

Application of SOUTHERN CALIFORNIA GAS)
COMPANY for authority to update its gas revenue)
requirement and base rates)
effective January 1, 2019 (U 904-G))

Application No. 17-10-___

Exhibit No.: (SCG-31-WP)

WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF DEBBIE S. ROBINSON
ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

OCTOBER 2017



2019 General Rate Case - APP
INDEX OF WORKPAPERS

Exhibit SCG-31-WP - CORP CTR - PENSION & PBOPS

DOCUMENT	PAGE
Overall Summary For Exhibit No. SCG-31-WP	1
<i>Summary of Non-Shared Services Workpapers</i>	2
Category: A. EMPLOYEE PENSION	3
..2PN000.000 - EMPLOYEE PENSION	4
..2PN000.001 - EMPLOYEE PENSION - PBOP	17
<i>Appendix A: List of Non-Shared Cost Centers</i>	26

Overall Summary For Exhibit No. SCG-31-WP

Area:	CORP CTR - PENSION & PBOPs
Witness:	Debbie S. Robinson

Description	In 2016 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Non-Shared Services	70,621	89,240	117,890	202,830
Shared Services	0	0	0	0
Total	70,621	89,240	117,890	202,830

Note: Totals may include rounding differences.

Southern California Gas Company
 2019 GRC - APP
 Non-Shared Service Workpapers

Area: CORP CTR - PENSION & PBOPs
 Witness: Debbie S. Robinson

Summary of Non-Shared Services Workpapers:

Description	In 2016 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
		2016	2017	2018
A. EMPLOYEE PENSION	70,621	89,240	117,890	202,830
Total	70,621	89,240	117,890	202,830

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: CORP CTR - PENSION & PBOPs
Witness: Debbie S. Robinson
Category: A. EMPLOYEE PENSION
Workpaper: VARIOUS

Summary for Category: A. EMPLOYEE PENSION

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	0	0	0	0
Non-Labor	70,621	0	0	0
NSE	0	89,240	117,890	202,830
Total	70,621	89,240	117,890	202,830
FTE	0.0	0.0	0.0	0.0

Workpapers belonging to this Category:

2PN000.000 EMPLOYEE PENSION

Labor	0	0	0	0
Non-Labor	70,350	0	0	0
NSE	0	86,900	117,890	202,830
Total	70,350	86,900	117,890	202,830
FTE	0.0	0.0	0.0	0.0

2PN000.001 EMPLOYEE PENSION - PBOP

Labor	0	0	0	0
Non-Labor	271	0	0	0
NSE	0	2,340	0	0
Total	271	2,340	0	0
FTE	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper
2PN000.000 - EMPLOYEE PENSION

Southern California Gas Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: CORP CTR - PENSION & PBOPs
 Witness: Debbie S. Robinson
 Category: A. EMPLOYEE PENSION
 Category-Sub: 1. EMPLOYEE PENSION
 Workpaper: 2PN000.000 - EMPLOYEE PENSION

Activity Description:

This is SCG's qualified retirement benefits plan, also known as the Southern California Gas Company Pension Plan. Represented and non-represented employees participate in the plan.

Forecast Explanations:

Labor - Zero-Based

Please see NSE below

Non-Labor - Zero-Based

Please see NSE below

NSE - Zero-Based

Zero Based method chosen as pension contributions are provided by the Company's certified actuary Willis Towers Watson.

Summary of Results:

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		0	0	0	0	0	0	0	0	
Non-Labor		44,037	56,822	26,513	4,667	70,350	0	0	0	
NSE		0	0	0	0	0	86,900	117,890	202,830	
Total		44,037	56,822	26,513	4,667	70,350	86,900	117,890	202,830	
FTE		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: CORP CTR - PENSION & PBOPs
 Witness: Debbie S. Robinson
 Category: A. EMPLOYEE PENSION
 Category-Sub: 1. EMPLOYEE PENSION
 Workpaper: 2PN000.000 - EMPLOYEE PENSION

Summary of Adjustments to Forecast:

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	Zero-Based	0	0	0	0	0	0	0	0	0
Non-Labor	Zero-Based	0	0	0	0	0	0	0	0	0
NSE	Zero-Based	0	0	0	86,900	117,890	202,830	86,900	117,890	202,830
Total		0	0	0	86,900	117,890	202,830	86,900	117,890	202,830
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Forecast Adjustment Details:

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID	
2017	Other	0	0	86,900	86,900	0.0	1-Sided Adj	JECHERRY20161203101104010	
Explanation:		2017 Pension Projection							
2017 Total		0	0	86,900	86,900	0.0			
2018	Other	0	0	117,890	117,890	0.0	1-Sided Adj	JECHERRY20161203101139247	
Explanation:		2018 Pension Projection							
2018 Total		0	0	117,890	117,890	0.0			
2019	Other	0	0	202,830	202,830	0.0	1-Sided Adj	JECHERRY20161203101154073	
Explanation:		2019 Pension Projection							
2019 Total		0	0	202,830	202,830	0.0			

Note: Totals may include rounding differences.

SCG/CORP CTR - PENSION & PBOPs/Exh No:SCG-31-WP/Witness: D. Robinson

Southern California Gas Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: CORP CTR - PENSION & PBOPs
Witness: Debbie S. Robinson
Category: A. EMPLOYEE PENSION
Category-Sub: 1. EMPLOYEE PENSION
Workpaper: 2PN000.000 - EMPLOYEE PENSION

Determination of Adjusted-Recorded (Incurred Costs):

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	0
Non-Labor	42,800	56,123	26,600	4,655	70,350
NSE	0	0	0	0	0
Total	42,800	56,123	26,600	4,655	70,350
FTE	0.0	0.0	0.0	0.0	0.0
Adjustments (Nominal \$) **					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	0	0	0	0	0
Non-Labor	42,800	56,123	26,600	4,655	70,350
NSE	0	0	0	0	0
Total	42,800	56,123	26,600	4,655	70,350
FTE	0.0	0.0	0.0	0.0	0.0
Vacation & Sick (Nominal \$)					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2016\$					
Labor	0	0	0	0	0
Non-Labor	1,237	699	-87	12	0
NSE	0	0	0	0	0
Total	1,237	699	-87	12	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2016\$)					
Labor	0	0	0	0	0
Non-Labor	44,037	56,822	26,513	4,667	70,350
NSE	0	0	0	0	0
Total	44,037	56,822	26,513	4,667	70,350
FTE	0.0	0.0	0.0	0.0	0.0

* After company-wide exclusions of Non-GRC costs

** Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: CORP CTR - PENSION & PBOPs
 Witness: Debbie S. Robinson
 Category: A. EMPLOYEE PENSION
 Category-Sub: 1. EMPLOYEE PENSION
 Workpaper: 2PN000.000 - EMPLOYEE PENSION

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
-------------	------------------	--------------	-------------	------------	------------	-----------------	--------------

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 2PN000.000

Southern California Gas Company
Pension Contribution Projection
For Years 2017-2019

ASSUMPTIONS	
1. Pension contribution amounts based on estimates provided by the Company's certified actuary, Willis Towers Watson.	

	Projected		
	2017	2018	2019
Pension Contributions	<u>\$ 86,900,000</u>	<u>\$ 117,890,000</u>	<u>\$ 202,830,000</u>

See Attached Projection from Willis Towers Watson

Southern California Gas Company Pension Plan
 General Rate Case Forecast
 10-Year Forecast of Projected ASC Accounting Costs and Contributions reflecting Projected Headcount
 (\$ in millions)

Pension	SoCalGas Company Pension Plan									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
• FAS Cost (baseline)	87.29	92.21	90.67	88.13	87.46	84.30	75.29	69.78	64.86	60.52
• Minimum required contribution (baseline)	86.90	117.89	124.67	132.80	152.60	171.09	185.18	177.21	147.99	142.55
• PPA funded percentage (baseline)	94%	86%	88%	88%	87%	87%	88%	92%	96%	100%
Actuarial value of assets (including receivables)	1,600.01	1,563.18	1,608.82	1,654.12	1,721.10	1,807.15	1,919.95	2,060.49	2,213.19	2,354.00
Funding target	1,693.86	1,807.28	1,836.60	1,869.54	1,967.54	2,068.33	2,175.37	2,243.35	2,295.83	2,359.18
Funded percentage	94%	86%	88%	88%	87%	87%	88%	92%	96%	100%
• New funding policy (FAS service cost + 7 yr amort)	86.90	117.89	202.83	202.83	202.83	185.10	185.10	185.10	147.91	42.16
• PBO funded percentage (new policy)	68%	67%	68%	76%	82%	88%	94%	100%	106%	110%
Fair value of assets	1,579.29	1,540.83	1,555.47	1,736.05	1,879.91	2,029.70	2,175.56	2,337.43	2,516.12	2,674.44
PBO	2,319.67	2,297.70	2,283.50	2,277.03	2,285.31	2,294.93	2,312.54	2,341.03	2,380.78	2,431.31
Funded percentage	68%	67%	68%	76%	82%	88%	94%	100%	106%	110%
• FAS discount rate	4.10%	4.10%	4.10%	4.10%	4.10%	4.10%	4.10%	4.10%	4.10%	4.10%

Southern California Gas Company
2019 GRC - APP
Non-Shared Service Workpapers

**Southern California Gas Company Pension Plan
Additional Projection Details
Exhibit 1: Projected Funding Policy Contributions**

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Projected Funding Policy Contribution (\$thousand)											
A. Policy Base Amount (New Policy)											
1. Projected Benefit Obligation	n/a	n/a	2,283,498	2,277,035	2,285,306	2,294,932	2,312,540	2,341,034	2,380,776	2,431,309	2,492,705
2. Fair value of assets			1,555,474	1,736,045	1,879,908	2,029,696	2,175,558	2,337,431	2,516,119	2,674,440	2,741,976
3. Shortfall (1. - 2.)			728,024	540,990	405,398	265,236	136,982	3,603	(135,343)	(243,131)	
4. Discount rate			4.10%	4.10%	4.10%	4.10%	4.10%	4.10%	4.10%	4.10%	4.10%
5. 7-year amortization factor			6.2251			6.2251			6.2251		
6. Present value of remaining payments			-			440,880			10,582		
7. Shortfall amortization amount ((3. - 6.) / 5.)			116,950			(28,215)			(23,441)		
8. Shortfall amortization at 1/1/2019			116,950	116,950	116,950	116,950	116,950	116,950	116,950	116,950	116,950
9. Shortfall amortization at 1/1/2022						(28,215)	(28,215)	(28,215)	(28,215)	(28,215)	(28,215)
10. Shortfall amortization at 1/1/2025								(23,441)	(23,441)	(23,441)	(23,441)
11. Service Cost at Base Year			77,894			89,079			100,202		
12. Shortfall amortization (8. + 9. + 10.)			116,950			88,735			65,294		
13. Base Policy Amount (11. + 12.)			194,844	194,844	194,844	177,814	177,814	177,814	165,496	165,496	165,496
14. EOY Base Policy Amount 13. * 1.0410			202,833	202,833	202,833	185,104	185,104	185,104	172,281	172,281	172,281
B. Minimum Required Contribution											
1. MRC (Exhibit 2, C.6)	86,900	117,890	124,670	52,970	-	-	-	-	-	-	-
C. 85% AFTAP Minimum											
1. Funding Target Liability at 1/1	1,693,860	1,807,278	1,836,595	1,869,544	1,967,539	2,068,327	2,175,370	2,243,353	2,295,826	2,359,178	
2. 85% of 1.	1,439,781	1,536,186	1,561,106	1,589,112	1,672,408	1,758,078	1,849,065	1,906,850	1,951,452	2,005,301	
3. Actuarial Value of Assets	1,600,011	1,563,183	1,608,819	1,731,122	1,871,926	2,014,496	2,150,531	2,301,563	2,474,290	2,629,199	
4. Minimum Required Contribution reflecting payment limit	-	-	-	-	-	-	-	-	-	-	-
5. 85% AFTAP Minimum at the end of the year	-	-	-	-	-	-	-	-	-	-	-
D. 110% of PBO Cap											
1. 110% of PBO at t+1			2,504,739	2,513,837	2,524,425	2,543,794	2,575,137	2,618,854	2,674,440	2,741,976	
2. Fair value of assets at t+1 (prior to contribution at t)			1,533,212	1,677,075	1,826,863	1,990,454	2,152,327	2,331,015	2,526,528	2,699,812	
3. Maximum contribution (end of year) (1. - 2.)			971,527	836,762	697,562	553,340	422,810	287,839	147,912	42,164	
E. Funding Policy Contribution											
1. Old policy amount (greater of B.1 and C.5)	86,900	117,890									
2. New policy amount (greater of A.14, B.1, and C.5, not no more than D.3)			202,833	202,833	202,833	185,104	185,104	185,104	147,912	147,912	42,164
3. Recoverable amount (1. before 2018, 2. after)	86,900	117,890	202,833	202,833	202,833	185,104	185,104	185,104	147,912	147,912	42,164

**Southern California Gas Company Pension Plan
Additional Projection Details**

Exhibit 2: Projected Minimum Required Contributions If Contributions Made Under New Policy

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Projected Minimum Required Contribution (\$thousand)										
A. Funding Shortfall										
1. Effective Interest Rate (EIR)	5.94%	5.75%	5.58%	5.44%	5.04%	4.64%	4.27%	4.14%	4.13%	4.12%
2. Funding Target Liability	1,693,860	1,807,278	1,836,595	1,869,544	1,967,539	2,068,327	2,175,370	2,243,353	2,295,826	2,359,178
3. Actuarial value of assets	1,600,011	1,563,183	1,608,819	1,731,122	1,871,926	2,014,496	2,150,531	2,301,563	2,474,290	2,629,199
4. Prefunding balance	-	-	-	76,985	151,307	208,964	233,820	245,816	266,488	280,624
5. Funding shortfall / (surplus) (2. - [3. - 4.])	93,849	244,095	227,776	215,407	246,920	262,795	258,659	187,606	88,024	10,603
B. Shortfall Amortization Payments										
1. Starting 1/1/2016	3,000	3,000	3,000	3,000	3,000	3,000				
2. Starting 1/1/2017	12,764	12,764	12,764	12,764	12,764	12,764	12,764			
3. Starting 1/1/2018		26,323	26,323	26,323	26,323	26,323	26,323	26,323		
4. Starting 1/1/2019			2,314	2,314	2,314	2,314	2,314	2,314	2,314	
5. Starting 1/1/2020				3,699	3,699	3,699	3,699	3,699	3,699	3,699
6. Starting 1/1/2021					11,593	11,593	11,593	11,593	11,593	11,593
7. Starting 1/1/2022						10,681	10,681	10,681	10,681	10,681
8. Starting 1/1/2023							9,149	9,149	9,149	9,149
9. Starting 1/1/2024								(215)	(215)	(215)
10. Starting 1/1/2025									(6,179)	(6,179)
11. Starting 1/1/2026										(7,327)
12. Total (Sum of 1. through 11.)	15,764	42,087	44,401	48,100	59,693	70,374	76,523	63,544	31,042	21,401
C. Minimum Required Contribution										
1. Target Normal Cost at 1/1	67,625	71,070	75,729	79,976	87,878	95,747	104,006	109,693	113,994	118,495
2. Adjusted Target Normal Cost (1. + A.5. if surplus)	67,625	71,070	75,729	79,976	87,878	95,747	104,006	109,693	113,994	118,495
3. Shortfall amortization (B.12.)	15,764	42,087	44,401	48,100	59,693	70,374	76,523	63,544	31,042	21,401
4. Prefunding balance (A.4)	-	-	-	76,985	151,307	208,964	233,820	245,816	266,488	280,624
5. Minimum Required Contribution (2. + 3. - 4., no less than \$0)	83,389	113,157	120,130	51,091	-	-	-	-	-	-
6. Minimum Required Contribution reflecting payment timing	86,900	117,890	124,670	52,970	-	-	-	-	-	-

**Southern California Gas Company Pension Plan
Additional Projection Details
Exhibit 3: Projected Assets If Contributions Made Under New Policy**

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Projected Assets (\$thousand)										
A. Fair Value of Assets (FVA)										
1. FVA at beginning of year	1,579,289	1,540,829	1,555,474	1,736,045	1,879,908	2,029,696	2,175,558	2,337,431	2,516,119	2,674,440
2. Employer contributions (adjusted for timing and interest)	50,293	100,109	258,683	204,280	202,832	185,104	185,104	185,104	147,912	42,164
3. Benefit payments	(186,883)	(183,017)	(177,869)	(167,957)	(169,779)	(165,839)	(159,512)	(153,415)	(148,367)	(143,841)
4. Investment return	98,130	97,553	99,757	107,540	116,735	126,599	136,281	146,999	158,776	127,049
5. FVA at end of year (sum 1 through 4)	1,540,829	1,555,474	1,736,045	1,879,908	2,029,696	2,175,558	2,337,431	2,516,119	2,674,440	2,699,812
6. Assumed investment return	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%
B. Actuarial Asset Value for Minimum Purposes										
1. Market value of assets (MVA), without receivables	1,579,289	1,540,829	1,555,474	1,736,045	1,879,908	2,029,696	2,175,558	2,337,431	2,516,119	2,674,440
2. Present value of receivables	9	36,700	55,484	-	-	-	-	-	-	-
3. MVA including receivables (1. + 2.)	1,579,298	1,577,529	1,610,958	1,736,045	1,879,908	2,029,696	2,175,558	2,337,431	2,516,119	2,674,440
4. Asset gain or (loss) from prior year	42,496	271	3,072	5,848	9,048	18,275	28,403	39,601	42,943	46,391
5. Asset gain or (loss) from two years prior	(147,267)	42,496	271	3,072	5,848	9,048	18,275	28,403	39,601	42,943
6. Asset deferral	(20,713)	14,346	2,138	4,923	7,982	15,200	25,027	35,868	41,829	45,242
7. Actuarial value of assets (AVA) prior to corridor (3. - 6.)	1,600,011	1,563,183	1,608,820	1,731,122	1,871,926	2,014,496	2,150,531	2,301,563	2,474,290	2,629,198
8. Lower corridor 90% of MVA	1,421,368	1,419,776	1,449,862	1,562,441	1,691,917	1,826,726	1,958,002	2,103,688	2,264,507	2,406,996
9. Upper corridor 110% of MVA	1,737,228	1,735,282	1,772,054	1,909,650	2,067,899	2,232,666	2,393,114	2,571,174	2,767,731	2,941,884
10. Final AVA (limited to 90% to 110% of MVA)	1,600,011	1,563,183	1,608,820	1,731,122	1,871,926	2,014,496	2,150,531	2,301,563	2,474,290	2,629,198

Southern California Gas Company Pension Plan Additional Projection Details		Projected Minimum Required Contribution (\$thousand)										
		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
A. Funding Shortfall												
1.	Effective Interest Rate (EIR)	5.94%	5.75%	5.58%	5.44%	5.04%	4.64%	4.27%	4.14%	4.13%	4.12%	
2.	Funding Target Liability	1,693,860	1,807,278	1,836,595	1,869,544	1,967,539	2,068,327	2,175,370	2,243,353	2,295,826	2,359,178	
3.	Actuarial value of assets	1,600,011	1,563,183	1,608,819	1,654,124	1,721,096	1,807,148	1,919,949	2,060,492	2,213,189	2,354,000	
4.	Pretfunding balance	-	-	-	-	-	-	-	-	-	-	
5.	Funding shortfall / (surplus) (2. - [3. - 4.])	93,849	244,095	227,776	215,420	246,443	261,179	255,421	182,861	82,637	5,178	
B. Shortfall Amortization Payments												
1.	Starting 1/1/2016	3,000	3,000	3,000	3,000	3,000	3,000	3,000				
2.	Starting 1/1/2017	12,764	12,764	12,764	12,764	12,764	12,764	12,764				
3.	Starting 1/1/2018		26,323	26,323	26,323	26,323	26,323	26,323	26,323			
4.	Starting 1/1/2019			2,314	2,314	2,314	2,314	2,314	2,314	2,314		
5.	Starting 1/1/2020				3,702	3,702	3,702	3,702	3,702	3,702	3,702	
6.	Starting 1/1/2021					11,515	11,515	11,515	11,515	11,515	11,515	
7.	Starting 1/1/2022						10,492	10,492	10,492	10,492	10,492	
8.	Starting 1/1/2023							8,863	8,863	8,863	8,863	
9.	Starting 1/1/2024								(518)	(518)	(518)	
10.	Starting 1/1/2025									(6,390)	(6,390)	
11.	Starting 1/1/2026										(7,476)	
12.	Total (Sum of 1. through 11.)	15,764	42,087	44,401	48,103	59,618	70,110	75,973	62,691	29,978	20,188	
C. Minimum Required Contribution												
1.	Target Normal Cost at 1/1	67,625	71,070	75,729	79,976	87,878	95,747	104,006	109,693	113,994	118,495	
2.	Adjusted Target Normal Cost (1. + A.5.if surplus)	67,625	71,070	75,729	79,976	87,878	95,747	104,006	109,693	113,994	118,495	
3.	Shortfall amortization (B.12.)	15,764	42,087	44,401	48,103	59,618	70,110	75,973	62,691	29,978	20,188	
4.	Pretfunding credit (A.4)	-	-	-	-	-	-	-	-	-	-	
5.	Minimum Required Contribution (2. + 3. - 4., no less than \$0)	83,389	113,157	120,130	128,079	147,496	165,857	179,979	172,384	143,972	138,683	
6.	Minimum Required Contribution reflecting payment timing	86,900	117,890	124,670	132,800	152,600	171,090	185,180	177,210	147,990	142,550	

**Southern California Gas Company Pension Plan
Additional Projection Details
Exhibit 5: Projected Assets If Contributions Made Under Prior Policy**

	Projected Assets (\$thousand)									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
A. Fair Value of Assets (FVA)										
1. FVA at beginning of year	1,579,289	1,540,829	1,555,474	1,615,375	1,682,431	1,764,774	1,882,276	2,029,243	2,190,145	2,343,934
2. Employer contributions (adjusted for timing and interest)	50,293	100,109	138,013	130,848	143,243	168,218	182,912	180,934	158,848	145,102
3. Benefit payments	(186,883)	(183,017)	(177,869)	(167,957)	(169,779)	(165,839)	(159,512)	(153,415)	(148,367)	(143,841)
4. Investment return	98,130	97,553	99,757	104,165	108,879	115,123	123,567	133,383	143,308	152,874
5. FVA at end of year (sum 1 through 4)	1,540,829	1,555,474	1,615,375	1,682,431	1,764,774	1,882,276	2,029,243	2,190,145	2,343,934	2,498,069
6. Assumed investment return	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%
B. Actuarial Asset Value for Minimum Purposes										
1. Market value of assets (MVA), without receivables	1,579,289	1,540,829	1,555,474	1,615,375	1,682,431	1,764,774	1,882,276	2,029,243	2,190,145	2,343,934
2. Present value of receivables	9	36,700	55,484	43,685	46,451	56,663	60,588	63,809	60,960	50,903
3. MVA including receivables (1. + 2.)	1,579,298	1,577,529	1,610,958	1,659,060	1,728,882	1,821,437	1,942,864	2,093,052	2,251,105	2,394,837
4. Asset gain or (loss) from prior year	42,496	271	3,072	5,868	8,743	17,061	25,841	35,920	38,914	41,798
5. Asset gain or (loss) from two years prior	(147,267)	42,496	271	3,072	5,868	8,743	17,061	25,841	35,920	38,914
6. Asset deferral	(20,713)	14,346	2,138	4,936	7,785	14,288	22,914	32,560	37,916	40,836
7. Actuarial value of assets (AVA) prior to corridor (3. - 6.)	1,600,011	1,563,183	1,608,820	1,654,124	1,721,097	1,807,149	1,919,950	2,060,492	2,213,189	2,354,001
8. Lower corridor 90% of MVA	1,421,368	1,419,776	1,449,862	1,493,154	1,555,994	1,639,293	1,748,578	1,883,747	2,025,995	2,155,353
9. Upper corridor, 110% of MVA	1,737,228	1,735,282	1,772,054	1,824,966	1,901,770	2,003,581	2,137,150	2,302,357	2,476,216	2,634,321
10. Final AVA (limited to 90% to 110% of MVA)	1,600,011	1,563,183	1,608,820	1,654,124	1,721,097	1,807,149	1,919,950	2,060,492	2,213,189	2,354,001

Beginning of Workpaper
2PN000.001 - EMPLOYEE PENSION - PBOP

Southern California Gas Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: CORP CTR - PENSION & PBOPs
 Witness: Debbie S. Robinson
 Category: A. EMPLOYEE PENSION
 Category-Sub: 2. EMPLOYEE PENSION - PBOP
 Workpaper: 2PN000.001 - EMPLOYEE PENSION - PBOP

Activity Description:

SCG provides post-retirement benefits other than pensions (PBOP) such as health and life insurance benefits, also known as the Southern California Gas Company Postretirement Welfare Plan. Represented and non-represented employees participate in the plan.

Forecast Explanations:

Labor - Zero-Based

Please see NSE below

Non-Labor - Zero-Based

Please see NSE below

NSE - Zero-Based

Zero Based method chosen as PBOP contributions are provided by the Company's certified actuary Willis Towers Watson.

Summary of Results:

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		0	0	0	0	0	0	0	0	
Non-Labor		23,359	9,146	280	0	271	0	0	0	
NSE		0	0	0	0	0	2,340	0	0	
Total		23,359	9,146	280	0	271	2,340	0	0	
FTE		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: CORP CTR - PENSION & PBOPs
 Witness: Debbie S. Robinson
 Category: A. EMPLOYEE PENSION
 Category-Sub: 2. EMPLOYEE PENSION - PBOP
 Workpaper: 2PN000.001 - EMPLOYEE PENSION - PBOP

Summary of Adjustments to Forecast:

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	Zero-Based	0	0	0	0	0	0	0	0	0
Non-Labor	Zero-Based	0	0	0	0	0	0	0	0	0
NSE	Zero-Based	0	0	0	2,340	0	0	2,340	0	0
Total		0	0	0	2,340	0	0	2,340	0	0
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Forecast Adjustment Details:

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID
2017	Other	0	0	2,340	2,340	0.0	1-Sided Adj	JECHERRY20170719160238883

Explanation: 2017 PBOP projection

2017 Total		0	0	2,340	2,340	0.0		
-------------------	--	----------	----------	--------------	--------------	------------	--	--

2018 Total		0	0	0	0	0.0		
-------------------	--	----------	----------	----------	----------	------------	--	--

2019 Total		0	0	0	0	0.0		
-------------------	--	----------	----------	----------	----------	------------	--	--

Note: Totals may include rounding differences.

SCG/CORP CTR - PENSION & PBOPs/Exh No:SCG-31-WP/Witness: D. Robinson

Southern California Gas Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: CORP CTR - PENSION & PBOPs
Witness: Debbie S. Robinson
Category: A. EMPLOYEE PENSION
Category-Sub: 2. EMPLOYEE PENSION - PBOP
Workpaper: 2PN000.001 - EMPLOYEE PENSION - PBOP

Determination of Adjusted-Recorded (Incurred Costs):

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
Recorded (Nominal \$)*					
Labor	0	0	0	0	0
Non-Labor	22,384	9,034	281	0	271
NSE	0	0	0	0	0
Total	22,384	9,034	281	0	271
FTE	0.0	0.0	0.0	0.0	0.0
Adjustments (Nominal \$) **					
Labor	0	0	0	0	0
Non-Labor	318	0	0	0	0
NSE	0	0	0	0	0
Total	318	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	0	0	0	0	0
Non-Labor	22,703	9,034	281	0	271
NSE	0	0	0	0	0
Total	22,703	9,034	281	0	271
FTE	0.0	0.0	0.0	0.0	0.0
Vacation & Sick (Nominal \$)					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2016\$					
Labor	0	0	0	0	0
Non-Labor	656	112	-1	0	0
NSE	0	0	0	0	0
Total	656	112	-1	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2016\$)					
Labor	0	0	0	0	0
Non-Labor	23,359	9,146	280	0	271
NSE	0	0	0	0	0
Total	23,359	9,146	280	0	271
FTE	0.0	0.0	0.0	0.0	0.0

* After company-wide exclusions of Non-GRC costs

** Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

Southern California Gas Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: CORP CTR - PENSION & PBOPs
 Witness: Debbie S. Robinson
 Category: A. EMPLOYEE PENSION
 Category-Sub: 2. EMPLOYEE PENSION - PBOP
 Workpaper: 2PN000.001 - EMPLOYEE PENSION - PBOP

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	0
Non-Labor	318	0	0	0	0
NSE	0	0	0	0	0
Total	318	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0

Detail of Adjustments to Recorded:

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
2012	Other	0	318	0	0.0	1-Sided Adj	JECERRY20161115163404213

Explanation: Adjust to agree to PBOP funding amount

2012 Total		0	318	0	0.0		
2013 Total		0	0	0	0.0		
2014 Total		0	0	0	0.0		
2015 Total		0	0	0	0.0		
2016 Total		0	0	0	0.0		

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 2PN000.001

Southern California Gas Company
PBOP Contribution Projection
For Years 2017-2019

ASSUMPTIONS	
1. PBOP contribution amounts based on estimates provided by the Company's certified actuary, Willis Towers Watson.	

	Projected		
	2017	2018	2019
PBOP Contributions	\$ 2,340,000	\$ -	\$ -

See Attached Projection from Willis Towers Watson

Southern California Gas Company PBOP
 General Rate Case Forecast
 10-Year Forecast of Projected ASC Accounting Costs and Contributions reflecting Projected Headcount
 (\$ in millions)

	SoCalGas PBOP									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
• FAS Cost	2.34	(9.63)	(10.01)	(8.63)	(7.76)	(6.88)	(5.95)	(5.11)	(4.33)	(3.49)
• Contributions										
Contributions to trust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pay-as-you-go	1.09	1.17	1.22	1.25	1.27	1.29	1.30	1.30	1.28	1.27
Total contributions	1.09	1.17	1.22	1.25	1.27	1.29	1.30	1.30	1.28	1.27
• APBO funded percentage (alternative)										
Fair value of assets	870.29	886.31	900.52	914.02	927.30	940.64	954.10	968.08	983.08	999.31
APBO	691.61	715.18	723.40	731.19	740.07	749.22	759.09	770.15	782.99	797.90
Funded percentage	126%	124%	124%	125%	125%	126%	126%	126%	126%	125%
• FAS discount rate	4.20%	4.20%	4.20%	4.20%	4.20%	4.20%	4.20%	4.20%	4.20%	4.20%

Southern California Gas Company
2019 GRC - APP
Non-Shared Service Workpapers

**SDG&E and SoCalGas PBOP
10-Year Forecast of Projected ASC Accounting Costs and Contributions reflecting Projected Headcount
Other Key Assumptions and Methodology: PBOP**

<u>Other Key Assumptions</u>	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Ultimate
FAS Discount rate	See forecast exhibits										
Expected Return on Plan Assets for Determining ASC 715 Benefit Cost (except for post tax VEBAs and SoCalGas 401(h))	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Expected Return on SoCalGas 401(h)	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
Expected Return on Post Tax VEBAs (PBOP)	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
SoCalGas 401(h)	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%
Assumed Actual Return on SoCalGas 401(h)	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Assumed Actual Return on Post Tax VEBAs (PBOP)	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Assumed Return other than from unrealized and realized gains / (losses) for MRYA purposes	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Healthcare Cost Trend (Pre-age 65)	8.00%	7.00%	6.50%	6.00%	5.50%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Healthcare Cost Trend (Post-age 65)	5.50%	5.00%	4.75%	4.75%	4.75%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%
Salary Scale - Qualified plans, excluding SoCalGas Union	Age Based	Age Based	Age Based	Age Based	Age Based	Age Based	Age Based	Age Based	Age Based	Age Based	Age Based
Salary Scale - SoCalGas Union	Service Based	Service Based	Service Based	Service Based	Service Based	Service Based	Service Based	Service Based	Service Based	Service Based	Service Based
Salary Scale - Nonqualified plans, Executive Life Insurance	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%
Cash Balance Crediting Rate/Interest Crediting Rate for HRA	2.86%	2.86%	2.86%	2.86%	2.86%	2.86%	2.86%	2.86%	2.86%	2.86%	2.86%
Pre-retirement Mortality											
Post-retirement Mortality											
Retirement/Termination/Participation Rates and Marital Status	RP-2016 Employee table with MP-2016 generational projection scale Sempra specific table, base year of 2011, with MP-2016 generational projection scale from 2011 Same as those used for 2016 year-end disclosures										

Number of projected headcount (provided by Sempra on July 26, 2017) ⁽¹⁾

	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026
SoCalGas	8,042	7,900	8,142	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624
SDG&E	4,134	4,215	4,315	4,515	4,515	4,515	4,515	4,515	4,515	4,515	4,515

⁽¹⁾ The count does not reflect employees on leave of absence. The number of employees on leave is assumed to remain level throughout the forecast period based on number of employees on leave as of January 1, 2016.

Refer to September 22, 2016 with updates through December 19, 2016 Assumptions Review sent on January 7, 2017 and provided with December 31, 2016 discount rate analyses for assumptions not shown above.

Methodology

- Assets
 - Reflects trust information through December 31, 2016
- Data and Demographics
 - January 1, 2016 participant census, except Executive Life Insurance and Directors' pension plans which are as of December 31, 2016. Assumed level headcount unless otherwise stated
- Plan Design
 - Includes all plan changes described with December 31, 2016 disclosure

Contribution Amounts

- Contributions for PBOPs equal to sum of contributions to trusts plus expected benefit payments from general assets

Contribution Policy

- SoCalGas and SDG&E PBOP: equal to smaller of postretirement benefit costs or maximum tax deductible contributions plus key employee benefit payments paid
- Sempra PBOP: expected benefit payments or premiums per current pay-as-you-go policy



Southern California Gas Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: CORP CTR - PENSION & PBOPs
Witness: Debbie S. Robinson

Appendix A: List of Non-Shared Cost Centers

Cost Center	Sub	Description
2200-8001	000	EMPLOYEE PENSION