Application of Southern California Gas Company (U 904 G) for Authority to: (i) Adjust its Authorized Return on Common Equity, (ii) Adjust its Authorized Embedded Costs of Debt and Preferred Stock, (iii) Decrease its Overall Rate of Return, and (iv) Revise its Gas Rates Accordingly, and for Related Substantive and Procedural Relief.	A.12-04-___ (Filed April 20, 2012)

Exhibit No.: SCG-2

PREPARED DIRECT TESTIMONY OF

MICHAEL W. FOSTER

ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

APRIL 2012

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1 PREPARED DIRECT TESTIMONY OF

2 MICHAEL W. FOSTER

3 ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

4 **I. INTRODUCTION**

5 The purpose of this testimony in this state-wide gas and electric utility cost of capital
6 ("COC") proceeding is to present a forecast of the embedded costs of long-term debt and
7 preferred stock for Southern California Gas Company ("SoCalGas" or "Company") for Test
8 Year ("TY") 2013. In addition, SoCalGas recommends a new authorized capital structure,
9 based on the analysis described herein.

10 **A. Summary of Embedded Costs Proposal**

11 Table 1 summarizes the currently authorized and the forecasted embedded costs of
12 long-term debt and preferred stock for SoCalGas.

13 **Table 1 – Embedded Costs of Debt and Preferred Stock**

	Currently Authorized	Proposed TY 2013
Long-Term Debt	6.96%	5.72%
Preferred Stock	4.83%	6.00%

14

15 The forecasted cost of debt for TY 2013 is 5.72%, and is 124 basis points ("bps")
16 lower than the Company's currently authorized cost of debt. This forecast takes into
17 account $1.06 billion first mortgage bonds, $5.0 million of medium-term notes that
18 SoCalGas has issued, and $850.0 million of long-term debt retired since the last cost of debt
19 adjustment in 2003.[1]

[1] Pursuant to Advice Letter ("AL") 3199, as filed on October 29, 2002 (as amended by AL 3199-A, as filed on November 20, 2002).

The forecasted cost of preferred stock is 6.00%, which is the effective rate of the Company's current preferred portfolio. This forecast takes into account redemption of $80.0 million of imputed Pacific Enterprises Inc.[2] ("PE") preferred stock since the last cost of debt adjustment in 2003.[3] This forecast is 117 bps higher than SoCalGas' currently authorized rate.

B. Summary of Capital Structure Proposal

Table 2 summarizes the currently authorized and recommended capital structure for SoCalGas.

Table 2 – SoCalGas Currently Authorized and Proposed Capital Structure

	Currently Authorized	Proposed TY 2013
Long-Term Debt	45.61%[4]	45.60%
Preferred Stock	6.39%	2.40%
Common Equity	48.00%	52.00%

The recommended capital structure reflects the unwinding of PE preferred stock and a reallocation of preferred stock to common equity, thereby minimizing capital costs and supporting the stated policy of maintaining a solid "A" credit rating, as described by witness, Robert Schlax.

[2] PE is a wholly owned subsidiary of Sempra Energy, and owns all of SoCalGas' outstanding common stock.
[3] Pursuant to AL 3199 (as amended by AL 3199-A).
[4] SoCalGas' currently authorized debt level is 45.61%, as reflected in AL 3199-A. The Commission originally adopted a debt level of 45.60% when it last authorized SoCalGas' capital structure (*see* D.96-11-060), and therefore, SoCalGas recommends rounding the 45.61% down to 45.60% in this Application. SoCalGas believes this to be an immaterial difference which does not impact the Company's recommendation to maintain its current authorized debt level.

II. FORECAST OF TY 2013 EMBEDDED COSTS

A. Embedded Cost of Debt

The embedded cost of debt represents all the costs (including historical costs of past debt issuances currently outstanding) associated with the issuance and servicing of debt, expressed as a percentage of the net proceeds received from debt issuances.

SoCalGas' recommended embedded cost of long-term debt is 5.72%. Attachment A shows the derivation of this figure. This recommendation represents a 124 bps reduction in the Company's currently authorized embedded cost of debt. As is customary in COC proceedings, SoCalGas recommends setting the authorized cost of debt equal to the forecasted embedded cost of debt during TY 2013.

SoCalGas' capital expenditure budget is expected to exceed cash flow from operations over the next five years. Over that period, SoCalGas anticipates that its capital spending will average $1 billion per year. The Company's investment program reflects significantly increased investments in larger-scale capital projects such as the Advanced Metering Infrastructure ("AMI") and enhanced pipeline integrity and safety-related projects, in addition to capital investments proposed in the 2012 General Rate Case ("GRC")[5] that is currently pending before this Commission. As a result, the Company plans to raise approximately $500 million in 2012 and $350 million in 2013 of new long-term debt by issuing taxable first mortgage bonds to redeem maturing debt and fund capital investments. A summary of the Company's expected future financings for TY 2013 are contained in Table 3 below.

[5] A.10-12-006.

1 **Table 3 – SoCalGas Forecasted New Debt Issuances in TY 2013**

Expected Issue Date	Principal	Term (yrs)	30-year Treasury	Spread (bps)	Forecasted Coupon Rate
Q2 2012	$250,000,000	30	3.28%	88	4.16%
Q4 2012	$250,000,000	30	3.30%	88	4.18%
Q4 2013	$350,000,000	30	3.75%	88	4.63%

2

3 The embedded cost of debt calculation uses the April 2012 Global Insight forecast of
4 the 30-year Treasury bond yield for 2012 and 2013, plus an estimation of a SoCalGas-
5 specific credit spread. Since SoCalGas has not issued debt since 2010, the credit spread is
6 estimated as the average credit spread on San Diego Gas & Electric Company's
7 ("SDG&E's") two most recent 30-year debt issuances in November of 2011 and March
8 2012. That credit spread equates to 88 bps. This assumption is appropriate because it is
9 reasonable and expected that SoCalGas has the same credit spread as SDG&E.

10 Historically, and including the prior COC proceeding for the other California
11 Investor Owned Utilities ("IOUs"), the Commission has found that "[t]he latest available
12 interest rate forecast should be used to determine embedded long-term debt and preferred
13 stock costs in ROE proceedings."[6] In September 2012, SoCalGas will submit an embedded
14 cost update that reflects the latest Global Insight forecast as well as any changes to the
15 Company's debt forecast that may take place between the preparation of this testimony and
16 the submittal of the update.

17 **B. Embedded Cost of Preferred Stock**

18 The embedded cost of preferred represents all the costs (including historical)
19 associated with the issuance and servicing of preferred stock, expressed as a percentage of

---

[6] *See* D.07-12-049 at Conclusion of Law 33.

1 the net proceeds received from preferred stock issuances. The Company's recommended
2 embedded cost of preferred stock is 6.00%. Attachment B shows the derivation of this
3 figure. This proposal represents a 117 bps increase from the current authorized embedded
4 cost of preferred stock. As is customary in COC proceedings, SoCalGas recommends
5 setting the authorized cost of preferred stock equal to the forecasted embedded cost of
6 preferred stock during TY 2013. At this time, SoCalGas does not anticipate the need to
7 issue any new preferred stock in 2012 or 2013. Furthermore, none of the Company's
8 perpetual preferred stock is expected to be retired during the proposed COC period of 2013-
9 2015. In the absence of any projected issuances or retirements, the forecasted embedded
10 cost of preferred stock is equivalent to the current actual embedded cost.

11 As discussed above with respect to the embedded cost of debt, SoCalGas will also
12 submit an update in September 2012 that will reflect the latest forecast as well as any
13 changes to the Company's preferred stock forecast that may take place between the
14 preparation of this testimony and the submittal of the update.

15 **III. PROPOSED RATEMAKING CAPITAL STRUCTURE**

16 As was shown in Table 2 above, SoCalGas proposes a TY 2013 capital structure
17 comprised of 45.60% debt, 2.40% preferred stock, and 52.00% common equity. The
18 Company's currently authorized capital structure has not changed since 1997 (15 years),
19 when the Commission adopted the structure in D.96-11-060.[7] As discussed below, the
20 Company's proposed ratemaking capital structure more closely reflects current market
21 conditions while effectively supporting the Company's policy of maintaining a solid "A"
22 credit rating under current and prospective market conditions.

[7] *See* FN. 4.

The authorized capital structure should both reflect a prudent use of debt and support its internal policy of managing toward a solid "A" credit rating as influenced by capital market conditions. The Commission should adopt a capital structure that provides the utility with the ability to maintain a strong credit rating over time and that minimizes capital costs to ratepayers over the long-term.

A. Financial Risk

Financial risk, a function of the amount of debt in a utility's capital structure,[8] is the uncertainty arising from increased reliance on debt financing and the associated fixed obligation payments required of debt. The more debt a company uses, the greater the financial risk to both stockholders and debt holders. A rising debt-equity ratio implies that a company has growing fixed obligations to holders of securities that have precedence to revenues, and as that obligation increases, more revenues must be committed to these payments, thus increasing risk to the company's initial debt holders. Similarly, the larger the revenues committed to fixed obligation payments, the greater the financial risk exposure to the common stockholders, as they are entitled only to revenues available after all fixed obligation payments are satisfied.

Credit rating agencies use credit metrics such as interest coverage ratios and funds from operations as a percent of total debt as a means to quantify financial risk. Together with their assessment of business risk, the major credit rating agencies use these credit metrics to help guide the credit ratings they assign.

[8] *See* D.07-12-049, p. 28.

B. Authorized Capital Structure Should Support Solid "A" Rating

SoCalGas maintains a policy to manage the company's capitalization in a manner consistent with supporting a solid "A" credit rating. As Mr. Schlax explains in his direct testimony, SoCalGas is asking the Commission to support this policy through the adoption of its comprehensive COC proposal. Further, in an environment of significant business risks, as described by witness Cheryl Shepherd, it is crucial to manage financial risk. Financial risk can be effectively managed by ensuring the use of debt relative to total capitalization does not exceed limits established by the credit rating agencies.

The major credit rating agencies commonly employ a few key metrics for use in deriving and assigning credit ratings. Debt coverage ratio is typically one of those key metrics. Debt coverage ratio measures the cash from operations, or funds from operations ("FFO") in a given period available for servicing debt, measured as a ratio to total debt servicing obligations in that period. It is indicative of a company's ability to pay its annual debt servicing obligations, where a higher ratio indicates a stronger ability to service its debt, and thus lower financial risk.

FFO-to-Total Debt is another of the key metrics employed by major credit rating agencies. FFO-to-Total Debt measures FFO as a percent of total debt and indicates how much of its debt a company could retire with annual cash from operations, where a higher figure indicates a stronger ability to retire its debt, and thus lower financial risk.

In its most recent credit opinion of SoCalGas, Moody's Investor Services ("Moody's") specified a lower bound interest coverage ratio of 5.0 times ("x") FFO to the expected debt servicing obligations and a lower bound FFO-to-Total Debt of 24% for

SoCalGas to avoid a downgrade from its current "A2"[9] rating for senior unsecured debt. In the section titled "What Could Change the Rating – Down," Moody's states that SoCalGas' ratings could be downgraded if:

- problems surface with the execution of its capital expenditures program, or
- results deteriorate such that the ratio of cash flow to total debt declines to below 24% and cash flow coverage of interest falls to below 5x for an extended period.[10]

These stated credit metric targets represent a lower bound as to which these metrics could move in order to sustain an "A" rating over time. SoCalGas believes it is a prudent policy to manage debt levels so that its credit metrics remain reasonably above this lower bound, in order to allow for short-term fluctuations and disruptions to credit markets and the business environment.

Standard & Poor's ("S&P") does not indicate specific targets for these metrics in its most recent report on SoCalGas, but does indicate that FFO-to-Total Debt of 30% and a coverage ratio of 6.0x support a strong "A" rating.

> SoCalGas' stand-alone credit metrics are strong for the rating, with funds from operations (FFO) to debt and FFO to interest coverage ratios generally about 30% and 6x, respectively.[11]

Considering the above evidence regarding expected credit metrics for SoCalGas to maintain its "A" rating, SoCalGas believes that managing toward an interest coverage ratio ("CR") of 5.2x to 5.9x and a FFO-to-Total Debt of 26% to 29% supports the stated policy of

[9] Moody's "A2" rating equivalent to "A."
[10] Moody's Investor Services Credit Opinion: Southern California Gas Company, June 30, 2011.
[11] S&P Report on Southern California Gas Company, November 16, 2011.

1 maintaining a solid "A" credit rating. SoCalGas therefore recommends a capital structure
2 that implicitly supports a target CR of 5.2x to 5.9x and a FFO-to-Total Debt of 26% to 29%.

3 **C. Appropriate Debt Ratio**

4 To minimize the long-term cost of debt to ratepayers by maintaining a solid "A"
5 credit rating, the Company should manage its use of debt to a level that supports the credit
6 metrics outlined above. Credit metric guidance provided by the credit rating agencies is an
7 invaluable guide to help determine the appropriate use of debt. Debt utilization beyond the
8 levels indicated by the target credit metrics defined above would put downward pressure on
9 SoCalGas' "A" credit rating as stated by Moody's and S&P.

10 Once the costs of each component of capital are known, the target capital structure
11 implies a specific CR and a specific FFO-to-Total Debt. Inherent in utility ratemaking and a
12 revenue requirements calculation is the assumption that net income is equal to the authorized
13 return on preferred stock plus the authorized return on common stock. The formulas and
14 resulting calculations performed in the analysis are contained in Attachments C and D.

15 Table 4 summarizes the results of this analysis, the details of which are contained in
16 Attachment D.

17 **Table 4 – Maximum Supportable Leverage at Various Target Credit Metrics**

	CR	Maximum Supportable Leverage	FFO-to-Total Debt Ratio	Maximum Supportable Leverage
Minimum	5.2x	45.5%	26%	50.1%
Maximum	5.9x	37.2%	29%	42.1%

18

19 Credit rating agencies use these metrics, in combination with their assessments of
20 business and financial risks to assign SoCalGas' credit rating. The results outlined in Table
21 4 indicate that an appropriate target debt range to support a solid "A" credit rating, and to

minimize long-term cost of capital, would be in the 42.1% to 45.5% range. This 45.5% debt level represents where the high end of the range of supportable debt levels to achieve a solid "A" CR. The 42.1% debt level represents the bottom end of the range of supportable debt levels to achieve a solid "A" FFO-to-Total Debt. To accommodate having both the CR and FFO-to-Total Debt values at the desired "A" credit rating, the Company would not seek to set its debt level above 45.5%. Thus, a target debt level in the 45.0% to 45.5% range would lie within the high end of the range to support SoCalGas' target CR of 5.2x to 5.9x, but still accommodate SoCalGas' target FFO-to-Total Debt range of 26% to 29%. SoCalGas believes this is an appropriate target debt level to support a solid "A" credit rating, and that its currently authorized debt level of 45.6% represents an upper bound of a target debt level range that support a solid "A" rating.

SoCalGas' currently authorized debt level of 45.60%, if authorized along with SoCalGas' proposed costs of common equity and preferred weighting, would generate an authorized capital structure with an implicit CR at the low end of the 5.2x to 5.9x range, and an implicit FFO-to-Total Debt near the middle of the 26% to 29% range. SoCalGas believes that when viewed in combination, as the credit rating agencies do, those implied metrics support a solid "A" rating.

D. Preferred Stock

SoCalGas' currently authorized preferred stock weighting is 6.4%. SoCalGas is a wholly owned subsidiary of PE, which in turn is a wholly owned subsidiary of Sempra Energy. For purposes of designing SoCalGas' authorized capital structure, 100% of PE preferred stock had been imputed into SoCalGas' capital structure.[12] In June 2011, PE

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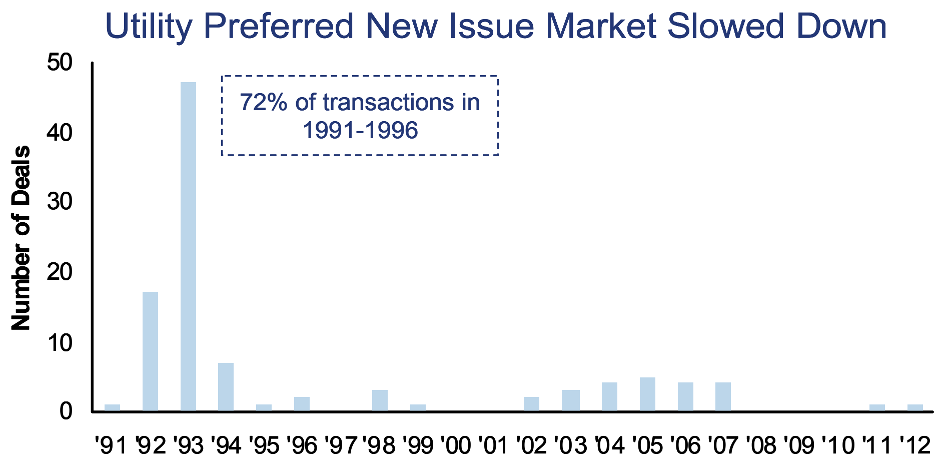
[12] *See* D.77975 (1970).

1 redeemed 100% of its remaining preferred stock. As a result, there is no longer any PE
2 preferred stock to impute into SoCalGas' authorized capital structure and it is appropriate
3 that the authorized level of preferred stock be adjusted downward to reflect that redemption.

4 The Company has not issued preferred stock since 1993 due to a material disparity in
5 the relative cost of long-term debt as compared to preferred stock. Despite the downward
6 trend in bond rates, the relative cost of preferred stock has increased significantly over the
7 recent years. The preferred stock market has been challenged with a shrinking buyer base
8 that has severely limited demand for traditional institutional utility preferred stock. As
9 shown in Figure 1 below, issuances of traditional utility preferred stock have become
10 infrequent, with only two transactions priced over the last 5 years.

11 **Figure 1**[13]



12

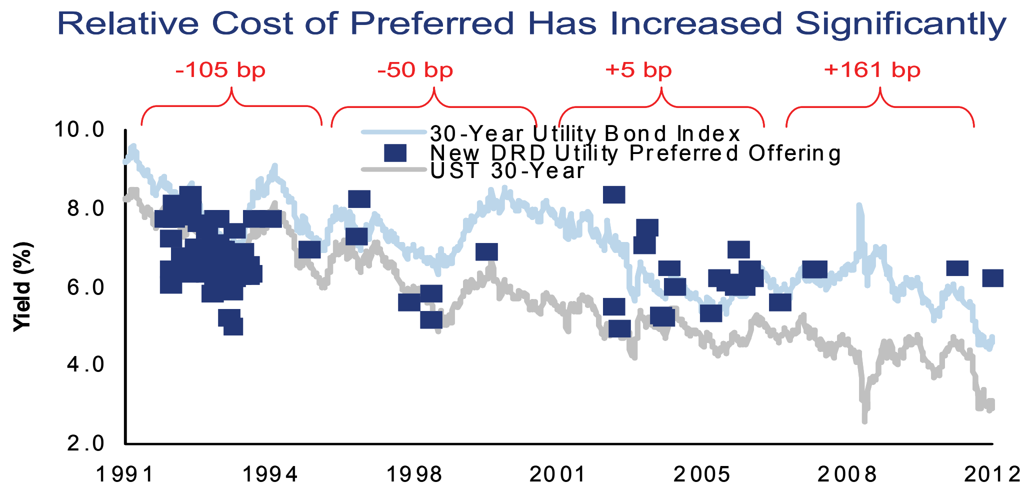
13 At the same time, the relative cost of preferred stock has seen a steep rise. As shown
14 in Figure 2, from 1991 to 2000, the average utility preferred stock issuance, on average, is
15 priced 50 bps or more below a comparable 30-year utility bond. In today's market, the same

[13] Source: Company research. See workpapers.

1 preferred stock would price, on average, at a 100 bps or higher premium to a 30-year utility

2 bond.

3 **Figure 2**[14]



4

5 The most recent utility preferred stock issuance in January 2012 carried a non-tax

6 deductible coupon of 6.25%. In comparison, SDG&E's last bond issuance in March 2012 of

7 $250.0 million in 30-year, first-mortgage bonds, was priced at a low coupon rate of 4.30%

8 or 2.6% (net of tax). This further demonstrates the significant divergence in relative

9 financing costs of preferred stock compared to long-term debt. SoCalGas continues to

10 monitor and evaluate the market going forward to optimize all sources of capital to fund

11 SoCalGas investment programs to the benefit of customers over the long-term.

12 SoCalGas currently has outstanding preferred stock of approximately $21.6 million,

13 representing less than 1.0% of its total capitalization. While the Company does not

14 currently plan to issue new preferred stock prior to or during the 2013 test year, SoCalGas

15 believes it is important to provide flexibility within the authorized capital structure to allow

16 for the issuance of preferred stock if market conditions evolve such that it would be in the

[14] Source: Bloomberg Finance LP and Company research. See workpapers.

1 best interest of ratepayers to issue preferred stock. The proposed 2.40% preferred stock
2 weighting would provide a reasonable and appropriate level of flexibility. An authorized
3 preferred stock weighting of 2.40% equates to approximately $60 to $80 million of
4 incremental preferred stock over the proposed COC period of 2013 to 2015.

5 **E. Common Equity**

6 As shown above, SoCalGas proposes an authorized preferred stock level of 2.40%
7 and long-term debt level of 45.60%. To achieve the proper balance among the COC
8 components, SoCalGas' proposes a common equity weighting of 52.00%. Viewed in its
9 entirety, the proposed capital structure will support the Company access to markets during
10 the anticipated period of significant capital expenditures, thereby providing ratepayers with
11 lower capital costs over the long term. Further, the testimony of Ms. Shepherd describes the
12 substantial business risks the company is facing since SoCalGas' last COC proceeding in
13 1996. The proposed capital structure moderates the business risks as described by Ms.
14 Shepherd, by shifting more of the financial risk to shareholders relative to the currently
15 authorized capital structure.

16 Moreover, the proposed 52.00 % equity weighting supports the recommended debt
17 weighting that sustains a solid "A" target credit rating for the Company. In addition, the
18 recommended common equity ratio of 52.00% is within the range of equity weightings more
19 recently authorized for other utilities providing natural gas services. Since the beginning of
20 2011, Regulatory Research Associates has identified 18 decisions issued in 12 states outside
21 of California, regarding authorized ratemaking equity weightings for utilities offering
22 natural gas services. On average, those utilities were authorized equity ratemaking
23 weightings of 52.07%, as shown in Attachment E. Further, as shown in Attachment F, since

1 1980, and since SoCalGas' last review of its authorized capital structure in 1997, public
2 utilities commissions have shown a tendency to authorize increased levels of equity,
3 reflecting a recognition of the need to strengthen utility balance sheets in the face of capital
4 market uncertainty and the associated increased risk of utility investments. Given these
5 factors, SoCalGas believes it has a reasonable and justifiable basis for its proposed common
6 equity weighting.

7 This concludes the direct testimony.

IV. STATEMENT OF QUALIFICATIONS

My name is Michael W. Foster. My business address is 555 West 5th Street, Los Angeles, CA 90013-1011. I received a Bachelor of Arts degree in Economics from the University of California, Santa Barbara in 1995. I received a Master of Business Administration degree from the Darden School of Business at the University of Virginia, Charlottesville in 2000.

I am employed as a Project Manager in the Rate Base and Treasury area of the Finance department of SoCalGas. I have worked for SoCalGas since June 2011, and prior to that I worked for SDG&E since December 2001. In my current capacity, I am responsible for providing financial analysis and support for the treasury and rate base management function.

I have previously testified before this Commission.

ATTACHMENT A

Embedded Cost of Long-Term Debt
(figures in dollars unless otherwise stated)

	A	B	C	D	E
		Discounts and Expenses	**Net Proceeds**	**Total Annual Cost**	**Effective Rate**
Description	**Principal**		**(C = A - B)**		**(E = D / C)**
Series R		$1,647,546	$(1,647,546)	$248,618	-15.09%
Series T		2,631,148	(2,631,148)	387,558	-14.73%
Series W		660,053	(660,053)	782,397	-118.54%
Series X		1,076,042	(1,076,042)	1,064,156	-98.90%
Series Y		2,171,052	(2,171,052)	375,792	-17.31%
Series BB		940,295	(940,295)	142,109	-15.11%
Series DD		1,812,749	(1,812,749)	266,992	-14.73%
Series EE		880,060	(880,060)	107,366	-12.20%
Series GG	$250,000,000	1,977,012	248,022,988	12,197,701	4.92%
Series HH	250,000,000	2,419,868	247,580,132	13,791,887	5.57%
Swiss Francs	7,475,533	0	7,475,533	355,088	4.75%
Medium term Note	5,000,000	0	5,000,000	283,500	5.67%
Series KK	250,000,000	3,960,222	246,039,778	14,507,007	5.90%
Series LL	250,000,000	42,064,808	207,935,192	17,268,174	8.30%
Series MM	300,000,000	3,816,052	296,183,948	15,502,202	5.23%
Revolving Line Of Credit				767,823	
Total Outstanding as of 12/31/2011	$1,312,475,533	$66,056,907	$1,246,418,626	$78,048,372	6.26%

Projected Changes During 2012

Series GG Expires	$(250,000,000)	$(1,977,012)	$(248,022,988)	$(12,197,701)	4.92%
30 year in Q2, 2012, 88 bps,4.16%	250,000,000	2,437,500	247,562,500	10,481,250	4.23%
30 year in Q4, 2012, 88 bps,4.18%	250,000,000	2,437,500	247,562,500	10,531,250	4.25%
Total Changes During 2012	250,000,000	2,897,988	247,102,012	8,814,799	
Total Outstanding as of 12/31/2012	$1,562,475,533	$68,954,895	$1,493,520,638	$86,863,171	5.82%

Projected Changes During 2013

30 year in Q4, 2013, 88 bps,4.63%	$350,000,000	$3,312,500	$346,687,500	$16,315,417	4.71%
Total Changes During 2013	350,000,000	3,312,500	346,687,500	16,315,417	
Total Outstanding as of 12/31/2013	$1,912,475,533	$72,267,395	$1,840,208,138	$103,178,588	5.61%

Average 2013 Embedded Cost of Long-Term Debt	**5.72%**

ATTACHMENT B

Embedded Cost of Preferred Stock

Funding Type	Class/Series	Price ($)	Dividend Rate (%)	Amount Outstanding ($000)	Shares Outstanding
Preferred Equity	A	$27.50	6.00%	$19,575	783,032
Preferred Equity	-	$30.00	6.00%	$1,975	79,011
		Weighted Average Cost	**6.00%**	$21,550	

ATTACHMENT C

Derivation of Formulas

(expressing Interest Coverage Ratio in the terms of the components of Cost of Capital and as a percent of rate base)

A. Interest Coverage Ratio

Interest coverage ratio ("CR") can be expressed as:

$$\boldsymbol{CR = \frac{Funds\ From\ Operations\ (FFO)}{Debt\ Service\ Expense}}$$

Where:

$$\boldsymbol{FFO = Net\ Income + Debt\ Servicing\ Expense + Recuring\ NonCash\ Items}$$

The CR can also be expressed in terms of the costs and weights of capital. Inherent in utility ratemaking and revenue requirements calculation is the assumption that net income is equal to the authorized return on preferred stock plus the authorized return on common stock. Therefore, net income can be expressed:

$$\boldsymbol{Net\ Income = rb(k_p w_p + k_e w_e)}$$

Where:

$\boldsymbol{rb = authorized\ rate\ base}$

$\boldsymbol{k_p = cost\ of\ preferred}$ $\boldsymbol{w_p = preferred\ weighting}$

$\boldsymbol{k_e = cost\ of\ common\ equity}$ $\boldsymbol{w_e = common\ equity\ weighting}$

Further, debt servicing expense is assumed to be equal to the authorized return on debt. Therefore, debt servicing expense can be expressed as:

$$\boldsymbol{Debt\ Servicing\ Expense = rb(k_d w_d)}$$

Where:

$\boldsymbol{k_d = cost\ of\ debt}$ $\boldsymbol{w_d = debt\ weighting}$

Using the formula for FFO from above:

$$\boldsymbol{FFO = Net\ Income + Debt\ Servicing\ Expense + Recuring\ NonCash\ Items}$$

Substituting, FFO can be expressed as:

$$\boldsymbol{FFO = rb(k_p w_p + k_e w_e) + rb(k_d w_d) + rb(rnc)}$$

Debt Servicing Expense can be expressed as:

$$\boldsymbol{Debt\ Servicing\ Expense = rb(k_d w_d)}$$

Where:

$\boldsymbol{rb = authorized\ rate\ base}$

$\boldsymbol{k_p = cost\ of\ preferred}$ $\boldsymbol{w_p = preferred\ weighting}$

$\boldsymbol{k_e = cost\ of\ common\ equity}$ $\boldsymbol{w_e = common\ equity\ weighting}$

$\boldsymbol{k_d = cost\ of\ debt}$ $\boldsymbol{w_d = debt\ weighting}$

$\boldsymbol{rnc = recurring\ non\ cash\ items}$ *

*** - expressed as a percent of rate base**

The credit rating agencies adjust these metrics, and these adjustments can be expressed as:

$\boldsymbol{adj_{FFO} = Rating\ Agency\ adjustment\ to\ FFO}$ *

$\boldsymbol{adj_{Int} = Rating\ Agency\ adjustment\ to\ Debt\ Service\ Expense}$ *

*** expressed as a percent of rate base**

Adding these adjustments to the above formulas yields formulas that express FFO and Debt Servicing Expense from the credit rating agencies perspective, expressed as a percent of rate base:

$$\boldsymbol{FFO = rb(k_p w_p + k_e w_e) + rb(k_d w_d) + rb(rnc) + rb(adj_{FFO})}$$

Debt Servicing Expense can be expressed as:

$$\boldsymbol{Debt\ Service\ Expense = rb(k_d w_d) + rb(adj_{int})}$$

Therefore,

$$\boldsymbol{(CR) = \frac{FFO}{Debt\ Service\ Expense}}$$

Substituting yields:

$$\boldsymbol{CR = \frac{rb(k_p w_p + k_e w_e) + rb(k_d w_d) + rb(rnc) + rb(adj_{FFO})}{rb(k_d w_d) + rb(adj_{Int})}}$$

Canceling *rb* from all expressions on the right side of the equation yields:

$$CR = \frac{k_p w_p + k_e w_e + k_d w_d + rnc + adj_{FFO}}{k_d w_d + adj_{Int}}$$

Where:

$rb = authorized\ rate\ base$

$k_p = cost\ of\ preferred$

$w_p = preferred\ weighting$

$k_e = cost\ of\ common\ equity$

$w_e = common\ equity\ weighting$

$k_d = cost\ of\ debt$

$w_d = debt\ weighting$

$rnc = recurring\ non\ cash\ items$ *

$adj_{FFO} = Rating\ Agency\ adjustment\ to\ FFO$ *

$adj_{Int} = Rating\ Agency\ adjustment\ to\ Annual\ Interest\ Expense$ *

*** - expressed as a percent of rate base**

Subject to:

$w_d + w_p + w_e = 1$

B. FFO-to-Total Debt

FFO-to-Total Debt can be expressed as:

$$\boldsymbol{FFO-to-Total\ Debt = \frac{FFO}{Total\ Debt}}$$

From the discussion of CR in Section A above,

$$\boldsymbol{FFO = rb(k_p w_p + k_e w_e) + rb(k_d w_d) + rb(rnc) + rb(adj_{FFO})}$$

Utility rate making assumes that rate base is capitalized according to the authorized capital structure; therefore, total debt can be expressed as:

$$\boldsymbol{Total\ Debt = rb(w_d)}$$

Where:

$\boldsymbol{rb = authorized\ rate\ base}$

$\boldsymbol{w_d = debt\ weighting}$

The credit rating agencies adjust these metrics, and these adjustments can be expressed as:

$\boldsymbol{adj_{Debt} = Rating\ Agency\ adjustment\ to\ Total\ Debt\ *}$

*** expressed as a percent of rate base**

Adding these adjustments to the above formula yields a formula that express Total Debt from the credit rating agencies perspective, expressed as a percent of rate base:

$$\boldsymbol{Total\ Debt = rb(w_d) + rb(adj_{Debt})}$$

Therefore:

$$\boldsymbol{FFO-to-Total\ Debt = \frac{FFO}{Total\ Debt}}$$

Substituting yields:

$$\boldsymbol{FFO-to-Total\ Debt = \frac{rb(k_p w_p + k_e w_e) + rb(k_d w_d) + rb(rnc) + rb(adj_{FFO})}{rb(w_d) + rb(adj_{Debt})}}$$

Canceling *rb* from all expressions on the right side of the equation yields:

$$\boldsymbol{FFO-to-Total\ Debt = \frac{k_p w_p + k_e w_e + k_d w_d + rnc + adj_{FFO}}{w_d + adj_{Debt}}}$$

Where:

$rb = authorized\ rate\ base$

$k_p = cost\ of\ preferred$ $w_p = preferred\ weighting$

$k_e = cost\ of\ common\ equity$ $w_e = common\ equity\ weighting$

$k_d = cost\ of\ debt$ $w_d = debt\ weighting$

$rnc = recurring\ non\ cash\ items$ *

$adj_{FFO} = Rating\ Agency\ adjustment\ to\ FFO$ *

$adj_{Debt} = Rating\ Agency\ adjustment\ to\ Total\ Debt$ *

*** - expressed as a percent of rate base**

Subject to:

$$w_d + w_p + w_e = 1$$

ATTACHMENT D

Summary of Calculations

A. Interest Coverage Ratio ("CR")

As discussed above, managing to a CR of 5.2x to 5.9x supports a solid "A" credit rating. Assuming the Commission adopts SoCalGas' recommended costs of capital as outline above for costs of long-term debt and preferred stock, and in the testimony of Mr. Schlax for the cost of equity, SoCalGas' capital structure can support a debt range of 37.2 to 45.5% debt while maintaining an interest coverage ratio of 5.2x to 5.9x. Using the formulas in Attachment C:

$$\boldsymbol{CR = \frac{k_p w_p + k_e w_e + k_d w_d + rnc + adj_{FFO}}{k_d w_d + adj_{Int}}}$$

Where:

$\boldsymbol{k_p = 6.00\%}$ (source: this testimony)

$\boldsymbol{w_p = 2.4\%}$ (source: this testimony)

$\boldsymbol{k_e = 10.90\%}$ (source: testimony of Robert Schlax)

$\boldsymbol{k_d = 5.72\%}$ (source: this testimony)

$\boldsymbol{rnc = 8.5\%}$ *

$\boldsymbol{adj_{FFO} = 7\%}$ *

$\boldsymbol{adj_{Int} = 2\%}$*

*** expressed as a percent of rate base** (source: workpapers)

Subject to:

$$\boldsymbol{w_d + w_p + w_e = 1}$$

Substituting w_p gives:

$$\boldsymbol{w_d + 2.40\% + w_e = 1}$$

Therefore,

$$\boldsymbol{w_e = 97.6\% - w_d}$$

Assuming a target CRs range of 5.2x to 5.9x, the target debt level can be solved for by substituting and solving for w_d:

$$\boldsymbol{CR = \frac{k_p w_p + k_e w_e + k_d w_d + rnc + adj_{FFO}}{k_d w_d + adj_{Int}}}$$

$$\boldsymbol{CR} = \frac{(\boldsymbol{6.00\%} * \boldsymbol{2.4\%}) + (\boldsymbol{10.90\%} * (\boldsymbol{97.6\%} - \boldsymbol{w_d})) + (\boldsymbol{5.72\%} * \boldsymbol{w_d}) + (\boldsymbol{8.5\%}) + (\boldsymbol{7\%})}{(\boldsymbol{5.72\%} * \boldsymbol{w_d}) + \boldsymbol{2\%}}$$

$$\boldsymbol{5.2} = \frac{(\boldsymbol{6.00\%} * \boldsymbol{2.4\%}) + (\boldsymbol{10.90\%} * (\boldsymbol{97.6\%} - \boldsymbol{45.5\%})) + (\boldsymbol{5.72\%} * \boldsymbol{45.5\%}) + (\boldsymbol{8.5\%}) + (\boldsymbol{7\%})}{(\boldsymbol{5.72\%} * \boldsymbol{45.5\%}) + \boldsymbol{2\%}}$$

and

$$\boldsymbol{5.9} = \frac{(\boldsymbol{6.00\%} * \boldsymbol{2.4\%}) + (\boldsymbol{10.90\%} * (\boldsymbol{97.6\%} - \boldsymbol{37.2\%})) + (\boldsymbol{5.72\%} * \boldsymbol{37.2\%}) + (\boldsymbol{8.5\%}) + (\boldsymbol{7\%})}{(\boldsymbol{5.72\%} * \boldsymbol{37.2\%}) + \boldsymbol{2\%}}$$

An authorized capital structure that supports a 5.2x to 5.9x coverage ratio implies total debt levels of 37.2% to 45.5%.

B. FFO-to-Total Debt

Managing to an FFO-to-Total Debt ratio of 26% to 29% supports a solid "A" credit rating. Assuming the Commission adopts SoCalGas' proposed costs of debt, preferred, and equity, SoCalGas' capital structure can support a debt range of 42.1% to 50.1% debt while maintaining a FFO-to-Total Debt ratio of 26% to 29%. Using the formula derived in Attachment C:

$$FFO-to-Total\ Debt = \frac{k_p w_p + k_e w_e + k_d w_d + rnc + adj_{FFO}}{w_d + adj_{Debt}}$$

Where:

$k_p = 6.00\%$

$w_p = 2.4\%$

$k_e = 10.90\%$

$k_d = 5.72\%$

$rnc = 8.5\%$ *

$adj_{FFO} = 7\%$ *

$adj_{Debt} = 41\%$*

*** expressed as a percent of rate base** (source: workpapers)

Subject to:

$$w_d + w_p + w_e = 1$$

Substituting w_p gives:

$$w_d + 2.40\% + w_e = 1$$

Therefore,

$$w_e = 97.6\% - w_d$$

Assuming a target FFO-to-Total Debt range of 26% to 29%, the target debt level can be solved for by substituting and solving for w_d:

$$FFO-to-Total\ Debt = \frac{k_p w_p + k_e w_e + k_d w_d + rnc + adj_{FFO}}{w_d + adj_{Debt}}$$

$$FFO-to-Total\ Debt = \frac{(6.00\% * 2.4\%) + (10.90\% * (97.6\% - w_d)) + (5.72\% * w_d) + (8.5\%) + (7\%)}{w_d + 39\%}$$

$$\mathbf{26\%} = \frac{(\mathbf{6.00\%} * \mathbf{2.4\%}) + (\mathbf{10.90\%} * (\mathbf{97.6\%} - \mathbf{50.1\%})) + (\mathbf{5.72\%} * \mathbf{50.1\%}) + (\mathbf{8.5\%}) + (\mathbf{7\%})}{\mathbf{50.1\%} + \mathbf{39\%}}$$

and

$$\mathbf{29\%} = \frac{(\mathbf{6.00\%} * \mathbf{2.4\%}) + (\mathbf{10.90\%} * (\mathbf{97.6\%} - \mathbf{42.1\%})) + (\mathbf{5.72\%} * \mathbf{42.1\%}) + (\mathbf{8.5\%}) + (\mathbf{7\%})}{\mathbf{42.1\%} + \mathbf{39\%}}$$

An authorized capital structure that supports a 26% to 29% FFO-to-Total Debt ratio implies total debt levels of 42.1% to 50.1%.

ATTACHMENT E

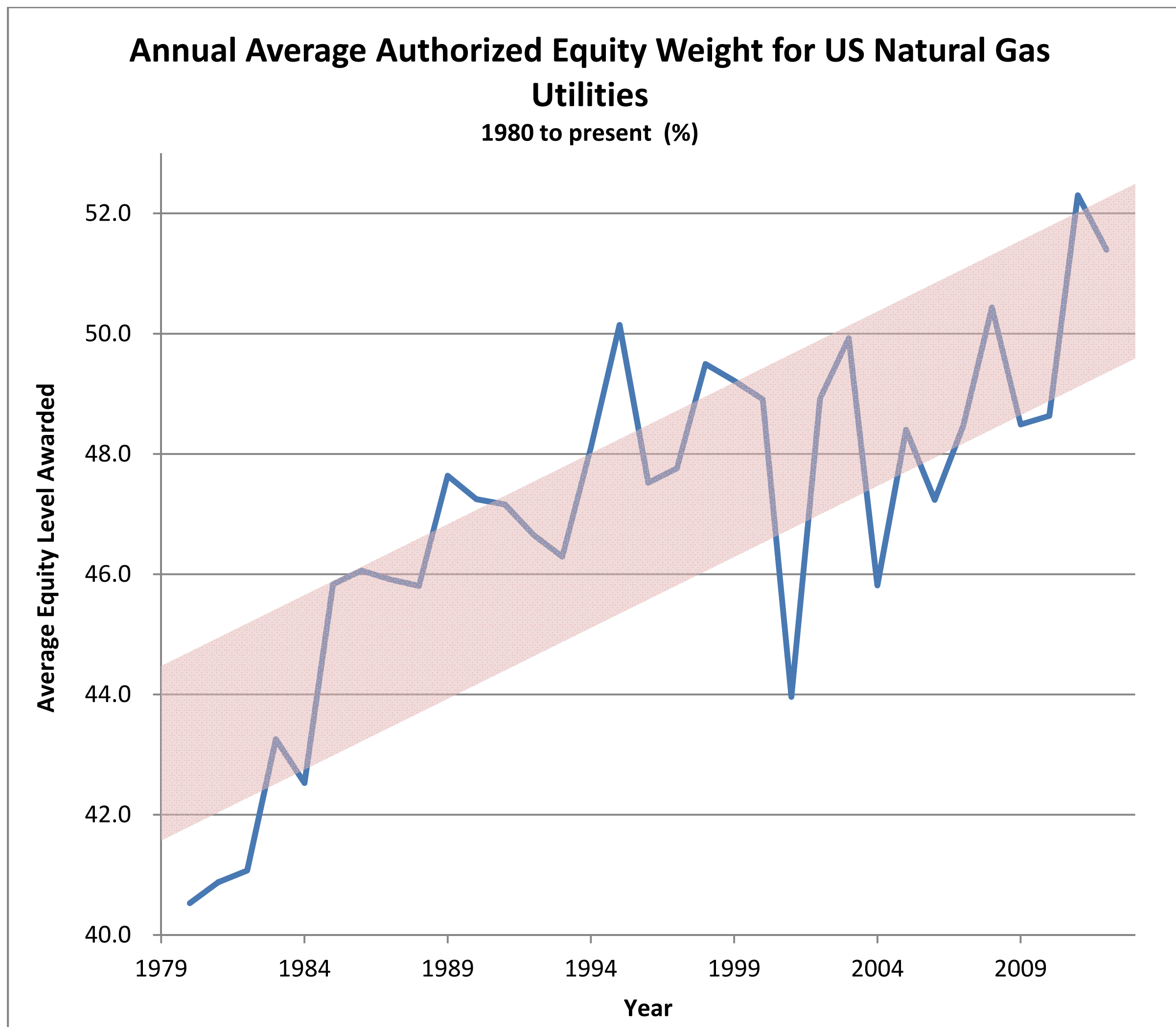
Authorized Ratemaking Equity Levels for non-California Natural Gas Utilities

January 2011 – April 2012

Company	State	Authorized Ratemaking Equity Level	Date	Case Identification
New Mexico Gas Company	New Mexico	52.00	1/31/2012	C-11-00042-UT
Piedmont Natural Gas Co.	Tennessee	52.71	1/23/2012	D-11-00144
Ameren Illinois	Illinois	53.27	1/10/2012	D-11-0282 (gas)
North Shore Gas Co.	Illinois	50.00	1/10/2012	D-11-0280
Peoples Gas Light & Coke Co.	Illinois	49.00	1/10/2012	D-11-0281
Northern States Power Co - WI	Wisconsin	52.59	12/22/2011	D-4220-UR-117 (gas)
Virginia Natural Gas Inc.	Virginia	45.36	12/20/2011	C-PUE-2010-00142
Southwest Gas Corp.	Arizona	52.30	12/13/2011	D-G-01551A-10-0458
Washington Gas Light Co.	Maryland	57.88	11/14/2011	C-9267
Public Service Co. of CO	Colorado	56.00	9/1/2011	D-10AL-963G
Fitchburg Gas & Electric Light	Massachusetts	42.88	8/1/2011	DPU 11-02
Yankee Gas Services Co.	Connecticut	52.20	6/29/2011	D-10-12-02
Washington Gas Light Co.	Virginia	55.70	4/21/2011	C-PUE-2010-00087
CenterPoint Energy Resources	Texas	55.44	4/18/2011	D-GUD-10038
New England Gas Company	Massachusetts	50.17	3/31/2011	DPU 10-114
Avista Corp.	Oregon	50.00	3/10/2011	D-UG 201
Wisconsin Public Service Corp.	Wisconsin	51.65	1/13/2011	D-6690-UR-120 (gas)
Madison Gas and Electric Co.	Wisconsin	58.06	1/12/2011	D-3270-UR-117 (gas)
	Average:	52.07		

Source: Regulatory Research Associates as of April 11, 2012. Includes all Natural gas companies outside of California that received an authorized Equity level since beginning of 2011.

ATTACHMENT F



Source: Regulatory Research Associates as of April 11, 2012. Includes all Natural gas companies that received an authorized Equity level since beginning of 1980 (see workpapers).