

**RISK PREMIUM - GAS GROUP**

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**CURRENT BOND YIELDS****Current Equity Risk Premium**

(a) Avg. Yield over Study Period	8.43%
(b) Single-A Utility Bond Yield	<u>4.13%</u>
Change in Bond Yield	-4.30%
(c) Risk Premium/Interest Rate Relationship	<u>-0.4622</u>
Adjustment to Average Risk Premium	1.99%
(a) Average Risk Premium over Study Period	<u>3.37%</u>
<b>Adjusted Risk Premium</b>	<b>5.36%</b>

**Implied Cost of Equity**

(b) Baa Utility Bond Yield	4.92%
Adjusted Equity Risk Premium	<u>5.36%</u>
<b>Risk Premium Cost of Equity</b>	<b>10.28%</b>

(a) Exhibit AMM-4, page 3.

(b) Average bond yield for six-months ending July 2015 based on data from Moody's Investors Service at [www.credittrends.com](http://www.credittrends.com).

(c) Exhibit AMM-4, page 4.

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### PROJECTED BOND YIELDS

#### Current Equity Risk Premium

(a) Avg. Yield over Study Period	8.43%
(b) Single-A Utility Bond Yield 2016-20	<u>6.20%</u>
Change in Bond Yield	-2.24%
(c) Risk Premium/Interest Rate Relationship	<u>-0.4622</u>
Adjustment to Average Risk Premium	1.03%
(a) Average Risk Premium over Study Period	<u>3.37%</u>
<b>Adjusted Risk Premium</b>	<b>4.41%</b>

#### Implied Cost of Equity

(b) Baa Utility Bond Yield 2016-20	6.99%
Adjusted Equity Risk Premium	<u>4.41%</u>
<b>Risk Premium Cost of Equity</b>	<b>11.40%</b>

(a) Exhibit AMM-4, page 3.

(b) Based on data from IHS Global Insight, The U.S. Economy: The 30-Year Focus (Second-Quarter 2015); Energy Information Administration, Annual Energy Outlook 2015 (April 2015); & Moody's Investors Service at [www.credittrends.com](http://www.credittrends.com).

(c) Exhibit AMM-4, page 4.

AUTHORIZED RETURNS

Year	Qtr.	(a)	(b)	Risk Premium	Year	Qtr.	(a)	(b)	Risk Premium	
		Allowed ROE	Single-A Utility Bond Yield				Allowed ROE	Single-A Utility Bond Yield		
1980	1	13.45%	13.49%	-0.04%	1998	2	11.37%	7.12%	4.25%	
	2	14.38%	12.87%	1.51%		3	11.41%	6.99%	4.42%	
	3	13.87%	12.88%	0.99%		4	11.69%	6.97%	4.72%	
	4	14.35%	14.11%	0.24%	1999	1	10.82%	7.11%	3.71%	
1981	1	14.69%	14.77%	-0.08%		2	(c)	10.82%	7.48%	3.34%
	2	14.61%	15.82%	-1.21%		4		10.33%	8.05%	2.28%
	3	14.86%	16.65%	-1.79%	2000	1	10.71%	8.29%	2.42%	
	4	15.70%	16.57%	-0.87%		2	11.08%	8.45%	2.63%	
1982	1	15.55%	16.72%	-1.17%		3	11.33%	8.25%	3.08%	
	2	15.62%	16.26%	-0.64%		4	12.50%	8.03%	4.47%	
	3	15.72%	15.88%	-0.16%	2001	1	11.16%	7.74%	3.42%	
	4	15.62%	14.56%	1.06%		2	(c)	10.75%	7.93%	2.82%
1983	1	15.41%	14.15%	1.26%		4		10.65%	7.68%	2.97%
	2	14.84%	13.58%	1.26%	2002	1	10.67%	7.65%	3.02%	
	3	15.24%	13.52%	1.72%		2	11.64%	7.50%	4.14%	
	4	15.41%	13.38%	2.03%		3	11.50%	7.19%	4.31%	
1984	1	15.39%	13.56%	1.83%		4	10.78%	7.15%	3.63%	
	2	15.07%	14.72%	0.35%	2003	1	11.38%	6.93%	4.45%	
	3	15.37%	14.47%	0.90%		2	11.36%	6.40%	4.96%	
	4	15.33%	13.38%	1.95%		3	10.61%	6.64%	3.97%	
1985	1	15.03%	13.31%	1.72%		4	10.84%	6.35%	4.49%	
	2	15.44%	12.95%	2.49%	2004	1	11.10%	6.09%	5.01%	
	3	14.64%	12.11%	2.53%		2	10.25%	6.48%	3.77%	
	4	14.44%	11.49%	2.95%		3	10.37%	6.13%	4.24%	
1986	1	14.05%	10.18%	3.87%		4	10.66%	5.94%	4.72%	
	2	13.28%	9.41%	3.87%	2005	1	10.65%	5.74%	4.91%	
	3	13.09%	9.39%	3.70%		2	10.52%	5.52%	5.00%	
	4	13.62%	9.31%	4.31%		3	10.47%	5.51%	4.96%	
1987	1	12.61%	8.96%	3.65%		4	10.40%	5.82%	4.58%	
	2	13.13%	9.77%	3.36%	2006	1	10.63%	5.85%	4.78%	
	3	12.56%	10.61%	1.95%		2	10.50%	6.37%	4.13%	
	4	12.73%	11.05%	1.68%		3	10.45%	6.19%	4.26%	
1988	1	12.94%	10.32%	2.62%		4	10.14%	5.86%	4.28%	
	2	12.48%	10.71%	1.77%	2007	1	10.44%	5.90%	4.54%	
	3	12.79%	10.94%	1.85%		2	10.12%	6.09%	4.03%	
	4	12.98%	9.98%	3.00%		3	10.03%	6.22%	3.81%	
1989	1	12.99%	10.13%	2.86%		4	10.27%	6.08%	4.19%	
	2	13.25%	9.94%	3.31%	2008	1	10.38%	6.15%	4.23%	
	3	12.56%	9.53%	3.03%		2	10.17%	6.32%	3.85%	
	4	12.94%	9.50%	3.44%		3	10.49%	6.42%	4.07%	
1990	1	12.60%	9.72%	2.88%		4	10.34%	7.23%	3.11%	
	2	12.81%	9.91%	2.90%	2009	1	10.24%	6.37%	3.87%	
	3	12.34%	9.93%	2.41%		2	10.11%	6.39%	3.72%	
	4	12.77%	9.89%	2.88%		3	9.88%	5.74%	4.14%	
1991	1	12.69%	9.58%	3.11%		4	10.27%	5.66%	4.61%	
	2	12.53%	9.50%	3.03%	2010	1	10.24%	5.83%	4.41%	
	3	12.43%	9.33%	3.10%		2	9.99%	5.61%	4.38%	
	4	12.38%	9.02%	3.36%		3	9.93%	5.09%	4.84%	
1992	1	12.42%	8.91%	3.51%		4	10.09%	5.34%	4.75%	
	2	11.98%	8.86%	3.12%	2011	1	10.10%	5.60%	4.50%	
	3	11.87%	8.47%	3.40%		2	9.85%	5.38%	4.47%	
	4	11.94%	8.53%	3.41%		3	9.65%	4.81%	4.84%	
1993	1	11.75%	8.07%	3.68%		4	9.88%	4.37%	5.51%	
	2	11.71%	7.81%	3.90%	2012	1	9.63%	4.39%	5.24%	
	3	11.39%	7.28%	4.11%		2	9.83%	4.23%	5.60%	
	4	11.15%	7.22%	3.93%		3	9.75%	3.98%	5.77%	
1994	1	11.12%	7.55%	3.57%		4	10.07%	3.93%	6.14%	
	2	10.81%	8.29%	2.52%	2013	1	9.57%	4.18%	5.39%	
	3	10.95%	8.51%	2.44%		2	9.47%	4.23%	5.24%	
	4	(c)	11.64%	8.87%		3	9.60%	4.74%	4.86%	
1995	2	11.00%	7.93%	3.07%		4	9.83%	4.76%	5.07%	
	3	11.07%	7.72%	3.35%	2014	1	9.54%	4.56%	4.98%	
	4	11.56%	7.37%	4.19%		2	9.84%	4.32%	5.52%	
1996	1	11.45%	7.44%	4.01%		3	9.45%	4.20%	5.25%	
	2	10.88%	7.98%	2.90%		4	10.28%	4.03%	6.25%	
	3	11.25%	7.96%	3.29%	2015	1	9.47%	3.66%	5.81%	
	4	11.32%	7.62%	3.70%		2	<u>9.43%</u>	<u>4.13%</u>	<u>5.30%</u>	
1997	1	11.31%	7.76%	3.55%						
	2	11.70%	7.88%	3.82%	<b>Average</b>		<b>11.81%</b>	<b>8.43%</b>	<b>3.37%</b>	
	3	12.00%	7.49%	4.51%						
	4	(c)	11.01%	3.76%						

(a) Regulatory Research Associates, Inc., Major Rate Case Decisions, (Jul. 16, 2015, Jan. 24, 2002, Jan. 18, 1995, and Jan. 16, 1990).

(b) Moody's Investors Service.

(c) No decisions reported for following quarter.

## RISK PREMIUM - GAS GROUP

### REGRESSION RESULTS

<i>Regression Statistics</i>	
Multiple R	0.9426118
R Square	0.888517
Adjusted R Square	0.8876973
Standard Error	0.0052788
Observations	138

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.030204322	0.030204	1083.917	1.17443E-66
Residual	136	0.003789762	2.79E-05		
Total	137	0.033994084			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.0727274	0.001266393	57.42875	3.08E-97	0.070223005	0.07523174	0.070223005	0.075231741
X Variable 1	-0.462169	0.01403792	-32.9229	1.17E-66	-0.489929833	-0.43440818	-0.48992983	-0.43440818