Application of SAN DIEGO GAS & ELECTRIC COMPANY for authority to update its gas and electric revenue requirement and base rates effective January 1, 2016 (U 902-M)	)

Application No. 14-11-___
Exhibit No.: (SDG&E-04-CWP)

CAPITAL WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF FRANK B. AYALA
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

NOVEMBER 2014

2016 General Rate Case - APP

INDEX OF WORKPAPERS

Exhibit SDG&E-04-CWP - GAS DISTRIBUTION

Overall Summary For Exhibit No. SDG&E-04-CWP

Area: GAS DISTRIBUTION

Witness: Frank B. Ayala

	In 2013 $ (000) Adjusted-Forecast		
	2014	2015	2016
B. New Business	7,042	9,584	12,500
C. System Minor Additions, Relocations and Retirement	1,450	3,356	3,356
D. Meter and Regulator Materials	7,175	7,378	7,610
E. Pressure Betterment	2,304	2,304	2,304
F. Distribution Easements	28	28	28
G. Pipe Relocations - Franchise and Freeway	3,970	3,970	3,970
H. Tools and Equipment	1,865	1,871	1,955
I. Code Compliance	320	320	320
J. Replacement of Mains and Services	1,726	1,726	1,726
K. Cathodic Protection	899	953	967
L. Regulator Station Improvements and Other	1,256	737	463
M. Local Engineering	4,343	5,136	5,772
Total	**32,378**	**37,363**	**40,971**

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. New Business
Workpaper: 005000

Summary for Category: B. New Business

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	1,571	2,320	3,158	4,119
Non-Labor	3,183	4,722	6,426	8,381
NSE	0	0	0	0
Total	**4,754**	**7,042**	**9,584**	**12,500**
FTE	21.1	30.9	42.1	54.9

005000 New Business

Labor	1,571	2,320	3,158	4,119
Non-Labor	3,183	4,722	6,426	8,381
NSE	0	0	0	0
Total	**4,754**	**7,042**	**9,584**	**12,500**
FTE	21.1	30.9	42.1	54.9

Note: Totals may include rounding differences.

Beginning of Workpaper Group
005000 - New Business

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00500.0
Category: B. New Business
Category-Sub: 1. New Business
Workpaper Group: 005000 - New Business

Summary of Results (Constant 2013 $ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	Zero-Based	1,584	1,282	1,404	1,540	1,571	2,320	3,158	4,119
Non-Labor	Zero-Based	2,150	2,380	4,584	2,720	3,183	4,722	6,426	8,381
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**3,733**	**3,662**	**5,988**	**4,260**	**4,754**	**7,042**	**9,584**	**12,500**
FTE	Zero-Based	20.0	16.0	19.1	21.3	21.1	30.9	42.1	54.9

Business Purpose:

Expenditures within budget code 500 provide for changes and additions to the existing gas distribution system for the purpose of serving new gas customers.

Physical Description:

Budget code 500 covers the installation of gas mains and services, meter set assemblies (MSAs), regulator stations, and all associated equipment except the purchase of gas meters and service regulators, which are reflected in budget code 502. Costs includes main and service extensions into new residential, commercial and industrial developments.

Project Justification:

This budget code provides the necessary capital to extend mains and services consistent with Gas Rules 2, 15 and 16. These additions support service for residential, commercial and industrial customers, including identified single customers such as co-generation, CNG, or concrete and asphalt plants where the gas distribution main must be extended.

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00500.0
Category:	B. New Business
Category-Sub:	1. New Business
Workpaper Group:	005000 - New Business

Forecast Methodology:

Labor - Zero-Based

New Business forecast is based on the projected growth rate of new meter sets added to the gas distribution system. In general, as the economy improves, new meter set installations increase. SDG&E anticipates a return in the housing and commercial growth at a level approaching that seen in 2002. The projected number of new meter sets was obtained from Witness Rose-Marie Payan, the three year forecast of meter set growth is 6,437 in 2014, 8,759 in 2015, and 11,426 in 2016. Forecasted funding was estimated by applying this projected meter growth to the 5-year historical average cost per meter set.

Non-Labor - Zero-Based

New Business forecast is based on the projected growth rate of new meter sets added to the gas distribution system. In general, as the economy improves, new meter set installations increase. SDG&E anticipates a return in the housing and commercial growth at a level approaching that seen in 2002. The projected number of new meter sets was obtained from Witness Rose-Marie Payan, the three year forecast of meter set growth is 6,437 in 2014, 8,759 in 2015, and 11,426 in 2016. Forecasted funding was estimated by applying this projected meter growth to the 5-year historical average cost per meter set. A 5-year historical average ratio of CIAC credits to total direct capital was used to forecast the collectible component of this budget code.

NSE - Zero-Based

N/A.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00500.0
Category: B. New Business
Category-Sub: 1. New Business
Workpaper Group: 005000 - New Business

Adjustments to Forecast

In 2013 $ (000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Zero-Based	2,320	3,158	4,119	0	0	0	2,320	3,158	4,119
Non-Labor	Zero-Based	4,722	6,426	8,381	0	0	0	4,722	6,426	8,381
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**7,042**	**9,584**	**12,500**	**0**	**0**	**0**	**7,042**	**9,584**	**12,500**
FTE	Zero-Based	30.9	42.1	54.9	0.0	0.0	0.0	30.9	42.1	54.9

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00500.0
Category: B. New Business
Category-Sub: 1. New Business
Workpaper Group: 005000 - New Business

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	1,117	939	1,138	1,349	1,356
Non-Labor	1,221	950	1,584	1,619	782
NSE	0	0	0	0	0
Total	**2,338**	**1,889**	**2,722**	**2,968**	**2,138**
FTE	17.1	13.6	16.4	18.3	18.0
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	530	1,071	2,677	1,110	2,401
NSE	0	0	0	0	0
Total	**530**	**1,071**	**2,677**	**1,110**	**2,401**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	1,117	939	1,138	1,349	1,356
Non-Labor	1,750	2,021	4,261	2,729	3,183
NSE	0	0	0	0	0
Total	**2,867**	**2,960**	**5,398**	**4,078**	**4,539**
FTE	17.1	13.6	16.4	18.3	18.0
Vacation & Sick (Nominal $)					
Labor	172	149	168	195	215
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**172**	**149**	**168**	**195**	**215**
FTE	2.9	2.4	2.7	3.0	3.1
Escalation to 2013$					
Labor	294	193	99	-5	0
Non-Labor	399	359	323	-9	0
NSE	0	0	0	0	0
Total	**694**	**552**	**422**	**-14**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	1,584	1,282	1,404	1,540	1,571
Non-Labor	2,150	2,380	4,584	2,720	3,183
NSE	0	0	0	0	0
Total	**3,733**	**3,662**	**5,988**	**4,260**	**4,754**
FTE	20.0	16.0	19.1	21.3	21.1

* 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.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00500.0
Category: B. New Business
Category-Sub: 1. New Business
Workpaper Group: 005000 - New Business

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	530	1,071	2,677	1,110	2,401
NSE	0	0	0	0	0
Total	**530**	**1,071**	**2,677**	**1,110**	**2,401**
FTE	0.0	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00500.0
Category: B. New Business
Category-Sub: 1. New Business
Workpaper Group: 005000 - New Business

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	0	530	0	530	0.0	MCUNANAN2014041009
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 500. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 500.						
2009 Total	0	530	0	530	0.0	
2010	0	1,071	0	1,071	0.0	MCUNANAN2014041009
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 500. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 500.						
2010 Total	0	1,071	0	1,071	0.0	
2011	0	2,677	0	2,677	0.0	MCUNANAN2014041009
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 500. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 500.						
2011 Total	0	2,677	0	2,677	0.0	
2012	0	1,110	0	1,110	0.0	MCUNANAN2014041009
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 500. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 500.						
2012 Total	0	1,110	0	1,110	0.0	
2013	0	2,401	0	2,401	0.0	MCUNANAN2014041009
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 500. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 500.						
	0	1	0	1	0.0	MCUNANAN2014041010
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 511. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 511.						
	0	-1	0	-1	0.0	MCUNANAN2014041012
This adjustment is the transfer of 2013 history from budget 511 to 500 as these two budgets will be combined.						

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00500.0
Category: B. New Business
Category-Sub: 1. New Business
Workpaper Group: 005000 - New Business

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2013 Total	0	2,401	0	2,401	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 005000

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00500.0
Category: B. New Business
Category-Sub: 1. New Business
Workpaper Group: 005000 - New Business
Workpaper Detail: 005000.001 - 500 New Business Non-Collectible

In-Service Date: Not Applicable

Description:

05000.001 is the non-collectible portion of the New Business budget. This budget includes the installation of gas mains and services, regulator stations, and all associated equipment except the purchase of gas meters and service regulators which are reflected in budget code 502. Costs included are for main and service extensions for new residential, commercial and industrial customers.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	2,320	3,158	4,119
Non-Labor	3,571	4,860	6,339
NSE	0	0	0
Total	**5,891**	**8,018**	**10,458**
FTE	30.9	42.1	54.9

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00500.0
Category: B. New Business
Category-Sub: 1. New Business
Workpaper Group: 005000 - New Business
Workpaper Detail: 005000.002 - 500 New Business - CIAC Collectible Direct Component

In-Service Date: Not Applicable

Description:

05000.002 is the forecasted collectible CIAC direct credit of New Business. The forecasted CIAC direct credits are based on an average percentage ratio of historical CIAC.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	1,151	1,566	2,042
NSE	0	0	0
Total	**1,151**	**1,566**	**2,042**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 005000

SDGE-FBA-CAP-SUP-001
San Diego Gas & Electric – Gas Distribution – Witness Frank Ayala
Supplemental Workpaper Calculations for CIAC New Business Forecast
New Business Workpaper

New Business (Budget Code 500) History
($000 in 2013$)

	Ln	2009	2010	2011	2012	2013	5-Yr Avg
CIAC Direct Credits Applied **	1	($206)	($500)	($1341)	($603)	($1239)	
CIAC Indirect Credits Applied	2	($324)	($571)	($1336)	($507)	($1163)	
Total CIAC Credits Applied to Non-Labor (w/o escalation) (1+2)	3	($530)	($1071)	($2677)	($1110)	($2402)	
GRID Recorded History Labor (w/ V&S and escalation)	4	$1584	$1282	$1404	$1540	$1571	
GRID Recorded History Non-Labor (w/escalation)	5	$1499	$1119	$1704	$1614	$781	
GRID Total Recorded History (w/ V&S and escalation) (4+5)	6	$3083	$2401	$3108	$3154	$2352	
Adjustment Entry to Non-Labor to remove CIAC Credit (w/o escalation) (-3)	7	*+$530*	*+$1071*	*+$2677*	*+$1110*	*+$2402*	
Escalation Factor	8	*0.8142*	*0.8492*	*0.9295*	*1.0032*	*1*	
CIAC Credit w/ escalation (7/8)	9	$651	$1261	$2880	$1106	$2402	
Adjusted Recorded Labor (w/ V&S and escalation)	**10**	**$1584**	**$1282**	**$1404**	**$1540**	**$1571**	
Adjusted Recorded Non-Labor (w/ escalation) (5+9) *	**11**	**$2150**	**$2380**	**$4584**	**$2720**	**$3183**	
Total Adjusted Recorded (w/ V&S and escalation) (10+11)	**12**	**$3734**	**$3662**	**$5988**	**$4260**	**$4754**	
Historical Direct Credit Ratio (1/12)	13	(5.52%)	(13.66%)	(22.39%)	(14.15%)	(26.06%)	**(16.36%)**

Forecasted Capital
($000 in 2013$)

		2014	2015	2016
Forecasted Labor*** w/ V&S	14	$2320	$3158	$4119
Forecasted Non-labor***	15	$4722	$6426	$8381
Total Forecasted w/V&S	**16**	**$7042**	**$9584**	**$12500**
Forecasted CIAC Collectible (16 x avg 13)	17	*($1151)*	*($1566)*	*($2042)*
Forecasted Non-Collectible (=16+17)	**18**	***$5891***	***$8018***	***$10458***

***** Recorded non-labor has been adjusted to align with the presentation of capital spending in the operational witness' testimony. The non-labor shown has credits removed.

****** Recorded credits have been adjusted to align with the presentation of capital spending in the operational witness' testimony. The amounts shown reflect only the direct portion of the credit based on the direct to indirect ratio of the total recorded value per year.

*** See SDGE-FBA-CAP-SUP-002

SDGE-FBA-CAP-SUP-002

San Diego Gas & Electric – Gas Distribution – Witness Frank Ayala
Supplemental Workpaper Calculations for Zero-Based New Business Construction Forecast
New Business Construction Workpaper

Assumptions:

* Please refer to the direct work papers of Ms. Rosemary Payan, Exhibit SDG&E-32-WP, for the new meter set forecast methodology.

Amounts are shown in 2013 dollars and include vacation and sick.

	[H] Historical New Meter Set Installations	[A] Adjusted Recorded Historical Total	[B] Adjusted Recorded Historical Labor	[F] Adjusted Recorded Historical Non-Labor	[D] Historical FTEs	[E] [B/D] Historical 5-yr Average Labor / FTE (Rounded)	[I] [A/H] Historical 5-yr Average Cost Per Meter Set
2009	4,159	$ 3,733,327	$ 1,583,706	$ 2,149,621	20		
2010	3,500	$ 3,661,581	$ 1,281,551	$ 2,380,030	16		
2011	4,120	$ 5,988,213	$ 1,404,378	$ 4,583,835	19.1		
2012	4,457	$ 4,260,050	$ 1,539,581	$ 2,720,469	21.3		
2013	4,241	$ 4,753,805	$ 1,570,719	$ 3,183,086	21.1		
	20,477	**$ 22,396,976**	**$ 7,379,935**	**$ 15,017,041**	**97.5**	**$75,000**	**$1,094**

	[C] [B/A] Labor	[G] [F/A] Non-Labor
5-Year Historical Average Ratio:	**33%**	**67%**

	[J] Projected Meter Sets Installations *	[K] [IxJ] Total Forecast	[L] [CxK] Labor Forecast	[M] [GxK] Non-Labor Forecast	[N] [L/E] Forecasted FTEs
2014	6,437	$ 7,042,000	$ 2,320,000	$ 4,722,000	30.9
2015	8,760	$ 9,583,000	$ 3,158,000	$ 6,425,000	42.1
2016	11,426	$ 12,500,000	$ 4,119,000	$ 8,381,000	54.9

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: C. System Minor Additions, Relocations and Retirement
Workpaper: 005010

Summary for Category: C. System Minor Additions, Relocations and Retirement

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	735	663	1,599	1,599
Non-Labor	766	787	1,757	1,757
NSE	0	0	0	0
Total	**1,501**	**1,450**	**3,356**	**3,356**
FTE	10.8	9.6	23.1	23.1

005010 Systems Minor Additions, Relocations and Retirements

Labor	735	663	1,599	1,599
Non-Labor	766	787	1,757	1,757
NSE	0	0	0	0
Total	**1,501**	**1,450**	**3,356**	**3,356**
FTE	10.8	9.6	23.1	23.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
005010 - Systems Minor Additions, Relocations and Retirements

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00501.0
Category: C. System Minor Additions, Relocations and Retirement
Category-Sub: 1. System Minor Additions, Relocations and Retirement
Workpaper Group: 005010 - Systems Minor Additions, Relocations and Retirements

Summary of Results (Constant 2013 $ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	5-YR Average	762	521	670	628	735	663	1,599	1,599
Non-Labor	5-YR Average	959	496	743	969	766	787	1,757	1,757
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**1,721**	**1,017**	**1,413**	**1,597**	**1,500**	**1,450**	**3,356**	**3,356**
FTE	5-YR Average	10.2	7.2	9.8	9.8	10.8	9.6	23.1	23.1

Business Purpose:

Expenses in budget code 501 provide for minor gas distribution main and service additions, retirements and relocations. These expenditures are required to maintain the continued integrity of SDG&E's gas distribution system.

Physical Description:

Projects in this budget allow for minor gas distribution main and service additions, retirements, and relocations due to customer requests or as required by SDG&E to support system operation and integrity, retirement of gas mains and services, and expenses for associated street repairs.

Project Justification:

These projects are necessary for new or continued gas service; to address the needs of property owners requesting SDG&E to move its facilities from their property; or to meet the Company's need for minor additions, facility relocations or abandonments to address conflicts, integrity or reliability concerns. The work must be performed to ensure the integrity of the gas system that serves SDG&E customers.

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00501.0
Category:	C. System Minor Additions, Relocations and Retirement
Category-Sub:	1. System Minor Additions, Relocations and Retirement
Workpaper Group:	005010 - Systems Minor Additions, Relocations and Retirements

Forecast Methodology:

Labor - 5-YR Average

The 5-year historical average + incremental forecasting methodology was selected for this Group (BC 501, 512).

Due to the wide range of activities recorded, as well as the varying costs from year to year, a trend was undetectable. A 5-year historical average was used to forecast the base requirement for labor as it best represents the average of future routine work for minor additions, relocations or retirements of gas distribution mains and services, capturing the fluctuations in BC 501 and 512. BC 512 is a new budget code to track the permanent gas orders associated with routine BC 501 work with the roll out of the new Construction Planning and Design (CPD) program.

Added back into the the average is a non-typical project: Line 49-28-D Relocation.

Non-Labor - 5-YR Average

The 5-year historical average + incremental forecasting methodology was selected for this Group (BC 501, 512).

Due to the wide range of activities recorded, as well as the varying costs from year to year, a trend was undetectable. A 5-year historical average was used to forecast the base requirement for non-labor as it best represents the average of future routine work for minor additions, relocations or retirements of gas distribution mains and services, capturing the fluctuations in BC 501 and 512. BC 512 is a new budget code to track the permanent gas orders associated with routine BC 501 work with the roll out of the new Construction Planning and Design (CPD) program.

A 5-year historical average ratio of CIAC credits to total direct capital was used to forecast the collectible component of this budget code.

Added back into the the average is a non-typical project: Line 49-28-D Relocation.

NSE - 5-YR Average

N/A

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00501.0
Category: C. System Minor Additions, Relocations and Retirement
Category-Sub: 1. System Minor Additions, Relocations and Retirement
Workpaper Group: 005010 - Systems Minor Additions, Relocations and Retirements

Adjustments to Forecast

In 2013 $ (000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	5-YR Average	663	663	663	0	936	936	663	1,599	1,599
Non-Labor	5-YR Average	786	786	786	0	970	970	786	1,756	1,756
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**1,449**	**1,449**	**1,449**	**0**	**1,906**	**1,906**	**1,449**	**3,355**	**3,355**
FTE	5-YR Average	9.6	9.6	9.6	0.0	13.5	13.5	9.6	23.1	23.1

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014 Total	0	0	0	0	0.0	
2015	936	970	0	1,906	13.5	MCUNANAN20131
This adjustment is for the incremental increases above the 5-year historical average. This includes non-typical project: Line 49-28-D Relocation.						
2015 Total	936	970	0	1,906	13.5	
2016	936	970	0	1,906	13.5	MCUNANAN20131
This adjustment is for the incremental increases above the 5-year historical average. This includes non-typical project: Line 49-28-D Relocation.						
2016 Total	936	970	0	1,906	13.5	

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00501.0
Category: C. System Minor Additions, Relocations and Retirement
Category-Sub: 1. System Minor Additions, Relocations and Retirement
Workpaper Group: 005010 - Systems Minor Additions, Relocations and Retirements

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	537	382	543	550	623
Non-Labor	-468	-105	-82	122	26
NSE	0	0	0	0	0
Total	**70**	**277**	**461**	**673**	**649**
FTE	8.7	6.1	8.4	8.4	9.2
Adjustments (Nominal $) **					
Labor	0	0	0	0	11
Non-Labor	1,249	526	773	850	740
NSE	0	0	0	0	0
Total	**1,249**	**526**	**773**	**850**	**751**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	537	382	543	550	634
Non-Labor	781	421	691	972	766
NSE	0	0	0	0	0
Total	**1,318**	**803**	**1,234**	**1,523**	**1,400**
FTE	8.7	6.1	8.4	8.4	9.2
Vacation & Sick (Nominal $)					
Labor	83	61	80	80	101
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**83**	**61**	**80**	**80**	**101**
FTE	1.5	1.1	1.4	1.4	1.6
Escalation to 2013$					
Labor	142	79	47	-2	0
Non-Labor	178	75	52	-3	0
NSE	0	0	0	0	0
Total	**320**	**153**	**100**	**-5**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	762	521	670	628	735
Non-Labor	959	496	743	969	766
NSE	0	0	0	0	0
Total	**1,721**	**1,017**	**1,413**	**1,597**	**1,500**
FTE	10.2	7.2	9.8	9.8	10.8

* 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.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00501.0
Category: C. System Minor Additions, Relocations and Retirement
Category-Sub: 1. System Minor Additions, Relocations and Retirement
Workpaper Group: 005010 - Systems Minor Additions, Relocations and Retirements

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	11
Non-Labor	1,249	526	773	850	740
NSE	0	0	0	0	0
Total	**1,249**	**526**	**773**	**850**	**751**
FTE	0.0	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00501.0
Category: C. System Minor Additions, Relocations and Retirement
Category-Sub: 1. System Minor Additions, Relocations and Retirement
Workpaper Group: 005010 - Systems Minor Additions, Relocations and Retirements

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	0	1,249	0	1,249	0.0	MCUNANAN2014040910
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 501. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 501.						
2009 Total	0	1,249	0	1,249	0.0	
2010	0	526	0	526	0.0	MCUNANAN2014040910
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 501. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 501.						
2010 Total	0	526	0	526	0.0	
2011	0	773	0	773	0.0	MCUNANAN2014040910
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 501. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 501.						
2011 Total	0	773	0	773	0.0	
2012	0	850	0	850	0.0	MCUNANAN2014040910
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 501. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 501.						
2012 Total	0	850	0	850	0.0	
2013	0	738	0	738	0.0	MCUNANAN2014040910
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 501. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 501.						
	11	-11	0	-0.231	0.0	MCUNANAN2014041012
This adjustment is the transfer of 2013 history from budget 512 to 501 as these two budgets will be combined.						
	0	14	0	14	0.0	MCUNANAN2014041012
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 512. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 512.						

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00501.0
Category: C. System Minor Additions, Relocations and Retirement
Category-Sub: 1. System Minor Additions, Relocations and Retirement
Workpaper Group: 005010 - Systems Minor Additions, Relocations and Retirements

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2013 Total	11	740	0	751	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 005010

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00501.0
Category: C. System Minor Additions, Relocations and Retirement
Category-Sub: 1. System Minor Additions, Relocations and Retirement
Workpaper Group: 005010 - Systems Minor Additions, Relocations and Retirements
Workpaper Detail: 005010.001 - 501 System Additions Relocations Retirements

In-Service Date: Not Applicable

Description:

005010.001 captures the non-collectible portion of minor additions, relocations or retirements of smaller gas distribution mains and services. The 5 year average was used to forecast routine 501 base expenses.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	481	481	481
Non-Labor	187	187	187
NSE	0	0	0
Total	**668**	**668**	**668**
FTE	7.0	7.0	7.0

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00501.0
Category: C. System Minor Additions, Relocations and Retirement
Category-Sub: 1. System Minor Additions, Relocations and Retirement
Workpaper Group: 005010 - Systems Minor Additions, Relocations and Retirements
Workpaper Detail: 005010.002 - 501 - System Additions Relocations Retirements - CIAC Collectible

In-Service Date: Not Applicable

Description:

005010.002 captures the collectible CIAC direct credit forecast for minor additions, relocations or retirements of smaller gas distribution mains and services. The forecasted CIAC direct credits were based on an average percentage of historical CIAC direct credits to total direct costs.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	411	411	411
NSE	0	0	0
Total	**411**	**411**	**411**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00501.0
Category:	C. System Minor Additions, Relocations and Retirement
Category-Sub:	1. System Minor Additions, Relocations and Retirement
Workpaper Group:	005010 - Systems Minor Additions, Relocations and Retirements
Workpaper Detail:	005010.003 - 501 Non-Typical Project: Line 49-28-D Relocation
In-Service Date:	09/03/2016

Description:

005010.003 captures a non-typical relocation project known as the Mt. Soledad Pipeline Replacement. This project includes the replacement of high pressure distribution line 49-28D, which serves the Mt. Soledad area. The purpose of this project is the continued supply of gas services to the area.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	936	936
Non-Labor	0	970	970
NSE	0	0	0
Total	**0**	**1,906**	**1,906**
FTE	0.0	13.5	13.5

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00501.0
Category: C. System Minor Additions, Relocations and Retirement
Category-Sub: 1. System Minor Additions, Relocations and Retirement
Workpaper Group: 005010 - Systems Minor Additions, Relocations and Retirements
Workpaper Detail: 005010.005 - 512 CPD Permanent Gas Orders

In-Service Date: Not Applicable

Description:

005010.005 forecasts for budget code 512. With the roll out of the new Construction, Planning and Design (CPD) program, gas orders associated with budget code 501 will be tracked under the new budget code 512. The new CPD program was implemented in late 2013 and early 2014.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	182	182	182
Non-Labor	189	189	189
NSE	0	0	0
Total	**371**	**371**	**371**
FTE	2.6	2.6	2.6

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 005010

SDGE-FBA-CAP-SUP-003
San Diego Gas & Electric – Gas Distribution – Witness Frank Ayala
Supplemental Workpaper Calculations for CIAC System Additions, Relocations, Retirements Forecast
System Minor Adds, Relocations and Retirements Workpaper

System Minor Adds, Relocations and Retirements (Budget Code 501&512) History
($000 in 2013$)

	Ln	2009	2010	2011	2012	2013	5-Yr Avg
CIAC Direct Credits Applied **	1	($556)	($241)	($406)	($462)	($420)	
CIAC Indirect Credits Applied	2	($693)	($285)	($367)	($388)	($331)	
Total CIAC Credits Applied to Non-Labor (w/o escalation) (1+2)	3	($1249)	($526)	($773)	($850)	($751)	
GRID Recorded History Labor (w/ V&S and escalation)	4	$762	$521	$670	$628	$735	
GRID Recorded History Non-Labor (w/escalation)	5	($575)	($123)	($89)	$122	$14	
GRID Total Recorded History (w/ V&S and escalation) (4+5)	6	$188	$397	$582	$750	$749	
Adjustment Entry to Non-Labor to remove CIAC Credit (w/o escalation) (-3)	7	*+$1249*	*+$526*	*+$773*	*+$850*	*$751*	
Escalation Factor	8	*0.8142*	*0.8492*	*0.9295*	*1.0032*	*1.0*	
CIAC Credit w/ escalation (7/8)	9	+$1534	+$619	+$832	+$847	+$751	
Adjusted Recorded Labor (w/ V&S and escalation)	**10**	**$762**	**$521**	**$670**	**$628**	**$735**	**$663**
Adjusted Recorded Non-Labor (w/ escalation) (5+9) *	**11**	**$959**	**$496**	**$743**	**$969**	**$766**	**$787**
Total Adjusted Recorded (w/ V&S and escalation) (10+11)	**12**	**$1721**	**$1017**	**$1413**	**$1597**	**$1500**	**$1450**
Historical Direct Credit Ratio (1/12)	13	(32.33%)	(23.65%)	(28.70%)	(28.93%)	(28.00%)	**(28.32%)**

Forecasted Capital
($000 in 2013$)

		2014	2015	2016
Forecasted Labor w/ V&S	14	$663	$1600	$1600
Forecasted Non-labor	15	$787	$1757	$1757
Total Forecasted w/V&S	**16**	**$1450**	**$3357**	**$3357**
*Forecasted CIAC Collectible (13x forecasted 5-year historical ave of $1450K)****	17	*($411)*	*($411)*	*($411)*
Forecasted Non-Collectible (=16+17)	**18**	***$1039***	***$2946***	***$2946***

***** Recorded non-labor has been adjusted to align with the presentation of capital spending in the operational witness' testimony. The non-labor shown has credits removed.

****** Recorded credits have been adjusted to align with the presentation of capital spending in the operational witness' testimony. The amounts shown reflect only the direct portion of the credit based on the direct to indirect ratio of the total recorded value per year.
*** Calculated Forecasted Credits using the 5-year historical average total capital adjusted recorded of $1450K. Years 2015 and 2016 include non-typical projects in which will likely be contracted out, therefore, ratio CIAC credits do not apply to the incremental spend above the forecasted 5-year historical average.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: D. Meter and Regulator Materials
Workpaper: 005020

Summary for Category: D. Meter and Regulator Materials

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	0	0	0	0
Non-Labor	6,734	7,175	7,378	7,610
NSE	0	0	0	0
Total	**6,734**	**7,175**	**7,378**	**7,610**
FTE	0.0	0.0	0.0	0.0

005020 Meter and Regulator Materials

Labor	0	0	0	0
Non-Labor	6,734	7,175	7,378	7,610
NSE	0	0	0	0
Total	**6,734**	**7,175**	**7,378**	**7,610**
FTE	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
005020 - Meter and Regulator Materials

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00502.0
Category: D. Meter and Regulator Materials
Category-Sub: 1. Meter and Regulator Materials
Workpaper Group: 005020 - Meter and Regulator Materials

Summary of Results (Constant 2013 $ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	Zero-Based	0	0	0	0	0	0	0	0
Non-Labor	Zero-Based	5,502	7,261	6,592	6,264	6,734	7,175	7,378	7,610
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**5,502**	**7,261**	**6,592**	**6,264**	**6,734**	**7,175**	**7,378**	**7,610**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Business Purpose:

Budget code 502 provides funding for the purchase of new domestic, commercial and industrial gas meters and regulators used in establishing service to new customers, and also for replacement of meters and regulators that have reached the end of their useful life or removed as part of the Gas Meter Performance Control Program.

Physical Description:

This effortt involves the purchasing of new domestic, commercial and industrial gas meters and regulators. These meters are required to provide gas service to new customers as well as replace aging meters for some existing customers. Existing residential gas meter measurement accuracy is monitored by sampling meters in the service territory under the Gas Meter Performance Control Program. Meters are grouped into "families" for monitoring purposes. As these family groups age, they may fall outside prescribed accuracy limits and must be replaced. Budget code 502 provides funds to replace family groups of meters that do not meet strict accuracy guidelines. In addition to the replacements of meters, this budget code includes the costs of additional regulators to replace obsolete regulators.

Project Justification:

Meters are purchased under this budget code to provide accurate gas measurement for new customers and to replace aging meters whose measurement performance is falling outside prescribed accuracy limits. Regulators purchased in this budget code support new business customers or regulators replaced for age or programmatic replacements.

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00502.0
Category:	D. Meter and Regulator Materials
Category-Sub:	1. Meter and Regulator Materials
Workpaper Group:	005020 - Meter and Regulator Materials

Forecast Methodology:

Labor - Zero-Based

N/A

Non-Labor - Zero-Based

A zero-based forecasting methodology was selected for non-labor for the 502 budget. Expenses are based on the forecasted quantities for new business, trending of routine replacements, additions for program replacements and inventory needs. The forecasted units are mulitiplied by the current material contract pricing. As the economy improves, new meter set installations are also increasing. The meter forecast methdology is sponsored by Witness Rose Marie Payan, SDG&E anticipates a return in the housing and commercial growth at a level approaching that seen in 2002. The three year forecast of meter set growth is 6,437 in 2014, 8,759 in 2015, and 11,426 in 2016.

NSE - Zero-Based

N/A

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00502.0
Category: D. Meter and Regulator Materials
Category-Sub: 1. Meter and Regulator Materials
Workpaper Group: 005020 - Meter and Regulator Materials

Adjustments to Forecast

In 2013 $ (000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Zero-Based	0	0	0	0	0	0	0	0	0
Non-Labor	Zero-Based	7,175	7,378	7,610	0	0	0	7,175	7,378	7,610
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**7,175**	**7,378**	**7,610**	**0**	**0**	**0**	**7,175**	**7,378**	**7,610**
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/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00502.0
Category: D. Meter and Regulator Materials
Category-Sub: 1. Meter and Regulator Materials
Workpaper Group: 005020 - Meter and Regulator Materials

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	0	0
Non-Labor	4,480	6,166	6,127	6,284	6,734
NSE	0	0	0	0	0
Total	**4,480**	**6,166**	**6,127**	**6,284**	**6,734**
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	4,480	6,166	6,127	6,284	6,734
NSE	0	0	0	0	0
Total	**4,480**	**6,166**	**6,127**	**6,284**	**6,734**
FTE	0.0	0.0	0.0	0.0	0.0
Vacation & Sick (Nominal $)					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2013$					
Labor	0	0	0	0	0
Non-Labor	1,022	1,095	465	-20	0
NSE	0	0	0	0	0
Total	**1,022**	**1,095**	**465**	**-20**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	0	0	0
Non-Labor	5,502	7,261	6,592	6,264	6,734
NSE	0	0	0	0	0
Total	**5,502**	**7,261**	**6,592**	**6,264**	**6,734**
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.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00502.0
Category: D. Meter and Regulator Materials
Category-Sub: 1. Meter and Regulator Materials
Workpaper Group: 005020 - Meter and Regulator Materials

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
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

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009 Total	0	0	0	0	0.0	
2010 Total	0	0	0	0	0.0	
2011 Total	0	0	0	0	0.0	
2012 Total	0	0	0	0	0.0	
2013 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 005020

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00502.0
Category: D. Meter and Regulator Materials
Category-Sub: 1. Meter and Regulator Materials
Workpaper Group: 005020 - Meter and Regulator Materials
Workpaper Detail: 005020.001 - Meters and Regulators

In-Service Date: Not Applicable

Description:

05020.001 uses a zero-based forecast. This budget provides for the purchase of new domestic, commercial and industrial gas meters and regulators. The meters and regulators are required to provide gas service to new customers as well as replace equipment that is aging or no longer meets the accuracy limits and as a result of the Gas Meter Performance Control Program.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	7,175	7,378	7,610
NSE	0	0	0
Total	**7,175**	**7,378**	**7,610**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 005020

SDGE-FBA-CAP-SUP-004
San Diego Gas & Electric – Gas Distribution – Witness Frank Ayala
Supplemental Workpaper Calculations for Meters and Regulators Forecast
Meter and Regulator Materials Workpaper

Assumptions:

Meter and regulator costs are calculated from forecasted quantities of meters, regulators, and smart meter modules multiplied by supplier contract costs, freight charges, and applicable sales tax. Contract pricing is considered confidential information pursuant to PUC Code Section 583 & General Order 66-C. Contract pricing is available with appropriate confidentiality measures.

Capital Cost Type	Adjusted - Recorded History (Thousands in 2013$)					Forecast (Thousands in 2013$)		
	2009	2010	2011	2012	2013	2014	2015	2016
Labor	0	0	0	0	0	0	0	0
Non-Labor	5,502	7,261	6,592	6,264	6,734	7,175	7,378	7,610
Total	**5,502**	**7,261**	**6,592**	**6,264**	**6,734**	**7,175**	**7,378**	**7,610**

The quantities of meters, regulators and smart meter modules utilized in developing the forecast are listed below:

Forecasted Rotary Meter Quantities			
Meter Size	**2014**	**2015**	**2016**
5M LCTR	107	103	57
5M CTR/TC	4	1	0
7M CTR/TC	31	32	19
7M CTR/CD	1	0	2
11M CTR/TC	39	26	26
11M CTR/CD	6	8	5
16M CTR/TC	9	10	7
16M CTR/CD	6	7	2
38M CTR/CD	0	0	1
56M CTR/CD	1	0	0
102M-B3 CD	0	0	0
8C LCTR	31	24	17
2M LCTR	66	31	31
3M LCTR	243	218	173
3M CTR/TC	0	1	0
23M CTR/CD	3	1	1
8C TQM*	1,020	1,021	857
7M CTR/CD	5	5	10
15C LCTR	177	271	188
11C LCTR	131	208	347
Total	**1,880**	**1,967**	**1,743**

Forecasted Smart Meter Module Quantity			
Meter Component	**2014**	**2015**	**2016**
Module	3,465	3,552	3,328

Forecasted Regulator Quantities			
Type	**2014**	**2015**	**2016**
3/4" 1813C	18,070	20,236	23,319
1" 1813C	100	100	100
CABINET REG	10	10	10
LARGE REG	233	188	239

Forecasted Diaphragm Meter Quantities			
Meter Size	**2014**	**2015**	**2016**
AC-250 Curb	100	100	100
AL-425 Curb	75	75	75
AC-630 Curb	50	50	50
METRIS 250	36,437	38,760	41,426
400A	1,610	1,610	1,610
400A	20	20	20
AC-630	1,340	1,340	1,340
Total	**39,632**	**41,955**	**44,621**

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: E. Pressure Betterment
Workpaper: 005030

Summary for Category: E. Pressure Betterment

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	328	569	569	569
Non-Labor	919	1,735	1,735	1,735
NSE	0	0	0	0
Total	**1,247**	**2,304**	**2,304**	**2,304**
FTE	4.5	7.6	7.6	7.6

005030 Pressure Betterment

Labor	328	569	569	569
Non-Labor	919	1,735	1,735	1,735
NSE	0	0	0	0
Total	**1,247**	**2,304**	**2,304**	**2,304**
FTE	4.5	7.6	7.6	7.6

Note: Totals may include rounding differences.

Beginning of Workpaper Group
005030 - Pressure Betterment

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00503.0
Category: E. Pressure Betterment
Category-Sub: 1. Pressure Betterment
Workpaper Group: 005030 - Pressure Betterment

Summary of Results (Constant 2013 $ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	5-YR Average	679	634	442	762	328	569	569	569
Non-Labor	5-YR Average	2,074	1,720	1,502	2,459	919	1,735	1,735	1,735
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**2,753**	**2,354**	**1,944**	**3,221**	**1,247**	**2,304**	**2,304**	**2,304**
FTE	5-YR Average	8.9	7.6	6.5	10.6	4.5	7.6	7.6	7.6

Business Purpose:

Expenditures within budget code 503 provide for gas distribution system reinforcement projects required to maintain gas service to core customers. This work category addresses critical areas of the distribution pipeline network that are most susceptible to pressure drops to alleviate the potential risk of loss of service to customers.

Physical Description:

This budget code provides Capital expenditures for gas distribution system reinforcement or pressure betterment projects required to maintain gas service to all customers. System reinforcement projects are designed to remedy low-pressure problems and/or improve reliability to large single feed areas, to meet load growth. These projects typically involve installing new mains and/or regulator stations, extending high pressure mains or upgrading existing mains to increase delivery pressure.

Project Justification:

SDG&E determines system reinforcement needs by constantly monitoring system growth, anticipating changes to loads on the existing system, observing pressures within the existing system and modeling the system response to predicted growth and system reinforcements. As new loads are added, such as new residential, commercial and industrial developments, the existing gas system infrastructure may not have sufficient capacity to maintain pressure to adequately serve all customers. As gas demand loads are anticipated to be added, an analysis of the existing system is performed using a gas flow model to predict the system response. If there is not sufficient capacity to serve the added load, individual projects are identified to determine the most cost-effective system reinforcement options which will allow the system to meet the projected demand.

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00503.0
Category:	E. Pressure Betterment
Category-Sub:	1. Pressure Betterment
Workpaper Group:	005030 - Pressure Betterment

Forecast Methodology:

Labor - 5-YR Average

SDG&E's gas infrastructure is a large dynamic system of pipelines and pipeline connections, with continual changes in customer load and construction activity. As a result of these fluctuations, a trend or base year forecasting methodologies were inapplicable. The 5-year historical average methodology was selected to forecast the base requirement for labor as it captures the yearly variation in system pressure betterment requirements which align with the constantly changing new construction development schedules, economic conditions, and large customer system impacts.

Non-Labor - 5-YR Average

SDG&E's gas infrastructure is a large dynamic system of pipelines and pipeline connections, with continual changes in customer load and construction activity. As a result of these fluctuations, a trend or base year forecasting methodologies were inapplicable. The 5-year historical average methodology was selected to forecast the base requirement for non-labor as it captures the yearly variation in system pressure betterment requirements which align with the constantly changing new construction development schedules, economic conditions, and large customer system impacts.

NSE - 5-YR Average

N/A

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00503.0
Category: E. Pressure Betterment
Category-Sub: 1. Pressure Betterment
Workpaper Group: 005030 - Pressure Betterment

Adjustments to Forecast

In 2013 $ (000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	5-YR Average	569	569	569	0	0	0	569	569	569
Non-Labor	5-YR Average	1,734	1,734	1,734	0	0	0	1,734	1,734	1,734
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**2,303**	**2,303**	**2,303**	**0**	**0**	**0**	**2,303**	**2,303**	**2,303**
FTE	5-YR Average	7.6	7.6	7.6	0.0	0.0	0.0	7.6	7.6	7.6

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00503.0
Category: E. Pressure Betterment
Category-Sub: 1. Pressure Betterment
Workpaper Group: 005030 - Pressure Betterment

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	479	464	358	668	283
Non-Labor	1,689	1,461	1,396	2,467	919
NSE	0	0	0	0	0
Total	**2,168**	**1,925**	**1,754**	**3,134**	**1,203**
FTE	7.6	6.5	5.6	9.1	3.8
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	479	464	358	668	283
Non-Labor	1,689	1,461	1,396	2,467	919
NSE	0	0	0	0	0
Total	**2,168**	**1,925**	**1,754**	**3,134**	**1,203**
FTE	7.6	6.5	5.6	9.1	3.8
Vacation & Sick (Nominal $)					
Labor	74	74	53	97	45
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**74**	**74**	**53**	**97**	**45**
FTE	1.3	1.1	0.9	1.5	0.7
Escalation to 2013$					
Labor	126	96	31	-2	0
Non-Labor	385	259	106	-8	0
NSE	0	0	0	0	0
Total	**512**	**355**	**137**	**-10**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	679	634	442	762	328
Non-Labor	2,074	1,720	1,502	2,459	919
NSE	0	0	0	0	0
Total	**2,753**	**2,354**	**1,944**	**3,221**	**1,247**
FTE	8.9	7.6	6.5	10.6	4.5

* 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.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00503.0
Category: E. Pressure Betterment
Category-Sub: 1. Pressure Betterment
Workpaper Group: 005030 - Pressure Betterment

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
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

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009 Total	0	0	0	0	0.0	
2010 Total	0	0	0	0	0.0	
2011 Total	0	0	0	0	0.0	
2012 Total	0	0	0	0	0.0	
2013 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 005030

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00503.0
Category:	E. Pressure Betterment
Category-Sub:	1. Pressure Betterment
Workpaper Group:	005030 - Pressure Betterment
Workpaper Detail:	005030.001 - 0503 Gas System Reinforcement/Pressure Betterment
In-Service Date:	Not Applicable

Description:

005030.001 provides for gas distribution system reinforcement projects required to maintain gas service to customers. All system reinforcement projects require the installation of new gas mains and/or regulator stations, or upgrading of existing gas mains to higher pressures.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	569	569	569
Non-Labor	1,735	1,735	1,735
NSE	0	0	0
Total	**2,304**	**2,304**	**2,304**
FTE	7.6	7.6	7.6

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: F. Distribution Easements
Workpaper: 005040

Summary for Category: F. Distribution Easements

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	0	2	2	2
Non-Labor	26	26	26	26
NSE	0	0	0	0
Total	**26**	**28**	**28**	**28**
FTE	0.0	0.1	0.1	0.1

005040 Distribution Easements

Labor	0	2	2	2
Non-Labor	26	26	26	26
NSE	0	0	0	0
Total	**26**	**28**	**28**	**28**
FTE	0.0	0.1	0.1	0.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
005040 - Distribution Easements

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00504.0
Category: F. Distribution Easements
Category-Sub: 1. Distribution Easements
Workpaper Group: 005040 - Distribution Easements

Summary of Results (Constant 2013 $ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	5-YR Average	5	2	0	1	0	2	2	2
Non-Labor	5-YR Average	15	10	60	19	26	26	26	26
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**21**	**13**	**60**	**20**	**26**	**28**	**28**	**28**
FTE	5-YR Average	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1

Business Purpose:

Budget Code 504 provides funding to purchase gas distribution pipeline and facility easements on private property or public lands.

Physical Description:

Expenditures under budget code 504 are used to perform necessary surveys and mapping functions, document research, document preparation, and negotiations for the acquisition of easements to allow the installation of gas distribution facilities on private property or public lands.

Project Justification:

This is necessary in order to continue to serve new gas customers across private property or public lands.

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00504.0
Category:	F. Distribution Easements
Category-Sub:	1. Distribution Easements
Workpaper Group:	005040 - Distribution Easements

Forecast Methodology:

Labor - 5-YR Average

The 5-year historical average forecasting methodology was selected for labor as it best represents the fluctuation of work associated with the varying number of easements or renewals over the years.

Non-Labor - 5-YR Average

The 5-year historical average forecasting methodology was selected for non-labor as it best represents the fluctuation of work associated with the varying number of easements or renewals over the years.

NSE - 5-YR Average

N/A

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00504.0
Category: F. Distribution Easements
Category-Sub: 1. Distribution Easements
Workpaper Group: 005040 - Distribution Easements

Adjustments to Forecast

In 2013 $ (000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	5-YR Average	1	1	1	0	0	0	1	1	1
Non-Labor	5-YR Average	26	26	26	0	0	0	26	26	26
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**27**	**27**	**27**	**0**	**0**	**0**	**27**	**27**	**27**
FTE	5-YR Average	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	0	0	0	0	0.1	MCUNANAN20140
Original GRID forecast has an FTE of (0). This is to adjust FTE since Labor has a forecasted value (2), FTE cannot remain 0.						
2014 Total	0	0	0	0	0.1	
2015	0	0	0	0	0.1	MCUNANAN20140
Original GRID forecast has an FTE of (0). This is to adjust FTE since Labor has a forecasted value (2), FTE cannot remain 0.						
2015 Total	0	0	0	0	0.1	
2016	0	0	0	0	0.1	MCUNANAN20140
Original GRID forecast has an FTE of (0). This is to adjust FTE since Labor has a forecasted value (2), FTE cannot remain 0.						
2016 Total	0	0	0	0	0.1	

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00504.0
Category: F. Distribution Easements
Category-Sub: 1. Distribution Easements
Workpaper Group: 005040 - Distribution Easements

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	4	2	0	1	0
Non-Labor	13	9	56	19	26
NSE	0	0	0	0	0
Total	**16**	**10**	**56**	**20**	**26**
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	4	2	0	1	0
Non-Labor	13	9	56	19	26
NSE	0	0	0	0	0
Total	**16**	**10**	**56**	**20**	**26**
FTE	0.0	0.0	0.0	0.0	0.0
Vacation & Sick (Nominal $)					
Labor	1	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**1**	**0**	**0**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2013$					
Labor	1	0	0	0	0
Non-Labor	3	2	4	0	0
NSE	0	0	0	0	0
Total	**4**	**2**	**4**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	5	2	0	1	0
Non-Labor	15	10	60	19	26
NSE	0	0	0	0	0
Total	**21**	**13**	**60**	**20**	**26**
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.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00504.0
Category: F. Distribution Easements
Category-Sub: 1. Distribution Easements
Workpaper Group: 005040 - Distribution Easements

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
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

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009 Total	0	0	0	0	0.0	
2010 Total	0	0	0	0	0.0	
2011 Total	0	0	0	0	0.0	
2012 Total	0	0	0	0	0.0	
2013 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 005040

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00504.0
Category: F. Distribution Easements
Category-Sub: 1. Distribution Easements
Workpaper Group: 005040 - Distribution Easements
Workpaper Detail: 005040.001 - Gas Distribution Easements

In-Service Date: Not Applicable

Description:

005040.001 provides funding to perform the necessary surveys and mapping functions, document research, document preparation, and negotiations for the acquisition of easements to allow the installation of gas distribution facilities on private property or public lands.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	2	2	2
Non-Labor	26	26	26
NSE	0	0	0
Total	**28**	**28**	**28**
FTE	0.1	0.1	0.1

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: G. Pipe Relocations - Franchise and Freeway
Workpaper: 005050

Summary for Category: G. Pipe Relocations - Franchise and Freeway

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	975	1,073	1,073	1,073
Non-Labor	3,214	2,897	2,897	2,897
NSE	0	0	0	0
Total	**4,189**	**3,970**	**3,970**	**3,970**
FTE	14.8	16.0	16.0	16.0

005050 Pipe Relocations - Franchise and Freeway

Labor	975	1,073	1,073	1,073
Non-Labor	3,214	2,897	2,897	2,897
NSE	0	0	0	0
Total	**4,189**	**3,970**	**3,970**	**3,970**
FTE	14.8	16.0	16.0	16.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
005050 - Pipe Relocations - Franchise and Freeway

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00505.0
Category: G. Pipe Relocations - Franchise and Freeway
Category-Sub: 1. Pipe Relocations - Franchise and Freeway
Workpaper Group: 005050 - Pipe Relocations - Franchise and Freeway

Summary of Results (Constant 2013 $ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	5-YR Average	986	1,215	1,079	1,112	975	1,073	1,073	1,073
Non-Labor	5-YR Average	2,292	3,192	2,865	2,924	3,214	2,897	2,897	2,897
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**3,278**	**4,407**	**3,945**	**4,035**	**4,189**	**3,970**	**3,970**	**3,970**
FTE	5-YR Average	14.1	17.1	16.5	17.6	14.8	16.0	16.0	16.0

Business Purpose:

Budget code 505 provides funding for the required relocation of existing gas facilities when necessitated by conflict with the installation of public improvements.

Physical Description:

This project covers the relocation of existing gas distribution facilities when necessitated by public improvements as required by the company's franchise agreements to clear municipal or other improvements. Generally, the work involves a change in alignment and/or grade of existing gas pipelines and associated facilities driven by local and state agency requirements. Work may involve main replacement in a new location in lieu of lowering, raising or changing lateral position of the existing main due to municipal improvements such as street and highway, railroad, and water and sewer line construction.

Project Justification:

This project covers the relocation of existing gas distribution facilities in compliance with State Highway and Municipal Franchise Agreements. All pipeline work must be performed in compliance with CPUC GO 112-E.

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00505.0
Category:	G. Pipe Relocations - Franchise and Freeway
Category-Sub:	1. Pipe Relocations - Franchise and Freeway
Workpaper Group:	005050 - Pipe Relocations - Franchise and Freeway

Forecast Methodology:

Labor - 5-YR Average

The frequency and amount of franchise and freeway pipeline relocation projects is driven by outside agencies. A review of historical expenditures from 2009 through 2013 revealed a consistent range of related costs, but no clear trend was apparent. The 5-year historical average forecasting methodology was selected for labor as it best represents the fluctuation of relocating existing gas facilities when in conflict with public improvements by local or state agencies over the years.

Non-Labor - 5-YR Average

The frequency and amount of franchise and freeway pipeline relocation projects is driven by outside agencies. A review of historical expenditures from 2009 through 2013 revealed a consistent range of related costs, but no clear trend was apparent The 5-year historical average forecasting methodology was selected for non-labor as it best represents the fluctuation of relocating existing gas facilities when in conflict with public improvements by local or state agencies over the years.

A 5-year historical average ratio of CIAC credits to total direct capital was used to forecast the collectible component of this budget code.

NSE - 5-YR Average

N/A

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00505.0
Category: G. Pipe Relocations - Franchise and Freeway
Category-Sub: 1. Pipe Relocations - Franchise and Freeway
Workpaper Group: 005050 - Pipe Relocations - Franchise and Freeway

Adjustments to Forecast

In 2013 $ (000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	5-YR Average	1,073	1,073	1,073	0	0	0	1,073	1,073	1,073
Non-Labor	5-YR Average	2,897	2,897	2,897	0	0	0	2,897	2,897	2,897
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**3,970**	**3,970**	**3,970**	**0**	**0**	**0**	**3,970**	**3,970**	**3,970**
FTE	5-YR Average	16.0	16.0	16.0	0.0	0.0	0.0	16.0	16.0	16.0

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00505.0
Category: G. Pipe Relocations - Franchise and Freeway
Category-Sub: 1. Pipe Relocations - Franchise and Freeway
Workpaper Group: 005050 - Pipe Relocations - Franchise and Freeway

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	695	890	874	974	841
Non-Labor	1,660	2,670	2,622	2,815	3,214
NSE	0	0	0	0	0
Total	**2,355**	**3,560**	**3,496**	**3,789**	**4,055**
FTE	12.1	14.6	14.2	15.2	12.6
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	206	41	41	118	0
NSE	0	0	0	0	0
Total	**206**	**41**	**41**	**118**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	695	890	874	974	841
Non-Labor	1,866	2,711	2,663	2,933	3,214
NSE	0	0	0	0	0
Total	**2,561**	**3,601**	**3,538**	**3,907**	**4,055**
FTE	12.1	14.6	14.2	15.2	12.6
Vacation & Sick (Nominal $)					
Labor	107	142	129	141	133
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**107**	**142**	**129**	**141**	**133**
FTE	2.0	2.5	2.3	2.4	2.2
Escalation to 2013$					
Labor	183	183	76	-4	0
Non-Labor	426	481	202	-9	0
NSE	0	0	0	0	0
Total	**609**	**665**	**278**	**-13**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	986	1,215	1,079	1,112	975
Non-Labor	2,292	3,192	2,865	2,924	3,214
NSE	0	0	0	0	0
Total	**3,278**	**4,407**	**3,945**	**4,035**	**4,189**
FTE	14.1	17.1	16.5	17.6	14.8

* 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.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00505.0
Category: G. Pipe Relocations - Franchise and Freeway
Category-Sub: 1. Pipe Relocations - Franchise and Freeway
Workpaper Group: 005050 - Pipe Relocations - Franchise and Freeway

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	206	41	41	118	0
NSE	0	0	0	0	0
Total	**206**	**41**	**41**	**118**	**0**
FTE	0.0	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00505.0
Category: G. Pipe Relocations - Franchise and Freeway
Category-Sub: 1. Pipe Relocations - Franchise and Freeway
Workpaper Group: 005050 - Pipe Relocations - Franchise and Freeway

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	0	206	0	206	0.0	MCUNANAN2014040812
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 505. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 505.						
2009 Total	0	206	0	206	0.0	
2010	0	41	0	41	0.0	MCUNANAN2014040812
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 505. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 505.						
2010 Total	0	41	0	41	0.0	
2011	0	41	0	41	0.0	MCUNANAN2014040812
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 505. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 505.						
2011 Total	0	41	0	41	0.0	
2012	0	118	0	118	0.0	MCUNANAN2014040812
GRID History includes collectible CIAC credits applied. The result history reflects only the non-collectible portion of BC 505. This adjustment removes the CIAC credits applied to reflect a total overall direct cost (collectible and non-collectible components) associated with BC 505.						
2012 Total	0	118	0	118	0.0	
2013 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 005050

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00505.0
Category:	G. Pipe Relocations - Franchise and Freeway
Category-Sub:	1. Pipe Relocations - Franchise and Freeway
Workpaper Group:	005050 - Pipe Relocations - Franchise and Freeway
Workpaper Detail:	005050.001 - 505 Street and Highway Relocations - Non-Collectible Portion
In-Service Date:	Not Applicable

Description:

005050.001 contains the non-collectible portion of Street and Highway Relocation routine activies. This covers the relocation of existing gas distribution facilities when necessitated by public improvements as required by the company's franchise agreeements to clear municipal or other improvements. Generally, the work involves a change in alignment and/or grade of existing gas pipeline and associated facilities. Work may involve main replacement in a new location in lieu of lowering, raising or changing lateral position of the existing main due to local or state agencies' improvements.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,073	1,073	1,073
Non-Labor	2,847	2,847	2,847
NSE	0	0	0
Total	**3,920**	**3,920**	**3,920**
FTE	16.0	16.0	16.0

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00505.0
Category: G. Pipe Relocations - Franchise and Freeway
Category-Sub: 1. Pipe Relocations - Franchise and Freeway
Workpaper Group: 005050 - Pipe Relocations - Franchise and Freeway
Workpaper Detail: 005050.002 - 505 Street and Highway Relocation - CIAC Collectible

In-Service Date: Not Applicable

Description:

005050.002 includes the forecasted collectible CIAC Direct Credit of Street and Highway Relocation activies. The forecasted CIAC direct credits were based on an average percentage of historical CIAC direct credits spanning from 2009 through 2013. This work typically involves a change in alignment and/or grade of existing gas pipelines and associated facilities when necessitated by public improvements such as street and highway, railroad, and water and sewer line construction.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	50	50	50
NSE	0	0	0
Total	**50**	**50**	**50**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 005050

SDGE-FBA-CAP-SUP-005
San Diego Gas & Electric – Gas Distribution – Witness Frank Ayala
Supplemental Workpaper Calculations for CIAC Pipe Relocations Franchise and Freeway Forecast
Franchise and Freeway Workpaper

Pipe Relocations (Budget Code 505) History
($000 in 2013$)

	Ln	2009	2010	2011	2012	2013	5-Yr Avg
CIAC Direct Credits Applied **	1	($108)	($24)	($26)	($75)	($0)	
CIAC Indirect Credits Applied	2	($98)	($17)	($16)	($43)	($0)	
Total CIAC Credits Applied to Non-Labor (w/o escalation) (1+2)	3	($206)	($41)	($42)	($118)	($0)	
GRID Recorded History Labor (w/ V&S and escalation)	4	$986	$1215	$1079	$1112	$975	
GRID Recorded History Non-Labor (w/escalation)	5	$2039	$3144	$2821	$2806	$3214	
GRID Total Recorded History (w/ V&S and escalation) (4+5)	6	$3025	$4359	$3900	$3918	$4189	
Adjustment Entry to Non-Labor to remove CIAC Credit (w/o escalation) (-3)	7	*+$206*	*+$41*	*+$42*	*+$118*	*$0*	
Escalation Factor	8	*0.8142*	*0.8492*	*0.9295*	*1.0032*	*1*	
CIAC Credit w/ escalation (7/8)	9	$253	$48	$44	$117	$0	
Adjusted Recorded Labor (w/ V&S and escalation)	**10**	**$986**	**$1215**	**$1079**	**$1112**	**$975**	**$1073**
Adjusted Recorded Non-Labor (w/ escalation) (5+9) *	**11**	**$2292**	**$3192**	**$2865**	**$2924**	**$3214**	**$2897**
Total Adjusted Recorded (w/ V&S and escalation) (10+11)	**12**	**$3278**	**$4407**	**$3945**	**$4035**	**$4189**	**$3970**
Historical Direct Credit Ratio (1/12)	13	(3.29%)	(0.54%)	(0.66%)	(1.86%)	(0.00%)	**(1.27%)**

Forecasted Capital
($000 in 2013$)

		2014	2015	2016
Forecasted Labor w/ V&S	14	$1,073	$1,073	$1,073
Forecasted Non-labor	15	$2,897	$2,897	$2,897
Total Forecasted w/V&S	**16**	**$3,970**	**$3,970**	**$3,970**
Forecasted CIAC Collectible (16 x avg 13)	17	*($50)*	*($50)*	*($50)*
Forecasted Non-Collectible (16+17)	**18**	***$3,920***	***$3,920***	***$3,920***

***** Recorded non-labor has been adjusted to align with the presentation of capital spending in the operational witness' testimony. The non-labor shown has credits removed.

****** Recorded credits have been adjusted to align with the presentation of capital spending in the operational witness' testimony. The amounts shown reflect only the direct portion of the credit based on the direct to indirect ratio of the total recorded value per year.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: H. Tools and Equipment
Workpaper: 005060

Summary for Category: H. Tools and Equipment

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	3	18	18	19
Non-Labor	233	1,847	1,853	1,936
NSE	0	0	0	0
Total	**236**	**1,865**	**1,871**	**1,955**
FTE	0.1	0.6	0.5	0.6

005060 Tools and Equipment

Labor	3	18	18	19
Non-Labor	233	1,847	1,853	1,936
NSE	0	0	0	0
Total	**236**	**1,865**	**1,871**	**1,955**
FTE	0.1	0.6	0.5	0.6

Note: Totals may include rounding differences.

Beginning of Workpaper Group
005060 - Tools and Equipment

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00506.0
Category: H. Tools and Equipment
Category-Sub: 1. Tools and Equipment
Workpaper Group: 005060 - Tools and Equipment

Summary of Results (Constant 2013 $ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	5-YR Average	0	1	9	6	3	18	18	19
Non-Labor	5-YR Average	573	170	481	627	233	1,847	1,853	1,936
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**573**	**171**	**490**	**633**	**236**	**1,865**	**1,871**	**1,955**
FTE	5-YR Average	0.0	0.0	0.1	0.1	0.1	0.6	0.5	0.6

Business Purpose:

Budget code 506 provides funds for new tools and equipment required by field personnel in order to safely and efficiently install, operate and maintain the gas distribution system.

Physical Description:

Funds in this budget code are used to acquire various tools and equipment used by gas crews, personnel in the field, construction operations, and shop operations. Tools and equipment are replaced due to failure, age, advances in technology, and to improve employee safety and ergonomics. These tools and equipment are necessary to economically and safely install, operate and maintain the gas distribution system.

Project Justification:

Tools age and/or become obsolete due to new technology, new construction methods are introduced requiring new tools, and new safety requirements. It is necessary to equip SDG&E's employees with safe and reliable tools and equipment. Funding in this budget code over the forecasted period from 2014 through 2016, includes tools and equipment necessary to safely perform gas distribution work, and improvements to training facilities such as Skills Training Facility and the weld school facility.

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00506.0
Category:	H. Tools and Equipment
Category-Sub:	1. Tools and Equipment
Workpaper Group:	005060 - Tools and Equipment

Forecast Methodology:

Labor - 5-YR Average

The need for new tools and equipment is influenced by the age and condition of the tools, technology, ergonomics, and changes in company gas standards or procedures. Due to the cost fluctuations from 2009-2013, a trend was not apparent. The base level cost for budget code 506 was forecasted using a 5-year historical average for labor, with the exclusion of non-typical projects such as Skills Training Facility (BC 11547). The result was a base level of spend representative of the routine tools and equipment purchase for this budget code.

Added to this base level forecast were non-typical projects, such as the welding school facility upgrade, Mueller Equipment purchase and the completion of the Skills Training Facility.

Non-Labor - 5-YR Average

The need for new tools and equipment is influenced by the age and condition of the tools, technology, ergonomics, and changes in company gas standards or procedures. Due to the cost fluctuations from 2009-2013, a trend was not apparent. The base level cost for budget code 506 was forecasted using a 5-year historical average for non-labor, with the exclusion of non-typical projects such as Skills Training Facility (BC 11547). The result was a base level of spend representative of the routine tools and equipment purchase for this budget code.

Added to this base level forecast were non-typical projects, such as the welding school facility upgrade, Mueller Equipment purchase and the completion of the Skills Training Facility.

NSE - 5-YR Average

N/A

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00506.0
Category: H. Tools and Equipment
Category-Sub: 1. Tools and Equipment
Workpaper Group: 005060 - Tools and Equipment

Adjustments to Forecast

In 2013 $ (000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	5-YR Average	3	3	3	14	14	15	17	17	18
Non-Labor	5-YR Average	417	417	417	1,430	1,436	1,519	1,847	1,853	1,936
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**420**	**420**	**420**	**1,444**	**1,450**	**1,534**	**1,864**	**1,870**	**1,954**
FTE	5-YR Average	0.1	0.1	0.1	0.5	0.4	0.5	0.6	0.5	0.6

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	14	1,430	0	1,444	0.5	MCUNANAN20140
This adjustment is for the incremental increase above the base-level spend for non-typical projects in construction (Skills Training Facility) $1444k.						
2014 Total	14	1,430	0	1,444	0.5	
2015	14	1,436	0	1,450	0.4	MCUNANAN20140
This adjustment is for the incremental increases above the base level spend for non-typical projects/purchases due to: 1- remainder of Skills Training Facility $925k, 2 - Additional large tools purchase for Mueller equipment $254k, 3 - Welding School improvements $271k.						
2015 Total	14	1,436	0	1,450	0.4	
2016	15	1,519	0	1,534	0.5	MCUNANAN20140
This adjustment is for the incremental increases above the base level spend for non-typical projects due to Welding School improvements of $1534k.						
2016 Total	15	1,519	0	1,534	0.5	

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00506.0
Category: H. Tools and Equipment
Category-Sub: 1. Tools and Equipment
Workpaper Group: 005060 - Tools and Equipment

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	1	16	20	165
Non-Labor	466	145	980	2,580	1,463
NSE	0	0	0	0	0
Total	**466**	**145**	**996**	**2,600**	**1,627**
FTE	0.0	0.0	0.2	0.2	2.3
Adjustments (Nominal $) **					
Labor	0	0	-9	-15	-162
Non-Labor	0	0	-532	-1,950	-1,229
NSE	0	0	0	0	0
Total	**0**	**0**	**-541**	**-1,966**	**-1,392**
FTE	0.0	0.0	-0.1	-0.1	-2.2
Recorded-Adjusted (Nominal $)					
Labor	0	1	7	5	2
Non-Labor	466	145	447	629	233
NSE	0	0	0	0	0
Total	**466**	**145**	**455**	**634**	**235**
FTE	0.0	0.0	0.1	0.1	0.1
Vacation & Sick (Nominal $)					
Labor	0	0	1	1	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**1**	**1**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2013$					
Labor	0	0	1	0	0
Non-Labor	106	26	34	-2	0
NSE	0	0	0	0	0
Total	**106**	**26**	**35**	**-2**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	1	9	6	3
Non-Labor	573	170	481	627	233
NSE	0	0	0	0	0
Total	**573**	**171**	**490**	**633**	**236**
FTE	0.0	0.0	0.1	0.1	0.1

* 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.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00506.0
Category: H. Tools and Equipment
Category-Sub: 1. Tools and Equipment
Workpaper Group: 005060 - Tools and Equipment

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	-9	-15	-162
Non-Labor	0	0	-532	-1,950	-1,229
NSE	0	0	0	0	0
Total	**0**	**0**	**-541**	**-1,966**	**-1,392**
FTE	0.0	0.0	-0.1	-0.1	-2.2

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009 Total	0	0	0	0	0.0	
2010 Total	0	0	0	0	0.0	
2011	-9	-532	0	-541	-0.1	MCUNANAN2013120416
This adjustment is to remove the non-typical project (Skills Training Facility11547) from the history to reflect an average of typical 506 tools spend.						
2011 Total	-9	-532	0	-541	-0.1	
2012	-15	-1,950	0	-1,966	-0.1	MCUNANAN2013120416
This adjustment is to remove the non-typical project (Skills Training Facility 11547) from the history to reflect an average of typical 506 tools spend.						
2012 Total	-15	-1,950	0	-1,966	-0.1	
2013	-162	-1,229	0	-1,392	-2.2	MCUNANAN2014022010
This adjustment is to remove the non-typical project (Skills Training Facility 11547) from the history to reflect an average of typical 506 tools spend.						
2013 Total	-162	-1,229	0	-1,392	-2.2	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 005060

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00506.0
Category: H. Tools and Equipment
Category-Sub: 1. Tools and Equipment
Workpaper Group: 005060 - Tools and Equipment
Workpaper Detail: 005060.001 - 506 Tools and Equipment

In-Service Date: Not Applicable

Description:

005060.001 represents the typical tools spend. In addition to the base level spend of $422K, an incremental expense was added to account for a large, one-time purchase of $255K for Mueller equipment in 2015.

Forecast In 2013 $(000)

Years	2014	2015	2016
Labor	4	6	4
Non-Labor	418	671	418
NSE	0	0	0
Total	**422**	**677**	**422**
FTE	0.1	0.1	0.1

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00506.0
Category: H. Tools and Equipment
Category-Sub: 1. Tools and Equipment
Workpaper Group: 005060 - Tools and Equipment
Workpaper Detail: 005060.002 - 11547 Tools & Equipment - Skills Training Facility

In-Service Date: 12/31/2015

Description:

005060.002 contains a large non-typical project for the distribution operations training facility also known as Skills Training Facility, budget code 11547. This includes the development and construction of a training facility for gas distribution operations personnel. The training facility will have demonstration installations of common gas facilities (vaults, regulator stations, CP stations, etc.) where normal and emergency scenarios can be simulated. Construction began in 2012 and is expected to be completed by the end of 2015.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	14	9	0
Non-Labor	1,429	915	0
NSE	0	0	0
Total	**1,443**	**924**	**0**
FTE	0.5	0.3	0.0

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00506.0
Category: H. Tools and Equipment
Category-Sub: 1. Tools and Equipment
Workpaper Group: 005060 - Tools and Equipment
Workpaper Detail: 005060.003 - Tools & Equipment - Welding School Facility Upgrade

In-Service Date: 09/30/2016

Description:

005060.003 contains a large non-typical project for the Welding School Facility upgrade. This project is the result of an increase in the amount of weld training to account for new welding processes and the increased work contributed by high pressure projects,

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	3	15
Non-Labor	0	267	1,518
NSE	0	0	0
Total	**0**	**270**	**1,533**
FTE	0.0	0.1	0.5

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: I. Code Compliance
Workpaper: 005070

Summary for Category: I. Code Compliance

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	136	201	201	201
Non-Labor	55	119	119	119
NSE	0	0	0	0
Total	**191**	**320**	**320**	**320**
FTE	1.1	1.4	1.4	1.4

005070 Code Compliance

Labor	136	201	201	201
Non-Labor	55	119	119	119
NSE	0	0	0	0
Total	**191**	**320**	**320**	**320**
FTE	1.1	1.4	1.4	1.4

Note: Totals may include rounding differences.

Beginning of Workpaper Group
005070 - Code Compliance

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00507.0
Category: I. Code Compliance
Category-Sub: 1. Code Compliance
Workpaper Group: 005070 - Code Compliance

Summary of Results (Constant 2013 $ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	4-YR Average	384	322	143	201	136	201	201	201
Non-Labor	4-YR Average	324	204	85	131	55	119	119	119
NSE	4-YR Average	0	0	0	0	0	0	0	0
Total		**707**	**527**	**228**	**332**	**191**	**320**	**320**	**320**
FTE	4-YR Average	3.0	1.6	0.6	2.1	1.1	1.4	1.4	1.4

Business Purpose:

Capital expenditures in budget code 507 are used to keep SDG&E's gas distribution system is in compliance with State and Federal regulations for natural gas pipelines.

Physical Description:

Four principle ongoing compliance issues involving the gas distribution system currently require funding under this budget code:

1. Labor for the Regulator Replacement Program for pre 1982 American Meter Type K-Regulators to be removed in compliance with 49 CFR § 192.197(b);
2. Labor and materials necessary for the installation of barricades to protect MSAs from vehicular traffic in compliance with 49 CFR § 192.353(a);
3. Labor and materials necessary for the installation of distribution system electronic pressure monitoring devices (EPM) in compliance with 49 CFR § 192.741(a)-(b); and
4. Installation of isolation valves necessary for the safe operation of the gas distribution system in compliance with 49 CFR § 192.181.

Project Justification:

The work completed under this budget code is required to insure compliance with State and Federal regulations for natural gas pipelines.

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00507.0
Category:	I. Code Compliance
Category-Sub:	1. Code Compliance
Workpaper Group:	005070 - Code Compliance

Forecast Methodology:

Labor - 4-YR Average

Charges to this budget code tend to fluctuate due to the unpredictability of existing meter set locations identified for barrier post installations, curtailment zone optimization due to system growth, routine pre 1966 K-Regulator removal rates, and electronic pressure monitor (EPM) coverage optimization. In 2009 there were non-typical charges associated with a bulk purchase of EPM units, therefore a 4 year average forecasting methodology is more representative of future needs.

Non-Labor - 4-YR Average

Charges to this budget code tend to fluctuate due to the unpredictability of existing meter set locations identified for barrier post installations, curtailment zone optimization due to system growth, routine pre 1966 K-Regulator removal rates, and electronic pressure monitor (EPM) coverage optimization. In 2009 there were non-typical charges associated with a bulk purchase of EPM units, therefore a 4 year average forecasting methodology is more representative of future needs.

NSE - 4-YR Average

N/A

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00507.0
Category: I. Code Compliance
Category-Sub: 1. Code Compliance
Workpaper Group: 005070 - Code Compliance

Adjustments to Forecast

In 2013 $ (000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	4-YR Average	200	200	200	0	0	0	200	200	200
Non-Labor	4-YR Average	118	118	118	0	0	0	118	118	118
NSE	4-YR Average	0	0	0	0	0	0	0	0	0
Total		**318**	**318**	**318**	**0**	**0**	**0**	**318**	**318**	**318**
FTE	4-YR Average	1.4	1.4	1.4	0.0	0.0	0.0	1.4	1.4	1.4

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00507.0
Category: I. Code Compliance
Category-Sub: 1. Code Compliance
Workpaper Group: 005070 - Code Compliance

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	271	236	116	176	118
Non-Labor	263	173	79	131	55
NSE	0	0	0	0	0
Total	**534**	**410**	**195**	**307**	**173**
FTE	2.6	1.4	0.5	1.8	0.9
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	271	236	116	176	118
Non-Labor	263	173	79	131	55
NSE	0	0	0	0	0
Total	**534**	**410**	**195**	**307**	**173**
FTE	2.6	1.4	0.5	1.8	0.9
Vacation & Sick (Nominal $)					
Labor	42	38	17	26	19
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**42**	**38**	**17**	**26**	**19**
FTE	0.4	0.2	0.1	0.3	0.2
Escalation to 2013$					
Labor	71	49	10	-1	0
Non-Labor	60	31	6	0	0
NSE	0	0	0	0	0
Total	**131**	**79**	**16**	**-1**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	384	322	143	201	136
Non-Labor	324	204	85	131	55
NSE	0	0	0	0	0
Total	**707**	**527**	**228**	**332**	**191**
FTE	3.0	1.6	0.6	2.1	1.1

* 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.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00507.0
Category: I. Code Compliance
Category-Sub: 1. Code Compliance
Workpaper Group: 005070 - Code Compliance

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
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

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009 Total	0	0	0	0	0.0	
2010 Total	0	0	0	0	0.0	
2011 Total	0	0	0	0	0.0	
2012 Total	0	0	0	0	0.0	
2013 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 005070

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00507.0
Category: I. Code Compliance
Category-Sub: 1. Code Compliance
Workpaper Group: 005070 - Code Compliance
Workpaper Detail: 005070.001 - Code Compliance

In-Service Date: Not Applicable

Description:

005070.001 provides funding for projects that are required to comply with the State and Federal regulations for natural gas pipelines. These activities typically include the costs associated with the labor for the K-Regulator Replacement Program, as well as the labor and materials necessary for the installation of barricades, electronic pressure monitoring devices (EPM), and isolation valves.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	201	201	201
Non-Labor	119	119	119
NSE	0	0	0
Total	**320**	**320**	**320**
FTE	1.4	1.4	1.4

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: J. Replacement of Mains and Services
Workpaper: 005080

Summary for Category: J. Replacement of Mains and Services

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	580	610	610	610
Non-Labor	1,303	1,116	1,116	1,116
NSE	0	0	0	0
Total	**1,883**	**1,726**	**1,726**	**1,726**
FTE	7.9	8.3	8.3	8.3

005080 Replacements of Mains & Services

Labor	580	610	610	610
Non-Labor	1,303	1,116	1,116	1,116
NSE	0	0	0	0
Total	**1,883**	**1,726**	**1,726**	**1,726**
FTE	7.9	8.3	8.3	8.3

Note: Totals may include rounding differences.

Beginning of Workpaper Group
005080 - Replacements of Mains & Services

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00508.0
Category: J. Replacement of Mains and Services
Category-Sub: 1. Replacement of Mains and Services
Workpaper Group: 005080 - Replacements of Mains & Services

Summary of Results (Constant 2013 $ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	5-YR Average	563	606	847	451	580	610	610	610
Non-Labor	5-YR Average	670	866	1,620	1,123	1,303	1,116	1,116	1,116
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**1,233**	**1,472**	**2,467**	**1,574**	**1,883**	**1,726**	**1,726**	**1,726**
FTE	5-YR Average	6.9	7.9	12.7	6.3	7.9	8.3	8.3	8.3

Business Purpose:

Expenditures in budget code 508 will support SDG&E's continued safe and reliable delivery of natural gas, while complying with State and Federal code requirements by replacing gas distribution system piping due to its condition or location. Typically these projects are initiated in response to the pipeline condition or its location.

Physical Description:

This budget code includes the replacement of gas distribution pipelines due to its condition or location. Pipelines with a leak history are evaluated, resulting in a list of projects for replacement under this budget that are ranked by risk. This evaluation uses several criteria to prioritize candidate replacements including observed condition of the pipe, coating deterioration, leak history, age of the pipe, construction methods originally used, and location relative to places of gathering or population centers.

Project Justification:

Budget code 508 project replacements are required in order to comply with State and Federal code requirements and for the safe and reliable delivery of natural gas through the gas distribution system.

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00508.0
Category:	J. Replacement of Mains and Services
Category-Sub:	1. Replacement of Mains and Services
Workpaper Group:	005080 - Replacements of Mains & Services

Forecast Methodology:

Labor - 5-YR Average

Historical evaluation of this budget category revealed fluctuations in expenditures from 2009 through 2013. Cost expenditures in this budget category change due to the variation in the number of identified main replacement projects. In addition, the timing of individual projects is based on a number of factors including the need for review of operating conditions, detailed planning requirements, acquiring the necessary permits, and coordination and scheduling of resources. As no clear trend was indicated, the 5-year historical average forecasting methodology was selected for labor because it best represents the fluctuation in main replacement projects that vary over the years. The 5-year average resulted in a base level that is indicative of the anticipated spend for the forecast years.

Non-Labor - 5-YR Average

Historical evaluation of this budget category revealed fluctuations in expenditures from 2009 through 2013. Cost expenditures in this budget category change due to the variation in the number of identified main replacement projects. In addition, the timing of individual projects is based on a number of factors including the need for review of operating conditions, detailed planning requirements, acquiring the necessary permits, and coordination and scheduling of resources. As no clear trend was indicated, the 5-year historical average forecasting methodology was selected for non-labor because it best represents the fluctuation in main replacement projects that vary over the years. The 5-year average resulted in a base level that is indicative of the anticipated spend for the forecast years.

NSE - 5-YR Average

N/A

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00508.0
Category: J. Replacement of Mains and Services
Category-Sub: 1. Replacement of Mains and Services
Workpaper Group: 005080 - Replacements of Mains & Services

Adjustments to Forecast

In 2013 $ (000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	5-YR Average	609	609	609	0	0	0	609	609	609
Non-Labor	5-YR Average	1,116	1,116	1,116	0	0	0	1,116	1,116	1,116
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**1,725**	**1,725**	**1,725**	**0**	**0**	**0**	**1,725**	**1,725**	**1,725**
FTE	5-YR Average	8.3	8.3	8.3	0.0	0.0	0.0	8.3	8.3	8.3

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00508.0
Category: J. Replacement of Mains and Services
Category-Sub: 1. Replacement of Mains and Services
Workpaper Group: 005080 - Replacements of Mains & Services

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	397	444	686	689	780
Non-Labor	545	735	1,506	1,894	3,220
NSE	0	0	0	0	0
Total	**943**	**1,179**	**2,192**	**2,583**	**4,000**
FTE	5.9	6.7	10.9	8.8	10.4
Adjustments (Nominal $) **					
Labor	0	0	0	-294	-279
Non-Labor	0	0	0	-768	-1,917
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**-1,062**	**-2,196**
FTE	0.0	0.0	0.0	-3.4	-3.7
Recorded-Adjusted (Nominal $)					
Labor	397	444	686	395	501
Non-Labor	545	735	1,506	1,126	1,303
NSE	0	0	0	0	0
Total	**943**	**1,179**	**2,192**	**1,522**	**1,804**
FTE	5.9	6.7	10.9	5.4	6.7
Vacation & Sick (Nominal $)					
Labor	61	71	101	57	79
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**61**	**71**	**101**	**57**	**79**
FTE	1.0	1.2	1.8	0.9	1.2
Escalation to 2013$					
Labor	105	91	60	-1	0
Non-Labor	124	131	114	-4	0
NSE	0	0	0	0	0
Total	**229**	**222**	**174**	**-5**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	563	606	847	451	580
Non-Labor	670	866	1,620	1,123	1,303
NSE	0	0	0	0	0
Total	**1,233**	**1,472**	**2,467**	**1,574**	**1,883**
FTE	6.9	7.9	12.7	6.3	7.9

* 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.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00508.0
Category: J. Replacement of Mains and Services
Category-Sub: 1. Replacement of Mains and Services
Workpaper Group: 005080 - Replacements of Mains & Services

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	-294	-279
Non-Labor	0	0	0	-768	-1,917
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**-1,062**	**-2,196**
FTE	0.0	0.0	0.0	-3.4	-3.7

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009 Total	0	0	0	0	0.0	
2010 Total	0	0	0	0	0.0	
2011 Total	0	0	0	0	0.0	
2012	-294	-768	0	-1,062	-3.4	MCUNANAN2014040815
This adjustment removes the costs associated with budget code 12550. This is to reflect an average of typical historical spend for budget code 508.						
2012 Total	-294	-768	0	-1,062	-3.4	
2013	-279	-1,917	0	-2,196	-3.7	MCUNANAN2014040815
This adjustment removes the costs associated with budget code 12550. This is to reflect an average of typical historical spend for budget code 508.						
2013 Total	-279	-1,917	0	-2,196	-3.7	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 005080

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00508.0
Category: J. Replacement of Mains and Services
Category-Sub: 1. Replacement of Mains and Services
Workpaper Group: 005080 - Replacements of Mains & Services
Workpaper Detail: 005080.001 - 508 - Mains and Service Replacement

In-Service Date: Not Applicable

Description:

005080.001 provides funding for the replacement of gas distribution pipelines due to its condition or location. This includes pipeline replacements and renewals.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	610	610	610
Non-Labor	1,116	1,116	1,116
NSE	0	0	0
Total	**1,726**	**1,726**	**1,726**
FTE	8.3	8.3	8.3

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: K. Cathodic Protection
Workpaper: VARIOUS

Summary for Category: K. Cathodic Protection

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	138	131	139	141
Non-Labor	772	768	814	826
NSE	0	0	0	0
Total	**910**	**899**	**953**	**967**
FTE	2.1	1.9	2.0	2.0
005090 Cathodic Protection				
Labor	97	81	83	85
Non-Labor	567	505	517	529
NSE	0	0	0	0
Total	**664**	**586**	**600**	**614**
FTE	1.5	1.2	1.2	1.2
125510 Cathodic Protection System Enhancement				
Labor	41	50	56	56
Non-Labor	205	263	297	297
NSE	0	0	0	0
Total	**246**	**313**	**353**	**353**
FTE	0.6	0.7	0.8	0.8

Note: Totals may include rounding differences.

Beginning of Workpaper Group
005090 - Cathodic Protection

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00509.0
Category: K. Cathodic Protection
Category-Sub: 1. Cathodic Protection
Workpaper Group: 005090 - Cathodic Protection

Summary of Results (Constant 2013 $ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	5-YR Average	94	46	66	84	97	81	83	85
Non-Labor	5-YR Average	528	388	384	542	567	505	517	529
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**622**	**434**	**449**	**626**	**665**	**586**	**600**	**614**
FTE	5-YR Average	1.3	0.7	0.9	1.3	1.5	1.2	1.2	1.2

Business Purpose:

Budget code 509 provides funds to enhance and improve SDG&E's cathodic protection (CP) system. CP equipment additions are required to ensure SDG&E meets code mandated corrosion control requirements for the steel portion of the gas distribution system. By placing steel pipelines under cathodic protection, corrosion is minimized, resulting in a safer and more reliable gas system as well as extending the life of the steel pipeline system.

Physical Description:

Corrosion on pipelines increases the potential for gas leaks and may reduce the useful lives of the pipelines. Cathodic protection is one method for mitigating external corrosion on steel pipelines by imposing an electric current flow toward the surface of a pipeline. This budget code funds the addition of new CP systems and the replacement or upgrade of existing CP systems. Installations include direct current rectifier stations, deep well anode beds, and related equipment.

Project Justification:

Cathodic protection extends the life of the steel portion of the gas distribution system and is mandated by CPUC GO112E. Each pipeline that is under cathodic protection must be tested to determine whether the CP meets the requirements of CFR 192.463 - External corrosion control: Cathodic Protection. Prompt remedial action to correct any deficiencies indicated by monitoring is required. Results obtained from ongoing cathodic protection system monitoring drives the installation of new or upgraded CP systems.

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00509.0
Category:	K. Cathodic Protection
Category-Sub:	1. Cathodic Protection
Workpaper Group:	005090 - Cathodic Protection

Forecast Methodology:

Labor - 5-YR Average

The frequency and amount of projects performed in this work category are driven by the age of the CP system, the health of surrounding CP stations, soil conditions, and effective resolution of system shorts. A review of historical expenditures from 2009 through 2013 revealed a consistent range of related costs, but no clear trend was apparent. To account for the minor fluctuations from year to year, budget code 509 was forecasted using a 5-year historical average for labor because it best represents the required base level of routine work for cathodic protection. Added to this base level, are incremental increases due to extending the depths of anode beds. The change is anticipated to increase the number of deeper anodes by approximately 10% in 2014, and increasing up to 20% by 2016.

Non-Labor - 5-YR Average

The frequency and amount of projects performed in this work category are driven by the age of the CP system, the health of surrounding CP stations, soil conditions, and effective resolution of system shorts. A review of historical expenditures from 2009 through 2013 revealed a consistent range of related costs, but no clear trend was apparent. To account for the minor fluctuations from year to year, budget code 509 was forecasted using a 5-year historical average for non-labor because it best represents the required base level of routine work for cathodic protection. Added to this base level, are incremental increases due to extending the depths of anode beds. The change is anticipated to increase the number of deeper anodes by approximately 10% in 2014, and increasing up to 20% by 2016.

NSE - 5-YR Average

N/A

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00509.0
Category: K. Cathodic Protection
Category-Sub: 1. Cathodic Protection
Workpaper Group: 005090 - Cathodic Protection

Adjustments to Forecast

In 2013 $ (000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	5-YR Average	77	77	77	4	6	8	81	83	85
Non-Labor	5-YR Average	481	481	481	23	35	47	504	516	528
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**558**	**558**	**558**	**27**	**41**	**55**	**585**	**599**	**613**
FTE	5-YR Average	1.1	1.1	1.1	0.1	0.1	0.1	1.2	1.2	1.2

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	4	23	0	27	0.1	MCUNANAN20131
This adjustment is for the incremental increase for the drilling of deeper anode beds. Historical average of drilling activity from 2009-2013 estimated at $270k per year. 2014 anticipates an increase of average drilling history by 10%. Adjustment for incremental increase is: $270k * 0.10 = $27k.						
2014 Total	4	23	0	27	0.1	
2015	6	35	0	41	0.1	MCUNANAN20131
This adjustment is for the incremental increase for the drilling of deeper anode beds. Historical average of drilling activity from 2009-2013 estimated at $270k per year. 2015 anticipates an increase of average drilling history by 15%. Adjustment for incremental increase is: $270k * 0.15 = $41k.						
2015 Total	6	35	0	41	0.1	
2016	8	47	0	55	0.1	MCUNANAN20131
This adjustment is for the incremental increase for the drilling of deeper anode beds. Historical average of drilling activity from 2009-2013 estimated at $270k per year. 2016 anticipates an increase of average drilling history by 20%. Adjustment for incremental increase is: $270k * 0.20 = $55k.						
2016 Total	8	47	0	55	0.1	

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00509.0
Category: K. Cathodic Protection
Category-Sub: 1. Cathodic Protection
Workpaper Group: 005090 - Cathodic Protection

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	66	34	53	74	84
Non-Labor	430	330	357	543	567
NSE	0	0	0	0	0
Total	**496**	**363**	**410**	**617**	**651**
FTE	1.1	0.6	0.8	1.1	1.3
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	66	34	53	74	84
Non-Labor	430	330	357	543	567
NSE	0	0	0	0	0
Total	**496**	**363**	**410**	**617**	**651**
FTE	1.1	0.6	0.8	1.1	1.3
Vacation & Sick (Nominal $)					
Labor	10	5	8	11	13
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**10**	**5**	**8**	**11**	**13**
FTE	0.2	0.1	0.1	0.2	0.2
Escalation to 2013$					
Labor	17	7	5	0	0
Non-Labor	98	59	27	-2	0
NSE	0	0	0	0	0
Total	**116**	**65**	**32**	**-2**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	94	46	66	84	97
Non-Labor	528	388	384	542	567
NSE	0	0	0	0	0
Total	**622**	**434**	**449**	**626**	**665**
FTE	1.3	0.7	0.9	1.3	1.5

* 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.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00509.0
Category: K. Cathodic Protection
Category-Sub: 1. Cathodic Protection
Workpaper Group: 005090 - Cathodic Protection

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
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

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009 Total	0	0	0	0	0.0	
2010 Total	0	0	0	0	0.0	
2011 Total	0	0	0	0	0.0	
2012 Total	0	0	0	0	0.0	
2013 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 005090

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00509.0
Category: K. Cathodic Protection
Category-Sub: 1. Cathodic Protection
Workpaper Group: 005090 - Cathodic Protection
Workpaper Detail: 005090.001 - 509 Cathodic Protection

In-Service Date: Not Applicable

Description:

005090.001 contains routine cathodic protection work such as the addition of new CP systems and the replacement or upgrade of existing systems. Installations include direct current rectifier stations, deep well anode beds, and related equipment. Budget code 509 used a 5-year historical average for forecasting the base level of routine work.

Added to this base level historical averge are incremental costs for increasing the drilling depths of anode beds, with the purpose of improving the range and effectiveness of the CP system. This change is anticipated to increase the number of deeper anodes by approximately 10% in 2014, and increasing up to 20% by 2016. The installation of deep anodes is evaluated on a case by case basis, based on trouble shooting results. Forecast calculations were based on the average service well drilling cost per year. The incremental increase added to the forecast for 2014, 2015 and 2016 are $27K, $41K, and $54K, respectively.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	81	83	85
Non-Labor	505	517	529
NSE	0	0	0
Total	**586**	**600**	**614**
FTE	1.2	1.2	1.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
125510 - Cathodic Protection System Enhancement

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 12551.0
Category: K. Cathodic Protection
Category-Sub: 2. Cathodic Protection System Enhancement
Workpaper Group: 125510 - Cathodic Protection System Enhancement

Summary of Results (Constant 2013 $ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	Zero-Based	0	0	0	22	41	50	56	56
Non-Labor	Zero-Based	0	0	0	173	205	263	297	297
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**195**	**246**	**313**	**353**	**353**
FTE	Zero-Based	0.0	0.0	0.0	0.3	0.6	0.7	0.8	0.8

Business Purpose:

Budget code 12551 provides funds to enhance and improve SDG&E's cathodic protection (CP) system in addition to the cathodic protection work performed in budget code 509. The Cathodic Protection System Enhancement budget code tracks projects specifically associated with creating dedicated high pressure and medium distribution pressure pipeline CP systems.

Physical Description:

This budget code funds the proactive cathodic protection system improvements and reinforcements in addition to its routine work performed in budget code 509. Cathodic system enhancements are based on internal company assessments. A majority of work involves separating transmission gas mains from distribution gas mains, as well as isolating all high pressure distribution lines. CP system enhancements included in BC 125510 involve the installation of insulated unions to separate CP systems, new rectifiers, anode beds and test points allowing CP technicians to take CP reads.

Project Justification:

Projects funded under this budget code are individually justified using internal company assessments that identify areas where high pressure and medium pressure distribution CP systems can be isolated. The advantage of having dedicated, isolated, cathodically protected systems, provides protection of distribution systems and minimized current drawn from connected CP stations that can result from electric shorts downstream in the system.

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	12551.0
Category:	K. Cathodic Protection
Category-Sub:	2. Cathodic Protection System Enhancement
Workpaper Group:	125510 - Cathodic Protection System Enhancement

Forecast Methodology:

Labor - Zero-Based

A zero-based forecasting methodology was selected for labor as there was not enough history to establish an average nor a trend. Since inception of this budget code, SDG&E has identified an increasing number of areas that are in need of dedicated CP systems therefore, the 2013 base year methodology was not applicable as a forecasting method. The zero base forecast was calculated based on pre-identified projects for 2014 and 2015. The remaining projects beyond 2015 are in the process of being evaluated, as a result, it was then assumed that the funding required for 2016 would be equal to the 2015 forecast.

Non-Labor - Zero-Based

A zero-based forecasting methodology was selected for non-labor as there was not enough history to establish an average nor a trend. Since inception of this budget code, SDG&E has identified an increasing number of areas that are in need of dedicated CP systems therefore, the 2013 base year methodology was not applicable as a forecasting method. The zero base forecast was calculated based on pre-identified projects for 2014 and 2015. The remaining projects beyond 2015 are in the process of being evaluated, as a result, it was then assumed that the funding required for 2016 would be equal to the 2015 forecast.

NSE - Zero-Based

N/A

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 12551.0
Category: K. Cathodic Protection
Category-Sub: 2. Cathodic Protection System Enhancement
Workpaper Group: 125510 - Cathodic Protection System Enhancement

Adjustments to Forecast

In 2013 $ (000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Zero-Based	50	56	56	0	0	0	50	56	56
Non-Labor	Zero-Based	263	297	297	0	0	0	263	297	297
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**313**	**353**	**353**	**0**	**0**	**0**	**313**	**353**	**353**
FTE	Zero-Based	0.7	0.8	0.8	0.0	0.0	0.0	0.7	0.8	0.8

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 12551.0
Category: K. Cathodic Protection
Category-Sub: 2. Cathodic Protection System Enhancement
Workpaper Group: 125510 - Cathodic Protection System Enhancement

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	19	35
Non-Labor	0	0	0	174	205
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**193**	**240**
FTE	0.0	0.0	0.0	0.3	0.5
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	19	35
Non-Labor	0	0	0	174	205
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**193**	**240**
FTE	0.0	0.0	0.0	0.3	0.5
Vacation & Sick (Nominal $)					
Labor	0	0	0	3	6
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**3**	**6**
FTE	0.0	0.0	0.0	0.0	0.1
Escalation to 2013$					
Labor	0	0	0	0	0
Non-Labor	0	0	0	-1	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**-1**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	0	22	41
Non-Labor	0	0	0	173	205
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**195**	**246**
FTE	0.0	0.0	0.0	0.3	0.6

* 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.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 12551.0
Category: K. Cathodic Protection
Category-Sub: 2. Cathodic Protection System Enhancement
Workpaper Group: 125510 - Cathodic Protection System Enhancement

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
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

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009 Total	0	0	0	0	0.0	
2010 Total	0	0	0	0	0.0	
2011 Total	0	0	0	0	0.0	
2012 Total	0	0	0	0	0.0	
2013 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 125510

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	12551.0
Category:	K. Cathodic Protection
Category-Sub:	2. Cathodic Protection System Enhancement
Workpaper Group:	125510 - Cathodic Protection System Enhancement
Workpaper Detail:	125510.001 - CP System Enhancements - Separation of Transmission and Distribution High Pressure
In-Service Date:	Not Applicable

Description:

125510.001 provide funding for Cathodic Protection System Enhancements. There is not enough history to establish an average nor trend. The zero-based forecast was calculated based on pre-identified projects for 2014 and 2015. The remaining projects for 2016 are still in the process of being evaluated, as a result it was then assumed that the forecast funding required for 2016 would be equal to the 2015 forecast.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	50	56	56
Non-Labor	263	297	297
NSE	0	0	0
Total	**313**	**353**	**353**
FTE	0.7	0.8	0.8

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: L. Regulator Station Improvements and Other
Workpaper: 005100

Summary for Category: L. Regulator Station Improvements and Other

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	66	367	216	136
Non-Labor	67	889	521	327
NSE	0	0	0	0
Total	**133**	**1,256**	**737**	**463**
FTE	0.7	3.6	2.2	1.3

005100 Regulator Station Improvements and Other

Labor	66	367	216	136
Non-Labor	67	889	521	327
NSE	0	0	0	0
Total	**133**	**1,256**	**737**	**463**
FTE	0.7	3.6	2.2	1.3

Note: Totals may include rounding differences.

Beginning of Workpaper Group
005100 - Regulator Station Improvements and Other

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00510.0
Category: L. Regulator Station Improvements and Other
Category-Sub: 1. Regulator Station Improvements and Other
Workpaper Group: 005100 - Regulator Station Improvements and Other

Summary of Results (Constant 2013 $ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	Zero-Based	65	108	45	26	66	367	216	136
Non-Labor	Zero-Based	191	442	128	31	67	889	521	327
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**256**	**550**	**173**	**57**	**133**	**1,256**	**737**	**463**
FTE	Zero-Based	0.6	1.2	0.6	0.2	0.7	3.6	2.2	1.3

Business Purpose:

Budget code 510 provides funding for small capital projects (not captured under the other budget codes) that improve safety, provide required code compliance, and improve gas system performance or reliability through the replacement of aging gas operating equipment.

Physical Description:

Projects completed under this budget code typically involve upgrades or improvements to distribution piping, pressure regulation or metering stations, valve stations, meter set assembly valve replacements, remote monitoring instrumentation equipment, LNG upgrades, or other gas distribution facilities.

Project Justification:

This budget code provides the necessary capital to support the company's goals of maintaining safety, integrity and reliability. Projects completed under this budget code are justified based on mandated compliance with Federal and State safety codes consistent with General Order 58-A, General Order 112-E, CFR 192.185, CFR 192.183, CFR 193, and OSHA Section 1910 Subpart A.

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00510.0
Category:	L. Regulator Station Improvements and Other
Category-Sub:	1. Regulator Station Improvements and Other
Workpaper Group:	005100 - Regulator Station Improvements and Other

Forecast Methodology:

Labor - Zero-Based

A zero-based forecasting methodology was selected for labor because the historical values are not representative of the project specific future work for this budget code. Typical projects within the 510 budget code during the 2009-2013 history include LNG station upgrades, critical valve covers, soil erosion mitigation work, and one regulator station replacement. Also, recently included in history are butterfly valve replacements added in 2012, and strainer and vault replacements added in 2014. Since, there is no consistent historical spend of the work drivers such as regulator station relocations and replacments (only shown in 2010) as well as the newly added butterfly valve/strainer/vault replacements, a trend nor average was not selected for the forecast. To account for future regulator station replacements and relocations, Borrego LNG station upgrades and MSA butterfly valve replacements, a zero-based method of forecasting was best suited for budget code 510.

Non-Labor - Zero-Based

A zero-based forecasting methodology was selected for non-labor because the historical values are not representative of the project specific future work for this budget code. Typical projects within the 510 budget code during the 2009-2013 history include LNG station upgrades, critical valve covers, soil erosion mitigation work, and one regulator station replacement. Also, recently included in history are butterfly valve replacements added in 2012, and strainer and vault replacements added in 2014. Since, there is no consistent historical spend of the work drivers such as regulator station relocations and replacments (only shown in 2010) as well as the newly added butterfly valve/strainer/vault replacements, a trend nor average was not selected for the forecast. To account for future regulator station replacements and relocations, Borrego LNG station upgrades and MSA butterfly valve replacements, a zero-based method of forecasting was best suited for budget code 510.

NSE - Zero-Based

N/A

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00510.0
Category: L. Regulator Station Improvements and Other
Category-Sub: 1. Regulator Station Improvements and Other
Workpaper Group: 005100 - Regulator Station Improvements and Other

Adjustments to Forecast

In 2013 $ (000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Zero-Based	367	216	136	0	0	0	367	216	136
Non-Labor	Zero-Based	889	521	327	0	0	0	889	521	327
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**1,256**	**737**	**463**	**0**	**0**	**0**	**1,256**	**737**	**463**
FTE	Zero-Based	3.6	2.2	1.3	0.0	0.0	0.0	3.6	2.2	1.3

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00510.0
Category: L. Regulator Station Improvements and Other
Category-Sub: 1. Regulator Station Improvements and Other
Workpaper Group: 005100 - Regulator Station Improvements and Other

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	46	79	37	23	57
Non-Labor	155	376	119	31	67
NSE	0	0	0	0	0
Total	**201**	**454**	**156**	**53**	**124**
FTE	0.5	1.0	0.5	0.2	0.6
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	46	79	37	23	57
Non-Labor	155	376	119	31	67
NSE	0	0	0	0	0
Total	**201**	**454**	**156**	**53**	**124**
FTE	0.5	1.0	0.5	0.2	0.6
Vacation & Sick (Nominal $)					
Labor	7	13	5	3	9
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**7**	**13**	**5**	**3**	**9**
FTE	0.1	0.2	0.1	0.0	0.1
Escalation to 2013$					
Labor	12	16	3	0	0
Non-Labor	35	67	9	0	0
NSE	0	0	0	0	0
Total	**48**	**83**	**12**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	65	108	45	26	66
Non-Labor	191	442	128	31	67
NSE	0	0	0	0	0
Total	**256**	**550**	**173**	**57**	**133**
FTE	0.6	1.2	0.6	0.2	0.7

* 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.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00510.0
Category: L. Regulator Station Improvements and Other
Category-Sub: 1. Regulator Station Improvements and Other
Workpaper Group: 005100 - Regulator Station Improvements and Other

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
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

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009 Total	0	0	0	0	0.0	
2010 Total	0	0	0	0	0.0	
2011 Total	0	0	0	0	0.0	
2012 Total	0	0	0	0	0.0	
2013 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 005100

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00510.0
Category: L. Regulator Station Improvements and Other
Category-Sub: 1. Regulator Station Improvements and Other
Workpaper Group: 005100 - Regulator Station Improvements and Other
Workpaper Detail: 005100.001 - 510 System Reliability & Safety Improvements

In-Service Date: Not Applicable

Description:

A zero-base project specific forecasting methodology was used for budget code 510. The following amounts are budgets for 2014, 2015, and 2016 repsectively:
Borrego LNG Upgrades: $165k, $55k, $27k;
Strainer/Vault Replacements: $109k, $273k, $109k;
Large Butterfly Valve MSA Replacements: $109k, $109k, $109k;
Regulator Station (RS) 700= $873k (in-construction), RS 3387= $300k, RS 772=$218k;

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	367	216	136
Non-Labor	889	521	327
NSE	0	0	0
Total	**1,256**	**737**	**463**
FTE	3.6	2.2	1.3

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: M. Local Engineering
Workpaper: 009020

Summary for Category: M. Local Engineering

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	2,933	3,967	4,692	5,273
Non-Labor	765	376	444	499
NSE	0	0	0	0
Total	**3,698**	**4,343**	**5,136**	**5,772**
FTE	37.8	52.8	62.5	70.2

009020 Local Engineering Pool

Labor	2,933	3,967	4,692	5,273
Non-Labor	765	376	444	499
NSE	0	0	0	0
Total	**3,698**	**4,343**	**5,136**	**5,772**
FTE	37.8	52.8	62.5	70.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
009020 - Local Engineering Pool

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00902.0
Category: M. Local Engineering
Category-Sub: 1. Local Engineering
Workpaper Group: 009020 - Local Engineering Pool

Summary of Results (Constant 2013 $ in 000s):

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	Zero-Based	3,744	3,097	2,635	2,797	2,933	3,967	4,692	5,273
Non-Labor	Zero-Based	76	-135	202	614	765	376	444	499
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**3,820**	**2,961**	**2,838**	**3,411**	**3,698**	**4,343**	**5,136**	**5,772**
FTE	Zero-Based	41.9	36.3	33.5	37.0	37.8	52.8	62.5	70.2

Business Purpose:

This budget code represents the forecasted costs associated with the Gas Distribution Local Engineering (LE) Pool. Certain costs are incurred by capital projects that originate from central activities which are subsequently distributed to those capital projects. These central activity costs are also called 'pooled' or 'indirect' costs.

Physical Description:

This budget code is comprised of labor and non-labor costs associated with technical planning for capital projects. This includes production of project drawings, acquiring and managing third party services, and estimating work order costs. This budget code also includes Region Engineering personnel's labor and non-labor costs associated with capital projects as well as other engineering functions including pipeline network analysis, development of pipeline project specifications, developing construction requirements, and analysis of the construction impact on the gas distribution system.

Project Justification:

Design and engineering personnel are a necessity for the development of safe and cost effective constrution specifications for new gas distribution infrastructure. To facilitate an equitable distribution of indirect costs to all capital projects, these costs are pooled and redistributed to the various capital project budget codes on a monthly basis. Please see the testimony of Mr. Garry Yee for the mechanics of the redistribution process for these indirect costs.

Note: Totals may include rounding differences.

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala
Budget Code:	00902.0
Category:	M. Local Engineering
Category-Sub:	1. Local Engineering
Workpaper Group:	009020 - Local Engineering Pool

Forecast Methodology:

Labor - Zero-Based

A zero-base forecasting methodology was selected for this budget code. The forecast was developed by evaluating the Local Engineering (LE) pool with respect to the total direct component for labor and non-labor across all budget code categories except for the Meter and Regulator Materials (502) and the historical Tools and Equipment (506) budget codes. This produced an annual relationship of the percentage of the LE to total direct capital expenditures. An average of this ratio from 2009 through 2013 was used to forecast capital expenses for Local Engineering for the years 2014, 2015 and 2016.

Non-Labor - Zero-Based

A zero-base forecasting methodology was selected for this budget code. The forecast was developed by evaluating the Local Engineering (LE) pool with respect to the total direct component for labor and non-labor across all budget code categories except for the Meter and Regulator Materials (502) and the historical Tools and Equipment (506) budget codes. This produced an annual relationship of the percentage of the LE to total direct capital expenditures. An average of this ratio from 2009 through 2013 was used to forecast capital expenses for Local Engineering for the years 2014, 2015 and 2016.

NSE - Zero-Based

N/A

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00902.0
Category: M. Local Engineering
Category-Sub: 1. Local Engineering
Workpaper Group: 009020 - Local Engineering Pool

Adjustments to Forecast

In 2013 $ (000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Zero-Based	3,967	4,692	5,273	0	0	0	3,967	4,692	5,273
Non-Labor	Zero-Based	376	444	499	0	0	0	376	444	499
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**4,343**	**5,136**	**5,772**	**0**	**0**	**0**	**4,343**	**5,136**	**5,772**
FTE	Zero-Based	52.8	62.5	70.2	0.0	0.0	0.0	52.8	62.5	70.2

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00902.0
Category: M. Local Engineering
Category-Sub: 1. Local Engineering
Workpaper Group: 009020 - Local Engineering Pool

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	2,640	2,269	2,135	2,450	2,532
Non-Labor	62	-115	188	616	765
NSE	0	0	0	0	0
Total	**2,702**	**2,154**	**2,323**	**3,067**	**3,296**
FTE	35.9	30.9	28.8	31.9	32.2
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	2,640	2,269	2,135	2,450	2,532
Non-Labor	62	-115	188	616	765
NSE	0	0	0	0	0
Total	**2,702**	**2,154**	**2,323**	**3,067**	**3,296**
FTE	35.9	30.9	28.8	31.9	32.2
Vacation & Sick (Nominal $)					
Labor	408	361	314	355	401
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**408**	**361**	**314**	**355**	**401**
FTE	6.0	5.4	4.7	5.1	5.6
Escalation to 2013$					
Labor	696	467	186	-9	0
Non-Labor	14	-20	14	-2	0
NSE	0	0	0	0	0
Total	**710**	**447**	**200**	**-11**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	3,744	3,097	2,635	2,797	2,933
Non-Labor	76	-135	202	614	765
NSE	0	0	0	0	0
Total	**3,820**	**2,961**	**2,838**	**3,411**	**3,698**
FTE	41.9	36.3	33.5	37.0	37.8

* 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.

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00902.0
Category: M. Local Engineering
Category-Sub: 1. Local Engineering
Workpaper Group: 009020 - Local Engineering Pool

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
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

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009 Total	0	0	0	0	0.0	
2010 Total	0	0	0	0	0.0	
2011 Total	0	0	0	0	0.0	
2012 Total	0	0	0	0	0.0	
2013 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 009020

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Budget Code: 00902.0
Category: M. Local Engineering
Category-Sub: 1. Local Engineering
Workpaper Group: 009020 - Local Engineering Pool
Workpaper Detail: 009020.001 - 902 Local Engineering Pool

In-Service Date: Not Applicable

Description:

009020.001 provides funding for the Local Engineering (LE) pool. This budget takes the average ratio of LE costs to the Total Capital Direct Expenditures from 2009 to 2013 allocated from capital budgets: 500, 501, 503, 504, 505, 507, 508, 509, 510, and 12551. The resulting average ratio is 21.96% which is applied to the forecasted Capital Direct Expenses for these budget codes resulting in the LE forecast for 2014, 2015, and 2016.

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	3,967	4,692	5,273
Non-Labor	376	444	499
NSE	0	0	0
Total	**4,343**	**5,136**	**5,772**
FTE	52.8	62.5	70.2

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 009020

SDGE-FBA-CAP-SUP-006
San Diego Gas & Electric – Gas Distribution – Witness Frank Ayala
Supplemental Workpaper Calculations for Local Engineering Related to Capital
Local Engineering Pool Workpaper

Assumptions:

Construction costs include only the work categories applicable to the Local Engineering Pool.
(Amounts include vacation and sick leave)
** Includes project costs eligible for Local Engineering.*

	Historical (Thousands of 2013$)					Forecast (Thousands of 2013$)		
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
500 New Business	3,733	3,662	5,988	4,260	4,754	7,042	9,583	12,500
501 Syst. Minor Add,Reloc, and Retire	1,721	1,017	1,413	1,597	1,500	1,450	3,357	3,357
503 Pressure Betterment	2,753	2,354	1,944	3,221	1,247	2,304	2,304	2,304
504 Distribution Easements	21	13	60	20	26	28	28	28
505 Franchise and Freeway	3,278	4,407	3,945	4,035	4,189	3,970	3,970	3,970
506 Tools (Non-Routine) *						782	410	650
507 Code Compliance	707	527	228	332	191	320	320	320
508 Replacements of Mains & Services	1,233	1,472	2,467	1,574	1,883	1,726	1,726	1,726
509 Cathodic Protection	622	434	449	626	665	586	600	614
510 Regulator Station Improvements	256	550	173	57	133	1,256	737	463
551 CP System Enhancement	-	-	-	195	246	313	353	353
Total Construction Costs* **[A]**	14,324	14,434	16,667	15,917	14,833	19,777	23,388	26,285
Historical Local Engineering **[B]**	3,820	2,961	2,838	3,411	3,698			
Historical Local Engineering Ratio ([B]/[A])	26.7%	20.5%	17.0%	21.4%	24.9%			

SDGE-FBA-CAP-SUP-006

San Diego Gas & Electric – Gas Distribution – Witness Frank Ayala
Supplemental Workpaper Calculations for Local Engineering Related to Capital
Local Engineering Pool Workpaper

	[C] ([A]*1000)	**[D]** ([B]*1000)
	Historical 5-Year Total Applicable Capital	**Historical Capital Local Engineering**
2009	$ 14,323,621	$ 3,819,721
2010	$ 14,434,463	$ 2,961,254
2011	$ 16,666,661	$ 2,837,750
2012	$ 15,916,654	$ 3,410,728
2013	$ 14,833,309	$ 3,697,662
5-Year 2009-2013 Total	**$ 76,174,708**	**$ 16,727,115**

	[F] [D/C]
5-Year 2010-2013 Average Ratio of Labor to Capital Construction Total	**21.96%**

Forecast Data (Thousands of 2013$)

	[H] ([A])	**[I]** ([H]*[F])
	Forecasted Total Applicable Capital	**Forecasted Local Engineering Expenditures**
2014	$ 19,777	$ 4,343
2015	$ 23,388	$ 5,136
2016	$ 26,285	$ 5,772