.37	(18.04)	-0.39%	7
<u>Effective Tariff Rates [2]</u>		<u>Amount</u>					
Basic Service Charge		\$ 250.00					
Commodity Charge							
All Usage		\$ 0.55997					
<u>Proposed Tariff Rates [3]</u>							
Basic Service Charge		\$ 250.00					
Commodity Charge							
All Usage		\$ 0.55763					

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**GAS SERVICE FOR COMPRESSION ON CUSTOMER'S PREMISES - RESIDENTIAL**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates (c)	At Proposed Tariff Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	42	\$ 34.22	\$ 34.12	\$( 0.10)	-0.29%	1
2	Average Summer Use [1]	56	42.06	41.93	(0.13)	-0.31%	2
3	125 Percent Average Use	70	49.90	49.73	(0.17)	-0.34%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	48	\$ 37.58	\$ 37.47	\$( 0.11)	-0.29%	4
5	Average Winter Use [1]	64	46.54	46.39	(0.15)	-0.32%	5
6	125 Percent Average Use	80	55.50	55.31	(0.19)	-0.34%	6
7	Annual Average Use	60	44.30	44.16	(0.14)	-0.32%	7
<u>Effective Tariff Rates [2]</u>		<u>Amount</u>					
Basic Service Charge		\$ 10.70					
Commodity Charge							
All Usage		\$ 0.55997					
<u>Proposed Tariff Rates [3]</u>							
Basic Service Charge		\$ 10.70					
Commodity Charge							
All Usage		\$ 0.55763					

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.

**SOUTHWEST GAS CORPORATION**  
**ARIZONA GENERAL RATE CASE**  
**TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES**  
**FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015**  
**SMALL ESSENTIAL AGRICULTURE USER GAS SERVICE**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates (c)	At Proposed Tariff Rates (d)	Dollars (e)	Percent (f)	
<u>Summer Season Bills</u>							
1	75 Percent Average Use	2,267	\$ 1,538.33	\$ 1,538.76	\$ 0.43	0.03%	1
2	Average Summer Use [1]	3,022	2,010.68	2,011.27	0.59	0.03%	2
3	125 Percent Average Use	3,778	2,483.67	2,484.40	0.73	0.03%	3
<u>Winter Season Bills</u>							
4	75 Percent Average Use	2,946	\$ 1,963.14	\$ 1,963.70	\$ 0.56	0.03%	4
5	Average Winter Use [1]	3,928	2,577.51	2,578.27	0.76	0.03%	5
6	125 Percent Average Use	4,910	3,191.89	3,192.84	0.95	0.03%	6
7	Annual Average Use	3,513	2,317.87	2,318.55	0.68	0.03%	7

<u>Effective Tariff Rates [2]</u>	<u>Amount</u>
Basic Service Charge	\$ 120.00
Commodity Charge All Usage	\$ 0.62564

<u>Proposed Tariff Rates [3]</u>	<u>Amount</u>
Basic Service Charge	\$ 120.00
Commodity Charge All Usage	\$ 0.62583

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.

**SOUTHWEST GAS CORPORATION  
ARIZONA GENERAL RATE CASE  
TYPICAL BILL COMPARISON - PROPOSED VS. CURRENTLY EFFECTIVE RATES  
FOR THE TWELVE MONTHS ENDED NOVEMBER 30, 2015  
NATURAL GAS ENGINE GAS SERVICE**

Line No.	Description (a)	Monthly Consumption (Therms) (b)	Monthly Bill		Increase/(Decrease)		Line No.
			At Currently Effective Rates (c)	At Proposed Tariff Rates (d)	Dollars (e)	Percent (f)	
<u>Peak Season Bills</u>							
1	75 Percent Average	2,525	\$ 1,458.45	\$ 1,450.02	\$( 8.43)	-0.58%	1
2	Average	3,366	1,902.58	1,891.34	(11.24)	-0.59%	2
3	125 Percent Average	4,208	2,347.24	2,333.19	(14.05)	-0.60%	3
<u>Off-Peak Season Bills</u>							
4	75 Percent Average	1,085	\$ 572.99	\$ 569.36	(3.63)	-0.63%	4
5	Average	1,447	764.16	759.33	(4.83)	-0.63%	5
6	125 Percent Average	1,809	955.33	949.29	(6.04)	-0.63%	6

<u>Effective Tariff Rates [2]</u>	<u>Amount</u>
Basic Service Charge	
Peak Season	\$ 125.00
Off-Peak Season	0.00
Commodity Charge	
All Usage	\$ 0.52810

<u>Proposed Tariff Rates [3]</u>	<u>Amount</u>
Basic Service Charge	
Peak Season	\$ 125.00
Off-Peak Season	0.00
Commodity Charge	
All Usage	\$ 0.52476

[1] Company Record.

[2] Present Margin Rates effective on November 30, 2015.

[3] Schedule H-3, Sheets 1-3. Rate Adjustments and Gas Cost effective January 1, 2017.



**EXHIBIT NO. A-18**

**DIRECT TESTIMONY ON SETTLEMENT  
AGREEMENT – JUSTIN LEE BROWN**





# SOUTHWEST GAS CORPORATION

January 30, 2017

Arizona Corporation Commission  
Docket Control  
1200 West Washington Street  
Phoenix, AZ 85007-2996

**Re: Docket No. G-01551A-16-0107**

Southwest Gas Corporation respectfully submits the Direct Testimony of Justin Lee Brown in support of the proposed Settlement Agreement in the above-referenced docket.

If you have any questions, please do not hesitate to contact me at 602-395-4058.

Respectfully submitted,

Matthew D. Derr  
Regulatory Manager/Arizona

Cc: Service List

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**BEFORE THE ARIZONA CORPORATION COMMISSION**

**COMMISSIONERS**

TOM FORESE - Chairman  
BOB BURNS  
DOUG LITTLE  
ANDY TOBIN  
BOYD DUNN

In the Matter of the Application of  
Southwest Gas Corporation for the  
Establishment of Just and Reasonable  
Rates and Charges Designed to Realize a  
Reasonable Rate of Return on the Fair  
Value of the Properties of Southwest Gas  
Corporation Devoted to its Arizona  
Operations

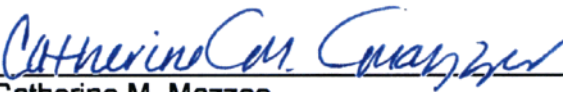
DOCKET NO.: G-01551-A-16-0107

**DIRECT TESTIMONY IN SUPPORT OF  
PROPOSED SETTLEMENT  
AGREEMENT**

Southwest Gas Corporation (Southwest Gas or Company) hereby submits the Direct  
Testimony of Justin Lee Brown in support of the proposed Settlement Agreement in this  
proceeding.

Respectfully submitted this 30<sup>th</sup> day of January, 2017.

SOUTHWEST GAS CORPORATION



**Catherine M. Mazzeo**  
Arizona Bar No. 028939  
5241 Spring Mountain Road  
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*Attorney for Southwest Gas Corporation*

1 Original and 13 copies of the foregoing were filed  
2 this 30<sup>th</sup> day of January, 2017 with:

3 Docket Control  
4 Arizona Corporation Commission  
5 1200 West Washington Street  
6 Phoenix, Arizona 85007

7 Copies of the foregoing were hand-delivered/mailed/e-mailed  
8 this 30<sup>th</sup> day of January, 2017 to:

9 Dwight D. Nodes  
10 Chief Administrative Law Judge  
11 Hearing Division  
12 Arizona Corporation Commission  
13 1200 West Washington Street  
14 Phoenix, Arizona 85007

15 Timothy LaSota  
16 Janet Wagner  
17 Legal Division  
18 Arizona Corporation Commission  
19 1200 West Washington Street  
20 Phoenix, Arizona 85007  
21 LegalDiv@azcc.gov  
22 **Consented to Service by Email**

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32 Arizona Corporation Commission  
33 1200 West Washington Street  
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40 2700 North 3rd Street, Suite 3040  
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12 Counsel for NatureSweet

13 Robert Miller, Director and Chair of  
14 Utilities Liaison Committee  
15 Property Owners and  
16 Residents Association  
17 13815 Camino del Sol  
18 Sun City West, Arizona 85375  
19 Bob.miller@porascw.org  
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21 Rob Robbins, President  
22 Property Owners and  
23 Residents Association  
24 13815 Camino del Sol  
25 Sun City West, Arizona 85375  
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VMI Holdings, LLC  
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TDickey@vmiholdings.com  
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28  
  
an employee of Southwest Gas Corporation

IN THE MATTER OF  
SOUTHWEST GAS CORPORATION  
DOCKET NO. G-01551A-16-0107

PREPARED DIRECT TESTIMONY  
IN SUPPORT OF THE PROPOSED SETTLEMENT AGREEMENT  
OF  
JUSTIN LEE BROWN

ON BEHALF OF  
SOUTHWEST GAS CORPORATION

January 30, 2017

Table of Contents  
Prepared Direct Testimony  
in Support of the Proposed Settlement Agreement  
of

JUSTIN LEE BROWN

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Appendix A – Summary of Qualifications of Justin Lee Brown

**SOUTHWEST GAS CORPORATION  
DOCKET NO. G-01551A-16-0107**

**SUMMARY OF PREPARED DIRECT TESTIMONY  
IN SUPPORT OF THE PROPOSED SETTLEMENT AGREEMENT  
OF  
JUSTIN LEE BROWN**

Justin Lee Brown is Vice President/Regulation and Public Affairs of Southwest Gas Corporation (Southwest Gas or Company). In addition to providing an overview and summary of the settlement process and negotiations, Mr. Brown's direct testimony in support of the proposed Settlement Agreement highlights the following matters:

- An overview of the overall rate increase.
- An overview of the agreed upon cost of capital and rate base amounts.
- An explanation of the Property Tax Mechanism.
- An explanation of infrastructure programs, including the expansion of the Customer-Owned Yard Line (COYL) program and the implementation of a Vintage Steel Pipe (VSP) replacement program.
- An explanation of the Customer Choice Gas Supplier pilot program.
- An overview of Company's bill presentation.

In addition to the above items, Mr. Brown also discusses the Settling Parties' agreement on certain rate design issues, tariff related changes, and miscellaneous settlement terms. Mr. Brown also discusses how the interests of low income customers are addressed by the proposed Settlement Agreement.



BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Direct Testimony  
of  
JUSTIN LEE BROWN

**I. INTRODUCTION**

Q. 1 Please state your name and business address.

A. 1 My name is Justin Lee Brown. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150.

Q. 2 By whom and in what capacity are you employed?

A. 2 I am employed by Southwest Gas Corporation (Southwest Gas or the Company) in the Regulation and Public Affairs department. My title is Vice President/Regulation and Public Affairs.

Q. 3 Please summarize your educational background and relevant business experience.

A. 3 My educational background and relevant business experience are summarized in Appendix A to this testimony.

Q. 4 Have you previously testified before any regulatory commission?

A. 4 No.

Q. 5 What is the purpose of your prepared direct testimony in this proceeding?

A. 5 I am sponsoring testimony in support of the proposed settlement agreement filed with the Arizona Corporation Commission (Commission) January 20, 2017 (Settlement Agreement). The Settlement Agreement resolves all issues arising from the Company's May 2, 2016 general rate case application (Application), and was entered into by and among Southwest Gas, the Commission's Utilities

1 Division Staff (Staff), the Residential Utility Consumer Office (RUCO), the  
2 Arizona Community Action Association (ACAA), the Arizona Investment Council  
3 (AIC), Desert Valley Natural Gas, LLC (DVNG), and the Property Owners and  
4 Residents Association of Sun City West (PORA) (collectively, the Settling  
5 Parties).

6 Q. 6 Please summarize your prepared direct testimony.

7 A. 6 My prepared direct testimony consists of the following key issues:

- 8 • An overview and summary of the settlement process and negotiations.
- 9 • An overview and explanation of the settlement terms, including the overall  
10 rate increase, cost of capital and rate base amounts, the Property Tax  
11 Mechanism, infrastructure programs, a customer choice gas supplier pilot  
12 program, rate design, bill presentation, and tariff changes.
- 13 • An explanation of why the Settlement Agreement is in the public interest and  
14 should be approved by the Commission.

15 **II. THE SETTLEMENT PROCESS AND NEGOTIATIONS**

16 Q. 7 Please summarize the events leading up to the settlement negotiations.

17 A. 7 Southwest Gas filed its Application May 2, 2016, requesting approval of: (i) a  
18 general rate increase for its Arizona rate jurisdiction; (ii) the rebranding and  
19 expansion of its infrastructure recovery program; (iii) a property tax true-up  
20 mechanism; (iv) retention of its fully decoupled rate design; and (v) amendments  
21 to its Arizona Gas Tariff.

22 Several parties intervened in the docket and chose to file testimony on  
23 or before either the November 30, 2016 deadline for non-rate design issues or  
24 the December 14, 2016 deadline for rate design issues. Staff, RUCO, ACAA,  
25 PORA, Mr. Gayer, and DVNG each filed direct testimony. AIC, Nature Sweet

1 USA, LLC (Nature Sweet), and Pinal Energy, LLC (Pinal Energy) chose not to  
2 file direct testimony. Southwest Gas filed a Notice of Settlement Meeting  
3 December 12, 2016, and the meeting was held December 15, 2016.

4 Q. 8 Did you participate in the settlement negotiations?

5 A. 8 Yes. In addition to Southwest Gas, all other participants who requested and were  
6 granted intervention in this case participated in those negotiations, with the  
7 exception of Nature Sweet who elected to not participate. As such, the  
8 settlement negotiation participants included Staff, RUCO, ACAA, AIC, DVNG,  
9 PORA, Mr. Gayer, and Pinal Energy. Through these negotiations, all Parties to  
10 the docket chose to become signatories to the Settlement Agreement, with the  
11 exception of Mr. Gayer, Pinal Energy, and Nature Sweet. Nature Sweet filed  
12 comments in response to the Settlement Agreement indicating it did not oppose  
13 the agreement.

14 Q. 9 How was the settlement process conducted?

15 A. 9 All parties were notified of the settlement meeting. The settlement meeting was  
16 held at the Commission and a conference call number was provided for those  
17 parties not able to attend in person. The negotiations were conducted at arms-  
18 length, and were inclusive of all parties that chose to participate. All parties had  
19 the opportunity to ask questions or raise issues of concern. The Settlement  
20 Agreement reflects the input of all parties, resulting in a thorough analysis,  
21 discussion and resolution of issues. Settlement negotiation participants were  
22 provided with electronic or hard copies of all documents presented during  
23 discussions. To encourage openness and transparency, the participants agreed  
24 that the content of settlement discussions would be confidential, as they  
25 generally are in civil litigation under Arizona's Rules of Civil Procedure and

1 Evidence. Once the Settling Parties reached an agreement in principle, a  
2 preliminary term sheet was developed and ultimately filed with the Commission  
3 December 29, 2016.

4 Q. 10 What is the Company's perspective on the resulting Settlement Agreement?

5 A. 10 The settlement discussions were open, transparent, and inclusive of all parties.  
6 Southwest Gas believes the Settlement Agreement results in a balanced and  
7 complete package that addresses most, if not all, of the issues that were raised  
8 by the parties. The Settlement Agreement results in a reasonable adjustment  
9 to base rates to reflect Southwest Gas' current cost of service, and will help  
10 facilitate the continuation of customers receiving safe and reliable service at just  
11 and reasonable rates and charges. Southwest Gas commends all parties,  
12 especially the Settling Parties, for their willingness to come together and reach  
13 solutions that are fair, just and reasonable, and in the public interest.

14 **III. OVERALL RATE INCREASE**

15 Q. 11 Please provide an overview of the overall rate increase agreed to in the  
16 Settlement Agreement.

17 A. 11 The Settlement Agreement provides for a base rate increase of \$16 million over  
18 the Company's adjusted test year margin of \$481,681,406, for a total revenue  
19 requirement of \$497,681,406.

20 Q. 12 Did the Company include a depreciation study and a proposal to change  
21 depreciation rates in its Application?

22 A. 12 Yes. The Settling Parties agreed to adopt the modified depreciation rates  
23 proposed by Staff, and the system-allocable depreciation rates proposed by the  
24 Company. The agreed-upon depreciation rates are listed in Attachment 1 to the  
25

1 Settlement Agreement, and result in an overall reduction in depreciation  
2 expense of \$44,743,206.

3 Q. 13 How does the revenue increase agreed to by the Settling Parties compare to  
4 their filed positions?

5 A. 13 The table below compares the agreed-upon revenue increase to the amounts  
6 filed by the Company, Staff and RUCO in their respective direct testimonies.  
7 Under the Settlement Agreement, the average annual bill for residential  
8 customers will increase by 1.09 percent. This results in an average monthly  
9 residential bill increase of approximately \$0.40.

	Company Proposed	Staff Proposed	RUCO Proposed	Settlement Agreement
10 Revenue Increase	\$32m	\$11.3m	\$10.6m	\$16m
11 Single Family Residential 12 Increase	2.80%	0.58%	0.35%	1.09%

13  
14 Q. 14 Does the Settlement Agreement contain a stay- out provision?

15 A. 14 Yes. The Settling Parties negotiated a stay-out provision whereby Southwest  
16 Gas agreed not to file another general rate case prior to May 1, 2019.

17 **IV. CAPITAL STRUCTURE AND RATE BASE**

18 Q. 15 Please summarize the Settling Parties' agreement regarding cost of capital.

19 A. 15 The Settlement Agreement adopts a capital structure comprised of 48.3 percent  
20 long-term debt and 51.7 percent equity, with a 9.5 percent return on common  
21 equity (ROE) and an embedded cost of long term debt of 5.2 percent. Further,  
22 the Settlement Agreement adopts an overall fair value rate of return of 5.71  
23 percent with a fair value increment of 0.93.

24 Q. 16 How do these agreed-upon cost of capital components compare to the Settling  
25 Parties' filed positions?

1 A. 16 The table below compares the agreed-upon capital structure, embedded cost of  
 2 long-term debt and ROE to the Settling Parties' filed positions, and illustrates  
 3 that the cost of capital provisions included in the Settlement Agreement are  
 4 reasonable in relation to what the Settling Parties recommended in their direct  
 5 testimonies.

	Company Proposed	Staff Proposed	RUCO Proposed	Settlement Agreement
7 Debt	48.31%	48.31%	49.02%	48.3%
8 Equity	51.69%	51.69%	50.98%	51.7%
9 ROE	10.25%	9.25%	9.39%	9.5%
10 Cost of Debt	5.21%	5.21%	5.20%	5.2%
11 Fair Value ROR	6.01%	5.61%	5.67%	5.71%
12 Fair Value Increment	0.93%	0.93%	1.04%	0.93%

12 Q. 17 How does the agreed-upon ROE compare with authorized ROEs for the  
 13 Company's proxy group and other gas utilities?

14 A. 17 The table below compares the agreed-upon ROE to the Company's proxy group  
 15 and other gas utilities, and demonstrates the reasonableness of the agreed-  
 16 upon ROE relative to other authorized ROEs.

	Settlement Agreement	Southwest Gas Proxy Group	2016 Average – Gas Utilities
18 ROE	9.50%	10.39%	9.54%

20 Q. 18 What rate base amounts did the Settling Parties agree to?

21 A. 18 The Settling Parties agreed to the following rate base amounts for the test period  
 22 ending November 30, 2015: (i) an original cost rate base (OCRB) of  
 23 \$1,324,902,393, a reconstruction cost new depreciated (RCND) rate base of  
 24 \$2,277,227,765, and a fair value jurisdictional rate base (FVRB) of  
 25 \$1,801,065,079.

1 Q. 19 How do the agreed-upon rate base amounts compare to the Settling Parties'  
2 filed positions?

3 A. 19 The table below compares the agreed-upon rate base amounts to the Settling  
4 Parties' filed positions, and demonstrates that the rate base amounts included  
5 in the Settlement Agreement are reasonable in relation to what Southwest Gas,  
6 Staff and RUCO recommended in their direct testimonies.

	Company Proposed	Staff Proposed	RUCO Proposed	Settlement Agreement
8 OCRB	\$1,336,049,260	\$1,324,902,393	\$1,319,548,633	\$1,324,902,393
9 RCND	\$2,288,780,072	\$2,277,227,765	\$2,270,794,885	\$2,277,227,765
10 FVRB	\$1,812,414,665	\$1,801,065,079	\$1,795,171,759	\$1,801,065,079

11  
12 **V. PROPERTY TAX MECHANISM**

13 Q. 20 Please describe the Property Tax Mechanism agreed to by the Settling Parties.

14 A. 20 The Property Tax Mechanism allows the Company to defer changes in property  
15 tax expense that occur between general rate cases into a regulatory asset  
16 account, for recovery in the Company's next general rate case.

17 Q. 21 Why is a Property Tax Mechanism necessary?

18 A. 21 The Company has very little managerial discretion over property tax expense –  
19 since rates and assessments are established by governmental agencies and are  
20 outside the Company's control. Furthermore, the Company has found that these  
21 expenses can be volatile – resulting in situations where customers end up  
22 paying an amount that is different than the amount embedded in base rates.  
23 The Property Tax Mechanism will minimize the negative impact to both the  
24 Company and its customers associated with the volatility of property tax expense

25

1 between rate cases, by ensuring that the Company only collects from customers  
2 the amount of property tax expense that it pays – no more, no less.

3 **VI. INFRASTRUCTURE PROGRAMS**

4 Q. 22 Please describe the modification to the Customer Owned Yard Line (COYL)  
5 program.

6 A. 22 The COYL program was originally approved by the Commission in the  
7 Company's last general rate case, with the goal of replacing all COYLs within  
8 the Company's Arizona service territories. The program began with a focus on  
9 replacing leaking COYLs. Since then, the Company has worked collaboratively  
10 with Staff to expand the COYL program in order to accelerate COYL  
11 replacement activity. In 2014, the Commission approved an expansion of the  
12 COYL program that allows the Company to proactively replace COYLs in  
13 conjunction with its other pipe replacement activities, regardless of whether the  
14 COYL is leaking. The Settlement Agreement adopts the Company's proposal  
15 to further expand the COYL program to allow a more targeted approach to COYL  
16 replacement. In addition to replacing COYLs that are leaking and COYLs that  
17 are not leaking but are in the same vicinity as other pipeline replacement activity,  
18 the Company will be able to proactively identify COYL customers, embark on an  
19 education program to enlist willing customers, and then mobilize crews to  
20 perform the replacement. This program enhancement is expected to increase  
21 the COYL replacement rate, as the Company will be able to offer the COYL  
22 program to a greater number of customers.

23 Q. 23 Please describe the Vintage Steel Pipe (VSP) replacement program.

24 A. 23 Southwest Gas takes its commitment to providing safe and reliable service to its  
25 customers very seriously. The Company believes an important part of providing



1 safe and reliable service is developing infrastructure proposals that respond to  
2 both industry concerns and customer needs, and working with regulators and  
3 other parties to implement them. To that end, the Company worked  
4 collaboratively with the Commission and the parties to its last general rate case  
5 to develop the COYL program. In a similar vein, the Company proposed a VSP  
6 replacement program in this case to facilitate the accelerated replacement of  
7 VSP (specifically, pre-1970's vintage VSP) within the Company's Arizona  
8 system. In recent years, industry concerns at both the state and federal level  
9 have resulted in a heightened focus on the modernization of natural gas  
10 systems, including the replacement of aging infrastructure. The Settlement  
11 Agreement approves the Company's proposed VSP replacement program, but  
12 modifies the Company's proposed cap on the VSP surcharge. The Settling  
13 Parties agreed that the annual adjustment to the VSP surcharge will be capped  
14 at \$0.015 per therm. The agreed-upon VSP replacement program will enhance  
15 public safety by facilitating a proactive approach to the replacement of aging  
16 infrastructure, but will also offer rate impact protections to customers by  
17 including a reasonable cap on the annual rate adjustment that they will  
18 experience.

19 Q. 24 Please describe the key benefits of the VSP replacement program.

20 A. 24 The VSP mechanism provides a means for the Company, its regulators, and  
21 other interested parties to respond to industry concerns through a program that  
22 allows for the planned replacement of aging infrastructure, and timely and  
23 gradually adjusts rates to account for the non-revenue producing nature of those  
24 replacements. Southwest Gas has nearly 6,000 miles of 'pre-1970's VSP in  
25 Arizona. The VSP replacement program allows for the modernization of these

1 facilities in a systematic and proactive manner over time, minimizing the  
2 potential for a more reactive response to the replacement of facilities that could  
3 result in a sharp increase in rates over a shorter period of time.

4 Further, in exchange for the enhanced safety and reliability associated  
5 with the VSP replacements, the program results in a very modest rate change  
6 and minimal customer bill impact, given the annual cap of \$0.015 that was  
7 agreed to by the Settling Parties.

8 Finally, like the COYL program, the VSP replacement program  
9 represents a positive economic benefit to the state in terms of jobs, gross state  
10 product, and state and local taxes.

11 **VII. CUSTOMER CHOICE GAS SUPPLIER PILOT PROGRAM**

12 Q. 25 What is the Customer Choice Gas Supplier Pilot Program?

13 A. 25 The Customer Choice Gas Supplier Pilot Program (Customer Choice) is a  
14 transportation service pilot program for certain non-residential customers in  
15 Arizona that do not currently qualify for transportation service. The Company  
16 made a commitment to work with Staff and DVNG to develop a pilot program  
17 consistent with five key principles. First, the program must be revenue neutral.  
18 Second, the program must be designed to ensure no interclass subsidies. As  
19 such, any incremental costs associated with the pilot program shall be borne by  
20 the customer class availing themselves of the pilot program. Third, there must  
21 be a governance structure in place for addressing Commission registration of  
22 third-party gas providers, customer complaints, billing, a supplier code of  
23 conduct and Commission review of the program. Fourth, there must be  
24 gradualism in designing and rolling out the program. Fifth, a beta test of five  
25 customers must be conducted to ensure the agreed-upon program framework

1 is functioning as anticipated, prior to opening it to other suppliers and customers.  
2 The Company is committed to working with Staff and DVNG to develop a  
3 program consistent with these parameters.

4 Q. 26 Why does the Company support a Customer Choice Pilot Program?

5 A. 26 Conceptually, the Company supports offering choice programs to qualifying  
6 customers, so long as the appropriate parameters are in place. The Company  
7 believes that the Settlement Agreement provides the proper framework to guide  
8 the development of a Customer Choice pilot program.

9 **VIII. RATE DESIGN**

10 Q. 27 Please describe the Company's currently effective decoupled rate design.

11 A. 27 In the Company's last general rate case, the Commission approved a settlement  
12 that resulted in the implementation of full revenue decoupling. This methodology  
13 allows the Company to adjust rates to reflect any differences between  
14 Commission-authorized revenues per customer and actual revenues per  
15 customer.

16 Mechanically, the decoupling mechanism consists of two components – a  
17 monthly weather component that adjusts winter bills to reflect differences in  
18 customer consumption between actual weather during the billing cycle and the  
19 average weather used to calculate rates, and an annual component that adjusts  
20 rates to reflect any differences between the non-gas revenues authorized by the  
21 Commission and the actual non-gas revenues experienced by the Company.

22 Q. 28 Since the Company's last general rate case, has the Company's decoupling  
23 mechanism performed as intended?

24 A. 28 Yes. As acknowledged by the Commission in each of its annual reviews, the  
25 Company's full revenue decoupling mechanism has performed as intended by

1 limiting the Company's recovery of margin to the authorized margin per  
2 customer – no more, no less. In addition, customers have benefited from both  
3 a lower embedded cost of debt and annual credits totaling approximately \$33  
4 million to date.

5 Q. 29 Please describe the modifications to the Company's revenue decoupling  
6 mechanism that the Settling Parties agreed to.

7 A. 29 The Settlement Agreement provides for the continuation of the Company's full  
8 revenue decoupling mechanism, but eliminates the monthly weather  
9 component. This modification will result in a simplified methodology, with an  
10 adjustment that is easier for customers to understand. To more closely reflect  
11 the nature of the adjustment, the mechanism will now be referred to as the  
12 Delivery Charge Adjustment Provision (DCA). The DCA will replace the existing  
13 Energy Efficiency Enabling Provision (EEP) line item on customer bills.

14 Q. 30 Does the rate design agreed to by the Settling Parties result in any changes to  
15 the basic service charge?

16 A. 30 No. The currently effective basic service charge for all customer classes is  
17 unchanged as a result of the Settlement Agreement.

18 Q. 31 How are the interests of low income customers being addressed by the  
19 Settlement Agreement?

20 A. 31 The Settlement Agreement increases the eligibility of the Company's Low  
21 Income Ratepayer Assistance (LIRA) program to customers whose incomes are  
22 less than or equal to 200% of the Federal Poverty Income Guidelines. As  
23 recognized in the direct testimony from ACAA, the Company's existing Low  
24 Income Energy Conservation and Energy SHARE assistance programs have  
25 eligibility levels at 200% of Federal Poverty Income Guidelines; therefore,

1 increasing the guidelines for LIRA will streamline implementation of the suite of  
2 assistance programs and allow caseworkers to more efficiently serve Southwest  
3 Gas customers.

4 **IX. BILL PRESENTATION**

5 Q. 32 What does the Settlement Agreement provide with respect to Southwest Gas'  
6 bill presentation?

7 A. 32 As part of the Settlement Agreement, the Company agreed to implement certain  
8 proactive steps to help ensure customers receive notice regarding the  
9 availability of a detailed bill. The Company will advise customers of the option  
10 to receive a detailed bill, both on the Company's website and in the notice of the  
11 rate adjustment approved in this proceeding. Additionally, the Company will  
12 notify customers once a year of the availability of receiving a detailed bill.

13 Q. 33 Please describe the difference between a simplified and detailed bill  
14 presentation.

15 A. 33 The simplified bill presentation summarizes the information that is included in  
16 the detailed bill format. The underlying information can be found in the  
17 Company's Arizona Gas Tariff, but the information is presented in a summary  
18 fashion on the customer's bill. The summarized information in the simplified bill  
19 includes the quantity of gas consumed during the billing period and the costs  
20 incurred for the delivery of that gas. The detailed bill contains all of the  
21 calculations that are performed to determine the costs incurred, including  
22 proration calculations when customer rates are adjusted during a billing period.

23 Q. 34 Why did the Company modify its bill presentation from the detailed format to the  
24 simplified format?  
25

1 A. 34 Over time, the Company has modified its bill format in an effort to better serve  
2 its customer's needs and desires. For example, the detailed bill was first  
3 introduced in 2002. Prior to that time, the Company's bill presentation included  
4 an average rate calculation. The average rate changed from month-to-month  
5 depending on the amount of gas consumed and any rate changes that occurred  
6 during the billing cycle. Based on customer feedback indicating that the  
7 changing nature of average rate was confusing, the Company developed the  
8 detailed bill presentation. Starting in 2002, customer bills included the detailed  
9 calculations mentioned above. While this addressed concerns about the  
10 average rate presentation, it introduced a different level of customer confusion  
11 due to the more complicated calculations being presented. Consequently, after  
12 consultation with representatives from the Commission's Consumer Division  
13 Staff, the Company determined a more simplified bill would better serve the  
14 interests of its customers. The Company implemented the current form of the  
15 simplified bill in 2011.

16 Q. 35 Did the Company consult with any other interested parties prior to the  
17 introduction of the simplified bill?

18 A. 35 Yes. In addition to the Commission's Consumer Division Staff, the Company  
19 also met with RUCO to discuss the simplified bill format and solicit their  
20 suggestions. Collectively, the parties concluded that most customers would  
21 likely be better served with the simplified bill format, but that some customers  
22 may prefer the more detailed presentation. As a result, the Company committed  
23 to preserving the detailed bill format and to make it available to any customer  
24 who wishes to receive it.

25

1 Q. 36 How many of Southwest Gas' Arizona customers currently receive a detailed  
2 bill?

3 A. 36 Currently, only 754, or less than 0.08% of the Company's Arizona customers  
4 receive a detailed bill.

5 Q. 37 Can all customers obtain a detailed bill if they so choose?

6 A. 37 Yes. And as discussed above, the Settlement Agreement ensures that  
7 customers will be informed of this option in a more proactive manner.

8 **X. OTHER MISCELLANEOUS SETTLEMENT TERMS**

9 Q. 38 Please describe the other miscellaneous settlement terms agreed upon by the  
10 Settling Parties that were specifically addressed in the Settlement Agreement.

11 A. 38 As part of the Settlement Agreement, the Settling Parties agreed to eliminate  
12 certain compliance reports, and agreed to make certain modifications to the  
13 Company's Arizona Gas Tariff. The Company also agreed to Staff's  
14 recommendations regarding its gas procurement program and its Annual Gas  
15 Procurement Plan filings. The Settlement Agreement also provides that, in  
16 addition to the Plans of Administration regarding the VSP replacement program  
17 and the Customer Choice Pilot Program, the Company will work with Staff to  
18 develop Plans of Administration for its existing adjustor mechanisms.

19 **XI. THE SETTLEMENT AGREEMENT IS IN THE PUBLIC INTEREST AND SHOULD BE**  
20 **APPROVED**

21 Q. 39 Does the Company believe the Settlement Agreement is in the public interest?

22 A. 39 Yes. The Settlement Agreement results in just and reasonable rates and  
23 ensures continued safe and reliable natural gas service for Southwest Gas  
24 customers. Further, the Settlement Agreement represents a compromise  
25 between the Settling Parties of the issues presented in the case and avoids



1 unnecessary litigation expense and delay. The Settlement Agreement reflects  
2 input and agreement of parties with disparate and often conflicting interests, and  
3 I believe results in a proposed outcome that may not have been achieved  
4 through a litigated proceeding.

5 Q. 40 How do customers benefit from the Settlement Agreement?

6 A. 40 Southwest Gas believes the Settlement Agreement results in rates, charges and  
7 conditions of service that are just and reasonable and in the public interest. In  
8 this regard, the Settlement Agreement provides substantial benefits to  
9 Southwest Gas customers, and allows the Company to continue providing its  
10 customers a high level of safe and reliable service. Some of these benefits  
11 include:

- 12 • Rate stability. The Settlement Agreement reflects a 1.09% increase to single  
13 family residential customers. This base rate increase is following a five year  
14 stay-out provision that was agreed to as part of the last rate case, and when  
15 combined with the three year stay-out provision being proposed, customers  
16 will enjoy the benefit of a relatively small increase in base rates over an eight-  
17 year period. Further, the agreed-upon rate design retains the current basic  
18 service charge for all customer classes. The Company's full revenue  
19 decoupling mechanism will continue to benefit customers as the Company  
20 will only be able to recover its authorized margin per customer, and  
21 customers will benefit from the simplification created by eliminating the  
22 monthly weather component.
- 23 • Investment in Arizona. The expansion of the COYL program and  
24 implementation of the VSP replacement program will continue to support the  
25 Company's efforts to modernize, and improve the safe and reliable operation



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of the Company's gas distribution system. The investments into the COYL and VSP replacement program represent a positive economic benefit to the state in terms of jobs, gross state product, and state and local taxes.

- Low Income. Increasing the LIRA program eligibility to customers whose incomes are less than or equal to 200% of Federal Poverty Income Guidelines will broaden participation in this program and establish consistency across Southwest Gas' low income programs.

Q. 41 Why should the Commission approve the Settlement Agreement?

A. 41 The Settlement Agreement reflects the collaborative effort and input of the Settling Parties and results in an agreement that is just, reasonable, fair, and in the public interest. The Settlement Agreement strikes a balanced approach by ensuring minimal rate impacts to customers, while offering shareholders a meaningful opportunity to recover costs and an opportunity to earn a reasonable rate of return on their utility investment. Based on the foregoing, I urge the Commission to approve the Settlement Agreement.

Q. 42 Does this conclude your prepared direct testimony?

A. 42 Yes.

**SUMMARY OF QUALIFICATIONS  
JUSTIN LEE BROWN**

Mr. Brown is the Vice President/Regulation and Public Affairs of Southwest Gas Corporation where his responsibilities include State Regulatory Affairs, Rates and Regulatory Analysis, Energy Efficiency, Community and Government Affairs, and Paiute Pipeline-related Gas Scheduling and Regulatory functions. In this role, he provides strategic direction and oversight over all state regulatory proceedings and initiatives in Arizona, California, and Nevada. He is also responsible for the gas scheduling and federal regulatory functions of Paiute Pipeline – a wholly owned interstate pipeline company that operates in Northern Nevada. In addition to the state and federal regulatory functions, he is also responsible for federal, state, and local governmental affairs, and the Company's community affairs programs.

Mr. Brown holds a bachelor's degree in Accounting from Southern Utah University, and a Juris Doctorate from Gonzaga University, where he also earned his master's degree in Business Administration. He is admitted to practice law in the state and federal courts in Arizona, Nevada, and Utah; and before the United States Supreme Court.

Mr. Brown began his career as an Associate Tax Consultant with Deloitte LLP in 1998 where he worked with clients on various tax consulting and compliance related projects. In 1999, he began working as an Associate Attorney with the Las Vegas based law office of Smith Larsen & Wixom. In his role as Associate Attorney, he supported various commercial clients on transactional and litigation matters, and business formation issues.

In 2004, Mr. Brown joined Southwest Gas as Senior Counsel in the legal department, and was later promoted to Associate General Counsel. In these roles he supported the organization's regulatory efforts in Arizona, California, and Nevada, as well as provided support on various transactional and compliance-related matters.

In 2006, he left Southwest Gas to become Senior Counsel with Rocky Mountain Power, a Division of PacifiCorp. While at Rocky Mountain Power, Mr. Brown was the lead counsel for the regulatory team, providing support on various regulatory proceedings in the states of Utah, Idaho, and Wyoming.

Mr. Brown returned to Southwest Gas in 2008 as Assistant General Counsel to become the lead regulatory attorney supporting the company's initiatives in the states of Arizona, California, and Nevada, and before the Federal Energy Regulatory Commission. In addition to his regulatory duties, Mr. Brown also managed the company's corporate liability insurance program – including negotiating and procuring various insurance contracts.

In 2012, Mr. Brown was named Vice President of Pricing where he became responsible for the company's rates, revenue requirement, and state tariff related functions. He was named Vice President of Regulatory Affairs in 2013, and assumed the responsibility of overseeing the company's governmental affairs functions. Mr. Brown was assigned to his current position in 2014.