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-09-CWP)

CAPITAL WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF JOHN D. JENKINS
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-09-CWP - ELECTRIC DISTRIBUTION

2016 General Rate Case - APP

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Exhibit SDG&E-09-CWP - ELECTRIC DISTRIBUTION

Overall Summary For Exhibit No. SDG&E-09-CWP

Area: ELECTRIC DISTRIBUTION

Witness: John D. Jenkins

	In 2013 $ (000) Adjusted-Forecast		
	2014	2015	2016
A. CAPACITY/EXPANSION	50,655	31,282	14,241
B. EQUIP/TOOLS/MISC	1,372	1,372	1,372
C. FRANCHISE	41,764	41,764	41,764
D. MANDATED	37,872	38,148	39,063
E. MATERIALS	21,024	22,025	23,027
F. NEW BUSINESS	58,592	70,653	81,962
G. OVERHEAD POOLS	108,552	118,357	110,224
H. RELIABILITY/IMPROVEMENTS	81,848	102,934	74,427
I. SAFETY AND RISK MANAGEMENT	26,209	40,684	75,423
J. SMART METER PROGRAM	1,116	0	0
K. TRANSMISSION/FERC DRIVEN PROJECTS	14,608	19,180	12,530
Total	**443,612**	**486,399**	**474,033**

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: A. CAPACITY/EXPANSION
Workpaper: VARIOUS

Summary for Category: A. CAPACITY/EXPANSION

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	2,134	11,996	9,756	3,770
Non-Labor	8,581	38,335	21,202	10,147
NSE	0	324	324	324
Total	**10,715**	**50,655**	**31,282**	**14,241**
FTE	20.3	119.1	96.7	36.8
002090 Field Shunt Capacitors				
Labor	140	118	118	118
Non-Labor	362	476	476	476
NSE	0	0	0	0
Total	**502**	**594**	**594**	**594**
FTE	1.3	1.2	1.2	1.2
09271A C1259, MAR: New 12kV Circuit				
Labor	0	0	416	0
Non-Labor	0	0	545	0
NSE	0	0	0	0
Total	**0**	**0**	**961**	**0**
FTE	0.0	0.0	4.2	0.0
092740 C1282 LC - New Circuit				
Labor	0	1,745	0	0
Non-Labor	4	2,286	0	0
NSE	0	0	0	0
Total	**4**	**4,031**	**0**	**0**
FTE	0.0	17.4	0.0	0.0
092760 Poseidon - Cannon substation Modification				
Labor	179	781	73	0
Non-Labor	777	8,621	735	0
NSE	0	0	0	0
Total	**956**	**9,402**	**808**	**0**
FTE	1.8	7.8	0.7	0.0
10266A C350, LI: Reconductor & Voltage Regulation				
Labor	0	404	0	0
Non-Labor	0	529	0	0
NSE	0	0	0	0
Total	**0**	**933**	**0**	**0**
FTE	0.0	4.0	0.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: A. CAPACITY/EXPANSION
Workpaper: VARIOUS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
10270A C1049, CSW: New 12kV Circuit				
Labor	0	1,085	0	0
Non-Labor	0	1,421	0	0
NSE	0	0	0	0
Total	**0**	**2,506**	**0**	**0**
FTE	0.0	10.9	0.0	0.0
10272A Middletown 4kV Substation RFS				
Labor	0	317	0	0
Non-Labor	0	417	0	0
NSE	0	0	0	0
Total	**0**	**734**	**0**	**0**
FTE	0.0	3.2	0.0	0.0
11244A C928, POM: New 12kV Circuit				
Labor	0	318	0	0
Non-Labor	0	416	0	0
NSE	0	0	0	0
Total	**0**	**734**	**0**	**0**
FTE	0.0	3.2	0.0	0.0
112570 Camp Pendleton 12kV Service				
Labor	870	56	0	0
Non-Labor	2,309	556	0	0
NSE	0	0	0	0
Total	**3,179**	**612**	**0**	**0**
FTE	8.2	0.6	0.0	0.0
11259A C100, OT: 12kV Circuit Extension				
Labor	0	804	0	0
Non-Labor	0	1,054	0	0
NSE	0	0	0	0
Total	**0**	**1,858**	**0**	**0**
FTE	0.0	8.0	0.0	0.0
13250A C108, B: 12 kV Circuit Reconfiguration				
Labor	0	268	0	0
Non-Labor	0	351	0	0
NSE	0	0	0	0
Total	**0**	**619**	**0**	**0**
FTE	0.0	2.7	0.0	0.0
002280 Reactive Small Capital Projects				
Labor	294	259	259	259
Non-Labor	1,231	1,189	1,189	1,189
NSE	0	0	0	0
Total	**1,525**	**1,448**	**1,448**	**1,448**
FTE	2.8	2.2	2.2	2.2

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: A. CAPACITY/EXPANSION
Workpaper: VARIOUS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
13251A C176 PO: Reconductor				
Labor	0	0	284	0
Non-Labor	0	0	373	0
NSE	0	0	0	0
Total	**0**	**0**	**657**	**0**
FTE	0.0	0.0	2.8	0.0
13259A C1243, RMV: Reconductor				
Labor	0	0	580	0
Non-Labor	0	0	761	0
NSE	0	0	0	0
Total	**0**	**0**	**1,341**	**0**
FTE	0.0	0.0	5.8	0.0
13260A C1288, MSH: New 12kV Circuit				
Labor	0	424	0	0
Non-Labor	0	556	0	0
NSE	0	0	0	0
Total	**0**	**980**	**0**	**0**
FTE	0.0	4.2	0.0	0.0
13263A C982: OL- Voltage Regulation				
Labor	0	238	0	0
Non-Labor	0	313	0	0
NSE	0	0	0	0
Total	**0**	**551**	**0**	**0**
FTE	0.0	2.4	0.0	0.0
13285A C1090, JM: New 12kV Circuit				
Labor	0	0	6,308	0
Non-Labor	0	0	8,266	0
NSE	0	0	0	0
Total	**0**	**0**	**14,574**	**0**
FTE	0.0	0.0	63.1	0.0
13286A C1120, BQ: New 12kV Circuit				
Labor	0	0	0	1,283
Non-Labor	0	0	0	1,682
NSE	0	0	0	0
Total	**0**	**0**	**0**	**2,965**
FTE	0.0	0.0	0.0	12.8
13288A GH New 12kV Circuit				
Labor	0	0	0	687
Non-Labor	0	0	0	897
NSE	0	0	0	0
Total	**0**	**0**	**0**	**1,584**
FTE	0.0	0.0	0.0	6.9

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: A. CAPACITY/EXPANSION
Workpaper: VARIOUS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
972480 Distribution System Capacity Improvement				
Labor	258	393	393	393
Non-Labor	1,451	2,163	2,163	2,163
NSE	0	0	0	0
Total	**1,709**	**2,556**	**2,556**	**2,556**
FTE	2.2	3.4	3.4	3.4
022520 Mira Sorrento 138/12KV Substation				
Labor	181	816	0	0
Non-Labor	764	11,402	0	0
NSE	0	0	0	0
Total	**945**	**12,218**	**0**	**0**
FTE	1.9	8.2	0.0	0.0
022580 Salt Creek Substation & New Circuits				
Labor	109	91	459	164
Non-Labor	375	917	4,606	1,652
NSE	0	0	0	0
Total	**484**	**1,008**	**5,065**	**1,816**
FTE	1.2	0.9	4.6	1.6
072450 Telegraph Canyon- 138/12kV Bank & C1226				
Labor	3	1,484	0	0
Non-Labor	0	1,596	0	0
NSE	0	0	0	0
Total	**3**	**3,080**	**0**	**0**
FTE	0.0	14.8	0.0	0.0
072490 San Ysidro- New 12kv Circuit 1202				
Labor	2	324	0	0
Non-Labor	0	424	0	0
NSE	0	0	0	0
Total	**2**	**748**	**0**	**0**
FTE	0.0	3.2	0.0	0.0
072530 C1161 BD - New 12kV Circuit				
Labor	0	570	0	0
Non-Labor	2	745	0	0
NSE	0	0	0	0
Total	**2**	**1,315**	**0**	**0**
FTE	0.0	5.7	0.0	0.0
082530 Substation 12kV Capacitor Upgrades				
Labor	98	866	866	866
Non-Labor	1,306	2,088	2,088	2,088
NSE	0	324	324	324
Total	**1,404**	**3,278**	**3,278**	**3,278**
FTE	0.9	8.7	8.7	8.7

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: A. CAPACITY/EXPANSION
Workpaper: VARIOUS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
08259A C917, CC: New 12kV Circuit				
Labor	0	635	0	0
Non-Labor	0	815	0	0
NSE	0	0	0	0
Total	**0**	**1,450**	**0**	**0**
FTE	0.0	6.4	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002090 - Field Shunt Capacitors

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00209.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 1. FIELD SHUNT CAPACITORS
Workpaper Group: 002090 - Field Shunt Capacitors

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	132	72	135	113	140	118	118	118
Non-Labor	5-YR Average	403	377	650	588	362	476	476	476
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**535**	**450**	**785**	**701**	**502**	**594**	**594**	**594**
FTE	5-YR Average	1.5	0.7	1.4	1.0	1.3	1.2	1.2	1.2

Business Purpose:

Shunt capacitors installed on electric distribution circuits improve power factor and reduce the ampere loading on distribution circuits, substation transformers, transmission lines, and generating stations. Capacitors installed on distribution circuits also improve system voltage and voltage control on both distribution circuits and transmission lines. This project is required to achieve the present design standard of 0.995 (lagging) on the Transmission bus in each substation and to maintain this standard in the future years through the use of shunt capacitors. This project will also provide funding for relocating capacitors from downstream of fuses to upstream of fuses to meet SDG&E current standards.

Physical Description:

This project provides for the installation of overhead and underground shunt capacitors on 4kV and 12kV distribution circuits.

Project Justification:

Reactive power requirements increase with load growth. Capacitors are needed to efficiently supply reactive power to meet the growth while maintaining a system power factor of at least 0.995 lag measured at the transmission bus. This power factor was specified by the Power Control Department in their 1987 Bulk Power System Performance Study. This project is also required to provide funding for relocating existing capacitors that do not comply with SDG&E current standards in capacitor placement.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00209.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	1. FIELD SHUNT CAPACITORS
Workpaper Group:	002090 - Field Shunt Capacitors

Forecast Methodology:

Labor - 5-YR Average

The forecast method used for Field Shunt Capacitors is a 5-year average, based on historical data. This is the most appropriate methodology, as work load can vary from year to year. For example, 2011 and 2012 were above the average, while 2009, 2010, and 2013 were below the average. If a shorter average was utilized, the forecasted figures would be higher. The 5-year average levels out the peaks and valleys in this blanket budget over a larger period of time, and still provides for the necessary level of funding for the work that falls within this budget.

Non-Labor - 5-YR Average

The forecast method used for Field Shunt Capacitors is a 5-year average, based on historical data. This is the most appropriate methodology, as work load can vary from year to year. For example, 2011 and 2012 were above the average, while 2009, 2010, and 2013 were below the average. If a shorter average was utilized, the forecasted figures would be higher. The 5-year average levels out the peaks and valleys in this blanket budget over a larger period of time, and still provides for the necessary level of funding for the work that falls within this budget.

NSE - 5-YR Average

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00209.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 1. FIELD SHUNT CAPACITORS
Workpaper Group: 002090 - Field Shunt Capacitors

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	118	118	118	0	0	0	118	118	118
Non-Labor	5-YR Average	476	476	476	0	0	0	476	476	476
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**594**	**594**	**594**	**0**	**0**	**0**	**594**	**594**	**594**
FTE	5-YR Average	1.2	1.2	1.2	0.0	0.0	0.0	1.2	1.2	1.2

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00209.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 1. FIELD SHUNT CAPACITORS
Workpaper Group: 002090 - Field Shunt Capacitors

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	99	57	111	96	121
Non-Labor	307	321	501	575	362
NSE	0	0	0	0	0
Total	**406**	**377**	**612**	**671**	**483**
FTE	1.3	0.6	1.2	0.9	1.1
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	44	21	113	0	0
NSE	0	0	0	0	0
Total	**44**	**21**	**113**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	99	57	111	96	121
Non-Labor	350	342	614	575	362
NSE	0	0	0	0	0
Total	**449**	**398**	**725**	**671**	**483**
FTE	1.3	0.6	1.2	0.9	1.1
Vacation & Sick (Nominal $)					
Labor	15	9	16	14	19
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**15**	**9**	**16**	**14**	**19**
FTE	0.2	0.1	0.2	0.1	0.2
Escalation to 2013$					
Labor	17	7	8	3	0
Non-Labor	53	36	36	14	0
NSE	0	0	0	0	0
Total	**70**	**43**	**44**	**16**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	132	72	135	113	140
Non-Labor	403	377	650	588	362
NSE	0	0	0	0	0
Total	**535**	**450**	**785**	**701**	**502**
FTE	1.5	0.7	1.4	1.0	1.3

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00209.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 1. FIELD SHUNT CAPACITORS
Workpaper Group: 002090 - Field Shunt Capacitors

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	44	21	113	0	0
NSE	0	0	0	0	0
Total	**44**	**21**	**113**	**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	0	44	0	44	0.0	EAMARE2013103015484
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	44	0	44	0.0	
2010	0	21	0	21	0.0	EAMARE2013103015490
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	21	0	21	0.0	
2011	0	113	0	113	0.0	EAMARE2013103015493
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	113	0	113	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 002090

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00209.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 1. FIELD SHUNT CAPACITORS
Workpaper Group: 002090 - Field Shunt Capacitors
Workpaper Detail: 002090.001 - Field Shunt Capacitors

In-Service Date: Not Applicable
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	118	118	118
Non-Labor	476	476	476
NSE	0	0	0
Total	**594**	**594**	**594**
FTE	1.2	1.2	1.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002280 - Reactive Small Capital Projects

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00228.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. REACTIVE SMALL CAPITAL PROJECTS
Workpaper Group: 002280 - Reactive Small Capital Projects

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	159	325	267	252	294	259	259	259
Non-Labor	5-YR Average	754	1,675	1,122	1,163	1,231	1,189	1,189	1,189
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**913**	**2,000**	**1,388**	**1,415**	**1,525**	**1,448**	**1,448**	**1,448**
FTE	5-YR Average	1.3	2.6	2.2	2.0	2.8	2.2	2.2	2.2

Business Purpose:

This project is required to address primary distribution system overload and voltage related issues with individual capital jobs under $500K in costs. It is intended for the capacity projects that are not covered under the specific capital budget process. This type of project often requires a short turn around time to address the overload and cannot be handled through the specific capital budget process. For example, an overload condition may occur when customers have a significant increase in load and did not communicate it to the utility. It is also required to meet the SDG&E Design Standards.

Physical Description:

This project provides for the reconstruction and extension of overhead and underground distribution facilities to replace overloaded conductors, correct primary voltage problems, and transfer load to balance circuits and substations. Other minor modifications that may be required to delay larger specific projects are also included in this budget. Additionally, this project installs remote metering equipment to monitor questionable circuit loading.

Project Justification:

A cost benefit analysis will be performed for various alternatives. The project with the lowest overall cost will be proposed.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00228.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	2. REACTIVE SMALL CAPITAL PROJECTS
Workpaper Group:	002280 - Reactive Small Capital Projects

Forecast Methodology:

Labor - 5-YR Average

The forecast method used for Reactive Small Capital Projects is a 5 year average, based on historical data. This is the most appropriate as work load can vary from year to year, for example 2010 and 2013 were above the average, while 2009, 2011, and 2012 were below the average. The 5-year average levels out the peaks and valleys in this blanket budget over a larger period of time, and still provides for the necessary level of funding for the work that falls within this budget.

Non-Labor - 5-YR Average

The forecast method used for Reactive Small Capital Projects is a 5 year average, based on historical data. This is the most appropriate as work load can vary from year to year, for example 2010 and 2013 were above the average, while 2009, 2011, and 2012 were below the average. The 5-year average levels out the peaks and valleys in this blanket budget over a larger period of time, and still provides for the necessary level of funding for the work that falls within this budget.

NSE - 5-YR Average

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00228.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. REACTIVE SMALL CAPITAL PROJECTS
Workpaper Group: 002280 - Reactive Small Capital Projects

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	259	259	259	0	0	0	259	259	259
Non-Labor	5-YR Average	1,189	1,189	1,189	0	0	0	1,189	1,189	1,189
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**1,448**	**1,448**	**1,448**	**0**	**0**	**0**	**1,448**	**1,448**	**1,448**
FTE	5-YR Average	2.2	2.2	2.2	0.0	0.0	0.0	2.2	2.2	2.2

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00228.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. REACTIVE SMALL CAPITAL PROJECTS
Workpaper Group: 002280 - Reactive Small Capital Projects

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	120	255	220	217	257
Non-Labor	670	1,518	1,059	1,137	1,197
NSE	0	0	0	0	0
Total	**790**	**1,773**	**1,279**	**1,354**	**1,454**
FTE	1.1	2.2	1.9	1.7	2.4
Adjustments (Nominal $) **					
Labor	0	-1	0	-2	-3
Non-Labor	-15	-1	-1	-1	34
NSE	0	0	0	0	0
Total	**-15**	**-3**	**-1**	**-3**	**31**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	120	254	219	215	254
Non-Labor	655	1,517	1,059	1,136	1,231
NSE	0	0	0	0	0
Total	**775**	**1,770**	**1,278**	**1,351**	**1,485**
FTE	1.1	2.2	1.9	1.7	2.4
Vacation & Sick (Nominal $)					
Labor	19	40	32	31	40
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**19**	**40**	**32**	**31**	**40**
FTE	0.2	0.4	0.3	0.3	0.4
Escalation to 2013$					
Labor	21	31	15	6	0
Non-Labor	99	159	63	27	0
NSE	0	0	0	0	0
Total	**119**	**190**	**78**	**33**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	159	325	267	252	294
Non-Labor	754	1,675	1,122	1,163	1,231
NSE	0	0	0	0	0
Total	**913**	**2,000**	**1,388**	**1,415**	**1,525**
FTE	1.3	2.6	2.2	2.0	2.8

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00228.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. REACTIVE SMALL CAPITAL PROJECTS
Workpaper Group: 002280 - Reactive Small Capital Projects

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	-1	0	-2	-3
Non-Labor	-15	-1	-1	-1	34
NSE	0	0	0	0	0
Total	**-15**	**-3**	**-1**	**-3**	**31**
FTE	0.0	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00228.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. REACTIVE SMALL CAPITAL PROJECTS
Workpaper Group: 002280 - Reactive Small Capital Projects

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	-0.031	-1	0	-1	0.0	CBUTLER201403041322
Adjustment made to exclude 15% of General Plant.						
	0	-14	0	-14	0.0	EAMARE2013103015521
Adjustment made to remove CIAC from historical costs.						
2009 Total	-0.031	-15	0	-15	0.0	
2010	-1	-1	0	-3	0.0	CBUTLER201403041323
Adjustment made to exclude 15% of General Plant.						
2010 Total	-1	-1	0	-3	0.0	
2011	-0.274	-0.638	0	-0.912	0.0	CBUTLER201403041323
Adjustment made to exclude 15% of General Plant.						
2011 Total	-0.274	-0.638	0	-0.912	0.0	
2012	-2	-0.620	0	-3	0.0	CBUTLER201403041323
Adjustment made to exclude 15% of General Plant.						
2012 Total	-2	-0.620	0	-3	0.0	
2013	0	39	0	39	0.0	CBUTLER201402041000
Adjustment made to remove CIAC from historical costs.						
	-3	-4	0	-7	0.0	CBUTLER201403041324
Adjustment made to exclude 15% of General Plant.						
2013 Total	-3	34	0	31	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002280

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00228.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 2. REACTIVE SMALL CAPITAL PROJECTS
Workpaper Group: 002280 - Reactive Small Capital Projects
Workpaper Detail: 002280.001 - Reactive Small Capital Projects

In-Service Date: Not Applicable
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	259	259	259
Non-Labor	1,189	1,189	1,189
NSE	0	0	0
Total	**1,448**	**1,448**	**1,448**
FTE	2.2	2.2	2.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
022520 - Mira Sorrento 138/12KV Substation

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 02252.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 3. MIRA SORRENTO 138/12KV SUB & C1442 T0 46
Workpaper Group: 022520 - Mira Sorrento 138/12KV Substation

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	49	60	58	70	181	816	0	0
Non-Labor	Zero-Based	80	197	189	681	764	11,402	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**129**	**256**	**247**	**752**	**945**	**12,218**	**0**	**0**
FTE	Zero-Based	0.5	0.6	0.5	0.7	1.9	8.2	0.0	0.0

Business Purpose:

The purpose of this project is to eliminate projected overloads of 102% at North City West Substation, and high loading of 92% at Mesa Rim, 94% at Genesee, and 92% at Torrey Pines Substation. These substations primarily serve large commercial/industrial customers, including electronics manufacturing companies, wireless technology companies, and many biomedical and pharmaceutical companies. The first phase of the area study for the Torrey Pines / Sorrento Mesa area concluded that there is a need for another substation in the area. Mira Sorrento substation is required to serve existing load and new development in the Sorrento Valley, Torrey Pines, and Golden Triangle areas.

Physical Description:

This projects provide for acquiring land for the new Mira Sorrento substation, construction of the new substation with an initial capacity of 60MVA and an ultimate capacity of 120MVA, and installation of six new circuits to offload Torrey Pines, Genesee, Mesa Rim, and Eastgate substations.
-Construction of a new 120MVA 69/12kV distribution substation (Mira Sorrento Substation).
-Loop in of the existing 69kV electrical transmission line (TL665) into the new Substation which will require installation of underground transmission facilities offsite of the substation site within franchise positions.
-12kV electrical distribution, telecomm fiber, and telephone duct package infrastructure.

Project Justification:

Genesee, Mesa Rim and Torrey Pines substations are built out to their maximum capacity of four transformer banks (120 MVA), and Eastgate Substation is built out to its maximum of two banks (60 MVA). The new Mira Sorrento substation is required to provide additional substation capacity in the area. Six new 12kV circuits are required to off-load existing surrounding substations and will eliminate high loads and will provide the necessary new capacity, and improve circuit and substation reliability.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	02252.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	3. MIRA SORRENTO 138/12KV SUB & C1442 T0 46
Workpaper Group:	022520 - Mira Sorrento 138/12KV Substation

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Mira Sorrento 138/12KV Substation is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects. This project is in construction and expected to be completed in 2014.

Non-Labor - Zero-Based

The forecast method used for Mira Sorrento 138/12KV Substation is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects. This project is in construction and expected to be completed in 2014.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 02252.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 3. MIRA SORRENTO 138/12KV SUB & C1442 T0 46
Workpaper Group: 022520 - Mira Sorrento 138/12KV Substation

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	816	0	0	0	0	0	816	0	0
Non-Labor	Zero-Based	11,402	0	0	0	0	0	11,402	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**12,218**	**0**	**0**	**0**	**0**	**0**	**12,218**	**0**	**0**
FTE	Zero-Based	8.2	0.0	0.0	0.0	0.0	0.0	8.2	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 02252.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 3. MIRA SORRENTO 138/12KV SUB & C1442 T0 46
Workpaper Group: 022520 - Mira Sorrento 138/12KV Substation

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	37	47	48	60	156
Non-Labor	70	178	179	665	764
NSE	0	0	0	0	0
Total	**107**	**225**	**226**	**725**	**920**
FTE	0.4	0.5	0.4	0.6	1.6
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	37	47	48	60	156
Non-Labor	70	178	179	665	764
NSE	0	0	0	0	0
Total	**107**	**225**	**226**	**725**	**920**
FTE	0.4	0.5	0.4	0.6	1.6
Vacation & Sick (Nominal $)					
Labor	6	7	7	9	25
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**6**	**7**	**7**	**9**	**25**
FTE	0.1	0.1	0.1	0.1	0.3
Escalation to 2013$					
Labor	6	6	3	2	0
Non-Labor	11	19	11	16	0
NSE	0	0	0	0	0
Total	**17**	**24**	**14**	**18**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	49	60	58	70	181
Non-Labor	80	197	189	681	764
NSE	0	0	0	0	0
Total	**129**	**256**	**247**	**752**	**945**
FTE	0.5	0.6	0.5	0.7	1.9

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 02252.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 3. MIRA SORRENTO 138/12KV SUB & C1442 T0 46
Workpaper Group: 022520 - Mira Sorrento 138/12KV Substation

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 022520

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	02252.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	3. MIRA SORRENTO 138/12KV SUB & C1442 T0 46
Workpaper Group:	022520 - Mira Sorrento 138/12KV Substation
Workpaper Detail:	022520.001 - CPUC Direct Costs - Mira Sorrento Sub
In-Service Date:	12/31/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	816	0	0
Non-Labor	11,402	0	0
NSE	0	0	0
Total	**12,218**	**0**	**0**
FTE	8.2	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 022520

2252 – Mira Sorrento 138/12kV Substation

2014 Cost Estimate Detail

	2014
Internal Labor	**732,961**
Underground Construction Contracts	6,046,510
Substation Construction Contracts	165,910
Substation Misc Services	138,401
Substation Transformers	2,328,378
Substation Disconnects	64,448
Substation Circuit Breakers	90,652
Substation Ground Banks	496,009
Substation Underground Cable	89,806
Substation Control Panels	168,199
Substation Misc Material & Equipment	1,641,518
Environmental/Regulatory Water Resources	64,658
Environmental/Regulatory Biological	39,542
Environmental/Regulatory Mitigation Funds	64,705
Land Surveys	66,364
IT/Telecommunications Optical Fiber Materials	237,630
Non-Labor Direct Costs	**11,702,730**
Total Direct Costs	**12,435,690**

COST ESTIMATE BY JURISDICTION

	2014
Internal Labor - CPUC	697,228
Internal Labor - General Plant	35,732
Total Internal Labor	**732,961**
Non Labor Direct Costs - CPUC	11,504,766
Non Labor Direct Costs - General Plant	197,964
Total Non-Labor	**11,702,730**
Total Direct Costs	**12,435,690**

CALCULATIONS

Grid Inputs (000's)	**2014**
CPUC - Labor + V&S	801
CPUC - Labor + V&S ($ 2013)	**782**
General Plant (85%) - Labor + V&S	35
General Plant (85%) - Labor + V&S ($ 2013)	**34**
Total Labor	835
Total Labor ($2013)	**816**
CPUC - Non Labor	11,505
CPUC - Non Labor ($ 2013)	**11,238**
General Plant (85%) - Non Labor	168
General Plant (85%) - Non Labor ($ 2013)	**164**
Total Non-labor	11,673
Total Non-labor ($ 2013)	**11,402**
Total Direct Costs ($ 2013)	**12,218**

FTE Calculation	**8.2**
V&S Factor	1.148
2014 De-escalation Factor	1.024

Notes/Assumptions:

- Approximately 85% of project general plant spend is CPUC related.
- FTE is based on an average salary of $100,000.

Beginning of Workpaper Group
022580 - Salt Creek Substation & New Circuits

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 02258.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 4. Salt Creek Substation
Workpaper Group: 022580 - Salt Creek Substation & New Circuits

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	83	148	109	91	459	164
Non-Labor	Zero-Based	0	0	6,536	438	375	917	4,606	1,652
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**6,619**	**586**	**484**	**1,008**	**5,065**	**1,816**
FTE	Zero-Based	0.0	0.0	0.9	1.6	1.2	0.9	4.6	1.6

Business Purpose:

The purpose is to build the new low-profile Salt Creek Substation in the Otay Ranch-Chula Vista Area. SDGE will install a 69/12kV substation with an ultimate capacity of 120MVA that provides future required capacity to the rapidly developing area and increase the substation /circuit reliability. The new Salt Creek Substation is required to serve the ultimate load for the area of 286MW. The project also includes installing a new five mile long 69kV tieline (TL6965) in the existing transmission corridor from the Salt Creek Substation to Miguel Substation and looping in an existing 69kV tieline (TL6910) to the Salt Creek substation.

Physical Description:

In 2011 SDGE purchased 11.6-acres of undeveloped land for the new low-profile substation in the Otay Ranch area of Chula Vista. The initial build-out of the Salt Creek Substation will entail two 30MVA transformer banks. Underground 12kV distribution circuits will be routed from the Salt Creek substation up to Hunte Parkway. A new five mile long overhead tieline (TL6965) will be installed connecting the Salt Creek Substation to Miguel Substation in the existing transmission corridor. TL6910 will be looped-in underground to the Salt Creek Substation requiring two new cable poles.

Project Justification:

- Meet Area Electric Capacity Needs: The Salt Creek Substation is needed to serve an ultimate forecasted load of 286MW. Southeastern Chula Vista is currently fed primarly from the existing Telegraph Canyon and Proctor Vally Substations, both of which currently exceed the optimum maximum loading of 85%.
- Meet NERC/WECC/CAISO Regulatory Requirements: These regulations require protections against Category B scenarios thus requiring more than two 69kV sources. Therefore both the new TL6965 and the looping in of TL6910 are necessary in order to provide three sources to the Salt Creek Substation.
- Provide Improved Substation and Circuit Reliability with Added Tie Capacity: Installation of a new substation would provide additional new substation transformer banks and circuits, and offer an increased number of circuit ties. Reliability improves with balanced circuit loading and more circuits to transfer load in the event of a circuit or branch outage.
- Reduce Area Substation Loading to Optimum Operating Conditions: The optimum maximum substation loading is 85%, which allows transformer bank load transfer in the event of a transformer bank outage. Optimum operating conditions improve substation reliability and reduce outage time.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	02258.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	4. Salt Creek Substation
Workpaper Group:	022580 - Salt Creek Substation & New Circuits

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Salt Creek Substation & New Circuits is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for Salt Creek Substation & New Circuits is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 02258.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 4. Salt Creek Substation
Workpaper Group: 022580 - Salt Creek Substation & New Circuits

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	91	459	164	0	0	0	91	459	164
Non-Labor	Zero-Based	917	4,606	1,652	0	0	0	917	4,606	1,652
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**1,008**	**5,065**	**1,816**	**0**	**0**	**0**	**1,008**	**5,065**	**1,816**
FTE	Zero-Based	0.9	4.6	1.6	0.0	0.0	0.0	0.9	4.6	1.6

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 02258.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 4. Salt Creek Substation
Workpaper Group: 022580 - Salt Creek Substation & New Circuits

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	68	126	94
Non-Labor	0	0	6,170	427	375
NSE	0	0	0	0	0
Total	**0**	**0**	**6,238**	**554**	**469**
FTE	0.0	0.0	0.8	1.4	1.0
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	68	126	94
Non-Labor	0	0	6,170	427	375
NSE	0	0	0	0	0
Total	**0**	**0**	**6,238**	**554**	**469**
FTE	0.0	0.0	0.8	1.4	1.0
Vacation & Sick (Nominal $)					
Labor	0	0	10	18	15
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**10**	**18**	**15**
FTE	0.0	0.0	0.1	0.2	0.2
Escalation to 2013$					
Labor	0	0	5	3	0
Non-Labor	0	0	366	10	0
NSE	0	0	0	0	0
Total	**0**	**0**	**371**	**14**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	83	148	109
Non-Labor	0	0	6,536	438	375
NSE	0	0	0	0	0
Total	**0**	**0**	**6,619**	**586**	**484**
FTE	0.0	0.0	0.9	1.6	1.2

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 02258.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 4. Salt Creek Substation
Workpaper Group: 022580 - Salt Creek Substation & New Circuits

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 022580

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	02258.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	4. Salt Creek Substation
Workpaper Group:	022580 - Salt Creek Substation & New Circuits
Workpaper Detail:	022580.001 - Salt Creek Substation
In-Service Date:	03/31/2016
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	91	459	164
Non-Labor	917	4,606	1,652
NSE	0	0	0
Total	**1,008**	**5,065**	**1,816**
FTE	0.9	4.6	1.6

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 022580

2258 – Salt Creek Substation & New Circuits

	2014	2015	2016
Engineering Design	305,008	205,186	-
Mobilize/Demo Eng	-	27,358	-
Damage and Restore Eng	-	-	66,918
Eng Survey and Potholing	65,359	109,433	6,692
EMF Mitiation	-	195,155	-
Engineering Eqpmt/Material	-	8,184	-
Contract Admin	-	68,931	21,717
Control Shelter	-	521,672	-
Sub Foundations, Pads, Ducts	108,390	264,816	-
Batttery Charger Install	-	-	108,014
Pull Control cable & Terminate	-	-	15,662
Pull Control cable & Terminate	-	12,607	7,831
Control Relay Panels	-	187,828	-
69/12kV Transformers (2)	-	1,043,343	1,633,168
12kV Capacitor Bank	-	347,781	-
Ground Grid	-	62,860	-
Station Equipment	-	62,943	-
12kV Switchgear	-	2,086,687	-
Other Substation Material	-	81,552	50,657
Cultural and Paleo Monitoring	-	471,206	193,272
SWPP Consultants	36,033	-	-
SWPPP Monitoring	-	142,790	50,968
Bio Monitoring	-	225,868	102,752
Habitat Restoration	-	-	24,465
MMCRP Plan	90,083	-	-
Env. Pre-con filing prep	450,413	-	-
Environmental Study	8,445	7,302	2,294
Env. Pre-construction Survey	172,958	-	-
AECOM Preconstruction PEA/PTC Support	35,390	-	-
Environment PM Consultant	-	189,002	78,450
CPUC Fees	36,033	233,656	73,394
Communication Devices and Fiber Optic	-	159,326	26,974
Public Affairs Outreach	2,130	1,854	1,168
Total Costs	**1,310,241**	**6,717,340**	**2,464,397**

Project Name	CPUC Budget Forecaset *(in $1,000's)*		
	2014	2015	2016
DISCOUNT RATES TO 2013 $'s	**1.024891936**	**1.046653749**	**1.07005515**
Salt Creek Substation	1,310	6,717	2,464
Salt Creek Substation Less Indirects (22%)	1,022	5,240	1,922
Salt Creek Substation Less Indirects (2013 $)	997	5,006	1,796
Salt Creek Substation Labor (8%)	80	400	144
Salt Creek Substation Labor + V&S	**91**	**459**	**164**
Salt Creek Substation Non-Labor	**917**	**4,606**	**1,652**
Salt Creek Substation Total Directs	**1,008**	**5,065**	**1,816**
FTE	**0.9**	**4.6**	**1.6**

Beginning of Workpaper Group
072450 - Telegraph Canyon- 138/12kV Bank & C1226

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07245.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 5. Telegraph Canyon-4th 138/12kV Bank & C1226
Workpaper Group: 072450 - Telegraph Canyon- 138/12kV Bank & C1226

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	15	122	3	1,484	0	0
Non-Labor	Zero-Based	0	0	784	37	0	1,596	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**799**	**160**	**4**	**3,080**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.2	1.3	0.0	14.8	0.0	0.0

Business Purpose:

The business purpose of this project is to avoid circuit and bus overloads on Telegraph Canyon Substation and circuits, which are forecasted for 2013. Increased capacity is required to handle 5MW combined normal and specific growth per year from the Eastern Urbanizing Center (EUC) from 2010-2025 located in the Otay Ranch, Chula Vista development area.

Physical Description:

In 2013, the 4th 30 MVA 138/12kV bank was installed with one quarter section switchgear and associated equipment, SCADA and 7200KVAR capacitor bank. New C1226 was deferred until 2014. The circuit installation is approximately 7 miles that will include, 1000KCMIL cable, 1.5 miles of trench, conduit and handholes. Install approx. 300 feet of 1000KCMIL Cu getaway. Install four (4) PME or Trayer switches.

Project Justification:

Increased capacity is required to handle 5MW combined normal growth and specific growth per year from the EUC from 2010-2025. Installation of new C1226 will eliminate the forecast overload in the EUC area and provide capacity. Load will be reconfigured on the Telegraph Canyon substation to balance load and add tie capacity.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	07245.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	5. Telegraph Canyon-4th 138/12kV Bank & C1226
Workpaper Group:	072450 - Telegraph Canyon- 138/12kV Bank & C1226

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Telegraph Canyon 138/12kV Bank & C1226 is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for Telegraph Canyon 138/12kV Bank & C1226 is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07245.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 5. Telegraph Canyon-4th 138/12kV Bank & C1226
Workpaper Group: 072450 - Telegraph Canyon- 138/12kV Bank & C1226

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	1,484	0	0	0	0	0	1,484	0	0
Non-Labor	Zero-Based	1,596	0	0	0	0	0	1,596	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**3,080**	**0**	**0**	**0**	**0**	**0**	**3,080**	**0**	**0**
FTE	Zero-Based	14.8	0.0	0.0	0.0	0.0	0.0	14.8	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07245.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 5. Telegraph Canyon-4th 138/12kV Bank & C1226
Workpaper Group: 072450 - Telegraph Canyon- 138/12kV Bank & C1226

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	13	104	3
Non-Labor	0	0	740	36	0
NSE	0	0	0	0	0
Total	**0**	**0**	**753**	**141**	**3**
FTE	0.0	0.0	0.2	1.1	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	13	104	3
Non-Labor	0	0	740	36	0
NSE	0	0	0	0	0
Total	**0**	**0**	**753**	**141**	**3**
FTE	0.0	0.0	0.2	1.1	0.0
Vacation & Sick (Nominal $)					
Labor	0	0	2	15	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**2**	**15**	**0**
FTE	0.0	0.0	0.0	0.2	0.0
Escalation to 2013$					
Labor	0	0	1	3	0
Non-Labor	0	0	44	1	0
NSE	0	0	0	0	0
Total	**0**	**0**	**45**	**4**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	15	122	3
Non-Labor	0	0	784	37	0
NSE	0	0	0	0	0
Total	**0**	**0**	**799**	**160**	**4**
FTE	0.0	0.0	0.2	1.3	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07245.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 5. Telegraph Canyon-4th 138/12kV Bank & C1226
Workpaper Group: 072450 - Telegraph Canyon- 138/12kV Bank & C1226

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 072450

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07245.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 5. Telegraph Canyon-4th 138/12kV Bank & C1226
Workpaper Group: 072450 - Telegraph Canyon- 138/12kV Bank & C1226
Workpaper Detail: 072450.001 - Telegraph Canyon Add 4th Bank & New C1226

In-Service Date: 06/30/2014
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,484	0	0
Non-Labor	1,596	0	0
NSE	0	0	0
Total	**3,080**	**0**	**0**
FTE	14.8	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 072450

7245 – Telegraph Canyon – 138/12kV Bank & C1226

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
1000 KCMIL AL Cable & Connections	Feet	36960	$1,746,360
1000 KCMIL CU Cable & Connections	Feet	300	$30,240
Retag/Cutover	Circuit	2	$11,550
Switch PME3 Manual	Each	2	$57,540
Switch Trayer 4-way w/SCADA Padmount	Each	2	$340,200
Trench Conduit 6-5" (Improved St) Include 3316 Handhole	Feet	890	$145,782
Trench Conduit 2-5" (Unimproved St) Include 3316 Handholes	Feet	7920	$748,440
Total			$3,080,112

Beginning of Workpaper Group
072490 - San Ysidro- New 12kv Circuit 1202

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07249.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 6. SAN YSIDRO-NEW 12KV CKT. 1202
Workpaper Group: 072490 - San Ysidro- New 12kv Circuit 1202

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	2	14	26	67	2	324	0	0
Non-Labor	Zero-Based	139	187	77	348	0	424	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**140**	**201**	**103**	**415**	**2**	**748**	**0**	**0**
FTE	Zero-Based	0.0	0.2	0.2	0.6	0.0	3.2	0.0	0.0

Business Purpose:

San Ysidro circuit C463 is at 97% loading in 2015 and C460 is at 106% loading with a 5,299 customer count and 2.9MW of tie deficiency. Installation of new San Ysidro circuit C1202 will eliminate the high loading issues, reduce customer count, and improve circuit reliability.

Physical Description:

Install 5,570ft of 1000kcmil, 1,500ft of trench/conduit, 4,200ft of OH reconductor, one Trayer switch, three switch reconfigurations, create one new circuit tie, and retag equipment. Transfer 343A and 1,297 customers from C460 to C1202 and 160A and 276 customers from C463 to C1202.

Project Justification:

San Ysidro C463 would be loaded at 97% in 2013 and a high customer count will exist on C460. The load growth is 0.6MW/year. A new circuit is required to meet the current and future capacity needs and to improve circuit reliability.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	07249.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	6. SAN YSIDRO-NEW 12KV CKT. 1202
Workpaper Group:	072490 - San Ysidro- New 12kv Circuit 1202

Forecast Methodology:

Labor - Zero-Based

The forecast method used for San Ysidro- New 12KV Circuit 1202 is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for San Ysidro- New 12KV Circuit 1202 is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07249.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 6. SAN YSIDRO-NEW 12KV CKT. 1202
Workpaper Group: 072490 - San Ysidro- New 12kv Circuit 1202

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	324	0	0	0	0	0	324	0	0
Non-Labor	Zero-Based	424	0	0	0	0	0	424	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**748**	**0**	**0**	**0**	**0**	**0**	**748**	**0**	**0**
FTE	Zero-Based	3.2	0.0	0.0	0.0	0.0	0.0	3.2	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07249.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 6. SAN YSIDRO-NEW 12KV CKT. 1202
Workpaper Group: 072490 - San Ysidro- New 12kv Circuit 1202

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	1	11	21	57	2
Non-Labor	120	169	73	58	-70
NSE	0	0	0	0	0
Total	**122**	**180**	**94**	**115**	**-68**
FTE	0.0	0.2	0.2	0.5	0.0
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	0	0	0	281	70
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**281**	**70**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	1	11	21	57	2
Non-Labor	120	169	73	340	0
NSE	0	0	0	0	0
Total	**122**	**180**	**94**	**397**	**2**
FTE	0.0	0.2	0.2	0.5	0.0
Vacation & Sick (Nominal $)					
Labor	0	2	3	8	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**2**	**3**	**8**	**0**
FTE	0.0	0.0	0.0	0.1	0.0
Escalation to 2013$					
Labor	0	1	1	2	0
Non-Labor	18	18	4	8	0
NSE	0	0	0	0	0
Total	**18**	**19**	**6**	**10**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	2	14	26	67	2
Non-Labor	139	187	77	348	0
NSE	0	0	0	0	0
Total	**140**	**201**	**103**	**415**	**2**
FTE	0.0	0.2	0.2	0.6	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07249.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 6. SAN YSIDRO-NEW 12KV CKT. 1202
Workpaper Group: 072490 - San Ysidro- New 12kv Circuit 1202

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	0	0	0	281	70
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**281**	**70**
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	0	281	0	281	0.0	EAMARE2013103015550
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	281	0	281	0.0	
2013	0	70	0	70	0.0	CBUTLER201402041009
Adjustment made to remove CIAC from historical costs.						
2013 Total	0	70	0	70	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 072490

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07249.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 6. SAN YSIDRO-NEW 12KV CKT. 1202
Workpaper Group: 072490 - San Ysidro- New 12kv Circuit 1202
Workpaper Detail: 072490.001 - San Yisidro New 12kV Circuit

In-Service Date: 05/31/2014
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	324	0	0
Non-Labor	424	0	0
NSE	0	0	0
Total	**748**	**0**	**0**
FTE	3.2	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 072490

7249 – San Ysidro - New 12kV Circuit 1202

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
1000 KCMIL CU Cable & Connections	Feet	**520**	$31,824.00
1000 KCMIL AL Cable & Connections	Feet	**5050**	$257,550.00
Switch Trayer 4-way Manual	Each	1	$62,220.00
Trench/Conduit 4-5" (Improved St) Include 3316 Handholes	Feet	1500	$153,000.00
OH Reconductor	Feet	4200	$214,200.00
Fuse Cutout	Each	3	$841.50
Retag/cutover	Circuit	3	$16,830.00
Fused Elbow	Each	1	$567.12
Retag	Each	10	$1,020.00
Energize Spare Circuit Breaker	Each	1	$10,200.00
Total			$748,253

Beginning of Workpaper Group
072530 - C1161 BD - New 12kV Circuit

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07253.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 7. C1161 BD - New 12kV circuit
Workpaper Group: 072530 - C1161 BD - New 12kV Circuit

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	18	87	0	570	0	0
Non-Labor	Zero-Based	23	13	75	88	2	745	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**23**	**12**	**93**	**175**	**2**	**1,315**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.2	0.8	0.0	5.7	0.0	0.0

Business Purpose:

The purpose of this project is to install a new circuit from Border (BD) substation to eliminate 101% loading on C533 in 2015, and it will provide capacity for the upcoming commercial development for future growth. Otay Mesa is a commercial area with a forecasted growth of 20 amps per year on C533. Circuit reliability will be improved with the addition of new circuit C1161. The load growth has been lowered in this revision but could very easily increase to 40 to 50 amps per year as new business growth returns.

Physical Description:

Install new 12kV C1161 from Border substation. Install 6,530’ of 1000 kcmil cable, 6,350’ of 4W-636 ACSR. Install one PME-10 SCADA switch, one PME-3 and one hook stick switch. Create two new circuit/bank ties; retag equipment, cutover load from C533 to C1161.

Project Justification:

BD C533 will be loaded at 101% in 2015. This is a rapidly growing commercial area with 0.4MW/yr normal growth on C533. The new circuit C1161 will provide capacity in the area for current and future new business customers and improve circuit reliability.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	07253.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	7. C1161 BD - New 12kV circuit
Workpaper Group:	072530 - C1161 BD - New 12kV Circuit

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C1161 BD - New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C1161 BD - New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07253.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 7. C1161 BD - New 12kV circuit
Workpaper Group: 072530 - C1161 BD - New 12kV Circuit

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	570	0	0	0	0	0	570	0	0
Non-Labor	Zero-Based	745	0	0	0	0	0	745	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**1,315**	**0**	**0**	**0**	**0**	**0**	**1,315**	**0**	**0**
FTE	Zero-Based	5.7	0.0	0.0	0.0	0.0	0.0	5.7	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07253.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 7. C1161 BD - New 12kV circuit
Workpaper Group: 072530 - C1161 BD - New 12kV Circuit

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	15	74	0
Non-Labor	20	11	-98	107	2
NSE	0	0	0	0	0
Total	**20**	**11**	**-83**	**182**	**2**
FTE	0.0	0.0	0.2	0.7	0.0
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	0	0	169	-22	0
NSE	0	0	0	0	0
Total	**0**	**0**	**169**	**-22**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	0	0	15	74	0
Non-Labor	20	11	71	86	2
NSE	0	0	0	0	0
Total	**20**	**11**	**86**	**160**	**2**
FTE	0.0	0.0	0.2	0.7	0.0
Vacation & Sick (Nominal $)					
Labor	0	0	2	11	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**2**	**11**	**0**
FTE	0.0	0.0	0.0	0.1	0.0
Escalation to 2013$					
Labor	0	0	1	2	0
Non-Labor	3	1	4	2	0
NSE	0	0	0	0	0
Total	**3**	**1**	**5**	**4**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	18	87	0
Non-Labor	23	13	75	88	2
NSE	0	0	0	0	0
Total	**23**	**12**	**93**	**175**	**2**
FTE	0.0	0.0	0.2	0.8	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07253.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 7. C1161 BD - New 12kV circuit
Workpaper Group: 072530 - C1161 BD - New 12kV Circuit

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	0	0	169	-22	0
NSE	0	0	0	0	0
Total	**0**	**0**	**169**	**-22**	**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	0	169	0	169	0.0	EAMARE2013103015574
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	169	0	169	0.0	
2012	0	-22	0	-22	0.0	EAMARE2013103015580
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	-22	0	-22	0.0	
2013 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 072530

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	07253.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	7. C1161 BD - New 12kV circuit
Workpaper Group:	072530 - C1161 BD - New 12kV Circuit
Workpaper Detail:	072530.001 - Substation 12kV Capacitor Upgrades
In-Service Date:	05/31/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	570	0	0
Non-Labor	745	0	0
NSE	0	0	0
Total	**1,315**	**0**	**0**
FTE	5.7	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 072530

7253 – C1161 BD – New 12kV Circuit

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
1000 KCMIL CU Cable & Connections	Feet	1000	$99,750
1000 KCMIL AL Cable & Connections	Feet	5350	$342,668
Switch PME 3 Manual	Each	1	$28,770
Switch PME10 w/SCADA	Each	1	$159,600
Hook Stick Switch	Feet	1	$504
Twin 4w636	Each	6350	$666,750
retag	Circuit	5	$525
Retag/Cutover	Each	1	$5,775
Energize Spare Circuit Breaker	Each	1	$10,500
Total			$1,314,842

Beginning of Workpaper Group
082530 - Substation 12kV Capacitor Upgrades

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08253.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 8. Substation 12kV Capacitor Upgrades
Workpaper Group: 082530 - Substation 12kV Capacitor Upgrades

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	15	345	190	259	98	866	866	866
Non-Labor	Zero-Based	760	1,588	3,504	3,328	1,306	2,088	2,088	2,088
NSE	Zero-Based	0	0	0	0	0	324	324	324
Total		**775**	**1,933**	**3,694**	**3,587**	**1,404**	**3,278**	**3,278**	**3,278**
FTE	Zero-Based	0.1	3.2	1.6	2.5	0.9	8.7	8.7	8.7

Business Purpose:

Improve load power factor at the substations, decrease loading of the distribution transformers to delay future bank additions, decrease loading of the transmission system to delay line and bulk power transformer upgrades, upgrade obsolete equipment, improve transmission voltage profile during heavy load conditions, and improve Customer power quality.

Physical Description:

Replace existing single-step capacitor banks at selected substations with banks of increased capacity and multiple steps. Add capacitor banks where the power factor is below minimum requirements. Add capacitor and reactor banks where the power factor is below minimum requirements.

Project Justification:

Grid Operations identified a reactive power deficiency of 245 MVAr based on the peak load in 2007. This deficiency is primarily due to the poor power factor at the distribution substations. Substation and distribution line capacitors out of service or operating improperly contributed to this situation. Adding new banks, replacing obsolete banks, and adding monitoring of substation banks can all contribute greatly to improving the electric system operation by:
• Improving the transmission voltage profile, delaying or eliminating the need for transmission capacitors.
• Greatly improving the Customer power quality by adding capacitors in 4-1800 kVAr steps in place of one 6000 kVAr step.
• Significantly decreasing the apparent power (MVA) loading of the distribution transformers, transmission lines, and bulk power transformers by improving the load power factor, which delays the need for system upgrades.

Reactive power flow from the 12 kV bus to the transmission system of over 10 MVAr was recorded at twelve substations. This significant reactive power flow into the transmission system is causing voltage regulation problems during light load conditions. Adding switched reactor banks can help correct the power factor at the substation. This equipment will help control the reactive power flow at the substation and reduce the transmission voltages under light load conditions.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	08253.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	8. Substation 12kV Capacitor Upgrades
Workpaper Group:	082530 - Substation 12kV Capacitor Upgrades

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Substation 12kV Capacitor Upgrades is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to ensure the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for Substation 12kV Capacitor Upgrades is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

The forecast method used for Substation 12kV Capacitor Upgrades is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08253.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 8. Substation 12kV Capacitor Upgrades
Workpaper Group: 082530 - Substation 12kV Capacitor Upgrades

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	866	866	866	0	0	0	866	866	866
Non-Labor	Zero-Based	2,088	2,088	2,088	0	0	0	2,088	2,088	2,088
NSE	Zero-Based	324	324	324	0	0	0	324	324	324
Total		**3,278**	**3,278**	**3,278**	**0**	**0**	**0**	**3,278**	**3,278**	**3,278**
FTE	Zero-Based	8.7	8.7	8.7	0.0	0.0	0.0	8.7	8.7	8.7

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08253.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 8. Substation 12kV Capacitor Upgrades
Workpaper Group: 082530 - Substation 12kV Capacitor Upgrades

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	12	269	157	221	85
Non-Labor	660	1,438	3,307	3,250	1,306
NSE	0	0	0	0	0
Total	**672**	**1,707**	**3,464**	**3,471**	**1,391**
FTE	0.1	2.7	1.4	2.2	0.8
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	12	269	157	221	85
Non-Labor	660	1,438	3,307	3,250	1,306
NSE	0	0	0	0	0
Total	**672**	**1,707**	**3,464**	**3,471**	**1,391**
FTE	0.1	2.7	1.4	2.2	0.8
Vacation & Sick (Nominal $)					
Labor	2	43	23	32	13
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**2**	**43**	**23**	**32**	**13**
FTE	0.0	0.5	0.2	0.3	0.1
Escalation to 2013$					
Labor	2	33	11	6	0
Non-Labor	99	151	196	78	0
NSE	0	0	0	0	0
Total	**101**	**183**	**207**	**84**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	15	345	190	259	98
Non-Labor	760	1,588	3,504	3,328	1,306
NSE	0	0	0	0	0
Total	**775**	**1,933**	**3,694**	**3,587**	**1,404**
FTE	0.1	3.2	1.6	2.5	0.9

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08253.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 8. Substation 12kV Capacitor Upgrades
Workpaper Group: 082530 - Substation 12kV Capacitor Upgrades

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 082530

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	08253.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	8. Substation 12kV Capacitor Upgrades
Workpaper Group:	082530 - Substation 12kV Capacitor Upgrades
Workpaper Detail:	082530.001 - Substation 12kV Capacitor Upgrades
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	866	866	866
Non-Labor	2,088	2,088	2,088
NSE	324	324	324
Total	**3,278**	**3,278**	**3,278**
FTE	8.7	8.7	8.7

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 082530

8253 – Substation 12kV Capacitor Upgrades

Item No	Description	Labor (Engr, Contract, labor)	Material (Material, Purchasing & Wharehousing, Equipment Costs)	Total
1	REMOVALS	$ 5,200	$ -	$ 5,200
2	BELOW-GRADE CONSTRUCTION	$ 9,000	$ 20,000	$ 29,000
3	POWER CABLE	$ 8,200	$ 19,500	$ 27,700
4	PULL CONTROL CABLE & TERMINATE	$ 8,500	$ 19,500	$ 28,000
5	CAPACITOR	$ 8,200	$ 162,000	$ 170,200
6	EQUIPMENT & RELAY TESTING	$ 6,370	$ -	$ 6,370
7	ENGINEERING	$ 23,000	$ -	$ 23,000
SUBTOTAL		$ 68,470	$ 221,000	$ 289,470

*Costs shown are average of one capacitor installation - budget proposed 11 capacitor installations per year = approximately $3,190,000

Notes:

1. All costs are approximate and based on preliminary engineering. Final costs & contigency will be determined upon approved final project scope
2. Costs do not include operation and maintenance annual costs.

Beginning of Workpaper Group
08259A - C917, CC: New 12kV Circuit

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08259.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 9. C917, CC: New 12kV Circuit
Workpaper Group: 08259A - C917, CC: New 12kV Circuit

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	635	0	0
Non-Labor	Zero-Based	0	0	0	0	0	815	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**1,450**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	6.4	0.0	0.0

Business Purpose:

The purpose of this project is to eliminate a projected 1% overload on circuit 910 and to reduce 83% heavily loaded C912 in 2015, at Chicarita (CC). The new circuit will provided necessary circuit tie capacity to both circuits 910 and 912, thus strengthening service reliability to the 7,309 customers served by these circuits.

Physical Description:

Install 200 feet of trench and conduit, 9,900’ of 1000 kcmil cable. Replace 2,200’ of 350 kcmil cable with 1000 kcmil cable. Install 1,250’ of 2/0 cable and one PME-9 switch. Cutover and re-tag.

Project Justification:

This project is required to eliminate a projected 1% overload on circuit 910 in 2015.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	08259.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	9. C917, CC: New 12kV Circuit
Workpaper Group:	08259A - C917, CC: New 12kV Circuit

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C917, CC: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C917, CC: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 08259A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	08259.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	9. C917, CC: New 12kV Circuit
Workpaper Group:	08259A - C917, CC: New 12kV Circuit
Workpaper Detail:	08259A.001 - C917 CC: New 12kV Circuit
In-Service Date:	06/30/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	635	0	0
Non-Labor	815	0	0
NSE	0	0	0
Total	**1,450**	**0**	**0**
FTE	6.4	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 08259A

8259 – C917, CC: New 12kV Circuit

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
1000 KCMIL AL Cable & Connections	Feet	12100	$1,164,020
Switch PME9 Manual	Each	1	$120,900
Franchise Trench - Distribution	Feet	200	$26,000
2/0 Cable & Connections	Feet	1250	$45,500
Retag/cutover	Circuit	4	$28,600
12kV Circuit Breaker Open Rack	Each	1	$65,000
Total			$1,450,020

Beginning of Workpaper Group
09271A - C1259, MAR: New 12kV Circuit

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09271.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 10. C1259, MAR: New 12kV Circuit
Workpaper Group: 09271A - C1259, MAR: New 12kV Circuit

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	416	0
Non-Labor	Zero-Based	0	0	0	0	0	0	545	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**961**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0

Business Purpose:

The purpose of this project is to provide additional capacity, based on comprehensive distribution system modeling, at Margarita (MAR). Alternatives have been and are being evaluated, but currently this is the preferred project to ensure SDG&E can provide safe and reliable service.

Physical Description:

This project is currently in the planning/engineering phase, so the detailed scope of work has not been finalized.

Project Justification:

Distribution Planning continuously runs system models and performs load flow analysis based on existing and forecasted system loads. When overload are forecasted, they look at alternatives to prevent future overloads. The proposed project and evaluated alternatives are eventually presented to the Technical Review Committee, and the Capital T&D Budget Committee to get final approval. This project was identified as the proposed project by the Distribution Planning group.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	09271.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	10. C1259, MAR: New 12kV Circuit
Workpaper Group:	09271A - C1259, MAR: New 12kV Circuit

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C1259, MAR: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C1259, MAR: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 09271A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	09271.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	10. C1259, MAR: New 12kV Circuit
Workpaper Group:	09271A - C1259, MAR: New 12kV Circuit
Workpaper Detail:	09271A.001 - C1259 MAR: New 12kV Circuit
In-Service Date:	05/31/2015
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	416	0
Non-Labor	0	545	0
NSE	0	0	0
Total	**0**	**961**	**0**
FTE	0.0	4.2	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 09271A

9271 – C1259, MAR: New 12kV Circuit

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
1000 KCMIL CU Cable & Connections	Feet	400	$44,160
1000 KCMIL AL Cable & Connections	Feet	8420	$580,980
Trench Conduit 4-5" (Improved St) Include 3316 Handholes	Feet	400	$92,000
Switch Trayer 4-Way w/SCADA Padmount	Each	1	$186,300
Retag/cutover	Circuit	5	$31,625
Trench Conduit 2-5" (Improved St) Include 3316 Handholes	Feet	60	$10,350
Miscellaneous UG Electric	Each	1	$4,048
Energize Spare Circuit Breaker	Each	1	$11,500
Total			$960,963

Beginning of Workpaper Group
092740 - C1282 LC - New Circuit

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09274.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 11. C1282 LC - New circuit
Workpaper Group: 092740 - C1282 LC - New Circuit

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	1	2	0	1,745	0	0
Non-Labor	Zero-Based	0	0	0	0	4	2,286	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**1**	**2**	**4**	**4,031**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	17.4	0.0	0.0

Business Purpose:

This project is required to eliminate a 8% overload in 2016 on Los Coches (LC) C241 and C242.

Physical Description:

The installation of the new circuit will follow the routes of C241 and C242. Install a new 3326 manhole near the west end of the Sub, trench and install 3,450' of 6-5" conduit and install 12,930' of 1000 Kcmil underground cable, install a new SCADA PME-10, a new SCADA SR, reconfigure 4 switches, reconfigure 9 branches from C241 and C242 to new C1282, and cutover 139 amps from C241 and 148 amps from C242 to new C1282.

Project Justification:

Los Coches C241 is forecast to be at 8% overloaded in 2016. New LC C1282 will eliminate the overload.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	09274.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	11. C1282 LC - New circuit
Workpaper Group:	092740 - C1282 LC - New Circuit

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C1282 LC - New Circuit is zero-based. The forecast is based on detailed engineering cost estimates that are developed based on the specific scope of work for the project. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C1282 LC - New circuit is zero-based. The forecast is based on detailed engineering cost estimates that are developed based on the specific scope of work for the project. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09274.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 11. C1282 LC - New circuit
Workpaper Group: 092740 - C1282 LC - New Circuit

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	1,745	0	0	0	0	0	1,745	0	0
Non-Labor	Zero-Based	2,286	0	0	0	0	0	2,286	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**4,031**	**0**	**0**	**0**	**0**	**0**	**4,031**	**0**	**0**
FTE	Zero-Based	17.4	0.0	0.0	0.0	0.0	0.0	17.4	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09274.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 11. C1282 LC - New circuit
Workpaper Group: 092740 - C1282 LC - New Circuit

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	1	2	0
Non-Labor	0	0	0	0	4
NSE	0	0	0	0	0
Total	**0**	**0**	**1**	**2**	**4**
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	1	2	0
Non-Labor	0	0	0	0	4
NSE	0	0	0	0	0
Total	**0**	**0**	**1**	**2**	**4**
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	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 (Constant 2013$)					
Labor	0	0	1	2	0
Non-Labor	0	0	0	0	4
NSE	0	0	0	0	0
Total	**0**	**0**	**1**	**2**	**4**
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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09274.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 11. C1282 LC - New circuit
Workpaper Group: 092740 - C1282 LC - New Circuit

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 092740

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09274.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 11. C1282 LC - New circuit
Workpaper Group: 092740 - C1282 LC - New Circuit
Workpaper Detail: 092740.001 - LC: New 12kV Circuit

In-Service Date: 08/31/2014
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,745	0	0
Non-Labor	2,286	0	0
NSE	0	0	0
Total	**4,031**	**0**	**0**
FTE	17.4	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 092740

9274 – C1282 LC – New Circuit

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
3326 Manhole	Each	1	$143,000
Trench Conduit 6-5" (Improved St) Include 3316 Handholes	Feet	3450	$1,345,500
1000 KCMIL AL Cable & Connections	Feet	12710	$1,354,886
Retag/cutover	Circuit	4	$28,600
1000 KCMIL CU Cable & Connections	Feet	220	$27,456
Switch PME10 w/SCADA	Each	1	$197,600
Trench Conduit 4-5" (Improved St) Include 3316 Handholes	Feet	1800	$702,000
Trench Conduit 2-5" (Improved St) Include 3316 Handholes	Feet	200	$65,260
Service Restorer w/SCADA	Each	1	$101,400
12kV Circuit Breaker Open Rack	Each	1	$65,000
Total			$4,030,702

Beginning of Workpaper Group
092760 - Poseidon - Cannon substation Modification

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09276.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 12. Poseidon - Cannon substation Modification
Workpaper Group: 092760 - Poseidon - Cannon substation Modification

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	3	0	0	179	781	73	0
Non-Labor	Zero-Based	0	0	0	0	777	8,621	735	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**3**	**0**	**0**	**956**	**9,402**	**808**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	1.8	7.8	0.7	0.0

Business Purpose:

Poseidon Resources is developing and constructing a seawater desalination plant ("Plant") located at the Encina Power Generation Station in Carlsbad. Poseidon has requested from SDG&E electric service to the Plant's normal and standby operation. Projected average and peak demands of the Plant's load are respectively 31.5 MW and 38 MW.
This project is required to serve the Plant's new load addition. The project will modify Cannon substation for an additional 56 MVA, and install four (4) 12kV primary circuits from Cannon substation to the Plant, and four (4) service meters at the Plant's east side.
Poseidon has signed a Special Conditions Contract ("Contract") for the electric service because this is an exceptional case. The Contract will require Poseidon to pay up front the CPUC components of the estimated installed cost. The Contract also has provisions for allowances to refund a portion of the actual cost paid by Poseidon. The estimated installed cost of the project is $24,864K, Poseidon will pay up front $12,680K for the estimated installed cost of the CPUC components and SDG&E will fund the $10,604K for the FERC components of the estimated installed cost. Reconciliation of actual costs with Poseidon will occur after construction of the extension facilities.

Physical Description:

Modify Cannon substation for an additional 56 MVA. The FERC components of the modification include (1) install a 138kV bus to expand the substation to an arrangement of 4 banks, (2) install nine 138kV, 3000A breakers, (3) install fourteen 138kV, 3000A disconnects, (4) install 138kV PT. (5) finish grade an area approximately 150 ft south of the existing fence, (6) install chain link fence for enclosing the finish graded area and (7) install a block control house for relay and control panels, AC&DC systems, and SCADA equipment. The CPUC components of the modification include (1) Install two and relocate two 138/12kV, 28MVA transformers, (4) install four sections of 12kV, 2000A bus metal clad, walk in switchgear, (5) install four 12kV, 7.2MVAR, 4 step metal enclosed capacitor banks, Installing four new 12kV circuits from Cannon substation to the Plant are all CPUC components. The scope of the installation includes approximately 3,200 feet of twelve (12) 6" conduits from the south side of Cannon substation to the east end of the utility tunnel running underneath the railroad tracks, 5,800 ft of twin runs, 3 phase 1000kcmil copper cable per circuit, 1,000 ft of trench and four 3 6" conduit packages, 1,000 ft of 3 phase, twin runs of 1,000kcmil copper cable per circuit, four (4) 1200kVAR capacitor stations and four (4) service meters.

Project Justification:

This project is included in the 2014 - 2018 FERC Base 5 Year Plan. The modifications to the Cannon Substation and the four 12kV distribution lines under the project scope come as the result of the execution of a Special Conditions Contract between SDG&E and Poseidon. Under the Special Conditions Contract, SDG&E is required to serve energy needs of Poseidon's seawater desalination plant by December 2014.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	09276.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	12. Poseidon - Cannon substation Modification
Workpaper Group:	092760 - Poseidon - Cannon substation Modification

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Poseidon - Cannon substation Modification is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects. This project is in construction and scheduled to be completed by the end of 2014, with some trailing costs in 2015.

Non-Labor - Zero-Based

The forecast method used for Poseidon - Cannon substation Modification is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects. This project is in construction and scheduled to be completed by the end of 2014, with some trailing costs in 2015.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09276.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 12. Poseidon - Cannon substation Modification
Workpaper Group: 092760 - Poseidon - Cannon substation Modification

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	781	73	0	0	0	0	781	73	0
Non-Labor	Zero-Based	8,621	735	0	0	0	0	8,621	735	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**9,402**	**808**	**0**	**0**	**0**	**0**	**9,402**	**808**	**0**
FTE	Zero-Based	7.8	0.7	0.0	0.0	0.0	0.0	7.8	0.7	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09276.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 12. Poseidon - Cannon substation Modification
Workpaper Group: 092760 - Poseidon - Cannon substation Modification

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	2	0	0	154
Non-Labor	0	0	0	0	777
NSE	0	0	0	0	0
Total	**0**	**2**	**0**	**0**	**931**
FTE	0.0	0.0	0.0	0.0	1.5
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	2	0	0	154
Non-Labor	0	0	0	0	777
NSE	0	0	0	0	0
Total	**0**	**2**	**0**	**0**	**931**
FTE	0.0	0.0	0.0	0.0	1.5
Vacation & Sick (Nominal $)					
Labor	0	0	0	0	24
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**24**
FTE	0.0	0.0	0.0	0.0	0.3
Escalation to 2013$					
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
Recorded-Adjusted (Constant 2013$)					
Labor	0	3	0	0	179
Non-Labor	0	0	0	0	777
NSE	0	0	0	0	0
Total	**0**	**3**	**0**	**0**	**956**
FTE	0.0	0.0	0.0	0.0	1.8

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09276.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 12. Poseidon - Cannon substation Modification
Workpaper Group: 092760 - Poseidon - Cannon substation Modification

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 092760

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09276.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 12. Poseidon - Cannon substation Modification
Workpaper Group: 092760 - Poseidon - Cannon substation Modification
Workpaper Detail: 092760.001 - Poseidon

In-Service Date: 01/31/2015
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	781	73	0
Non-Labor	8,621	735	0
NSE	0	0	0
Total	**9,402**	**808**	**0**
FTE	7.8	0.7	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 092760

9276 – Poseidon – Cannon Substation Modification

	2014	2015	2016
Project Management Employee Expense	4,891	468	-
Project Management Misc Services	56,698	5,427	-
Engineering Employee Expense	40,682	3,894	-
Engineering Design	144,025	13,785	-
Engineering Support	48,986	4,689	-
Engineering Misc Services	(37,564)	(3,595)	-
Overhead Misc Material & Equipment	151,710	14,521	-
Underground Cable & Accessories	3,350,715	320,711	-
Underground Misc Material & Equipment	703	67	-
Substation Employee Expense	3,434	329	-
Substation Misc Services	552	53	-
Substation Transformers	1,479,790	141,637	-
Substation Shunt Capacitor Banks	627,418	60,053	-
Substation Stock Materials	6,716	643	-
Substation Misc Material & Equipment	5,277,101	505,094	-
Safety Security	1,732	166	-
Environmental/Regulatory Cultural & Paleontological	(40,023)	(3,831)	-
Environmental/Regulatory Water Resources	69,830	6,684	-
IT/Telecommunications Misc Materials & Equipment	12,602	1,206	-
Total Costs	**11,200,000**	**1,072,000**	**-**

	CPUC Budget Forecaset *(in $1,000's)*		
Project Name	**2014**	**2015**	**2016**
DISCOUNT RATES	**1.024891936**	**1.04665375**	**1.07005515**
Poseidon	11,200	1,072	-
Poseidon Less Indirects (22%)	8,736	836	-
Poseidon Less Indirects (2013 $)	8,524	799	-
Poseidon Labor (8%) (2013 $)	682	64	-
Poseidon Labor + V&S (2013 $)	**781**	**73**	**-**
Poseidon Non-Labor (92%) (2013 $)	**7,842**	**735**	**-**
Poseidon Total Directs (2013 $)	**8,623**	**808**	**-**
Non-Labor Adjustment to Account for Project Management Construction Support	798	-	-
Non-Labor Adjustment to Account for Project Management Construction Support (2013 $)	779	-	-
Adjusted Poseidon Non-Labor (2013 $)	**8,621**	**735**	
Poseidon Total Directs (2013 $)	**9,402**	**808**	**-**
FTE	**7.8**	**0.7**	

Beginning of Workpaper Group
10266A - C350, LI: Reconductor & Voltage Regulation

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 10266.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 13. C350, LI: Reconductor, Install Reg, RFS Cap
Workpaper Group: 10266A - C350, LI: Reconductor & Voltage Regulation

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	404	0	0
Non-Labor	Zero-Based	0	0	0	0	0	529	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**933**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0

Business Purpose:

The purpose of this project is to relieve 102% loading on existing #4 cu wire and replace with 636 ACSR to provide more capacity and reduce voltage drop at Lilac (LI). Adding regulators will boost end-of-line voltage. A capacitor will no longer be needed and will be removed after voltage regulators are installed.

Physical Description:

Replace 5,200 feet of #4 cu wire with 636 ACSR. Install two sets of regulators. Remove a capacitor. Install fault indicators.

Project Justification:

The #4 cu wire is loaded at 102% during summer peak load and end-of-line voltage falls below 115 volts. The project replaces the #4 wire with 636 ACSR to relieve the overload and reduce voltage drop. The regulators provide voltage support and allow a capacitor to be removed. New customer load scheduled for spring 2015 cannot be served without the upgrade.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10266.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	13. C350, LI: Reconductor, Install Reg, RFS Cap
Workpaper Group:	10266A - C350, LI: Reconductor & Voltage Regulation

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C350, LI: Reconductor & Voltage Regulation is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C350, LI: Reconductor & Voltage Regulation is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 10266A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10266.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	13. C350, LI: Reconductor, Install Reg, RFS Cap
Workpaper Group:	10266A - C350, LI: Reconductor & Voltage Regulation
Workpaper Detail:	10266A.001 - C350 LI: Reconductor Install Reg RFS Cap
In-Service Date:	05/31/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	404	0	0
Non-Labor	529	0	0
NSE	0	0	0
Total	**933**	**0**	**0**
FTE	4.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 10266A

10266 – C350, LI: Reconductor & Voltage Regulation

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
RFS OH Capacitor	Each	1	$4,485
Regulators (3-200A)	Each	2	$89,700
OH Reconductor	Feet	5200	$490,360
Fault Indicator OH	Each	1	$759
BMP (Environmental) Implementation Labor	Each	1	$336,375
Fire Standby Crew	Hrs	40	$11,730
Total			$933,409

Beginning of Workpaper Group
10270A - C1049, CSW: New 12kV Circuit

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 10270.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 14. C1049, CSW: New 12kV Circuit
Workpaper Group: 10270A - C1049, CSW: New 12kV Circuit

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	1,085	0	0
Non-Labor	Zero-Based	0	0	0	0	0	1,421	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**2,506**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	10.9	0.0	0.0

Business Purpose:

This project is required to eliminate a 7% over load on Streamview BK3031 and a 97% high load on Chollas West (CSW) C165 in 2014. Streamview Substation and CSW C165 both serve a mixture of 2,192 commercial and 25,627 residential customers. This project will benefit Chollas West and Streamview substations.

Physical Description:

The installation of the new circuit 1049 will follow the routes of circuits 165, 168 & 167. Install a new 4-way SCADA Trayer switch & a 4-way manual Trayer switch. Reconfigure one existing 5-way SCADA Trayer switch & three existing 4-way manual switches. Trench 3,350' of 4-5" conduit from H102599 to H2117075165 along College Ave. Install 300' of 1000 kcmil copper cable in existing getaway from the circuit breaker to M121104, install 13,785' of 1000 kcmil UG cable from M121104 to the new installed 3-way manual Vista switch. Transfer 187amps from SR C167, 105 amps from SR C168 & 143 amps from CSW C165 to new CSW C1049.

Set up the new circuit breaker for the new circuit 1049.

Project Justification:

Steamview BK3031 is projected 7% over load, and Chollas West C165 is projected 97% high load in 2014. Since there aren't any available banks/circuits, it is necessary to install new C1049 to eliminate the high load issues.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10270.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	14. C1049, CSW: New 12kV Circuit
Workpaper Group:	10270A - C1049, CSW: New 12kV Circuit

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C1049, CSW: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C1049, CSW: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 10270A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 10270.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 14. C1049, CSW: New 12kV Circuit
Workpaper Group: 10270A - C1049, CSW: New 12kV Circuit
Workpaper Detail: 10270A.001 - C1049 CSW: New 12kV Circuit

In-Service Date: 08/31/2014
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,085	0	0
Non-Labor	1,421	0	0
NSE	0	0	0
Total	**2,506**	**0**	**0**
FTE	10.9	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 10270A

10270 – C1049, CSW: New 12kV Circuit

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
1000 KCMIL CU Cable & Connections	Feet	300	$37,440
1000 KCMIL AL Cable & Connections	Feet	13785	$1,039,389
Trench Conduit 4-5" (Improved Street) Include 3316 Handholes	Each	3350	$871,000
Retag/cutover	Circuit	4	$28,600
Switch Trayer 4-way w/SCADA Padmount	Each	2	$421,200
Fault Indicator 3ph 1000 Amps	Each	6	$17,160
Switch Vista 330 Manual	Each	1	$78,650
Energize Spare Circuit Breaker	Each	1	$13,000
Total			$2,506,439

Beginning of Workpaper Group
10272A - Middletown 4kV Substation RFS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 10272.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 15. Middletown 4kV Sub RFS
Workpaper Group: 10272A - Middletown 4kV Substation RFS

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	317	0	0
Non-Labor	Zero-Based	0	0	0	0	0	417	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**734**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0

Business Purpose:

The purpose of this project is to remove from service (RFS) the aging 4 kV substation equipment and replace it with pad-mounted step-down transformers and a switch. Middletown Substation equipment is over 50 years old. The substation equipment such as transformers, breakers, and relays are obsolete and replacement parts are no longer available. Maintenance costs are high and continue to increase, compounded with a lack of personnel who possess the experience and knowledge to operate and maintain the equipment. The substation is a reliability risk for customers, because of the probability of equipment failure and lack of replacement parts available. In addition to the equipment related concerns, a sinkhole has developed at the substation site. SDG&E has mitigated the sinkhole with geotechnical stabilization techniques, but those remedies are merely stop-gap measures. The most effective way to mitigate all of the reliability concerns is to replace the substation with pad-mounted step-down transformers, and ancillary equipment.

Physical Description:

Install two 2,500 kVA 12/4 kV step-down transformers, one 4 -way SCADA Trayer switch, cutover feed from the substation equipment to the step-down transformers, and remove de-energized old substation equipment.

Project Justification:

Middletown substation equipment is over 50 years old. Substation equipment such as transformers, breakers, and relays are obsolete. Replacement parts are no longer available. Operation of the substation is a safety issue due to a lack of personnel familiar with the design and operation of a 50+ year old substation, and training that is no longer available.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10272.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	15. Middletown 4kV Sub RFS
Workpaper Group:	10272A - Middletown 4kV Substation RFS

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Middletown 4kV Substation RFS is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for Middletown 4kV Substation RFS is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 10272A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10272.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	15. Middletown 4kV Sub RFS
Workpaper Group:	10272A - Middletown 4kV Substation RFS
Workpaper Detail:	10272A.001 - Middletown 4kV Sub RFS
In-Service Date:	05/31/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	317	0	0
Non-Labor	417	0	0
NSE	0	0	0
Total	**734**	**0**	**0**
FTE	3.2	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 10272A

10272 – Middletown 4kV Sub RFS

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
OH Reconductor	Feet	470	$48,730
Switch Gang Operated	Each	1	$11,904
Trayer Switch 4-way w/SCADA Padmount	Each	1	$207,360
UG transmission	Feet	105	$201,600
OH Monetary	Each	1	$1,280
Retag/cutover	Circuit	1	$7,040
RFS 4kV Substation	Each	1	$256,000
Total			$733,914

Beginning of Workpaper Group
11244A - C928, POM: New 12kV Circuit

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11244.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 16. C928, POM: New 12kV Circuit
Workpaper Group: 11244A - C928, POM: New 12kV Circuit

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	318	0	0
Non-Labor	Zero-Based	0	0	0	0	0	416	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**734**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0

Business Purpose:

A new 12kV circuit will be built at Pomerado (POM). This project will offload Chicarita circuit 916 which is forecast at 99% overloading in 2015 and offload Scripps substation bus 3132 which is forecast at 93% loading in 2015. The offload will result in 80% loading on C916 and 82% loading on Scripps bus 3132.

Physical Description:

Install 2 cable poles, 2 gang switches, 1 Vista 330 switch, upgrade 2 existing manual PME 10 switches to SCADA, offload part of C728, Scripps; part of C916, Chicarita; part of C920, Pomerado and re-gat all as new circuit 928.

Project Justification:

This project is required to reduce the forecast 99% overloading on C916 and the 93% loading on Scripps bus 3132. It also improves SCADA ties among circuits and improves reliability as a result.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11244.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	16. C928, POM: New 12kV Circuit
Workpaper Group:	11244A - C928, POM: New 12kV Circuit

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C928, POM: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C928, POM: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 11244A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11244.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 16. C928, POM: New 12kV Circuit
Workpaper Group: 11244A - C928, POM: New 12kV Circuit
Workpaper Detail: 11244A.001 - C928 POM: New 12kV Circuit

In-Service Date: 06/30/2014
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	318	0	0
Non-Labor	416	0	0
NSE	0	0	0
Total	**734**	**0**	**0**
FTE	3.2	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 11244A

11244 – C928, POM: New 12kV Circuit

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
1000 KCMIL CU Cable & Connections	Feet	100	$12,480
Franchise Cable Pole	Each	2	$23,010
Switch Gang Operated	Each	2	$24,180
Trench Conduit 2-5" (Un-improved St) Include 3316 Handholes	Feet	300	$78,000
1000 KCMIL AL Cable & Connections	Feet	480	$37,440
Switch Vista 330 Manual	Each	1	$78,650
Switch PME10 w/SCADA	Each	2	$395,200
Capacitor Padmount (Intercept conduit) 1200 kVAR	Each	1	$57,200
Retag/Cutover	Circuit	2	$14,300
Energize Spare Circuit Breaker	Each	1	$13,000
Total			$733,460

Beginning of Workpaper Group
112570 - Camp Pendleton 12kV Service

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11257.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 17. CAMP PENDLETON 12KV SERVICE
Workpaper Group: 112570 - Camp Pendleton 12kV Service

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	180	870	56	0	0
Non-Labor	Zero-Based	0	0	0	2,670	2,309	556	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**2,851**	**3,179**	**612**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	2.0	8.2	0.6	0.0	0.0

Business Purpose:

This project will construct a new 69/12kV, 75 MVA, substation at Camp Pendleton in order to provide 12kV service to the military base.

Physical Description:

This project will construct a new 69/12kV, 75 MVA, substation northeast of the existing Camp Pendleton substation, in order to provide 12kV service to the Marine Corps Camp Pendleton at three different locations: Camp Pendleton, Las Pulgas, and the new Basilone substation at the northwest corner of the territory.

Project Justification:

This capital project relates to the Camp Pendleton military base requiring additional capacity to meet their operational needs. There is no alternative solution to this project.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11257.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	17. CAMP PENDLETON 12KV SERVICE
Workpaper Group:	112570 - Camp Pendleton 12kV Service

Forecast Methodology:

Labor - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. The forecast for 2014 covers the estimated work remaining for this project.

Non-Labor - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. The forecast for 2014 covers the estimated work remaining for this project.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11257.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 17. CAMP PENDLETON 12KV SERVICE
Workpaper Group: 112570 - Camp Pendleton 12kV Service

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	56	0	0	0	0	0	56	0	0
Non-Labor	Zero-Based	556	0	0	0	0	0	556	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**612**	**0**	**0**	**0**	**0**	**0**	**612**	**0**	**0**
FTE	Zero-Based	0.6	0.0	0.0	0.0	0.0	0.0	0.6	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11257.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 17. CAMP PENDLETON 12KV SERVICE
Workpaper Group: 112570 - Camp Pendleton 12kV Service

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	154	758
Non-Labor	0	0	0	2,611	2,326
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**2,765**	**3,084**
FTE	0.0	0.0	0.0	1.7	7.1
Adjustments (Nominal $) **					
Labor	0	0	0	0	-7
Non-Labor	0	0	0	-3	-17
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**-3**	**-24**
FTE	0.0	0.0	0.0	0.0	-0.1
Recorded-Adjusted (Nominal $)					
Labor	0	0	0	154	751
Non-Labor	0	0	0	2,608	2,309
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**2,762**	**3,060**
FTE	0.0	0.0	0.0	1.7	7.0
Vacation & Sick (Nominal $)					
Labor	0	0	0	22	119
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**22**	**119**
FTE	0.0	0.0	0.0	0.3	1.2
Escalation to 2013$					
Labor	0	0	0	4	0
Non-Labor	0	0	0	62	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**66**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	0	180	870
Non-Labor	0	0	0	2,670	2,309
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**2,851**	**3,179**
FTE	0.0	0.0	0.0	2.0	8.2

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11257.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 17. CAMP PENDLETON 12KV SERVICE
Workpaper Group: 112570 - Camp Pendleton 12kV Service

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	-7
Non-Labor	0	0	0	-3	-17
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**-3**	**-24**
FTE	0.0	0.0	0.0	0.0	-0.1

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	0	-3	0	-3	0.0	CPWITT20140213153833
Adjustment made to exclude 15% of General Plant.						
2012 Total	0	-3	0	-3	0.0	
2013	-7	-17	0	-24	-0.1	CPWITT20140212164659
Adjustment made to exclude 15% of General Plant.						
2013 Total	-7	-17	0	-24	-0.1	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 112570

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11257.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 17. CAMP PENDLETON 12KV SERVICE
Workpaper Group: 112570 - Camp Pendleton 12kV Service
Workpaper Detail: 112570.001 - Camp Pendleton 12 KV service

In-Service Date: 03/31/2014
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	56	0	0
Non-Labor	556	0	0
NSE	0	0	0
Total	**612**	**0**	**0**
FTE	0.6	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 112570

11257 – Camp Pendleton 12kV Service

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
Trench/Conduit 8-5" (Un-improved St) Include 3316 Handole	Feet	300	$90,000
Trench/Conduit 2-5" (Un-improved St) Include 3316 Handole	Feet	300	$72,000
Miscellaneous Substation Equipment	Each	55	$330,000
12kV Circuit Breaker Open Rack	Each	2	$120,000
Total			$612,000

Beginning of Workpaper Group
11259A - C100, OT: 12kV Circuit Extension

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11259.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 18. OT: 12kV Circuit Extension
Workpaper Group: 11259A - C100, OT: 12kV Circuit Extension

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	804	0	0
Non-Labor	Zero-Based	0	0	0	0	0	1,054	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**1,858**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0

Business Purpose:

This project will extend circuit 100 (Old Town - OT) to pick-up load from circuit 545. Circuit 545 of Pacific Beach substation is in the top ten worst performing circuits in Beach Cities district. This project is proposed to improve circuit reliability and service to the customers by reducing the customer count on the circuit and correcting a 3MVA circuit tie deficiency. Circuit 545 serves 5,861 customers including Bahia Hotel, Belmont Roller coaster and Bahia Point 12/4 kV Step-down.

Physical Description:

Install 6,800’ of 1000 kcmil AL cable, and trench and install 4,800’ of 4-5” conduit.

Project Justification:

This project is required to reduce customer count on Pacific Beach C545 in order to improve circuit reliability performance. It also eliminates a 3 MVA tie deficiency on C545 and 90% high load condition on Pacific Beach BK 3031.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11259.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	18. OT: 12kV Circuit Extension
Workpaper Group:	11259A - C100, OT: 12kV Circuit Extension

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C100, OT: 12kV Circuit Extension is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C100, OT: 12kV Circuit Extension is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 11259A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11259.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	18. OT: 12kV Circuit Extension
Workpaper Group:	11259A - C100, OT: 12kV Circuit Extension
Workpaper Detail:	11259A.001 - OT: 12kV Circuit Extension
In-Service Date:	11/30/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	804	0	0
Non-Labor	1,054	0	0
NSE	0	0	0
Total	**1,858**	**0**	**0**
FTE	8.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 11259A

11259 – C100, OT: 12kV Circuit Extension

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
Trench Conduit 4-5" (Improved Street) Include 3316 Handholes	Feet	4800	$1,228,800
1000 KCMIL AL Cable & Connections	Feet	6800	$522,240
Switch Vista 330 Manual	Each	1	$77,440
Cutover/Retag	Circuit	2	$14,080
Swap Circuit	Circuit	1	$8,448
Retag Substation Equipment	Circuit	1	$7,040
Total			$1,858,048

Beginning of Workpaper Group
13250A - C108, B: 12 kV Circuit Reconfiguration

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13250.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 19. B: Circuit108 Reconfiguration
Workpaper Group: 13250A - C108, B: 12 kV Circuit Reconfiguration

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	268	0	0
Non-Labor	Zero-Based	0	0	0	0	0	351	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**619**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0

Business Purpose:

The purpose of this project is to provide increase capacity of 3.5MW to Solar Turbines by July 2014. Solar Turbines has increase the size of their new engines that results in power demand increase from 10MW to 13.5MW.

Physical Description:

Reconfigure C108 (Station B) and change the single feed to a twin run of feeder to Solar Turbines primary meter station.

Project Justification:

This project is required to meet the new business customer, Solar Turbines need for increase power from 10MW to 13.5MW.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13250.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	19. B: Circuit108 Reconfiguration
Workpaper Group:	13250A - C108, B: 12 kV Circuit Reconfiguration

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C108, B: 12 kV Circuit Reconfiguration is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C108, B: 12 kV Circuit Reconfiguration is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 13250A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13250.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	19. B: Circuit108 Reconfiguration
Workpaper Group:	13250A - C108, B: 12 kV Circuit Reconfiguration
Workpaper Detail:	13250A.001 - B: Circuit108 Reconfiguration
In-Service Date:	05/31/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	268	0	0
Non-Labor	351	0	0
NSE	0	0	0
Total	**619**	**0**	**0**
FTE	2.7	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 13250A

13250 – C108, B: Circuit Reconfiguration

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
750 Compact Cable & Connections	Feet	7500	$428,625
1000 KCMIL AL Cable & Connections	Feet	2500	$190,500
Total			$619,125

Beginning of Workpaper Group
13251A - C176 PO: Reconductor

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13251.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 20. PO: Reconductor
Workpaper Group: 13251A - C176 PO: Reconductor

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	284	0
Non-Labor	Zero-Based	0	0	0	0	0	0	373	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**657**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0

Business Purpose:

The purpose of this project is to eliminate 97% loading on 1/0 Cu conductor of circuit 176 (Poway- PO) in the Poway area Fire Threat Zone. The project will upgrade 2,600 feet of 1/0 Cu to 636 ACSR conductor. Circuit 176 serves a mixture of 229 commercial and 1,142 residential customers.

Physical Description:

Replace 2,600' of 1/0 Cu OH conductor with 636 ACSR OH conductor and replace all wood poles with steel.

Project Justification:

The project is required to reduce 97% loading on the 1/0 Cu conductor. Increased conductor size will also allow more tie capacity to improve outage restoration. An additional benefit is that all wood poles will be replaced with steel in the fire threat zone with dry grassland, mountainous terrain and no vehicle access. The project will add capacity required to reliably serve existing and new customers.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13251.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	20. PO: Reconductor
Workpaper Group:	13251A - C176 PO: Reconductor

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C176 PO: Reconductor is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C176 PO: Reconductor is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 13251A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13251.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	20. PO: Reconductor
Workpaper Group:	13251A - C176 PO: Reconductor
Workpaper Detail:	13251A.001 - The purpose of this project is to reduce the 97% loading of circuit 176 located in the
In-Service Date:	06/30/2015
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	284	0
Non-Labor	0	373	0
NSE	0	0	0
Total	**0**	**657**	**0**
FTE	0.0	2.8	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 13251A

13251 – PO: Reconductor

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
OH Reconductor	Feet	2595	$265,988
BMP (Environmental) Implementation Labor	Each	1	$365,625
Fire Standby Crew	Hrs	80	$25,500
Total			$657,113

Beginning of Workpaper Group
13259A - C1243, RMV: Reconductor

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13259.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 21. C1243, RMV: Reconductor Along Ortega Highway Ph 2
Workpaper Group: 13259A - C1243, RMV: Reconductor

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	580	0
Non-Labor	Zero-Based	0	0	0	0	0	0	761	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**1,341**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	5.8	0.0

Business Purpose:

The purpose of this project is to alleviate overload on C1243 (Rancho Mission Viejo- RMV) and provide additional capacity, based on comprehensive distribution system modeling. Alternatives have been and are being evaluated, but currently this is the preferred project to ensure SDG&E can provide safe and reliable service.

Physical Description:

This project is currently in the planning/engineering phase, so the detailed scope of work has not been finalized.

Project Justification:

Distribution Planning continuously runs system models and performs load flow analysis based on existing and forecasted system loads. When overload are forecasted, they look at alternatives to prevent future overloads. The proposed project and evaluated alternatives are eventually presented to the Technical Review Committee, and the Capital T&D Budget Committee to get final approval. This project was identified as the proposed project by the Distribution Planning group.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13259.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	21. C1243, RMV: Reconductor Along Ortega Highway Ph 2
Workpaper Group:	13259A - C1243, RMV: Reconductor

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C1243, RMV: Reconductor is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C1243, RMV: Reconductor is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 13259A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13259.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	21. C1243, RMV: Reconductor Along Ortega Highway Ph 2
Workpaper Group:	13259A - C1243, RMV: Reconductor
Workpaper Detail:	13259A.001 - C1243 RMV: Reconductor Along Ortega Highway Ph 2
In-Service Date:	05/31/2015
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	580	0
Non-Labor	0	761	0
NSE	0	0	0
Total	**0**	**1,341**	**0**
FTE	0.0	5.8	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 13259A

13259 – C1243, RMV: Reconductor

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
OH Reconductor	Feet	11370	$1,184,072
Pole Steel Pre-drilled	Each	25	$79,312
Switch Gang Operated	Each	4	$47,244
Fire Standby Crew	Hrs	95	$30,766
Total			$1,341,393

Beginning of Workpaper Group
13260A - C1288, MSH: New 12kV Circuit

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13260.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 22. C1288, MSH: New 12kV Circuit
Workpaper Group: 13260A - C1288, MSH: New 12kV Circuit

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	424	0	0
Non-Labor	Zero-Based	0	0	0	0	0	556	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**980**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0

Business Purpose:

The purpose of this project is to install new Mesa Heights (MSH) C1288. Solar Turbines is increasing load by 10.0 MW in 2014. Existing circuit 251 cannot serve the new load addition.

Physical Description:

Install 1400 feet of 1000 kcmil Cu cable, 17,500’ of 1000 kcmil Al cable, 1,600 feet of trench and conduit (4-5”), two 4-way manual switch, and two 1200 KVAR SCADA padmount capacitor banks.

Project Justification:

Solar Turbine has signed a special facility contract for their new Electric Motor Drive (EMD) Gas Compressor test stand at their facilities in Kearny Mesa. The existing C251 cannot serve the entire new load and would become overloaded. A new C1288 is the preferred alternative.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13260.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	22. C1288, MSH: New 12kV Circuit
Workpaper Group:	13260A - C1288, MSH: New 12kV Circuit

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C1288, MSH: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C1288, MSH: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 13260A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13260.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 22. C1288, MSH: New 12kV Circuit
Workpaper Group: 13260A - C1288, MSH: New 12kV Circuit
Workpaper Detail: 13260A.001 - C1288 MSH: New 12kV Circuit

In-Service Date: 05/31/2014
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	424	0	0
Non-Labor	556	0	0
NSE	0	0	0
Total	**980**	**0**	**0**
FTE	4.2	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 13260A

13260 – C1288, MSH: New 12kV Circuit

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
1000 KCMIL CU Cable & Connections	Feet	1400	$82,824
1000 KCMIL AL Cable & Connections	Feet	17500	$535,500
Trench Conduit 4-5" (Improved St) Include 3316 Handholes	Feet	1600	$163,200
Trayer Switch 4-way w/Manual Padmount	Each	2	$132,600
Capacitor Padmount (new area) 1200 kVAR	Each	2	$56,100
Energize Spare Circuit Breaker	Each	1	$10,200
Total			$980,424

Beginning of Workpaper Group
13263A - C982: OL- Voltage Regulation

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13263.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 23. C982: OL-Replace 300A Reg with 600A Reg
Workpaper Group: 13263A - C982: OL- Voltage Regulation

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	238	0	0
Non-Labor	Zero-Based	0	0	0	0	0	313	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**551**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0

Business Purpose:

The purpose of this project is to enhance reliability by providing greater voltage regulation capability on C982 (Otay Lakes-OL).

Physical Description:

This project will replace a 300A regulator with a 600A regulator.

Project Justification:

Distribution Planning continuously runs system models and performs load flow analysis based on existing and forecasted system loads. When overloads or voltage issues are forecasted, they look at alternatives to prevent future overloads and mitigate voltage issues. In this case, voltage drop was the primary issue, which can be mitigated by installing a larger regulator.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13263.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	23. C982: OL-Replace 300A Reg with 600A Reg
Workpaper Group:	13263A - C982: OL- Voltage Regulation

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C982: OL- Voltage Regulation is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C982: OL- Voltage Regulation is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 13263A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13263.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	23. C982: OL-Replace 300A Reg with 600A Reg
Workpaper Group:	13263A - C982: OL- Voltage Regulation
Workpaper Detail:	13263A.001 - C982: OL-Replace 300A Reg with 600A Reg
In-Service Date:	12/31/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	238	0	0
Non-Labor	313	0	0
NSE	0	0	0
Total	**551**	**0**	**0**
FTE	2.4	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 13263A

13263 – C982: OL – Voltage Regulation

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
Voltage Regulator Padmount 3 ph set (3-600A)	Each	1	$174,000
2/0 Cable & Connections	Feet	50	$986
Switch Trayer 4-way w/SCADA Padmount	Each	2	$375,840
Total			$550,826

Beginning of Workpaper Group
13285A - C1090, JM: New 12kV Circuit

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13285.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 24. C1090, JM: New 12kV Circuit
Workpaper Group: 13285A - C1090, JM: New 12kV Circuit

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	6,308	0
Non-Labor	Zero-Based	0	0	0	0	0	0	8,266	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**14,574**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	63.1	0.0

Business Purpose:

The purpose of this project is to provide capacity for the new Jamul Casino Resort estimated to add 9.5MW to existing Jamacha (JM) C75 in 2015, and this new business load will cause 90% overload issue on C75. New Jamacha C1090 is designed to serve the new business load and eliminate high load issues on Jamaha C75 and C524.

Physical Description:

The project will install a new circuit breaker, trench 22,330' of conduit; install SCADA switches, capacitors and voltage regulators as well as replacing 75 wood poles to steel.

Project Justification:

The two adjacent C75 and C524 are forecasted to be loaded at 101% and 93% in 2015. The new Jamul Casino Resort demand is 9.5 MW in 2015 resulting in an overloaded on both circuits.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13285.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	24. C1090, JM: New 12kV Circuit
Workpaper Group:	13285A - C1090, JM: New 12kV Circuit

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C1090, JM: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C1090, JM: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 13285A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13285.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 24. C1090, JM: New 12kV Circuit
Workpaper Group: 13285A - C1090, JM: New 12kV Circuit
Workpaper Detail: 13285A.001 - C1090 JM: New 12kV Circuit

In-Service Date: 08/31/2015
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	6,308	0
Non-Labor	0	8,266	0
NSE	0	0	0
Total	**0**	**14,574**	**0**
FTE	0.0	63.1	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 13285A

13285 – C1090, JM: New 12kV Circuit

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
3327 Manhole	Each	1	$86,250
1000 KCMIL CU Cable & Connections	Feet	500	$55,200
Trench/Conduit 2-5" (Improved St) Include 3316 Handholes	Feet	8530	$1,471,425
69kV Foundation & Steel Pole	Each	2	$149,500
Trench/Conduit 8-5" (Improved St) Include 3316 Handholes	Feet	13800	$3,967,500
1000 KCMIL AL Cable & Connections	Feet	22000	$1,518,000
Pole Line Twin 4w336/636 to 7w336/636	Feet	10300	$1,622,765
OH Reconductor	Feet	15200	$1,433,360
Switch Trayer 4-way w/SCADA Padmount	Each	2	$372,600
Volt Regulator (3-200A) 12kV Two Pole	Each	1	$89,700
Capacitor Padmount (Intercept conduit) 1200 kVAR	Each	2	$101,200
Switch Gang Operated	Each	1	$10,695
69kV Direct Embedment Steel Pole	Each	75	$3,606,975
Retag/cutover	Circuit	5	$31,625
12kV Circuit Breaker Open Rack	Each	1	$57,500
Total			$14,574,295

Beginning of Workpaper Group
13286A - C1120, BQ: New 12kV Circuit

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13286.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 25. C1120, BQ: New 12kV Circuit
Workpaper Group: 13286A - C1120, BQ: New 12kV Circuit

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	1,283
Non-Labor	Zero-Based	0	0	0	0	0	0	0	1,682
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,965**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8

Business Purpose:

The purpose of this project is to provide additional capacity, based on comprehensive distribution system modeling, at Batiquitos(BQ). Alternatives have been and are being evaluated, but currently this is the preferred project to ensure SDG&E can provide safe and reliable service.

Physical Description:

This project is currently in the planning/engineering phase, so the detailed scope of work has not been finalized.

Project Justification:

Distribution Planning continuously runs system models and performs load flow analysis based on existing and forecasted system loads. When overload are forecasted, they look at alternatives to prevent future overloads. The proposed project and evaluated alternatives are eventually presented to the Technical Review Committee, and the Capital T&D Budget Committee to get final approval. This project was identified as the proposed project by the Distribution Planning group.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13286.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	25. C1120, BQ: New 12kV Circuit
Workpaper Group:	13286A - C1120, BQ: New 12kV Circuit

Forecast Methodology:

Labor - Zero-Based

The forecast method used for C1120, BQ: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for C1120, BQ: New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 13286A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13286.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 25. C1120, BQ: New 12kV Circuit
Workpaper Group: 13286A - C1120, BQ: New 12kV Circuit
Workpaper Detail: 13286A.001 - C1120 BQ: New 12kV Circuit

In-Service Date: 08/31/2016
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	1,283
Non-Labor	0	0	1,682
NSE	0	0	0
Total	**0**	**0**	**2,965**
FTE	0.0	0.0	12.8

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 13286A

13286 – C1120, BQ: New 12kV Circuit

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
1000 KCMIL CU Cable & Connections	Feet	12000	$1,497,600
Trayer Switch 4-way w/SCADA Padmount	Each	1	$210,600
1000 KCMIL AL Cable & Connections	Feet	9000	$702,000
Retag/cutover	Circuit	6	$42,900
Trayer Switch 4-way w/SCADA Padmount	Each	1	$210,600
750 Compact Cable & Connections	Feet	2450	$143,325.0
Capacitor Padmount (new area) 1200 kVAR	Each	1	$35,750
Capacitor Padmount (Intercept conduit) 1200 kVAR	Each	1	$57,200
12kV Circuit Breaker Open Rack	Each	1	$65,000
Total			$2,964,975

Beginning of Workpaper Group
13288A - GH New 12kV Circuit

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13288.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 26. GH New 12kV Circuit
Workpaper Group: 13288A - GH New 12kV Circuit

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	687
Non-Labor	Zero-Based	0	0	0	0	0	0	0	897
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,584**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9

Business Purpose:

Install a new circuit to off load bank UB31 forecasted at 105% in 2015. Transfer 465A alternate service of Navy Hospital.

Physical Description:

Install and trench approximately 5000 FT of 4-5" conduit. Install approooximately 11,000 FT of 1000 kcmil AL UG Cable. One 4-way SCADA Trayer switch and configure as design requires. One 1200 KVAR pad-mount SCADA capacitor and retag/cutover.

Revision
Underground: Install and trench approximately 5000 FT of 4-5" counduit. Install approooximately 11,000 FT of 1000 kcmil AL UG Cable. One 4-way SCADA Trayer switch and configure as design requieres. One 1200 KVAR pad-mount SCADA capacitor and retag/cutover.
Substation: Set up a breaker for new 12KV circuit.

Project Justification:

UB31 is forecasted at 105% in 2015. This area has a normal growth of 0.5MW per year. By transfering a circuit to Grant Hill (GH) it will provide the capacity to UB31 to accommodate normal growth.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13288.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	26. GH New 12kV Circuit
Workpaper Group:	13288A - GH New 12kV Circuit

Forecast Methodology:

Labor - Zero-Based

The forecast method used for GH New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for GH New 12kV Circuit is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 13288A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13288.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	26. GH New 12kV Circuit
Workpaper Group:	13288A - GH New 12kV Circuit
Workpaper Detail:	13288A.001 - GH New 12kV Circuit
In-Service Date:	05/31/2016
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	687
Non-Labor	0	0	897
NSE	0	0	0
Total	**0**	**0**	**1,584**
FTE	0.0	0.0	6.9

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 13288A

13288 – GH New 12kV Circuit

Description	Unit	Quantity	Cost (Material, Company labor, direct charges, contract costs, contingency)
1000 KCMIL AL Cable & Connections	Feet	11000	$577,500
Retag/cutover	Circuit	1	$5,775
Switch Trayer 4-way w/SCADA padmount	Each	1	$173,775
Trench/Conduit 4-5" (Improved St) Include 3316 Handholes	Feet	5000	$787,500
Capacitor Padmount (new area) 1200 kVAR	Each	1	$28,875
Energize Spare Circuit Breaker	Each	1	$10,500
Total			$1,583,925

Beginning of Workpaper Group
972480 - Distribution System Capacity Improvement

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 97248.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 27. DISTRIBUTION SYSTEM CAPACITY IMPROVEMENT
Workpaper Group: 972480 - Distribution System Capacity Improvement

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	545	211	459	490	258	393	393	393
Non-Labor	5-YR Average	2,772	1,282	3,322	1,988	1,451	2,163	2,163	2,163
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**3,317**	**1,493**	**3,782**	**2,478**	**1,710**	**2,556**	**2,556**	**2,556**
FTE	5-YR Average	4.8	2.1	3.8	4.1	2.2	3.4	3.4	3.4

Business Purpose:

This blanket budget provides for additional capacity on the distribution system in the heavily loaded areas. These areas have highly loaded circuits (>450A) with limited tie capacity and sectionalizing device use capabilities. This budget reduces circuit loading and increases tie capacity and sectionalizing capability. It is intended to provide additional capacity and reliability on the distribution system as required by SDG&E Design Standards. Projects identified within this budget are $500K or less in cost. Projects exceeding $500K are identified as specific budget capacity projects.

Physical Description:

Construction may include new substation banks, new circuits, feeder and branch reconductoring, installation of appropriate switching, cutover from 4kV to 12kV, and other equipment as necessary to increase the capacity of the distribution system for reliability and operating concerns. This project may also be used to install infrastructure for future circuit projects in conjunction with road improvements, transmission system upgrades or other upgrade activities

Project Justification:

Each project will be evaluated by comparing the risk level and potential impact to customer service. Projects planned for this budget will be prioritized and recommended accordingly.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	97248.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	27. DISTRIBUTION SYSTEM CAPACITY IMPROVEMENT
Workpaper Group:	972480 - Distribution System Capacity Improvement

Forecast Methodology:

Labor - 5-YR Average

The forecast method used for Distribution System Capacity Improvement is a 5 year average, based on historical data. This method is the most appropriate, as work load can vary from year to year. The 5-year average levels out the peaks and valleys in this blanket budget over a larger period of time, and still provides for the necessary level of funding for the work that falls within this budget.

Non-Labor - 5-YR Average

The forecast method used for Distribution System Capacity Improvement is a 5 year average, based on historical data. This method is the most appropriate, as work load can vary from year to year. The 5-year average levels out the peaks and valleys in this blanket budget over a larger period of time, and still provides for the necessary level of funding for the work that falls within this budget.

NSE - 5-YR Average

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 97248.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 27. DISTRIBUTION SYSTEM CAPACITY IMPROVEMENT
Workpaper Group: 972480 - Distribution System Capacity Improvement

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	392	392	392	0	0	0	392	392	392
Non-Labor	5-YR Average	2,163	2,163	2,163	0	0	0	2,163	2,163	2,163
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**2,555**	**2,555**	**2,555**	**0**	**0**	**0**	**2,555**	**2,555**	**2,555**
FTE	5-YR Average	3.4	3.4	3.4	0.0	0.0	0.0	3.4	3.4	3.4

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 97248.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 27. DISTRIBUTION SYSTEM CAPACITY IMPROVEMENT
Workpaper Group: 972480 - Distribution System Capacity Improvement

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	411	167	379	420	225
Non-Labor	1,954	768	2,425	1,028	-849
NSE	0	0	0	0	0
Total	**2,365**	**935**	**2,804**	**1,448**	**-624**
FTE	4.1	1.8	3.3	3.5	1.9
Adjustments (Nominal $) **					
Labor	-1	-2	-1	-2	-2
Non-Labor	456	392	711	913	2,301
NSE	0	0	0	0	0
Total	**454**	**391**	**710**	**911**	**2,299**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	410	165	378	418	223
Non-Labor	2,409	1,160	3,136	1,941	1,451
NSE	0	0	0	0	0
Total	**2,820**	**1,325**	**3,514**	**2,359**	**1,675**
FTE	4.1	1.8	3.3	3.5	1.9
Vacation & Sick (Nominal $)					
Labor	63	26	56	61	35
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**63**	**26**	**56**	**61**	**35**
FTE	0.7	0.3	0.5	0.6	0.3
Escalation to 2013$					
Labor	71	20	26	11	0
Non-Labor	363	122	186	46	0
NSE	0	0	0	0	0
Total	**434**	**142**	**212**	**58**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	545	211	459	490	258
Non-Labor	2,772	1,282	3,322	1,988	1,451
NSE	0	0	0	0	0
Total	**3,317**	**1,493**	**3,782**	**2,478**	**1,710**
FTE	4.8	2.1	3.8	4.1	2.2

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 97248.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 27. DISTRIBUTION SYSTEM CAPACITY IMPROVEMENT
Workpaper Group: 972480 - Distribution System Capacity Improvement

Adjustments to Recorded:

In Nominal $(000)						
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	-1	-2	-1	-2	-2
Non-Labor	456	392	711	913	2,301
NSE	0	0	0	0	0
Total	**454**	**391**	**710**	**911**	**2,299**
FTE	0.0	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 97248.0
Category: A. CAPACITY/EXPANSION
Category-Sub: 27. DISTRIBUTION SYSTEM CAPACITY IMPROVEMENT
Workpaper Group: 972480 - Distribution System Capacity Improvement

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	-1	-2	0	-4	0.0	EAMARE2013103011032
Adjustment made to exclude 15% of General Plant.						
	0	458	0	458	0.0	EAMARE2013103011053
Adjustment made to remove CIAC from historical costs.						
2009 Total	-1	456	0	454	0.0	
2010	-2	-6	0	-8	0.0	EAMARE2013103010585
Adjustment made to exclude 15% of General Plant.						
	0	398	0	398	0.0	EAMARE2013103011061
Adjustment made to remove CIAC from historical costs.						
2010 Total	-2	392	0	391	0.0	
2011	-0.745	-5	0	-6	0.0	EAMARE2013103010591
Adjustment made to exclude 15% of General Plant.						
	0	716	0	716	0.0	EAMARE2013103011063
Adjustment made to remove CIAC from historical costs.						
2011 Total	-0.745	711	0	710	0.0	
2012	-2	-2	0	-4	0.0	EAMARE2013103010593
Adjustment made to exclude 15% of General Plant.						
	0	915	0	915	0.0	EAMARE2013103011065
Adjustment made to remove CIAC from historical costs.						
2012 Total	-2	913	0	911	0.0	
2013	0	2,304	0	2,304	0.0	CBUTLER201402040917
Adjustment made to remove CIAC from historical costs.						
	-2	-3	0	-5	0.0	CPWITT20140212171303
Adjustment made to exclude 15% of General Plant.						
2013 Total	-2	2,301	0	2,299	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 972480

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	97248.0
Category:	A. CAPACITY/EXPANSION
Category-Sub:	27. DISTRIBUTION SYSTEM CAPACITY IMPROVEMENT
Workpaper Group:	972480 - Distribution System Capacity Improvement
Workpaper Detail:	972480.001 - Distribution System Capacity Improvements
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	393	393	393
Non-Labor	2,163	2,163	2,163
NSE	0	0	0
Total	**2,556**	**2,556**	**2,556**
FTE	3.4	3.4	3.4

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 972480

97248 - Distribution System Capacity Improvement

This project provides for additional capacity on the distribution system in heavily loaded areas as required by the SDG&E Design Standards. Construction under this project may include new substation banks, new circuits, feeder & branch reconductoring as well as SCADA & non-SCADA switches.

Fully Loaded Costs:
The following historical totals (fully loaded) are calculated to 2013 equivalent dollars using factors provided by Global Insight.

2009	$4,382,250 / .8727	=	$5,021,485
2010	$2,013,992 / .9089	=	$2,216,000
2011	$4,831,201 / .9480	=	$5,096,236
2012	$3,122,969 / .9787	=	$3,190,936
2013	$2,136,250 / 1.000	=	$2,136,250
5 year total		=	$17,660,907

Five year average - $17,660,907/5 = $3,532,181

Direct Costs Only:
The following historical totals (direct dollars) are calculated to 2013 equivalent dollars using factors provided by Global Insight.

2009		$3,318,000
2010		$1,494,000
2011		$3,780,000
2012		$2,477,000
2013		$1,709,000
5 year total	=	$12,778,000

Five year average - $12,778,000/5 = $2,556,000

Historical data was used to calculate proposed requirements for the years 2014 and 2015 and 2016 as follows:

Three year proposed requirements (direct dollars):

2014	$2,556,000
2015	$2,556,000
2016	$2,556,000

No growth factor was used when calculating future requirements (years 2014, 2015 & 2016), only historical data was used; however, since this projects may also be used to install infrastructure for future circuits projects in conjunction with road improvements, transmission system upgrades and other system upgrade activities, the future funding requirements will always be subject to change.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: B. EQUIP/TOOLS/MISC
Workpaper: 002060

Summary for Category: B. EQUIP/TOOLS/MISC

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	3	1	1	1
Non-Labor	910	1,371	1,371	1,371
NSE	0	0	0	0
Total	**913**	**1,372**	**1,372**	**1,372**
FTE	0.1	0.1	0.1	0.1

002060 Electric Distribution Tools/Equipment

Labor	3	1	1	1
Non-Labor	910	1,371	1,371	1,371
NSE	0	0	0	0
Total	**913**	**1,372**	**1,372**	**1,372**
FTE	0.1	0.1	0.1	0.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002060 - Electric Distribution Tools/Equipment

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00206.0
Category: B. EQUIP/TOOLS/MISC
Category-Sub: 1. ELECTRIC DISTRIBUTION TOOLS/EQUIPMENT
Workpaper Group: 002060 - Electric Distribution Tools/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	0	2	0	3	1	1	1
Non-Labor	5-YR Average	1,548	1,205	1,123	2,070	910	1,371	1,371	1,371
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**1,548**	**1,205**	**1,124**	**2,070**	**913**	**1,372**	**1,372**	**1,372**
FTE	5-YR Average	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1

Business Purpose:

This blanket project is required to purchase new electric distribution tools and equipment required by field personnel to inspect, operate and maintain the electric distribution system.

Physical Description:

Acquistion of standard tools will be conducted to maintain compliance with safety regulation and ensure optimal performance. In addition, tools will be purchased for the purpose of evaluating the latest technological advancements. All puchases will be conducted in accordance with individual user needs. Users include the following:

Construction and Operations Centers
Electric Construction and Maintenance Department
Electric Distribution Services

Project Justification:

SDG&E crews require tools to perform various aspects of their jobs. These tools in some instances require repair and maintenance or may be damaged during use. This blanket budget allows new tools to be procured in a timely fashion.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00206.0
Category:	B. EQUIP/TOOLS/MISC
Category-Sub:	1. ELECTRIC DISTRIBUTION TOOLS/EQUIPMENT
Workpaper Group:	002060 - Electric Distribution Tools/Equipment

Forecast Methodology:

Labor - 5-YR Average

The forecast method used for Electric Distribution Tools/Equipment is a 5-year average, based on historical data. The 5-year average levels out the peaks and valleys in this blanket budget over a larger snapshot of time, and still provides for the necessary level of funding for the activities that are covered by this budget.

Non-Labor - 5-YR Average

The forecast method used for Electric Distribution Tools/Equipment is a 5-year average, based on historical data. The 5-year average levels out the peaks and valleys in this blanket budget over a larger snapshot of time, and still provides for the necessary level of funding for the activities that are covered by this budget.

NSE - 5-YR Average

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00206.0
Category: B. EQUIP/TOOLS/MISC
Category-Sub: 1. ELECTRIC DISTRIBUTION TOOLS/EQUIPMENT
Workpaper Group: 002060 - Electric Distribution Tools/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	0	0	0	0	0	0	0	0	0
Non-Labor	5-YR Average	1,371	1,371	1,371	0	0	0	1,371	1,371	1,371
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**1,371**	**1,371**	**1,371**	**0**	**0**	**0**	**1,371**	**1,371**	**1,371**
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	CPWITT201402121
adj FTE due to labor figure						
2014 Total	0	0	0	0	0.1	
2015	0	0	0	0	0.1	CPWITT201402121
adj FTE due to labor figure						
2015 Total	0	0	0	0	0.1	
2016	0	0	0	0	0.1	CPWITT201402121
adj FTE due to labor figure						
2016 Total	0	0	0	0	0.1	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00206.0
Category: B. EQUIP/TOOLS/MISC
Category-Sub: 1. ELECTRIC DISTRIBUTION TOOLS/EQUIPMENT
Workpaper Group: 002060 - Electric Distribution Tools/Equipment

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	2	0	3
Non-Labor	1,583	1,283	1,247	2,374	1,070
NSE	0	0	0	0	0
Total	**1,583**	**1,283**	**1,249**	**2,374**	**1,073**
FTE	0.0	0.0	0.0	0.0	0.1
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	-237	-192	-187	-352	-160
NSE	0	0	0	0	0
Total	**-237**	**-192**	**-187**	**-352**	**-161**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	0	0	1	0	3
Non-Labor	1,346	1,091	1,060	2,021	910
NSE	0	0	0	0	0
Total	**1,346**	**1,091**	**1,061**	**2,021**	**913**
FTE	0.0	0.0	0.0	0.0	0.1
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	203	114	63	48	0
NSE	0	0	0	0	0
Total	**203**	**114**	**63**	**48**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	2	0	3
Non-Labor	1,548	1,205	1,123	2,070	910
NSE	0	0	0	0	0
Total	**1,548**	**1,205**	**1,124**	**2,070**	**913**
FTE	0.0	0.0	0.0	0.0	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00206.0
Category: B. EQUIP/TOOLS/MISC
Category-Sub: 1. ELECTRIC DISTRIBUTION TOOLS/EQUIPMENT
Workpaper Group: 002060 - Electric Distribution Tools/Equipment

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	-237	-192	-187	-352	-160
NSE	0	0	0	0	0
Total	**-237**	**-192**	**-187**	**-352**	**-161**
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	0	-237	0	-237	0.0	MEHLERS201310301003
Adjustment made to exclude 15% of General Plant.						
2009 Total	0	-237	0	-237	0.0	
2010	0	-192	0	-192	0.0	MEHLERS201310301003
Adjustment made to exclude 15% of General Plant.						
2010 Total	0	-192	0	-192	0.0	
2011	-0.227	-187	0	-187	0.0	MEHLERS201310301003
Adjustment made to exclude 15% of General Plant.						
2011 Total	-0.227	-187	0	-187	0.0	
2012	0	-352	0	-352	0.0	MEHLERS201310301004
Adjustment made to exclude 15% of General Plant.						
2012 Total	0	-352	0	-352	0.0	
2013	-0.471	-160	0	-161	0.0	CPWITT20140212162222
Adjustment made to exclude 15% of General Plant.						
2013 Total	-0.471	-160	0	-161	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002060

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00206.0
Category:	B. EQUIP/TOOLS/MISC
Category-Sub:	1. ELECTRIC DISTRIBUTION TOOLS/EQUIPMENT
Workpaper Group:	002060 - Electric Distribution Tools/Equipment
Workpaper Detail:	002060.001 - 5-Year Average Forecast
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1	1	1
Non-Labor	1,371	1,371	1,371
NSE	0	0	0
Total	**1,372**	**1,372**	**1,372**
FTE	0.1	0.1	0.1

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: C. FRANCHISE
Workpaper: VARIOUS

Summary for Category: C. FRANCHISE

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	3,213	3,101	3,101	3,101
Non-Labor	29,134	38,663	38,663	38,663
NSE	0	0	0	0
Total	**32,347**	**41,764**	**41,764**	**41,764**
FTE	38.6	35.8	35.8	35.8
002050 ELECTRIC DIST. STREET/HWY RELOCATIONS				
Labor	459	476	476	476
Non-Labor	3,225	5,603	5,603	5,603
NSE	0	0	0	0
Total	**3,684**	**6,079**	**6,079**	**6,079**
FTE	4.2	4.8	4.8	4.8
002100 CONVERSION FROM OH TO UG RULE 20A				
Labor	1,734	1,523	1,523	1,523
Non-Labor	10,774	11,502	11,502	11,502
NSE	0	0	0	0
Total	**12,508**	**13,025**	**13,025**	**13,025**
FTE	23.6	17.9	17.9	17.9
002130 CITY OF SAN DIEGO SURCHARGE PROG (20SD)				
Labor	1,020	1,102	1,102	1,102
Non-Labor	15,135	21,558	21,558	21,558
NSE	0	0	0	0
Total	**16,155**	**22,660**	**22,660**	**22,660**
FTE	10.8	13.1	13.1	13.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00205.0
Category: C. FRANCHISE
Category-Sub: 1. ELECTRIC DIST. STREET/HWY RELOCATIONS
Workpaper Group: 002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

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	571	790	254	309	459	476	476	476
Non-Labor	5-YR Average	4,398	7,056	5,604	7,734	3,225	5,603	5,603	5,603
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**4,968**	**7,846**	**5,859**	**8,042**	**3,684**	**6,079**	**6,079**	**6,079**
FTE	5-YR Average	6.5	7.7	2.8	3.0	4.2	4.8	4.8	4.8

Business Purpose:

This project is required to fund relocation of existing distribution facilities for public improvements under the terms of franchise agreements with municipalities, and the provisions of the street and highway codes with respect to state highways. It also funds relocations for MTDB, NCTD, CCDC, and the port of San Diego.

Physical Description:

This project covers relocations of electric distributions facilities, including both overhead and underground that are in conflict with public street and highway improvements and other infrastructure improvement projects having rights superior to those of SDG&E.

Project Justification:

As stated in the business purpose sections.

There are no alternatives based on the existing franchise agreements and the street and highway code.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00205.0
Category:	C. FRANCHISE
Category-Sub:	1. ELECTRIC DIST. STREET/HWY RELOCATIONS
Workpaper Group:	002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

Forecast Methodology:

Labor - 5-YR Average

The activities in this blanket budget are consistent from year to year, so a 5-year average was used for the forecast. The reason a 3-year average was not used for this forecast, was because 2013 actuals were lower due to a lower volume of requests for relocations. With the economic turnaround, expenditures for 2014-2016 are forecasted to be more in-line with the 5-year average. The 5-year average levels out the peaks and valleys in this blanket budget over a larger snapshot of time, and still provides for the necessary level of funding for the activities that are covered by this budget.

Non-Labor - 5-YR Average

Forecast uses 5-year average adjusted capital (2009-2013).

NSE - 5-YR Average

Forecast uses 5-year average adjusted capital (2009-2013).

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00205.0
Category: C. FRANCHISE
Category-Sub: 1. ELECTRIC DIST. STREET/HWY RELOCATIONS
Workpaper Group: 002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

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	476	476	476	0	0	0	476	476	476
Non-Labor	5-YR Average	5,603	5,603	5,603	0	0	0	5,603	5,603	5,603
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**6,079**	**6,079**	**6,079**	**0**	**0**	**0**	**6,079**	**6,079**	**6,079**
FTE	5-YR Average	4.8	4.8	4.8	0.0	0.0	0.0	4.8	4.8	4.8

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00205.0
Category: C. FRANCHISE
Category-Sub: 1. ELECTRIC DIST. STREET/HWY RELOCATIONS
Workpaper Group: 002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	430	619	210	264	396
Non-Labor	3,269	5,452	4,863	4,645	2,900
NSE	0	0	0	0	0
Total	**3,699**	**6,071**	**5,073**	**4,909**	**3,296**
FTE	5.6	6.6	2.4	2.6	3.6
Adjustments (Nominal $) **					
Labor	-1	-2	-1	0	0
Non-Labor	553	935	428	2,908	326
NSE	0	0	0	0	0
Total	**553**	**933**	**427**	**2,908**	**325**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	430	617	209	263	396
Non-Labor	3,822	6,387	5,291	7,554	3,225
NSE	0	0	0	0	0
Total	**4,252**	**7,004**	**5,500**	**7,817**	**3,621**
FTE	5.6	6.6	2.4	2.6	3.6
Vacation & Sick (Nominal $)					
Labor	66	98	31	38	63
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**66**	**98**	**31**	**38**	**63**
FTE	0.9	1.1	0.4	0.4	0.6
Escalation to 2013$					
Labor	75	75	14	7	0
Non-Labor	576	669	314	180	0
NSE	0	0	0	0	0
Total	**650**	**744**	**328**	**187**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	571	790	254	309	459
Non-Labor	4,398	7,056	5,604	7,734	3,225
NSE	0	0	0	0	0
Total	**4,968**	**7,846**	**5,859**	**8,042**	**3,684**
FTE	6.5	7.7	2.8	3.0	4.2

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00205.0
Category: C. FRANCHISE
Category-Sub: 1. ELECTRIC DIST. STREET/HWY RELOCATIONS
Workpaper Group: 002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	-1	-2	-1	0	0
Non-Labor	553	935	428	2,908	326
NSE	0	0	0	0	0
Total	**553**	**933**	**427**	**2,908**	**325**
FTE	0.0	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00205.0
Category: C. FRANCHISE
Category-Sub: 1. ELECTRIC DIST. STREET/HWY RELOCATIONS
Workpaper Group: 002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

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	559	0	559	0.0	MEHLERS201310171053
Adjustment made to remove CIAC from historical costs.						
	-0.589	-5	0	-6	0.0	MEHLERS201310171055
Adjustment made to exclude 15% of General Plant.						
2009 Total	-0.589	553	0	553	0.0	
2010	0	940	0	940	0.0	MEHLERS201310171053
Adjustment made to remove CIAC from historical costs.						
	-2	-5	0	-7	0.0	MEHLERS201310171055
Adjustment made to exclude 15% of General Plant.						
2010 Total	-2	935	0	933	0.0	
2011	0	437	0	437	0.0	MEHLERS201310171053
Adjustment made to remove CIAC from historical costs.						
	-1	-9	0	-10	0.0	MEHLERS201310171056
Adjustment made to exclude 15% of General Plant.						
2011 Total	-1	428	0	427	0.0	
2012	0	2,910	0	2,910	0.0	MEHLERS201310171054
Adjustment made to remove CIAC from historical costs.						
	-0.356	-2	0	-3	0.0	MEHLERS201310171056
Adjustment made to exclude 15% of General Plant.						
2012 Total	-0.356	2,908	0	2,908	0.0	
2013	0	326	0	326	0.0	CBUTLER201402040944
Adjustment made to remove CIAC from historical costs.						
	-0.213	-0.570	0	-0.783	0.0	CPWITT20140212161313
Adjustment made to exclude 15% of General Plant.						
2013 Total	-0.213	326	0	325	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002050

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00205.0
Category: C. FRANCHISE
Category-Sub: 1. ELECTRIC DIST. STREET/HWY RELOCATIONS
Workpaper Group: 002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS
Workpaper Detail: 002050.001 - Forecast for collectable portion of BC 205

In-Service Date: Not Applicable
Description:

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

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00205.0
Category:	C. FRANCHISE
Category-Sub:	1. ELECTRIC DIST. STREET/HWY RELOCATIONS
Workpaper Group:	002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS
Workpaper Detail:	002050.002 - Non collectable project costs
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	476	476	476
Non-Labor	4,697	4,697	4,697
NSE	0	0	0
Total	**5,173**	**5,173**	**5,173**
FTE	4.8	4.8	4.8

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002050

00205 - Budget Code 205 - DIST. STREET/HWY RELOCATIONS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00205.0
Category: C. FRANCHISE
Category-Sub: 1. ELECTRIC DIST. STREET/HWY RELOCATIONS
Workpaper Group: 002050 - ELECTRIC DIST. STREET/HWY RELOCATIONS

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	571	790	254	309	459	476	476	476
Non-Labor	5-YR Average	4,398	7,056	5,604	7,734	3,225	5,603	5,603	5,603
NSE	5-YR Average	-	-	-	-	-	-	-	-
Total		**4,968**	**7,846**	**5,859**	**8,042**	**3,684**	**6,079**	**6,079**	**6,079**
Collectible		(451)	(715)	(405)	(2,050)	(246)	(906)	(906)	(906)
Net Capital		**4,518**	**7,131**	**5,454**	**5,992**	**3,438**	**5,173**	**5,173**	**5,173**
FTE	5-YR Average	6.5	7.7	2.8	3.0	4.2	4.8	4.8	4.8

Beginning of Workpaper Group
002100 - CONVERSION FROM OH TO UG RULE 20A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00210.0
Category: C. FRANCHISE
Category-Sub: 2. CONVERSION FROM OH TO UG RULE 20A
Workpaper Group: 002100 - CONVERSION FROM OH TO UG RULE 20A

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	1,585	1,680	1,039	1,578	1,734	1,523	1,523	1,523
Non-Labor	5-YR Average	12,564	10,893	10,195	13,085	10,774	11,502	11,502	11,502
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**14,150**	**12,573**	**11,234**	**14,663**	**12,509**	**13,025**	**13,025**	**13,025**
FTE	5-YR Average	18.8	17.8	11.9	17.4	23.6	17.9	17.9	17.9

Business Purpose:

Convert overhead facilities to underground based on requirements of our conversion rule 20a; a CPUC mandated program defined in case 8209 dated 09-27-67, and effective 01-01-68, and franchise agreements with the cities of San Diego and Chula Vista. The significant other customers that participate in the program are the cities of: Carlsbad, Coronado, Dana Point, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, Laguna Beach, Laguna Hills, Laguna Niguel, La Mesa, Lemon Grove, Mission Viejo, National City, Oceanside, Poway, Solana Beach, San Clemente, San Juan Capistrano, San Marcos, Santee And The Counties Of Orange And San Diego.

Physical Description:

This project provides for at the utility's expense, replacement of existing overhead electric facilities with new underground electric facilities. Replacement is effected at the request of the governing body in the city or county in which such electric facilities are located. This is provided that the conversion area selected by the governing body meets the criteria as set forth in rule 20a.

Project Justification:

THIS IS A CPUC MANDATED PROGRAM AND IS ALSO INCORPORATED INTO THE SDG&E FRANCHISES WITH THE CITIES OF SAN DIEGO AND CHULA VISTA. THE EXPENDITURES HEREIN REFLECT THE RENEWED FRANCHISE AGREEMENT BETWEEN SDG&E AND THE CITY OF SAN DIEGO, WHICH WAS ADOPTED ON 01-28-02. TOTAL PROGRAM ALLOCATIONS (E.G. PROMISES TO SPEND) ARE BASED ON THE SAN DIEGO AGREEMENT, WITH EACH OTHER CITY/COUNTY RECEIVING AN AMOUNT PROPORTIONAL TO THEIR ELECTRIC METER COUNT IN ACCORDANCE WITH THE METHODOLOGY SPECIFIED IN RULE 20A. EXPENDITURES IN SAN DIEGO ARE ALSO MANDATED BY THE MOU.

THERE ARE NO ALTERNATIVES BASED ON THE EXISTING RULE 20A, CPUC MANDATE, AND FRANCHISE AGREEMENTS WITH SAN DIEGO AND CHULA VISTA.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00210.0
Category:	C. FRANCHISE
Category-Sub:	2. CONVERSION FROM OH TO UG RULE 20A
Workpaper Group:	002100 - CONVERSION FROM OH TO UG RULE 20A

Forecast Methodology:

Labor - 5-YR Average

Forecast based on adjusted 5-Year average historical costs for budget Codes 09254, 09255, 09256, 09261, 09262, 09263, 09264, 09265, 09266, 09272, 09273. This is the most appropriate methodology, as work load can vary from year to year. For example, 2009 and 2012 were above the average, while 2010, 2011, and 2013 were below the average. The peak spending for this budget was in 2012, with an actual cost of $14,665. The 5-year average levels out the peaks and valleys in this blanket budget over a larger snapshot of time, and still provides for the necessary level of funding for the work that falls within this budget.

Non-Labor - 5-YR Average

Forecast based on adjusted 5-Year average historical costs for budget Codes 09254, 09255, 09256, 09261, 09262, 09263, 09264, 09265, 09266, 09272, 09273. This is the most appropriate methodology, as work load can vary from year to year. For example, 2009 and 2012 were above the average, while 2010, 2011, and 2013 were below the average. The peak spending for this budget was in 2012, with an actual cost of $14,665. The 5-year average levels out the peaks and valleys in this blanket budget over a larger snapshot of time, and still provides for the necessary level of funding for the work that falls within this budget.

NSE - 5-YR Average

Forecast based on adjusted 5-Year average historical costs for budget Codes 09254, 09255, 09256, 09261, 09262, 09263, 09264, 09265, 09266, 09272, 09273.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00210.0
Category: C. FRANCHISE
Category-Sub: 2. CONVERSION FROM OH TO UG RULE 20A
Workpaper Group: 002100 - CONVERSION FROM OH TO UG RULE 20A

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	1,523	1,523	1,523	0	0	0	1,523	1,523	1,523
Non-Labor	5-YR Average	11,502	11,502	11,502	0	0	0	11,502	11,502	11,502
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**13,025**	**13,025**	**13,025**	**0**	**0**	**0**	**13,025**	**13,025**	**13,025**
FTE	5-YR Average	17.9	17.9	17.9	0.0	0.0	0.0	17.9	17.9	17.9

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00210.0
Category: C. FRANCHISE
Category-Sub: 2. CONVERSION FROM OH TO UG RULE 20A
Workpaper Group: 002100 - CONVERSION FROM OH TO UG RULE 20A

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	1,194	757	762	1,286	1,456
Non-Labor	10,703	3,749	6,498	10,835	10,852
NSE	0	0	0	0	0
Total	**11,897**	**4,506**	**7,261**	**12,121**	**12,308**
FTE	16.1	6.2	9.1	14.5	19.8
Adjustments (Nominal $) **					
Labor	0	555	92	60	41
Non-Labor	216	6,111	3,126	1,945	-77
NSE	0	0	0	0	0
Total	**216**	**6,666**	**3,218**	**2,005**	**-37**
FTE	0.0	9.0	1.1	0.5	0.3
Recorded-Adjusted (Nominal $)					
Labor	1,193	1,312	855	1,346	1,497
Non-Labor	10,920	9,860	9,624	12,780	10,774
NSE	0	0	0	0	0
Total	**12,113**	**11,172**	**10,479**	**14,127**	**12,271**
FTE	16.1	15.2	10.2	15.0	20.1
Vacation & Sick (Nominal $)					
Labor	184	209	126	195	237
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**184**	**209**	**126**	**195**	**237**
FTE	2.7	2.6	1.7	2.4	3.5
Escalation to 2013$					
Labor	207	159	58	37	0
Non-Labor	1,645	1,033	571	305	0
NSE	0	0	0	0	0
Total	**1,852**	**1,192**	**629**	**342**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	1,585	1,680	1,039	1,578	1,734
Non-Labor	12,564	10,893	10,195	13,085	10,774
NSE	0	0	0	0	0
Total	**14,150**	**12,573**	**11,234**	**14,663**	**12,509**
FTE	18.8	17.8	11.9	17.4	23.6

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00210.0
Category: C. FRANCHISE
Category-Sub: 2. CONVERSION FROM OH TO UG RULE 20A
Workpaper Group: 002100 - CONVERSION FROM OH TO UG RULE 20A

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	555	92	60	41
Non-Labor	216	6,111	3,126	1,945	-77
NSE	0	0	0	0	0
Total	**216**	**6,666**	**3,218**	**2,005**	**-37**
FTE	0.0	9.0	1.1	0.5	0.3

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00210.0
Category: C. FRANCHISE
Category-Sub: 2. CONVERSION FROM OH TO UG RULE 20A
Workpaper Group: 002100 - CONVERSION FROM OH TO UG RULE 20A

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	-3	-15	0	-18	0.0	MEHLERS201310171331
Adjustment made to exclude 15% of General Plant.						
	2	232	0	234	0.0	MEHLERS201310171334
Adjustment made include historical costs for budget codes 9254, 9255, 9256, 9261, 9262, 9263, 9264, 9265, 9266, 9272, and 9273.						
2009 Total	-0.316	216	0	216	0.0	
2010	-4	0.988	0	-3	0.0	MEHLERS201310171331
Adjustment made to exclude 15% of General Plant.						
	559	6,110	0	6,669	9.0	MEHLERS201310171335
Adjustment made include historical costs for budget codes 9254, 9255, 9256, 9261, 9262, 9263, 9264, 9265, 9266, 9272, and 9273.						
2010 Total	555	6,111	0	6,666	9.0	
2011	-0.489	-290	0	-290	0.0	MEHLERS201310171332
Adjustment made to exclude 15% of General Plant.						
	93	3,416	0	3,509	1.1	MEHLERS201310171335
Adjustment made include historical costs for budget codes 9254, 9255, 9256, 9261, 9262, 9263, 9264, 9265, 9266, 9272, and 9273.						
2011 Total	92	3,126	0	3,218	1.1	
2012	-1	-71	0	-72	0.0	MEHLERS201310171332
Adjustment made to exclude 15% of General Plant.						
	61	2,016	0	2,077	0.5	MEHLERS201310171335
Adjustment made include historical costs for budget codes 9254, 9255, 9256, 9261, 9262, 9263, 9264, 9265, 9266, 9272, and 9273.						
2012 Total	60	1,945	0	2,005	0.5	
2013	41	-69	0	-28	0.3	CBUTLER201402270928
Adjustment made include historical costs for budget codes 9254, 9255, 9256, 9261, 9262, 9263, 9264, 9265, 9266, 9272, and 9273.						
	-0.735	-8	0	-9	0.0	CPWITT20140212162409
Adjustment made to exclude 15% of General Plant.						

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00210.0
Category:	C. FRANCHISE
Category-Sub:	2. CONVERSION FROM OH TO UG RULE 20A
Workpaper Group:	002100 - CONVERSION FROM OH TO UG RULE 20A

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2013 Total	41	-77	0	-37	0.3	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002100

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00210.0
Category:	C. FRANCHISE
Category-Sub:	2. CONVERSION FROM OH TO UG RULE 20A
Workpaper Group:	002100 - CONVERSION FROM OH TO UG RULE 20A
Workpaper Detail:	002100.001 - BC - 210
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,523	1,523	1,523
Non-Labor	11,502	11,502	11,502
NSE	0	0	0
Total	**13,025**	**13,025**	**13,025**
FTE	17.9	17.9	17.9

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00213.0
Category: C. FRANCHISE
Category-Sub: 3. CITY OF SAN DIEGO SURCHARGE PROG (20SD)
Workpaper Group: 002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

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	378	1,657	1,253	1,203	1,020	1,102	1,102	1,102
Non-Labor	5-YR Average	25,515	22,928	25,282	18,931	15,135	21,558	21,558	21,558
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**25,892**	**24,585**	**26,534**	**20,134**	**16,156**	**22,660**	**22,660**	**22,660**
FTE	5-YR Average	5.1	20.8	14.4	14.2	10.8	13.1	13.1	13.1

Business Purpose:

This project converts overhead facilities to underground based on requirements and negotiated agreement with the city of San Diego (commonly referred to as the 'surcharge program.")

Physical Description:

This project provided for at the city's expense, replacement of existing overhead electric facilities with new underground electric facilities (transmission and distribution.) Replacement is effected at the request of San Diego. This is a separate and distinct program un-related to the 20a program (budget 210.)

Project Justification:

This program is associated with SDG&E's franchise agreement with the city of San Diego and is required by that agreement. All expenses associated with this program will be reimbursed to sdg&e by the city from the proceeds of a surcharge collected from each electric meter account in the city of San Diego. No net capital or O&M expenditures are anticipated.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00213.0
Category:	C. FRANCHISE
Category-Sub:	3. CITY OF SAN DIEGO SURCHARGE PROG (20SD)
Workpaper Group:	002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

Forecast Methodology:

Labor - 5-YR Average

Activities under this program are estimated using SDG&E's standard distribution cost estimating system (DPSS) used for distribution capital construction with standard ED capital loaders. All costs incurred under this project are collectible, and this project is rate base neutral. The forecast assumes that the City will continue to perform construction at historic rates and that collected amounts will escalate with inflation. All collectible amounts are credited as direct dollars.
Actuals in any given calendar year will be non-zero due to the billing schedule. Expenditures in December of any calendar year are not collected until the following year. Similarly, collectibles received in January are for prior year expenditures. In any given year, the net is roughly the difference between the amount collected in January and the amount of expenditure in December. Overall, the project remains rate base neutral.

Non-Labor - 5-YR Average

See labor.

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00213.0
Category: C. FRANCHISE
Category-Sub: 3. CITY OF SAN DIEGO SURCHARGE PROG (20SD)
Workpaper Group: 002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

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	1,102	1,102	1,102	0	0	0	1,102	1,102	1,102
Non-Labor	5-YR Average	21,558	21,558	21,558	0	0	0	21,558	21,558	21,558
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**22,660**	**22,660**	**22,660**	**0**	**0**	**0**	**22,660**	**22,660**	**22,660**
FTE	5-YR Average	13.1	13.1	13.1	0.0	0.0	0.0	13.1	13.1	13.1

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00213.0
Category: C. FRANCHISE
Category-Sub: 3. CITY OF SAN DIEGO SURCHARGE PROG (20SD)
Workpaper Group: 002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	141	560	552	601	850
Non-Labor	-16,335	-10,309	-5,423	-7,740	-13,720
NSE	0	0	0	0	0
Total	**-16,195**	**-9,749**	**-4,870**	**-7,139**	**-12,870**
FTE	1.6	4.7	5.1	8.1	8.9
Adjustments (Nominal $) **					
Labor	144	733	478	426	31
Non-Labor	38,510	31,064	29,289	26,230	28,855
NSE	0	0	0	0	0
Total	**38,654**	**31,797**	**29,767**	**26,655**	**28,886**
FTE	2.8	13.0	7.3	4.1	0.3
Recorded-Adjusted (Nominal $)					
Labor	284	1,294	1,031	1,026	881
Non-Labor	22,175	20,755	23,866	18,490	15,135
NSE	0	0	0	0	0
Total	**22,459**	**22,048**	**24,897**	**19,516**	**16,016**
FTE	4.4	17.7	12.4	12.2	9.2
Vacation & Sick (Nominal $)					
Labor	44	206	152	149	140
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**44**	**206**	**152**	**149**	**140**
FTE	0.7	3.1	2.0	2.0	1.6
Escalation to 2013$					
Labor	49	157	70	28	0
Non-Labor	3,340	2,174	1,416	441	0
NSE	0	0	0	0	0
Total	**3,389**	**2,331**	**1,486**	**469**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	378	1,657	1,253	1,203	1,020
Non-Labor	25,515	22,928	25,282	18,931	15,135
NSE	0	0	0	0	0
Total	**25,892**	**24,585**	**26,534**	**20,134**	**16,156**
FTE	5.1	20.8	14.4	14.2	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00213.0
Category: C. FRANCHISE
Category-Sub: 3. CITY OF SAN DIEGO SURCHARGE PROG (20SD)
Workpaper Group: 002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	144	733	478	426	31
Non-Labor	38,510	31,064	29,289	26,230	28,855
NSE	0	0	0	0	0
Total	**38,654**	**31,797**	**29,767**	**26,655**	**28,886**
FTE	2.8	13.0	7.3	4.1	0.3

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00213.0
Category: C. FRANCHISE
Category-Sub: 3. CITY OF SAN DIEGO SURCHARGE PROG (20SD)
Workpaper Group: 002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

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	-0.008	0	-0.008	0.0	CBUTLER201403041559
Adjustment made to exclude 15% of General Plant for Budget Code 9249.						
	-2	13	0	11	0.0	MEHLERS201311211202
Adjustment made to exclude 15% of General Plant for Budget Code 213.						
	0	38,355	0	38,355	0.0	MEHLERS201311211815
Adjustment made to remove CIAC from historical costs.						
	145	142	0	287	2.8	MEHLERS201311211824
Adjustment made include historical costs for budget codes 9247, 9249, 9250, 9251, 9252, and 9253.						
2009 Total	144	38,510	0	38,654	2.8	
2010	-0.518	-1	0	-2	0.0	CBUTLER201403041559
Adjustment made to exclude 15% of General Plant for Budget Code 9249.						
	-0.013	-10	0	-10	0.0	MEHLERS201311211202
Adjustment made to exclude 15% of General Plant for Budget Code 213.						
	0	38,485	0	38,485	0.0	MEHLERS201311211815
Adjustment made to remove CIAC from historical costs.						
	734	-7,410	0	-6,676	13.0	MEHLERS201311211824
Adjustment made include historical costs for budget codes 9247, 9249, 9250, 9251, 9252, and 9253.						
2010 Total	733	31,064	0	31,797	13.0	
2011	-0.045	-4	0	-4	0.0	CBUTLER201403041600
Adjustment made to exclude 15% of General Plant for Budget Code 9249.						
	0	-6	0	-6	0.0	MEHLERS201311211203
Adjustment made to exclude 15% of General Plant for Budget Code 213.						
	0	37,780	0	37,780	0.0	MEHLERS201311211815
Adjustment made to remove CIAC from historical costs.						
	478	-8,481	0	-8,003	7.3	MEHLERS201311211825
Adjustment made include historical costs for budget codes 9247, 9249, 9250, 9251, 9252, and 9253.						
2011 Total	478	29,289	0	29,767	7.3	
2012	-0.467	-6	0	-6	0.0	CBUTLER201403041600

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00213.0
Category: C. FRANCHISE
Category-Sub: 3. CITY OF SAN DIEGO SURCHARGE PROG (20SD)
Workpaper Group: 002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
Adjustment made to exclude 15% of General Plant for Budget Code 9249.						
	-0.306	-5	0	-6	0.0	MEHLERS201311211203
Adjustment made to exclude 15% of General Plant for Budget Code 213.						
	0	29,177	0	29,177	0.0	MEHLERS201311211816
Adjustment made to remove CIAC from historical costs.						
	427	-2,936	0	-2,510	4.1	MEHLERS201311211825
Adjustment made include historical costs for budget codes 9247, 9249, 9250, 9251, 9252, and 9253.						
2012 Total	426	26,230	0	26,655	4.1	
2013	0	28,423	0	28,423	0.0	CBUTLER201402031745
Adjustment made to remove CIAC from historical costs.						
	32	452	0	484	0.3	CBUTLER201402041049
Adjustment made include historical costs for budget codes 9247, 9249, 9250, 9251, 9252, and 9253.						
	0	-0.108	0	-0.108	0.0	CBUTLER201403041601
Adjustment made to exclude 15% of General Plant for Budget Code 9249.						
	-0.350	-20	0	-20	0.0	CPWITT20140212162842
Adjustment made to exclude 15% of General Plant for Budget Code 213.						
2013 Total	31	28,855	0	28,886	0.3	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002130

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00213.0
Category:	C. FRANCHISE
Category-Sub:	3. CITY OF SAN DIEGO SURCHARGE PROG (20SD)
Workpaper Group:	002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)
Workpaper Detail:	002130.001 - Budget Code 213 - 100% Collectable from the City of San Diego
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,102	1,102	1,102
Non-Labor	21,558	21,558	21,558
NSE	0	0	0
Total	**22,660**	**22,660**	**22,660**
FTE	13.1	13.1	13.1

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002130

002130 - Budget Code 213 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00213.0
Category: C. FRANCHISE
Category-Sub: 3. CITY OF SAN DIEGO SURCHARGE PROG (20SD)
Workpaper Group: 002130 - CITY OF SAN DIEGO SURCHARGE PROG (20SD)

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	378	1,657	1,253	1,203	1,020	1,102	1,102	1,102
Non-Labor	5-YR Average	25,515	22,928	25,282	18,931	15,135	21,558	21,558	21,558
NSE	5-YR Average	-	-	-	-	-	-	-	-
Total		**25,892**	**24,585**	**26,534**	**20,134**	**16,156**	**22,660**	**22,660**	**22,660**
Collectible		(30,406)	(29,206)	(27,521)	(20,600)	(20,282)	(22,660)	(22,660)	(22,660)
Net Capital		**(4,514)**	**(4,621)**	**(988)**	**(466)**	**(4,125)**	**-**	**-**	**-**
FTE	5-YR Average	5.1	20.8	14.4	14.2	10.8	13.1	13.1	13.1

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: D. MANDATED
Workpaper: VARIOUS

Summary for Category: D. MANDATED

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	7,876	17,864	17,969	18,362
Non-Labor	20,771	20,008	20,179	20,701
NSE	0	0	0	0
Total	**28,647**	**37,872**	**38,148**	**39,063**
FTE	69.8	79.8	79.5	82.3
002290 CORRECTIVE MAINTENANCE PROGRAM (CMP)				
Labor	4,061	3,745	3,664	3,876
Non-Labor	4,425	4,907	4,800	5,078
NSE	0	0	0	0
Total	**8,486**	**8,652**	**8,464**	**8,954**
FTE	37.4	37.5	36.6	38.8
002890 CMP UG Switch Replacement & Manhole Repair				
Labor	528	10,991	11,128	11,266
Non-Labor	3,259	1,200	1,200	1,200
NSE	0	0	0	0
Total	**3,787**	**12,191**	**12,328**	**12,466**
FTE	4.0	11.0	11.1	11.3
012950 Load Research/DLP Electric Metering Project				
Labor	30	46	46	46
Non-Labor	202	256	256	256
NSE	0	0	0	0
Total	**232**	**302**	**302**	**302**
FTE	0.2	0.5	0.5	0.5
102650 Avian Protection				
Labor	536	553	541	530
Non-Labor	940	1,127	1,104	1,079
NSE	0	0	0	0
Total	**1,476**	**1,680**	**1,645**	**1,609**
FTE	3.2	5.5	5.4	5.3
872320 Pole Replacement And Reinforcement				
Labor	2,721	2,529	2,590	2,644
Non-Labor	11,945	12,518	12,819	13,088
NSE	0	0	0	0
Total	**14,666**	**15,047**	**15,409**	**15,732**
FTE	25.0	25.3	25.9	26.4

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002290 - CORRECTIVE MAINTENANCE PROGRAM (CMP)

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00229.0
Category: D. MANDATED
Category-Sub: 1. CORRECTIVE MAINTENANCE PROGRAM
Workpaper Group: 002290 - CORRECTIVE MAINTENANCE PROGRAM (CMP)

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	5,192	5,048	4,342	4,560	4,061	3,745	3,664	3,876
Non-Labor	Zero-Based	4,641	5,272	5,213	5,226	4,425	4,907	4,800	5,078
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**9,833**	**10,320**	**9,555**	**9,786**	**8,486**	**8,652**	**8,464**	**8,954**
FTE	Zero-Based	46.9	44.9	38.7	41.5	37.4	37.5	36.6	38.8

Business Purpose:

This budget provides funding for the inspection and maintenance of overhead and underground electric distribution facilities. This program is mandated under CPUC General Orders 165, 95 and 128 to ensure safe, high-quality electrical service and compliance with SDG&E and CPUC construction standards. Inspections are performed on a cyclical basis and conditions found during inspections are repaired in a timely manner. This program has been ongoing since January 1998.

Physical Description:

All electric distribution facilities are visually patrolled on an annual basis in urban and rural areas and inspected in detail every three, five, or ten years depending on equipment type. Conditions found during the inspections may require only labor to repair equipment or may require replacement of equipment that is no longer serviceable. Inspections and some repair work are captured under O&M budgets. There are approximately 230,000 overhead poles and 154,000 underground facilities to inspect on the following cycles:

Equipment Inspection Type	Cycle	
Overhead Detail	5 years	
Above Ground Internal	5 years	
Above Ground External	5 years	
Subsurface 3 year	3 years	
Subsurface 10 year	10 years	
Oil & Gas Switches	3 years	(replacements on 00289 budget)
Wood Pole Integrity	10/15/20 years	(replacements and restoration on 87232 budget)

Project Justification:

This program is mandated by the CPUC. It is also incumbent on SDG&E to ensure a safe environment for workers and the public and to provide reliable service. Failure to perform the inspections and repairs under this program would subject SDG&E to regulatory sanctions, fines, and legal liability.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00229.0
Category:	D. MANDATED
Category-Sub:	1. CORRECTIVE MAINTENANCE PROGRAM
Workpaper Group:	002290 - CORRECTIVE MAINTENANCE PROGRAM (CMP)

Forecast Methodology:

Labor - Zero-Based

The forecast method used for CMP is zero-based, and includes projected workload increases in this mandated area. SDG&E closely tracks the activities related to the mandated projects, as well as the associated unit costs. The unit costs are applied to the anticipated work in the future, which is predictable with a high level of confidence due to the comprehensive data management activities performed by the group managing the mandated work.

Non-Labor - Zero-Based

The forecast method used for CMP is zero-based, and includes projected workload increases in this mandated area. SDG&E closely tracks the activities related to the mandated projects, as well as the associated unit costs. The unit costs are applied to the anticipated work in the future, which is predictable with a high level of confidence due to the comprehensive data management activities performed by the group managing the mandated work.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00229.0
Category: D. MANDATED
Category-Sub: 1. CORRECTIVE MAINTENANCE PROGRAM
Workpaper Group: 002290 - CORRECTIVE MAINTENANCE PROGRAM (CMP)

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	3,745	3,664	3,876	0	0	0	3,745	3,664	3,876
Non-Labor	Zero-Based	4,907	4,800	5,078	0	0	0	4,907	4,800	5,078
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**8,652**	**8,464**	**8,954**	**0**	**0**	**0**	**8,652**	**8,464**	**8,954**
FTE	Zero-Based	37.5	36.6	38.8	0.0	0.0	0.0	37.5	36.6	38.8

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00229.0
Category: D. MANDATED
Category-Sub: 1. CORRECTIVE MAINTENANCE PROGRAM
Workpaper Group: 002290 - CORRECTIVE MAINTENANCE PROGRAM (CMP)

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	3,909	3,942	3,573	3,890	3,505
Non-Labor	4,032	4,772	4,889	5,105	4,425
NSE	0	0	0	0	0
Total	**7,941**	**8,714**	**8,462**	**8,995**	**7,930**
FTE	40.2	38.3	33.2	35.7	31.8
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	2	0	32	0	0
NSE	0	0	0	0	0
Total	**2**	**0**	**32**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	3,909	3,942	3,573	3,890	3,505
Non-Labor	4,034	4,772	4,921	5,105	4,425
NSE	0	0	0	0	0
Total	**7,943**	**8,714**	**8,494**	**8,995**	**7,930**
FTE	40.2	38.3	33.2	35.7	31.8
Vacation & Sick (Nominal $)					
Labor	604	628	526	564	556
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**604**	**628**	**526**	**564**	**556**
FTE	6.7	6.6	5.5	5.8	5.6
Escalation to 2013$					
Labor	680	479	243	106	0
Non-Labor	608	500	292	122	0
NSE	0	0	0	0	0
Total	**1,287**	**978**	**535**	**228**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	5,192	5,048	4,342	4,560	4,061
Non-Labor	4,641	5,272	5,213	5,226	4,425
NSE	0	0	0	0	0
Total	**9,833**	**10,320**	**9,555**	**9,786**	**8,486**
FTE	46.9	44.9	38.7	41.5	37.4

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00229.0
Category: D. MANDATED
Category-Sub: 1. CORRECTIVE MAINTENANCE PROGRAM
Workpaper Group: 002290 - CORRECTIVE MAINTENANCE PROGRAM (CMP)

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	2	0	32	0	0
NSE	0	0	0	0	0
Total	**2**	**0**	**32**	**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	0	2	0	2	0.0	CPWITT20131029164620
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	2	0	2	0.0	
2010 Total	0	0	0	0	0.0	
2011	0	32	0	32	0.0	CPWITT20131029164706
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	32	0	32	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 002290

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00229.0
Category:	D. MANDATED
Category-Sub:	1. CORRECTIVE MAINTENANCE PROGRAM
Workpaper Group:	002290 - CORRECTIVE MAINTENANCE PROGRAM (CMP)
Workpaper Detail:	002290.001 - Corrective Maintenance Program
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	3,745	3,664	3,876
Non-Labor	4,907	4,800	5,078
NSE	0	0	0
Total	**8,652**	**8,464**	**8,954**
FTE	37.5	36.6	38.8

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002890 - CMP UG Switch Replacement & Manhole Repair

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00289.0
Category: D. MANDATED
Category-Sub: 2. CMP UG SWITCH REPLACE. & MANHOLE REPAIR
Workpaper Group: 002890 - CMP UG Switch Replacement & Manhole Repair

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	729	487	587	680	528	10,991	11,128	11,266
Non-Labor	Zero-Based	5,444	4,604	4,321	4,223	3,259	1,200	1,200	1,200
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**6,173**	**5,091**	**4,908**	**4,903**	**3,787**	**12,191**	**12,328**	**12,466**
FTE	Zero-Based	5.1	3.1	4.3	4.6	4.0	11.0	11.1	11.3

Business Purpose:

The purpose of this project is to replace or remove underground and overhead switches, and to repair underground structures, all of which impact system integrity, and may pose a risk to employee and public safety. Switches are a vital part of SDG&E's distribution infrastructure; they allow for the isolation of problems on the electric system, and they reduce outage impact. Substructures, such as manholes, are equally as important as they contain critical pieces of distribution equipment. Their structural integrity is important to prevent cave-ins and falling debris, which could injure crews, damage equipment, and threaten surface traffic. The result of this project will be improved operational safety, reliability, and a reduction in maintenance and operational costs, and decreased public reliability risk.

Physical Description:

The first step is to identify underground switches and structures that need replacement, repairs or removal. This is done through our G.O. 165 Corrective Maintenance Program (CMP). Internal and external inspections are performed on a periodic basis, based on equipment type. At the time of inspection, equipment defects are identified and noted in the system of record. Based on sound engineering, operating, and design practices, the decision may be made to repair, replace "in-kind", upgrade, or remove the equipment.

With the overhead system, visual/infra-red inspections, operating experience, and type and vintage of the switch will be used as the main drivers for removal or replacement (the overhead portion of this project will not include any switch maintenance). Operational input from Construction & Operation (C&O) Centers will also be used to determine which switches are prioritized for replacement or removal. For example, when a switch is identified as needing replacement, the Construction & Operation (C&O) Centers will investigate and prioritize each job in an effort to determine the best-fit solution based on switch location, operational flexibility, reliability impacts, and cost. For underground structures, the Civil Engineering Department will investigate and prioritize each job and decide on the corrective action to be taken.

Underground switches include: air, gas, and oil insulated switches.

Overhead switches include: hookstick and gang operated switches.

Underground structures include: manholes, SDG&E owned vaults, and handholes.

Project Justification:

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00289.0
Category:	D. MANDATED
Category-Sub:	2. CMP UG SWITCH REPLACE. & MANHOLE REPAIR
Workpaper Group:	002890 - CMP UG Switch Replacement & Manhole Repair

The primary objectives of this program are to maintain distribution equipment and facilities for the safety and well-being of both employees and the general public and to comply with General Order's 95, 128 and 165. Failure to implement this program will significantly reduce reliability, limit operational flexibility, and may subject SDG&E to possible fines from the CPUC. Without implementing such a program SDG&E may increase the risk of equipment failure and prolonged outages.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00289.0
Category:	D. MANDATED
Category-Sub:	2. CMP UG SWITCH REPLACE. & MANHOLE REPAIR
Workpaper Group:	002890 - CMP UG Switch Replacement & Manhole Repair

Forecast Methodology:

Labor - Zero-Based

The forecast method used for CMP UG Switch Replacement & Manhole Repair is zero-based, and inlcudes projected workload increases in this mandate area. The projected workload increases are related to a backlog of Do Not Operate Energized (DOE) switches. These are switches that have low levels of insulating medium, and cannot be operated while energized. Spending must be increased to reduce the number of inoperable switches in service. The forecasted costs are based on specific cost estimates for each switch replacement job and for each substructure repair job.

Non-Labor - Zero-Based

The forecast method used for CMP UG Switch Replacement & Manhole Repair is zero-based, and inlcudes projected workload increases in this mandate area. The projected workload increases are related to a backlog of Do Not Operate Energized (DOE) switches. These are switches that have low levels of insulating medium, and cannot be operated while energized. Spending must be increased to reduce the number of inoperable switches in service. The forecasted costs are based on specific cost estimates for each switch replacement job and for each substructure repair job.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00289.0
Category: D. MANDATED
Category-Sub: 2. CMP UG SWITCH REPLACE. & MANHOLE REPAIR
Workpaper Group: 002890 - CMP UG Switch Replacement & Manhole Repair

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	10,991	11,128	11,266	0	0	0	10,991	11,128	11,266
Non-Labor	Zero-Based	1,200	1,200	1,200	0	0	0	1,200	1,200	1,200
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**12,191**	**12,328**	**12,466**	**0**	**0**	**0**	**12,191**	**12,328**	**12,466**
FTE	Zero-Based	11.0	11.1	11.3	0.0	0.0	0.0	11.0	11.1	11.3

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00289.0
Category: D. MANDATED
Category-Sub: 2. CMP UG SWITCH REPLACE. & MANHOLE REPAIR
Workpaper Group: 002890 - CMP UG Switch Replacement & Manhole Repair

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	555	385	489	586	458
Non-Labor	4,744	2,709	4,069	4,269	3,260
NSE	0	0	0	0	0
Total	**5,299**	**3,094**	**4,558**	**4,855**	**3,718**
FTE	4.5	2.6	3.7	4.0	3.4
Adjustments (Nominal $) **					
Labor	-6	-5	-6	-6	-2
Non-Labor	-13	1,458	10	-145	-2
NSE	0	0	0	0	0
Total	**-19**	**1,454**	**4**	**-151**	**-4**
FTE	-0.1	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	549	380	483	580	456
Non-Labor	4,731	4,167	4,079	4,125	3,259
NSE	0	0	0	0	0
Total	**5,280**	**4,547**	**4,562**	**4,705**	**3,714**
FTE	4.4	2.6	3.7	4.0	3.4
Vacation & Sick (Nominal $)					
Labor	85	61	71	84	72
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**85**	**61**	**71**	**84**	**72**
FTE	0.7	0.5	0.6	0.6	0.6
Escalation to 2013$					
Labor	95	46	33	16	0
Non-Labor	713	436	242	98	0
NSE	0	0	0	0	0
Total	**808**	**483**	**275**	**114**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	729	487	587	680	528
Non-Labor	5,444	4,604	4,321	4,223	3,259
NSE	0	0	0	0	0
Total	**6,173**	**5,091**	**4,908**	**4,903**	**3,787**
FTE	5.1	3.1	4.3	4.6	4.0

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00289.0
Category: D. MANDATED
Category-Sub: 2. CMP UG SWITCH REPLACE. & MANHOLE REPAIR
Workpaper Group: 002890 - CMP UG Switch Replacement & Manhole Repair

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	-6	-5	-6	-6	-2
Non-Labor	-13	1,458	10	-145	-2
NSE	0	0	0	0	0
Total	**-19**	**1,454**	**4**	**-151**	**-4**
FTE	-0.1	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00289.0
Category: D. MANDATED
Category-Sub: 2. CMP UG SWITCH REPLACE. & MANHOLE REPAIR
Workpaper Group: 002890 - CMP UG Switch Replacement & Manhole Repair

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	-6	-13	0	-19	-0.1	CPWITT20131029165413
Adjustment made to exclude 15% of General Plant.						
2009 Total	-6	-13	0	-19	-0.1	
2010	0	1,469	0	1,469	0.0	CPWITT20131029165023
Adjustment made to remove CIAC from historical costs.						
	-5	-11	0	-16	0.0	CPWITT20131029165244
Adjustment made to exclude 15% of General Plant.						
2010 Total	-5	1,458	0	1,454	0.0	
2011	0	12	0	12	0.0	CPWITT20131029165040
Adjustment made to remove CIAC from historical costs.						
	-6	-2	0	-8	0.0	CPWITT20131029165433
Adjustment made to exclude 15% of General Plant.						
2011 Total	-6	10	0	4	0.0	
2012	0	-141	0	-141	0.0	CPWITT20131029165103
Adjustment made to remove CIAC from historical costs.						
	-6	-3	0	-9	0.0	CPWITT20131029165506
Adjustment made to exclude 15% of General Plant.						
2012 Total	-6	-145	0	-151	0.0	
2013	-2	-2	0	-4	0.0	CPWITT20140212163522
Adjustment made to exclude 15% of General Plant.						
2013 Total	-2	-2	0	-4	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002890

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00289.0
Category:	D. MANDATED
Category-Sub:	2. CMP UG SWITCH REPLACE. & MANHOLE REPAIR
Workpaper Group:	002890 - CMP UG Switch Replacement & Manhole Repair
Workpaper Detail:	002890.001 - CMP UG SWITCH REPLACE & MANHOLE REPAIR
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	10,991	11,128	11,266
Non-Labor	1,200	1,200	1,200
NSE	0	0	0
Total	**12,191**	**12,328**	**12,466**
FTE	11.0	11.1	11.3

Note: Totals may include rounding differences.

Beginning of Workpaper Group
012950 - Load Research/DLP Electric Metering Project

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 01295.0
Category: D. MANDATED
Category-Sub: 3. LOAD RESEARCH/DLP ELEC. METERING PROJECT
Workpaper Group: 012950 - Load Research/DLP Electric Metering Project

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	43	11	38	6	30	46	46	46
Non-Labor	Zero-Based	118	60	219	25	202	256	256	256
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**161**	**70**	**258**	**31**	**233**	**302**	**302**	**302**
FTE	Zero-Based	0.4	0.1	0.4	0.1	0.2	0.5	0.5	0.5

Business Purpose:

It is necessary to update the load research and metering sample in support of Load Research Metering and Data Collection Requirements in California Code of Regulations, Title 20. In addition, an updated sample is required to support SDG&E's Marginal Cost Studies, and the development of pricing strategies and rate design to accurately reflect differing cost causation by rate class. PURPA requirements dictate that individual samples reflect 90% confidence with +/- 10% error around the peak estimate. This level of precision applies to both CEC and Marginal Studies. SDG&E is required to maintain a Dynamic Load Research sample to determine, on a daily basis, usage by rate class for the purposes of pricing and energy procurement forecasting. In addition to these samples used in producing daily or yearly reports, there are other samples fielded that aid in supporting strategic analysis in support of Regulatory and other business units on high profile issues such as Air Conditioning usage, Solar Energy (California Solar Initiative) and Alternative Fuels OIR.

Physical Description:

This project is using smart meter samples for DLP and CEC. However, now that solar is increasing as such a high rate, smart meters are being used to meter customers generation, in order to develop generation profiles and add those customer's net profiles into the DLPs. Smart meters are also being used to study EV charging. Both solar and EV rate classes are being utilized in our cost of service studies, and in the development of forecasted rate determinants that go into rate design.
Due to recent OIR and increased interest in electric vehicle saturation in SDG&E's service territory, this project will analyze EV charging habits and how that might affect SDG&E's system. SDG&E is partnering with other agencies (as well as the CPUC) to conduct an Electric Vehicle Study. This study will meter the charging patterns of Electric Vehicles.
Additionally new EV rates will be tested on the study participants to determine price sensitivity. The CPUC opened an OIR with respect to alternative fuel vehicles and this study will be used to help craft policy decisions that can impact the state.
At max the study have 1,000 participants who will have a separate meter installed on their EV. This meter will collect 15 minute interval data and be used in calculating the customer's bill for a specific EV rate. The study is anticipated to last at least 2 years. The study will include price response and evaluate EV charging impacts relative to SDG&E's system load.
Impacts to transformers and circuits will also be identified, if any.

Project Justification:

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	01295.0
Category:	D. MANDATED
Category-Sub:	3. LOAD RESEARCH/DLP ELEC. METERING PROJECT
Workpaper Group:	012950 - Load Research/DLP Electric Metering Project

The electrical vehicle pricing study's experimental rates have been extended through 2014. SDG&E must comply with providing the metering to enable the electric vehicle rate options. Advice letter 2157-E and 2157#-A authorizes rates EPEV-X, EPEV-Y and EPEV-Z to continue through 2014. The EPEV rates require a separate meter for the Electric Vehicle charging and Capital Budget 1295 provides this funding for the installations of these billing meters. R.09-08-009 (AFV OIR) ordered in D.11-07-029 the requirement for IOUs to study and report on EV charging behavior and recently extended the load research requirement in D. 13-06-014 through June 2016. Additionally, there is a CPUC residential rate OIR R.12-06-013 that requires SDG&E to develop cost based rates for all residential customers, to avoid cross subsidies…NEM (Net Electric Metering) customer rate design is included in this OIR. This in turn requires SDG&E to have valid metering samples of NEM, which includes metering generation, sellback and utility provided kWh.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	01295.0
Category:	D. MANDATED
Category-Sub:	3. LOAD RESEARCH/DLP ELEC. METERING PROJECT
Workpaper Group:	012950 - Load Research/DLP Electric Metering Project

Forecast Methodology:

Labor - Zero-Based

The forecast methodology for the mandated projects is zero-based with increases based on projected workload increases in the mandated area. SDG&E closely tracks the activities related to the mandated projects, as well as the associated unit costs. The unit costs are applied to the anticipated work in the future, which is predictable with a high level of confidence due to the comprehensive data management activities done by the group managing the mandated work. Since the mandated work is also tied to regulatory requirements, it is also easy to determine when costs will increase as a result of new or modified requirements.

Non-Labor - Zero-Based

The forecast methodology for the mandated projects is zero-based with increases based on projected workload increases in the mandated area. SDG&E closely tracks the activities related to the mandated projects, as well as the associated unit costs. The unit costs are applied to the anticipated work in the future, which is predictable with a high level of confidence due to the comprehensive data management activities done by the group managing the mandated work. Since the mandated work is also tied to regulatory requirements, it is also easy to determine when costs will increase as a result of new or modified requirements.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 01295.0
Category: D. MANDATED
Category-Sub: 3. LOAD RESEARCH/DLP ELEC. METERING PROJECT
Workpaper Group: 012950 - Load Research/DLP Electric Metering Project

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	46	46	46	0	0	0	46	46	46
Non-Labor	Zero-Based	256	256	256	0	0	0	256	256	256
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**302**	**302**	**302**	**0**	**0**	**0**	**302**	**302**	**302**
FTE	Zero-Based	0.5	0.5	0.5	0.0	0.0	0.0	0.5	0.5	0.5

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 01295.0
Category: D. MANDATED
Category-Sub: 3. LOAD RESEARCH/DLP ELEC. METERING PROJECT
Workpaper Group: 012950 - Load Research/DLP Electric Metering Project

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	32	8	32	5	26
Non-Labor	103	54	207	24	202
NSE	0	0	0	0	0
Total	**135**	**62**	**238**	**29**	**229**
FTE	0.3	0.1	0.3	0.1	0.2
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	32	8	32	5	26
Non-Labor	103	54	207	24	202
NSE	0	0	0	0	0
Total	**135**	**62**	**238**	**29**	**229**
FTE	0.3	0.1	0.3	0.1	0.2
Vacation & Sick (Nominal $)					
Labor	5	1	5	1	4
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**5**	**1**	**5**	**1**	**4**
FTE	0.1	0.0	0.1	0.0	0.0
Escalation to 2013$					
Labor	6	1	2	0	0
Non-Labor	15	6	12	1	0
NSE	0	0	0	0	0
Total	**21**	**7**	**14**	**1**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	43	11	38	6	30
Non-Labor	118	60	219	25	202
NSE	0	0	0	0	0
Total	**161**	**70**	**258**	**31**	**233**
FTE	0.4	0.1	0.4	0.1	0.2

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 01295.0
Category: D. MANDATED
Category-Sub: 3. LOAD RESEARCH/DLP ELEC. METERING PROJECT
Workpaper Group: 012950 - Load Research/DLP Electric Metering Project

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 012950

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	01295.0
Category:	D. MANDATED
Category-Sub:	3. LOAD RESEARCH/DLP ELEC. METERING PROJECT
Workpaper Group:	012950 - Load Research/DLP Electric Metering Project
Workpaper Detail:	012950.001 - Project Monthly Forecast
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	46	46	46
Non-Labor	256	256	256
NSE	0	0	0
Total	**302**	**302**	**302**
FTE	0.5	0.5	0.5

Note: Totals may include rounding differences.

Beginning of Workpaper Group
102650 - Avian Protection

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 10265.0
Category: D. MANDATED
Category-Sub: 4. Avian Protection
Workpaper Group: 102650 - Avian Protection

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	152	310	611	536	553	541	530
Non-Labor	Zero-Based	0	827	1,059	1,066	940	1,127	1,104	1,079
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**979**	**1,369**	**1,676**	**1,476**	**1,680**	**1,645**	**1,609**
FTE	Zero-Based	0.0	1.3	2.4	3.6	3.2	5.5	5.4	5.3

Business Purpose:

Identify and retro-fit, rearrange, or build-to-standard distribution poles in the SDG&E service territory to prevent electrocution of birds in compliance with:
1. Migratory Bird Treaty Act
2. Bald and Golden Eagle Protection Act
3. Codes defined by California Department of Fish and Game

The project will also:
1. Harden the system and reduce fire risk associated with avian electrocutions
2. Improve SDG&E reliability and customer service
3. Will align with Avian Power Line Interaction Committee (APLIC) Guidelines

Physical Description:

The plan will systematically inspect all distribution lines and poles in the overhead distribution system that either 1) lie within the Avian Protection Zone, or 2) have associated known bird contacts, in which case we will identify and resolve potential avian risks.

Project Justification:

To ensure SDG&E is in compliance with State and Federal laws:
1. Migratory Bird Treaty Act
2. Bald and Golden Eagle Protection Act
3. Codes defined by California Department of Fish and Game

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10265.0
Category:	D. MANDATED
Category-Sub:	4. Avian Protection
Workpaper Group:	102650 - Avian Protection

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Avian Protection program is zero-based, and includes projected workload increases in this mandated area. SDG&E closely tracks the activities related to the mandated projects, as well as the associated unit costs. The unit costs are applied to the anticipated work in the future, which is predictable with a high level of confidence due to the comprehensive data management activities done by the group managing the mandated work. SDG&E has mapped and prioritized areas where avian issues are a concern, and has focused on those areas for enhancements to the overhead electric system to reduce the potential for avian electrocutions. Using a long-term average was not appropriate for this budget, since the program was just ramping up in 2009 and 2010. The forecasted expenditures are expected to be closer to the 2012 actuals, based on the forecasted amount of work and the actual unit costs.

Non-Labor - Zero-Based

The forecast method used for Avian Protection program is zero-based, and includes projected workload increases in this mandated area. SDG&E closely tracks the activities related to the mandated projects, as well as the associated unit costs. The unit costs are applied to the anticipated work in the future, which is predictable with a high level of confidence due to the comprehensive data management activities done by the group managing the mandated work. SDG&E has mapped and prioritized areas where avian issues are a concern, and has focused on those areas for enhancements to the overhead electric system to reduce the potential for avian electrocutions. Using a long-term average was not appropriate for this budget, since the program was just ramping up in 2009 and 2010. The forecasted expenditures are expected to be closer to the 2012 actuals, based on the forecasted amount of work and the actual unit costs.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 10265.0
Category: D. MANDATED
Category-Sub: 4. Avian Protection
Workpaper Group: 102650 - Avian 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	Zero-Based	553	541	530	0	0	0	553	541	530
Non-Labor	Zero-Based	1,127	1,104	1,079	0	0	0	1,127	1,104	1,079
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**1,680**	**1,645**	**1,609**	**0**	**0**	**0**	**1,680**	**1,645**	**1,609**
FTE	Zero-Based	5.5	5.4	5.3	0.0	0.0	0.0	5.5	5.4	5.3

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 10265.0
Category: D. MANDATED
Category-Sub: 4. Avian Protection
Workpaper Group: 102650 - Avian Protection

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	119	255	521	463
Non-Labor	0	749	958	1,041	940
NSE	0	0	0	0	0
Total	**0**	**867**	**1,213**	**1,562**	**1,403**
FTE	0.0	1.1	2.1	3.1	2.7
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	0	0	42	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**42**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	0	119	255	521	463
Non-Labor	0	749	1,000	1,041	940
NSE	0	0	0	0	0
Total	**0**	**867**	**1,255**	**1,562**	**1,403**
FTE	0.0	1.1	2.1	3.1	2.7
Vacation & Sick (Nominal $)					
Labor	0	19	38	75	73
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**19**	**38**	**75**	**73**
FTE	0.0	0.2	0.3	0.5	0.5
Escalation to 2013$					
Labor	0	14	17	14	0
Non-Labor	0	78	59	25	0
NSE	0	0	0	0	0
Total	**0**	**93**	**77**	**39**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	152	310	611	536
Non-Labor	0	827	1,059	1,066	940
NSE	0	0	0	0	0
Total	**0**	**979**	**1,369**	**1,676**	**1,476**
FTE	0.0	1.3	2.4	3.6	3.2

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 10265.0
Category: D. MANDATED
Category-Sub: 4. Avian Protection
Workpaper Group: 102650 - Avian Protection

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	0	0	42	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**42**	**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	0	42	0	42	0.0	CBUTLER2014021214210
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	42	0	42	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 102650

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10265.0
Category:	D. MANDATED
Category-Sub:	4. Avian Protection
Workpaper Group:	102650 - Avian Protection
Workpaper Detail:	102650.001 - Avian Protection
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	553	541	530
Non-Labor	1,127	1,104	1,079
NSE	0	0	0
Total	**1,680**	**1,645**	**1,609**
FTE	5.5	5.4	5.3

Note: Totals may include rounding differences.

Beginning of Workpaper Group
872320 - Pole Replacement And Reinforcement

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 87232.0
Category: D. MANDATED
Category-Sub: 5. POLE REPLACEMENT AND REINFORCEMENT
Workpaper Group: 872320 - Pole Replacement And Reinforcement

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	1,871	2,353	3,012	2,364	2,721	2,529	2,590	2,644
Non-Labor	Zero-Based	9,515	16,576	8,125	7,491	11,945	12,518	12,819	13,088
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**11,386**	**18,929**	**11,138**	**9,855**	**14,665**	**15,047**	**15,409**	**15,732**
FTE	Zero-Based	17.5	20.8	26.9	22.0	25.0	25.3	25.9	26.4

Business Purpose:

The purpose of this budget is to provide funding to continue the pole restoration and replacement program for in service distribution poles from 2013 through 2017. Steel and fiberglass pole implementation will be incorporated into these routine CMP pole replacements going forward.
Wood pole damage is attributed to numerous factors including, but not limited to, the loss of original preservative treatment experienced with Penta-Cellon poles, the presence of fungi decay, and bird and/or termite damage.

Physical Description:

All electric distribution poles and associated equipment are visually patrolled on an annual basis in urban and rural areas, inspected in detail every five years, and receive a wood pole inspection on average every ten years. Inspections and some repair work are captured under O&M budgets. There are approximately 230,000 overhead poles in the electric distribution system.

Project Justification:

The pole inspection/restoration/replacement program is designed to comply with General Order 165 and SDG&E's compliance plan submitted on July 1, 1997. General Order 165 became effective on January 1, 1998. In addition, this budget protects SDG&E's capital investments of overhead distribution facilities by maintaining General Order 95 mandated safety factors for the applicable grades of construction. Suspension of this program would breach SDG&E's responsibility to comply with General Orders 95 and 165, drastically reduce the life expectancy of the overhead distribution system, pose safety risks to customers, and cause extensive capital replacements.
Pole replacement candidates are identified through the CMP Overhead Visual Program (code 246-Damaged pole) and contracted wood pole intrusive inspections (code 681-Reject Non-restorable or code 481-replace pole). Pole reinforcements (code 682-Restoration Recommended) are contracted out. Candidate poles are confirmed for replacement and enter the job queue for either SDG&E or contract crew work. The number of poles identified as candidate replacements runs approximately 2% of poles inspected, for a total of about 1,500 poles per year (includes Telco poles). Reinforcements run approximately 2.4% of poles inspected by contractor.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	87232.0
Category:	D. MANDATED
Category-Sub:	5. POLE REPLACEMENT AND REINFORCEMENT
Workpaper Group:	872320 - Pole Replacement And Reinforcement

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Pole Replacement and Reinforcement is zero-based, and includes projected workload increases in this mandated area. SDG&E closely tracks the activities related to the mandated projects, as well as the associated unit costs. The unit costs are applied to the anticipated work in the future, which is predictable with a high level of confidence due to the comprehensive data management activities performed by the group managing the mandated work.

Non-Labor - Zero-Based

The forecast method used for Pole Replacement and Reinforcement is zero-based, and includes projected workload increases in this mandated area. SDG&E closely tracks the activities related to the mandated projects, as well as the associated unit costs. The unit costs are applied to the anticipated work in the future, which is predictable with a high level of confidence due to the comprehensive data management activities performed by the group managing the mandated work.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 87232.0
Category: D. MANDATED
Category-Sub: 5. POLE REPLACEMENT AND REINFORCEMENT
Workpaper Group: 872320 - Pole Replacement And Reinforcement

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	2,529	2,590	2,644	0	0	0	2,529	2,590	2,644
Non-Labor	Zero-Based	12,518	12,819	13,088	0	0	0	12,518	12,819	13,088
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**15,047**	**15,409**	**15,732**	**0**	**0**	**0**	**15,047**	**15,409**	**15,732**
FTE	Zero-Based	25.3	25.9	26.4	0.0	0.0	0.0	25.3	25.9	26.4

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 87232.0
Category: D. MANDATED
Category-Sub: 5. POLE REPLACEMENT AND REINFORCEMENT
Workpaper Group: 872320 - Pole Replacement And Reinforcement

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	1,409	1,837	2,479	2,017	2,348
Non-Labor	8,256	14,996	7,667	7,312	11,936
NSE	0	0	0	0	0
Total	**9,665**	**16,834**	**10,145**	**9,329**	**14,284**
FTE	15.0	17.7	23.1	18.9	21.3
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	13	8	4	4	9
NSE	0	0	0	0	0
Total	**13**	**8**	**4**	**4**	**9**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	1,409	1,837	2,479	2,017	2,348
Non-Labor	8,269	15,004	7,670	7,316	11,945
NSE	0	0	0	0	0
Total	**9,678**	**16,842**	**10,149**	**9,333**	**14,293**
FTE	15.0	17.7	23.1	18.9	21.3
Vacation & Sick (Nominal $)					
Labor	218	293	365	292	372
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**218**	**293**	**365**	**292**	**372**
FTE	2.5	3.1	3.8	3.1	3.7
Escalation to 2013$					
Labor	245	223	169	55	0
Non-Labor	1,245	1,571	455	175	0
NSE	0	0	0	0	0
Total	**1,490**	**1,794**	**624**	**230**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	1,871	2,353	3,012	2,364	2,721
Non-Labor	9,515	16,576	8,125	7,491	11,945
NSE	0	0	0	0	0
Total	**11,386**	**18,929**	**11,138**	**9,855**	**14,665**
FTE	17.5	20.8	26.9	22.0	25.0

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 87232.0
Category: D. MANDATED
Category-Sub: 5. POLE REPLACEMENT AND REINFORCEMENT
Workpaper Group: 872320 - Pole Replacement And Reinforcement

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	13	8	4	4	9
NSE	0	0	0	0	0
Total	**13**	**8**	**4**	**4**	**9**
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	0	13	0	13	0.0	CBUTLER201402121519(
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	13	0	13	0.0	
2010	0	8	0	8	0.0	CBUTLER201402121519:
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	8	0	8	0.0	
2011	0	4	0	4	0.0	CBUTLER201402121519-
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	4	0	4	0.0	
2012	0	4	0	4	0.0	CBUTLER201402121519!
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	4	0	4	0.0	
2013	0	9	0	9	0.0	CBUTLER201402041018!
Adjustment made to remove CIAC from historical costs.						
2013 Total	0	9	0	9	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 872320

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	87232.0
Category:	D. MANDATED
Category-Sub:	5. POLE REPLACEMENT AND REINFORCEMENT
Workpaper Group:	872320 - Pole Replacement And Reinforcement
Workpaper Detail:	872320.001 - Pole Replacement and Reinforcement
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	2,529	2,590	2,644
Non-Labor	12,518	12,819	13,088
NSE	0	0	0
Total	**15,047**	**15,409**	**15,732**
FTE	25.3	25.9	26.4

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: E. MATERIALS
Workpaper: 002140

Summary for Category: E. MATERIALS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	50	38	40	42
Non-Labor	15,555	20,986	21,985	22,985
NSE	0	0	0	0
Total	**15,605**	**21,024**	**22,025**	**23,027**
FTE	0.6	0.4	0.4	0.4

002140 TRANSFORMERS

Labor	50	38	40	42
Non-Labor	15,555	20,986	21,985	22,985
NSE	0	0	0	0
Total	**15,605**	**21,024**	**22,025**	**23,027**
FTE	0.6	0.4	0.4	0.4

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002140 - TRANSFORMERS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00214.0
Category: E. MATERIALS
Category-Sub: 1. TRANSFORMERS
Workpaper Group: 002140 - TRANSFORMERS

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	43	31	59	36	50	38	40	42
Non-Labor	Zero-Based	22,725	21,718	17,791	18,196	15,555	20,986	21,985	22,985
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**22,768**	**21,749**	**17,850**	**18,232**	**15,605**	**21,024**	**22,025**	**23,027**
FTE	Zero-Based	0.5	0.4	0.6	0.5	0.6	0.4	0.4	0.4

Business Purpose:

Provide distribution transformers necessary to operate and maintain the electric distribution system.

Physical Description:

This blanket project provides the funds to purchase new line transformers. Materials are required to support the electric distribution system. This proposed budget assumes that capital projects and construction activities will be coordinated with the Project 214 funding.

Project Justification:

The funds for this blanket project are required to purchase new line transformers to be used to service the electric distribution system's customers. It is required to maintain inventory levels at each of the electric distribution service centers.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00214.0
Category:	E. MATERIALS
Category-Sub:	1. TRANSFORMERS
Workpaper Group:	002140 - TRANSFORMERS

Forecast Methodology:

Labor - Zero-Based

The majority of the costs for this project are Non-Labor.

Non-Labor - Zero-Based

The forecast for this project is zero-based. The expenditures in this project are closely related to the work being done in New Business, Mandated, Capacity, Reliability, Safety and Risk Mitigation, as well as the other categories where transformers are installed. Historically, the primary drivers have been the mandated maintenance work and new business work, which together account for half of the expenditures. In addition to this increases in this project related to the other electric distribution increases, SDG&E is also planning on using FR3 fluid (Envirotemp FR3 fluid, a substitute for conventional transformer oils developed by Cooper Power Systems) in transformers instead of the current mineral oil that is used. There is an incremental cost increase per unit, but the benefits of using FR3 are significant. FR3 improves fire safety, extends asset and insulation life, and has superior environmental benefits.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00214.0
Category: E. MATERIALS
Category-Sub: 1. TRANSFORMERS
Workpaper Group: 002140 - TRANSFORMERS

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	38	40	42	0	0	0	38	40	42
Non-Labor	Zero-Based	20,986	21,985	22,985	0	0	0	20,986	21,985	22,985
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**21,024**	**22,025**	**23,027**	**0**	**0**	**0**	**21,024**	**22,025**	**23,027**
FTE	Zero-Based	0.4	0.4	0.4	0.0	0.0	0.0	0.4	0.4	0.4

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00214.0
Category: E. MATERIALS
Category-Sub: 1. TRANSFORMERS
Workpaper Group: 002140 - TRANSFORMERS

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	32	24	48	31	43
Non-Labor	19,750	19,659	16,795	17,772	15,555
NSE	0	0	0	0	0
Total	**19,782**	**19,684**	**16,843**	**17,803**	**15,598**
FTE	0.4	0.3	0.5	0.4	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	32	24	48	31	43
Non-Labor	19,750	19,659	16,795	17,772	15,555
NSE	0	0	0	0	0
Total	**19,782**	**19,684**	**16,843**	**17,803**	**15,598**
FTE	0.4	0.3	0.5	0.4	0.5
Vacation & Sick (Nominal $)					
Labor	5	4	7	5	7
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**5**	**4**	**7**	**5**	**7**
FTE	0.1	0.1	0.1	0.1	0.1
Escalation to 2013$					
Labor	6	3	3	1	0
Non-Labor	2,975	2,059	996	424	0
NSE	0	0	0	0	0
Total	**2,980**	**2,062**	**1,000**	**425**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	43	31	59	36	50
Non-Labor	22,725	21,718	17,791	18,196	15,555
NSE	0	0	0	0	0
Total	**22,768**	**21,749**	**17,850**	**18,232**	**15,605**
FTE	0.5	0.4	0.6	0.5	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00214.0
Category: E. MATERIALS
Category-Sub: 1. TRANSFORMERS
Workpaper Group: 002140 - TRANSFORMERS

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 002140

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00214.0
Category:	E. MATERIALS
Category-Sub:	1. TRANSFORMERS
Workpaper Group:	002140 - TRANSFORMERS
Workpaper Detail:	002140.001 - Transformer Blanket
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	38	40	42
Non-Labor	20,986	21,985	22,985
NSE	0	0	0
Total	**21,024**	**22,025**	**23,027**
FTE	0.4	0.4	0.4

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002140

202 - Electric Meters and Regulators and 214 - Transformers

SDG&E develops budgets annually, typically in Q3-Q4 of the current year for the following year, for electric meter and transformer purchases. These budgets are primarily based on historical usage volume for all work including maintenance, reliability, conversions, new business, etc. SDG&E incorporates upstream projections for use as available. This includes a projected change (+/-) in New Business. The New Business forecast is developed elsewhere within SDG&E and disseminated in quantities of "Construction Units" annually. Any one year is compared to a previous year and reduced to a percentage. That percentage is then used as a starting point to ascertain an increase or decrease in New Business for budget development.

214 - Transformers

SDG&E develops budgets annually, typically in Q3-Q4 of the current year for the following year, for electric meter and transformer purchases. These budgets are primarily based on historical usage volume for all work including maintenance, reliability, conversions, new business, etc. SDG&E incorporates upstream projections for use as available. This includes a projected change (+/-) in New Business. The New Business forecast is developed elsewhere within SDG&E and disseminated in quantities of "Construction Units" annually. Any one year is compared to a previous year and reduced to a percentage. That percentage is then used as a starting point to ascertain an increase or decrease in New Business for budget development.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: F. NEW BUSINESS
Workpaper: VARIOUS

Summary for Category: F. NEW BUSINESS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	5,299	7,914	9,606	10,913
Non-Labor	26,706	50,678	61,047	71,049
NSE	0	0	0	0
Total	**32,005**	**58,592**	**70,653**	**81,962**
FTE	53.7	76.9	89.6	106.8
002020 ELECTRIC METERS & REGULATORS				
Labor	0	0	0	0
Non-Labor	1,204	4,036	4,488	4,769
NSE	0	0	0	0
Total	**1,204**	**4,036**	**4,488**	**4,769**
FTE	0.0	0.0	0.0	0.0
002250 CUSTOMER REQUESTED UPGRADES AND SERVICES				
Labor	1,119	1,338	1,472	1,619
Non-Labor	6,804	6,663	7,328	8,059
NSE	0	0	0	0
Total	**7,923**	**8,001**	**8,800**	**9,678**
FTE	9.2	11.4	12.7	14.2
002350 TRANSFORMER & METER INSTALLATIONS				
Labor	1,219	1,341	1,457	1,539
Non-Labor	2,638	3,915	4,252	4,493
NSE	0	0	0	0
Total	**3,857**	**5,256**	**5,709**	**6,032**
FTE	13.9	14.7	15.9	16.7
022640 SUSTAINABLE COMMUNITY ENERGY SYSTEMS				
Labor	39	34	0	0
Non-Labor	2,208	1,531	0	0
NSE	0	0	0	0
Total	**2,247**	**1,565**	**0**	**0**
FTE	0.5	0.4	0.0	0.0
002040 ELECTRIC DISTRIBUTION EASEMENTS				
Labor	854	1,503	1,840	1,926
Non-Labor	290	2,465	3,017	3,158
NSE	0	0	0	0
Total	**1,144**	**3,968**	**4,857**	**5,084**
FTE	11.1	15.0	18.4	19.2

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: F. NEW BUSINESS
Workpaper: VARIOUS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
002110 CONVERSION FROM OH-UG RULE 20B 20C				
Labor	179	193	212	234
Non-Labor	578	1,613	1,773	1,950
NSE	0	0	0	0
Total	**757**	**1,806**	**1,985**	**2,184**
FTE	1.9	1.8	2.0	2.2
002150 OH RESIDENTIAL NB				
Labor	32	52	68	83
Non-Labor	327	536	707	854
NSE	0	0	0	0
Total	**359**	**588**	**775**	**937**
FTE	0.3	0.5	0.6	0.8
002160 OH NON-RESIDENTIAL NB				
Labor	66	71	94	113
Non-Labor	674	1,058	1,396	1,689
NSE	0	0	0	0
Total	**740**	**1,129**	**1,490**	**1,802**
FTE	0.7	0.7	0.9	1.1
002170 UG RESIDENTIAL NB				
Labor	514	669	882	1,067
Non-Labor	3,012	8,415	11,106	13,436
NSE	0	0	0	0
Total	**3,526**	**9,084**	**11,988**	**14,503**
FTE	4.8	6.5	8.6	10.5
002180 UG NON-RESIDENTIAL NB				
Labor	456	824	1,088	1,316
Non-Labor	1,933	6,034	7,963	9,634
NSE	0	0	0	0
Total	**2,389**	**6,858**	**9,051**	**10,950**
FTE	4.0	7.8	10.4	12.7
002190 NEW BUSINESS INFRASTRUCTURE				
Labor	501	1,240	1,636	1,979
Non-Labor	3,763	9,877	13,034	15,770
NSE	0	0	0	0
Total	**4,264**	**11,117**	**14,670**	**17,749**
FTE	4.6	12.2	16.1	19.6
002240 NEW SERVICE INSTALLATIONS				
Labor	320	649	857	1,037
Non-Labor	3,275	4,535	5,983	7,237
NSE	0	0	0	0
Total	**3,595**	**5,184**	**6,840**	**8,274**
FTE	2.7	5.9	4.0	9.8

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002020 - ELECTRIC METERS & REGULATORS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00202.0
Category: F. NEW BUSINESS
Category-Sub: 1. ELECTRIC METERS & REGULATORS
Workpaper Group: 002020 - ELECTRIC METERS & REGULATORS

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	2,105	5,036	5,463	2,613	1,204	4,036	4,488	4,769
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**2,105**	**5,036**	**5,463**	**2,613**	**1,204**	**4,036**	**4,488**	**4,769**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Business Purpose:

Provide distribution meters and regulators necessary to operate and maintain the electric distribution system.

Physical Description:

This blanket project provides the funds to purchase watt-hour meters and regulators. Materials are required to support the electric distribution system. This proposed budget assumes that capital projects and construction activities will be coordinated with the Project 202 funding.

Project Justification:

This project provides distribution meters and regulators necessary to operate and maintain the electric distribution system for all occasions. It is required to maintain inventory levels at each of the electric distribution service centers. This is an ongoing blanket budget that is required to purchase meters. The meters could be used for new business installations, but they could also be installed as replacements for meters that are damaged or not properly functioning.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00202.0
Category:	F. NEW BUSINESS
Category-Sub:	1. ELECTRIC METERS & REGULATORS
Workpaper Group:	002020 - ELECTRIC METERS & REGULATORS

Forecast Methodology:

Labor - Zero-Based

The forecast is based on the Construction Unit Forecast, and the forecasted need for regulators, meters, and other equipment. Because the activities associated with this budget have changed with the deployment of smart meters, the forecast is based on the relatively short amount of time the smart meters have been in operation. Old meter labor costs, material costs, and equipment failure rates no longer apply. This forecast is based on new meter pricing and on operating costs from January1, 2013 to October 31, 2013. Supply Management will maintain AMI inventory for maintenance purposes in support of meters in the field that fail, or that are removed for testing.

Non-Labor - Zero-Based

See labor.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00202.0
Category: F. NEW BUSINESS
Category-Sub: 1. ELECTRIC METERS & REGULATORS
Workpaper Group: 002020 - ELECTRIC METERS & REGULATORS

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	4,036	4,488	4,769	0	0	0	4,036	4,488	4,769
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**4,036**	**4,488**	**4,769**	**0**	**0**	**0**	**4,036**	**4,488**	**4,769**
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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00202.0
Category: F. NEW BUSINESS
Category-Sub: 1. ELECTRIC METERS & REGULATORS
Workpaper Group: 002020 - ELECTRIC METERS & REGULATORS

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	0	0
Non-Labor	1,829	4,559	5,157	2,552	1,204
NSE	0	0	0	0	0
Total	**1,829**	**4,559**	**5,157**	**2,552**	**1,204**
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	1,829	4,559	5,157	2,552	1,204
NSE	0	0	0	0	0
Total	**1,829**	**4,559**	**5,157**	**2,552**	**1,204**
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	275	477	306	61	0
NSE	0	0	0	0	0
Total	**275**	**477**	**306**	**61**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	0	0	0
Non-Labor	2,105	5,036	5,463	2,613	1,204
NSE	0	0	0	0	0
Total	**2,105**	**5,036**	**5,463**	**2,613**	**1,204**
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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00202.0
Category: F. NEW BUSINESS
Category-Sub: 1. ELECTRIC METERS & REGULATORS
Workpaper Group: 002020 - ELECTRIC METERS & REGULATORS

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	-0.395	0	0	-0.395	0.0	MEHLERS201310220905
Adjustment made to remove errant labor charge in 2009.						
2009 Total	-0.395	0	0	-0.395	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 002020

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00202.0
Category:	F. NEW BUSINESS
Category-Sub:	1. ELECTRIC METERS & REGULATORS
Workpaper Group:	002020 - ELECTRIC METERS & REGULATORS
Workpaper Detail:	002020.001 - Meter Blanket
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	4,036	4,488	4,769
NSE	0	0	0
Total	**4,036**	**4,488**	**4,769**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002020

202 - Electric Meters and Regulators

SDG&E develops budgets annually, typically in Q3-Q4 of the current year for the following year, for electric meter and transformer purchases. These budgets are primarily based on historical usage volume for all work including maintenance, reliability, conversions, new business, etc. SDG&E incorporates upstream projections for use as available. This includes a projected change (+/-) in New Business. The New Business forecast is developed elsewhere within SDG&E and disseminated in quantities of "Construction Units" annually. Any one year is compared to a previous year and reduced to a percentage. That percentage is then used as a starting point to ascertain an increase or decrease in New Business for budget development.

Beginning of Workpaper Group
002040 - ELECTRIC DISTRIBUTION EASEMENTS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00204.0
Category: F. NEW BUSINESS
Category-Sub: 2. ELECTRIC DISTRIBUTION EASEMENTS
Workpaper Group: 002040 - ELECTRIC 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	Zero-Based	705	625	780	903	854	1,503	1,840	1,926
Non-Labor	Zero-Based	648	2,948	956	440	290	2,465	3,017	3,158
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**1,353**	**3,573**	**1,735**	**1,343**	**1,144**	**3,968**	**4,857**	**5,084**
FTE	Zero-Based	9.2	8.6	10.5	11.9	11.1	15.0	18.4	19.2

Business Purpose:

This project is required to obtain new electric distribution easements necessary to provide service to new customers, accommodate street and highway relocations, underground conversion projects, and capital projects improving service levels.

Physical Description:

Perform necessary surveys and mapping functions, document research, document preparation, and negotiations with private and governmental property owners for the acquisition of real property rights to allow the installation of new electrical distribution facilities on private property of public lands.

Project Justification:

Acquisition of real property easement rights to install new business electric facilities on private property to provide service for new customer loads.

There is no reasonable alternative to this project as long as the company must install or maintain electric facilities on, under, or over private property or public lands, including, but not limited to the CNF.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00204.0
Category:	F. NEW BUSINESS
Category-Sub:	2. ELECTRIC DISTRIBUTION EASEMENTS
Workpaper Group:	002040 - ELECTRIC DISTRIBUTION EASEMENTS

Forecast Methodology:

Labor - Zero-Based

This project forecast utilizes historical costs and anticipated growth levels in the Construction Unit Forecast. The forecast also takes into account existing easements that have expired or are expected to expire in this GRC forecast period. Appraisals are done to determine what the cost of new easements will actually be.

Non-Labor - Zero-Based

See Labor

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00204.0
Category: F. NEW BUSINESS
Category-Sub: 2. ELECTRIC DISTRIBUTION EASEMENTS
Workpaper Group: 002040 - ELECTRIC 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	Zero-Based	1,503	1,840	1,926	0	0	0	1,503	1,840	1,926
Non-Labor	Zero-Based	2,465	3,017	3,158	0	0	0	2,465	3,017	3,158
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**3,968**	**4,857**	**5,084**	**0**	**0**	**0**	**3,968**	**4,857**	**5,084**
FTE	Zero-Based	15.0	18.4	19.2	0.0	0.0	0.0	15.0	18.4	19.2

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00204.0
Category: F. NEW BUSINESS
Category-Sub: 2. ELECTRIC DISTRIBUTION EASEMENTS
Workpaper Group: 002040 - ELECTRIC DISTRIBUTION EASEMENTS

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	531	488	641	771	737
Non-Labor	464	2,565	815	337	138
NSE	0	0	0	0	0
Total	**994**	**3,053**	**1,457**	**1,107**	**875**
FTE	7.9	7.3	9.0	10.2	9.4
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	99	103	87	93	152
NSE	0	0	0	0	0
Total	**99**	**103**	**87**	**93**	**152**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	531	488	641	771	737
Non-Labor	563	2,669	902	429	290
NSE	0	0	0	0	0
Total	**1,094**	**3,157**	**1,544**	**1,200**	**1,027**
FTE	7.9	7.3	9.0	10.2	9.4
Vacation & Sick (Nominal $)					
Labor	82	78	94	112	117
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**82**	**78**	**94**	**112**	**117**
FTE	1.3	1.3	1.5	1.7	1.7
Escalation to 2013$					
Labor	92	59	44	21	0
Non-Labor	85	279	54	10	0
NSE	0	0	0	0	0
Total	**177**	**339**	**97**	**31**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	705	625	780	903	854
Non-Labor	648	2,948	956	440	290
NSE	0	0	0	0	0
Total	**1,353**	**3,573**	**1,735**	**1,343**	**1,144**
FTE	9.2	8.6	10.5	11.9	11.1

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00204.0
Category: F. NEW BUSINESS
Category-Sub: 2. ELECTRIC DISTRIBUTION EASEMENTS
Workpaper Group: 002040 - ELECTRIC DISTRIBUTION EASEMENTS

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	99	103	87	93	152
NSE	0	0	0	0	0
Total	**99**	**103**	**87**	**93**	**152**
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	0	99	0	99	0.0	MEHLERS201310141359
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	99	0	99	0.0	
2010	0	103	0	103	0.0	MEHLERS201310141359
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	103	0	103	0.0	
2011	0	87	0	87	0.0	MEHLERS201310141359
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	87	0	87	0.0	
2012	0	93	0	93	0.0	MEHLERS201310141400
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	93	0	93	0.0	
2013	0	152	0	152	0.0	CBUTLER201402040943
Adjustment made to remove CIAC from historical costs.						
2013 Total	0	152	0	152	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002040

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00204.0
Category: F. NEW BUSINESS
Category-Sub: 2. ELECTRIC DISTRIBUTION EASEMENTS
Workpaper Group: 002040 - ELECTRIC DISTRIBUTION EASEMENTS
Workpaper Detail: 002040.001 - collectible portion of BC 204

In-Service Date: Not Applicable
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	143	175	183
NSE	0	0	0
Total	**143**	**175**	**183**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00204.0
Category:	F. NEW BUSINESS
Category-Sub:	2. ELECTRIC DISTRIBUTION EASEMENTS
Workpaper Group:	002040 - ELECTRIC DISTRIBUTION EASEMENTS
Workpaper Detail:	002040.002 - non collectible portion of BC 204
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,503	1,840	1,926
Non-Labor	2,322	2,842	2,975
NSE	0	0	0
Total	**3,825**	**4,682**	**4,901**
FTE	15.0	18.4	19.2

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002040

002040 - Budget Code 204 - Electric Distribution Easements

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00204.0
Category: F. NEW BUSINESS
Category-Sub: 2. ELECTRIC DISTRIBUTION EASEMENTS
Workpaper Group: 002040 - ELECTRIC 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	Zero-Based	705	625	780	903	854	1,503	1,840	1,926
Non-Labor	Zero-Based	648	2,948	956	440	290	2,465	3,017	3,158
NSE	Zero-Based	-	-	-	-	-	-	-	-
Total		**1,353**	**3,573**	**1,735**	**1,343**	**1,144**	**3,968**	**4,857**	**5,084**
Collectible		(78)	(78)	(63)	(65)	(104)	(143)	(175)	(184)
Net Capital		**1,274**	**3,495**	**1,673**	**1,278**	**1,040**	**3,825**	**4,682**	**4,901**
FTE	Zero-Based	9.2	8.6	10.5	11.9	11.1	15.0	18.4	19.2

204 - Electric Distribution Easements

The Electric Distribution Easement forecast takes into account historical spend, anticipated growth based on the construction unit forecast, and the need to renew expiring easements. Estimates were done in fully loaded dollars and then converted to direct charges

In 2013, the estimated spend for land was:

Easement Acquisition =	$1,848,000
Survey and Mapping Support =	$600,000
Land Right Research =	$400,000
Total =	$2,848,000

Using this estimate as a base and using the construction unit forecast as a growth estimate, the following estimates were created for 2014, 2015, and 2016 in fully loaded dollars.

2014

Easement Acquisition =	$3,078,000
Survey and Mapping Support =	$1,350,000
Land Right Research =	$972,000
Total =	$5,400,000

2015

Easement Acquisition =	$3,847,000
Survey and Mapping Support =	$1,687,000
Land Right Research =	$1,216,000
Total =	$6,750,000

2016

Easement Acquisition =	$4,116,000
Survey and Mapping Support =	$1,805,000
Land Right Research =	$1,301,000
Total =	$7,222,000

Indirect were assumed to be 31% and a vacation and sick factor was added back to get the final direct cost estimates of the following:

2014: $3,968,000
2015: $4,857,000
2016: $5,084,000

Beginning of Workpaper Group
002110 - CONVERSION FROM OH-UG RULE 20B 20C

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00211.0
Category: F. NEW BUSINESS
Category-Sub: 3. CONVERSION FROM OH-UG RULE 20B 20C
Workpaper Group: 002110 - CONVERSION FROM OH-UG RULE 20B 20C

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	375	221	399	174	179	193	212	234
Non-Labor	5-YR Average	4,323	1,193	3,357	1,117	578	1,613	1,773	1,950
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**4,698**	**1,414**	**3,756**	**1,291**	**758**	**1,806**	**1,985**	**2,184**
FTE	5-YR Average	3.1	2.8	3.5	1.6	1.9	1.8	2.0	2.2

Business Purpose:

This project is required to convert existing electric overhead distribution lines to underground upon customer request.

Physical Description:

This project reflects SDG&E's portion of the costs for installing new underground facilities to replace existing overhead facilities for projects meeting the criteria for Rule 20B and 20C.

Project Justification:

SDG&E is responsible for a portion of the costs associated with converting overhead distribution lines to underground to comply with the "Rules for the Sale of Electric Energy"

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00211.0
Category:	F. NEW BUSINESS
Category-Sub:	3. CONVERSION FROM OH-UG RULE 20B 20C
Workpaper Group:	002110 - CONVERSION FROM OH-UG RULE 20B 20C

Forecast Methodology:

Labor - 5-YR Average

This project forecast is based on a 5-year historical average, with adjustments made based on the Construction Unit Forecast, to account for expected annual growth rates for 2015 and 2016.
The estimate for this blanket budget is derived by considering a variety of factors including previous expenditures, the amount of conversion work currently awaiting construction, changing trends toward the use of 20B conversions by municipalities and the forecasted level of new customer growth.
An estimated budget requirement for 2014 was established and a growth factor was applied as a means of estimating the requirements for 2015 and 2016. Conversion work can be impacted by new construction growth, but not all new developments require the conversion of existing overhead lines to underground. Municipally funded 20B conversions have the potential for the greatest impact on 211, but their dependence on public funding and public vote make their schedules unpredictable. Therefore, using the Construction Unit Forecast to set growth direction and tempering the effect for reasons stated above, applying a conservative percentage of growth serves as the best means of estimating future project requirements.

Non-Labor - 5-YR Average

See Labor.

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00211.0
Category: F. NEW BUSINESS
Category-Sub: 3. CONVERSION FROM OH-UG RULE 20B 20C
Workpaper Group: 002110 - CONVERSION FROM OH-UG RULE 20B 20C

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	269	269	269	-77	-58	-36	192	211	233
Non-Labor	5-YR Average	2,113	2,113	2,113	-500	-340	-163	1,613	1,773	1,950
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**2,382**	**2,382**	**2,382**	**-577**	**-398**	**-199**	**1,805**	**1,984**	**2,183**
FTE	5-YR Average	2.6	2.6	2.6	-0.8	-0.6	-0.4	1.8	2.0	2.2

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	-77	-500	0	-577	-0.8	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2014 Total	-77	-500	0	-577	-0.8	
2015	-58	-340	0	-398	-0.6	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2015 Total	-58	-340	0	-398	-0.6	
2016	-36	-163	0	-199	-0.4	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2016 Total	-36	-163	0	-199	-0.4	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00211.0
Category: F. NEW BUSINESS
Category-Sub: 3. CONVERSION FROM OH-UG RULE 20B 20C
Workpaper Group: 002110 - CONVERSION FROM OH-UG RULE 20B 20C

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	283	173	330	149	156
Non-Labor	144	-698	-1,312	182	660
NSE	0	0	0	0	0
Total	**428**	**-525**	**-982**	**331**	**815**
FTE	2.7	2.4	3.0	1.4	1.6
Adjustments (Nominal $) **					
Labor	-1	0	-2	0	-1
Non-Labor	3,613	1,778	4,480	908	-81
NSE	0	0	0	0	0
Total	**3,612**	**1,778**	**4,479**	**908**	**-82**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	282	173	328	149	155
Non-Labor	3,757	1,080	3,169	1,091	578
NSE	0	0	0	0	0
Total	**4,039**	**1,253**	**3,497**	**1,239**	**733**
FTE	2.7	2.4	3.0	1.4	1.6
Vacation & Sick (Nominal $)					
Labor	44	28	48	22	25
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**44**	**28**	**48**	**22**	**25**
FTE	0.4	0.4	0.5	0.2	0.3
Escalation to 2013$					
Labor	49	21	22	4	0
Non-Labor	566	113	188	26	0
NSE	0	0	0	0	0
Total	**615**	**134**	**210**	**30**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	375	221	399	174	179
Non-Labor	4,323	1,193	3,357	1,117	578
NSE	0	0	0	0	0
Total	**4,698**	**1,414**	**3,756**	**1,291**	**758**
FTE	3.1	2.8	3.5	1.6	1.9

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00211.0
Category: F. NEW BUSINESS
Category-Sub: 3. CONVERSION FROM OH-UG RULE 20B 20C
Workpaper Group: 002110 - CONVERSION FROM OH-UG RULE 20B 20C

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	-1	0	-2	0	-1
Non-Labor	3,613	1,778	4,480	908	-81
NSE	0	0	0	0	0
Total	**3,612**	**1,778**	**4,479**	**908**	**-82**
FTE	0.0	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00211.0
Category: F. NEW BUSINESS
Category-Sub: 3. CONVERSION FROM OH-UG RULE 20B 20C
Workpaper Group: 002110 - CONVERSION FROM OH-UG RULE 20B 20C

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	-1	-3	0	-4	0.0	CBUTLER201403041315(
Adjustment made to exclude 15% of General Plant.						
	0	3,616	0	3,616	0.0	MEHLERS201310170925
Adjustment made to remove CIAC from historical costs.						
2009 Total	-1	3,613	0	3,612	0.0	
2010	-0.124	-0.256	0	-0.380	0.0	CBUTLER201403041315:
Adjustment made to exclude 15% of General Plant.						
	0	1,778	0	1,778	0.0	MEHLERS201310170925
Adjustment made to remove CIAC from historical costs.						
2010 Total	-0.124	1,778	0	1,778	0.0	
2011	-2	-4	0	-5	0.0	CBUTLER201403041315
Adjustment made to exclude 15% of General Plant.						
	0	4,484	0	4,484	0.0	MEHLERS201310170926
Adjustment made to remove CIAC from historical costs.						
2011 Total	-2	4,480	0	4,479	0.0	
2012	-0.025	-0.291	0	-0.316	0.0	CBUTLER201403041316
Adjustment made to exclude 15% of General Plant.						
	0	909	0	909	0.0	MEHLERS201310170927
Adjustment made to remove CIAC from historical costs.						
2012 Total	-0.025	908	0	908	0.0	
2013	0	-74	0	-74	0.0	CBUTLER201402040946(
Adjustment made to remove CIAC from historical costs.						
	-0.651	-7	0	-8	0.0	CPWITT20140212162606
Adjustment made to exclude 15% of General Plant.						
2013 Total	-0.651	-81	0	-82	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002110

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00211.0
Category:	F. NEW BUSINESS
Category-Sub:	3. CONVERSION FROM OH-UG RULE 20B 20C
Workpaper Group:	002110 - CONVERSION FROM OH-UG RULE 20B 20C
Workpaper Detail:	002110.001 - Collectible portionof BC 211
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	1,342	1,476	1,624
NSE	0	0	0
Total	**1,342**	**1,476**	**1,624**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00211.0
Category: F. NEW BUSINESS
Category-Sub: 3. CONVERSION FROM OH-UG RULE 20B 20C
Workpaper Group: 002110 - CONVERSION FROM OH-UG RULE 20B 20C
Workpaper Detail: 002110.002 - Non Collectible portion of BC 211

In-Service Date: Not Applicable
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	193	212	234
Non-Labor	271	297	326
NSE	0	0	0
Total	**464**	**509**	**560**
FTE	1.8	2.0	2.2

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002110

002110 - Budget Code 211 - CONVERSION FROM OH-UG RULE 20B 20C

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00211.0
Category: F. NEW BUSINESS
Category-Sub: 3. CONVERSION FROM OH-UG RULE 20B 20C
Workpaper Group: 002110 - CONVERSION FROM OH-UG RULE 20B 20C

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	375	221	399	174	179	193	212	234
Non-Labor	5-YR Average	4,323	1,193	3,357	1,117	578	1,613	1,773	1,950
NSE	5-YR Average	-	-	-	-	-	-	-	-
Total		**4,698**	**1,414**	**3,756**	**1,291**	**758**	**1,806**	**1,985**	**2,184**
Collectible		(2,857)	(1,380)	(3,266)	(655)	46	(1,342)	(1,476)	(1,624)
Net Capital		**1,840**	**35**	**489**	**636**	**803**	**464**	**509**	**560**
FTE	5-YR Average	3.1	2.8	3.5	1.6	1.9	1.8	2.0	2.2

214 - Transformers

SDG&E develops budgets annually, typically in Q3-Q4 of the current year for the following year, for electric meter and transformer purchases. These budgets are primarily based on historical usage volume for all work including maintenance, reliability, conversions, new business, etc. SDG&E incorporates upstream projections for use as available. This includes a projected change (+/-) in New Business. The New Business forecast is developed elsewhere within SDG&E and disseminated in quantities of "Construction Units" annually. Any one year is compared to a previous year and reduced to a percentage. That percentage is then used as a starting point to ascertain an increase or decrease in New Business for budget development.

Beginning of Workpaper Group
002150 - OH RESIDENTIAL NB

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00215.0
Category: F. NEW BUSINESS
Category-Sub: 4. OH RESIDENTIAL NB
Workpaper Group: 002150 - OH RESIDENTIAL NB

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	60	33	30	23	32	52	68	83
Non-Labor	5-YR Average	509	225	406	346	327	536	707	854
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**569**	**258**	**436**	**368**	**358**	**588**	**775**	**937**
FTE	5-YR Average	0.6	0.2	0.2	0.1	0.3	0.5	0.6	0.8

Business Purpose:

This project is required to extend new overhead distribution systems to new residential electric customers.

Physical Description:

This project provides for the extension of the overhead distribution system, including third wire bring ups and transmission under builds, to serve new residential customers.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, electric facilities must be provided to qualified applicants.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00215.0
Category:	F. NEW BUSINESS
Category-Sub:	4. OH RESIDENTIAL NB
Workpaper Group:	002150 - OH RESIDENTIAL NB

Forecast Methodology:

Labor - 5-YR Average

This project forecast is based on 5-year historical costs with projected annual growth rates for 2015 and 2016. The methodology used to forecast anticipated expenditures for the 215 Project relied heavily on a review of the history of actual expenditures over a 5-year period. The total Project 215 expenditure for each year 2009 through 2013 was adjusted to 2013 levels using escalation factors provided by Global Insights . The adjusted total was then divided by the number of overhead residential construction units recorded for that period to establish a cost per unit. That unit cost was then multiplied by a forecasted number of overhead residential construction units for each year, 2014 through 2015, producing an estimated Project requirement for each year. The volume of overhead work is not proportional to that of underground work. More often than not, new development requires underground line extensions rather than overhead. To forecast future budget requirements the number of overhead Construction Units completed in 2013 was used as a basis. The anticipated rate of growth derived from the Construction Unit Forecast was then used to establish a base number of overhead Construction Units for 2014. That number of units was then multiplied by the cost per unit referred to above. The percentage of growth for 2015 and 2016, as derived from the Construction Unit Forecast, was then used to project the project requirements for those years.

Non-Labor - 5-YR Average

See Labor.

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00215.0
Category: F. NEW BUSINESS
Category-Sub: 4. OH RESIDENTIAL NB
Workpaper Group: 002150 - OH RESIDENTIAL NB

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	35	35	35	17	33	48	52	68	83
Non-Labor	5-YR Average	362	362	362	173	344	491	535	706	853
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**397**	**397**	**397**	**190**	**377**	**539**	**587**	**774**	**936**
FTE	5-YR Average	0.3	0.3	0.3	0.2	0.3	0.5	0.5	0.6	0.8

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	17	173	0	190	0.2	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2014 Total	17	173	0	190	0.2	
2015	33	344	0	377	0.3	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2015 Total	33	344	0	377	0.3	
2016	48	491	0	539	0.5	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2016 Total	48	491	0	539	0.5	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00215.0
Category: F. NEW BUSINESS
Category-Sub: 4. OH RESIDENTIAL NB
Workpaper Group: 002150 - OH RESIDENTIAL NB

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	45	25	25	19	27
Non-Labor	221	12	155	162	111
NSE	0	0	0	0	0
Total	**266**	**38**	**180**	**181**	**138**
FTE	0.5	0.2	0.2	0.1	0.3
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	221	192	227	175	216
NSE	0	0	0	0	0
Total	**221**	**192**	**227**	**175**	**216**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	45	25	25	19	27
Non-Labor	443	204	383	338	327
NSE	0	0	0	0	0
Total	**488**	**230**	**408**	**357**	**354**
FTE	0.5	0.2	0.2	0.1	0.3
Vacation & Sick (Nominal $)					
Labor	7	4	4	3	4
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**7**	**4**	**4**	**3**	**4**
FTE	0.1	0.0	0.0	0.0	0.0
Escalation to 2013$					
Labor	8	3	2	1	0
Non-Labor	67	21	23	8	0
NSE	0	0	0	0	0
Total	**75**	**24**	**24**	**9**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	60	33	30	23	32
Non-Labor	509	225	406	346	327
NSE	0	0	0	0	0
Total	**569**	**258**	**436**	**368**	**358**
FTE	0.6	0.2	0.2	0.1	0.3

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00215.0
Category: F. NEW BUSINESS
Category-Sub: 4. OH RESIDENTIAL NB
Workpaper Group: 002150 - OH RESIDENTIAL NB

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	221	192	227	175	216
NSE	0	0	0	0	0
Total	**221**	**192**	**227**	**175**	**216**
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	0	221	0	221	0.0	MEHLERS201310171004
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	221	0	221	0.0	
2010	0	192	0	192	0.0	MEHLERS201310171007
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	192	0	192	0.0	
2011	0	227	0	227	0.0	MEHLERS201310171008
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	227	0	227	0.0	
2012	0	175	0	175	0.0	MEHLERS201310171009
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	175	0	175	0.0	
2013	0	216	0	216	0.0	CBUTLER201402040949
Adjustment made to remove CIAC from historical costs.						
2013 Total	0	216	0	216	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002150

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00215.0
Category: F. NEW BUSINESS
Category-Sub: 4. OH RESIDENTIAL NB
Workpaper Group: 002150 - OH RESIDENTIAL NB
Workpaper Detail: 002150.001 - Collectible portion of BC 215.

In-Service Date: Not Applicable
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	219	289	350
NSE	0	0	0
Total	**219**	**289**	**350**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00215.0
Category: F. NEW BUSINESS
Category-Sub: 4. OH RESIDENTIAL NB
Workpaper Group: 002150 - OH RESIDENTIAL NB
Workpaper Detail: 002150.002 - Non collectible portion of BC 215

In-Service Date: Not Applicable
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	52	68	83
Non-Labor	317	418	504
NSE	0	0	0
Total	**369**	**486**	**587**
FTE	0.5	0.6	0.8

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002150

002150 - Budget Code 215 - OH RESIDENTIAL NB

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00217.0
Category: F. NEW BUSINESS
Category-Sub: 4. OH RESIDENTIAL NB
Workpaper Group: 002150 - OH RESIDENTIAL NB

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	60	33	30	23	32	52	68	83
Non-Labor	5-YR Average	509	225	406	346	327	536	707	854
NSE	5-YR Average	-	-	-	-	-	-	-	-
Total		**569**	**258**	**436**	**368**	**358**	**588**	**775**	**937**
Collectible		(184)	(141)	(165)	(123)	(149)	(219)	(289)	(350)
Net Capital		**385**	**117**	**271**	**246**	**210**	**369**	**486**	**587**
FTE	5-YR Average	0.6	0.2	0.2	0.1	0.3	0.5	0.6	0.8

215 - Overhead Residential

The following historical totals (fully loaded) were normalized to 2013 equivalent dollars using factors provided by Global Insights.

2009	$583,000 / .8727	=	$668,041
2010	$171,000 / .9089	=	$188,140
2011	$352,000 / .9480	=	$371,308
2012	$382,000 / .9787	=	$390,314
2013	$341,000	=	$314,000
5 year total		=	$1,958,803

Total number of OH Residential Construction Units recorded 2009-2013 = 296

$1,958,803 / 296 = $6618 per CU

The projected number of Construction Units from the CU Forecast for this category of work (OH Residential) produces a figure for 2014 that is believed to be unrealistically high. The need for overhead construction to serve Residential customers can be spotty. So, as an alternative to that approach (which works well in other areas) is to use the total number of recorded Construction Units for 2013 under Project 215 as a starting point. That amount was multiplied by a growth factor derived from the CU Forecast to develop an anticipated number of CU's for 2014. That number was subsequently multiplied by the calculated historical cost per unit (see above) to develop a base requirement for 2014. Similarly, a growth factor derived from the CU Forecast was applied to develop proposed requirements for the years 2015 and 2016, respectively.

Proposed requirements (fully loaded):
2014 49 CU's X 1.77 (growth factor) = 87 units X $6618 per unit = $575,766
(rounded to $580,000)
2015 $580,000 X 1.32 (growth factor) = $766,000
2016 $766,000 X 1.21 (growth factor) = $927,000

Fully loaded forecasts were converted to direct cost forecasts using the project specific direct vs indirect historical average splits for labor and non-labor.

Beginning of Workpaper Group
002160 - OH NON-RESIDENTIAL NB

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00216.0
Category: F. NEW BUSINESS
Category-Sub: 5. OH NON-RESIDENTIAL NB
Workpaper Group: 002160 - OH NON-RESIDENTIAL NB

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	80	39	42	32	66	71	94	113
Non-Labor	5-YR Average	1,064	407	716	690	674	1,058	1,396	1,689
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**1,144**	**446**	**758**	**722**	**740**	**1,129**	**1,490**	**1,802**
FTE	5-YR Average	0.7	0.4	0.4	0.3	0.7	0.7	0.9	1.1

Business Purpose:

This project is required to extend new overhead distribution systems to new nonresidential electric customers.

Physical Description:

This project provides for the extension of the overhead distribution system, including third wire bring ups and transmission under builds, to serve new non-residential customers.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, electric facilities must be provided to qualified applicants.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00216.0
Category:	F. NEW BUSINESS
Category-Sub:	5. OH NON-RESIDENTIAL NB
Workpaper Group:	002160 - OH NON-RESIDENTIAL NB

Forecast Methodology:

Labor - 5-YR Average

This project forecast is based on 5-year historical costs with projected annual growth rates for 2015 and 2016. The methodology used to forecast anticipated expenditures for the 216 Project relied heavily on a review of the history of actual expenditures over a 5-year period. The total Project 216 expenditure for each year 2009 through 2013was adjusted to 2013 levels using escalation factors provided by Global Insights. The adjusted total for was then divided by the number of overhead non-residential construction units recorded for that period to establish a cost per unit. That unit cost was then multiplied by the forecasted number of overhead residential construction units for each year, 2014 through 2016, producing an estimated Project requirement for each year. The volume of overhead work is not proportional to that of underground work. More often than not, new development requires underground line extensions rather than overhead. To forecast future project requirements the number of overhead Construction Units completed in 2013 was used as a basis. The anticipated rate of growth derived from the Construction Unit Forecast was then used to establish a base number of overhead Construction Units for 2014. That number of units was then multiplied by the cost per unit referred to above. The percentage of growth for 2015 and 2016, as derived from the Construction Unit Forecast, were then used to project the project requirements for those years.

Non-Labor - 5-YR Average

See Labor.

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00216.0
Category: F. NEW BUSINESS
Category-Sub: 5. OH NON-RESIDENTIAL NB
Workpaper Group: 002160 - OH NON-RESIDENTIAL NB

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	51	51	51	19	42	61	70	93	112
Non-Labor	5-YR Average	710	710	710	348	686	979	1,058	1,396	1,689
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**761**	**761**	**761**	**367**	**728**	**1,040**	**1,128**	**1,489**	**1,801**
FTE	5-YR Average	0.5	0.5	0.5	0.2	0.4	0.6	0.7	0.9	1.1

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	19	348	0	367	0.2	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2014 Total	19	348	0	367	0.2	
2015	42	686	0	728	0.4	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2015 Total	42	686	0	728	0.4	
2016	61	979	0	1,040	0.6	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2016 Total	61	979	0	1,040	0.6	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00216.0
Category: F. NEW BUSINESS
Category-Sub: 5. OH NON-RESIDENTIAL NB
Workpaper Group: 002160 - OH NON-RESIDENTIAL NB

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	60	30	35	27	57
Non-Labor	778	264	402	561	448
NSE	0	0	0	0	0
Total	**838**	**294**	**437**	**588**	**506**
FTE	0.6	0.3	0.3	0.3	0.6
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	146	105	274	113	225
NSE	0	0	0	0	0
Total	**146**	**105**	**274**	**113**	**225**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	60	30	35	27	57
Non-Labor	925	369	676	674	674
NSE	0	0	0	0	0
Total	**985**	**399**	**711**	**701**	**731**
FTE	0.6	0.3	0.3	0.3	0.6
Vacation & Sick (Nominal $)					
Labor	9	5	5	4	9
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**9**	**5**	**5**	**4**	**9**
FTE	0.1	0.1	0.1	0.0	0.1
Escalation to 2013$					
Labor	10	4	2	1	0
Non-Labor	139	39	40	16	0
NSE	0	0	0	0	0
Total	**150**	**42**	**42**	**17**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	80	39	42	32	66
Non-Labor	1,064	407	716	690	674
NSE	0	0	0	0	0
Total	**1,144**	**446**	**758**	**722**	**740**
FTE	0.7	0.4	0.4	0.3	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00216.0
Category: F. NEW BUSINESS
Category-Sub: 5. OH NON-RESIDENTIAL NB
Workpaper Group: 002160 - OH NON-RESIDENTIAL NB

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	146	105	274	113	225
NSE	0	0	0	0	0
Total	**146**	**105**	**274**	**113**	**225**
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	0	146	0	146	0.0	MEHLERS201310171014
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	146	0	146	0.0	
2010	0	105	0	105	0.0	MEHLERS201310171015
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	105	0	105	0.0	
2011	0	274	0	274	0.0	MEHLERS201310171015
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	274	0	274	0.0	
2012	0	113	0	113	0.0	MEHLERS201310171016
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	113	0	113	0.0	
2013	0	225	0	225	0.0	CBUTLER201402040951
Adjustment made to remove CIAC from historical costs.						
2013 Total	0	225	0	225	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002160

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00216.0
Category: F. NEW BUSINESS
Category-Sub: 5. OH NON-RESIDENTIAL NB
Workpaper Group: 002160 - OH NON-RESIDENTIAL NB
Workpaper Detail: 002160.001 - Collectible portion of BC 216

In-Service Date: Not Applicable
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	199	263	318
NSE	0	0	0
Total	**199**	**263**	**318**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00216.0
Category:	F. NEW BUSINESS
Category-Sub:	5. OH NON-RESIDENTIAL NB
Workpaper Group:	002160 - OH NON-RESIDENTIAL NB
Workpaper Detail:	002160.002 - Non collectilbe portion of BC 216.
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	71	94	113
Non-Labor	859	1,133	1,371
NSE	0	0	0
Total	**930**	**1,227**	**1,484**
FTE	0.7	0.9	1.1

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002160

002160 - Budget Code 216 - OH NON-RESIDENTIAL NB

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00216.0
Category: F. NEW BUSINESS
Category-Sub: 5. OH NON-RESIDENTIAL NB
Workpaper Group: 002160 - OH NON-RESIDENTIAL NB

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	80	39	42	32	66	71	94	113
Non-Labor	5-YR Average	1,064	407	716	690	674	1,058	1,396	1,689
NSE	5-YR Average	-	-	-	-	-	-	-	-
Total		**1,144**	**446**	**758**	**722**	**740**	**1,129**	**1,490**	**1,802**
Collectible		(116)	(82)	(220)	(84)	(155)	(199)	(263)	(318)
Net Capital		**1,029**	**365**	**538**	**639**	**585**	**930**	**1,227**	**1,484**
FTE	5-YR Average	0.7	0.4	0.4	0.3	0.7	0.7	0.9	1.1

216 - Overhead Non-Residential

The following historical totals (fully loaded) were normalized to 2013 equivalent dollars using factors provided by Global Insights.

2009	$1,365,000 / .8727	=	$1,564,111
2010	$501,000 / .9089	=	$551,216
2011	$702,000 / .9480	=	$740,506
2012	$901,000 / .9787	=	$920,609
2013	$341,000	=	$314,000
5 year total		=	$4,715,442

Total number of OH Non-Residential Construction Units recorded 2009-2013 = 252
$4,715,442 / 252 = $18,712 per CU

Using the projected number of Construction Units from the CU Forecast for this category of work (OH Non-Residential) produces a figure for 2014 that is believed to be unrealistically high. The need for overhead facilities to serve Non-Residential customers can be spotty. So, as an alternative to that approach (which works well in other areas), the total number of recorded Construction Units for 2013 under Project 216 were used as a starting point. That amount was multiplied by a growth factor derived from the CU Forecast to develop an anticipated number of CU's for 2014. That number was subsequently multiplied by the calculated historical cost per unit to develop a base requirement for 2014. Similarly a growth factor derived from the CU Forecast was applied to develop proposed requirements for the years 2015 and 2016 respectively.
Proposed requirements (fully loaded):
2014 49 CU's X 1.77 (growth factor) = 87 units X $6618 per unit = $575,766
(rounded to $580,000)
2015 $580,000 X 1.32 (growth factor) = $766,000
2016 $766,000 X 1.21 (growth factor) = $927,000

Fully loaded forecasts were converted to direct cost forecasts using the project specific direct vs indirect historical average splits for labor and non-labor.

Beginning of Workpaper Group
002170 - UG RESIDENTIAL NB

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00217.0
Category: F. NEW BUSINESS
Category-Sub: 6. UG RESIDENTIAL NB
Workpaper Group: 002170 - UG RESIDENTIAL NB

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	239	184	213	450	514	669	882	1,067
Non-Labor	5-YR Average	2,090	1,956	2,356	2,794	3,012	8,415	11,106	13,436
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**2,329**	**2,139**	**2,570**	**3,244**	**3,526**	**9,084**	**11,988**	**14,503**
FTE	5-YR Average	2.2	1.8	2.0	4.0	4.8	6.5	8.6	10.5

Business Purpose:

This project is required to extend new underground distribution systems to new residential electric customers.

Physical Description:

This project provides for the extension of the underground distribution system, to serve new residential customers.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, electric facilities must be provided to qualified applicants.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00217.0
Category:	F. NEW BUSINESS
Category-Sub:	6. UG RESIDENTIAL NB
Workpaper Group:	002170 - UG RESIDENTIAL NB

Forecast Methodology:

Labor - 5-YR Average

This project forecast is based on 5-year historical costs with projected annual growth rates for 2015 and 2016. The methodology used to forecast anticipated expenditures for the 217 Project relied heavily on a review of the history of actual expenditures over a 5-year period. The total project expenditure for each year 2009 through 2013 was adjusted to 2013 levels using escalation factors provided by Global Insights. The adjusted total was then divided by the number of underground residential construction units recorded for that period to establish a cost per unit. That unit cost was then multiplied by the forecasted number of underground residential construction units for each year, 2014 through 2016, producing an estimated Project requirement for each year.

Non-Labor - 5-YR Average

See Labor.

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00217.0
Category: F. NEW BUSINESS
Category-Sub: 6. UG RESIDENTIAL NB
Workpaper Group: 002170 - UG RESIDENTIAL NB

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	319	319	319	349	562	747	668	881	1,066
Non-Labor	5-YR Average	2,441	2,441	2,441	5,973	8,664	10,994	8,414	11,105	13,435
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**2,760**	**2,760**	**2,760**	**6,322**	**9,226**	**11,741**	**9,082**	**11,986**	**14,501**
FTE	5-YR Average	3.0	3.0	3.0	3.5	5.6	7.5	6.5	8.6	10.5

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	349	5,973	0	6,322	3.5	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2014 Total	349	5,973	0	6,322	3.5	
2015	562	8,664	0	9,226	5.6	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2015 Total	562	8,664	0	9,226	5.6	
2016	747	10,994	0	11,741	7.5	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2016 Total	747	10,994	0	11,741	7.5	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00217.0
Category: F. NEW BUSINESS
Category-Sub: 6. UG RESIDENTIAL NB
Workpaper Group: 002170 - UG RESIDENTIAL NB

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	180	143	175	384	444
Non-Labor	1,137	969	963	1,545	1,191
NSE	0	0	0	0	0
Total	**1,316**	**1,112**	**1,138**	**1,929**	**1,634**
FTE	1.9	1.5	1.7	3.4	4.1
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	680	802	1,262	1,184	1,822
NSE	0	0	0	0	0
Total	**680**	**802**	**1,262**	**1,184**	**1,822**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	180	143	175	384	444
Non-Labor	1,817	1,770	2,225	2,729	3,012
NSE	0	0	0	0	0
Total	**1,996**	**1,914**	**2,400**	**3,113**	**3,456**
FTE	1.9	1.5	1.7	3.4	4.1
Vacation & Sick (Nominal $)					
Labor	28	23	26	56	70
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**28**	**23**	**26**	**56**	**70**
FTE	0.3	0.3	0.3	0.6	0.7
Escalation to 2013$					
Labor	31	17	12	10	0
Non-Labor	274	185	132	65	0
NSE	0	0	0	0	0
Total	**305**	**203**	**144**	**76**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	239	184	213	450	514
Non-Labor	2,090	1,956	2,356	2,794	3,012
NSE	0	0	0	0	0
Total	**2,329**	**2,139**	**2,570**	**3,244**	**3,526**
FTE	2.2	1.8	2.0	4.0	4.8

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00217.0
Category: F. NEW BUSINESS
Category-Sub: 6. UG RESIDENTIAL NB
Workpaper Group: 002170 - UG RESIDENTIAL NB

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	680	802	1,262	1,184	1,822
NSE	0	0	0	0	0
Total	**680**	**802**	**1,262**	**1,184**	**1,822**
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	0	680	0	680	0.0	MEHLERS201310171023
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	680	0	680	0.0	
2010	0	802	0	802	0.0	MEHLERS201310171024
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	802	0	802	0.0	
2011	0	1,262	0	1,262	0.0	MEHLERS201310171024
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	1,262	0	1,262	0.0	
2012	0	1,184	0	1,184	0.0	MEHLERS201310171025
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	1,184	0	1,184	0.0	
2013	0	1,822	0	1,822	0.0	CBUTLER201402031801
Adjustment made to remove CIAC from historical costs.						
2013 Total	0	1,822	0	1,822	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002170

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00217.0
Category:	F. NEW BUSINESS
Category-Sub:	6. UG RESIDENTIAL NB
Workpaper Group:	002170 - UG RESIDENTIAL NB
Workpaper Detail:	002170.001 - Collectible portion of BC 217
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	1,794	2,368	2,865
NSE	0	0	0
Total	**1,794**	**2,368**	**2,865**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00217.0
Category:	F. NEW BUSINESS
Category-Sub:	6. UG RESIDENTIAL NB
Workpaper Group:	002170 - UG RESIDENTIAL NB
Workpaper Detail:	002170.002 - Uncollectible portion of BC 217
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	669	882	1,067
Non-Labor	6,621	8,738	10,571
NSE	0	0	0
Total	**7,290**	**9,620**	**11,638**
FTE	6.5	8.6	10.5

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002170

002170 - Budget Code 217 - UG RESIDENTIAL NB

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00217.0
Category: F. NEW BUSINESS
Category-Sub: 6. UG RESIDENTIAL NB
Workpaper Group: 002170 - UG RESIDENTIAL NB

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	239	184	213	450	514	669	882	1,067
Non-Labor	5-YR Average	2,090	1,956	2,356	2,794	3,012	8,415	11,106	13,436
NSE	5-YR Average	-	-	-	-	-	-	-	-
Total		**2,329**	**2,139**	**2,570**	**3,244**	**3,526**	**9,084**	**11,988**	**14,503**
Collectible		(537)	(613)	(922)	(834)	(1,257)	(1,794)	(2,368)	(2,865)
Net Capital		**1,792**	**1,527**	**1,648**	**2,409**	**2,270**	**7,290**	**9,620**	**11,638**
FTE	5-YR Average	2.2	1.8	2.0	4.0	4.8	6.5	8.6	10.5

217 - Underground Residential

The following historical totals (fully loaded) were normalized to 2013 equivalent dollars using factors provided by Global Insights.

2009	$2,782,000 / .8727	=	$3,187,807
2010	$3,250,000 / .9089	=	$3,575,751
2011	$3,176,000 / .9480	=	$3,350,211
2012	$4,818,000 / .9787	=	$4,922,857
2013	$5,882,000	=	$5,882,000
5 year total		=	$20,918,626

Total number of UG Residential Construction Units recorded 2009-2013 = 20,962
$20,918,626 / 20,962 = $998 per CU

Given the volume of new residential construction and the fact that most all of it requires UG electric service, it was believed the number of future Construction Units prescribed by the Construction Unit Forecast is an appropriate basis for calculating future requirements. As such, the 2014 forecasted number of CU's for UG residential was multiplied by the calculated historical unit cost (see above) to develop a base requirement for 2014. Similarly a growth factor derived from the CU Forecast was applied to develop proposed requirements for the years 2015 and 2016 respectively.

Proposed requirements (fully loaded):

2014 9221 units X $998 per unit = $9,202,558 (rounded to $9,200,000)
2015 $9,200,000 X 1.32 (growth factor) = $12,144,000
2016 $12,144,000 X 1.21 (growth factor) = $14,694,000

Fully loaded forecasts were converted to direct cost forecasts using the project specific direct vs indirect historical average splits for labor and non-labor.

Beginning of Workpaper Group
002180 - UG NON-RESIDENTIAL NB

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00218.0
Category: F. NEW BUSINESS
Category-Sub: 7. UG NON-RESIDENTIAL NB
Workpaper Group: 002180 - UG NON-RESIDENTIAL NB

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	303	351	320	410	456	824	1,088	1,316
Non-Labor	5-YR Average	3,389	1,540	2,035	2,225	1,933	6,034	7,963	9,634
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**3,692**	**1,891**	**2,355**	**2,635**	**2,389**	**6,858**	**9,051**	**10,950**
FTE	5-YR Average	2.7	2.8	2.9	3.4	4.0	7.8	10.4	12.7

Business Purpose:

This project is required to extend new underground distribution systems to new non-residential electric customers.

Physical Description:

This project provides for the extension of the underground distribution system, to serve new non-residential customers.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, electric facilities must be provided to qualified applicants.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00218.0
Category:	F. NEW BUSINESS
Category-Sub:	7. UG NON-RESIDENTIAL NB
Workpaper Group:	002180 - UG NON-RESIDENTIAL NB

Forecast Methodology:

Labor - 5-YR Average

This project forecast is based on 5-year historical costs with projected annual growth rates for 2015 and 2016. The methodology used to forecast anticipated expenditures for the 218 Project relied heavily on a review of the history of actual expenditures over a five year period. The total budget expenditure for each year 2009 through 2013 was adjusted to 2013 levels using escalation factors provided by Global Insights. The adjusted total was then divided by the number of construction units recorded for that period to establish a cost per unit. That unit cost was then multiplied by the forecasted number of underground non-residential construction units for each year, 2014 through 2016, producing an estimated Project requirement for each year.

Non-Labor - 5-YR Average

See Labor.

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00218.0
Category: F. NEW BUSINESS
Category-Sub: 7. UG NON-RESIDENTIAL NB
Workpaper Group: 002180 - UG NON-RESIDENTIAL NB

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	367	367	367	456	720	948	823	1,087	1,315
Non-Labor	5-YR Average	2,224	2,224	2,224	3,810	5,739	7,410	6,034	7,963	9,634
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**2,591**	**2,591**	**2,591**	**4,266**	**6,459**	**8,358**	**6,857**	**9,050**	**10,949**
FTE	5-YR Average	3.2	3.2	3.2	4.6	7.2	9.5	7.8	10.4	12.7

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	456	3,810	0	4,266	4.6	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2014 Total	456	3,810	0	4,266	4.6	
2015	720	5,739	0	6,459	7.2	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2015 Total	720	5,739	0	6,459	7.2	
2016	948	7,410	0	8,358	9.5	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2016 Total	948	7,410	0	8,358	9.5	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00218.0
Category: F. NEW BUSINESS
Category-Sub: 7. UG NON-RESIDENTIAL NB
Workpaper Group: 002180 - UG NON-RESIDENTIAL NB

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	228	274	263	350	394
Non-Labor	2,739	-100	369	233	607
NSE	0	0	0	0	0
Total	**2,967**	**174**	**632**	**583**	**1,000**
FTE	2.3	2.4	2.5	2.9	3.4
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	207	1,493	1,552	1,940	1,326
NSE	0	0	0	0	0
Total	**207**	**1,493**	**1,552**	**1,940**	**1,326**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	228	274	263	350	394
Non-Labor	2,946	1,394	1,921	2,173	1,933
NSE	0	0	0	0	0
Total	**3,173**	**1,668**	**2,184**	**2,523**	**2,327**
FTE	2.3	2.4	2.5	2.9	3.4
Vacation & Sick (Nominal $)					
Labor	35	44	39	51	62
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**35**	**44**	**39**	**51**	**62**
FTE	0.4	0.4	0.4	0.5	0.6
Escalation to 2013$					
Labor	40	33	18	10	0
Non-Labor	444	146	114	52	0
NSE	0	0	0	0	0
Total	**483**	**179**	**132**	**61**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	303	351	320	410	456
Non-Labor	3,389	1,540	2,035	2,225	1,933
NSE	0	0	0	0	0
Total	**3,692**	**1,891**	**2,355**	**2,635**	**2,389**
FTE	2.7	2.8	2.9	3.4	4.0

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00218.0
Category: F. NEW BUSINESS
Category-Sub: 7. UG NON-RESIDENTIAL NB
Workpaper Group: 002180 - UG NON-RESIDENTIAL NB

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	207	1,493	1,552	1,940	1,326
NSE	0	0	0	0	0
Total	**207**	**1,493**	**1,552**	**1,940**	**1,326**
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	0	207	0	207	0.0	MEHLERS201310171027
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	207	0	207	0.0	
2010	0	1,493	0	1,493	0.0	MEHLERS201310171027
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	1,493	0	1,493	0.0	
2011	0	1,552	0	1,552	0.0	MEHLERS201310171028
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	1,552	0	1,552	0.0	
2012	0	1,940	0	1,940	0.0	MEHLERS201310171028
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	1,940	0	1,940	0.0	
2013	0	1,326	0	1,326	0.0	CBUTLER201402031807
Adjustment made to remove CIAC from historical costs.						
2013 Total	0	1,326	0	1,326	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002180

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00218.0
Category:	F. NEW BUSINESS
Category-Sub:	7. UG NON-RESIDENTIAL NB
Workpaper Group:	002180 - UG NON-RESIDENTIAL NB
Workpaper Detail:	002180.001 - Collectible portion of BC218
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	2,269	2,995	3,624
NSE	0	0	0
Total	**2,269**	**2,995**	**3,624**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00218.0
Category:	F. NEW BUSINESS
Category-Sub:	7. UG NON-RESIDENTIAL NB
Workpaper Group:	002180 - UG NON-RESIDENTIAL NB
Workpaper Detail:	002180.002 - Non collectible portion of BC 218
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	824	1,088	1,316
Non-Labor	3,765	4,968	6,010
NSE	0	0	0
Total	**4,589**	**6,056**	**7,326**
FTE	7.8	10.4	12.7

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002180

002180 - Budget Code 218 - UG NON-RESIDENTIAL NB

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00218.0
Category: F. NEW BUSINESS
Category-Sub: 7. UG NON-RESIDENTIAL NB
Workpaper Group: 002180 - UG NON-RESIDENTIAL NB

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	303	351	320	410	456	824	1,088	1,316
Non-Labor	5-YR Average	3,389	1,540	2,035	2,225	1,933	6,034	7,963	9,634
NSE	5-YR Average	-	-	-	-	-	-	-	-
Total		**3,692**	**1,891**	**2,355**	**2,635**	**2,389**	**6,858**	**9,051**	**10,950**
Collectible		(164)	(1,136)	(1,132)	(1,368)	(915)	(2,269)	(2,995)	(3,624)
Net Capital		**3,529**	**755**	**1,224**	**1,266**	**1,475**	**4,589**	**6,056**	**7,326**
FTE	5-YR Average	2.7	2.8	2.9	3.4	4.0	7.8	10.4	12.7

218 - Underground - Non-Residential

The following historical totals (fully loaded) were normalized to 2013 equivalent dollars using factors provided by Global Insights.

2009	$4,794,000 / .8727	=	$5,493,297
2010	$1,566,000 / .9089	=	$1,722,962
2011	$2,033,000 / .9480	=	$2,144,515
2012	$2,641,000 / .9787	=	$2,698,478
2013	$3,179,000	=	$3,179,000
5 year total		=	$15,238,252

Total number of UG Non-Residential Construction Units recorded 2009-2013 = 1178
$15,238,252 / 1178 = $12,936 per CU

Given the volume of new Non-Residential construction and the fact that most all of it requires UG electric service, it was believed the number of future Construction Units prescribed by the Construction Unit Forecast is an appropriate basis for calculating future requirements. As such, the 2014 forecasted number of CU's for UG Non-Residential was multiplied by the calculated historical unit cost (see above) to develop a base requirement for 2014. Similarly a growth factor derived from the CU Forecast was applied to develop proposed requirements for the years 2015 and 2016 respectively.

Proposed requirements (fully loaded):

2014 558 units X $12,936 per unit = $7,218,288 (rounded to $7,200,000)
2015 $7,200,000 X 1.32 (growth factor) = $9,504,000
2016 $9,504,000 X 1.21 (growth factor) = $11,500,000

Fully loaded forecasts were converted to direct cost forecasts using the project specific direct vs indirect historical average splits for labor and non-labor.

Beginning of Workpaper Group
002190 - NEW BUSINESS INFRASTRUCTURE

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00219.0
Category: F. NEW BUSINESS
Category-Sub: 8. NEW BUSINESS INFRASTRUCTURE
Workpaper Group: 002190 - NEW BUSINESS INFRASTRUCTURE

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	432	356	518	562	501	1,240	1,636	1,979
Non-Labor	5-YR Average	3,607	2,574	3,519	3,328	3,763	9,877	13,034	15,770
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**4,040**	**2,930**	**4,038**	**3,889**	**4,264**	**11,117**	**14,670**	**17,749**
FTE	5-YR Average	4.5	3.5	4.8	5.0	4.6	12.2	16.1	19.6

Business Purpose:

This project is required to provide facilities for new electric customers to be served from both the overhead and underground distibution system as outlined in Project Description.

Physical Description:

This project provides for the following: 1) Installation of new underground distribution systems in conjuction with the development of land and new streets. 2) Retrofitting the existing system to comply with current standards when required to serve new customers. 3) Installation of street light systems 4) Modification of the existing electric system (reconductors, cutovers, load transfers, neutral bringups) to meet capacity requirements when necessitated by new customer projects. 5) Installation of new distribution systems to provide alternate service or special facilities under rule 2. 6) Installation of electric distribution facilities in anticipation of future utility needs.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, electric facilities must be provided to qualified applicants.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00219.0
Category:	F. NEW BUSINESS
Category-Sub:	8. NEW BUSINESS INFRASTRUCTURE
Workpaper Group:	002190 - NEW BUSINESS INFRASTRUCTURE

Forecast Methodology:

Labor - 5-YR Average

This project forecast is based on 5-year historical costs with projected annual growth rates for 2015 and 2016. The methodology used to forecast anticipated expenditures for the 219 Project relied heavily on a review of the history of actual expenditures over a five year period. The total budget expenditure for each year 2009 through 2013 was adjusted to 2013 levels using escalation factors provided by Global Insights. The adjusted total was then divided by the entire number of construction units recorded for that period to establish a cost per unit. That unit cost was then multiplied by the total forecasted number of construction units, overhead and underground, for each year, 2014 through 2016, producing an estimated Project requirement for each year.

Non-Labor - 5-YR Average

See Labor.

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00219.0
Category: F. NEW BUSINESS
Category-Sub: 8. NEW BUSINESS INFRASTRUCTURE
Workpaper Group: 002190 - NEW BUSINESS INFRASTRUCTURE

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	473	473	473	766	1,162	1,505	1,239	1,635	1,978
Non-Labor	5-YR Average	3,358	3,358	3,358	6,519	9,676	12,412	9,877	13,034	15,770
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**3,831**	**3,831**	**3,831**	**7,285**	**10,838**	**13,917**	**11,116**	**14,669**	**17,748**
FTE	5-YR Average	4.5	4.5	4.5	7.7	11.6	15.1	12.2	16.1	19.6

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	766	6,519	0	7,285	7.7	MEHLERS201312C
Adjustment made to account historical average + forecasted growth rates.						
2014 Total	766	6,519	0	7,285	7.7	
2015	1,162	9,676	0	10,838	11.6	MEHLERS201312C
Adjustment made to account historical average + forecasted growth rates.						
2015 Total	1,162	9,676	0	10,838	11.6	
2016	1,505	12,412	0	13,917	15.1	MEHLERS201312C
Adjustment made to account historical average + forecasted growth rates.						
2016 Total	1,505	12,412	0	13,917	15.1	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00219.0
Category: F. NEW BUSINESS
Category-Sub: 8. NEW BUSINESS INFRASTRUCTURE
Workpaper Group: 002190 - NEW BUSINESS INFRASTRUCTURE

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	325	278	428	481	433
Non-Labor	2,492	1,533	888	865	1,612
NSE	0	0	0	0	0
Total	**2,818**	**1,811**	**1,316**	**1,346**	**2,045**
FTE	3.9	3.0	4.1	4.3	3.9
Adjustments (Nominal $) **					
Labor	0	0	-1	-2	-1
Non-Labor	643	797	2,434	2,385	2,150
NSE	0	0	0	0	0
Total	**643**	**797**	**2,433**	**2,383**	**2,150**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	325	278	427	479	432
Non-Labor	3,135	2,330	3,322	3,250	3,763
NSE	0	0	0	0	0
Total	**3,461**	**2,608**	**3,749**	**3,729**	**4,195**
FTE	3.9	3.0	4.1	4.3	3.9
Vacation & Sick (Nominal $)					
Labor	50	44	63	69	69
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**50**	**44**	**63**	**69**	**69**
FTE	0.6	0.5	0.7	0.7	0.7
Escalation to 2013$					
Labor	57	34	29	13	0
Non-Labor	472	244	197	78	0
NSE	0	0	0	0	0
Total	**529**	**278**	**226**	**91**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	432	356	518	562	501
Non-Labor	3,607	2,574	3,519	3,328	3,763
NSE	0	0	0	0	0
Total	**4,040**	**2,930**	**4,038**	**3,889**	**4,264**
FTE	4.5	3.5	4.8	5.0	4.6

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00219.0
Category: F. NEW BUSINESS
Category-Sub: 8. NEW BUSINESS INFRASTRUCTURE
Workpaper Group: 002190 - NEW BUSINESS INFRASTRUCTURE

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	-1	-2	-1
Non-Labor	643	797	2,434	2,385	2,150
NSE	0	0	0	0	0
Total	**643**	**797**	**2,433**	**2,383**	**2,150**
FTE	0.0	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00219.0
Category: F. NEW BUSINESS
Category-Sub: 8. NEW BUSINESS INFRASTRUCTURE
Workpaper Group: 002190 - NEW BUSINESS INFRASTRUCTURE

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	643	0	643	0.0	MEHLERS201310171031
Adjustment made to remove CIAC from historical costs.						
	-0.039	-0.354	0	-0.393	0.0	MEHLERS201310171034
Adjustment made to exclude 15% of General Plant.						
2009 Total	-0.039	643	0	643	0.0	
2010	0	797	0	797	0.0	MEHLERS201310171032
Adjustment made to remove CIAC from historical costs.						
	-0.001	-0.832	0	-0.833	0.0	MEHLERS201310171034
Adjustment made to exclude 15% of General Plant.						
2010 Total	-0.001	797	0	797	0.0	
2011	0	2,436	0	2,436	0.0	MEHLERS201310171032
Adjustment made to remove CIAC from historical costs.						
	-0.911	-3	0	-3	0.0	MEHLERS201310171034
Adjustment made to exclude 15% of General Plant.						
2011 Total	-0.911	2,434	0	2,433	0.0	
2012	0	2,402	0	2,402	0.0	MEHLERS201310171033
Adjustment made to remove CIAC from historical costs.						
	-2	-16	0	-18	0.0	MEHLERS201310171035
Adjustment made to exclude 15% of General Plant.						
2012 Total	-2	2,385	0	2,383	0.0	
2013	0	2,156	0	2,156	0.0	CBUTLER201402040905
Adjustment made to remove CIAC from historical costs.						
	-0.590	-6	0	-6	0.0	CPWITT20140212162956
Adjustment made to exclude 15% of General Plant.						
2013 Total	-0.590	2,150	0	2,150	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002190

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00219.0
Category:	F. NEW BUSINESS
Category-Sub:	8. NEW BUSINESS INFRASTRUCTURE
Workpaper Group:	002190 - NEW BUSINESS INFRASTRUCTURE
Workpaper Detail:	002190.001 - Collectible portion of BC 219
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	3,050	4,026	4,871
NSE	0	0	0
Total	**3,050**	**4,026**	**4,871**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00219.0
Category:	F. NEW BUSINESS
Category-Sub:	8. NEW BUSINESS INFRASTRUCTURE
Workpaper Group:	002190 - NEW BUSINESS INFRASTRUCTURE
Workpaper Detail:	002190.002 - Non collectible portion of BC 219
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,240	1,636	1,979
Non-Labor	6,827	9,008	10,899
NSE	0	0	0
Total	**8,067**	**10,644**	**12,878**
FTE	12.2	16.1	19.6

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002190

002190 - Budget Code 219 - NEW BUSINESS INFRASTRUCTURE

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00219.0
Category: F. NEW BUSINESS
Category-Sub: 8. NEW BUINESS INFRASTRUCTURE
Workpaper Group: 002190 - NEW BUSINESS INFRASTRUCTURE

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	432	356	518	562	501	1,240	1,636	1,979
Non-Labor	5-YR Average	3,607	2,574	3,519	3,328	3,763	9,877	13,034	15,770
NSE	5-YR Average	-	-	-	-	-	-	-	-
Total		**4,040**	**2,930**	**4,038**	**3,889**	**4,264**	**11,117**	**14,670**	**17,749**
Collectible		(513)	(609)	(1,776)	(1,695)	(1,488)	(3,050)	(4,026)	(4,871)
Net Capital		**3,527**	**2,321**	**2,262**	**2,194**	**2,775**	**8,067**	**10,644**	**12,878**
FTE	5-YR Average	4.5	3.5	4.8	5.0	4.6	12.2	16.1	19.6

219 - New Business Infrastructure

The following historical totals (fully loaded) were normalized to 2013 equivalent dollars using factors provided by Global Insights.

2009	$4,919,000 / .8727	=	$5,636,530
2010	$3,954,000 / .9089	=	$4,350,314
2011	$4,501,000 / .9480	=	$4,747,890
2012	$4,447,000 / .9787	=	$4,543,782
2013	$5,520,000	=	$5,882,000
5 year total		=	$24,798,516

Total number of Construction Units (all classifications) recorded 2009-2013 = 19,361
$24,798,516 / 19361 = $1280 per CU

Since activity under project 219 (New Business Infrastructure) is typically consistent with other major categories of New Business construction (like both UG Residential and Non-Residential) and supports both OH and UG, the total recorded number of Construction Units for all categories combined was used to develop a historical unit cost. It is also believed the total number of future Construction Units prescribed by the Construction Unit Forecast is an appropriate basis for calculating future requirements. As such, the 2014 forecasted number of CU's for all categories combined was multiplied by the calculated historical unit cost (see above) to develop a base requirement for 2014. Similarly a growth factor derived from the CU Forecast was applied to develop proposed requirements for the years 2015 and 2016 respectively.

Proposed requirements (fully loaded):

2014	10,035 units	X	$1280 per unit	=	$12,854,835 (rounded to $12,800,000)
2015	$12,800,000	X	1.32 (growth factor)	=	$16,896,000
2016	$16,896,000	X	1.21 (growth factor)	=	$20,444,000

Fully loaded forecasts were converted to direct cost forecasts using the project specific direct vs indirect historical average splits for labor and non-labor.

Beginning of Workpaper Group
002240 - NEW SERVICE INSTALLATIONS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00224.0
Category: F. NEW BUSINESS
Category-Sub: 9. NEW SERVICE INSTALLATIONS
Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS

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	670	549	393	355	320	649	857	1,037
Non-Labor	5-YR Average	4,188	3,326	3,136	3,071	3,275	4,535	5,983	7,237
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**4,858**	**3,874**	**3,530**	**3,426**	**3,595**	**5,184**	**6,840**	**8,274**
FTE	5-YR Average	6.1	4.8	3.3	3.1	2.7	5.9	4.0	9.8

Business Purpose:

This project is required to provide electric service to new customers from new or existing electric distribution systems.

Physical Description:

This project provides for the installation of new overhead and underground electric services for new customers. The installation of distribution facilities is to be installed on Budgets 215, 216, 217, 218 or 219.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, electric facilities must be provided to qualified applicants.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00224.0
Category:	F. NEW BUSINESS
Category-Sub:	9. NEW SERVICE INSTALLATIONS
Workpaper Group:	002240 - NEW SERVICE INSTALLATIONS

Forecast Methodology:

Labor - 5-YR Average

This project captures costs for individual services not installed as part of larger electric distribution system extensions. Since SDG&E does not include such individual services in its historical count of lots and units, there is only an indirect relationship between forecasted units and total expenditures for Project 224. However, the relationship is significant enough to rely on as a means of forecasting future project requirements. The total project expenditure for the years 2009 - 2013 was adjusted to 2013 levels using escalation factors provided by Global Insights. The total for each year was then divided by the number of completed services for that period to establish a cost per service. That cost per service was then multiplied by the total forecasted number of services for 2014, 2015 and 2016. The anticipated number of services was forecasted using a growth factor derived from SDG&E's Construction Unit Forecast. As we experience an increasing number of multi-family developments we find we can serve more units with fewer individual services. To establish a basis for future service requirements we identified a percentage relationship between the number of individual services completed in 2013 and the total number of completed Construction Units. We then applied that resulting percentage to the total number of forecasted units for 2014 and multiplied that resulting figure by the calculated unit cost. The forecasted level of growth derived from the Construction Unit Forecast was then used to project required project amounts for 2015 and 2016.

Non-Labor - 5-YR Average

See Labor

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00224.0
Category: F. NEW BUSINESS
Category-Sub: 9. NEW SERVICE INSTALLATIONS
Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS

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	457	457	457	192	400	580	649	857	1,037
Non-Labor	5-YR Average	3,399	3,399	3,399	1,136	2,584	3,838	4,535	5,983	7,237
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**3,856**	**3,856**	**3,856**	**1,328**	**2,984**	**4,418**	**5,184**	**6,840**	**8,274**
FTE	5-YR Average	4.0	4.0	4.0	1.9	4.0	5.8	5.9	8.0	9.8

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	192	1,136	0	1,328	1.9	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2014 Total	192	1,136	0	1,328	1.9	
2015	400	2,584	0	2,984	4.0	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2015 Total	400	2,584	0	2,984	4.0	
2016	580	3,838	0	4,418	5.8	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2016 Total	580	3,838	0	4,418	5.8	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00224.0
Category: F. NEW BUSINESS
Category-Sub: 9. NEW SERVICE INSTALLATIONS
Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	504	428	324	303	276
Non-Labor	3,276	2,669	2,621	2,755	2,909
NSE	0	0	0	0	0
Total	**3,780**	**3,097**	**2,945**	**3,057**	**3,185**
FTE	5.2	4.1	2.8	2.7	2.3
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	364	341	339	245	366
NSE	0	0	0	0	0
Total	**364**	**341**	**339**	**245**	**366**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	504	428	324	303	276
Non-Labor	3,640	3,010	2,961	3,000	3,275
NSE	0	0	0	0	0
Total	**4,144**	**3,439**	**3,284**	**3,302**	**3,551**
FTE	5.2	4.1	2.8	2.7	2.3
Vacation & Sick (Nominal $)					
Labor	78	68	48	44	44
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**78**	**68**	**48**	**44**	**44**
FTE	0.9	0.7	0.5	0.4	0.4
Escalation to 2013$					
Labor	88	52	22	8	0
Non-Labor	548	315	176	72	0
NSE	0	0	0	0	0
Total	**636**	**367**	**198**	**80**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	670	549	393	355	320
Non-Labor	4,188	3,326	3,136	3,071	3,275
NSE	0	0	0	0	0
Total	**4,858**	**3,874**	**3,530**	**3,426**	**3,595**
FTE	6.1	4.8	3.3	3.1	2.7

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00224.0
Category: F. NEW BUSINESS
Category-Sub: 9. NEW SERVICE INSTALLATIONS
Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	364	341	339	245	366
NSE	0	0	0	0	0
Total	**364**	**341**	**339**	**245**	**366**
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	0	364	0	364	0.0	MEHLERS201310171037
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	364	0	364	0.0	
2010	0	341	0	341	0.0	MEHLERS201310171037
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	341	0	341	0.0	
2011	0	339	0	339	0.0	MEHLERS201310171038
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	339	0	339	0.0	
2012	0	245	0	245	0.0	MEHLERS201310171038
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	245	0	245	0.0	
2013	0	366	0	366	0.0	CBUTLER201402040954(
Adjustment made to remove CIAC from historical costs.						
2013 Total	0	366	0	366	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002240

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00224.0
Category: F. NEW BUSINESS
Category-Sub: 9. NEW SERVICE INSTALLATIONS
Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS
Workpaper Detail: 002240.001 - Collectible portion of BC 224

In-Service Date: Not Applicable
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	319	421	510
NSE	0	0	0
Total	**319**	**421**	**510**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00224.0
Category:	F. NEW BUSINESS
Category-Sub:	9. NEW SERVICE INSTALLATIONS
Workpaper Group:	002240 - NEW SERVICE INSTALLATIONS
Workpaper Detail:	002240.002 - Non collectible portion of BC 224
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	649	857	1,037
Non-Labor	4,216	5,562	6,727
NSE	0	0	0
Total	**4,865**	**6,419**	**7,764**
FTE	5.9	4.0	9.8

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002240

002240 - Budget Code 224 - NEW SERVICE INSTALLATIONS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00224.0
Category: F. NEW BUSINESS
Category-Sub: 9. NEW SERVICE INSTALLATIONS
Workpaper Group: 002240 - NEW SERVICE INSTALLATIONS

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	670	549	393	355	320	649	857	1,037
Non-Labor	5-YR Average	4,188	3,326	3,136	3,071	3,275	4,535	5,983	7,237
NSE	5-YR Average	-	-	-	-	-	-	-	-
Total		**4,858**	**3,874**	**3,530**	**3,426**	**3,595**	**5,184**	**6,840**	**8,274**
Collectible		(287)	(258)	(246)	(172)	(252)	(319)	(421)	(510)
Net Capital		**4,571**	**3,616**	**3,284**	**3,255**	**3,343**	**4,865**	**6,419**	**7,764**
FTE	5-YR Average	6.1	4.8	3.3	3.1	2.7	5.9	4.0	9.8

224 – Services

The following historical totals (fully loaded) were normalized to 2013 equivalent dollars using factors provided by Global Insights.

2009	$6,764,000 / .8727	=	$7,750,659
2010	$5,791,000 / .9089	=	$6,371,438
2011	$5,242,000 / .9480	=	$5,529,536
2012	$5,010,000 / .9787	=	$5,119,035
2013	$4,767,000	=	$4,767,000
5 year total		=	$29,537,668

$29,537,668 / 5 = $5,907,534 5 year average

Total number of completed Service Orders recorded 2009 -2013 = 18,140
$29,537,668 / 18,140 = $1628 per individual Service Order
Average number of Service Orders per year over 5 years = 3628

Anticipated levels of service-only work covered by this project can be difficult to predict. This project is set up to capture only that service work that is designed and constructed using a Service Order, a much more simplified alternative to a construction order and worked apart from any related larger job. Service work tends to trail the work done to install required distribution facilities and some services are fed from facilities that have been in place for a long time. And not all new line extensions provide a direct source for future services, such as backbone systems serving master planned communities. But similar to other New Business work, the volume of Service Order type work rises and falls in conjunction with the general health of the economy, reflected in the growth factors derived from the Construction Unit Forecast.

Several approaches to predicting future requirements were explored, using all the data presented above. This was then considered with insight derived from the experience of new business planners. Taking the average annual number of Service Orders (3628), increasing it by the 2014 growth factor derived from the CU Forecast and multiplying it by the average cost per Service Order (see above) resulted in an unrealistically high figure. Taking the total number of Service Orders completed in 2013, increasing it by the 2014 growth factor derived from the CU Forecast and multiplying it by the cost per Service Order resulted in more realistic figure ($8,887,252). However, it was further reduced to a final projected 2014 requirement of $8,200,000. That served as a base figure to which the growth factors from the CU Forecast were applied to develop proposed requirements for the years 2015 and 2016.

Fully loaded forecasts were converted to direct cost forecasts using the project specific direct vs indirect historical average splits for labor and non-labor.

Beginning of Workpaper Group
002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00225.0
Category: F. NEW BUSINESS
Category-Sub: 10. CUSTOMER REQUESTED UPGRADES AND SERVICES
Workpaper Group: 002250 - CUSTOMER REQUESTED UPGRADES AND 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	1,425	1,265	1,271	1,185	1,119	1,338	1,472	1,619
Non-Labor	5-YR Average	8,112	5,666	5,935	5,934	6,804	6,663	7,328	8,059
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**9,538**	**6,931**	**7,205**	**7,119**	**7,924**	**8,001**	**8,800**	**9,678**
FTE	5-YR Average	12.6	10.8	10.0	9.9	9.2	11.4	12.7	14.2

Business Purpose:

This project is required to replace, relocate, rearrange or remove existing electric distribution and service facilities as requested by customers.

Physical Description:

This provides for the following: 1) Costs associated with removing, replacing, relocating or rearranging existing electric distribution facilities at the customer's request, including joint utility requests. 2) Costs associated with modifying the existing electric distribution system as required to meet the customer's capacity needs and accommodate customer upgrades in service. 3) Costs associated with electric service replacements, rearrangements, and removals due to customer request or upgrade in service. 4) Costs associated with the replacement of customer-owned distribution systems in mobile home parks.

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, modification to existing electric facilities may be required due to customer request and in conjunction with new business projects

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00225.0
Category:	F. NEW BUSINESS
Category-Sub:	10. CUSTOMER REQUESTED UPGRADES AND SERVICES
Workpaper Group:	002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES

Forecast Methodology:

Labor - 5-YR Average

To forecast requirements for Project 225, historical expenditures over the five year period from 209 through 2013 were reviewed. It is difficult to predict the number of existing customers who will elect to upgrade their existing electric service facilities, but there is always the potential for remodels, both residential and commercial. Historical data suggests that service upgrades to both residential and commercial facilities are fairly constant with a slight correlation to the level of new construction activity. However, the general state of the economy can have a marked impact on a customer's decision to remodel and/or upgrade their exiting electrical facilities. Years 2009 -2011 saw a decline in activity in this category, whereas years 2012 -2013 saw activity increase as the economy improved. SDG&E has also witnessed an increase in the amount of inner city redevelopment as well as "in-building", construction on the remaining vacant lots or recently cleared property in older, well established neighborhoods. These projects often require the relocation or removal of existing electric distribution facilities to allow for new construction and to maintain safe clearances. This trend is expected to continue as the volume of developable raw land steadily decreases. To forecast future project requirements an average of annual expenditures for the years 2009 -2013 was calculated. That figure was then increased by a percentage consistent with the increase in activity experienced in the last two years as economic conditions were improving. That created a forecasted project requirement for 2014, with an escalation factor added for years 2015 and 2016.

Non-Labor - 5-YR Average

See Labor

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00225.0
Category: F. NEW BUSINESS
Category-Sub: 10. CUSTOMER REQUESTED UPGRADES AND SERVICES
Workpaper Group: 002250 - CUSTOMER REQUESTED UPGRADES AND 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	1,252	1,252	1,252	85	219	366	1,337	1,471	1,618
Non-Labor	5-YR Average	6,490	6,490	6,490	173	838	1,569	6,663	7,328	8,059
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**7,742**	**7,742**	**7,742**	**258**	**1,057**	**1,935**	**8,000**	**8,799**	**9,677**
FTE	5-YR Average	10.5	10.5	10.5	0.9	2.2	3.7	11.4	12.7	14.2

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	85	173	0	258	0.9	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2014 Total	85	173	0	258	0.9	
2015	219	838	0	1,057	2.2	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2015 Total	219	838	0	1,057	2.2	
2016	366	1,569	0	1,935	3.7	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2016 Total	366	1,569	0	1,935	3.7	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00225.0
Category: F. NEW BUSINESS
Category-Sub: 10. CUSTOMER REQUESTED UPGRADES AND SERVICES
Workpaper Group: 002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	1,073	988	1,045	1,011	966
Non-Labor	3,097	2,459	1,448	2,398	3,201
NSE	0	0	0	0	0
Total	**4,170**	**3,447**	**2,494**	**3,409**	**4,167**
FTE	10.8	9.2	8.6	8.5	7.8
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	3,953	2,670	4,154	3,397	3,603
NSE	0	0	0	0	0
Total	**3,953**	**2,670**	**4,154**	**3,397**	**3,603**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	1,073	988	1,045	1,011	966
Non-Labor	7,050	5,129	5,603	5,796	6,804
NSE	0	0	0	0	0
Total	**8,123**	**6,117**	**6,648**	**6,806**	**7,771**
FTE	10.8	9.2	8.6	8.5	7.8
Vacation & Sick (Nominal $)					
Labor	166	157	154	146	153
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**166**	**157**	**154**	**146**	**153**
FTE	1.8	1.6	1.4	1.4	1.4
Escalation to 2013$					
Labor	187	120	71	28	0
Non-Labor	1,062	537	332	138	0
NSE	0	0	0	0	0
Total	**1,248**	**657**	**404**	**166**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	1,425	1,265	1,271	1,185	1,119
Non-Labor	8,112	5,666	5,935	5,934	6,804
NSE	0	0	0	0	0
Total	**9,538**	**6,931**	**7,205**	**7,119**	**7,924**
FTE	12.6	10.8	10.0	9.9	9.2

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00225.0
Category: F. NEW BUSINESS
Category-Sub: 10. CUSTOMER REQUESTED UPGRADES AND SERVICES
Workpaper Group: 002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	3,953	2,670	4,154	3,397	3,603
NSE	0	0	0	0	0
Total	**3,953**	**2,670**	**4,154**	**3,397**	**3,603**
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	0	3,953	0	3,953	0.0	MEHLERS201310171040
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	3,953	0	3,953	0.0	
2010	0	2,670	0	2,670	0.0	MEHLERS201310171041
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	2,670	0	2,670	0.0	
2011	0	4,154	0	4,154	0.0	MEHLERS201310171041
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	4,154	0	4,154	0.0	
2012	0	3,397	0	3,397	0.0	MEHLERS201310171041
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	3,397	0	3,397	0.0	
2013	0	3,603	0	3,603	0.0	CBUTLER201402040910(
Adjustment made to remove CIAC from historical costs.						
2013 Total	0	3,603	0	3,603	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002250

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00225.0
Category:	F. NEW BUSINESS
Category-Sub:	10. CUSTOMER REQUESTED UPGRADES AND SERVICES
Workpaper Group:	002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES
Workpaper Detail:	002250.001 - Collectible portion of BC225
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	2,780	3,059	3,364
NSE	0	0	0
Total	**2,780**	**3,059**	**3,364**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00225.0
Category:	F. NEW BUSINESS
Category-Sub:	10. CUSTOMER REQUESTED UPGRADES AND SERVICES
Workpaper Group:	002250 - CUSTOMER REQUESTED UPGRADES AND SERVICES
Workpaper Detail:	002250.002 - Non collectible portion of BC 225
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,338	1,472	1,619
Non-Labor	3,883	4,269	4,695
NSE	0	0	0
Total	**5,221**	**5,741**	**6,314**
FTE	11.4	12.7	14.2

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002250

002250 - Budget Code 225 - CUSTOMER REQUESTED UPGRADES AND SERVICES

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00225.0
Category: F. NEW BUSINESS
Category-Sub: 10. CUSTOMER REQUESTED UPGRADES AND SERVICES
Workpaper Group: 002250 - CUSTOMER REQUESTED UPGRADES AND 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	1,425	1,265	1,271	1,185	1,119	1,338	1,472	1,619
Non-Labor	5-YR Average	8,112	5,666	5,935	5,934	6,804	6,663	7,328	8,059
NSE	5-YR Average	-	-	-	-	-	-	-	-
Total		**9,538**	**6,931**	**7,205**	**7,119**	**7,924**	**8,001**	**8,800**	**9,678**
Collectible		(3,151)	(2,063)	(3,027)	(2,437)	(2,517)	(2,780)	(3,059)	(3,364)
Net Capital		**6,387**	**4,866**	**4,178**	**4,681**	**5,406**	**5,221**	**5,741**	**6,314**
FTE	5-YR Average	12.6	10.8	10.0	9.9	9.2	11.4	12.7	14.2

225 - Customer Requested Relocations & Service Upgrades

The following historical totals (fully loaded) were normalized to 2013 equivalent dollars using factors provided by Global Insights.

2009	$10,532,000 / .8727	=	$12,068,294
2010	$9,299,000 / .9089	=	$10,231,049
2011	$8,221,000 / .9480	=	$8,671,941
2012	$8,787,000 / .9787	=	$8,978,236
2013	$9,415,000	=	$9,415,000
5 year total		=	$49,364,520

$49,364,520 / 5 = $9,872,904 average annual expenditure

Given that activity in this category (customer requested relocations, removals and rearrangements) can be heavily influenced by the general state of the economy, it was believed a simple average of the expenditures over the past 5 years did not adequately represent what might be expected under improving economic conditions. Also, any attempt to break past expenditures down into a historical unit cost to which the growth factors derived from the Construction Unit Forecast could be applied would create an unrealistically high outlook. Therefore, the total annual costs over the past five years showed a steady decline along with economic conditions and began to rise as conditions improved, it was decided to simply take the 2013 total spend and add to it 10% to establish a base requirement for 2014. As such, the requirement for 2014 has been projected at $10,400,000 with an additional increase of 10% each year for 2015 and 2016 respectively.

Proposed requirements (fully loaded):

2014 $10,400,000
2015 $11,440,000
2016 $12,584,000

Fully loaded forecasts were converted to direct cost forecasts using the project specific direct vs indirect historical average splits for labor and non-labor.

Beginning of Workpaper Group
002350 - TRANSFORMER & METER INSTALLATIONS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00235.0
Category: F. NEW BUSINESS
Category-Sub: 11. TRANSFORMER & METER INSTALLATIONS
Workpaper Group: 002350 - TRANSFORMER & METER INSTALLATIONS

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	1,680	1,470	1,523	1,390	1,219	1,341	1,457	1,539
Non-Labor	5-YR Average	6,365	4,789	3,455	3,711	2,638	3,915	4,252	4,493
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**8,044**	**6,259**	**4,978**	**5,101**	**3,857**	**5,256**	**5,709**	**6,032**
FTE	5-YR Average	17.9	15.6	16.8	15.1	13.9	14.7	15.9	16.7

Business Purpose:

This project is required to provide specific work related to new or existing customer installations and the handling and salvage of scrapped distribution line equipment

Physical Description:

This project provides for the following: 1) The labor, transportation and minor material cost associated with the installation of new line transformers, including the replacement of existing transformers. 2) The labor and transportation cost associated with the installation of new electric meters. 3) The labor and transportation costs associated with switching for capital jobs, excluding parallel or transmission switching. 4) All costs associated with the handling & loading of retired equipment, including PCB contaminated line equipment. 5) Salvage costs associated with the disposition of distribution line equipment that is being retired or scrapped, including PCB contaminated line equipment. 6) Costs associated with the removal of transformers ultimately scrapped or sold and subsequently transferred from Accounts 583.3 (Remove Overhead Transformers) and 584.2 (Remove Underground Transformers) to Capital Account 108.4

Project Justification:

In accordance with the rules for the sale of electric energy, filed with and approved by the CPUC, modification to existing electric facilities may be required due to customer request and in conjunction with new business projects.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00235.0
Category:	F. NEW BUSINESS
Category-Sub:	11. TRANSFORMER & METER INSTALLATIONS
Workpaper Group:	002350 - TRANSFORMER & METER INSTALLATIONS

Forecast Methodology:

Labor - 5-YR Average

The methodology used to forecast expenditures for the 235 Project relied heavily on historical trends. Actual expenditures for the years 2009 through 2013were reviewed and consideration was given to projections in SDG&E's Construction Unit Forecast. The 235 Project includes quite a variety of activities. By far the greatest component is labor associated with transformer installation and removal, regardless of whether the transformer is installed new or as a replacement. Another large component is labor for electric meter installations for all reasons. Both of these components are partially influenced by customer growth and, therefore, impacted by SDG&E's Construction Unit Forecast, but not entirely. Therefore, historical trends were used to estimate a base requirement for each year, after which the Construction Unit Forecast was used to estimate the effect of new customer growth on the impacted portion. With transformer labor being the single largest component of this project, it is also the part most affected by New Business customer activity. In an effort to isolate that effect on historical figures it was determined what percentage of transformers purchased are typically for new business. We then took the 2013 full year actual expenditure for 235, determined how much money that represented and then increased each year for the years 2014 – 2016. That adjusted component was then factored back into the total to establish project requirements for years 2014 – 2016.

Non-Labor - 5-YR Average

See Labor

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00235.0
Category: F. NEW BUSINESS
Category-Sub: 11. TRANSFORMER & METER INSTALLATIONS
Workpaper Group: 002350 - TRANSFORMER & METER INSTALLATIONS

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	1,456	1,456	1,456	-115	1	83	1,341	1,457	1,539
Non-Labor	5-YR Average	4,191	4,191	4,191	-277	60	301	3,914	4,251	4,492
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**5,647**	**5,647**	**5,647**	**-392**	**61**	**384**	**5,255**	**5,708**	**6,031**
FTE	5-YR Average	15.9	15.9	15.9	-1.2	0.0	0.8	14.7	15.9	16.7

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	-115	-277	0	-392	-1.2	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2014 Total	-115	-277	0	-392	-1.2	
2015	1	60	0	61	0.0	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2015 Total	1	60	0	61	0.0	
2016	83	301	0	384	0.8	MEHLERS2013120
Adjustment made to account historical average + forecasted growth rates.						
2016 Total	83	301	0	384	0.8	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00235.0
Category: F. NEW BUSINESS
Category-Sub: 11. TRANSFORMER & METER INSTALLATIONS
Workpaper Group: 002350 - TRANSFORMER & METER INSTALLATIONS

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	1,265	1,148	1,253	1,186	1,052
Non-Labor	5,476	4,273	3,231	3,594	2,621
NSE	0	0	0	0	0
Total	**6,741**	**5,421**	**4,484**	**4,779**	**3,673**
FTE	15.3	13.3	14.4	13.0	11.8
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	55	62	31	31	17
NSE	0	0	0	0	0
Total	**55**	**62**	**31**	**31**	**17**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	1,265	1,148	1,253	1,186	1,052
Non-Labor	5,531	4,335	3,262	3,624	2,638
NSE	0	0	0	0	0
Total	**6,796**	**5,483**	**4,515**	**4,810**	**3,690**
FTE	15.3	13.3	14.4	13.0	11.8
Vacation & Sick (Nominal $)					
Labor	195	183	185	172	167
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**195**	**183**	**185**	**172**	**167**
FTE	2.6	2.3	2.4	2.1	2.1
Escalation to 2013$					
Labor	220	139	85	32	0
Non-Labor	833	454	194	86	0
NSE	0	0	0	0	0
Total	**1,053**	**593**	**279**	**119**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	1,680	1,470	1,523	1,390	1,219
Non-Labor	6,365	4,789	3,455	3,711	2,638
NSE	0	0	0	0	0
Total	**8,044**	**6,259**	**4,978**	**5,101**	**3,857**
FTE	17.9	15.6	16.8	15.1	13.9

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00235.0
Category: F. NEW BUSINESS
Category-Sub: 11. TRANSFORMER & METER INSTALLATIONS
Workpaper Group: 002350 - TRANSFORMER & METER INSTALLATIONS

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	55	62	31	31	17
NSE	0	0	0	0	0
Total	**55**	**62**	**31**	**31**	**17**
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	0	55	0	55	0.0	MEHLERS201310171043
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	55	0	55	0.0	
2010	0	62	0	62	0.0	MEHLERS201310171043
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	62	0	62	0.0	
2011	0	31	0	31	0.0	MEHLERS201310171043
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	31	0	31	0.0	
2012	0	31	0	31	0.0	MEHLERS201310171044
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	31	0	31	0.0	
2013	0	17	0	17	0.0	CBUTLER201402041002
Adjustment made to remove CIAC from historical costs.						
2013 Total	0	17	0	17	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002350

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00235.0
Category:	F. NEW BUSINESS
Category-Sub:	11. TRANSFORMER & METER INSTALLATIONS
Workpaper Group:	002350 - TRANSFORMER & METER INSTALLATIONS
Workpaper Detail:	002350.001 - Collectible portion of BC 235
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	0
Non-Labor	30	32	34
NSE	0	0	0
Total	**30**	**32**	**34**
FTE	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00235.0
Category:	F. NEW BUSINESS
Category-Sub:	11. TRANSFORMER & METER INSTALLATIONS
Workpaper Group:	002350 - TRANSFORMER & METER INSTALLATIONS
Workpaper Detail:	002350.002 - Non Collectible portion of BC 235
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,341	1,457	1,539
Non-Labor	3,885	4,220	4,459
NSE	0	0	0
Total	**5,226**	**5,677**	**5,998**
FTE	14.7	15.9	16.7

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002350

002350 - Budget Code 235 - TRANSFORMER AND METER INSTALLATIONS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00235.0
Category: F. NEW BUSINESS
Category-Sub: 11. TRANSFORMER AND METER INSTALLATIONS
Workpaper Group: 002350 - TRANSFORMER AND METER INSTALLATIONS

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	1,680	1,470	1,523	1,390	1,219	1,341	1,457	1,539
Non-Labor	5-YR Average	6,365	4,789	3,455	3,711	2,638	3,915	4,252	4,493
NSE	5-YR Average	-	-	-	-	-	-	-	-
Total		**8,044**	**6,259**	**4,978**	**5,101**	**3,857**	**5,256**	**5,709**	**6,032**
Collectible		(43)	(47)	(22)	(22)	(12)	(30)	(32)	(34)
Net Capital		**8,002**	**6,212**	**4,957**	**5,078**	**3,845**	**5,226**	**5,677**	**5,998**
FTE	5-YR Average	17.9	15.6	16.8	15.1	13.9	14.7	15.9	16.7

235 - Transformer and Meter Labor

The following historical totals (fully loaded) were normalized to 2013 equivalent dollars using factors provided by Global Insights.

2009	$19,097,000 / .8727	=	$21,882,266
2010	$16,695,000 / .9089	=	$18,368,357
2011	$14,892,000 / .9480	=	$15,708,860
2012	$15,888,000 / .9787	=	$16,233,779
2013	$13,395,000	=	$13,395,000
5 year total		=	$85,588,262

$85,588,262 / 5 = $17,117,652 average annual expenditure

Project 235 represents a very broad collection of activities, many of which are not directly related to New Business. As such, some of those activities are not as heavily impacted by changes in New Business growth as other components of the project. However, by far the largest components within the project are transformer labor and meter labor, but not of that is New Business related either. So, we try to isolate that portion that is expected to be influenced by New Business activity (based on historical estimates) and apply to it the growth factors derived from the Construction Unit Forecast to predict future requirements. Given the evolution of this particular project, it was also believed that using the 5-year average would result in an unrealistically high requirement. Therefore, the methodology described above was applied to the 2013 total spend in order to develop a 2014 requirement. That same methodology was subsequently applied to develop the requirements for 2015 and 2016.

$13,395,000 X .27 = $3,616,650 X 1.77 (growth factor) = $6,401,471
$13,395,000 - $3,616,650 = $9,778,350
$9,778,350 + $6,401,471 = $16,179,821 (rounded to $16,000,000)

Proposed requirements (fully loaded):
2014 $16,000,000
2015 $17,382,000
2016 $18,368,000

Fully loaded forecasts were converted to direct cost forecasts using the project specific direct vs indirect historical average splits for labor and non-labor.

Beginning of Workpaper Group
022640 - SUSTAINABLE COMMUNITY ENERGY SYSTEMS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 02264.0
Category: F. NEW BUSINESS
Category-Sub: 12. SUSTAINABLE COMMUNITY ENERGY SYSTEMS
Workpaper Group: 022640 - SUSTAINABLE COMMUNITY ENERGY SYSTEMS

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	4	1	52	39	34	0	0
Non-Labor	Zero-Based	6,036	7,383	7,970	4,426	2,208	1,531	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**6,037**	**7,387**	**7,971**	**4,477**	**2,247**	**1,565**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.5	0.5	0.4	0.0	0.0

Business Purpose:

The project provides a new service to customers by installing and operating state-of-the-art energy systems and smart grid technologies focusing on community based sustainable energy systems in conjunction with interval meters and control technologies. It also will analyze the impact of these technologies on the existing distribution system in preparation for expanded utilization in the future. The main objectives include; meeting customer demands and interests, ensuring environmentally sensitive energy solutions, stimulating distributed technology, supporting and partnering with interested developers, gaining necessary experience with localized distributed sources, including engineering, design, construction, maintenance, and operation in preparation for future customer needs by promoting energy and demand savings, clean distributed energy generation, and enhancing reliability and power quality.

Physical Description:

The project provides the funds for engineering, design, materials, installation, testing, and maintenance of the following items: Community based energy reliability and efficiency strategies, state-of-the-art generation and storage technologies, such as solar photovoltaic, fuel cells, advanced battery energy storage, and combined heat and power, advanced metering, control, and interconnection, such as time-of-use metering, automated meter reading, and web-based or remote monitoring and control.

Project Justification:

This effort is consistent with the Cost of Service filing submitted to assist SDG&E to obtain the necessary experience to provide utility owned distributed generation systems. The experience will help solidify standards, procedures, and technical requirements to further the smart grid for distributed generation and integration with the distribution system.

There are no alternative solutions to meet this goal

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	02264.0
Category:	F. NEW BUSINESS
Category-Sub:	12. SUSTAINABLE COMMUNITY ENERGY SYSTEMS
Workpaper Group:	022640 - SUSTAINABLE COMMUNITY ENERGY SYSTEMS

Forecast Methodology:

Labor - Zero-Based

This project is being phased out, as directed in Ordering Paragraph 8 of the decision in SDG&E's prior rate case, A.10-12-005/D.13-05-010: "The sustainable community energy systems project for San Diego Gas & Electric Company (SDG&E) shall end at the end of this General Rate Case (GRC) cycle". The program was concluded in 2013, but there are trailing charges in 2014 to account for two in-progress projects; the Civita Microgrid and Energy Storage for the Fast EV Suncharge Del Lago Site. The forecasted expenditures are based on cost estimates for those projects. As shown in the forecast for 2015 and 2016, no additional expenditures are planned beyond 2014

Non-Labor - Zero-Based

This project is being phased out, as directed in Ordering Paragraph 8 of the decision in SDG&E's prior rate case, A.10-12-005/D.13-05-010: "The sustainable community energy systems project for San Diego Gas & Electric Company (SDG&E) shall end at the end of this General Rate Case (GRC) cycle". The program was concluded in 2013, but there are trailing charges in 2014 to account for two in-progress projects; the Civita Microgrid and Energy Storage for the Fast EV Suncharge Del Lago Site. The forecasted expenditures are based on cost estimates for those projects. As shown in the forecast for 2015 and 2016, no additional expenditures are planned beyond 2014

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 02264.0
Category: F. NEW BUSINESS
Category-Sub: 12. SUSTAINABLE COMMUNITY ENERGY SYSTEMS
Workpaper Group: 022640 - SUSTAINABLE COMMUNITY ENERGY SYSTEMS

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	34	0	0	0	0	0	34	0	0
Non-Labor	Zero-Based	1,531	0	0	0	0	0	1,531	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**1,565**	**0**	**0**	**0**	**0**	**0**	**1,565**	**0**	**0**
FTE	Zero-Based	0.4	0.0	0.0	0.0	0.0	0.0	0.4	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 02264.0
Category: F. NEW BUSINESS
Category-Sub: 12. SUSTAINABLE COMMUNITY ENERGY SYSTEMS
Workpaper Group: 022640 - SUSTAINABLE COMMUNITY ENERGY SYSTEMS

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	3	1	44	34
Non-Labor	5,246	6,683	7,524	4,322	2,208
NSE	0	0	0	0	0
Total	**5,246**	**6,686**	**7,525**	**4,367**	**2,241**
FTE	0.0	0.0	0.0	0.4	0.4
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	3	1	44	34
Non-Labor	5,246	6,683	7,524	4,322	2,208
NSE	0	0	0	0	0
Total	**5,246**	**6,686**	**7,525**	**4,367**	**2,241**
FTE	0.0	0.0	0.0	0.4	0.4
Vacation & Sick (Nominal $)					
Labor	0	0	0	6	5
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**6**	**5**
FTE	0.0	0.0	0.0	0.1	0.1
Escalation to 2013$					
Labor	0	0	0	1	0
Non-Labor	790	700	446	103	0
NSE	0	0	0	0	0
Total	**790**	**700**	**446**	**104**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	4	1	52	39
Non-Labor	6,036	7,383	7,970	4,426	2,208
NSE	0	0	0	0	0
Total	**6,037**	**7,387**	**7,971**	**4,477**	**2,247**
FTE	0.0	0.0	0.0	0.5	0.5

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 02264.0
Category: F. NEW BUSINESS
Category-Sub: 12. SUSTAINABLE COMMUNITY ENERGY SYSTEMS
Workpaper Group: 022640 - SUSTAINABLE COMMUNITY ENERGY SYSTEMS

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 022640

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	02264.0
Category:	F. NEW BUSINESS
Category-Sub:	12. SUSTAINABLE COMMUNITY ENERGY SYSTEMS
Workpaper Group:	022640 - SUSTAINABLE COMMUNITY ENERGY SYSTEMS
Workpaper Detail:	022640.001 - Sustainable Communities Program
In-Service Date:	Not Applicable

Description:

Budget Code 02264 consists of two projects for 2014: 1) Advanced Energy Storage (AES) for Del Lago Park N Ride, and 2) Sustainable Communities Elements of the Civita Microgrid.
The Sustainable Communities elements of the Civita Microgrid include Fuel Cells, AES, and PV. All other elements of the Civita Microgrid will be covered by a companion Smart Grid project.

Forecast In 2013 $(000)

Years	2014	2015	2016
Labor	34	0	0
Non-Labor	1,531	0	0
NSE	0	0	0
Total	**1,565**	**0**	**0**
FTE	0.4	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 022640

2264 – Sustainable Communities Program

Below is a table that summarizes the costs of labor and material for the significant work scope items defined for the two remaining Sustainable Communities Program projects, Civita Microgrid and Energy Storage for the Fast EV Suncharge Del Lago Site.

Description	Labor (Engineering, Contract, Labor, Contingency)	Material (Material, Purchasing & Warehousing, Equipment Costs, Contingency)	Total
CIVITA PROJECT			
FUEL CELLS	$492,822		$492,822
ENERGY STORAGE SYSTEM	$277,032		$277,032
PV SYSTEM	$246,304		$246,304
FAST EV SUNCHARGE DEL LAGO			
ENGINEERING	$8,506		$8,506
BATTERY SYSTEM	$383,314		$383,314
BOS COMPONENTS	$32,000		$32,000
INSTALLATION	$84,323		$84,323
COMMUNICATION AND CONTROL	$34,000	$6,700	$40,700
TOTALS	$1,558,300	$6,700	$1,565,000

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: G. OVERHEAD POOLS
Workpaper: VARIOUS

Summary for Category: G. OVERHEAD POOLS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	38,618	70,800	77,024	70,874
Non-Labor	21,243	37,752	41,333	39,350
NSE	0	0	0	0
Total	**59,861**	**108,552**	**118,357**	**110,224**
FTE	469.0	790.3	853.0	791.5
009010 Local Engineering Pool - ED Pool				
Labor	35,304	56,436	62,214	61,487
Non-Labor	17,860	28,551	31,474	31,106
NSE	0	0	0	0
Total	**53,164**	**84,987**	**93,688**	**92,593**
FTE	435.2	646.5	704.3	697.0
009040 Local Engineering Pool - Substation Pool				
Labor	3,220	11,082	10,951	5,094
Non-Labor	1,233	4,246	4,196	1,951
NSE	0	0	0	0
Total	**4,453**	**15,328**	**15,147**	**7,045**
FTE	33.3	111.9	110.6	52.0
009050 Department Overhead Pool				
Labor	94	139	156	173
Non-Labor	2,150	3,180	3,571	3,966
NSE	0	0	0	0
Total	**2,244**	**3,319**	**3,727**	**4,139**
FTE	0.5	0.5	1.1	1.3
00906A Budget Code 906 - Contract Administration Pool				
Labor	0	3,143	3,703	4,120
Non-Labor	0	1,775	2,092	2,327
NSE	0	0	0	0
Total	**0**	**4,918**	**5,795**	**6,447**
FTE	0.0	31.4	37.0	41.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
009010 - Local Engineering Pool - ED Pool

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00901.0
Category: G. OVERHEAD POOLS
Category-Sub: 1. Local Engineering Pool - ED Pool
Workpaper Group: 009010 - Local Engineering Pool - ED Pool

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	Base YR Rec	35,745	34,006	33,387	34,477	35,304	56,436	62,214	61,487
Non-Labor	Base YR Rec	8,932	9,171	10,192	13,677	17,860	28,551	31,474	31,106
NSE	Base YR Rec	0	0	0	0	0	0	0	0
Total		**44,677**	**43,178**	**43,579**	**48,153**	**53,164**	**84,987**	**93,688**	**92,593**
FTE	Base YR Rec	428.1	421.7	413.0	424.4	435.2	646.5	704.3	697.0

Business Purpose:

The Local Engineering - ED Pool consists of the pool of Planners, Designers and Engineers, and support personnel who research, analyze, and design the facilities needed to serve customers. These persons address the engineering needs for new services, facilities relocations, overhead-to-underground conversions, capacity, and reliability projects. These persons also address the interaction with internal and external customers in preparing a work order package for construction. This pool includes the costs that will be allocated to electric distribution capital activities. These capital overhead pool forecast values are referenced in the testimony of Mr. Jesse Aragon in Exhibit SDG&E-27, under budget code 901.

Physical Description:

Typical activities included in this account are:
- Communicating with internal and external customers to collect information necessary to prepare a work order package for construction;
- Performing load and sizing studies to determine the design characteristics to apply to a construction project;
- Developing a design for the construction project that meets the customer needs for service and the overall system design requirements. This design identifies the material, labor and equipment requirements necessary to complete the construction project;
- Coordination of the permitting and rights of way requirements;
- Preparing cost estimates according to the line extension rules and presenting these estimates to the internal or external customer for their approval;
- Preparing contracts and processing fees for new business construction projects; and
- Preparing work order packages and transmitting them to the internal and external groups.

Project Justification:

Local Engineering activities are required to see a project from inception to completion. Due to the volume of capital work that takes place on the distribution system, the most effective and efficient way to allocate the planning and engineering activities is through the use of the overhead pools. It is not feasible to charge directly for each electric distribution job due to the tremendous amount of work orders.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00901.0
Category:	G. OVERHEAD POOLS
Category-Sub:	1. Local Engineering Pool - ED Pool
Workpaper Group:	009010 - Local Engineering Pool - ED Pool

Forecast Methodology:

Labor - Base YR Rec

With regulation changes and an increased focus on risk reduction, the need to perform more engineering than in the past (historically, distribution has been a standards-based business) has arisen. Internally at SDG&E, more detailed engineering is being done for new facilities and for rebuilding electric infrastructure. More advanced tools and methodology are also being utilized. The forecast in the labor and non-labor areas of this pool is derived from the Base Year expenditures with a net upward adjustment based on a historical relationship of Local Engineering – ED capital overheads to capital expenditures. Local Engineering support tracks the historical relationship between the engineering and support requirements and the related capital of Capacity/Expansion, Franchise, Mandated, Materials, New Business, Reliability/Improvements, Safety and Risk Management, and Transmission/FERC Driven Projects (Expenditures for Meters & Regulators, Capital Tools, and the Smart Meter Program are excluded). The forecasted increases in New Business, Reliability/Improvements, and Safety and Risk Management will have a significant impact on the Local Engineering – ED Pool.

Non-Labor - Base YR Rec

With regulation changes and an increased focus on risk reduction, the need to perform more engineering than in the past (historically, distribution has been a standards-based business) has arisen. Internally at SDG&E, more detailed engineering is being done for new facilities and for rebuilding electric infrastructure. More advanced tools and methodology are also being utilized. The forecast in the labor and non-labor areas of this pool is derived from the Base Year expenditures with a net upward adjustment based on a historical relationship of Local Engineering – ED capital overheads to capital expenditures. Local Engineering support tracks the historical relationship between the engineering and support requirements and the related capital of Capacity/Expansion, Franchise, Mandated, Materials, New Business, Reliability/Improvements, Safety and Risk Management, and Transmission/FERC Driven Projects (Expenditures for Meters & Regulators, Capital Tools, and the Smart Meter Program are excluded). The forecasted increases in New Business, Reliability/Improvements, and Safety and Risk Management will have a significant impact on the Local Engineering – ED Pool.

NSE - Base YR Rec

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00901.0
Category: G. OVERHEAD POOLS
Category-Sub: 1. Local Engineering Pool - ED Pool
Workpaper Group: 009010 - Local Engineering Pool - ED 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	Base YR Rec	35,304	35,304	35,304	21,132	26,910	26,183	56,436	62,214	61,487
Non-Labor	Base YR Rec	17,859	17,859	17,859	10,691	13,614	13,246	28,550	31,473	31,105
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**53,163**	**53,163**	**53,163**	**31,823**	**40,524**	**39,429**	**84,986**	**93,687**	**92,592**
FTE	Base YR Rec	435.2	435.2	435.2	211.3	269.1	261.8	646.5	704.3	697.0

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	21,132	10,691	0	31,823	211.3	CBUTLER2014051
Net upward adjustment made based on a historical relationship of Local Engineering – Electric Distribution capital overhead to capital expenditures.						
2014 Total	21,132	10,691	0	31,823	211.3	
2015	26,910	13,614	0	40,524	269.1	CBUTLER2014051
Net upward adjustment made based on a historical relationship of Local Engineering – Electric Distribution capital overhead to capital expenditures.						
2015 Total	26,910	13,614	0	40,524	269.1	
2016	26,183	13,246	0	39,429	261.8	CBUTLER2014051
Net upward adjustment made based on a historical relationship of Local Engineering – Electric Distribution capital overhead to capital expenditures.						
2016 Total	26,183	13,246	0	39,429	261.8	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00901.0
Category: G. OVERHEAD POOLS
Category-Sub: 1. Local Engineering Pool - ED Pool
Workpaper Group: 009010 - Local Engineering Pool - ED Pool

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	26,911	26,555	27,471	29,412	30,471
Non-Labor	7,538	8,007	9,420	13,138	17,490
NSE	0	0	0	0	0
Total	**34,449**	**34,562**	**36,890**	**42,550**	**47,961**
FTE	366.7	359.4	354.8	365.4	370.3
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	225	295	202	220	370
NSE	0	0	0	0	0
Total	**225**	**295**	**202**	**220**	**370**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	26,911	26,555	27,471	29,412	30,471
Non-Labor	7,763	8,302	9,622	13,358	17,860
NSE	0	0	0	0	0
Total	**34,674**	**34,857**	**37,092**	**42,770**	**48,331**
FTE	366.7	359.4	354.8	365.4	370.3
Vacation & Sick (Nominal $)					
Labor	4,155	4,228	4,046	4,262	4,833
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**4,155**	**4,228**	**4,046**	**4,262**	**4,833**
FTE	61.4	62.3	58.2	59.0	64.9
Escalation to 2013$					
Labor	4,679	3,224	1,870	803	0
Non-Labor	1,169	869	571	319	0
NSE	0	0	0	0	0
Total	**5,848**	**4,093**	**2,440**	**1,122**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	35,745	34,006	33,387	34,477	35,304
Non-Labor	8,932	9,171	10,192	13,677	17,860
NSE	0	0	0	0	0
Total	**44,677**	**43,178**	**43,579**	**48,153**	**53,164**
FTE	428.1	421.7	413.0	424.4	435.2

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00901.0
Category: G. OVERHEAD POOLS
Category-Sub: 1. Local Engineering Pool - ED Pool
Workpaper Group: 009010 - Local Engineering Pool - ED Pool

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	225	295	202	220	370
NSE	0	0	0	0	0
Total	**225**	**295**	**202**	**220**	**370**
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	0	225	0	225	0.0	CBUTLER201402041742
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	225	0	225	0.0	
2010	0	295	0	295	0.0	CBUTLER201402041742
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	295	0	295	0.0	
2011	0	202	0	202	0.0	CBUTLER201402041743
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	202	0	202	0.0	
2012	0	220	0	220	0.0	CBUTLER201402041743
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	220	0	220	0.0	
2013	0	370	0	370	0.0	CBUTLER201402041743
Adjustment made to remove CIAC from historical costs.						
2013 Total	0	370	0	370	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 009010

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00901.0
Category:	G. OVERHEAD POOLS
Category-Sub:	1. Local Engineering Pool - ED Pool
Workpaper Group:	009010 - Local Engineering Pool - ED Pool
Workpaper Detail:	009010.001 - Local Engineering Pool - ED Allocation
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	56,436	62,214	61,487
Non-Labor	28,551	31,474	31,106
NSE	0	0	0
Total	**84,987**	**93,688**	**92,593**
FTE	646.5	704.3	697.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 009010

009010 - Local Engineering Pool - ED Pool
Forecast Development

The Local Engineering Electric Distribution Pool forecast is derived from the Base Year expenditures with a net upward adjustment based the increase or decrease of related capital expenditures in terms of percentages. This pool tracks the historical relationship between the engineering and support requirements and the related capital of Capacity/Expansion, Franchise, Mandated, Materials, New Business, Reliability/Improvements, Safety and Risk Management, and Transmission/FERC Driven Projects (Expenditures for Meters & Regulators, Capital Tools, and the Smart Meter Program are excluded).

Step 1a: Developing the Basis of Forecast

Category	2013 $	2014 $	2015 $	2016 $
CAPACITY/EXPANSION	17,796	51,611	32,165	15,048
FRANCHISE	32,196	41,637	41,637	41,637
MANDATED	28,676	40,100	39,764	39,063
MATERIALS	15,605	21,024	22,025	23,027
NEW BUSINESS	30,802	54,467	66,076	77,104
RELIABILITY/IMPROVEMENTS	61,888	79,552	101,250	74,359
SAFETY AND RISK MANAGEMENT	11,041	27,563	42,309	77,378
TRANSMISSION/FERC DRIVEN PROJECTS	8,780	14,606	19,178	12,528
Grand Total	**206,784**	**330,560**	**364,404**	**360,144**
% increase/decrease on a yearly basis		59.8576%	10.2384%	-1.1690%

Step 1b: Identifying Which Budget Codes Are Excluded From the Basis of Forecast

Category/Budget Code	2013 $	2014 $	2015 $	2016 $
NEW BUSINESS	**2,117**	**5,404**	**5,856**	**6,137**
202 - ELECTRIC METERS & REGULATORS	1,204	4,036	4,488	4,769
206 - ELECTRIC DISTRIBUTION TOOLS/EQUIPMENT	913	1,368	1,368	1,368
SMART METER PROGRAM	**2,458**	**1,116**	-	-
4250 - SMART METER PROJECT-ELECTRIC	2,458	1,116	-	-
Grand Total	**4,575**	**6,520**	**5,856**	**6,137**

Step 2: Calculating the Yearly Forecasts

	2013 $	2014	2015	2016
901 - Local Engineering Pool - ED Pool	53,164	84,987	93,688	92,593
Grand Total	**53,164**	**84,987**	**93,688**	**92,593**

	Previous Year * (1 + Increase/Decrease)		Recorded/Forecast
2013	N/A		53,614
2014	53,614 * (1+.598576)	=	84,987
2015	84,987 * (1+.102384)	=	93,688
2016	93,688 * (1-.011690)	=	92,593

009010 - Local Engineering Pool - ED Pool
Forecast Development

Step 3: Calculation of Yearly Adjustments

	2013 $	2014 $	2015 $	2016 $	2014 Adj	2015 $ Adj	2016 $ Adj	2014 FTE	2015 FTE	2016 FTE
Labor	35,304	56,436	62,214	61,487	21,132	26,910	26,183	211.3	269.1	261.8
NLbr	17,860	28,551	31,474	31,106	10,691	13,614	13,246			
NSE	-	-	-	-	-	-	-			
Grand Total	**53,164**	**84,987**	**93,688**	**92,593**	**31,823**	**40,524**	**39,429**			

1. Yearly Labor and Non-Labor forecasts were calculated by taking the previous year multiplied by (1 + the percentage increase/decrease) as calculated in the basis of forecast table.
2. The yearly labor and non-labor adjustments were calculated by taking the yearly forecast for each area and then subtracting the 2013 base year recorded value.
3. FTE adjustment was calculated by taking the yearly adjustment and dividing it by an assumed average salary of $100,000 for a Full-Time Equivalent (FTE).

Beginning of Workpaper Group
009040 - Local Engineering Pool - Substation Pool

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00904.0
Category: G. OVERHEAD POOLS
Category-Sub: 2. Local Engineering Pool - Substation Pool
Workpaper Group: 009040 - Local Engineering Pool - Substation Pool

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	Base YR Rec	2,311	2,475	2,727	2,934	3,220	11,082	10,951	5,094
Non-Labor	Base YR Rec	317	232	426	666	1,233	4,246	4,196	1,951
NSE	Base YR Rec	0	0	0	0	0	0	0	0
Total		**2,627**	**2,707**	**3,153**	**3,601**	**4,454**	**15,328**	**15,147**	**7,045**
FTE	Base YR Rec	26.3	28.8	31.2	32.2	33.3	111.9	110.6	52.0

Business Purpose:

The Local Engineering – Substation Pool consists of the pool of planners, designers and engineers and support personnel who research, analyze, and design the facilities needed to serve customers. These persons address the engineering needs for substation projects. These persons also address the interaction with internal and external customers in preparing a work order package for construction. This pool includes the costs that will be allocated to electric distribution and transmission substation capital activities. These capital overhead pool forecast values are referenced in the testimony of Mr. Jesse Aragon in Exhibit SDG&E-27, under budget code 904.

Physical Description:

Typical activities included in this account are:
- Communicating with internal and external customers to collect information necessary to prepare a work order package for construction;
- Performing load and sizing studies to determine the design characteristics to apply to a construction project;
- Developing a design for the construction project that meets the customer needs for service and the overall system design requirements. This design identifies the material, labor and equipment requirements necessary to complete the construction project;
- Coordination of the permitting and rights of way requirements;
- Preparing cost estimates according to the line extension rules and presenting these estimates to the internal or external customer for their approval;
- Preparing contracts and processing fees for new business construction projects; and
- Preparing work order packages and transmitting them to the internal and external groups.

Project Justification:

Local Engineering activities are required to see a project from inception to completion. Due to the volume of capital work that takes place on the distribution system, the most effective and efficient way to allocate the planning and engineering activities is through the use of the overhead pools. It is not feasible to charge directly for each electric distribution/substation job due to the tremendous volume of work orders. In the case of the Local Engineering – Substation Pool, it is only the substation related activities that are charged to it.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00904.0
Category:	G. OVERHEAD POOLS
Category-Sub:	2. Local Engineering Pool - Substation Pool
Workpaper Group:	009040 - Local Engineering Pool - Substation Pool

Forecast Methodology:

Labor - Base YR Rec

The forecast for this pool is derived from the Base Year expenditures with a net upward adjustment based on a historical relationship of Local Engineering – Substation capital overheads to capital expenditures. Local Engineering – Substation support tracks the historical relationship between the engineering and support requirements and the related capital of Capacity/Expansion, Mandated, Reliability/Improvements, and Transmission/FERC Driven Projects (Expenditures for Meters & Regulators, Capital Tools, and the Smart Meter Program are excluded).

Non-Labor - Base YR Rec

The forecast for this pool is derived from the Base Year expenditures with a net upward adjustment based on a historical relationship of Local Engineering – Substation capital overheads to capital expenditures. Local Engineering – Substation support tracks the historical relationship between the engineering and support requirements and the related capital of Capacity/Expansion, Mandated, Reliability/Improvements, and Transmission/FERC Driven Projects (Expenditures for Meters & Regulators, Capital Tools, and the Smart Meter Program are excluded).

NSE - Base YR Rec

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00904.0
Category: G. OVERHEAD POOLS
Category-Sub: 2. Local Engineering Pool - Substation Pool
Workpaper Group: 009040 - Local Engineering Pool - Substation 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	Base YR Rec	3,220	3,220	3,220	7,862	7,731	1,874	11,082	10,951	5,094
Non-Labor	Base YR Rec	1,233	1,233	1,233	3,013	2,963	718	4,246	4,196	1,951
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**4,453**	**4,453**	**4,453**	**10,875**	**10,694**	**2,592**	**15,328**	**15,147**	**7,045**
FTE	Base YR Rec	33.3	33.3	33.3	78.6	77.3	18.7	111.9	110.6	52.0

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	7,862	3,013	0	10,875	78.6	CBUTLER2014051
Net upward adjustment made based on a historical relationship of Local Engineering – Substation capital overhead to capital expenditures.						
2014 Total	7,862	3,013	0	10,875	78.6	
2015	7,731	2,963	0	10,694	77.3	CBUTLER2014051
Net upward adjustment made based on a historical relationship of Local Engineering – Substation capital overhead to capital expenditures.						
2015 Total	7,731	2,963	0	10,694	77.3	
2016	1,874	718	0	2,592	18.7	CBUTLER2014051
Net upward adjustment made based on a historical relationship of Local Engineering – Substation capital overhead to capital expenditures.						
2016 Total	1,874	718	0	2,592	18.7	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00904.0
Category: G. OVERHEAD POOLS
Category-Sub: 2. Local Engineering Pool - Substation Pool
Workpaper Group: 009040 - Local Engineering Pool - Substation Pool

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	3,479	3,866	4,487	5,007	5,559
Non-Labor	549	424	805	1,301	2,467
NSE	0	0	0	0	0
Total	**4,029**	**4,290**	**5,292**	**6,308**	**8,026**
FTE	39.9	43.8	49.2	52.7	56.1
Adjustments (Nominal $) **					
Labor	-1,740	-1,933	-2,244	-2,503	-2,779
Non-Labor	-275	-210	-402	-651	-1,233
NSE	0	0	0	0	0
Total	**-2,015**	**-2,143**	**-2,646**	**-3,154**	**-4,013**
FTE	-17.4	-19.3	-22.4	-25.0	-27.8
Recorded-Adjusted (Nominal $)					
Labor	1,740	1,933	2,244	2,503	2,779
Non-Labor	274	214	402	650	1,233
NSE	0	0	0	0	0
Total	**2,014**	**2,147**	**2,646**	**3,154**	**4,013**
FTE	22.5	24.5	26.8	27.7	28.3
Vacation & Sick (Nominal $)					
Labor	269	308	331	363	441
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**269**	**308**	**331**	**363**	**441**
FTE	3.8	4.3	4.4	4.5	5.0
Escalation to 2013$					
Labor	302	235	153	68	0
Non-Labor	41	23	24	16	0
NSE	0	0	0	0	0
Total	**344**	**257**	**177**	**84**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	2,311	2,475	2,727	2,934	3,220
Non-Labor	315	236	426	666	1,233
NSE	0	0	0	0	0
Total	**2,626**	**2,712**	**3,153**	**3,600**	**4,454**
FTE	26.3	28.8	31.2	32.2	33.3

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00904.0
Category: G. OVERHEAD POOLS
Category-Sub: 2. Local Engineering Pool - Substation Pool
Workpaper Group: 009040 - Local Engineering Pool - Substation Pool

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	-1,740	-1,933	-2,244	-2,503	-2,779
Non-Labor	-275	-210	-402	-651	-1,233
NSE	0	0	0	0	0
Total	**-2,015**	**-2,143**	**-2,646**	**-3,154**	**-4,013**
FTE	-17.4	-19.3	-22.4	-25.0	-27.8

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	-1,740	-275	0	-2,015	-17.4	MEHLERS201312061645
Adjustment made to exclude 50% of charges for Electric Transmission Substations.						
2009 Total	-1,740	-275	0	-2,015	-17.4	
2010	-1,933	-210	0	-2,143	-19.3	MEHLERS201312061645
Adjustment made to exclude 50% of charges for Electric Transmission Substations.						
2010 Total	-1,933	-210	0	-2,143	-19.3	
2011	-2,244	-402	0	-2,646	-22.4	MEHLERS201312061646
Adjustment made to exclude 50% of charges for Electric Transmission Substations.						
2011 Total	-2,244	-402	0	-2,646	-22.4	
2012	-2,503	-651	0	-3,154	-25.0	MEHLERS201312061646
Adjustment made to exclude 50% of charges for Electric Transmission Substations.						
2012 Total	-2,503	-651	0	-3,154	-25.0	
2013	-2,779	-1,233	0	-4,013	-27.8	CBUTLER201402111503
Adjustment made to exclude 50% of charges for Electric Transmission Substations.						
2013 Total	-2,779	-1,233	0	-4,013	-27.8	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 009040

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00904.0
Category:	G. OVERHEAD POOLS
Category-Sub:	2. Local Engineering Pool - Substation Pool
Workpaper Group:	009040 - Sale of Property
Workpaper Detail:	009040.001 - LE Sub Pool
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	11,082	10,951	5,094
Non-Labor	4,246	4,196	1,951
NSE	0	0	0
Total	**15,328**	**15,147**	**7,045**
FTE	111.9	110.6	52.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 009040

009040 - Local Engineering Pool - Substation Pool
Forecast Development

The forecast for Local Engineering – Substation pool is derived from the Base Year expenditures with a net upward adjustment based on the increase or decrease of Substation related capital expenditures in terms of percentages. The pool tracks the historical relationship between the engineering and support requirements and the related capital of Capacity/Expansion, Mandated, Reliability/Improvements, and Transmission/FERC Driven Projects (Expenditures for Meters & Regulators, Capital Tools, and the Smart Meter Program are excluded).

Step 1a: Developing the Basis of Forecast

Category	2013 $	2014 $	2015 $	2016 $
CAPACITY/EXPANSION	6,404	34,441	13,187	9,054
MANDATED	26	2,228	1,616	-
RELIABILITY/IMPROVEMENTS	5,538	15,108	38,306	12,142
TRANSMISSION/FERC DRIVEN PROJECTS	6,226	10,839	8,768	7,585
Grand Total	**18,194**	**62,616**	**61,877**	**28,781**
% increase/decrease on a yearly basis		244.1574%	-1.1802%	-53.4868%

Step 1b: Identifying Which Budget Codes Are Excluded From the Basis of Forecast

Category/Budget Code	2013 $	2014 $	2015 $	2016 $
CAPACITY/EXPANSION	11,392	17,170	18,978	5,994
EQUIP/TOOLS/MISC	913	1,368	1,368	1,368
FRANCHISE	32,196	41,637	41,637	41,637
MANDATED	28,650	37,872	38,148	39,063
MATERIALS	15,605	21,024	22,025	23,027
NEW BUSINESS	32,006	58,503	70,564	81,873
RELIABILITY/IMPROVEMENTS	56,350	64,444	62,944	62,217
SAFETY AND RISK MANAGEMENT	11,041	27,563	42,309	77,378
SMART METER PROGRAM	2,458	1,116	-	-
TRANSMISSION/FERC DRIVEN PROJECTS	2,554	3,767	10,410	4,943
Grand Total	**193,165**	**274,464**	**308,383**	**337,500**

Step 2: Calculating the Yearly Forecasts

	2013 $	2014	2015	2016
904 - Local Engineering Pool - Substation	4,454	15,329	15,148	7,046
Grand Total	**4,454**	**15,329**	**15,148**	**7,046**

	Previous Year * (1 + Increase/Decrease)		Recorded/Forecast
2013	N/A		4,454
2014	4,454 * (1+2.441574)	=	15,329
2015	15,329 * (1-.011802)	=	15,148
2016	15,148 * (1-.534868)	=	7,046

Step 3: Calculation of Yearly Adjustments

	2013 $	2014 $	2015 $	2016 $	2014 Adj	2015 $ Adj	2016 $ Adj	2014 FTE	2015 FTE	2016 FTE
Labor	3,220	11,082	10,951	5,094	7,862	7,731	1,874	78.6	77.3	18.7
NLbr	1,234	4,247	4,197	1,952	3,013	2,963	718			
NSE	-	-	-	-	-	-	-			
Grand Total	**4,454**	**15,329**	**15,148**	**7,046**	**10,875**	**10,694**	**2,592**			

1. Yearly Labor and Non-Labor forecasts were calculated by taking the previous year multiplied by (1 + the percentage increase/decrease) as calculated in the basis of forecast table.
2. The yearly labor and non-labor adjustments were calculated by taking the yearly forecast for each area and then subtracting the 2013 base year recorded value.
3. FTE adjustment was calculated by taking the yearly adjustment and dividing it by an assumed average salary of $100,000 for a Full-Time Equivalent (FTE).

Beginning of Workpaper Group
009050 - Department Overhead Pool

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00905.0
Category: G. OVERHEAD POOLS
Category-Sub: 3. Department Overhead Pool
Workpaper Group: 009050 - Department Overhead Pool

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	Base YR Rec	225	101	149	128	94	139	156	173
Non-Labor	Base YR Rec	1,617	1,293	1,557	1,505	2,150	3,180	3,571	3,966
NSE	Base YR Rec	0	0	0	0	0	0	0	0
Total		**1,842**	**1,394**	**1,706**	**1,634**	**2,244**	**3,319**	**3,727**	**4,139**
FTE	Base YR Rec	0.4	0.6	0.9	0.3	0.5	0.5	1.1	1.3

Business Purpose:

Department Overheads are those costs for supervision and administration of crews in the SDG&E Construction and Operation (C&O) districts. Department Overhead is charged for expenses that are not attributable to one particular project, but benefit many projects, or the Construction and Operation (C&O) districts as a whole. C&O managers, construction managers, construction supervisors, dispatchers, operations assistants and other clerical C&O employees charge this account. Construction field employees charge this account when meeting on multiple projects. The non-labor piece consists of administrative expenses such as: office supplies, telephone expenses, mileage, employee uniforms and professional dues. This pool includes the costs that will be allocated to distribution gas and electric capital activities. These capital overhead pool forecast values are referenced in the testimony of Mr. Jesse Aragon in SDG&E Exhibit 27, under budget code 905.

Physical Description:

Typical activities included in this account are:
- Management and supervision of construction personnel
- Scheduling, material ordering, dispatching for construction personnel

Project Justification:

Department Overheads are those costs for supervision and administration of crews in the SDG&E Construction and Operation (C&O) districts. Department Overhead is charged for expenses that are not attributable to one particular project, but benefit many projects, or the Construction and Operation (C&O) districts as a whole. Due to the volume of capital work that takes place on the distribution system, the most effective and efficient way to allocate the expenditures for the management of capital distribution operations activities throughout the service terriroty is through the use of this pool. It isn't feasbile to direct charge for each electric distribution job due to the tremendous volume of work orders and field memos.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00905.0
Category:	G. OVERHEAD POOLS
Category-Sub:	3. Department Overhead Pool
Workpaper Group:	009050 - Department Overhead Pool

Forecast Methodology:

Labor - Base YR Rec

This forecast is derived by taking the Base Year expenditures and applying a net upward adjustment based on a historical relationship of electric and gas distribution capital overhead to capital expenditures. Department Overhead support tracks the historical relationship between the support requirements and the related capital of Capacity/Expansion, Franchise, Mandated, Materials, New Business, Reliability/Improvements, Safety and Risk Management, and Transmission/FERC Driven Projects (Expenditures for Meters & Regulators, Capital Tools, and the Smart Meter Program are excluded).

Non-Labor - Base YR Rec

This forecast is derived by taking the Base Year expenditures and applying a net upward adjustment based on a historical relationship of electric and gas distribution capital overhead to capital expenditures. Department Overhead support tracks the historical relationship between the support requirements and the related capital of Capacity/Expansion, Franchise, Mandated, Materials, New Business, Reliability/Improvements, Safety and Risk Management, and Transmission/FERC Driven Projects (Expenditures for Meters & Regulators, Capital Tools, and the Smart Meter Program are excluded).

NSE - Base YR Rec

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00905.0
Category: G. OVERHEAD POOLS
Category-Sub: 3. Department Overhead Pool
Workpaper Group: 009050 - Department Overhead 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	Base YR Rec	94	94	94	45	62	79	139	156	173
Non-Labor	Base YR Rec	2,149	2,149	2,149	1,030	1,421	1,816	3,179	3,570	3,965
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**2,243**	**2,243**	**2,243**	**1,075**	**1,483**	**1,895**	**3,318**	**3,726**	**4,138**
FTE	Base YR Rec	0.5	0.5	0.5	0.5	0.6	0.8	1.0	1.1	1.3

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	45	1,030	0	1,075	0.5	CBUTLER2014051
Net upward adjustment made based on a historical relationship of electric and gas distribution capital overhead to capital expenditures.						
2014 Total	45	1,030	0	1,075	0.5	
2015	62	1,421	0	1,483	0.6	CBUTLER2014051
Net upward adjustment made based on a historical relationship of electric and gas distribution capital overhead to capital expenditures.						
2015 Total	62	1,421	0	1,483	0.6	
2016	79	1,816	0	1,895	0.8	CBUTLER2014051
Net upward adjustment made based on a historical relationship of electric and gas distribution capital overhead to capital expenditures.						
2016 Total	79	1,816	0	1,895	0.8	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00905.0
Category: G. OVERHEAD POOLS
Category-Sub: 3. Department Overhead Pool
Workpaper Group: 009050 - Department Overhead Pool

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	169	79	123	109	81
Non-Labor	1,405	1,170	1,470	1,470	2,150
NSE	0	0	0	0	0
Total	**1,575**	**1,249**	**1,593**	**1,580**	**2,231**
FTE	0.3	0.5	0.8	0.3	0.4
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	169	79	123	109	81
Non-Labor	1,405	1,170	1,470	1,470	2,150
NSE	0	0	0	0	0
Total	**1,575**	**1,249**	**1,593**	**1,580**	**2,231**
FTE	0.3	0.5	0.8	0.3	0.4
Vacation & Sick (Nominal $)					
Labor	26	13	18	16	13
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**26**	**13**	**18**	**16**	**13**
FTE	0.1	0.1	0.1	0.0	0.1
Escalation to 2013$					
Labor	29	10	8	3	0
Non-Labor	212	123	87	35	0
NSE	0	0	0	0	0
Total	**241**	**132**	**96**	**38**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	225	101	149	128	94
Non-Labor	1,617	1,293	1,557	1,505	2,150
NSE	0	0	0	0	0
Total	**1,842**	**1,394**	**1,706**	**1,634**	**2,244**
FTE	0.4	0.6	0.9	0.3	0.5

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00905.0
Category: G. OVERHEAD POOLS
Category-Sub: 3. Department Overhead Pool
Workpaper Group: 009050 - Department Overhead 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 009050

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00905.0
Category:	G. OVERHEAD POOLS
Category-Sub:	3. Department Overhead Pool
Workpaper Group:	009050 - Department Overhead Pool
Workpaper Detail:	009050.001 - Departmental OH Pool
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	139	156	173
Non-Labor	3,180	3,571	3,966
NSE	0	0	0
Total	**3,319**	**3,727**	**4,139**
FTE	0.5	1.1	1.3

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 009050

009050 - Department Overhead Pool
Forecast Development

This forecast for the Department Overhead Pool is derived by taking the Base Year expenditures and applying a net upward adjustment based on a historical relationship of electric and gas distribution capital overhead to capital expenditures. This pool tracks the historical relationship between the support requirements and the related capital of Capacity/Expansion, Franchise, Mandated, Materials, New Business, Reliability/Improvements, Safety and Risk Management, and Transmission/FERC Driven Projects (Expenditures for Meters & Regulators, Capital Tools, and the Smart Meter Program are excluded).

Step 1a: Developing the Basis of Forecast

Category	2013 $	2014 $	2015 $	2016 $
CAPACITY/EXPANSION	5,127	11,458	18,017	5,994
FRANCHISE	32,349	41,637	41,637	41,637
MANDATED	28,647	37,872	38,148	39,063
MATERIALS	15,605	21,024	22,025	23,027
NEW BUSINESS	30,802	54,467	66,076	77,104
RELIABILITY/IMPROVEMENTS	48,906	54,824	53,085	52,528
SAFETY AND RISK MANAGEMENT	6,769	26,791	39,711	70,272
TRANSMISSION/FERC DRIVEN PROJECTS	200	1,043	1,043	1,043
Grand Total	**168,405**	**249,116**	**279,742**	**310,668**
% increase/decrease on a yearly basis		47.9267%	12.2939%	11.0552%

Step 1b: Identifying Which Budget Codes Are Excluded From the Basis of Forecast

Category/Budget Code	2013 $	2014 $	2015 $	2016 $
CAPACITY/EXPANSION	12,669	40,153	14,148	9,054
EQUIP/TOOLS/MISC	913	1,368	1,368	1,368
FRANCHISE	(153)	-	-	-
MANDATED	29	2,228	1,616	-
NEW BUSINESS	1,204	4,036	4,488	4,769
RELIABILITY/IMPROVEMENTS	12,982	24,728	48,165	21,831
SAFETY AND RISK MANAGEMENT	4,272	772	2,598	7,106
SMART METER PROGRAM	2,458	1,116	-	-
TRANSMISSION/FERC DRIVEN PROJECTS	8,580	13,563	18,135	11,485
Grand Total	**42,954**	**87,964**	**90,518**	**55,613**

Step 2: Calculating the Yearly Forecasts

	2013 $	2014 $	2015 $	2016 $
905 - Department Overhead Pool	2,244	3,319	3,728	4,140
Grand Total	**2,244**	**3,319**	**3,728**	**4,140**

	Previous Year * (1 + Increase/Decrease)		Recorded/Forecast
2013	N/A		2,244
2014	2,244 * (1+.479267)	=	3,319
2015	3,319 * (1+.122939)	=	3,728
2016	3,728 * (1+.110552)	=	4,140

009050 - Department Overhead Pool
Forecast Development

Step 3: Calculation of Yearly Adjustments

	2013 $	2014 $	2015 $	2016 $	2014 Adj	2015 $ Adj	2016 $ Adj	2014 FTE	2015 FTE	2016 FTE
Labor	94	139	156	173	45	62	79	0.5	0.6	0.8
NLbr	2,150	3,180	3,571	3,966	1,030	1,421	1,816			
NSE	-	-	-	-	-	-	-			
Grand Total	**2,244**	**3,319**	**3,728**	**4,140**	**1,075**	**1,484**	**1,896**			

1. Yearly Labor and Non-Labor forecasts were calculated by taking the previous year multiplied by (1 + the percentage increase/decrease) as calculated in the basis of forecast table.
2. The yearly labor and non-labor adjustments were calculated by taking the yearly forecast for each area and then subtracting the 2013 base year recorded value.
3. FTE adjustment was calculated by taking the yearly adjustment and dividing it by an assumed average salary of $100,000 for a Full-Time Equivalent (FTE).

Beginning of Workpaper Group
00906A - Budget Code 906 - Contract Administration Pool

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00906.0
Category: G. OVERHEAD POOLS
Category-Sub: 4. Budget Code 906 - Contract Administration Pool
Workpaper Group: 00906A - Budget Code 906 - Contract Administration 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	0	0	0	0	0	3,143	3,703	4,120
Non-Labor	Zero-Based	0	0	0	0	0	1,775	2,092	2,327
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**4,918**	**5,795**	**6,447**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	31.4	37.0	41.2

Business Purpose:

The Contract Administration (CA) pool consists of those expenses necessary for the administration of projects that are performed by contractors for SDG&E. The expenses to this pool consist of labor for Contract Administrators and support personnel, as well as the associated non-labor support costs such as office and field supplies. This pool includes the costs that will be allocated to contracted work. These capital overhead pool forecast values are referenced in the testimony of Mr. Jesse Aragon in SDG&E Exhibit 27, under budget code 906.

Physical Description:

Typical activities included in this account are:
- Working with Contractors to develop fixed price bid for construction projects;
- Overseeing the Contractor work to remove obstacles and verify work is completed and complies with company standards;
- Approving Contractor Invoices for completed work; and
- Developing and Administering Contract Units for unit priced contracts.

Project Justification:

The CA Pool consists of those expenses necessary for the administration of projects that are performed by contractors for SDG&E. Due to the volume of capital work that takes place on the electric distribution system, the most effective and efficient way to allocate the contract administration costs is through the use of the CA Pool. It is not feasible to charge directly for each electric distribution job due to the tremendous volume of work orders.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00906.0
Category:	G. OVERHEAD POOLS
Category-Sub:	4. Budget Code 906 - Contract Administration Pool
Workpaper Group:	00906A - Budget Code 906 - Contract Administration Pool

Forecast Methodology:

Labor - Zero-Based

This forecast is derived from the Base Year Recorded expenditures with a net upward adjustment based on a historical relationship of contract administration overhead to capital expenditures. Contract Administration support tracks the historical relationship between the support requirements and the related capital of Capacity/Expansion, Franchise, Mandated, New Business, Reliability/Improvements, Safety and Risk Management, and Transmission/FERC Driven Projects (Expenditures for Meters & Regulators, Capital Tools, and the Smart Meter Program are excluded)

Non-Labor - Zero-Based

This forecast is derived from the Base Year Recorded expenditures with a net upward adjustment based on a historical relationship of contract administration overhead to capital expenditures. Contract Administration support tracks the historical relationship between the support requirements and the related capital of Capacity/Expansion, Franchise, Mandated, New Business, Reliability/Improvements, Safety and Risk Management, and Transmission/FERC Driven Projects (Expenditures for Meters & Regulators, Capital Tools, and the Smart Meter Program are excluded)

NSE - Zero-Based

N/A

Beginning of Workpaper Sub Details for
Workpaper Group 00906A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00906.0
Category:	G. OVERHEAD POOLS
Category-Sub:	4. Budget Code 906 - Contract Administration Pool
Workpaper Group:	00906A - Budget Code 906 - Contract Administration Pool
Workpaper Detail:	00906A.001 - Contract Administration Pool
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	3,143	3,703	4,120
Non-Labor	1,775	2,092	2,327
NSE	0	0	0
Total	**4,918**	**5,795**	**6,447**
FTE	31.4	37.0	41.2

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 00906A

00906A - Budget Code 906 - Contract Administration Pool
Forecast Development

The forecast for the Contract Administration Pool is derived from the Base Year Recorded expenditures with a net upward adjustment based on a historical relationship of contract administration overhead to capital expenditures. This pool tracks the historical relationship between the support requirements and the related capital of Capacity/Expansion, Franchise, Mandated, New Business, Reliability/Improvements, Safety and Risk Management, and Transmission/FERC Driven Projects (Expenditures for Meters & Regulators, Capital Tools, and the Smart Meter Program are excluded).

Step 1a: Developing the Basis of Forecast

Category	2013 $	2014 $	2015 $	2016 $
CAPACITY/EXPANSION	18,560	16,545	23,014	9,954
FRANCHISE	32,348	41,637	41,637	41,637
MANDATED	28,414	37,570	37,846	38,761
NEW BUSINESS	27,411	48,934	61,219	72,020
RELIABILITY/IMPROVEMENTS	39,730	44,508	44,207	43,169
SAFETY AND RISK MANAGEMENT	6,769	26,791	42,309	77,378
TRANSMISSION/FERC DRIVEN PROJECTS	4,563	3,578	8,444	4,856
Grand Total	**157,795**	**219,563**	**258,676**	**287,775**
% increase/decrease on a yearly basis		39.1445%	17.8140%	11.2492%

Step 1b: Identifying Which Budget Codes Are Excluded From the Basis of Forecast

Category/Budget Code	2013 $	2014 $	2015 $	2016 $
CAPACITY/EXPANSION	(764)	35,066	9,151	5,094
EQUIP/TOOLS/MISC	913	1,368	1,368	1,368
FRANCHISE	(152)	-	-	-
MANDATED	262	2,530	1,918	302
MATERIALS	15,605	21,024	22,025	23,027
NEW BUSINESS	4,595	9,569	9,345	9,853
RELIABILITY/IMPROVEMENTS	22,158	35,044	57,043	31,190
SAFETY AND RISK MANAGEMENT	4,272	772	-	-
SMART METER PROGRAM	2,458	1,116	-	-
TRANSMISSION/FERC DRIVEN PROJECTS	4,217	11,028	10,734	7,672
Grand Total	**53,564**	**117,517**	**111,584**	**78,506**

Step 2: Calculating the Yearly Forecasts

	2013 $	2014 $	2015 $	2016 $
906 - Contract Administration Pool	3,535	4,919	5,795	6,447
Grand Total	**3,535**	**4,919**	**5,795**	**6,447**

	Previous Year * (1 + Increase/Decrease)		Recorded/Forecast
2013	N/A		3,535
2014	3,535 * (1+.391445)	=	4,919
2015	4,919 * (1+.178140)	=	5,795
2016	5,795 * (1+.112492)	=	6,447

00906A - Budget Code 906 - Contract Administration Pool
Forecast Development

Step 3: Calculation of Yearly Adjustments

	2013 $	2014 $	2015 $	2016 $	2014 Adj	2015 $ Adj	2016 $ Adj	2014 FTE	2015 FTE	2016 FTE
Labor	2,259	3,143	3,703	4,120	884	1,444	1,861	31.4	37.0	41.2
NLbr	1,276	1,775	2,092	2,327	499	816	1,051			
NSE	-	-	-	-	-	-	-			
Grand Total	**3,535**	**4,919**	**5,795**	**6,447**	**1,384**	**2,260**	**2,912**			

1. Yearly Labor and Non-Labor forecasts were calculated by taking the previous year multiplied by (1 + the percentage increase/decrease) as calculated in the basis of forecast table.
2. The yearly labor and non-labor adjustments were calculated by taking the yearly forecast for each area and then subtracting the 2013 base year recorded value.
3. FTE adjustment was calculated by taking the yearly forecast for labor and dividing it by an assumed average salary of $100,000 for a Full-Time Equivalent (FTE).

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: H. RELIABILITY/IMPROVEMENTS
Workpaper: VARIOUS

Summary for Category: H. RELIABILITY/IMPROVEMENTS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	17,959	28,323	31,561	26,291
Non-Labor	18,274	51,917	68,073	47,536
NSE	0	1,608	3,300	600
Total	**36,233**	**81,848**	**102,934**	**74,427**
FTE	124.7	246.4	277.5	224.9
002030 DISTRIBUTION SUBSTATION RELIABILITY				
Labor	309	237	237	237
Non-Labor	1,316	1,289	1,301	1,397
NSE	0	0	0	0
Total	**1,625**	**1,526**	**1,538**	**1,634**
FTE	3.4	2.4	2.4	2.4
08261A Vista 4kV Substation RFS				
Labor	0	472	0	0
Non-Labor	0	412	0	0
NSE	0	0	0	0
Total	**0**	**884**	**0**	**0**
FTE	0.0	5.9	0.0	0.0
10261E Advanced Technology				
Labor	0	1,380	1,392	1,392
Non-Labor	0	10,884	10,968	10,932
NSE	0	0	0	0
Total	**0**	**12,264**	**12,360**	**12,324**
FTE	0.0	13.8	13.9	13.9
112470 ADVANCED ENERGY STORAGE				
Labor	83	570	0	0
Non-Labor	5,759	1,992	0	0
NSE	0	0	0	0
Total	**5,842**	**2,562**	**0**	**0**
FTE	0.9	5.7	0.0	0.0
112610 SEWAGE PUMP STATION REBUILDS				
Labor	3	728	536	0
Non-Labor	23	876	684	0
NSE	0	624	396	0
Total	**26**	**2,228**	**1,616**	**0**
FTE	0.0	7.3	5.4	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: H. RELIABILITY/IMPROVEMENTS
Workpaper: VARIOUS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
121250 SUNNYSIDE 69/12KV REBUILD				
Labor	81	286	195	0
Non-Labor	1,395	948	255	0
NSE	0	180	0	0
Total	**1,476**	**1,414**	**450**	**0**
FTE	0.6	2.8	1.9	0.0
12266A Condition Based Maintenance Program				
Labor	0	432	432	420
Non-Labor	0	3,420	3,444	3,360
NSE	0	0	0	0
Total	**0**	**3,852**	**3,876**	**3,780**
FTE	0.0	4.3	4.3	4.2
13242B Rebuild Kearny 69/12kV Substation				
Labor	0	137	2,871	330
Non-Labor	0	720	10,584	320
NSE	0	0	1,800	0
Total	**0**	**857**	**15,255**	**650**
FTE	0.0	1.4	28.7	3.3
142430 Microgrid Systems for Reliability				
Labor	0	636	648	636
Non-Labor	0	4,992	5,148	5,040
NSE	0	0	0	0
Total	**0**	**5,628**	**5,796**	**5,676**
FTE	0.0	6.4	6.5	6.4
932400 DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION				
Labor	488	3,147	3,267	3,197
Non-Labor	1,053	7,071	7,344	7,183
NSE	0	0	0	0
Total	**1,541**	**10,218**	**10,611**	**10,380**
FTE	4.6	31.5	32.7	32.0
942410 POWER QUALITY PROGRAM				
Labor	11	92	122	151
Non-Labor	17	48	65	82
NSE	0	0	0	0
Total	**28**	**140**	**187**	**233**
FTE	0.1	0.9	1.2	1.5
002260 MANAGEMENT OF OH DIST. SERVICE				
Labor	2,905	3,715	3,715	3,715
Non-Labor	3,509	5,558	5,558	5,558
NSE	0	0	0	0
Total	**6,414**	**9,273**	**9,273**	**9,273**
FTE	24.7	30.5	30.5	30.5

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: H. RELIABILITY/IMPROVEMENTS
Workpaper: VARIOUS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
992820 REPLACE OBSOLETE SUBSTATION EQUIPMENT				
Labor	58	2,296	2,296	2,296
Non-Labor	318	2,795	2,795	2,795
NSE	0	804	696	600
Total	**376**	**5,895**	**5,787**	**5,691**
FTE	0.5	22.1	22.1	22.1
002270 MANAGEMENT OF UG DIST. SERVICE				
Labor	1,568	1,925	1,925	1,925
Non-Labor	2,198	1,783	1,783	1,783
NSE	0	0	0	0
Total	**3,766**	**3,708**	**3,708**	**3,708**
FTE	10.8	13.7	13.7	13.7
002300 REPLACEMENT OF UNDERGROUND CABLES				
Labor	6,039	4,007	4,109	4,019
Non-Labor	3,654	8,998	9,230	9,030
NSE	0	0	0	0
Total	**9,693**	**13,005**	**13,339**	**13,049**
FTE	38.1	40.1	41.1	40.2
002360 CAPITAL RESTORATION OF SERVICE				
Labor	6,306	6,604	6,604	6,604
Non-Labor	-1,786	-2,760	-2,760	-2,760
NSE	0	0	0	0
Total	**4,520**	**3,844**	**3,844**	**3,844**
FTE	39.9	41.1	41.1	41.1
01269A Rebuild Pt Loma 69/12kV Substation				
Labor	0	234	1,814	0
Non-Labor	0	0	8,820	0
NSE	0	0	408	0
Total	**0**	**234**	**11,042**	**0**
FTE	0.0	2.3	18.1	0.0
062540 EMERGENCY TRANSFORMER & SWITCHGEAR				
Labor	33	11	11	11
Non-Labor	54	375	375	375
NSE	0	0	0	0
Total	**87**	**386**	**386**	**386**
FTE	0.4	0.1	0.1	0.1
062600 REMOVE 4KV SUBS. FROM SERVICE				
Labor	0	1,339	1,312	1,283
Non-Labor	5	1,757	1,720	1,682
NSE	0	0	0	0
Total	**5**	**3,096**	**3,032**	**2,965**
FTE	0.0	13.4	13.1	12.8

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: H. RELIABILITY/IMPROVEMENTS
Workpaper: VARIOUS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
081620 SUBSTATION SECURITY				
Labor	75	75	75	75
Non-Labor	759	759	759	759
NSE	0	0	0	0
Total	**834**	**834**	**834**	**834**
FTE	0.7	0.7	0.7	0.7

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002030 - DISTRIBUTION SUBSTATION RELIABILITY

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00203.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 1. DISTRIBUTION SUBSTATION RELIABILITY
Workpaper Group: 002030 - DISTRIBUTION SUBSTATION RELIABILITY

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	263	235	180	279	309	237	237	237
Non-Labor	5-YR Average	1,754	184	436	181	1,316	1,289	1,301	1,397
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**2,017**	**419**	**616**	**460**	**1,626**	**1,526**	**1,538**	**1,634**
FTE	5-YR Average	3.0	2.7	2.2	3.0	3.4	2.4	2.4	2.4

Business Purpose:

This project is for small changes to electrical distribution substation facilities. General project categories include:
1. Safety related improvements
2. Replacement of failed/obsolete equipment
3. Capital additions under $500,000.

Work authorized within this project is classified under the following accounts:
361 Structures & improvements (Distribution)
362 Station Equipment (Distribution)
397 Communication Equipment (Distribution)

Physical Description:

This budget is required to maintain the reliability and integrity of distribution substations. The specific work required to meet safety requirements, replace obsolete or failed equipment, and make necessary small capital additions is based on requests from Engineering, Planning, Operations, and Maintenance groups.

Project Justification:

There are no alternatives to this budget if safety requirements are to be met, obsolete/failed equipment replacement is to continue, and necessary small capital additions are to be made.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00203.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	1. DISTRIBUTION SUBSTATION RELIABILITY
Workpaper Group:	002030 - DISTRIBUTION SUBSTATION RELIABILITY

Forecast Methodology:

Labor - 5-YR Average

This forecast is based on historical activities as well as specific detailed cost estimates for forecasted work. This budget covers primarily reactive activities, with some smaller proactive activities, as required. Failures are hard to predict, so the proactive work is balanced with the reactive, depending on the number of failures within a given year.

Non-Labor - 5-YR Average

See Labor

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00203.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 1. DISTRIBUTION SUBSTATION RELIABILITY
Workpaper Group: 002030 - DISTRIBUTION SUBSTATION RELIABILITY

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	253	253	253	-16	-16	-16	237	237	237
Non-Labor	5-YR Average	774	774	774	515	527	623	1,289	1,301	1,397
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**1,027**	**1,027**	**1,027**	**499**	**511**	**607**	**1,526**	**1,538**	**1,634**
FTE	5-YR Average	2.9	2.9	2.9	-0.5	-0.5	-0.5	2.4	2.4	2.4

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	-16	515	0	499	-0.5	EAMARE20131204
Adj forecast based on template based on expected failure rate.						
2014 Total	-16	515	0	499	-0.5	
2015	-16	527	0	511	-0.5	EAMARE20131204
Adj forecast based on template based on expected failure rate.						
2015 Total	-16	527	0	511	-0.5	
2016	-16	623	0	607	-0.5	EAMARE20131204
Adj forecast based on template based on expected failure rate.						
2016 Total	-16	623	0	607	-0.5	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00203.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 1. DISTRIBUTION SUBSTATION RELIABILITY
Workpaper Group: 002030 - DISTRIBUTION SUBSTATION RELIABILITY

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	198	183	148	238	267
Non-Labor	1,525	126	452	177	1,316
NSE	0	0	0	0	0
Total	**1,723**	**309**	**601**	**415**	**1,583**
FTE	2.6	2.3	1.9	2.6	2.9
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	0	41	-41	0	0
NSE	0	0	0	0	0
Total	**0**	**41**	**-41**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	198	183	148	238	267
Non-Labor	1,525	166	411	177	1,316
NSE	0	0	0	0	0
Total	**1,723**	**350**	**560**	**415**	**1,583**
FTE	2.6	2.3	1.9	2.6	2.9
Vacation & Sick (Nominal $)					
Labor	31	29	22	34	42
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**31**	**29**	**22**	**34**	**42**
FTE	0.4	0.4	0.3	0.4	0.5
Escalation to 2013$					
Labor	34	22	10	6	0
Non-Labor	230	17	24	4	0
NSE	0	0	0	0	0
Total	**264**	**40**	**35**	**11**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	263	235	180	279	309
Non-Labor	1,754	184	436	181	1,316
NSE	0	0	0	0	0
Total	**2,017**	**419**	**616**	**460**	**1,626**
FTE	3.0	2.7	2.2	3.0	3.4

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00203.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 1. DISTRIBUTION SUBSTATION RELIABILITY
Workpaper Group: 002030 - DISTRIBUTION SUBSTATION RELIABILITY

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	0	41	-41	0	0
NSE	0	0	0	0	0
Total	**0**	**41**	**-41**	**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	0	41	0	41	0.0	EAMARE2013112710291
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	41	0	41	0.0	
2011	0	-41	0	-41	0.0	EAMARE2013112710294
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	-41	0	-41	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 002030

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00203.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	1. DISTRIBUTION SUBSTATION RELIABILITY
Workpaper Group:	002030 - DISTRIBUTION SUBSTATION RELIABILITY
Workpaper Detail:	002030.001 - Distribution Substation Reliability
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	237	237	237
Non-Labor	1,289	1,301	1,397
NSE	0	0	0
Total	**1,526**	**1,538**	**1,634**
FTE	2.4	2.4	2.4

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002030

203 - Distribution Substation Reliability

For the 203 budget, even though the average 5-year spend is approximately $1.1M/year, when equipment fails now, it is more expensive to replace due to rising equipment, labor, transportation, environmental, and engineering costs. As SDG&E's equipment fleet ages every year, we are also estimating that our number of failures will start increasing. We approximate this budget so that if we lose one major piece of equipment per year (e.g. distribution substation transformer), then this budget will cover its replacement cost, which is currently approximately $1.5M.

The following is a list of some of the major equipment failures that occurred over the last 5 years:

2009
- Kearny Bk 30
- Station F Bk 30
- Various battery/cable replacements

2010
- SA Bk 34
- 2-12kV open rack circuit breakers
- Battery/cable replacements

2011
- Descanso capacitor
- East Oceanside Bk 10
- Batteries
- Switchgear breakers

2012
- Kyocera Bk 10
- Santa Ysabel regulator

2013
- Bostonia Bk 10
- Capacitors
- Bank cables

Beginning of Workpaper Group
002260 - MANAGEMENT OF OH DIST. SERVICE

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00226.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. MANAGEMENT OF OH DIST. SERVICE
Workpaper Group: 002260 - MANAGEMENT OF OH DIST. SERVICE

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	5,061	3,366	4,035	3,207	2,905	3,715	3,715	3,715
Non-Labor	5-YR Average	7,902	4,456	6,792	5,132	3,509	5,558	5,558	5,558
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**12,963**	**7,822**	**10,826**	**8,340**	**6,413**	**9,273**	**9,273**	**9,273**
FTE	5-YR Average	40.0	27.4	33.5	26.8	24.7	30.5	30.5	30.5

Business Purpose:

This project is required to reinforce the electric overhead distribution system infrastructure by responsive action to system damages, deterioration and unsafe conditions outside normal restoration of service. The overall objective is to maintain continuity of safe and reliable customer service

Physical Description:

This project provides for the reconstruction of existing overhead distribution facilities as necessary to:

- Correct improper voltage conditions
- Replace overloaded overhead facilities
- Make emergency repairs not normally associated with restoration of service
- Repair or replace deteriorated or unsafe equipment not found through the 'Corrective Maintenance Program'
- Install fault indicators / fusing / switching equipment as necessary to maintain service reliability

Project Justification:

The purpose of this project is to fund ongoing expenditures for overhead equipment repairs and upgrades necessary to maintain continuity of safe and reliable electric service to customers.
The alternatives to full funding for this project include:

- Reduction or suspension of mitigating efforts and correction of customer voltage problems (complaints)
- Operation of existing overhead facilities under overloaded conditions beyond acceptable limits that could accelerate system failures
- Delay in emergency repairs of unsafe conditions.

Above alternatives will have an adverse effect on public safety, service reliability, customer satisfaction and repair costs. Delaying responsive action could ultimately result in regulatory fines, increased number of customer complaints and higher long-term repair costs.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00226.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	2. MANAGEMENT OF OH DIST. SERVICE
Workpaper Group:	002260 - MANAGEMENT OF OH DIST. SERVICE

Forecast Methodology:

Labor - 5-YR Average

The forecast method used for the management of OH distribution services is a 5-year average, based on historical data. This is the most appropriate as work load can vary from year to year, for example 2009 and 2011 were above the average, while 2010,2012, and 2013 were below the average. Taking the 2 year average provides the lowest revenue request at $7,376 per forecast year, but using this would be a mistake as the slightly lower costs associated with the work completed on this budget in 2012 and 2013 are not trends. There has been no significant fundamental change in the business that has lowered the cost requirement to perform the work required in this budget, as voltage correction and emergency replacements are reactionary in nature and the volume of that work requirement will continue to be high variance making the five year average the appropriate methodology.

Non-Labor - 5-YR Average

See Labor.

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00226.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. MANAGEMENT OF OH DIST. SERVICE
Workpaper Group: 002260 - MANAGEMENT OF OH DIST. SERVICE

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	3,714	3,714	3,714	0	0	0	3,714	3,714	3,714
Non-Labor	5-YR Average	5,558	5,558	5,558	0	0	0	5,558	5,558	5,558
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**9,272**	**9,272**	**9,272**	**0**	**0**	**0**	**9,272**	**9,272**	**9,272**
FTE	5-YR Average	30.5	30.5	30.5	0.0	0.0	0.0	30.5	30.5	30.5

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00226.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. MANAGEMENT OF OH DIST. SERVICE
Workpaper Group: 002260 - MANAGEMENT OF OH DIST. SERVICE

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	3,813	2,640	3,393	2,737	2,507
Non-Labor	6,844	4,036	6,526	4,983	3,458
NSE	0	0	0	0	0
Total	**10,658**	**6,676**	**9,920**	**7,720**	**5,965**
FTE	34.3	23.5	29.6	23.1	21.0
Adjustments (Nominal $) **					
Labor	-3	-12	-74	-1	0
Non-Labor	23	-2	-115	29	51
NSE	0	0	0	0	0
Total	**20**	**-14**	**-189**	**29**	**51**
FTE	0.0	-0.1	-0.8	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	3,810	2,628	3,320	2,736	2,507
Non-Labor	6,868	4,033	6,411	5,013	3,509
NSE	0	0	0	0	0
Total	**10,678**	**6,662**	**9,731**	**7,749**	**6,016**
FTE	34.3	23.4	28.8	23.1	21.0
Vacation & Sick (Nominal $)					
Labor	588	418	489	396	398
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**588**	**418**	**489**	**396**	**398**
FTE	5.7	4.0	4.7	3.7	3.7
Escalation to 2013$					
Labor	663	319	226	75	0
Non-Labor	1,034	422	380	120	0
NSE	0	0	0	0	0
Total	**1,697**	**741**	**606**	**194**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	5,061	3,366	4,035	3,207	2,905
Non-Labor	7,902	4,456	6,792	5,132	3,509
NSE	0	0	0	0	0
Total	**12,963**	**7,822**	**10,826**	**8,340**	**6,413**
FTE	40.0	27.4	33.5	26.8	24.7

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00226.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. MANAGEMENT OF OH DIST. SERVICE
Workpaper Group: 002260 - MANAGEMENT OF OH DIST. SERVICE

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	-3	-12	-74	-1	0
Non-Labor	23	-2	-115	29	51
NSE	0	0	0	0	0
Total	**20**	**-14**	**-189**	**29**	**51**
FTE	0.0	-0.1	-0.8	0.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00226.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 2. MANAGEMENT OF OH DIST. SERVICE
Workpaper Group: 002260 - MANAGEMENT OF OH DIST. SERVICE

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	-3	-11	0	-14	0.0	EAMARE2013103017361
Adjustment made to exclude 15% of General Plant.						
	0	34	0	34	0.0	EAMARE2013103017381
Adjustment made to remove CIAC from historical costs.						
2009 Total	-3	23	0	20	0.0	
2010	-12	-17	0	-29	-0.1	EAMARE2013103017364
Adjustment made to exclude 15% of General Plant.						
	0	15	0	15	0.0	EAMARE2013103017382
Adjustment made to remove CIAC from historical costs.						
2010 Total	-12	-2	0	-14	-0.1	
2011	-74	-150	0	-224	-0.8	EAMARE2013103017370
Adjustment made to exclude 15% of General Plant.						
	0	35	0	35	0.0	EAMARE2013103017384
Adjustment made to remove CIAC from historical costs.						
2011 Total	-74	-115	0	-189	-0.8	
2012	-0.661	-3	0	-4	0.0	EAMARE2013103017372
Adjustment made to exclude 15% of General Plant.						
	0	33	0	33	0.0	EAMARE2013103017385
Adjustment made to remove CIAC from historical costs.						
2012 Total	-0.661	29	0	29	0.0	
2013	0	52	0	52	0.0	CBUTLER201402040958
Adjustment made to remove CIAC from historical costs.						
	-0.239	-0.703	0	-0.942	0.0	CBUTLER201403041320
Adjustment made to exclude 15% of General Plant.						
2013 Total	-0.239	51	0	51	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002260

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00226.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	2. MANAGEMENT OF OH DIST. SERVICE
Workpaper Group:	002260 - MANAGEMENT OF OH DIST. SERVICE
Workpaper Detail:	002260.001 - Management of Overhead Distribution Service
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	3,715	3,715	3,715
Non-Labor	5,558	5,558	5,558
NSE	0	0	0
Total	**9,273**	**9,273**	**9,273**
FTE	30.5	30.5	30.5

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002270 - MANAGEMENT OF UG DIST. SERVICE

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00227.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 3. MANAGEMENT OF UG DIST. SERVICE
Workpaper Group: 002270 - MANAGEMENT OF UG DIST. SERVICE

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	1,858	2,006	1,990	2,205	1,568	1,925	1,925	1,925
Non-Labor	5-YR Average	1,770	1,565	1,494	1,886	2,198	1,783	1,783	1,783
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**3,628**	**3,571**	**3,484**	**4,091**	**3,766**	**3,708**	**3,708**	**3,708**
FTE	5-YR Average	13.8	14.0	14.1	15.6	10.8	13.7	13.7	13.7

Business Purpose:

This project is required to reinforce the electric underground distribution system infrastructure by responsive action to system damages, deterioration and unsafe conditions outside normal restoration of service. The overall objective is to maintain continuity of safe and reliable customer service.

Physical Description:

This project provides for the reconstruction of existing underground distribution facilities as necessary to:

- Correct improper voltage conditions
- Replace overloaded overhead facilities
- Make emergency repairs not normally associated with restoration of service
- Repair or replace deteriorated or unsafe equipment not found through the 'Corrective Maintenance Program'
- Install fault indicators / fusing / switching equipment as necessary to maintain service reliability

Project Justification:

The purpose of this project is to fund ongoing expenditures for underground equipment repairs and upgrades necessary to maintain continuity of safe and reliable electric service to customers.
The alternatives to full funding for this project include:

- Reduction or suspension of mitigating efforts and correction of customer voltage problems (complaints).
- Operation of existing underground facilities under overloaded conditions beyond acceptable limits that could accelerate system failures.
- Delay in emergency repairs of unsafe conditions.

Above alternatives will have an adverse effect on public safety, service reliability, customer satisfaction and repair costs. Delaying responsive action could ultimately result in regulatory fines, increased number of customer complaints and higher long-term repair costs.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00227.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	3. MANAGEMENT OF UG DIST. SERVICE
Workpaper Group:	002270 - MANAGEMENT OF UG DIST. SERVICE

Forecast Methodology:

Labor - 5-YR Average

The forecast method used for the management of UG distribution services is a 5-year average, based on historical data. The 5-year average levels out the peaks and valleys in this blanket budget over a larger period of time, and still provides for the necessary level of funding for the work that falls within this budget.

Non-Labor - 5-YR Average

See Labor

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00227.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 3. MANAGEMENT OF UG DIST. SERVICE
Workpaper Group: 002270 - MANAGEMENT OF UG DIST. SERVICE

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	1,925	1,925	1,925	0	0	0	1,925	1,925	1,925
Non-Labor	5-YR Average	1,782	1,782	1,782	0	0	0	1,782	1,782	1,782
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**3,707**	**3,707**	**3,707**	**0**	**0**	**0**	**3,707**	**3,707**	**3,707**
FTE	5-YR Average	13.7	13.7	13.7	0.0	0.0	0.0	13.7	13.7	13.7

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00227.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 3. MANAGEMENT OF UG DIST. SERVICE
Workpaper Group: 002270 - MANAGEMENT OF UG DIST. SERVICE

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	1,399	1,566	1,637	1,881	1,353
Non-Labor	1,538	1,413	1,410	1,815	2,198
NSE	0	0	0	0	0
Total	**2,937**	**2,979**	**3,048**	**3,696**	**3,551**
FTE	11.8	11.9	12.1	13.4	9.2
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	0	5	0	27	0
NSE	0	0	0	0	0
Total	**0**	**5**	**0**	**27**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	1,399	1,566	1,637	1,881	1,353
Non-Labor	1,538	1,417	1,410	1,842	2,198
NSE	0	0	0	0	0
Total	**2,937**	**2,983**	**3,048**	**3,723**	**3,551**
FTE	11.8	11.9	12.1	13.4	9.2
Vacation & Sick (Nominal $)					
Labor	216	249	241	273	215
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**216**	**249**	**241**	**273**	**215**
FTE	2.0	2.1	2.0	2.2	1.6
Escalation to 2013$					
Labor	243	190	111	51	0
Non-Labor	232	148	84	44	0
NSE	0	0	0	0	0
Total	**475**	**339**	**195**	**95**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	1,858	2,006	1,990	2,205	1,568
Non-Labor	1,770	1,565	1,494	1,886	2,198
NSE	0	0	0	0	0
Total	**3,628**	**3,571**	**3,484**	**4,091**	**3,766**
FTE	13.8	14.0	14.1	15.6	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00227.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 3. MANAGEMENT OF UG DIST. SERVICE
Workpaper Group: 002270 - MANAGEMENT OF UG DIST. SERVICE

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	0	5	0	27	0
NSE	0	0	0	0	0
Total	**0**	**5**	**0**	**27**	**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	0	-0.225	0	-0.225	0.0	CBUTLER201402121342
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	-0.225	0	-0.225	0.0	
2010	0	5	0	5	0.0	CBUTLER201402121342
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	5	0	5	0.0	
2011 Total	0	0	0	0	0.0	
2012	0	27	0	27	0.0	CBUTLER201402121343
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	27	0	27	0.0	
2013 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002270

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00227.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	3. MANAGEMENT OF UG DIST. SERVICE
Workpaper Group:	002270 - MANAGEMENT OF UG DIST. SERVICE
Workpaper Detail:	002270.001 - Management of Underground Distribution Service
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,925	1,925	1,925
Non-Labor	1,783	1,783	1,783
NSE	0	0	0
Total	**3,708**	**3,708**	**3,708**
FTE	13.7	13.7	13.7

Note: Totals may include rounding differences.

Beginning of Workpaper Group
002300 - REPLACEMENT OF UNDERGROUND CABLES

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00230.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 4. REPLACEMENT OF UNDERGROUND CABLES
Workpaper Group: 002300 - REPLACEMENT OF UNDERGROUND CABLES

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	5,917	5,438	6,716	5,791	6,039	4,007	4,109	4,019
Non-Labor	Zero-Based	4,930	6,530	10,340	7,007	3,654	8,998	9,230	9,030
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**10,848**	**11,968**	**17,056**	**12,798**	**9,692**	**13,005**	**13,339**	**13,049**
FTE	Zero-Based	36.0	33.4	42.1	35.2	38.1	40.1	41.1	40.2

Business Purpose:

This project is required to provide quality customer service and reliability to both new and existing customers by replacement of failed cable and proactive replacement of the underground cable system. There is presently about 90 circuit miles of unjacketed feeder cable and 1858 circuit miles of unjacketed lateral cable remaining on the SDG&E electric distribution system. The project will provide funding to replace some of this remaining unjacketed cable that has a high failure rate.

Physical Description:

This project provides funding for the following items:

1. Replacement of underground cables that have failed.
2. Proactive replacement of underground cable that has been identified to have a high probability of failure based on the electric reliability circuit analysis or the cable failure data.
3. The enhanced cable strategy (ECS) project – replacement of underground branch cable.

Project Justification:

As stated in the physical description, proactive replacement will be based on the electric reliability circuit analysis or the cable failure data. The cable failure data has identified several poor cable vintages. The enhanced cable strategy (ECS) project will identify and prioritize the replacement of these poor cable vintages.

There is no alternative solution to the replacement of failed cable. Replacement of cables with a high probability of failure could be deferred until they fail with a resultant decrease in customer service and electric reliability performance.

Revision 33 updates funding recently approved for proactive and reactive cable replacement work to be completed in 2014.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00230.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	4. REPLACEMENT OF UNDERGROUND CABLES
Workpaper Group:	002300 - REPLACEMENT OF UNDERGROUND CABLES

Forecast Methodology:

Labor - Zero-Based

Project requirements are determined primarily by reactive replacement of failed cable. Approximately 25% of this project is proactive replacements that are based on a study of past cable installations by type, year, and manufacturer. The estimate for the reactive cable replacement component of this budget is based on the forecasted number of cable failures each year, and the historical unit costs of previous recent cable failures.

Non-Labor - Zero-Based

See Labor.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00230.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 4. REPLACEMENT OF UNDERGROUND CABLES
Workpaper Group: 002300 - REPLACEMENT OF UNDERGROUND CABLES

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	4,007	4,109	4,019	0	0	0	4,007	4,109	4,019
Non-Labor	Zero-Based	8,998	9,230	9,030	0	0	0	8,998	9,230	9,030
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**13,005**	**13,339**	**13,049**	**0**	**0**	**0**	**13,005**	**13,339**	**13,049**
FTE	Zero-Based	40.1	41.1	40.2	0.0	0.0	0.0	40.1	41.1	40.2

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00230.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 4. REPLACEMENT OF UNDERGROUND CABLES
Workpaper Group: 002300 - REPLACEMENT OF UNDERGROUND CABLES

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	4,455	4,246	5,526	4,940	5,212
Non-Labor	4,285	5,857	9,682	6,770	3,652
NSE	0	0	0	0	0
Total	**8,740**	**10,103**	**15,208**	**11,710**	**8,864**
FTE	30.8	28.5	36.2	30.3	32.4
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	0	54	79	74	2
NSE	0	0	0	0	0
Total	**0**	**54**	**79**	**74**	**2**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	4,455	4,246	5,526	4,940	5,212
Non-Labor	4,285	5,911	9,761	6,844	3,654
NSE	0	0	0	0	0
Total	**8,740**	**10,157**	**15,287**	**11,784**	**8,866**
FTE	30.8	28.5	36.2	30.3	32.4
Vacation & Sick (Nominal $)					
Labor	688	676	814	716	827
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**688**	**676**	**814**	**716**	**827**
FTE	5.2	4.9	5.9	4.9	5.7
Escalation to 2013$					
Labor	775	516	376	135	0
Non-Labor	645	619	579	163	0
NSE	0	0	0	0	0
Total	**1,420**	**1,135**	**955**	**298**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	5,917	5,438	6,716	5,791	6,039
Non-Labor	4,930	6,530	10,340	7,007	3,654
NSE	0	0	0	0	0
Total	**10,848**	**11,968**	**17,056**	**12,798**	**9,692**
FTE	36.0	33.4	42.1	35.2	38.1

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00230.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 4. REPLACEMENT OF UNDERGROUND CABLES
Workpaper Group: 002300 - REPLACEMENT OF UNDERGROUND CABLES

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	0	54	79	74	2
NSE	0	0	0	0	0
Total	**0**	**54**	**79**	**74**	**2**
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	0	54	0	54	0.0	EAMARE2013103016100
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	54	0	54	0.0	
2011	0	79	0	79	0.0	EAMARE2013103016102
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	79	0	79	0.0	
2012	0	74	0	74	0.0	EAMARE2013103016103
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	74	0	74	0.0	
2013	0	2	0	2	0.0	CBUTLER201402041001
Adjustment made to remove CIAC from historical costs.						
2013 Total	0	2	0	2	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002300

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00230.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	4. REPLACEMENT OF UNDERGROUND CABLES
Workpaper Group:	002300 - REPLACEMENT OF UNDERGROUND CABLES
Workpaper Detail:	002300.001 - Replacement of Underground Cable
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	4,007	4,109	4,019
Non-Labor	8,998	9,230	9,030
NSE	0	0	0
Total	**13,005**	**13,339**	**13,049**
FTE	40.1	41.1	40.2

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 002300

230 – Replacement of Underground Cables

The estimate for this budget was completed using an estimated number of cable failures based on a five-year average for cable failures, and the most recent unit cost for a cable failure.

The historical number of cable failures are as follows:

2009 – 491 failures
2010 – 452 failures
2011 – 514 failures
2012 – 502 failures
2013 – 423 failures

The forecasted cable failures are as follows:

2014 – 423 failures
2015 – 399 failures
2016 – 400 failures
2017 – 400 failures
2018 – 399 failures

The forecast for the reactive portion of this budget are based on the forecasted number of failures and the average cost per failure in 2013, which was about $32,000. The unit cost has progressively climbed over the last five years. In 2009, the average cost was $26,000, in 2010, the average cost was $28,000, in 2011 the cost was $30,000, and in 2012, the average cost was $30,000.

Regarding proactive cable replacement SDG&E has historically set aside $1,000,000 each year to cover the cost of unexpected proactive replacement because of repeated cable failures in a particular area or on a circuit. The remainder of the proactive cable replacement costs is determined based on areas in the system with multiple cable failures or areas with poor vintage cable. The average cost to replace feeder cable on a planned basis in 2012 was about $79/ft. The average cost to replace lateral cable on a planned basis in 2012 was about $19/ft.

Beginning of Workpaper Group
002360 - CAPITAL RESTORATION OF SERVICE

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00236.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 5. CAPITAL RESTORATION OF SERVICE
Workpaper Group: 002360 - CAPITAL RESTORATION OF SERVICE

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	6,384	8,033	5,689	6,609	6,306	6,604	6,604	6,604
Non-Labor	5-YR Average	-7,100	-305	-1,411	-3,197	-1,786	-2,760	-2,760	-2,760
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**-716**	**7,728**	**4,278**	**3,412**	**4,520**	**3,844**	**3,844**	**3,844**
FTE	5-YR Average	39.7	49.4	35.4	41.0	39.9	41.1	41.1	41.1

Business Purpose:

This project is required to accomplish restoration of electric service due to system interruptions caused by severe inclement weather conditions, fires, equipment failures and damages caused by a third party.

Physical Description:

This project provides for the reconstruction of existing overhead and underground distribution facilities as necessary to restore electric service to customers. The funds within this budget cover all costs associated with the following factors:

- Storm Damage (rain/wind/fire for example)
- Damage to electric distribution facilities by others (car/equipment contacts for example)
- Emergency repairs of facilities that are required for service restoration (cable or equipment failures for example)

Project Justification:

The purpose of this project is to fund reactionary repairs to SDG&E distribution facilities as necessary to restore electric service to customers in a timely manner and in compliance with the CPUC General Orders.
The alternatives to full funding for this project include:

- Reduction or suspension of restoration efforts.
- Delay in timely restoration of system interruptions.

Above alternatives will have an adverse effect on public safety, service reliability, customer satisfaction and repair costs. Delaying responsive action could ultimately result in regulatory fines and poor customer and community relationships.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00236.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	5. CAPITAL RESTORATION OF SERVICE
Workpaper Group:	002360 - CAPITAL RESTORATION OF SERVICE

Forecast Methodology:

Labor - 5-YR Average

This forecast is based on the average expenditures from 2009-2013. This is the most appropriate methodology, as work load can vary from year to year, and is reactive in nature. The 5-year average levels out the peaks and valleys in this blanket budget over a larger snapshot of time, and provides the best forecast for work that is anticipated to take place within this budget.

Non-Labor - 5-YR Average

See Labor

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00236.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 5. CAPITAL RESTORATION OF SERVICE
Workpaper Group: 002360 - CAPITAL RESTORATION OF SERVICE

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	6,604	6,604	6,604	0	0	0	6,604	6,604	6,604
Non-Labor	5-YR Average	-2,759	-2,759	-2,759	0	0	0	-2,759	-2,759	-2,759
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**3,845**	**3,845**	**3,845**	**0**	**0**	**0**	**3,845**	**3,845**	**3,845**
FTE	5-YR Average	41.1	41.1	41.1	0.0	0.0	0.0	41.1	41.1	41.1

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00236.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 5. CAPITAL RESTORATION OF SERVICE
Workpaper Group: 002360 - CAPITAL RESTORATION OF SERVICE

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	4,806	6,273	4,681	5,638	5,466
Non-Labor	-6,171	-276	-1,332	-3,123	-1,711
NSE	0	0	0	0	0
Total	**-1,364**	**5,997**	**3,349**	**2,515**	**3,755**
FTE	34.0	42.1	30.4	35.3	34.2
Adjustments (Nominal $) **					
Labor	0	0	0	0	-23
Non-Labor	0	0	1	0	-75
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**-98**
FTE	0.0	0.0	0.0	0.0	-0.2
Recorded-Adjusted (Nominal $)					
Labor	4,806	6,273	4,681	5,638	5,443
Non-Labor	-6,171	-276	-1,332	-3,123	-1,786
NSE	0	0	0	0	0
Total	**-1,364**	**5,997**	**3,349**	**2,515**	**3,657**
FTE	34.0	42.1	30.4	35.3	34.0
Vacation & Sick (Nominal $)					
Labor	742	999	689	817	863
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**742**	**999**	**689**	**817**	**863**
FTE	5.7	7.3	5.0	5.7	5.9
Escalation to 2013$					
Labor	836	762	319	154	0
Non-Labor	-929	-29	-79	-75	0
NSE	0	0	0	0	0
Total	**-94**	**733**	**240**	**79**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	6,384	8,033	5,689	6,609	6,306
Non-Labor	-7,100	-305	-1,411	-3,197	-1,786
NSE	0	0	0	0	0
Total	**-716**	**7,728**	**4,278**	**3,412**	**4,520**
FTE	39.7	49.4	35.4	41.0	39.9

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00236.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 5. CAPITAL RESTORATION OF SERVICE
Workpaper Group: 002360 - CAPITAL RESTORATION OF SERVICE

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	-23
Non-Labor	0	0	1	0	-75
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**-98**
FTE	0.0	0.0	0.0	0.0	-0.2

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	-0.208	0.529	0	0.321	0.0	CPWITT20140213111714
Adjustment made to exclude 15% of General Plant.						
2011 Total	-0.208	0.529	0	0.321	0.0	
2012	0	0.099	0	0.099	0.0	CPWITT20140213111620
Adjustment made to exclude 15% of General Plant.						
2012 Total	0	0.099	0	0.099	0.0	
2013	0	0.282	0	0.282	0.0	CBUTLER201402041004
Adjustment made to remove CIAC from historical costs.						
	-23	-75	0	-98	-0.2	CPWITT20140212163159
Adjustment made to exclude 15% of General Plant.						
2013 Total	-23	-75	0	-98	-0.2	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 002360

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00236.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	5. CAPITAL RESTORATION OF SERVICE
Workpaper Group:	002360 - CAPITAL RESTORATION OF SERVICE
Workpaper Detail:	002360.001 - Restoration of Service
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	6,604	6,604	6,604
Non-Labor	-2,760	-2,760	-2,760
NSE	0	0	0
Total	**3,844**	**3,844**	**3,844**
FTE	41.1	41.1	41.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
01269A - Rebuild Pt Loma 69/12kV Substation

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 01269.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 6. Rebuild Pt Loma 69/12kV Substation
Workpaper Group: 01269A - Rebuild Pt Loma 69/12kV Substation

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	234	1,814	0
Non-Labor	Zero-Based	0	0	0	0	0	0	8,820	0
NSE	Zero-Based	0	0	0	0	0	0	408	0
Total		**0**	**0**	**0**	**0**	**0**	**234**	**11,042**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.3	18.1	0.0

Business Purpose:

The existing Pt Loma Substation is approximately 61 years old with a capacity of 60MVA.The Point Loma 69/12/4 kV Substation Rebuild Project will update the 69kV yard, rebuild the 12kV yard, and remove the 4 kV yard to eliminate aging equipment, conform to SDG&E's current substation reliability design standards, and fulfill an existing need for expanding the substation's ultimate capacity. Point Loma Substation currently ranks in the Substation Equipment Assessment (SEA) Team's upper fifth percentile of poor performing substations.

Point Loma serves several major customers, including the Airport, Sea World, Liberty Station, and Pump Station #2.The 69kV bus at Pt Loma is the only feed to Cabrillo substation and it is also the only feed to the NTCQF.

This justification has been shortened due to character limitations. Full write-up can be found on CBD

Physical Description:

The Point Loma Substation rebuild will be for an ultimate 120MVA of capacity with an initial build of replacing five aging 69kV TL breakers and 69kV PTs and rebuilding the 69kV bus. The existing 69/4kV transformer and 4kV rack will be removed. A new control shelter will be constructed where new microprocessor relaying and SCADA will be installed. The existing 12kV rack wil be removed and three 69/12kV transformers with three sections of 12kV switchgear will be installed. Two existing open rack 12kV capacitors will be replaced with new 12kV 7.2MVAR step capacitors. Due to the configuration of the property and fence, this project will not require a Permit to Construct (PTC), thus streamlining the construction process. A retaining wall will be constructed at the top of the slope inside the substation to prevent a major slidie of the hill.

Project Justification:

Point Loma Substation was originally built over 60 years ago and currently ranks in the Substation Equipment Assessment (SEA) Team's upper fifth percentile of poor performing substations with outages. The existing substation does not allow room for expansion and its current configuration does not meet today's reliability standards. A rebuild of Point Loma Substation will result in improved reliability and capacity for both Distribution and Transmission.

There is no alternative to rebuilding Point Loma substation. With its aging infrastructure and configuration, Point Loma substation ranks high on the SEA team's unreliable list. Its current configuration also does not allow for expansion.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	01269.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	6. Rebuild Pt Loma 69/12kV Substation
Workpaper Group:	01269A - Rebuild Pt Loma 69/12kV Substation

Forecast Methodology:

Labor - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Beginning of Workpaper Sub Details for
Workpaper Group 01269A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	01269.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	6. Rebuild Pt Loma 69/12kV Substation
Workpaper Group:	01269A - Rebuild Pt Loma 69/12kV Substation
Workpaper Detail:	01269A.001 - Rebuild Pt Loma 69/12kV Substation
In-Service Date:	12/31/2015
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	234	1,814	0
Non-Labor	0	8,820	0
NSE	0	408	0
Total	**234**	**11,042**	**0**
FTE	2.3	18.1	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 01269A

1269 – Rebuild Pt Loma 69/12kV Substation

Below is a table that summarizes the costs of labor and material for the significant work scope items defined for this specific project.

Description	Labor (Engineering, Contract, Labor, Contingency)	Material (Material, Purchasing & Warehousing, Equipment Costs, Contingency)	Total
REMOVALS	$273,000	$0	$273,000
BELOW-GRADE CONSTRUCTION	$0	$1,245,400	$1,245,400
POWER XFMER	$64,181	$2,639,000	$2,703,181
DIST STATION EQUIP	$638,300	$2,080,000	$2,718,300
POWER DUCTS & CABLES	$39,000	$226,200	$265,200
PULL CONTROL CABLE & TERMINATE	$85,046	$130,000	$215,046
SWGR,CAPS,OTHER	$242,528	$2,814,500	$3,057,028
CONT/REL PANELS	$19,500	$130,000	$149,500
EQUIPMENT & RELAY TESTING	$183,300	$63,700	$247,000
ENGINEERING	$295,100	$0	$295,100
TOTALS	$1,839,955	$9,328,800	$11,168,755

Beginning of Workpaper Group
062540 - EMERGENCY TRANSFORMER & SWITCHGEAR

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06254.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 7. EMERGENCY TRANSFORMER & SWITCHGEAR
Workpaper Group: 062540 - EMERGENCY TRANSFORMER & SWITCHGEAR

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	10	2	8	3	33	11	11	11
Non-Labor	5-YR Average	1	463	1,340	17	54	375	375	375
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**11**	**466**	**1,348**	**20**	**87**	**386**	**386**	**386**
FTE	5-YR Average	0.1	0.0	0.1	0.0	0.4	0.1	0.1	0.1

Business Purpose:

Support the restoration of service to our distribution customers following outages caused by equipment failure by purchasing additional emergency spare and mobile equipment. The number of aging transformers on the SDG&E system is at the level that additional failures are expected despite our efforts to replace them before failure. Lead times for replacement units continue to be extended out farther every year. This project will provide two additional 69/12kV transformers for this purpose. Our existing non-LTC mobile transformers are frequently utilized for routine maintenance and construction activites due to the high loading of our substations. This project will provide an additional 69/12kV mobile transformer with an LTC to allow the rapid restoration of service. SDG&E currently does not have any mobile 12kV regulators or a section of 12kV switchgear. This project will correct that with the purchase of both of those items. A failure inside of any existing metalclad switchgear could result in a lengthy outage. All of this mobile equipment is usually connected using portable 69kV and 12kV cables. This project also provide a cable dolly to store these cables for rapid transport to the site they are needed.

Physical Description:

Two 69/12kV transformers will be purchased, delivered and installed on a concrete pad at locations to be determined. One 69/12kV mobile transformer with an LTC will be purchased and stored at Miramar with the other mobile equipment. One 12kV mobile regulator will be purchased and stored at Miramar. One quarter section of 12kV switchgear mounted on a skid to allow it to be transported on a flat bed trailer will be purchased and store at Miramar. One trailer mounted cable dolly will be purchased and stored at Kearny. Six 12kV tertiary reactors, six 69kV breakers, eight 138kV breakers, four 230kV breakers and three 500kV reactors. Future year funding equipment to be determined.

Project Justification:

The purchase of this additional equipment is required to allow rapid restoration of service following an outage caused by equipment failures. It is driven by the size of the SDG&E distribution system and the age of the SDG&E distribution substation equipment in service.

There are no alternatives other than not purchasing this equipment.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	06254.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	7. EMERGENCY TRANSFORMER & SWITCHGEAR
Workpaper Group:	062540 - EMERGENCY TRANSFORMER & SWITCHGEAR

Forecast Methodology:

Labor - 5-YR Average

The forecast methodology is based on detailed cost estimates that are developed based on the specific scope of work for the project. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. This forecast is based on the expected material procurement costs for the substation equipment described in the project description.

Non-Labor - 5-YR Average

The forecast methodology is based on detailed cost estimates that are developed based on the specific scope of work for the project. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. This forecast is based on the expected material procurement costs for the substation equipment described in the project description.

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06254.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 7. EMERGENCY TRANSFORMER & SWITCHGEAR
Workpaper Group: 062540 - EMERGENCY TRANSFORMER & SWITCHGEAR

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	11	11	11	0	0	0	11	11	11
Non-Labor	5-YR Average	375	375	375	0	0	0	375	375	375
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**386**	**386**	**386**	**0**	**0**	**0**	**386**	**386**	**386**
FTE	5-YR Average	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06254.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 7. EMERGENCY TRANSFORMER & SWITCHGEAR
Workpaper Group: 062540 - EMERGENCY TRANSFORMER & SWITCHGEAR

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	7	2	6	2	28
Non-Labor	1	419	1,265	16	54
NSE	0	0	0	0	0
Total	**8**	**421**	**1,271**	**19**	**82**
FTE	0.1	0.0	0.1	0.0	0.3
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	7	2	6	2	28
Non-Labor	1	419	1,265	16	54
NSE	0	0	0	0	0
Total	**8**	**421**	**1,271**	**19**	**82**
FTE	0.1	0.0	0.1	0.0	0.3
Vacation & Sick (Nominal $)					
Labor	1	0	1	0	4
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**1**	**0**	**1**	**0**	**4**
FTE	0.0	0.0	0.0	0.0	0.1
Escalation to 2013$					
Labor	1	0	0	0	0
Non-Labor	0	44	75	0	0
NSE	0	0	0	0	0
Total	**1**	**44**	**75**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	10	2	8	3	33
Non-Labor	1	463	1,340	17	54
NSE	0	0	0	0	0
Total	**11**	**466**	**1,348**	**20**	**87**
FTE	0.1	0.0	0.1	0.0	0.4

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06254.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 7. EMERGENCY TRANSFORMER & SWITCHGEAR
Workpaper Group: 062540 - EMERGENCY TRANSFORMER & SWITCHGEAR

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 062540

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	06254.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	7. EMERGENCY TRANSFORMER & SWITCHGEAR
Workpaper Group:	062540 - EMERGENCY TRANSFORMER & SWITCHGEAR
Workpaper Detail:	062540.001 - Emergency Spare Equipment
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	11	11	11
Non-Labor	375	375	375
NSE	0	0	0
Total	**386**	**386**	**386**
FTE	0.1	0.1	0.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
062600 - REMOVE 4KV SUBS. FROM SERVICE

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06260.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 8. REMOVE 4KV SUBS. FROM SERVICE
Workpaper Group: 062600 - REMOVE 4KV SUBS. FROM SERVICE

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	68	27	9	0	0	1,339	1,312	1,283
Non-Labor	Zero-Based	1,330	626	50	50	5	1,757	1,720	1,682
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**1,398**	**653**	**59**	**50**	**5**	**3,096**	**3,032**	**2,965**
FTE	Zero-Based	0.5	0.2	0.1	0.0	0.0	13.4	13.1	12.8

Business Purpose:

This blanket budget provides funding for distribution work to support the removal of 4kV substations. The 4kV system is a legacy system at SDG&E. Retaining 4kV substations would exacerbate existing safety, operation and maintenance issues. Half of the substations are over 50 years old, and replacement parts for those substations are no longer available. The operation of 4kV substations is of a major safety concern because the company is facing a shortage of qualified crews and electricians who are familiar and knowledgeable of design and operation of those aging and obsolete substations. The maintenance cost is unusually high and continues to increase. The 4kV substations are also reliability risks for the customers because high failure rates and lack of replacement parts would cause more frequent and unnecessary extended outages.

Physical Description:

This project will support construction activities on the distribution system that prepare for the removal of 4kV substations. The activities are associated with converting 4kV circuits to 12kV circuits, replacing 4kV-substation source with 12/4kV step-downs, and removing de-energized distribution facility. Construction will include but it's not limited to changing poles, cross-arms, insulation for 12kV, replacing secondary transformers from 4kV high side to 12kV high side, installing switches, 12/4kV step-downs, and removing de-energized distribution facility.

Project Justification:

The Reliability Assessment Team has identified the condition of thirty six 4kV substations remaining in the system. Together they serve ninety 4kV circuits, 58,000 customers and 100MW of load. Twenty two substations are 40 years or older. Certain equipment inside the substations such as transformers and breakers are obsolete, and replacement parts no longer available. Operation of the 4kV substations is a major safety issue because the majority of the work force is young and not familiar with the design and operation of the substations, and the training for those substations is no longer available. This project is required to support the removal of 4kV substations, rectify safety issues associated with the operation of those substations, and improve reliability to the customers.

Revision 5 updates project cost information for the year 2012, add data for year 2016 and delete data for 2010 and prior years which is no longer necessary

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	06260.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	8. REMOVE 4KV SUBS. FROM SERVICE
Workpaper Group:	062600 - REMOVE 4KV SUBS. FROM SERVICE

Forecast Methodology:

Labor - Zero-Based

This project is forecasted utilizing historical unit costs for similar projects. The historical unit cost was multiplied by the 22 substations that were prioritized for replacement, as described above.

Non-Labor - Zero-Based

See Labor.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06260.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 8. REMOVE 4KV SUBS. FROM SERVICE
Workpaper Group: 062600 - REMOVE 4KV SUBS. FROM SERVICE

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	1,339	1,312	1,283	0	0	0	1,339	1,312	1,283
Non-Labor	Zero-Based	1,757	1,720	1,682	0	0	0	1,757	1,720	1,682
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**3,096**	**3,032**	**2,965**	**0**	**0**	**0**	**3,096**	**3,032**	**2,965**
FTE	Zero-Based	13.4	13.1	12.8	0.0	0.0	0.0	13.4	13.1	12.8

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06260.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 8. REMOVE 4KV SUBS. FROM SERVICE
Workpaper Group: 062600 - REMOVE 4KV SUBS. FROM SERVICE

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	51	21	7	0	0
Non-Labor	1,156	567	47	49	5
NSE	0	0	0	0	0
Total	**1,207**	**588**	**54**	**49**	**5**
FTE	0.4	0.2	0.1	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	51	21	7	0	0
Non-Labor	1,156	567	47	49	5
NSE	0	0	0	0	0
Total	**1,207**	**588**	**54**	**49**	**5**
FTE	0.4	0.2	0.1	0.0	0.0
Vacation & Sick (Nominal $)					
Labor	8	3	1	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**8**	**3**	**1**	**0**	**0**
FTE	0.1	0.0	0.0	0.0	0.0
Escalation to 2013$					
Labor	9	3	0	0	0
Non-Labor	174	59	3	1	0
NSE	0	0	0	0	0
Total	**183**	**62**	**3**	**1**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	68	27	9	0	0
Non-Labor	1,330	626	50	50	5
NSE	0	0	0	0	0
Total	**1,398**	**653**	**59**	**50**	**5**
FTE	0.5	0.2	0.1	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06260.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 8. REMOVE 4KV SUBS. FROM SERVICE
Workpaper Group: 062600 - REMOVE 4KV SUBS. FROM SERVICE

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 062600

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	06260.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	8. REMOVE 4KV SUBS. FROM SERVICE
Workpaper Group:	062600 - REMOVE 4KV SUBS. FROM SERVICE
Workpaper Detail:	062600.001 - RFS 4kV substations
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,339	1,312	1,283
Non-Labor	1,757	1,720	1,682
NSE	0	0	0
Total	**3,096**	**3,032**	**2,965**
FTE	13.4	13.1	12.8

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 062600

6260 - Remove 4kV substations from service

This project is required to address the primary system 4kV substations removal from service. This project will support construction activities on the distribution system that prepare for the removal of 4kV substations. The activities are associated with converting 4kV circuits to 12kV circuits, replacing 4kV-substation source with 12/4kV step-downs, and removing de-energized distribution facilities. Construction will include but is not limited to changing poles, cross-arms, insulation for 12kV, replacing secondary transformers from 4kV high side to 12kV high side, installing switches, 12/4kV step-downs, and removing de-energized distribution facility.

This type of projects requires a short turnaround time to address circuit functionality that cannot be handled by the existing 4kV substations when a particular circuit needs to be cut over to 12kV.

The following historical totals (direct dollars) are calculated to 2013 equivalent dollars using factors provided by Global Insight.

2009		$1,398
2010		$653
2011		$59
2012		$50
2013		$5
5 year total	=	$2,165

$2,165 / 5 = $433 average per year

The actuals average per year for this budget came out lower than the proposed requirements, because funding is needed to support the replacement of 22, 4kV substations currently older than 40 years with an average replacement cost of $950k each. This translates into an investment of approximately $21M over the next 5 years or $2.3M (direct dollars per year). However, if more 4kV reliability and safety issues are present, this project can vary from year to year. As a result, the funding allocation would be adjusted accordingly.

Original historical data was used to calculate proposed requirements for the years 2014, 2015 and 2016 as follows:

Three year proposed requirements (direct dollars):

2014	$3,096
2015	$3,032
2016	$2,965

No growth factor was used when calculating future requirements (years 2014, 2015 and 2016). Only historical data was used. The future funding requirements are subject to change.

Beginning of Workpaper Group
081620 - SUBSTATION SECURITY

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08162.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 9. SUBSTATION SECURITY
Workpaper Group: 081620 - SUBSTATION SECURITY

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	29	125	92	75	75	75	75
Non-Labor	Zero-Based	8	83	350	419	759	759	759	759
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**8**	**111**	**475**	**511**	**834**	**834**	**834**	**834**
FTE	Zero-Based	0.0	0.2	1.3	0.9	0.7	0.7	0.7	0.7

Business Purpose:

Install new and/or upgrade existing and/or replace security systems at 59 substations to comply with NERC/CIP Guidelines to protect Critical Infrastructure Facilities, reduce or deter vandalism that could result in system outages or personal injury. Installing new, upgrading existing or replacing older/outdated security systems creates a uniform and consistent approach to managing security issues and incidents by centralizing all intrusion and detection endpoints into a single security software suite. Reduces response time by security analysts, provides for clear concise video surveillance and more accurate intrusion detection (substantial reduction in false alarms) and provides for a consistent expandable security system that can expand with increased compliance requirements while reducing lifecycle total cost of ownership (TCO) use standardized hardware and software at all sites. This effort also installs access control (Card Readers) at control house locations in accordance with NERC/CIP Compliance.Security systems will also now be installed at all 230kV cable locations

Physical Description:

Install intrusion alarming, monitoring and video surveillance systems equipment to include: yard and control house video cameras, nighttime video illuminators, access control door card readers, perimeter microwave intrusion detection (replaces intrepid), audible alarms (inside and outside of control house). The list of substations below is subject to change. Some substations will require a new control shelter to be built to provide room for the equipment. These control shelters were already planned as part of other future projects so they will be removed from the scope of those projects. Security systems will also now be installed at all 230kV cable locations including current locations in Alpine, south Bay, and San Diego.

Project Justification:

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	08162.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	9. SUBSTATION SECURITY
Workpaper Group:	081620 - SUBSTATION SECURITY

Copper thefts have continued at various substations. This creates a safety hazard for employees working in substations, increases fault and outage potentials in addition to possible injury of the perpetrator. These security systems should reduce and/or deter this activity in addition to recording any activity that occurs. Rev 3 adds the installation of security equipment to meet NERC/CIP enhancement requirements for substation locations.

REVISION JUSTIFICATION
Revision 1 is issued to move funding into 2010. This was required due to the the new contract for these services with Niscayah. Revision 2 is to show the correct prior year costs, update the 2010 estimated costs and move remaining money into 2011. Resolving design issues and scheduling crew time for job completion require the extension of this work into 2011. Revision 3 is to extend the project through 2013 and add funds needed to meet the NERC/CIP requirements for security at critical substations. Revision 4 is issued to update prior year spending with no change in total authorization. Revision 5 is issued to update prior year spending with no change in total authorization. Rev 6 reflects spending required for 230kV cable pole security systems and also includes funding in 2014 to meet the new guidelines under Version 5 of the NERC Cyber Security Standards. Rev 7 is issued to add funds and extend term of project another four years due to recent security issues at utility substations across the country.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	08162.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	9. SUBSTATION SECURITY
Workpaper Group:	081620 - SUBSTATION SECURITY

Forecast Methodology:

Labor - Zero-Based

The forecast methodology is based on the 2013 expenditures for substation security installations. Based on recent events in the industry, and the increase in the regulations related to substation and critical infrastructure security, SDG&E sees the spending continuing at the same level as 2013.

Non-Labor - Zero-Based

See Labor

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08162.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 9. SUBSTATION SECURITY
Workpaper Group: 081620 - SUBSTATION SECURITY

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	0	0	0	0	0	0	0	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Forecast Adjustment Details

Year/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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08162.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 9. SUBSTATION SECURITY
Workpaper Group: 081620 - SUBSTATION SECURITY

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	3	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**3**	**0**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Adjustments (Nominal $) **					
Labor	0	20	103	78	65
Non-Labor	7	75	331	409	759
NSE	0	0	0	0	0
Total	**7**	**95**	**434**	**487**	**823**
FTE	0.0	0.2	1.1	0.8	0.6
Recorded-Adjusted (Nominal $)					
Labor	0	22	103	78	65
Non-Labor	7	75	331	409	759
NSE	0	0	0	0	0
Total	**7**	**97**	**434**	**487**	**823**
FTE	0.0	0.2	1.1	0.8	0.6
Vacation & Sick (Nominal $)					
Labor	0	4	15	11	10
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**4**	**15**	**11**	**10**
FTE	0.0	0.0	0.2	0.1	0.1
Escalation to 2013$					
Labor	0	3	7	2	0
Non-Labor	1	8	20	10	0
NSE	0	0	0	0	0
Total	**1**	**11**	**27**	**12**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	29	125	92	75
Non-Labor	8	83	350	419	759
NSE	0	0	0	0	0
Total	**8**	**111**	**475**	**511**	**834**
FTE	0.0	0.2	1.3	0.9	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08162.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 9. SUBSTATION SECURITY
Workpaper Group: 081620 - SUBSTATION SECURITY

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	20	103	78	65
Non-Labor	7	75	331	409	759
NSE	0	0	0	0	0
Total	**7**	**95**	**434**	**487**	**823**
FTE	0.0	0.2	1.1	0.8	0.6

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	0	7	0	7	0.0	CPWITT20140304160309
Adjustment made to include 85% of General Plant.						
2009 Total	0	7	0	7	0.0	
2010	20	75	0	95	0.2	CPWITT20140304160326
Adjustment made to include 85% of General Plant.						
2010 Total	20	75	0	95	0.2	
2011	103	331	0	434	1.1	CPWITT20140304160356
Adjustment made to include 85% of General Plant.						
2011 Total	103	331	0	434	1.1	
2012	78	409	0	487	0.8	CPWITT20140304160424
Adjustment made to include 85% of General Plant.						
2012 Total	78	409	0	487	0.8	
2013	65	759	0	823	0.6	CPWITT20140212155313
Adjustment made to include 85% of General Plant.						
2013 Total	65	759	0	823	0.6	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 081620

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	08162.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	9. SUBSTATION SECURITY
Workpaper Group:	081620 - SUBSTATION SECURITY
Workpaper Detail:	081620.001 - Substation Security Installations
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	75	75	75
Non-Labor	759	759	759
NSE	0	0	0
Total	**834**	**834**	**834**
FTE	0.7	0.7	0.7

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 081620

8162 – Substation Security

Below is the historical spend on the substation security project. (Figures in $1,000's)

2009 – $8
2010 – $111
2011 – $475
2012 – $511
2013 – $834
5 year Average = $388

The five-year average suggests a forecast of $388 based on historical spend. In this case, however, SDG&E believes the 5-year average to be too low to meet the increased needs of substation security. With impending transition from NERC CIP (Critical Infrastructure Protection) version 3 to version 5, there are significant impacts to both cyber and physical substation security. Given the need to meet these more stringent federal regulations, SDG&E believes the 2014 through 2016 spend is most accurately represented by the most recent 2013 base-year historical spend of $834. Therefore, SDG&E is forecasting the following substation security spend:

2014 – $834
2015 – $834
2016 – $834

Beginning of Workpaper Group
08261A - Vista 4kV Substation RFS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08261.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 10. Vista 4kV Substation RFS
Workpaper Group: 08261A - Vista 4kV Substation RFS

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	472	0	0
Non-Labor	Zero-Based	0	0	0	0	0	412	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**884**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	5.9	0.0	0.0

Business Purpose:

The purpose of this project is to remove from service Vista 4 kV substation due to aging infrastructure and replace with 12/4 kV step-down transformers. This job also reduces loading on the four existing Vista 4 kV circuits by splitting into six 4 kV circuits. The removal of this substation is part of SDG&E's plan to phase out aging 4 kV substations.

Physical Description:

Conductor: Install 2,944' of 1000 kcmil cable, 590' of trench and 5" conduit
Transformers: Install six 2500 kVA12/4 kV step-down transformers
Switches: Install two SCADA 5-way Trayer switches
Remove old substation equipment after cutover

Project Justification:

This substation is 60 years old and has degraded to the end of its useful life according to the analysis by Kearny substation maintenance. The substation needs to be removed from service and load cutover to 12/4 kV step-down transformers to mitigate risks of service interruption caused by aging infrastructure.

Alternative Solution: Cutover to adjacent 12 kV circuits. Estimated cost: $3 M. The preferred solution is $1.3M less than the alternative solution and more cost effective.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	08261.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	10. Vista 4kV Substation RFS
Workpaper Group:	08261A - Vista 4kV Substation RFS

Forecast Methodology:

Labor - Zero-Based

The forecast methodology is based on detailed cost estimates that are developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast methodology is based on detailed cost estimates that are developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

Beginning of Workpaper Sub Details for
Workpaper Group 08261A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08261.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 10. Vista 4kV Substation RFS
Workpaper Group: 08261A - Vista 4kV Substation RFS
Workpaper Detail: 08261A.001 - Vista 4kV Substation RFS

In-Service Date: 12/31/2014
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	472	0	0
Non-Labor	412	0	0
NSE	0	0	0
Total	**884**	**0**	**0**
FTE	5.9	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 08261A

8261– Remove Vista 4kV Substation

The forecast methodology for the project remove Vista 4kV substation is based on a detailed cost estimate. Below is a summary of that estimate.

Description	Unit	Quantity	Cost (Material, Company labor, direct and indirect charges, contract costs, contingency)
Trench Conduit 2-5" (Unimproved St) Include 3316 Handholes	Feet	555	$116,550
1000 KCMIL Cable & Connections	Feet	1170	$85,995
Trayer Switch 5-way w/SCADA Padmount	Each	1	$199,500
UG Monetary	Each	420	$441,000
Retag/cutover	Circuit	7	$40,425
Total			$883,470

Beginning of Workpaper Group
10261E - Advanced Technology

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 10261.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 11. Advanced Technology
Workpaper Group: 10261E - Advanced Technology

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	1,380	1,392	1,392
Non-Labor	Zero-Based	0	0	0	0	0	10,884	10,968	10,932
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**12,264**	**12,360**	**12,324**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	13.8	13.9	13.9

Business Purpose:

This project portfolio's focus is on reliable grid management. SDG&E needs to manage the grid to maintain compliance with Rule 2 Standards of service while customers increasingly adopt new technologies to meet their own needs that require connection to the grid. Customer's photovoltaic systems, PV, electric vehicle, EV, and other choices are introducing a new complexity into grid operations. To reliably manage the grid SDG&E needs grid sensing and situational awareness technologies and grid management tools.
This reliability based portfolio includes projects which improve SDG&E's information and control capabilities for distribution systems. These capabilities may be used to address the complexities associated with integrating distributed energy resources and electric vehicles, advanced outage management, and/or Volt/VAr control. These projects will provide the ability to safely and reliably incorporate high penetrations of distributed energy resources by mitigating voltage fluctuations resulting from intermittent power generation. They will also provide the ability to safely and reliably incorporate the increasing load of charging EVs. The incremental customer load from EV charging is expected to be clustered in specific distribution circuits of the power grid that are not currently designed to manage high levels of EV penetration, especially if significant charging activity takes place during periods of higher demand. This project portfolio will detect and isolate faults when they occur, immediately restore service to customers, and provide information about outages in real-time. Self-healing circuits will reduce the number of customers affected by sustained system disturbances and will enable faster service restoration. Some projects will also provide optimization of voltage and reactive power on the system to enhance power quality and decrease energy consumption, including system losses.

Physical Description:

Specific categories of technologies to be provided by this project are listed below.

Grid sensing situational awareness technology
- WFIs, SCADA caps, PMUs, advanced line sensing equipment, newer fault indicators, arc detection, smart transformers, UAVs, advanced AMI functionality

Grid management
- Controlling devices from ET&D standpoint (minus ADMS and DERMS), Advanced SCADA, aAdvanced AMI functionality, Voltage Regulators, Capacitors, Load Tap Changers, SCADA Capacitors, sSmart iInverters
- Volt/VAR optimization devices, Digital Voltage Controllers, VAR devices like GRIDCO , eEnergy sStorage, SCADA cCapsacitors, aAdvanced AMI functionality

Forecasting
- Weather Stations, wWeather mmodelling, fForecasting the impacts of renewables on the system

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10261.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	11. Advanced Technology
Workpaper Group:	10261E - Advanced Technology

Project Justification:

This reliability based portfolio includes projects which improve SDG&E's information and control capabilities for distribution systems. These capabilities may be used to address the complexities associated with integrating distributed energy resources and electric vehicles, advanced outage management, and/or Volt/VAr control. These projects will provide the ability to safely and reliably incorporate high penetrations of distributed energy resources by mitigating voltage fluctuations resulting from intermittent power generation. They will also provide the ability to safely and reliably incorporate the increasing load of charging EVs.

SDG&E has become a "hot bed" for residential rooftop solar (more than 254MW installed for approximately 36,450 customers) and EV integration (over 7,000 units in San Diego). Distributed generation and EV charging introduce signficant profile changes to the distribution system, creating the need to look at technologies and applications that haven't been used/installed in the past. SDG&E is charged with maintaining a safe and reliable electric system, regardless of what customers do on their side of the meter. The activities in this budget are necessary to introduce advanced technologies that can mitigate inbalances related to PV and EV integration (primarily PV at this point).

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10261.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	11. Advanced Technology
Workpaper Group:	10261E - Advanced Technology

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Advanced Technology is zero-based in nature. The forecast is based on individual cost estimates for each project/activity within the overall Advanced Technology portfolio. In some cases, actual/historical costs were used to come up with cost estimates. For example, SDG&E has installed fault indicators on the overhead electric system, so historical cost information could be used to generate the forecast. In some cases, new technologies are being applied that haven't been installed on the electric system before. An example of this is the Intelligent Power Regulator, which is a device used to mitigate negative impacts on the electric system due to residential PV. The device is a pad-mounted transformer with built-in power electronics. For cases like this, the forecast is based on cost estimates and/or quotations from the equipment manufacturer. To the extent possible, historical information was used to create reasonable forecasts.

Non-Labor - Zero-Based

The forecast method used for Advanced Technology is zero-based in nature. The forecast is based on individual cost estimates for each project/activity within the overall Advanced Technology portfolio. In some cases, actual/historical costs were used to come up with cost estimates. For example, SDG&E has installed fault indicators on the overhead electric system, so historical cost information could be used to generate the forecast. In some cases, new technologies are being applied that haven't been installed on the electric system before. An example of this is the Intelligent Power Regulator, which is a device used to mitigate negative impacts on the electric system due to residential PV. The device is a pad-mounted transformer with built-in power electronics. For cases like this, the forecast is based on cost estimates and/or quotations from the equipment manufacturer. To the extent possible, historical information was used to create reasonable forecasts.

NSE - Zero-Based

N/A

Beginning of Workpaper Sub Details for
Workpaper Group 10261E

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10261.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	11. Advanced Technology
Workpaper Group:	10261E - Advanced Technology
Workpaper Detail:	10261E.001 - Advanced Technology - Distribution Plant
In-Service Date:	Not Applicable

Description:

Renewable Integration Grid Management Voltage Compliance

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,176	1,188	1,188
Non-Labor	9,252	9,324	9,288
NSE	0	0	0
Total	**10,428**	**10,512**	**10,476**
FTE	11.8	11.9	11.9

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10261.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	11. Advanced Technology
Workpaper Group:	10261E - Advanced Technology
Workpaper Detail:	10261E.002 - Advanced Technology - General Plant
In-Service Date:	Not Applicable

Description:

Renewable Integration

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	204	204	204
Non-Labor	1,632	1,644	1,644
NSE	0	0	0
Total	**1,836**	**1,848**	**1,848**
FTE	2.0	2.0	2.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 10261E

10261 – Advanced Technology

Below is a summary of the detailed estimates of the advanced technologies project portfolio.

	# of Units	Labor	Contract Labor	Material	Totals
Wireless Fault Indicators	200 UG, 600 OH	$318,958	$119,037	$1,981,239	$2,419,234
Substation SCADA	1 Substation	$300,079	$900,000	$1,030,324	$2,230,403
Advanced Ground Fault	45	$340,650		$301,500	$642,150
Smart Transformers	50UG, 50OH	$37,413		$170,000	$207,413
Advanced PMU Distribution	4 Circuits	$228,800	$228,800	$1,830,400	$2,288,000
Gridco	50	$40,000	$386,300	$470,000	$896,300
SCADA Caps	60	$124,100	$496,400	$720,000	$1,340,500
Smart Isolation and Reclosing	10		$750,000	$1,500,000	$2,250,000
Project Total					$12,274,000

Beginning of Workpaper Group
112470 - ADVANCED ENERGY STORAGE

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11247.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 12. ADVANCED ENERGY STORAGE
Workpaper Group: 112470 - ADVANCED ENERGY STORAGE

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	9	190	83	570	0	0
Non-Labor	Zero-Based	0	0	678	9,933	5,759	1,992	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**686**	**10,123**	**5,842**	**2,562**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.1	1.7	0.9	5.7	0.0	0.0

Business Purpose:

Mitigate intermittency and operational problems from renewable energy sources by installing energy storage on distribution circuits that have a high concentration of photovoltaic (PV) systems. Additionally, energy storage will provide benefits such as peak shaving and reactive power support.

Physical Description:

Install energy storage in the form of electric batteries on the electric distribution system.

Project Justification:

Advanced energy storage devices will minimize impacts of intermittency and operational problems associated with the variable output of renewable energy resources. The solution will place distributed energy storage system on circuits with a high penetration of customer photovoltaic systems or other distributed energy resources.

Energy storage is a fundamental smart grid technology that will provide numerous benefits in the future. It may be possible to reconductor existing distribution lines, or install dynamic voltage control equipment, in order to mitigate intermittency and excessive voltage fluctuations associated with renewable energy sources, however, reconductoring will not provide the same range of benefits of energy storage, nor will it be adequate as the quantity and capacity of distributed energy generation sources continues to grow at double digit rates.

Revision #2 to update the CBD with the 2012 actuals, 2013 authorized budget, as well as the anticipated 2014 budget. $26M of the total costs will be allocated to the balancing account as required by GRC. The remaining costs will be funded under IT recovery for GRC.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11247.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	12. ADVANCED ENERGY STORAGE
Workpaper Group:	112470 - ADVANCED ENERGY STORAGE

Forecast Methodology:

Labor - Zero-Based

The forecast is based on manufacturer contract quotes for the procurement and installation of energy storage.

Non-Labor - Zero-Based

The forecast is based on manufacturer contract quotes for the procurement and installation of energy storage.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11247.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 12. ADVANCED ENERGY STORAGE
Workpaper Group: 112470 - ADVANCED ENERGY STORAGE

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	570	0	0	0	0	0	570	0	0
Non-Labor	Zero-Based	1,992	0	0	0	0	0	1,992	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**2,562**	**0**	**0**	**0**	**0**	**0**	**2,562**	**0**	**0**
FTE	Zero-Based	5.7	0.0	0.0	0.0	0.0	0.0	5.7	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11247.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 12. ADVANCED ENERGY STORAGE
Workpaper Group: 112470 - ADVANCED ENERGY STORAGE

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	7	163	89
Non-Labor	0	0	640	9,703	5,791
NSE	0	0	0	0	0
Total	**0**	**0**	**647**	**9,866**	**5,880**
FTE	0.0	0.0	0.1	1.5	1.0
Adjustments (Nominal $) **					
Labor	0	0	0	-1	-17
Non-Labor	0	0	0	-2	-32
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**-3**	**-50**
FTE	0.0	0.0	0.0	0.0	-0.2
Recorded-Adjusted (Nominal $)					
Labor	0	0	7	162	72
Non-Labor	0	0	640	9,701	5,759
NSE	0	0	0	0	0
Total	**0**	**0**	**647**	**9,864**	**5,830**
FTE	0.0	0.0	0.1	1.5	0.8
Vacation & Sick (Nominal $)					
Labor	0	0	1	24	11
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**1**	**24**	**11**
FTE	0.0	0.0	0.0	0.2	0.1
Escalation to 2013$					
Labor	0	0	0	4	0
Non-Labor	0	0	38	231	0
NSE	0	0	0	0	0
Total	**0**	**0**	**38**	**236**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	9	190	83
Non-Labor	0	0	678	9,933	5,759
NSE	0	0	0	0	0
Total	**0**	**0**	**686**	**10,123**	**5,842**
FTE	0.0	0.0	0.1	1.7	0.9

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11247.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 12. ADVANCED ENERGY STORAGE
Workpaper Group: 112470 - ADVANCED ENERGY STORAGE

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	-1	-17
Non-Labor	0	0	0	-2	-32
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**-3**	**-50**
FTE	0.0	0.0	0.0	0.0	-0.2

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 Total	0	0	0	0	0.0	
2012	-1	-2	0	-3	0.0	CPWITT20140213152308
Adjustment made to exclude 15% of General Plant.						
2012 Total	-1	-2	0	-3	0.0	
2013	-17	-32	0	-50	-0.2	CPWITT20140212164440
Adjustment made to exclude 15% of General Plant.						
2013 Total	-17	-32	0	-50	-0.2	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 112470

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11247.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	12. ADVANCED ENERGY STORAGE
Workpaper Group:	112470 - ADVANCED ENERGY STORAGE
Workpaper Detail:	112470.001 - Advanced Energy Storage - Distribution Plant
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	570	0	0
Non-Labor	1,992	0	0
NSE	0	0	0
Total	**2,562**	**0**	**0**
FTE	5.7	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 112470

11247- Advanced Energy Storage

For the 11247 budget, the historical costs from the one in-service greenfield installation (using historical cost information based on a completed SES unit) were used to estimate the remaining 2014 costs to install the four systems. This is the non-balanced portion of the costs as laid out in Advice Letter AL 2495-E for balancing accounts following the 2012 GRC Decision A.10-12-005/D.13-05-010.

	Non- Labor	Labor
Equipment (materials)	$ 113,025	
Environmental	$ 32,775	
Contracted Professional Services	$ 229,060	
IT/Telecom hardware/software	$ 116,195	
Internal Labor (IT, IS, Enviromental and Land)		$ 142,500
Miscellaneous	$ 6,945	
Total	$ 498,000	$ 142,500
Total for four systems	$ 1,992,000	$ 570,000

Beginning of Workpaper Group
112610 - SEWAGE PUMP STATION REBUILDS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11261.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 13. SEWAGE PUMP STATION REBUILDS
Workpaper Group: 112610 - SEWAGE PUMP STATION REBUILDS

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	16	3	728	536	0
Non-Labor	Zero-Based	0	0	0	3,226	23	876	684	0
NSE	Zero-Based	0	0	0	0	0	624	396	0
Total		**0**	**0**	**0**	**3,242**	**25**	**2,228**	**1,616**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.1	0.0	7.3	5.4	0.0

Business Purpose:

The projects are rebuilds based on aging infrastructure and reliability of critical substations.The three stations that are being rebuilt pump all the sewage generated in the city and a large portion of the sewage generated in the county out to be treated before it is pumped into the Pacific Ocean. All three station need upgrade to the breakers and transformers as the electrical has reached the end of its life. The seismic performance will be evaluated and upgraded if needed.

Physical Description:

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11261.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	13. SEWAGE PUMP STATION REBUILDS
Workpaper Group:	112610 - SEWAGE PUMP STATION REBUILDS

Point Loma Sewage Substation (PLS)

PLS has a single circuit feeding the Point Loma Wastewater Treatment Plant (PLWTP) through a breaker and bypass fuse before being stepped down by bank 10 to 4kV and connecting PLWTP congen system. The circuit (483) is limited at this time by a 1/0 conductor. The load from the facility is not expected to increase; the generation on the other hand is expected to increase to 11 MVA in approximately 10-11 years.
Bank 10 is 5 MVA transformers that is 57 years old. It has fan stage rating that can supply and addition 1.5MVA that is not used as the fans have deteriorated. Maintenance on the existing bank has been a challenge. This station has been dropped on at least two occasions during routine maintenance. The existing configuration is not maintenance friendly. In service December 2013.

Sewage Pump Station 1 (SPS1)

The seismic design of this facility is from the 1960's the structures need to be evaluated for current seismic performance.

The plant has (6) 600hp pumps and during storm conditions, have required the operation of all (6) pumps at a capacity of 185 million gallons per day. The outflow of this plant is pumped to SPS2.

The electrical system is designed to operate (3) pumps on Bk 10 and (3) pumps on Bk11. If SDG&E were to increase the capacity from 3.9 MVA to 10 MVA, it would increase the reliability of service allowing all (6) pumps to operate in the event that a transformer or a 12kV circuit is down.

The City has no plans to increase capacity at this facility. City has replaced the 480V switchgear. SDG&E will replace the oil breakers with vacuum breakers and will review the seismicity of this substation. CBM monitors will be installed on the transformers. In service December 2015.

Sewage Pump Station 2 (SPS2)

SDG&E serves this facility with (3) 12kV circuits. Bank 12 served by 12kV Cir 367 is on an Alternate Service Contract. Each circuit serves (2) pumps. Bank 10 & 11 are 62 years old and Bank1

Project Justification:

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11261.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	13. SEWAGE PUMP STATION REBUILDS
Workpaper Group:	112610 - SEWAGE PUMP STATION REBUILDS

PLS
Point Loma Wastewater Treatment Plant requires significant amount of repairs in order to salvage some of the existing structures. Every bolt on the steel needs replace due to corrosion, all insulators show severe sign of corrosion. Equipment grounds have separated due to corrosion. Transformer fans are falling off due to corrosion suffered by 57 year old bank. All fuses and disconnect are corroded. Structural steel is corroded and need replacement. The breaker is an obsolete oil type that is also corroded. The transformer is has reached the end of it useful life and needs to be replace. In short, PLS is in desperate needs of a rebuild.
In order to repair the structural steel on the same location would require outages longer then Point Loma waste water treatment plant is able to with stand. The facility can support itself with cogeneration but it is not preferred by the PLWTP. PLWTP indicated that is hesitant to let an outage go on for more three days. Repairing the existing facility in place would require a long outage or daily outage. Due to this constructability constraint repairing the existing structural steel is not recommended. Labor cost would be extremely high and new construction would take less time, less outage, assure a seismically qualified design to the latest standard and would cost less.
SPS2
Aging equipment needs replacement. The structure doesn’t meet current seismic criteria. Repair existing structure is not possible due the logistics needed in order to keep the station energized. The switchgear does not have spare parts and the repairs needed are extensive. Small land lot also adds to the challenges of repairing it.

The configuration makes extremely difficult to repair equipment, as the city will not allow long outages during their wet season (Sept through March).
SPS1
Aging equipment needs replacement. Structure doesn’t meet current seismic criteria. Repair existing structure is not possible due the logistics needed in order to keep

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11261.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	13. SEWAGE PUMP STATION REBUILDS
Workpaper Group:	112610 - SEWAGE PUMP STATION REBUILDS

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Sewage Pump Station Rebuilds is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for Sewage Pump Station Rebuilds is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

The forecast method used for Sewage Pump Station Rebuilds is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11261.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 13. SEWAGE PUMP STATION REBUILDS
Workpaper Group: 112610 - SEWAGE PUMP STATION REBUILDS

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	728	536	0	0	0	0	728	536	0
Non-Labor	Zero-Based	876	684	0	0	0	0	876	684	0
NSE	Zero-Based	624	396	0	0	0	0	624	396	0
Total		**2,228**	**1,616**	**0**	**0**	**0**	**0**	**2,228**	**1,616**	**0**
FTE	Zero-Based	7.3	5.4	0.0	0.0	0.0	0.0	7.3	5.4	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11261.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 13. SEWAGE PUMP STATION REBUILDS
Workpaper Group: 112610 - SEWAGE PUMP STATION REBUILDS

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	13	2
Non-Labor	0	0	0	3,151	23
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**3,165**	**25**
FTE	0.0	0.0	0.0	0.1	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	13	2
Non-Labor	0	0	0	3,151	23
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**3,165**	**25**
FTE	0.0	0.0	0.0	0.1	0.0
Vacation & Sick (Nominal $)					
Labor	0	0	0	2	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**2**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2013$					
Labor	0	0	0	0	0
Non-Labor	0	0	0	75	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**76**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	0	16	3
Non-Labor	0	0	0	3,226	23
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**3,242**	**25**
FTE	0.0	0.0	0.0	0.1	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11261.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 13. SEWAGE PUMP STATION REBUILDS
Workpaper Group: 112610 - SEWAGE PUMP STATION REBUILDS

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 112610

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11261.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 13. SEWAGE PUMP STATION REBUILDS
Workpaper Group: 112610 - SEWAGE PUMP STATION REBUILDS
Workpaper Detail: 112610.001 - Sewage Pump Station Rebuilds

In-Service Date: Not Applicable
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	728	536	0
Non-Labor	876	684	0
NSE	624	396	0
Total	**2,228**	**1,616**	**0**
FTE	7.3	5.4	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 112610

11261– Sewage Pump Station Rebuild

The forecast methodology for the project to rebuild the sewage pump substation is based on a detailed cost estimate. Below is a summary of that estimate.

Item No	Description	Labor (Engr, Contract, labor)	Material (Material, Purchasing & Wharehousing, Equipment Costs)	Total
1	REMOVALS	$ 495,500	$ 13,000	$ 508,500
2	BELOW-GRADE CONSTRUCTION	$ 790,000	$ 60,000	$ 850,000
3	POWER CABLE	$ 10,000	$ 26,600	$ 36,600
4	CONTROL CABLE ,PANELS, & BATTERY	$ 132,000	$ 367,300	$ 499,300
5	STEEL	$ 37,000	$ 125,500	$ 162,500
5	SWITCHGEAR, BREAKERS & XFRMERS	$ 221,800	$ 883,500	$ 1,105,300
7	EQUIPMENT & RELAY TESTING	$ 25,000	$ 112,000	$ 137,000
8	ENGINEERING	$ 336,000	$ -	$ 336,000
SUBTOTAL		$ 2,047,300	$ 1,587,900	$ 3,635,200

Beginning of Workpaper Group
121250 - SUNNYSIDE 69/12KV REBUILD

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12125.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 14. SUNNYSIDE 69/12KV REBUILD
Workpaper Group: 121250 - SUNNYSIDE 69/12KV REBUILD

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	81	286	195	0
Non-Labor	Zero-Based	0	0	0	368	1,395	948	255	0
NSE	Zero-Based	0	0	0	0	0	180	0	0
Total		**0**	**0**	**0**	**368**	**1,476**	**1,414**	**450**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.6	2.8	1.9	0.0

Business Purpose:

Existing Sunnyside Substation is currently a non-standard design fed by a radial 69kV tap off of a three-terminal transmission line. The tap that feeds the station causes reliability issues on the 69kV transmission system, which also causes our customers to suffer distribution outages if this tapped line ever goes out of service. Sunnyside is limited to 12.5MVA of capacity and cannot be expanded in its current configuration. The substation has no control shelter, no SCADA, no security, and low substation reliability due to lack of bus ties and breakers. The existing transmission system surrounding the substation consists of underground 69kV cable, which is then carried overhead by two cable poles and one switched tap pole. Because of the unsightly aesthetics of the current substation configuration, the County of San Diego has also requested that we complete an underground conversion and removal of these poles in the near future.

Physical Description:

The ultimate configuration of Sunnyside Substation after it is rebuilt will consist of a new 69kV bus, three 69kV TL breakers, two 69kV bank breakers, new control shelter, two ¼ sections of 12kV switchgear, two 30MVA 69/12kV transformers, one new 12kV capacitor bank, new relaying, SCADA, and undergrounded 69kV transmission system around the substation.

Project Justification:

Sunnyside Substation was originally built in 1953 and expanded in 1972. The existing substation does not allow room for expansion and its current configuration (radially fed tapped TL without a 12kV BT breaker) does not meet today's reliability standards. The San Diego County requested conversion cannot be completed with the current substation configuration. A rebuild of Sunnyside Substation will result in improved reliability and capacity for both Distribution and Transmission. Due to the configuration of the property and fence, this project does not require a Permit to Construct (PTC), thus streamlining the construction process

There is no alternative to rebuilding Sunyside Substation. With its aging infrastructure and configuration, Sunnyside Substation is a very unreliable. Its current configuration does not allow for expansion in either transmission or distribution system.

Revision 2 reflects actual 2012 and 2013 expenditures and a reduction of approximately $5M due to a reduction in scope of the project. The initial installation has been reduced from two transformers and two sections of switchgear to one transformer and one section of switchgear. This revision reflects the approved 2014 budget and Capital budget plan.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	12125.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	14. SUNNYSIDE 69/12KV REBUILD
Workpaper Group:	121250 - SUNNYSIDE 69/12KV REBUILD

Forecast Methodology:

Labor - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

See Labor

NSE - Zero-Based

See Labor

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12125.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 14. SUNNYSIDE 69/12KV REBUILD
Workpaper Group: 121250 - SUNNYSIDE 69/12KV REBUILD

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	286	195	0	0	0	0	286	195	0
Non-Labor	Zero-Based	948	255	0	0	0	0	948	255	0
NSE	Zero-Based	180	0	0	0	0	0	180	0	0
Total		**1,414**	**450**	**0**	**0**	**0**	**0**	**1,414**	**450**	**0**
FTE	Zero-Based	2.8	1.9	0.0	0.0	0.0	0.0	2.8	1.9	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12125.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 14. SUNNYSIDE 69/12KV REBUILD
Workpaper Group: 121250 - SUNNYSIDE 69/12KV REBUILD

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	0	70
Non-Labor	0	0	0	360	1,413
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**360**	**1,482**
FTE	0.0	0.0	0.0	0.0	0.5
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	-18
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**-18**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	0	0	0	0	70
Non-Labor	0	0	0	360	1,395
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**360**	**1,465**
FTE	0.0	0.0	0.0	0.0	0.5
Vacation & Sick (Nominal $)					
Labor	0	0	0	0	11
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**11**
FTE	0.0	0.0	0.0	0.0	0.1
Escalation to 2013$					
Labor	0	0	0	0	0
Non-Labor	0	0	0	9	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**9**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	0	0	81
Non-Labor	0	0	0	368	1,395
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**368**	**1,476**
FTE	0.0	0.0	0.0	0.0	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12125.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 14. SUNNYSIDE 69/12KV REBUILD
Workpaper Group: 121250 - SUNNYSIDE 69/12KV REBUILD

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	-18
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**-18**
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	0.082	0	0	0.082	0.0	EAMARE2014030415253
Adjustment made to include 85% of General Plant.						
2012 Total	0.082	0	0	0.082	0.0	
2013	0.153	-18	0	-18	0.0	CPWITT20140212161031
Adjustment made to include 85% of General Plant.						
2013 Total	0.153	-18	0	-18	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 121250

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12125.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 14. SUNNYSIDE 69/12KV REBUILD
Workpaper Group: 121250 - SUNNYSIDE 69/12KV REBUILD
Workpaper Detail: 121250.001 - Sunnyside 69/12kV Substation Rebuild

In-Service Date: 05/31/2015
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	286	195	0
Non-Labor	948	255	0
NSE	180	0	0
Total	**1,414**	**450**	**0**
FTE	2.8	1.9	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 121250

12125– Rebuild Sunnyside Substation

The forecast methodology for the project to rebuild Sunnyside substation is based on a detailed cost estimate. Below is a summary of that estimate.

Item No	Description	Labor (Engr, Contract, labor)	Material Purchasing & Wharehousing, Equipment	Total
1	REMOVALS	$ -	$ -	$ -
2	BELOW-GRADE CONSTRUCTION	$ 323,400	$ -	$ 323,400
3	POWER CABLE	$ 53,200	$ 97,500	$ 150,700
4	CONTROL CABLE ,PANELS, & BATTERY	$ 79,800	$ 130,000	$ 209,800
5	SWITCHGEAR & TRANSFORMERS	$ 102,600	$ 912,200	$ 1,014,800
7	EQUIPMENT & RELAY TESTING	$ 79,800	$ 65,000	$ 144,800
8	ENGINEERING	$ 23,500	$ -	$ 23,500
SUBTOTAL		$ 662,300	$ 1,204,700	$ 1,867,000

Beginning of Workpaper Group
12266A - Condition Based Maintenance Program

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12266.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 15. Condition Based Maintenance Program
Workpaper Group: 12266A - Condition Based Maintenance Program

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	432	432	420
Non-Labor	Zero-Based	0	0	0	0	0	3,420	3,444	3,360
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**3,852**	**3,876**	**3,780**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	4.3	4.3	4.2

Business Purpose:

Implement advanced technologies to monitor the health of critical distribution substation assets.

Physical Description:

Install CBM Monitoring equipment on distribution facilities in SDG&E substations.

Project Justification:

The CBM project is ongoing, and originated in 2009 with a 7 year roll-out schedule (2009-2015). The project benefits are centered around better understanding of the health of assets so that power maintenance activities are identified and performed as needed to achieve greater asset utilizations and longevity of use, Additionally, the CBM project has dependency from the OMS/DMS system which will use portions of the real-time asset information generated by the CBM system to dynamically rate substation transformer load capacity which provides operational benefits aligned with the Smart Grid Deployment plan.

In 2008, the RFP and industry research process covered 57 vendors and 21 utilities. Alternatives were analyzed and this was deemed the best solution.

Revision No. 1 to update CBD with the 2012 actuals and the 2013 authorized budget, as well to extend the estimated completion date through 2015.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	12266.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	15. Condition Based Maintenance Program
Workpaper Group:	12266A - Condition Based Maintenance Program

Forecast Methodology:

Labor - Zero-Based

This labor forecast is based upon SDG&E's project-specific estimate of the distribution costs. Projected labor expenditures are estimated based on the detailed work scope, and are compared to actual expenditures for similar historical work. This non-labor forecast is based upon SDG&E's project-specific estimate of the distribution costs. Projected non-labor expenditures are based on the detailed scope of work, based on quotations from equipment manufacturers, quotations from contracted resources, and based on historical expenditures for similar work.

Non-Labor - Zero-Based

This labor forecast is based upon SDG&E's project-specific estimate of the distribution costs. Projected labor expenditures are estimated based on the detailed work scope, and are compared to actual expenditures for similar historical work. This non-labor forecast is based upon SDG&E's project-specific estimate of the distribution costs. Projected non-labor expenditures are based on the detailed scope of work, based on quotations from equipment manufacturers, quotations from contracted resources, and based on historical expenditures for similar work.

NSE - Zero-Based

N/A

Beginning of Workpaper Sub Details for
Workpaper Group 12266A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	12266.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	15. Condition Based Maintenance Program
Workpaper Group:	12266A - Condition Based Maintenance Program
Workpaper Detail:	12266A.001 - Condition Based Maintenance Program
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	372	372	360
Non-Labor	2,904	2,928	2,856
NSE	0	0	0
Total	**3,276**	**3,300**	**3,216**
FTE	3.7	3.7	3.6

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	12266.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	15. Condition Based Maintenance Program
Workpaper Group:	12266A - Condition Based Maintenance Program
Workpaper Detail:	12266A.002 - Condition Based Maintenance Program - General Plant
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	60	60	60
Non-Labor	516	516	504
NSE	0	0	0
Total	**576**	**576**	**564**
FTE	0.6	0.6	0.6

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 12266A

12266 – Condition Based Maintenance Program

The estimates for this program were derived using the historical pricing of similar condition based maintenance projects. This would complete 38 banks and 48 load tap changers (LTC) monitors in distribution substations.

	2014	2015	2016
Equipment (average pricing)	$ 50,000	$ 50,000	$ 40,000
Communications	$ 20,000	$ 15,500	$ 1,000
Contracted Labor	$ 61,538	$ 62,057	$ 60,819
Average Cost	$ 131,538	$ 127,557	$ 101,819
Estimated Banks to complete transformer monitor	26	12	
Estimated distribution LTC phase		15	33
Total Non-Labor Costs	$ 3,420,000	$ 3,444,039	$ 3,360,027
Total Internal Labor (~4FTEs)	$ 432,000	$ 432,000	$ 420,000
PM Business, PM IT, Information Security, Integration into Analytics, Crews			

Beginning of Workpaper Group
13242B - Rebuild Kearny 69/12kV Substation

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13242.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 16. Rebuild Kearny 69/12kV Substation
Workpaper Group: 13242B - Rebuild Kearny 69/12kV Substation

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	137	2,871	330
Non-Labor	Zero-Based	0	0	0	0	0	720	10,584	320
NSE	Zero-Based	0	0	0	0	0	0	1,800	0
Total		**0**	**0**	**0**	**0**	**0**	**857**	**15,255**	**650**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	1.4	28.7	3.3

Business Purpose:

Kearny Substation, built in 1968, ranks in the top percentile of the SEA team's poor performing substation. It currently feeds the San Diego County Emergency Operation Center and in early 2016 will feed the new Kaiser Hospital proposed to be built approximately ½ mile from Kearny substation. Approximately 4MWs of load from this hospital will be served by this substation. In 2016, Kearny will be at 93% capacity and this load addition will drive the need for a 4th bank addition. Due to the current configuration of the substation, the substation will have to expand in order to add this fourth bank and associated 12kV equipment. This expansion will require the substation to be relocated (to a new site in the Kearny facility) since its' current site can not be expanded to accommodate all the issues that need to be addressed, including:

- Replacement of the 69kV cap&pin glass which is failing
- Replacement of the 12kV cap&pin glass which is of the same age as the 69kV glass
- Replacement of the 39 year old 12kV switchgear.
- Replacement of the 39 year old bus tie cable probably
- Replacement of six transmission oil breakers
- Replacement of eight distribution oil breakers.
- Replacemnt and upgrades of 12kV capacitors and elimination of them off 12kV bus fused disconnects
- Installation of two additional 12kV bus ties.

Physical Description:

The Kearny Substation rebuild will consist of relocating the existing installation to a larger and more suitable location to accommodate expansion. The relocation will be on existing Kearny facility property zoned for utility use, and therefore would not be subject to any permits.It will be rebuilt on the site once utilized by transformer oil tanks, in the southwest corner of the Kearny facility. This site will allow space for all required expansion to meet existing and projected electric distribution load growth and the ultimate arrangement will allow for feeds to proposed generator and battery storage areas.It is anticpated that the rebuild will improve Kearny's reliability by 98%.

The ultimate arrangement of the substation will consist of five 69kV bays consisting of five 69 kV TL breakers, one 69kV bus tie breaker, four 69 kV bank breakers, one 69kV ground bank and breaker, four 30 MVA 69/12 kV standard profile transformers, open 12kV rack with 16 circuits ultimate, four 12 kV capacitors, one new control shelter, new relaying, SCADA, five 69 kV transmission lines, and sixteen distribution circuits.

Project Justification:

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13242.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	16. Rebuild Kearny 69/12kV Substation
Workpaper Group:	13242B - Rebuild Kearny 69/12kV Substation

Kearny Substation is one of the poorest performers in SDG&E's substation fleet. The capacity of the substation cannot be expanded to a fourth bank which is required in 2016 to serve the new Kaiser Hospital and a fifth bank may be needed to meet projected electric distribution load growth in the Kearny Mesa area. Kearny Substation consists of aging infrastructure, including failing 69kV and 12kV glass, aging 12kV metalclad switchgear, non-standard bus tie arrangement, six transmission and eight distribution breakers designated for replacement, and four 12kV capacitors which need to be replaced and constructed off of 12kV breaker positions.

The alternatives to feeding the new Kaiser Hospital load are to serve the load from Elliott or Mesa Heights substations. Elliott Substation is too heavily loaded and too difficult to bring a circuit(s) from the east. Mesa Heights Substation will be serving 50% of the hospital load, but for reliaibility purposes, Distribution Planning needs to serve the remaining 50% of load from a different substation (Kearny). Even without additional load addition, Kearny Substation will have a need to be rebuilt to improve its reliability and to eleiminate all of it's aging infrastructure issues.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13242.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	16. Rebuild Kearny 69/12kV Substation
Workpaper Group:	13242B - Rebuild Kearny 69/12kV Substation

Forecast Methodology:

Labor - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Beginning of Workpaper Sub Details for
Workpaper Group 13242B

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13242.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	16. Rebuild Kearny 69/12kV Substation
Workpaper Group:	13242B - Rebuild Kearny 69/12kV Substation
Workpaper Detail:	13242B.001 - Rebuild Kearny 69/12kV Substation
In-Service Date:	03/31/2016
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	137	2,871	330
Non-Labor	720	10,584	320
NSE	0	1,800	0
Total	**857**	**15,255**	**650**
FTE	1.4	28.7	3.3

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 13242B

13242 – Rebuild Kearny Substation

The forecast methodology for the project to rebuild Kearny Substation is based on a detailed cost estimate. Below is a summary of that estimate.

Item No	Description	Labor (Engr, Contract, labor)	Material (Material, Purchasing & Wharehousing, Equipment Costs)	Total
1	REMOVALS	$ 130,000	$ -	$ 130,000
2	BELOW-GRADE CONSTRUCTION	$ 1,047,000	$ 141,500	$ 1,188,500
3	POWER CABLE	$ 184,000	$ 308,000	$ 492,000
4	CONTROL CABLE ,PANELS, & BATTERY	$ 214,600	$ 440,000	$ 654,600
5	CAPACITOR, TRANSFORMERS, BREAKERS	$ 261,000	$ 5,417,000	$ 5,678,000
6	STEEL RACK INSTALLATION	$ 353,600	$ 1,590,400	$ 1,944,000
7	EQUIPMENT & RELAY TESTING	$ 79,400	$ 27,800	$ 107,200
8	ENGINEERING	$ 389,700	$ -	$ 389,700
9	DISTR TRENCHING & SUBSTRUCTURES	$ 1,000,000	$ -	$ 1,000,000
10	DIST PULL CABLE & TERMINATE	$ 1,467,000	$ 3,700,000	$ 5,167,000
SUBTOTAL		$ 5,126,300	$ 11,624,700	$ 16,751,000

Beginning of Workpaper Group
142430 - Microgrid Systems for Reliability

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 14243.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 17. ED Strategic
Workpaper Group: 142430 - Microgrid Systems for Reliability

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	636	648	636
Non-Labor	Zero-Based	0	0	0	0	0	4,992	5,148	5,040
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**5,628**	**5,796**	**5,676**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	6.4	6.5	6.4

Business Purpose:

The residents of Borrego Springs are radially fed by a single transmission line from Narrows to Borrego Springs Substation. Inherent to this current configuration, frequent outages that impact 100% of the residents have occurred. This project allows for better utilization of the Borrego Springs Microgrid in responding to a variety of outage situations. By leveraging various new technologies and resources, as well as adding, hardening, and reconfiguring key infrastructure, the newly enhanced Microgrid will become more flexible and automated for increased Microgrid capabilities. The Borrego Springs Microgrid has been utilized to pick up critical load during major contingency situations, but enhancements are necessary to expand that service and ensure the Borrego community has safe and reliable power.

Physical Description:

The Borrego Springs Microgrid 2.0 project consists of two phases. Phase 1 of the project involves near term solutions to operationalizing the Microgrid, specifically allowing EDO to operate the Microgrid as an asset and the resolution of the Noise Ordinance compliance. Phase 2 of the project involves increasing the operational flexibility and capability of the current Microgrid. This will include hardening key distribution infrastructure, additional SCADA devices, and upgrades to the protection schemes.

Project Justification:

For the past 5 years, the 3 distribution circuits which serve Borrego Springs have ranked in the top 10 worst circuits in SDG&E's service territory in terms of reliability. There exists restoration challenges' with Borrego Substation being radially fed by a single transmission line and the remote, isolated geographic nature of the community itself. However, it has been proven through the Borrego Springs Microgrid Demonstration (BSMD) Project, that a microgrid can be an effective solution to mitigating long term outage situations. Since the BSMD project was constructed to perform specific demonstrations, the microgrid was originally configured to be used in conjunction with only one circuit. In its current configuration, many challenges have been encountered while trying to utilize the Microgrid for energizing the critical loads of Borrego. The goals of the Borrego 2.0 project are inline with SDG&E's mission statement, "We provide safe, reliable energy infrastructure and services that allow our communities to grow and prosper". The current challenges will be mitigated with the following goals in mind:

- Enhance Emergency Readiness
- Increase Operational Flexibility
- Decrease Outage Response Time
- Decrease Interruptions & Increase Grid Resiliency
- Demonstrate New Microgrid Technologies
- Increase Microgrid Load Capacity

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	14243.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	17. ED Strategic
Workpaper Group:	142430 - Microgrid Systems for Reliability

Forecast Methodology:

Labor - Zero-Based

This forecast is based upon SDG&E's project-specific estimate of the distribution costs. Projected labor expenditures are estimated based on the detailed work scope, and are compared to actual expenditures for similar historical work. Projected non-labor expenditures are based on the detailed scope of work, based on quotations from equipment manufacturers, quotations from contracted resources, and based on historical expenditures for similar work.

Non-Labor - Zero-Based

This forecast is based upon SDG&E's project-specific estimate of the distribution costs. Projected labor expenditures are estimated based on the detailed work scope, and are compared to actual expenditures for similar historical work. Projected non-labor expenditures are based on the detailed scope of work, based on quotations from equipment manufacturers, quotations from contracted resources, and based on historical expenditures for similar work.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 14243.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 17. ED Strategic
Workpaper Group: 142430 - Microgrid Systems for Reliability

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	0	0	0	0	0	0	0	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Forecast Adjustment Details

Year/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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 14243.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 17. ED Strategic
Workpaper Group: 142430 - Microgrid Systems for Reliability

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (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
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	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
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	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 (Constant 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

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 14243.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 17. ED Strategic
Workpaper Group: 142430 - Microgrid Systems for Reliability

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 142430

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	14243.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	17. ED Strategic
Workpaper Group:	142430 - Microgrid Systems for Reliability
Workpaper Detail:	142430.001 - Microgrid Systems for Reliability - Distribution Plant
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	540	552	540
Non-Labor	4,248	4,380	4,284
NSE	0	0	0
Total	**4,788**	**4,932**	**4,824**
FTE	5.4	5.5	5.4

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	14243.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	17. ED Strategic
Workpaper Group:	142430 - Microgrid Systems for Reliability
Workpaper Detail:	142430.002 - Microgrid Systems for Reliability - General Plant
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	96	96	96
Non-Labor	744	768	756
NSE	0	0	0
Total	**840**	**864**	**852**
FTE	1.0	1.0	1.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 142430

14243 – Microgrid Systems for Reliability

For the 14243 budget, historical costs were used to derive the estimate from our experience with the construction and implementation of a microgrid.

Non - Labor	
Contract (Construction, Small Procurement and Installation)	$ 1,100,000
Microturbine, fue cell, energy storage, w'nc or solar generation	$ 1,635,345
Information Technology/Communication Hardware	$ 21,000
Integration to DERMS	$ 100,000
Integration to DR	$ 40,000
Integration to EDO	$ 131,6[illegible]8
Land/Permit/Noise/Enviromental	$1,000,000
Advanced SCADA Equipment (PMU) and protection/permissions/reconfiguration of circuit	$ 889,037
Consultant (outreach/data anlaysis/residential partner)	$ 75,000
	$ 4,992,000
Labor	
Internal Labor (6 FTE) (PM Business, PM IT, Security, Environmental, Union Crews)	$ 636,000
Assumptions:	
Future years at 3% escalation, assuming one microgrid a year	
Costs based on historical microgrid costs	

Beginning of Workpaper Group
932400 - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 93240.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 18. DISTRIBUTION CIRCUIT RELIABILITY CONSTRU
Workpaper Group: 932400 - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

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	1,638	1,120	1,025	809	488	3,147	3,267	3,197
Non-Labor	Zero-Based	10,334	5,615	4,153	4,112	1,053	7,071	7,344	7,183
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**11,971**	**6,735**	**5,178**	**4,921**	**1,541**	**10,218**	**10,611**	**10,380**
FTE	Zero-Based	12.6	8.6	9.0	6.6	4.6	31.5	32.7	32.0

Business Purpose:

This project provides funds for the addition of equipment necessary to improve service reliability of electric customers and maintain corporate reliability standards.

Physical Description:

This budget supports construction of projects that include installation of fuses, Overhead and Underground manual switches, Scada service restorer, Scada switches, overhead fault indicators, overhead line extensions and circuit reconductoring for improving electric system reliability.

Project Justification:

The electric service reliability will deteriorate in the absence of comprehensive remedial solutions offered by these projects; also, electric reliability performance is negatively impacted by system deficiencies and an aging infrastructure.
This budget funds projects that mitigate existing electric system deficiencies, projects for system performance improvements as follows: General Reliability, Scada Initiative and Community Fire Safety Program CFSP.
These forecasted capital expenditures support the goal(s) of the scada initiative program or scada 1.5 per each 12kV circuit. This will provide faster isolation of faulted electric distribution circuits (feeders & branches) resulting in faster load restoration when system disturbances occur

The cost of not funding this project will result in potential deterioration and deficiency in reliability of the electric system. Furthermore, continued equipment deterioration will hinder the corporation from meeting reliability expectations of electric customers and the attainment of PBR reliability goals.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	93240.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	18. DISTRIBUTION CIRCUIT RELIABILITY CONSTRU
Workpaper Group:	932400 - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

Forecast Methodology:

Labor - Zero-Based

This project forecast started with a base of a five year average, but will see upward pressure due to changes in construction standards in back country areas, as well as the installation of pulse reclosers, additional SCADA devices in backcountry areas, and new fuse devices which are less apt to discharge hot materials.

Non-Labor - Zero-Based

See Labor.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 93240.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 18. DISTRIBUTION CIRCUIT RELIABILITY CONSTRU
Workpaper Group: 932400 - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

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	3,147	3,267	3,197	0	0	0	3,147	3,267	3,197
Non-Labor	Zero-Based	7,071	7,344	7,183	0	0	0	7,071	7,344	7,183
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**10,218**	**10,611**	**10,380**	**0**	**0**	**0**	**10,218**	**10,611**	**10,380**
FTE	Zero-Based	31.5	32.7	32.0	0.0	0.0	0.0	31.5	32.7	32.0

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 93240.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 18. DISTRIBUTION CIRCUIT RELIABILITY CONSTRU
Workpaper Group: 932400 - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	1,287	897	863	709	427
Non-Labor	9,107	5,098	3,261	4,031	1,061
NSE	0	0	0	0	0
Total	**10,394**	**5,996**	**4,123**	**4,740**	**1,488**
FTE	11.3	7.5	7.8	5.8	4.0
Adjustments (Nominal $) **					
Labor	-54	-22	-19	-19	-6
Non-Labor	-126	-16	659	-15	-8
NSE	0	0	0	0	0
Total	**-180**	**-38**	**641**	**-34**	**-14**
FTE	-0.5	-0.2	-0.1	-0.1	-0.1
Recorded-Adjusted (Nominal $)					
Labor	1,233	875	844	690	421
Non-Labor	8,981	5,083	3,920	4,016	1,053
NSE	0	0	0	0	0
Total	**10,214**	**5,958**	**4,764**	**4,706**	**1,474**
FTE	10.8	7.3	7.7	5.7	3.9
Vacation & Sick (Nominal $)					
Labor	190	139	124	100	67
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**190**	**139**	**124**	**100**	**67**
FTE	1.8	1.3	1.3	0.9	0.7
Escalation to 2013$					
Labor	214	106	57	19	0
Non-Labor	1,353	532	233	96	0
NSE	0	0	0	0	0
Total	**1,567**	**639**	**290**	**115**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	1,638	1,120	1,025	809	488
Non-Labor	10,334	5,615	4,153	4,112	1,053
NSE	0	0	0	0	0
Total	**11,971**	**6,735**	**5,178**	**4,921**	**1,541**
FTE	12.6	8.6	9.0	6.6	4.6

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 93240.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 18. DISTRIBUTION CIRCUIT RELIABILITY CONSTRU
Workpaper Group: 932400 - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	-54	-22	-19	-19	-6
Non-Labor	-126	-16	659	-15	-8
NSE	0	0	0	0	0
Total	**-180**	**-38**	**641**	**-34**	**-14**
FTE	-0.5	-0.2	-0.1	-0.1	-0.1

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 93240.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 18. DISTRIBUTION CIRCUIT RELIABILITY CONSTRU
Workpaper Group: 932400 - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	-54	-114	0	-168	-0.5	EAMARE20131030113600
Adjustment made to exclude 15% of General Plant.						
	0	-12	0	-12	0.0	EAMARE20131030113840
Adjustment made to remove CIAC from historical costs.						
2009 Total	-54	-126	0	-180	-0.5	
2010	-22	-38	0	-60	-0.2	EAMARE20131030113630
Adjustment made to exclude 15% of General Plant.						
	0	22	0	22	0.0	EAMARE20131030113930
Adjustment made to remove CIAC from historical costs.						
2010 Total	-22	-16	0	-38	-0.2	
2011	-19	-14	0	-32	-0.1	EAMARE20131030113700
Adjustment made to exclude 15% of General Plant.						
	0	673	0	673	0.0	EAMARE20131030113950
Adjustment made to remove CIAC from historical costs.						
2011 Total	-19	659	0	641	-0.1	
2012	-19	-15	0	-34	-0.1	EAMARE20131030113720
Adjustment made to exclude 15% of General Plant.						
	0	-0.351	0	-0.351	0.0	EAMARE20131030114010
Adjustment made to remove CIAC from historical costs.						
2012 Total	-19	-15	0	-34	-0.1	
2013	-6	-8	0	-14	-0.1	CPWITT20140212171100
Adjustment made to exclude 15% of General Plant.						
2013 Total	-6	-8	0	-14	-0.1	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 932400

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	93240.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	18. DISTRIBUTION CIRCUIT RELIABILITY CONSTRU
Workpaper Group:	932400 - DISTRIBUTION CIRCUIT RELIABILITY CONSTRUCTION
Workpaper Detail:	932400.001 - Distribution Circuit Reliability
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	3,147	3,267	3,197
Non-Labor	7,071	7,344	7,183
NSE	0	0	0
Total	**10,218**	**10,611**	**10,380**
FTE	31.5	32.7	32.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 932400

93240 - Reliability Improvements

This project takes care of the installation for the addition of equipment necessary to improve service reliability of electric customers and maintain corporate reliability standards.

Historical data is used to develop base year forecasted funds requirement in direct dollars. The following historical totals (direct dollars) are calculated to 2013 equivalent dollars using factors provided by Global Insight.

2009		$11,971
2010		$6,735
2011		$5,178
2012		$4,921
2013		$1,541
5 year total	=	$30,346

$30,346 / 5 = $6,069 - 5 Year Average

The average of the actual historical costs per year for this budget were lower than the forecasts due to fact that this project, in addition to taking care of the Reliability Improvements and the community fire safety program, also supports the SCADA initiative program with the ultimate goal to have all of the 12kV circuits automated meeting the SCADA 1.5 criteria. Currently there are 513, 12 kV circuits that need to be automated with an average cost of $225k per circuit, with an ultimate investment of $63.5M (direct dollars) over a ten-year period for SCADA Initiative program only. However, if more reliability issues are arise than anticipated, the activities in this project can fluctuate and as a result, the funding would be adjusted accordingly.

Three year proposed requirements (Direct Dollars):

2014	$10,218,000
2015	$10,611,000
2016	$10,380,000

No growth factor was used when calculating future requirements (years 2014, 2015 & 2016), only historical data was used; the future funding requirements will always be subject to change.

Beginning of Workpaper Group
942410 - POWER QUALITY PROGRAM

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 94241.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 19. POWER QUALITY PROGRAM
Workpaper Group: 942410 - POWER QUALITY PROGRAM

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	19	23	6	57	11	92	122	151
Non-Labor	5-YR Average	10	48	24	73	17	48	65	82
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**28**	**70**	**31**	**129**	**28**	**140**	**187**	**233**
FTE	5-YR Average	0.1	0.2	0.1	0.6	0.1	0.9	1.2	1.5

Business Purpose:

This project provides for new deployment, maintenance, operations, and communications infrastructure, for the substation power quality monitoring system (PQNode). This system of advanced high-resolution monitors yields distribution system health information on system parameters including RMS voltage levels, voltage & current transient events, system harmonics (including spectra), real & reactive power flow, power factor, flicker, and others. As the system is migrated to network connections, real-time monitoring will provide system alert notifications for pre-established conditions in addition to the historical data recorded. The PQ Program provides SDG&E with critical data to better understand and operate the electrical system as well as improved customer service. Information obtained will also be paramount to better understand the impact of the growing number of distributed energy resources (DER) on the electric distribution system.

Physical Description:

The project installs revenue certified and power quality certified monitors on 12KV buses & select field locations, provides for maintenance of the existing monitor network, maintains back-office software & hardware, and system training.

Project Justification:

Information from monitoring has proven integral to identifying many problems and developing solutions to issues on the electrical system.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	94241.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	19. POWER QUALITY PROGRAM
Workpaper Group:	942410 - POWER QUALITY PROGRAM

Forecast Methodology:

Labor - 5-YR Average

Costs are forecasted using the 5-year average as the basis.. The forecast is based upon the proposed equipment installation using historical unit costs.

Non-Labor - 5-YR Average

Costs are forecasted using the 5-year average as the basis.. The forecast is based upon the proposed equipment installation using historical unit costs.

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 94241.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 19. POWER QUALITY PROGRAM
Workpaper Group: 942410 - POWER QUALITY PROGRAM

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	22	22	22	69	99	128	91	121	150
Non-Labor	5-YR Average	34	34	34	14	31	48	48	65	82
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**56**	**56**	**56**	**83**	**130**	**176**	**139**	**186**	**232**
FTE	5-YR Average	0.2	0.2	0.2	0.7	1.0	1.3	0.9	1.2	1.5

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	69	14	0	83	0.7	MEHLERS2013120
5-Year Average Forecast Adjustment. With added V&S						
2014 Total	69	14	0	83	0.7	
2015	99	31	0	130	1.0	MEHLERS2013120
Focast Adjustment with Added V&S						
2015 Total	99	31	0	130	1.0	
2016	128	48	0	176	1.3	MEHLERS2013120
Forecast Adjustment						
2016 Total	128	48	0	176	1.3	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 94241.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 19. POWER QUALITY PROGRAM
Workpaper Group: 942410 - POWER QUALITY PROGRAM

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	14	19	5	50	9
Non-Labor	9	47	23	80	19
NSE	0	0	0	0	0
Total	**23**	**66**	**28**	**130**	**28**
FTE	0.1	0.2	0.1	0.5	0.1
Adjustments (Nominal $) **					
Labor	0	-1	0	-2	0
Non-Labor	0	-4	0	-9	-2
NSE	0	0	0	0	0
Total	**-1**	**-5**	**0**	**-11**	**-2**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	14	18	5	48	9
Non-Labor	8	43	23	71	17
NSE	0	0	0	0	0
Total	**22**	**61**	**28**	**119**	**26**
FTE	0.1	0.2	0.1	0.5	0.1
Vacation & Sick (Nominal $)					
Labor	2	3	1	7	1
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**2**	**3**	**1**	**7**	**1**
FTE	0.0	0.0	0.0	0.1	0.0
Escalation to 2013$					
Labor	2	2	0	1	0
Non-Labor	1	5	1	2	0
NSE	0	0	0	0	0
Total	**4**	**7**	**2**	**3**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	19	23	6	57	11
Non-Labor	10	48	24	73	17
NSE	0	0	0	0	0
Total	**28**	**70**	**31**	**129**	**28**
FTE	0.1	0.2	0.1	0.6	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 94241.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 19. POWER QUALITY PROGRAM
Workpaper Group: 942410 - POWER QUALITY PROGRAM

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	-1	0	-2	0
Non-Labor	0	-4	0	-9	-2
NSE	0	0	0	0	0
Total	**-1**	**-5**	**0**	**-11**	**-2**
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	-0.346	-0.163	0	-0.509	0.0	EAMARE2013103011433
Adjustment made to exclude 15% of General Plant.						
2009 Total	-0.346	-0.163	0	-0.509	0.0	
2010	-1	-4	0	-5	0.0	EAMARE2013103011435
Adjustment made to exclude 15% of General Plant.						
2010 Total	-1	-4	0	-5	0.0	
2011	-0.085	-0.064	0	-0.149	0.0	EAMARE2013103011441
Adjustment made to exclude 15% of General Plant.						
2011 Total	-0.085	-0.064	0	-0.149	0.0	
2012	-2	-9	0	-11	0.0	EAMARE2013103011443
Adjustment made to exclude 15% of General Plant.						
2012 Total	-2	-9	0	-11	0.0	
2013	0.011	-2	0	-2	0.0	CPWITT20140212171133
Adjustment made to exclude 15% of General Plant.						
2013 Total	0.011	-2	0	-2	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 942410

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 94241.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 19. POWER QUALITY PROGRAM
Workpaper Group: 942410 - POWER QUALITY PROGRAM
Workpaper Detail: 942410.001 - CPUC Budget

In-Service Date: Not Applicable
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	92	122	151
Non-Labor	48	65	82
NSE	0	0	0
Total	**140**	**187**	**233**
FTE	0.9	1.2	1.5

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 942410

94241 – Power Quality Program

The Power Quality (PQ) Program objective is to expand to the entire distribution system (all 12kV substations and select field locations) the high resolution power quality monitoring as described in the Workpaper Business Purpose. Currently SDG&E has 109 substations targeted for inclusion in the PQ Monitoring program. A breakdown of the current status is:

- Total current substations: 109
- Substation that are being currently actively monitored: 40
- Substations currently being actively monitored that are not part of current cutover project: 4
- Substations that have PQ monitoring equipment installed but not connected/activated: 32
- Substations that have no PQ monitoring equipment installed: 37

The program will provide funding for:

- Conversion of modem based communications to network backhaul connection
- Connect and activate currently installed PQ meters to the PQ server via existing substation network gateway
- Provision of PQ metering and system network interconnection at remaining non PQ meters substations
- Installation and interconnection of four to eight, 12kV distribution line monitors (DLM) annually over three years.

The net present value total cost of the program is $1,404,300 with an expected ten year deployment. First year cost $140,000

System costs for integration of all substations: 109 @ 6,000 per site	$654,000
Conversion of 4 existing monitored sites: Four sites @ $2,800 per site	$11,200
Connect existing power quality monitors: 32 sites @ $5,200 per site	$166,400
Install new PQ monitors and connect: 37 sites @ $9,300 per site	$344,100
Install DLM: 18 sites @ $12,700 per site	$228,600
Total program cost (NPV):	$1,404,300

Spread over ten years: First year cost $140,000 (Labor $92,000, Materials $48,000)

Beginning of Workpaper Group
992820 - REPLACE OBSOLETE SUBSTATION EQUIPMENT

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 99282.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 20. REPLACE OBSOLETE SUBSTATION EQUIPMENT
Workpaper Group: 992820 - REPLACE OBSOLETE SUBSTATION 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	838	1,025	526	639	58	2,296	2,296	2,296
Non-Labor	5-YR Average	4,869	2,903	5,453	4,206	318	2,795	2,795	2,795
NSE	5-YR Average	0	0	0	0	0	804	696	600
Total		**5,707**	**3,928**	**5,979**	**4,845**	**375**	**5,895**	**5,787**	**5,691**
FTE	5-YR Average	7.2	8.9	4.8	5.3	0.5	22.1	22.1	22.1

Business Purpose:

This project will improve safety and reliability related to the replacement of obsolete and problematic substation equipment. This project will focus primarily on distribution substation bank transformers and circuit breaker replacements.

Physical Description:

The Substation Equipment Assessment Team will develop alternatives to replace or remove obsolete and problematic equipment. A condition assessment process and evaluation criteria have been created using probability and risk analysis, financial impacts and present value analysis to justify projects. Equipment that is truly obsolete such as equipment that cannot be maintained (no spare parts available), or that which poses a safety risk will be replaced. Each year the average age of all substation equipment increases, with the oldest transformer currently 80+ years old. The ranking of substation equipment is an ongoing process and involves identifying equipment that presents a significant risk to the system. Based on the cost and availability of raw materials from the manufacturer, and global demand, lead times for major substation equipment has increased to 6 months for breakers, to a 1.5 years for transformers.

Project Justification:

Substations are essential to the operation of the electric system and must be kept in reliabile condition as the consequences of a failure are extreme. The sum of all distribution substations contain a total of approximately 300 transformers with an average age of approximately 13 years and 1500 circuit breakers with an average age of 26 years. The estimated cost of replacing 3% or 9 bank transformers and 5% or 75 distribution circuit breakers is $26M which will provide a sufficient rate of funding to replace the highest priority obsolete and problematic equipment. A cost benefit analysis will be evaluated on a project-by-project basis. Proactive planning is required for the replacement of equipment that has exhausted its useful life.

Due to the safety and reliability concerns there are no alternatives to obsolete equipment projects. However, alternative repair options are evaluated if they are proven to be a cost effective solution and can reasonably extend the life or reduce the risk of failure of the equipment. Each project is evaluated on a case-by case basis

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	99282.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	20. REPLACE OBSOLETE SUBSTATION EQUIPMENT
Workpaper Group:	992820 - REPLACE OBSOLETE SUBSTATION EQUIPMENT

Forecast Methodology:

Labor - 5-YR Average

The forecast is based on a 5-year average with minor adjustments made based on the forecasted amount of work.

Non-Labor - 5-YR Average

The forecast is based on a 5-year average with minor adjustments made based on the forecasted amount of work.

NSE - 5-YR Average

The forecast is based on a 5-year average with minor adjustments made based on the forecasted amount of work.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 99282.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 20. REPLACE OBSOLETE SUBSTATION EQUIPMENT
Workpaper Group: 992820 - REPLACE OBSOLETE SUBSTATION 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	617	617	617	1,679	1,679	1,679	2,296	2,296	2,296
Non-Labor	5-YR Average	3,549	3,549	3,549	-755	-755	-755	2,794	2,794	2,794
NSE	5-YR Average	0	0	0	804	696	600	804	696	600
Total		**4,166**	**4,166**	**4,166**	**1,728**	**1,620**	**1,524**	**5,894**	**5,786**	**5,690**
FTE	5-YR Average	5.3	5.3	5.3	16.8	16.8	16.8	22.1	22.1	22.1

Forecast Adjustment Details

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2014	1,679	-755	804	1,728	16.8	EAMARE20131204
Adjusted Based on Forecast Template added V&S						
2014 Total	1,679	-755	804	1,728	16.8	
2015	1,679	-755	696	1,620	16.8	EAMARE20131204
Adjusted Based on Forecast Template added V&S						
2015 Total	1,679	-755	696	1,620	16.8	
2016	1,679	-755	600	1,524	16.8	EAMARE20131204
Adjusted Based on Forecast Template added V&S						
2016 Total	1,679	-755	600	1,524	16.8	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 99282.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 20. REPLACE OBSOLETE SUBSTATION EQUIPMENT
Workpaper Group: 992820 - REPLACE OBSOLETE SUBSTATION EQUIPMENT

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	631	801	432	545	50
Non-Labor	4,232	2,628	5,148	4,108	318
NSE	0	0	0	0	0
Total	**4,863**	**3,428**	**5,580**	**4,653**	**367**
FTE	6.2	7.6	4.1	4.6	0.4
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	631	801	432	545	50
Non-Labor	4,232	2,628	5,148	4,108	318
NSE	0	0	0	0	0
Total	**4,863**	**3,428**	**5,580**	**4,653**	**367**
FTE	6.2	7.6	4.1	4.6	0.4
Vacation & Sick (Nominal $)					
Labor	97	127	64	79	8
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**97**	**127**	**64**	**79**	**8**
FTE	1.0	1.3	0.7	0.7	0.1
Escalation to 2013$					
Labor	110	97	29	15	0
Non-Labor	637	275	305	98	0
NSE	0	0	0	0	0
Total	**747**	**372**	**335**	**113**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	838	1,025	526	639	58
Non-Labor	4,869	2,903	5,453	4,206	318
NSE	0	0	0	0	0
Total	**5,707**	**3,928**	**5,979**	**4,845**	**375**
FTE	7.2	8.9	4.8	5.3	0.5

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 99282.0
Category: H. RELIABILITY/IMPROVEMENTS
Category-Sub: 20. REPLACE OBSOLETE SUBSTATION EQUIPMENT
Workpaper Group: 992820 - REPLACE OBSOLETE SUBSTATION EQUIPMENT

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 992820

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	99282.0
Category:	H. RELIABILITY/IMPROVEMENTS
Category-Sub:	20. REPLACE OBSOLETE SUBSTATION EQUIPMENT
Workpaper Group:	992820 - REPLACE OBSOLETE SUBSTATION EQUIPMENT
Workpaper Detail:	992820.001 - Replace obsolete substation equipment
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	2,296	2,296	2,296
Non-Labor	2,795	2,795	2,795
NSE	804	696	600
Total	**5,895**	**5,787**	**5,691**
FTE	22.1	22.1	22.1

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 992820

99282 – Replace Obsolete Substation Equipment

The 5 year average for historical spend on the 99282 budget comes to $4,167,000. However, the forecast for the 2014 – 2016 is slightly higher than the average based on known equipment that needs to be replaced. Below is a summary of the work planned for this budget category.

		Project Cost ($MM)		
Year	**Project Name**	**2014**	**2015**	**2016**
LTC Retrofits				
2014	69/12kV LTC Retrofit	$ 0.581	$ -	$ -
2015	69/12kV LTC Retrofit	$ -	$ 0.581	$ -
2014	69/12kV LTC Retrofit	$ 0.577	$ -	$ -
2014	69/12kV LTC Retrofit	$ 0.577	$ -	$ -
2014	69/12kV LTC Retrofit	$ -	$ 0.500	$ -
FY	Future LTC Retrofits	$ -	$ 0.600	$ 1.600
	Subtotal	***$ 1.735***	***$ 1.681***	***$ 1.600***
Other Transformer Work				
2014	12 kV Grounding Bank Replacement	$ 0.156	$ -	$ -
2014	BK30 12 kV Cable Replacement	$ 0.160	$ -	$ -
2014	BK40 12 kV Cable Replacement	$ 0.160	$ -	$ -
2014	BK30 LTC Controller Upgrade and N2 Oil Pres System Install	$ 0.100	$ -	$ -
2014	BK32 Transformer Replacement	$ 1.500	$ -	$ -
FY	Various Projects TBD	$ 0.500	$ 1.800	$ 1.800
	Subtotal	***$ 2.576***	***$ 1.800***	***$ 1.800***
Circuit Breakers				
2014	12 kV CB Replacments	$ 0.210	$ 0.210	$ 0.210
2015	BA 12 kV Replacement and Brown Glass Replacment	$ -	$ 0.300	$ -
2016	12 kV CB Replacement and Brown Glass Replacement	$ -	$ -	$ 0.300
FY	2014-2016 Unanticipated Obsolete Circuit Breaker Replacements	$ 0.140	$ 0.140	$ 0.200
	Subtotal	***$ 0.350***	***$ 0.650***	***$ 0.710***
Regulators				
FY	2014-2016 Unanticipated Obsolete Regulator Replacements	$ -	$ 0.400	$ 0.400
	Subtotal	***$ -***	***$ 0.400***	***$ 0.400***
Miscellaneous				
2014	Unanticipated Distribution Obsolete Sub. Equip. Replacements	$ 1.000	$ 1.000	$ 1.000
2015	2014-2016 Proactive 12 kV Lightning Arrester Replacements	$ 0.200	$ 0.200	$ 0.200
	Subtotal	***$ 1.200***	***$ 1.200***	***$ 1.200***
	GRAND TOTAL	***$ 5.861***	***$ 5.731***	***$ 5.710***

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: I. SAFETY AND RISK MANAGEMENT
Workpaper: VARIOUS

Summary for Category: I. SAFETY AND RISK MANAGEMENT

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	1,191	5,990	10,131	21,772
Non-Labor	3,539	20,219	30,553	53,651
NSE	0	0	0	0
Total	**4,730**	**26,209**	**40,684**	**75,423**
FTE	11.1	59.4	100.8	217.4
062470 Replacement Of Live Front Equipment				
Labor	141	171	171	171
Non-Labor	112	672	672	672
NSE	0	0	0	0
Total	**253**	**843**	**843**	**843**
FTE	1.0	1.2	1.2	1.2
14249A SF6 Switch Replacement				
Labor	0	0	0	4,284
Non-Labor	0	0	0	5,604
NSE	0	0	0	0
Total	**0**	**0**	**0**	**9,888**
FTE	0.0	0.0	0.0	42.8
112430 SDG&E Weather Instrumentation Install.				
Labor	43	34	0	0
Non-Labor	792	251	0	0
NSE	0	0	0	0
Total	**835**	**285**	**0**	**0**
FTE	0.6	0.3	0.0	0.0
122560 Powerworkz				
Labor	753	127	0	0
Non-Labor	2,083	341	0	0
NSE	0	0	0	0
Total	**2,836**	**468**	**0**	**0**
FTE	7.5	1.3	0.0	0.0
122650 C1215- Fire Risk Mitigation Project				
Labor	161	118	0	0
Non-Labor	293	68	0	0
NSE	0	0	0	0
Total	**454**	**186**	**0**	**0**
FTE	1.2	1.2	0.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: I. SAFETY AND RISK MANAGEMENT
Workpaper: VARIOUS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
13247A Fire Risk Mitigation (FiRM) - Phases 1 and 2				
Labor	0	2,904	2,844	2,772
Non-Labor	0	10,152	9,936	9,724
NSE	0	0	0	0
Total	**0**	**13,056**	**12,780**	**12,496**
FTE	0.0	29.0	28.4	27.8
132550 C441-Pole Loading Study/Fire Risk Mitigation				
Labor	93	118	0	0
Non-Labor	259	68	0	0
NSE	0	0	0	0
Total	**352**	**186**	**0**	**0**
FTE	0.8	1.2	0.0	0.0
13266A Distribution Aerial Marking and Lighting				
Labor	0	56	56	56
Non-Labor	0	84	84	84
NSE	0	0	0	0
Total	**0**	**140**	**140**	**140**
FTE	0.0	0.6	0.6	0.6
13282A 13282 - Future CNF Blanket Budget				
Labor	0	0	1,644	4,488
Non-Labor	0	0	954	2,618
NSE	0	0	0	0
Total	**0**	**0**	**2,598**	**7,106**
FTE	0.0	0.0	16.4	44.9
14247A Fire Risk Mitigation (FiRM) - Phase 3				
Labor	0	2,462	5,416	10,001
Non-Labor	0	8,583	18,907	34,949
NSE	0	0	0	0
Total	**0**	**11,045**	**24,323**	**44,950**
FTE	0.0	24.6	54.2	100.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
062470 - Replacement Of Live Front Equipment

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06247.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 1. REPLACEMENT OF LIVE FRONT EQUIPMENT
Workpaper Group: 062470 - Replacement Of Live Front 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	199	123	249	143	141	171	171	171
Non-Labor	5-YR Average	588	692	1,221	747	112	672	672	672
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**787**	**815**	**1,470**	**890**	**253**	**843**	**843**	**843**
FTE	5-YR Average	1.5	0.8	2.0	0.9	1.0	1.2	1.2	1.2

Business Purpose:

The purpose of this project is to replace live front padmounted distribution equipment with dead front padmounted distribution equipment when it is encountered during normal SDG&E work. Live-front equipment is electric components enclosed in a protective (usually steel) cabinet which does not have additional protective barriers; live electric connections are exposed when the cabinet is open, and action which is supposed to only be performed by qualified electric personnel. Live front equipment was primarily installed on SDG&E's electric distribution system during the 1960's and 1970's, and has since become obsolete, being replaced by 'dead-front' equipment which has additional safety barriers such as removable fiberglass or composite plates, protective covers or additional compartmentalization. This project will improve operational flexibility, reliability, and safety for SDG&E field personnel, as well as the public.
While monitoring equipment does exist for substation switchgear, the cost to add monitoring equipment to distribution switches is close to what it would cost to replace SF6 switches with vacuum switches. In addition, the communications equipment necessary to send real-time information to a centralized location does not currently exist out on the distribution system, unless SCADA infrastructure is located nearby. SDG&E has approximately 1,000 SF6 distribution switches (padmounted and underground), and is currently proposing a program to replace the switches with non-SF6 switches over the next 5 years. One alternative is to not do anything, but the risk is a potential leak to the environment, thus causing harm to the environment and significant fines ($50k per day, per violation, and the total fine could be in the million dollar range, depending on the extent of the damage). Another alternative is to install monitoring equipment, but as described above, the cost and feasibility make it unviable.

Physical Description:

Live front equipment is defined by having the primary connections exposed with no insulative covering. Thus, when the equipment is opened, there are energized (or live) conductors present. This equipment was the primary choice for padmounted equipment in the 1960's and 1970's by many utilities. Since that time, this type of equipment has been replaced by dead front equipment, where the energized primary conductors are not exposed. For this project, when a job is being worked on the SDG&E distribution system that involves working with live front equipment, the equipment that is involved will be replaced with dead front equipment and charged to this project. With new technologies, many of the units can be changed out directly with a dead front unit, but in some cases additional equipment has to be installed to convert to dead front design. In both cases, there will be an additional cost for the replacement. This incremental cost will be charged to this project.

Project Justification:

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	06247.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	1. REPLACEMENT OF LIVE FRONT EQUIPMENT
Workpaper Group:	062470 - Replacement Of Live Front Equipment

The primary objective of this project is to increase the employee safety, public safety, operational flexibility, and the reliability of the SDG&E electric distribution system. SDG&E has been working with live front equipment since the 1960's. SDG&E is one of the few utilities that will allow its linemen to perform operations on this type of equipment while energized on its distribution system. This has been done safely in the past due to proper training and the use of proper tools, but as SDG&E's workforce matures and linemen come in from other utilities, it is losing this experience. Replacement of live front equipment will increase operational safety for our work force. It will also increase the safety for the public by insulating primary conductors in distribution equipment. Even though the connections to distribution equipment are behind locked cabinet doors, live front equipment poses a significantly higher risk for wire entry conditions. Live front equipment is also more difficult to work with as compared to dead front equipment. Electric service isolation and restoration procedures are performed with greater ease and speed on dead front equipment, thus, improving SDG&E's operational flexibility and electric reliability to its customers. In addition to the justifications given, the manufacturing of this equipment has slowed in recent years and SDG&E has been paying a premium for manufacturers to build live front equipment for replacements. In addition, rodent/reptile contacts to exposed primary are eliminated. The reason 5 years was selected as the time period in which to complete these replacements is because it resolves the risk by 2020, while also not overextending resources to ge the work done.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	06247.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	1. REPLACEMENT OF LIVE FRONT EQUIPMENT
Workpaper Group:	062470 - Replacement Of Live Front Equipment

Forecast Methodology:

Labor - 5-YR Average

The forecast method used for Replacement of Live Front Equipment is a 5 year average, based on historical data. This method is the most appropriate, as work load can vary from year to year. The 5-year average levels out the peaks and valleys in this blanket budget over a larger period of time, and still provides for the necessary level of funding for the work that falls within this budget.

Non-Labor - 5-YR Average

The forecast method used for Replacement of Live Front Equipment is a 5 year average, based on historical data. This method is the most appropriate, as work load can vary from year to year. The 5-year average levels out the peaks and valleys in this blanket budget over a larger period of time, and still provides for the necessary level of funding for the work that falls within this budget.

NSE - 5-YR Average

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06247.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 1. REPLACEMENT OF LIVE FRONT EQUIPMENT
Workpaper Group: 062470 - Replacement Of Live Front 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	171	171	171	0	0	0	171	171	171
Non-Labor	5-YR Average	671	671	671	0	0	0	671	671	671
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**842**	**842**	**842**	**0**	**0**	**0**	**842**	**842**	**842**
FTE	5-YR Average	1.2	1.2	1.2	0.0	0.0	0.0	1.2	1.2	1.2

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06247.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 1. REPLACEMENT OF LIVE FRONT EQUIPMENT
Workpaper Group: 062470 - Replacement Of Live Front Equipment

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	150	96	205	122	122
Non-Labor	484	564	519	666	91
NSE	0	0	0	0	0
Total	**634**	**661**	**724**	**788**	**213**
FTE	1.3	0.7	1.7	0.8	0.9
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	27	62	633	64	21
NSE	0	0	0	0	0
Total	**27**	**62**	**633**	**64**	**21**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	150	96	205	122	122
Non-Labor	511	626	1,152	730	112
NSE	0	0	0	0	0
Total	**661**	**722**	**1,357**	**852**	**234**
FTE	1.3	0.7	1.7	0.8	0.9
Vacation & Sick (Nominal $)					
Labor	23	15	30	18	19
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**23**	**15**	**30**	**18**	**19**
FTE	0.2	0.1	0.3	0.1	0.1
Escalation to 2013$					
Labor	26	12	14	3	0
Non-Labor	77	66	68	17	0
NSE	0	0	0	0	0
Total	**103**	**77**	**82**	**21**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	199	123	249	143	141
Non-Labor	588	692	1,221	747	112
NSE	0	0	0	0	0
Total	**787**	**815**	**1,470**	**890**	**253**
FTE	1.5	0.8	2.0	0.9	1.0

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06247.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 1. REPLACEMENT OF LIVE FRONT EQUIPMENT
Workpaper Group: 062470 - Replacement Of Live Front Equipment

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	27	62	633	64	21
NSE	0	0	0	0	0
Total	**27**	**62**	**633**	**64**	**21**
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	0	27	0	27	0.0	CPWITT20131030171318
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	27	0	27	0.0	
2010	0	62	0	62	0.0	CPWITT20131030171333
Adjustment made to remove CIAC from historical costs.						
2010 Total	0	62	0	62	0.0	
2011	0	633	0	633	0.0	CPWITT20131030171403
Adjustment made to remove CIAC from historical costs.						
2011 Total	0	633	0	633	0.0	
2012	0	64	0	64	0.0	CPWITT20131030171416
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	64	0	64	0.0	
2013	0	21	0	21	0.0	CBUTLER201402041008
Adjustment made to remove CIAC from historical costs.						
2013 Total	0	21	0	21	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 062470

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	06247.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	1. REPLACEMENT OF LIVE FRONT EQUIPMENT
Workpaper Group:	062470 - Replacement Of Live Front Equipment
Workpaper Detail:	062470.001 - Replacement of Live Front Equipment - Direct Costs
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	171	171	171
Non-Labor	672	672	672
NSE	0	0	0
Total	**843**	**843**	**843**
FTE	1.2	1.2	1.2

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 062470

6247 – Replacement of Live-Front Equipment

The following historical totals (fully loaded) were normalized to 2013 equivalent dollars using factors provided by Global Insights.

	Actual Spend	Normalizing Factor	2013 Dollars
2009	$1,499,624	0.8727	$1,718,373
2010	$1,245,893	0.9089	$1,370,770
2011	$1,700,747	0.948	$1,794,037
2012	$1,464,716	0.9787	$1,496,593
2013	$490,865		$490,865
5 year total			$6,870,638

Total number of Construction Units completed 2009-2013 = 202

$6,870,638/202 units $ 34,014 per unit

202 units/5 years 45.4 units per year

Proposed requirements (fully loaded):

2014	53 Units	$39,000/unit	$2,067,000
2015	53 Units	$39,000/unit	$2,067,000
2016	53 Units	$39,000/unit	$2,067,000

Proposed requirements (direct cost only*):

2014	$843,000
2015	$843,000
2016	$843,000

*Historically for this budget and the type of work forecasted, direct costs are approx. 40% of fully loaded costs. The forecast shown here is consistent with the 5 year historical average for this budget.

Beginning of Workpaper Group
112430 - SDG&E Weather Instrumentation Install.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11243.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 2. SDG&E WEATHER INSTRUMENTATION INSTALL.
Workpaper Group: 112430 - SDG&E Weather Instrumentation Install.

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	201	113	43	34	0	0
Non-Labor	Zero-Based	0	0	840	1,850	792	251	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**1,041**	**1,962**	**835**	**285**	**0**	**0**
FTE	Zero-Based	0.0	0.0	2.0	1.3	0.6	0.3	0.0	0.0

Business Purpose:

Santa Ana winds generally occur between October and May across Southern California. Most of the time, these winds are accompanied by very low humidity and warm temperatures. Fuels tend to be driest and most susceptible to new ignitions from late September through the middle of November, just prior to when significant wetting rains normally begin. Santa Ana winds occurring during this period have the potential to produce large and destructive fires when an ignition occurs. Such devastating fires have happened in 2003 and 2007. Because of the destructive nature of these fires, there has been a strong need to build a forecasting system. This system consists of computer hardware that is used to run numerical weather models and conduct analytics on the output to generate forecasts. This enables us to better predict and categorize these events much the same way hurricanes have been categorized. Addressing this need would allow for fire agencies, private industry, and the general public to be more prepared for the type of offshore wind event that might occur and take appropriate action.

Physical Description:

This project is a collaborative effort with the National weather service, Cal Fire, UCLA, and the Forest Service. This project also includes the procurement of two Atmospheric Profilers. The Profilers will increase our understanding of Santa Ana winds.

Project Justification:

These forecasted capital expenditures support the goals of both safety and reliability. This project develops a tool to mitigate risks associated with extreme fire potential during Santa Ana Winds with a vision to provide a decision support tool to fire agencies and the general public to increase public safety and overall preparedness.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11243.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	2. SDG&E WEATHER INSTRUMENTATION INSTALL.
Workpaper Group:	112430 - SDG&E Weather Instrumentation Install.

Forecast Methodology:

Labor - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project, and historical unit cost data. The forecast for 2014 covers the estimated work remaining for this project.

Non-Labor - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project, and historical unit cost data. The forecast for 2014 covers the estimated work remaining for this project.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11243.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 2. SDG&E WEATHER INSTRUMENTATION INSTALL.
Workpaper Group: 112430 - SDG&E Weather Instrumentation Install.

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	34	0	0	0	0	0	34	0	0
Non-Labor	Zero-Based	251	0	0	0	0	0	251	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**285**	**0**	**0**	**0**	**0**	**0**	**285**	**0**	**0**
FTE	Zero-Based	0.3	0.0	0.0	0.0	0.0	0.0	0.3	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11243.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 2. SDG&E WEATHER INSTRUMENTATION INSTALL.
Workpaper Group: 112430 - SDG&E Weather Instrumentation Install.

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	185	113	43
Non-Labor	0	0	909	2,073	931
NSE	0	0	0	0	0
Total	**0**	**0**	**1,094**	**2,186**	**974**
FTE	0.0	0.0	1.9	1.3	0.6
Adjustments (Nominal $) **					
Labor	0	0	-20	-17	-6
Non-Labor	0	0	-116	-267	-139
NSE	0	0	0	0	0
Total	**0**	**0**	**-136**	**-283**	**-145**
FTE	0.0	0.0	-0.2	-0.2	-0.1
Recorded-Adjusted (Nominal $)					
Labor	0	0	165	96	37
Non-Labor	0	0	793	1,806	792
NSE	0	0	0	0	0
Total	**0**	**0**	**958**	**1,902**	**829**
FTE	0.0	0.0	1.7	1.1	0.5
Vacation & Sick (Nominal $)					
Labor	0	0	24	14	6
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**24**	**14**	**6**
FTE	0.0	0.0	0.3	0.2	0.1
Escalation to 2013$					
Labor	0	0	11	3	0
Non-Labor	0	0	47	43	0
NSE	0	0	0	0	0
Total	**0**	**0**	**58**	**46**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	201	113	43
Non-Labor	0	0	840	1,850	792
NSE	0	0	0	0	0
Total	**0**	**0**	**1,041**	**1,962**	**835**
FTE	0.0	0.0	2.0	1.3	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11243.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 2. SDG&E WEATHER INSTRUMENTATION INSTALL.
Workpaper Group: 112430 - SDG&E Weather Instrumentation Install.

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	-20	-17	-6
Non-Labor	0	0	-116	-267	-139
NSE	0	0	0	0	0
Total	**0**	**0**	**-136**	**-283**	**-145**
FTE	0.0	0.0	-0.2	-0.2	-0.1

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	-20	-116	0	-136	-0.2	MEHLERS201310291529
Adjustment made to exclude 15% of General Plant.						
2011 Total	-20	-116	0	-136	-0.2	
2012	-17	-267	0	-283	-0.2	MEHLERS201310291530
Adjustment made to exclude 15% of General Plant.						
2012 Total	-17	-267	0	-283	-0.2	
2013	-6	-139	0	-145	-0.1	CPWITT20140212164336
Adjustment made to exclude 15% of General Plant.						
2013 Total	-6	-139	0	-145	-0.1	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 112430

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11243.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	2. SDG&E WEATHER INSTRUMENTATION INSTALL.
Workpaper Group:	112430 - SDG&E Weather Instrumentation Install.
Workpaper Detail:	112430.001 - Santa Ana Wind & Fire Weather Monitoring & Forecasting
In-Service Date:	06/01/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	34	0	0
Non-Labor	251	0	0
NSE	0	0	0
Total	**285**	**0**	**0**
FTE	0.3	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 112430

11243 - SDG&E Weather Instrumentation Install

Borrego Atmospheric Profiler

In order to better forecast the weather that occurs at the surface, we must also know what is occurring aloft. This is particularly true with regards to Southern California 'Santa Ana' winds. The Borrego Atmospheric Profiler will give our meteorologists vertical snapshots of wind speed, temperature, and humidity in the several thousand feet above ground level approximately every 10 minutes. The data we obtain from these profilers will increase our understanding of Santa Ana wind localized behavior while at the same time improve our ability to monitor and forecast those same winds.

In order to meet the challenges associated with monitoring and forecasting Santa Ana winds, the atmospheric profiler at Borrego will measure wind, temperature, and humidity from the surface to a height of roughly 3 km Above Ground Level (AGL). Of all the profiler companies researched, DeTect is the only manufacturer of wind profilers that can meet the aforementioned requirements during Santa Ana conditions. Likewise, Radiometrics is the only manufacturer of thermodynamic profilers that can meet those same requirements. For this reason, SDG&E chose DeTect's 449 MHz radar wind profiler and Radiometric's MP-3000a Thermodynamic Profiler. The cost breakdown is as follows:

Contract Costs	Material	Other Direct Charges	Total Indirect Cost	Construction Costs
$21k	$200k	$15k	$19k	$49k

- Total fully loaded costs for 2014 = $304K
- Total direct costs only for 2014 = **$285K**

Beginning of Workpaper Group
122560 - Powerworkz

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12256.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 3. POWERWORKZ
Workpaper Group: 122560 - Powerworkz

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	671	753	127	0	0
Non-Labor	Zero-Based	0	0	0	2,734	2,083	341	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**3,405**	**2,836**	**468**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	6.9	7.5	1.3	0.0	0.0

Business Purpose:

The PowerWorkz project was previously approved for $6.7 million in 2011 but is forecasted to exceed the previous authorization amount by $6.9 million, bringing the projected cost to $13.6 million. This document is being submitted to obtain reauthorization for the new projected cost.

The project has been funded 70% out of CPUC budget (226) for the benefit of Vegetation Management (for distribution lines) and 30% out of FERC budget (100) for the benefit of Transmission Construction and Maintenance as well as Vegetation Management (for transmission lines).

PowerWorkz is a Geographical Information System (GIS)-integrated work management system that will be used by Vegetation Management and Transmission Construction & Maintenance (TCM) to manage their operations.

Physical Description:

The project combines three off-the-shelf software systems – ESRI GIS, Cityworks, and InfraMap. The resulting composite system will be combined with multiple customizations, targeted at highly specialized business needs. Additionally the solution will be integrated with multiple in-house systems, including Enterprise GIS, SAP/CCMS, and GEARS.

The solution will support the following system functions: scheduling, inspections, work routing/approval/completion, random sample work auditing, and work aggregation for invoicing.

Project Justification:

Both Vegetation Management and TCM have been de-scoped from the OPEX project for GIS-integrated work management but need a new solution since their current systems will not be supported after OPEX GIS goes live. In addition to facilitating operations management for both business units, the system will support increasing regulatory requirements, thereby improving the compliance tracking capabilities across all process flows. Operating without this new system exposes the company to risks of significant fines for regulatory violations.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	12256.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	3. POWERWORKZ
Workpaper Group:	122560 - Powerworkz

Forecast Methodology:

Labor - Zero-Based

TThe forecast method used for Powerworkz is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project, and based on quotations/proposals from vendors. The forecast for 2014 covers the estimated work remaining for this project.

Non-Labor - Zero-Based

The forecast method used for Powerworkz is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project, and based on quotations/proposals from vendors. The forecast for 2014 covers the estimated work remaining for this project.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12256.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 3. POWERWORKZ
Workpaper Group: 122560 - Powerworkz

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	127	0	0	0	0	0	127	0	0
Non-Labor	Zero-Based	341	0	0	0	0	0	341	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**468**	**0**	**0**	**0**	**0**	**0**	**468**	**0**	**0**
FTE	Zero-Based	1.3	0.0	0.0	0.0	0.0	0.0	1.3	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12256.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 3. POWERWORKZ
Workpaper Group: 122560 - Powerworkz

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	471	536
Non-Labor	0	0	0	2,199	1,715
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**2,671**	**2,251**
FTE	0.0	0.0	0.0	4.8	5.3
Adjustments (Nominal $) **					
Labor	0	0	0	101	115
Non-Labor	0	0	0	471	368
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**572**	**482**
FTE	0.0	0.0	0.0	1.1	1.1
Recorded-Adjusted (Nominal $)					
Labor	0	0	0	572	650
Non-Labor	0	0	0	2,670	2,083
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**3,243**	**2,733**
FTE	0.0	0.0	0.0	5.9	6.4
Vacation & Sick (Nominal $)					
Labor	0	0	0	83	103
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**83**	**103**
FTE	0.0	0.0	0.0	1.0	1.1
Escalation to 2013$					
Labor	0	0	0	16	0
Non-Labor	0	0	0	64	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**79**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	0	671	753
Non-Labor	0	0	0	2,734	2,083
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**3,405**	**2,836**
FTE	0.0	0.0	0.0	6.9	7.5

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12256.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 3. POWERWORKZ
Workpaper Group: 122560 - Powerworkz

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	101	115
Non-Labor	0	0	0	471	368
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**572**	**482**
FTE	0.0	0.0	0.0	1.1	1.1

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	-71	-330	0	-401	-0.7	EAMARE2014030415463
Adjustment made to exclude 15% of General Plant.						
	172	801	0	973	1.8	MEHLERS201310291637
Adjustment made to include 85% of General Plant.						
2012 Total	101	471	0	572	1.1	
2013	195	625	0	820	1.9	CPWITT20140212161118
Adjustment made to include 85% of General Plant.						
	-80	-257	0	-338	-0.8	EAMARE2014030415472
Adjustment made to exclude 15% of General Plant.						
2013 Total	115	368	0	482	1.1	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 122560

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12256.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 3. POWERWORKZ
Workpaper Group: 122560 - Powerworkz
Workpaper Detail: 122560.001 - Powerworkz

In-Service Date: 03/31/2014
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	127	0	0
Non-Labor	341	0	0
NSE	0	0	0
Total	**468**	**0**	**0**
FTE	1.3	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 122560

12256 - PowerWorkz

PowerWorkz is a system used for the Vegetation Management Program. Phase 1 of the system went live on 12/09/13. The 2014 cost included phase 1 go-live support and Phase 2 project scope.

Cost Category	2014 Costs
Internal Labor	$97,955
Purchased Labor	$41,199
Software	$1,100
Vendor Services	$328,039
Total	$468,293

The Internal Labor and Purchased Labor was estimated, based on historical project staffing levels that were planned to taper off the project as phase 2 scope was completed in 2014 Q2.

Beginning of Workpaper Group
122650 - C1215- Fire Risk Mitigation Project

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12265.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 4. C1215-FIRE RISK MITIGATION PROJECT
Workpaper Group: 122650 - C1215- Fire Risk Mitigation Project

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	161	118	0	0
Non-Labor	Zero-Based	0	0	0	0	293	68	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**454**	**186**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0

Business Purpose:

Distribution fire hardening efforts are a key component of the Community Fire Safety Program (CFSP). Under the umbrella of the CFSP, the Reliability Improvements in Rural Areas Team (RIRAT) and the Fire Preparation Steering Committee approved this project for reliability improvements. This particular circuit is located in mountainous areas vulnerable to extreme winds and other storm events, which have resulted in outages related to fallen trees/branches, debris blowing into the energized conductors, wire-to-wire contact, and equipment failure. All of these things have the potential for being an ignition source.
This project will replace aged overhead conductor with new conductor, and replace wood poles with steel poles to enhance circuit reliability. The new facilities will be designed using known local conditions as the basis for design, which in the case of this circuit includes extreme wind conditions.

Physical Description:

This Project will take place on C1215 where we will replace #6 CU conductors with new #2ACSR and wood poles with steel poles in areas where we have had multiple wire down events.

Project Justification:

Reconductoring wood to steel will greatly reduce the risk of brush fires during high wind events in areas on C1215 known to have past wiredown events. An additional benefit is circuit reliability will improve with the reconductor.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	12265.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	4. C1215-FIRE RISK MITIGATION PROJECT
Workpaper Group:	122650 - C1215- Fire Risk Mitigation Project

Forecast Methodology:

Labor - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. The forecast for 2014 covers the estimated work remaining for this project.

Non-Labor - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. The forecast for 2014 covers the estimated work remaining for this project.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12265.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 4. C1215-FIRE RISK MITIGATION PROJECT
Workpaper Group: 122650 - C1215- Fire Risk Mitigation Project

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	118	0	0	0	0	0	118	0	0
Non-Labor	Zero-Based	68	0	0	0	0	0	68	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**186**	**0**	**0**	**0**	**0**	**0**	**186**	**0**	**0**
FTE	Zero-Based	1.2	0.0	0.0	0.0	0.0	0.0	1.2	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12265.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 4. C1215-FIRE RISK MITIGATION PROJECT
Workpaper Group: 122650 - C1215- Fire Risk Mitigation Project

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	0	139
Non-Labor	0	0	0	0	293
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**432**
FTE	0.0	0.0	0.0	0.0	1.0
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	139
Non-Labor	0	0	0	0	293
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**432**
FTE	0.0	0.0	0.0	0.0	1.0
Vacation & Sick (Nominal $)					
Labor	0	0	0	0	22
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**22**
FTE	0.0	0.0	0.0	0.0	0.2
Escalation to 2013$					
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
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	0	0	161
Non-Labor	0	0	0	0	293
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**454**
FTE	0.0	0.0	0.0	0.0	1.2

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12265.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 4. C1215-FIRE RISK MITIGATION PROJECT
Workpaper Group: 122650 - C1215- Fire Risk Mitigation Project

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 122650

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	12265.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	4. C1215-FIRE RISK MITIGATION PROJECT
Workpaper Group:	122650 - C1215- Fire Risk Mitigation Project
Workpaper Detail:	122650.001 - C1215-FIRE RISK MITIGATION PROJECT
In-Service Date:	03/31/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	118	0	0
Non-Labor	68	0	0
NSE	0	0	0
Total	**186**	**0**	**0**
FTE	1.2	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 122650

12265 - C1215 – Fire Risk Mitigation Project

- Project total Capital: $962,484
- Project Estimated Total Direct Capital: $496,028
- Total Non-Labor: $344,454
- Total Labor: $151,574

Direct costs accounted for in 2014 GRC is $186,000. This project was essentially completed in 2013, and the $186,000 for 2014 is just trailing charges (mainly from construction invoices). The accounting for this project will be closed out in 2014.
Jobs-to-Date (JTD) Foot-Per-Mile Average:
Rebuild - Total CAP/Total Footage 13,950 ft. + = $69.00/ft.

Note: JTD Foot-Per-Mile low due to easy truck access along road (no helicopter requirements, nor environmental access concerns) and with the cooperation of LA Posta Indian reservation, minimal permitting requirements and the ability to use property nearby on the reservation for a laydown site. Cost-per-foot increases when work is performed in mountainous areas due to access issues which is more typical for back country hardening work.

Beginning of Workpaper Group
13247A - Fire Risk Mitigation (FiRM) - Phases 1 and 2

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13247.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 5. Fire Risk Mitigation (FiRM) - Phases 1 and 2
Workpaper Group: 13247A - Fire Risk Mitigation (FiRM) - Phases 1 and 2

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	2,904	2,844	2,772
Non-Labor	Zero-Based	0	0	0	0	0	10,152	9,936	9,724
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**13,056**	**12,780**	**12,496**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	29.0	28.4	27.8

Business Purpose:

The wildfires in 2003 and 2007 had devastating impacts on San Diego County. Since 2007, SDG&E has put a tremendous amount of effort into reducing fire risk. In 2013, SDG&E combined the fire hardening efforts with a program designed to address pole loading issues, creating a program called the Fire Risk Mitigation (FiRM) program. FiRM will aggressively address fire risk by hardening critical areas, by replacing antiquated line elements, by utilizing advanced technology, and by ensuring facilities can adequately handle known local weather conditions. FiRM is being broken into multiple phases, with the scope of work varying within each phase.
In order to effectively manage the program, the overhead electric facilities in the Fire Threat Zone have been segmented into smaller & more manageable groupings, and prioritized based on fire risk. Statistics from the Reliability Improvements in Rural Areas Team will be coupled with information about "known local conditions" to proactively address fire risk. There is a subset of overhead facilities (poles, wire, and equipment) that will be replaced/hardened to ensure the facilities can adequately handle "known local conditions." SDG&E has far more information about known local conditions than ever before, and is now using that information to upgrade areas where conditions could exceed the thresholds that were used for the original designs.

Physical Description:

The initial subset of overhead facilities is made up of approximately 1,200 poles and will cost approximately $25M to harden. The next subset of facilities falls within the extreme Potential Damage Zone (PDZ). That subset is made up of approximately 6,000 poles. For that subsection, the aged wire will be replaced along with any poles that are structurally insufficient to accomodate the new wire. The 7,200 poles that fall in the highest risk areas will be taken care of in Phase 1 of FiRM. Phase 1 is anticipated to take place between 2014 and 2015. Phase 2 of FiRM will address the remaining 30,000 poles in the High Risk Area. The PDZ map will be used to put facilities into smaller manageable groupings. The activities for Phase 2 will include targeted reconductoring and hardening, based on history, known local conditions, and pole load information. This phase is planned to take place between 2014 and 2018. Phase 3 of FiRM will address the remaining poles in the Fire Threat Zone (approximately 40,000 poles). For this phase, the distribution facilities will be LiDAR surveyed (Light Detection And Ranging) and PLS-CADD models will be developed for analysis. While LiDAR and PLS-CADD will be used for the early phases of the project, in this case it is being used for analysis and for capital improvement work. The upfront data acquisition and 3-D modeling will be an O&M activity.

Project Justification:

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13247.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	5. Fire Risk Mitigation (FiRM) - Phases 1 and 2
Workpaper Group:	13247A - Fire Risk Mitigation (FiRM) - Phases 1 and 2

This program will mitigate fire risk in the most critical, highest fire-risk areas of our system. Wildfire is a significant risk for San Diego County and South Orange County, as witnessed in 2003, 2007, and in 2014. The risk of wildfire has increased in 2014, due to the extreme drought conditions in California. The State has declared a State of Emergency due to the drought. Not only is wildfire a risk to the public, it also threatens the reliability of the electric system. This program will address aged conductor, aged splices, overloaded poles, as well as other conditions that are known to be a risk in the fire-prone areas.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13247.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	5. Fire Risk Mitigation (FiRM) - Phases 1 and 2
Workpaper Group:	13247A - Fire Risk Mitigation (FiRM) - Phases 1 and 2

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Fire Risk Mitigation (FIRM) is zero-based. The forecast is based on detailed cost estimates that are developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for Fire Risk Mitigation (FIRM) is zero-based. The forecast is based on detailed cost estimates that are developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 13247A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13247.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	5. Fire Risk Mitigation (FiRM) - Phases 1 and 2
Workpaper Group:	13247A - Fire Risk Mitigation (FiRM) - Phases 1 and 2
Workpaper Detail:	13247A.001 - Fire Risk Mitigation (FiRM) - Phases 1 and 2
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	2,904	2,844	2,772
Non-Labor	10,152	9,936	9,724
NSE	0	0	0
Total	**13,056**	**12,780**	**12,496**
FTE	29.0	28.4	27.8

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 13247A

13247 – Fire Risk Mitigation (FiRM) – Phases 1 & 2

This is a more detailed scope of work and unit cost breakdown for the FiRM project. The workpapers described the urgent need of this project, and why the timing is right to do it now. Overloaded poles and inadequate facilities will be addressed by all of the activities below. The program is front-loaded with fire hardening and wire replacement capital projects, and will then transition to pole loading assessments. The direct costs typically make up about half of the fully loaded costs for this type of work (based on past jobs).

Phase	Description	Comments
1a	1,200 Poles in 100+ MPH	100% Capital Hardening w/pre-defined scope
1b	6,000 Poles in Extreme PDZ	Combo: Wire replacement and selective hardening
2	30,000 Poles in HRFA	Projects from RIRAT: Hardening, Redonductor, Long Spans
3	40,000 Poles in FTZ	RIRAT Projects and Pole Loading

*Work in phases 1-3 to remedy FTZ only

2014	Unit Price	Units	Total Direct & Indirect Capital Cost	Total Direct Costs
Rebuild (All Poles & Wires)	$155/ft.	168,960	$26,188,800	$13,094,400
*Reconductor/Replace Poles That Fail Only	$105/ft.			
Pole Replacements	$20K/Pole			
2015	**Unit Price**	**Units**	**Total Direct & Indirect Capital Cost**	**Total Direct Costs**
Rebuild (All Poles & Wires)	$155/ft.	164,880	$25,556,400	$12,778,200
*Reconductor/Replace Poles That Fail Only	$105/ft.			
Pole Replacements	$20K/Pole			
2016	**Unit Price**	**Units**	**Total Direct & Indirect Capital Cost**	**Total Direct Costs**
Rebuild (All Poles & Wires)	$155/ft.	161,250	$24,993,750	$12,496,875
*Reconductor/Replace Poles That Fail Only	$105/ft.			
Pole Replacements	$20K/Pole			

*Reflects a 35% cost savings based on not requiring to change out all poles as part of the reconductor work. Only poles that fail will be replaced.

All costs are approximate streamlined estimates available at the time of the original filing. Final scope and costs will be determined based on Detailed DPSS (work management)

Beginning of Workpaper Group
132550 - C441-Pole Loading Study/Fire Risk Mitigation

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13255.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 6. C441-POLE LOADING STUDY/FIRE RISK MIT.
Workpaper Group: 132550 - C441-Pole Loading Study/Fire Risk Mitigation

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	93	118	0	0
Non-Labor	Zero-Based	0	0	0	0	259	68	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**352**	**186**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.8	1.2	0.0	0.0

Business Purpose:

Distribution fire hardening efforts are a key component of the Community Fire Safety Program (CFSP). Under the umbrella of the CFSP, the Reliability Improvements in Rural Areas Team (RIRAT) and the Fire Preparation Steering Committee approved this project for reliability improvements. This particular circuit is located in mountainous areas vulnerable to extreme winds and other storm events, which have resulted in outages related to fallen trees/branches, debris blowing into the energized conductors, wire-to-wire contact, and equipment failure. All of these things have the potential for being an ignition source.
This project will replace 1.5 miles of aged overhead conductor with new conductor, and replace wood poles with steel poles to enhance circuit reliability. The new facilities will be designed using known local conditions as the basis for design, which in the case of this circuit includes extreme wind conditions.

Physical Description:

This project will take place on C441 where we will replace #6 CU conductors with new #2ACSR and wood poles with steel poles in areas where we have had multiple wire down events.

Project Justification:

The poles on the project are overloaded and are a fire risk. Reconductoring wood to steel will greatly reduce the risk of brush fires during high wind events in areas on C441 know to have a past wire down events. An additional benefit is circuit reliability will improve with the reconductor.

The only other viable solution would be to underground the overhead facilities, which would be cost prohibitive due to labor intense work required to trench and install facilities in mountainous terrain where the circuit is located. In addition, it may not be feasible to underground due to environmental regulations.

If not funded, this project area specifically has a high probability of future wire downs and potential brush fires based on multiple past wire down events. Additionally, deteriorating facilities will result in negative impacts to the corporation in the areas of system reliability and customer satisfaction.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13255.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	6. C441-POLE LOADING STUDY/FIRE RISK MIT.
Workpaper Group:	132550 - C441-Pole Loading Study/Fire Risk Mitigation

Forecast Methodology:

Labor - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. The forecast for 2014 covers the estimated work remaining for this project.

Non-Labor - Zero-Based

The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. The forecast for 2014 covers the estimated work remaining for this project.

NSE - Zero-Based

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Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13255.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 6. C441-POLE LOADING STUDY/FIRE RISK MIT.
Workpaper Group: 132550 - C441-Pole Loading Study/Fire Risk Mitigation

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	118	0	0	0	0	0	118	0	0
Non-Labor	Zero-Based	68	0	0	0	0	0	68	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**186**	**0**	**0**	**0**	**0**	**0**	**186**	**0**	**0**
FTE	Zero-Based	1.2	0.0	0.0	0.0	0.0	0.0	1.2	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13255.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 6. C441-POLE LOADING STUDY/FIRE RISK MIT.
Workpaper Group: 132550 - C441-Pole Loading Study/Fire Risk Mitigation

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	0	81
Non-Labor	0	0	0	0	259
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**340**
FTE	0.0	0.0	0.0	0.0	0.7
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	81
Non-Labor	0	0	0	0	259
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**340**
FTE	0.0	0.0	0.0	0.0	0.7
Vacation & Sick (Nominal $)					
Labor	0	0	0	0	13
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**13**
FTE	0.0	0.0	0.0	0.0	0.1
Escalation to 2013$					
Labor	0	0	0	0	0
Non-Labor	0	0	0	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 (Constant 2013$)					
Labor	0	0	0	0	93
Non-Labor	0	0	0	0	259
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**352**
FTE	0.0	0.0	0.0	0.0	0.8

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13255.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 6. C441-POLE LOADING STUDY/FIRE RISK MIT.
Workpaper Group: 132550 - C441-Pole Loading Study/Fire Risk Mitigation

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 132550

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13255.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	6. C441-POLE LOADING STUDY/FIRE RISK MIT.
Workpaper Group:	132550 - C441-Pole Loading Study/Fire Risk Mitigation
Workpaper Detail:	132550.001 - C441-POLE LOADING STUDY/FIRE RISK MIT.
In-Service Date:	04/30/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	118	0	0
Non-Labor	68	0	0
NSE	0	0	0
Total	**186**	**0**	**0**
FTE	1.2	0.0	0.0

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 132550

13255 – C441 – Pole Loading Study/ Fire Risk Mitigation

- Project total Capital: $633,511
- Project Estimated Total Direct Capital: $367,092
- Total Non-Labor: $285,871
- *Total Labor: $81,221

Directs costs accounted for in 2014 GRC is $186,000. This project was essentially completed in 2013, and the $186,000 for 2014 is just trailing charges (mainly from construction invoices). The accounting for this project will be closed out in 2014.

Jobs-to-Date (JTD) Foot-Per-Mile Average:
Rebuild - Total CAP/Total Footage 7,610ft. + = $83.25/ft.

Note: JTD Foot-Per-Mile low due to easy truck access along road (no helicopter requirements, nor environmental access concerns). Cost per foot increases when work is performed in mountainous areas due to access issues which is more typical for back country hardening work.

Beginning of Workpaper Group
13266A - Distribution Aerial Marking and Lighting

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13266.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 7. Distribution Aerial Marking and Lighting
Workpaper Group: 13266A - Distribution Aerial Marking and Lighting

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	56	56	56
Non-Labor	Zero-Based	0	0	0	0	0	84	84	84
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**140**	**140**	**140**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6

Business Purpose:

The Federal Aviation Administration (FAA) under the US Dept of Transportation has authority to regulate and oversee all aspects of American civil aviation. Federal Regulation Title 14 CFR Part 77 establishes the standards and notification criteria for the construction or alteration of objects affecting navigable airspace. SDG&E is subject to this regulation and must notify the FAA when proposing the construction or alteration of facilities that exceed notice criteria under Part 77.9(b). When determined by the FAA, SDG&E will install aviation hazard marking and lighting consistent with FAA recommendations and Advisories. In addition to complying with FAA regulations, SDG&E is also subject to California State Aeronautics Code Title 21, and local Airport Land Use Commissions.

Physical Description:

Install aerial marking and lighting on the overhead electric distribution system in accordance with FAA requirements or for safety. This budget is a sister budget to the Transmission Aerial Marking and Lighting Budget.

Project Justification:

The primary objective of this budeget is to comply with FAA requirements, California State Aeronautics Code Title 21, and local Airport Land Use Commisssions, in addition to increasing public and employee safety by installing aerial marking and lighting.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13266.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	7. Distribution Aerial Marking and Lighting
Workpaper Group:	13266A - Distribution Aerial Marking and Lighting

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Distribution Aerial Marking and Lighting is zero-based. This is a new budget for distribution, with little-to-no history. This blanket budget will cover the aerial marking and lighting activities as the need for such markings is determined. The marking activities will be done in accordance with FAA requirements, but will also be installed in areas of potential risk that may not be covered by the FAA requirements.

Non-Labor - Zero-Based

The forecast method used for Distribution Aerial Marking and Lighting is zero-based. This is a new budget for distribution, with little-to-no history. This blanket budget will cover the aerial marking and lighting activities as the need for such markings is determined. The marking activities will be done in accordance with FAA requirements, but will also be installed in areas of potential risk that may not be covered by the FAA requirements.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 13266A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13266.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	7. Distribution Aerial Marking and Lighting
Workpaper Group:	13266A - Distribution Aerial Marking and Lighting
Workpaper Detail:	13266A.001 - Distribution Aerial Marking and Lighting
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	56	56	56
Non-Labor	84	84	84
NSE	0	0	0
Total	**140**	**140**	**140**
FTE	0.6	0.6	0.6

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 13266A

13266 - Distribution Aerial Marking and Lighting

This is a rough estimate of cost to install aerial markers or lighting required by Federal Regulation Title 14 CRF Part 77. It was anticipated that we may require approximately 4 jobs per year at an average of $61,000 total fully loaded cost, and an average of $35,000 total direct cost (only). The assumption is that the loaders would add 75% to the direct costs, for a fully loaded total of $61K per job.

Total fully loaded cost per year: approximately $61,000/yr x 4 jobs = $244,000/yr
Total directs-only cost per year: approximately $35,000/yr x 4 jobs = **$140,000/yr**

Beginning of Workpaper Group
13282A - 13282 - Future CNF Blanket Budget

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13282.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 8. 13282 - Future CNF Blanket Budget
Workpaper Group: 13282A - 13282 - Future CNF Blanket Budget

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	1,644	4,488
Non-Labor	Zero-Based	0	0	0	0	0	0	954	2,618
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**2,598**	**7,106**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	16.4	44.9

Business Purpose:

This budget is required as part of an agreemen with CNF to replace aging overhead infrastruture with new overhead and underground facilties.

Physical Description:

As part of the renewal of our Master Special Use Permit with CNF, SDG&E agreed to rebuild overhead power lines by replacing them with new overhead and underground facilites.

Project Justification:

This work is required as a result of a to be Legal Agreement with CNF. As part of our permit renewal with CNF, SDG&E agreed to rebuild our overhead system and to convert a portion of it with new underground facilities.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13282.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	8. 13282 - Future CNF Blanket Budget
Workpaper Group:	13282A - 13282 - Future CNF Blanket Budget

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Future CNF Blanket Budget is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for Future CNF Blanket Budget is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs, are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 13282A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13282.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	8. 13282 - Future CNF Blanket Budget
Workpaper Group:	13282A - 13282 - Future CNF Blanket Budget
Workpaper Detail:	13282A.001 - CNF Distribution Circuits
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	1,644	4,488
Non-Labor	0	954	2,618
NSE	0	0	0
Total	**0**	**2,598**	**7,106**
FTE	0.0	16.4	44.9

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13282.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 8. 13282 - Future CNF Blanket Budget
Workpaper Group: 13282A - 13282 - Future CNF Blanket Budget
Workpaper Detail: 13282A.002 - 2016 CNF Distribution Circuits

In-Service Date: 12/31/2016
Description:

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

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 13282A

13282 – Future CNF Blanket Budget

Cost Estimate Detail:

$'s in Thousands

Item	2014	2015	2016
Material	$ -	$ 480	$ 1,345
Other Direct Charges	-	186	521
Construction Activities	-	877	2,455
Transportation	-	957	2,679
Total Direct Charges	$ -	$ 2,500	$ 7,000

Calculation of Labor/Non-Labor Split:

Item	2014	2015	2016
Total Labor Direct Charges - 60%	$ -	$ 1,500	$ 4,200
Total Non-Labor Direct Charges - 40%	-	1,000	2,800
	$ -	$ 2,500	$ 7,000

Add V&S to Labor:

Item	2014	2015	2016
Total Labor Direct Charges with V&S	$ -	$ 1,717	$ 4,809
Total Non-Labor Direct Charges	-	1,000	2,800
	$ -	$ 2,717	$ 7,609

Adjusted Labor/Non-Labor Split in 2013 $'s:

Item	2014	2015	2016
Total Labor Direct Charges with V&S (In 2013 $'s)	$ -	$ 1,641	$ 4,494
Total Non-Labor Direct Charges (In 2013 $'s)	-	955	2,617
	$ -	$ 2,596	$ 7,110

Assumptions:

Labor/Non-Labor Split	%
Labor	60%
Non-Labor	40%
Total	100%

Convert Nominal $ to Real 2013 $	Escalation Factor
2014	1.024891936
2015	1.046653749
2016	1.07005515

V&S	14.5%

Beginning of Workpaper Group
14247A - Fire Risk Mitigation (FiRM) - Phase 3

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 14247.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 9. Fire Risk Mitigation (FiRM) - Phase 3
Workpaper Group: 14247A - Fire Risk Mitigation (FiRM) - Phase 3

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	2,462	5,416	10,001
Non-Labor	Zero-Based	0	0	0	0	0	8,583	18,907	34,949
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**11,045**	**24,323**	**44,950**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	24.6	54.2	100.1

Business Purpose:

The wildfires in 2003 and 2007 had devastating impacts on San Diego County. Since 2007, SDG&E has put a tremendous amount of effort into reducing fire risk. In 2013, SDG&E combined the fire hardening efforts with a program designed to address pole loading issues, creating a program called the Fire Risk Mitigation (FiRM) program. FiRM will aggressively address fire risk by hardening critical areas, by replacing antiquated line elements, by utilizing advanced technology, and by ensuring facilities can adequately handle known local weather conditions. FiRM is being broken into multiple phases, with the scope of work varying within each phase.
In order to effectively manage the program, the overhead electric facilities in the Fire Threat Zone have been segmented into smaller & more manageable groupings, and prioritized based on fire risk. Statistics from the Reliability Improvements in Rural Areas Team will be coupled with information about "known local conditions" to proactively address fire risk. There is a subset of overhead facilities (poles, wire, and equipment) that will be replaced/hardened to ensure the facilities can adequately handle "known local conditions." SDG&E has far more information about known local conditions than ever before, and is now using that information to upgrade areas where conditions could exceed the thresholds that were used for the original designs.

Physical Description:

The initial subset of overhead facilities is made up of approximately 1,200 poles and will cost approximately $25M to harden. The next subset of facilities falls within the extreme Potential Damage Zone (PDZ). That subset is made up of approximately 6,000 poles. For that subsection, the aged wire will be replaced along with any poles that are structurally insufficient to accomodate the new wire. The 7,200 poles that fall in the highest risk areas will be taken care of in Phase 1 of FiRM. Phase 1 is anticipated to take place between 2014 and 2015. Phase 2 of FiRM will address the remaining 30,000 poles in the High Risk Area. The PDZ map will be used to put facilities into smaller manageable groupings. The activities for Phase 2 will include targeted reconductoring and hardening, based on history, known local conditions, and pole load information. This phase is planned to take place between 2014 and 2018. Phase 3 of FiRM will address the remaining poles in the Fire Threat Zone (approximately 40,000 poles). For this phase, the distribution facilities will be LiDAR (Light Detection And Ranging) surveyed and PLS-CADD models will be developed for analysis. While LiDAR and PLS-CADD will be used for the early phases of the project, in this case it is being used for analysis and for capital improvement work. The upfront data acquisition and 3-D modeling will be an O&M activity.

Project Justification:

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	14247.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	9. Fire Risk Mitigation (FiRM) - Phase 3
Workpaper Group:	14247A - Fire Risk Mitigation (FiRM) - Phase 3

This program will mitigate fire risk in the most critical, highest fire-risk areas of our system. Wildfire is a significant risk for San Diego County and South Orange County, as witnessed in 2003, 2007, and in 2014. The risk of wildfire has increased in 2014, due to the extreme drought conditions in California. The State has declared a State of Emergency due to the drought. Not only is wildfire a risk to the public, it also threatens the reliability of the electric system. This program will address aged conductor, aged splices, overloaded poles, as well as other conditions that are known to be a risk in the fire-prone areas.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	14247.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	9. Fire Risk Mitigation (FiRM) - Phase 3
Workpaper Group:	14247A - Fire Risk Mitigation (FiRM) - Phase 3

Forecast Methodology:

Labor - Zero-Based

The forecast method used for Fire Risk Mitigation (FIRM) is zero-based. The forecast is based on detailed cost estimates that are developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

The forecast method used for Fire Risk Mitigation (FIRM) is zero-based. The forecast is based on detailed cost estimates that are developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

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Beginning of Workpaper Sub Details for
Workpaper Group 14247A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	14247.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	9. Fire Risk Mitigation (FiRM) - Phase 3
Workpaper Group:	14247A - Fire Risk Mitigation (FiRM) - Phase 3
Workpaper Detail:	14247A.001 - Fire Risk Mitigation (FiRM)
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	2,462	5,416	10,001
Non-Labor	8,583	18,907	34,949
NSE	0	0	0
Total	**11,045**	**24,323**	**44,950**
FTE	24.6	54.2	100.1

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 14247A

14247 – Fire Risk Mitigation (FiRM) – Phase 3

This is a more detailed scope of work and unit cost breakdown for the FiRM project. The workpapers described the urgent need of this project, and why the timing is right to do it now. Overloaded poles and inadequate facilities will be addressed by all of the activities below. The program is front-loaded with fire hardening and wire replacement capital projects, and will then transition to pole loading assessments. The direct costs typically make up about half of the fully loaded costs for this type of work (based on past jobs).

Phase	Description	Comments
1a	1,200 Poles in 100+ MPH	100% Capital Hardening w/pre-defined scope
1b	6,000 Poles in Extreme PDZ	Combo: Wire replacement and selective hardening
2	30,000 Poles in HRFA	Projects from RIRAT: Hardening, Redonductor, Long Spans
3	40,000 Poles in FTZ	RIRAT Projects and Pole Loading

*Work in phases 1-3 to remedy FTZ only

2014	Unit Price	Units	Total Direct & Indirect Capital Cost	Total Direct Costs
Rebuild (All Poles & Wires)	$155/ft.	105,600	$16,368,000	$8,184,000
*Reconductor/Replace Poles That Fail Only	$105/ft.			
Pole Replacements	$20K/Pole	286	$5,720,000	$2,860,000
2015	**Unit Price**	**Units**	**Total Direct & Indirect Capital Cost**	**Total Direct Costs**
Rebuild (All Poles & Wires)	$155/ft.	76,000	$11,780,000	$5,890,000
*Reconductor/Replace Poles That Fail Only	$105/ft.	341,560	$35,863,800	$17,931,900
Pole Replacements	$20K/Pole	50	$1,000,000	$500,000
2016	**Unit Price**	**Units**	**Total Direct & Indirect Capital Cost**	**Total Direct Costs**
Rebuild (All Poles & Wires)	$155/ft.			
*Reconductor/Replace Poles That Fail Only	$105/ft.	646,680	$67,901,400	$33,950,700
Pole Replacements	$20K/Pole	1,100	$22,000,000	$11,000,000

*Reflects a 35% cost savings based on not requiring to change out all poles as part of the reconductor work. Only poles that fail will be replaced.

All costs are approximate streamlined estimates available at the time of the original filing. Final scope and costs will be determined based on Detailed DPSS (work management)

Beginning of Workpaper Group
14249A - SF6 Switch Replacement

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 14249.0
Category: I. SAFETY AND RISK MANAGEMENT
Category-Sub: 10. SF6 Switch Replacement
Workpaper Group: 14249A - SF6 Switch Replacement

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	4,284
Non-Labor	Zero-Based	0	0	0	0	0	0	0	5,604
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9,888**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.8

Business Purpose:

The purpose of this project is to proactively remove or replace sulfur hexafluoride (SF6) gas insulated distribution switchgear. SF6 switches were primary installed on SDG&E's electric distribution system during the 1980's and 1990's, as SF6 was the best insulation option available at that time. Since then, SF6 has been recognized by federal and state legislatures as a large contributor to elevated greenhouse gas levels, leading to the increased regulatory oversight in utility procedures involving SF6 switchgear. This project will reduce environmental risks associated with the potential for emissions. While the incremental cost to install monitoring equipment on substation circuit breakers is a small incremental cost, the cost to do the same for distribution would be greater than replacing the switch with a non-SF6 alternative.

Physical Description:

SF6 was used as an insulation medium in many distribution switches purchased by SDG&E in the 1980's and 1990's, as this was the primary insulation medium of choice for many utilities during this time. Since then, alternative insulation mediums have been adopted, making SF6 insulated switches the non-preferred option. All the switches removed or replaced as a part of this project are padmounted or sub-surface. With new technologies, many of the units can be replaced with a similar, non-gas insulated switches; however some switches will simply be removed while others may require a more involved switch change-out, including a circuit reconfiguration.

Project Justification:

The primary objective of this project is to reduce environmental risks associated with the potential for SF6 emissions. Sulfur hexafluoride is known to have a global warming potential of 23,900 times that of carbon dioxide, making its potential impact to global warming of interest. In an effort to reduce greenhouse gas emissions to 1990 levels, with a deadline to achieve by 2020, federal (EPA) & state (CARB) agencies have created respective regulations for utilities to adhere to. Both regulating agencies require utilities to track the "life" of a gas switch from "cradle-to-grave", as well as gas cylinder inventory and gas transfers in and out of switches. Removal and replacement of SF6 switches in SDG&E's distribution system will reduce the likelihood of SF6 emissions from leaking switches, thus reducing emissions rate. The switch change-outs will also reduce the amount of recordkeeping required, therefore reducing errors and increasing accuracy. Other efforts at SDG&E are underway to reduce SF6emissions risks, including leak detection and monitoring of substation gas breakers.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	14249.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	10. SF6 Switch Replacement
Workpaper Group:	14249A - SF6 Switch Replacement

Forecast Methodology:

Labor - Zero-Based

The forecast method used for SF6 Switch Replacement is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project (replacement of approximately 900 switches). In the case of this project, the historical unit cost for switch replacement, and cost estimates for switch replacements were analyzed to come up with a reasonable unit cost; that unit cost was multiplied by the number of units in service, to come up with the total project cost. That cost was then spread over a 5-year period starting in 2016. The leak rate requirement will hit the most conservative level in 2020. A 1% leak rate will be imposed on owners of SF6 equipment.SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates.

Non-Labor - Zero-Based

The forecast method used for SF6 Switch Replacement is zero-based. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project (replacement of approximately 900 switches). In the case of this project, the historical unit cost for switch replacement, and cost estimates for switch replacements were analyzed to come up with a reasonable unit cost; that unit cost was multiplied by the number of units in service, to come up with the total project cost. That cost was then spread over a 5-year period starting in 2016. The leak rate requirement will hit the most conservative level in 2020. A 1% leak rate will be imposed on owners of SF6 equipment.SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates.

NSE - Zero-Based

N/A

Beginning of Workpaper Sub Details for
Workpaper Group 14249A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	14249.0
Category:	I. SAFETY AND RISK MANAGEMENT
Category-Sub:	10. SF6 Switch Replacement
Workpaper Group:	14249A - SF6 Switch Replacement
Workpaper Detail:	14249A.001 - SF6 Distribution Switch Replacement Program
In-Service Date:	Not Applicable

Description:

This project will span over a five year period from 2016-2020.

Forecast In 2013 $(000)

Years	2014	2015	2016
Labor	0	0	4,284
Non-Labor	0	0	5,604
NSE	0	0	0
Total	**0**	**0**	**9,888**
FTE	0.0	0.0	42.8

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 14249A

14249 - SF6 Switch Replacement

Sulfer Hexaflouride (SF6) has been classified as a greenhouse gas. SF6 is used as a dielectric under modest pressure in certain switchgear and may become prone to leakage, hence the move to replace these type switches. The estimating process uses historical data from switch replacements jobs from 2011-2013. These jobs were charged to a similar budget, which addresses only DOE (Do Not Operate Energized) switches, including some SF6 switches. In total, 127 jobs were used in developing costs for replacing approximately 1,000 SF6 switches over a five year period. The average cost of these 127 jobs was found to be $50,000, unloaded, in 2013 equivalent dollars. With approximately 1,000 SF6 switches in the system it would cost $9,888,000, in 2013 dollars, per year to replace 200 switches. SDG&E has chosen to do the proposed project starting in 2016, and extending five years, to minimize regulatory risks associated with reporting and adhering to maximum emissions rates (set at 1% emissions for 2020). Removal and replacement of SF6 switches in SDG&E's distribution system will reduce the likelihood of SF6 emissions from leaking switches, thus reducing emission rates. The switch change-outs will also reduce the amount of recordkeeping required, therefore reducing errors and increasing accuracy.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: J. SMART METER PROGRAM
Workpaper: 042500

Summary for Category: J. SMART METER PROGRAM

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	626	1,116	0	0
Non-Labor	1,832	0	0	0
NSE	0	0	0	0
Total	**2,458**	**1,116**	**0**	**0**
FTE	6.2	10.1	0.0	0.0

042500 SMART METER PROJECT-METER DEVELOPMENT

Labor	626	1,116	0	0
Non-Labor	1,832	0	0	0
NSE	0	0	0	0
Total	**2,458**	**1,116**	**0**	**0**
FTE	6.2	10.1	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
042500 - SMART METER PROJECT-METER DEVELOPMENT

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 04250.0
Category: J. SMART METER PROGRAM
Category-Sub: 1. SMART METER PROJECT-METER DEVELOPMENT
Workpaper Group: 042500 - SMART METER PROJECT-METER DEVELOPMENT

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	286	762	1,225	1,767	626	1,116	0	0
Non-Labor	Zero-Based	28,546	143,245	44,262	11,064	1,832	0	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**28,831**	**144,007**	**45,486**	**12,832**	**2,458**	**1,116**	**0**	**0**
FTE	Zero-Based	4.1	8.6	11.6	15.3	6.2	10.1	0.0	0.0

Business Purpose:

The purpose of the Smart Meter project was to deploy "intelligent" meters that could be read/viewed and operated remotely. The Smart Meter project increased operational efficiency, and reduced the need to have field personnel perform meter reading activities. Smart Meters also created the opportunity for the Distribution Operations center to gain better outage visibility.
This project is required to replace the remaining smart meters that were unable to be installed by year end 2011. The remaining meters post 2011 were the result of anticipated meter access issues, technology availability issues and additional system changes that are required to install electric meters requiring complex billing. The primary objective is to install as many of the remaining smart meters as is practical. The majority of the smart meters remaining to be installed in 2014 are Commercial and Industrial meters. The costs for these installations were approved in the Smart Meter petition for modification extending the recovery period for the AMI balancing account.

Physical Description:

Approximately 2,288,000 smart meters have been deployed to date in San Diego and South Orange County. The forecast in 2014 accounts for the installation of 2,800 more units, not including meters of residential customers whom have elected to opt-out of wireless smart meters. The project is scheduled to be completed in 2014. The electric smart meter installations in this project include the replacement of legacy electric meters. The project covers all production types of meters and will cover technology related costs to provide remote communications to the meters.

Project Justification:

Smart meters were deployed for efficiency reasons, data analytics reasons, operational benefits, and for enhanced meter visibility and control. This project was approved as part of the original smart meter project and petition for modification. It is required to be completed in order to meet the business case requirements.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	04250.0
Category:	J. SMART METER PROGRAM
Category-Sub:	1. SMART METER PROJECT-METER DEVELOPMENT
Workpaper Group:	042500 - SMART METER PROJECT-METER DEVELOPMENT

Forecast Methodology:

Labor - Zero-Based

The 2014 forecast reflects the cost estimate for the remaining work associated with the Smart Meter project. The estimate is based on actual historical costs and the projected remaining workload for 2014.

Non-Labor - Zero-Based

There aren't any costs forecasted for non-labor.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 04250.0
Category: J. SMART METER PROGRAM
Category-Sub: 1. SMART METER PROJECT-METER DEVELOPMENT
Workpaper Group: 042500 - SMART METER PROJECT-METER DEVELOPMENT

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	1,116	0	0	0	0	0	1,116	0	0
Non-Labor	Zero-Based	0	0	0	0	0	0	0	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**1,116**	**0**	**0**	**0**	**0**	**0**	**1,116**	**0**	**0**
FTE	Zero-Based	10.1	0.0	0.0	0.0	0.0	0.0	10.1	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 04250.0
Category: J. SMART METER PROGRAM
Category-Sub: 1. SMART METER PROJECT-METER DEVELOPMENT
Workpaper Group: 042500 - SMART METER PROJECT-METER DEVELOPMENT

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	215	595	1,008	1,508	540
Non-Labor	24,921	129,668	41,783	10,806	1,832
NSE	0	0	0	0	0
Total	**25,136**	**130,264**	**42,791**	**12,314**	**2,372**
FTE	3.5	7.3	10.0	13.2	5.3
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	-112	-3	0	0	0
NSE	0	0	0	0	0
Total	**-112**	**-3**	**0**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	215	595	1,008	1,508	540
Non-Labor	24,809	129,665	41,783	10,806	1,832
NSE	0	0	0	0	0
Total	**25,024**	**130,261**	**42,791**	**12,314**	**2,372**
FTE	3.5	7.3	10.0	13.2	5.3
Vacation & Sick (Nominal $)					
Labor	33	95	148	218	86
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**33**	**95**	**148**	**218**	**86**
FTE	0.6	1.3	1.6	2.1	0.9
Escalation to 2013$					
Labor	37	72	69	41	0
Non-Labor	3,737	13,580	2,479	258	0
NSE	0	0	0	0	0
Total	**3,774**	**13,652**	**2,547**	**299**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	286	762	1,225	1,767	626
Non-Labor	28,546	143,245	44,262	11,064	1,832
NSE	0	0	0	0	0
Total	**28,831**	**144,007**	**45,486**	**12,832**	**2,458**
FTE	4.1	8.6	11.6	15.3	6.2

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 04250.0
Category: J. SMART METER PROGRAM
Category-Sub: 1. SMART METER PROJECT-METER DEVELOPMENT
Workpaper Group: 042500 - SMART METER PROJECT-METER DEVELOPMENT

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	-112	-3	0	0	0
NSE	0	0	0	0	0
Total	**-112**	**-3**	**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	0	-112	0	-112	0.0	CPWITT20131030140112
Adjustment made to exclude 15% of General Plant.						
2009 Total	0	-112	0	-112	0.0	
2010	0	-3	0	-3	0.0	CPWITT20131030154717
Adjustment made to exclude 15% of General Plant.						
2010 Total	0	-3	0	-3	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 042500

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	04250.0
Category:	J. SMART METER PROGRAM
Category-Sub:	1. SMART METER PROJECT-METER DEVELOPMENT
Workpaper Group:	042500 - SMART METER PROJECT-METER DEVELOPMENT
Workpaper Detail:	042500.001 - Smart Meter Project - Meter Development
In-Service Date:	12/31/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1,116	0	0
Non-Labor	0	0	0
NSE	0	0	0
Total	**1,116**	**0**	**0**
FTE	10.1	0.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Workpaper: VARIOUS

Summary for Category: K. TRANSMISSION/FERC DRIVEN PROJECTS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	402	2,018	3,931	2,776
Non-Labor	6,924	12,314	14,505	9,406
NSE	0	276	744	348
Total	**7,326**	**14,608**	**19,180**	**12,530**
FTE	4.1	20.4	39.1	27.5
001000 ELEC TRANS LINE RELIABILITY PROJECTS				
Labor	20	100	100	100
Non-Labor	539	945	945	945
NSE	0	0	0	0
Total	**559**	**1,045**	**1,045**	**1,045**
FTE	0.1	0.8	0.8	0.8
091660 TL13821 & 28-FANITA JUNCTION ENHANCE				
Labor	0	1	56	0
Non-Labor	0	7	564	0
NSE	0	0	0	0
Total	**0**	**8**	**620**	**0**
FTE	0.0	0.1	0.6	0.0
10135A Los Coches Rebuild 138/69/12kV Substation				
Labor	0	934	2,184	1,946
Non-Labor	0	5,592	2,208	2,940
NSE	0	276	744	348
Total	**0**	**6,802**	**5,136**	**5,234**
FTE	0.0	9.3	21.8	19.5
10150A TL13833 Wood to Steel				
Labor	0	26	0	0
Non-Labor	0	259	0	0
NSE	0	0	0	0
Total	**0**	**285**	**0**	**0**
FTE	0.0	0.3	0.0	0.0
11126A TL663 Mission to Kearny Reconductor				
Labor	0	2	1	0
Non-Labor	0	47	16	0
NSE	0	0	0	0
Total	**0**	**49**	**17**	**0**
FTE	0.0	0.1	0.1	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Workpaper: VARIOUS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
11127A TL670 Mission to Clairemont Reconductor				
Labor	0	3	0	0
Non-Labor	0	49	0	0
NSE	0	0	0	0
Total	**0**	**52**	**0**	**0**
FTE	0.0	0.1	0.0	0.0
12154A TL631 Reconductor Project				
Labor	0	0	246	0
Non-Labor	0	0	1,936	0
NSE	0	0	0	0
Total	**0**	**0**	**2,182**	**0**
FTE	0.0	0.0	2.5	0.0
12156A TL600 Reliability Pole Replacements				
Labor	0	5	0	0
Non-Labor	0	125	0	0
NSE	0	0	0	0
Total	**0**	**130**	**0**	**0**
FTE	0.0	0.1	0.0	0.0
13130A Loop TL674 Into Del Mar and RFS TL666D				
Labor	0	0	0	132
Non-Labor	0	0	0	1,037
NSE	0	0	0	0
Total	**0**	**0**	**0**	**1,169**
FTE	0.0	0.0	0.0	1.3
13143A TL 695B Reconductor				
Labor	0	0	0	119
Non-Labor	0	0	0	339
NSE	0	0	0	0
Total	**0**	**0**	**0**	**458**
FTE	0.0	0.0	0.0	1.2
001020 ELEC TRANS LINE RELOCATION PROJECTS				
Labor	1	3	3	3
Non-Labor	3	47	47	47
NSE	0	0	0	0
Total	**4**	**50**	**50**	**50**
FTE	0.1	0.1	0.1	0.1
061320 RELOCATE SOUTH BAY SUBSTATION				
Labor	0	185	480	2
Non-Labor	0	109	1,017	214
NSE	0	0	0	0
Total	**0**	**294**	**1,497**	**216**
FTE	0.0	1.9	4.8	0.1

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Workpaper: VARIOUS

	In 2013$ (000)			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
071390 ECO SUBSTATION				
Labor	81	141	0	0
Non-Labor	3,996	1,467	0	0
NSE	0	0	0	0
Total	**4,077**	**1,608**	**0**	**0**
FTE	0.9	1.4	0.0	0.0
071440 FIBER OPTIC FOR RELAY PROTECT & TELECOM				
Labor	262	280	280	280
Non-Labor	2,115	1,856	1,856	1,856
NSE	0	0	0	0
Total	**2,377**	**2,136**	**2,136**	**2,136**
FTE	2.6	2.6	2.6	2.6
081650 Cleveland National Forest Power Line Replacement Projects				
Labor	38	61	364	194
Non-Labor	263	119	3,737	2,028
NSE	0	0	0	0
Total	**301**	**180**	**4,101**	**2,222**
FTE	0.4	0.7	3.6	1.9
091250 TL 637 CRE-ST Wood to Steel				
Labor	0	269	0	0
Non-Labor	-10	1,590	0	0
NSE	0	0	0	0
Total	**-10**	**1,859**	**0**	**0**
FTE	0.0	2.7	0.0	0.0
091360 TL6914 Los Coches-Loveland Wood to Steel				
Labor	0	5	217	0
Non-Labor	18	53	2,179	0
NSE	0	0	0	0
Total	**18**	**58**	**2,396**	**0**
FTE	0.0	0.1	2.2	0.0
09153A TL676 MIssion to Mesa Heights Reconductor				
Labor	0	3	0	0
Non-Labor	0	49	0	0
NSE	0	0	0	0
Total	**0**	**52**	**0**	**0**
FTE	0.0	0.1	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
001000 - ELEC TRANS LINE RELIABILITY PROJECTS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00100.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 1. ELEC TRANS LINE RELIABILITY PROJECTS
Workpaper Group: 001000 - ELEC TRANS LINE RELIABILITY PROJECTS

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	124	112	234	10	20	100	100	100
Non-Labor	5-YR Average	1,160	852	1,343	833	539	945	945	945
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**1,284**	**965**	**1,576**	**843**	**559**	**1,045**	**1,045**	**1,045**
FTE	5-YR Average	0.8	0.9	2.3	0.0	0.1	0.8	0.8	0.8

Business Purpose:

FERC Driven Project - To meet SDG&E's obligation to serve and the safety requirements promulgated by CPUC G.O. 95, A.B. 1890, A.B. 1017, etc., this project provides funds for several purposes, such as:
1. To restore degraded transmission facilities.
2. To repair the system in the event of disaster such as storm or fire.
3. To cover small (under $750,000) projects for restoring the system which are not identified during the annual review study process.
4. To provide funding for a pole restoration program for in service transmission wood poles.
5. To provide funding for annual NERC and Tie Line Assessments (TLA)

Physical Description:

This budget covers transmission projects under $750K. The majority of the activities that fall under this blanket budget are necessary to comply with Federal, State, and Local regulations. Activities include poles that need to be replaced due to deterioration or calculated overloads, and capital repairs related to inspections (visual, infrared, LiDAR, etc.).

Project Justification:

The work completed under this budget is to comply with SDG&E's obligation to serve and meet safety requirements set by General Orders and other regulations.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00100.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	1. ELEC TRANS LINE RELIABILITY PROJECTS
Workpaper Group:	001000 - ELEC TRANS LINE RELIABILITY PROJECTS

Forecast Methodology:

Labor - 5-YR Average

Activities in this budget tend to be the same from year to year, so a 5-year average was used to develop the forecast for this project.

Non-Labor - 5-YR Average

Activities in this budget tend to be the same from year to year, so a 5-year average was used to develop the forecast for this project.

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00100.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 1. ELEC TRANS LINE RELIABILITY PROJECTS
Workpaper Group: 001000 - ELEC TRANS LINE RELIABILITY PROJECTS

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	99	99	99	0	0	0	99	99	99
Non-Labor	5-YR Average	945	945	945	0	0	0	945	945	945
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**1,044**	**1,044**	**1,044**	**0**	**0**	**0**	**1,044**	**1,044**	**1,044**
FTE	5-YR Average	0.8	0.8	0.8	0.0	0.0	0.0	0.8	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00100.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 1. ELEC TRANS LINE RELIABILITY PROJECTS
Workpaper Group: 001000 - ELEC TRANS LINE RELIABILITY PROJECTS

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	19	17	15	8	17
Non-Labor	664	465	905	643	320
NSE	0	0	0	0	0
Total	**684**	**482**	**920**	**652**	**337**
FTE	0.1	0.1	0.1	0.0	0.1
Adjustments (Nominal $) **					
Labor	74	71	178	0	0
Non-Labor	345	308	364	171	218
NSE	0	0	0	0	0
Total	**419**	**379**	**542**	**171**	**219**
FTE	0.6	0.7	1.9	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	93	88	193	8	17
Non-Labor	1,010	773	1,269	814	539
NSE	0	0	0	0	0
Total	**1,103**	**861**	**1,462**	**823**	**556**
FTE	0.7	0.8	2.0	0.0	0.1
Vacation & Sick (Nominal $)					
Labor	14	14	28	1	3
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**14**	**14**	**28**	**1**	**3**
FTE	0.1	0.1	0.3	0.0	0.0
Escalation to 2013$					
Labor	16	10	12	0	0
Non-Labor	150	80	74	19	0
NSE	0	0	0	0	0
Total	**166**	**90**	**86**	**19**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	124	112	234	10	20
Non-Labor	1,160	852	1,343	833	539
NSE	0	0	0	0	0
Total	**1,284**	**965**	**1,576**	**843**	**559**
FTE	0.8	0.9	2.3	0.0	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00100.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 1. ELEC TRANS LINE RELIABILITY PROJECTS
Workpaper Group: 001000 - ELEC TRANS LINE RELIABILITY PROJECTS

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	74	71	178	0	0
Non-Labor	345	308	364	171	218
NSE	0	0	0	0	0
Total	**419**	**379**	**542**	**171**	**219**
FTE	0.6	0.7	1.9	0.0	0.0

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	74	345	0	419	0.6	EAMARE2013103017292
Adjustment made to include 85% of General Plant.						
2009 Total	74	345	0	419	0.6	
2010	71	308	0	379	0.7	EAMARE2013103017295
Adjustment made to include 85% of General Plant.						
2010 Total	71	308	0	379	0.7	
2011	178	364	0	542	1.9	EAMARE2013103017301
Adjustment made to include 85% of General Plant.						
2011 Total	178	364	0	542	1.9	
2012	0	171	0	171	0.0	EAMARE2013103017302
Adjustment made to include 85% of General Plant.						
2012 Total	0	171	0	171	0.0	
2013	0.178	218	0	219	0.0	CPWITT20140212145247
Adjustment made to include 85% of General Plant.						
2013 Total	0.178	218	0	219	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 001000

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00100.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	1. ELEC TRANS LINE RELIABILITY PROJECTS
Workpaper Group:	001000 - ELEC TRANS LINE RELIABILITY PROJECTS
Workpaper Detail:	001000.001 - Transmission Project Under $750K
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	100	100	100
Non-Labor	945	945	945
NSE	0	0	0
Total	**1,045**	**1,045**	**1,045**
FTE	0.8	0.8	0.8

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper Group 001000

202 - Electric Meters and Regulators and 214 - Transformers

SDG&E develops budgets annually, typically in Q3-Q4 of the current year for the following year, for electric meter and transformer purchases. These budgets are primarily based on historical usage volume for all work including maintenance, reliability, conversions, new business, etc. SDG&E incorporates upstream projections for use as available. This includes a projected change (+/-) in New Business. The New Business forecast is developed elsewhere within SDG&E and disseminated in quantities of "Construction Units" annually. Any one year is compared to a previous year and reduced to a percentage. That percentage is then used as a starting point to ascertain an increase or decrease in New Business for budget development.

Beginning of Workpaper Group
001020 - ELEC TRANS LINE RELOCATION PROJECTS

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00102.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 2. ELEC TRANS LINE RELOCATION PROJECTS
Workpaper Group: 001020 - ELEC TRANS LINE RELOCATION PROJECTS

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	6	4	2	2	1	3	3	3
Non-Labor	5-YR Average	27	170	38	0	3	47	47	47
NSE	5-YR Average	0	0	0	0	0	0	0	0
Total		**33**	**174**	**40**	**2**	**4**	**50**	**50**	**50**
FTE	5-YR Average	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Business Purpose:

The Budget Project provides a holding fund for payments received from developers and government agencies for developer/agency requested relocation of SDG&E electric transmission facilities. While this budget is intended to be a zero-balance budget, there are times where incremental work is necessary due to unforeseen circumstances or to account for future electric system projects.

Physical Description:

Electric transmission relocation projects

Project Justification:

The work scope, schedule, cash flow, and total cost of each relocation project completed under this budget project are substantially controlled by the developer/agency requesting the relocation and are subject to frequent revisions. As such, the balance of the budget may not be zero at the end of a particular month or year. In addition, the need may arise to perform incremental work due to unforeseen circumstances or to account for future electric system projects.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00102.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	2. ELEC TRANS LINE RELOCATION PROJECTS
Workpaper Group:	001020 - ELEC TRANS LINE RELOCATION PROJECTS

Forecast Methodology:

Labor - 5-YR Average

Activities in this budget tend to be the same from year to year, so a 5-year average was used to develop the forecast for this project. Also, activities in this area are difficult to anticipate, which makes the average even more appropriate.

Non-Labor - 5-YR Average

Activities in this budget tend to be the same from year to year, so a 5-year average was used to develop the forecast for this project. Also, activities in this area are difficult to anticipate, which makes the average even more appropriate.

NSE - 5-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00102.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 2. ELEC TRANS LINE RELOCATION PROJECTS
Workpaper Group: 001020 - ELEC TRANS LINE RELOCATION PROJECTS

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	0	0	0	3	3	3
Non-Labor	5-YR Average	47	47	47	0	0	0	47	47	47
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**50**	**50**	**50**	**0**	**0**	**0**	**50**	**50**	**50**
FTE	5-YR Average	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00102.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 2. ELEC TRANS LINE RELOCATION PROJECTS
Workpaper Group: 001020 - ELEC TRANS LINE RELOCATION PROJECTS

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	5	2	1	2	1
Non-Labor	23	-334	11	0	-9
NSE	0	0	0	0	0
Total	**28**	**-332**	**11**	**1**	**-8**
FTE	0.0	0.0	0.0	0.0	0.0
Adjustments (Nominal $) **					
Labor	0	1	1	0	0
Non-Labor	0	490	25	0	12
NSE	0	0	0	0	0
Total	**0**	**491**	**26**	**0**	**12**
FTE	0.1	0.1	0.1	0.1	0.1
Recorded-Adjusted (Nominal $)					
Labor	5	3	2	2	1
Non-Labor	23	156	36	0	3
NSE	0	0	0	0	0
Total	**28**	**159**	**38**	**2**	**4**
FTE	0.1	0.1	0.1	0.1	0.1
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	14	2	0	0
NSE	0	0	0	0	0
Total	**4**	**14**	**2**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	6	4	2	2	1
Non-Labor	27	170	38	0	3
NSE	0	0	0	0	0
Total	**33**	**174**	**40**	**2**	**4**
FTE	0.1	0.1	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00102.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 2. ELEC TRANS LINE RELOCATION PROJECTS
Workpaper Group: 001020 - ELEC TRANS LINE RELOCATION PROJECTS

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	1	1	0	0
Non-Labor	0	490	25	0	12
NSE	0	0	0	0	0
Total	**0**	**491**	**26**	**0**	**12**
FTE	0.1	0.1	0.1	0.1	0.1

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 00102.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 2. ELEC TRANS LINE RELOCATION PROJECTS
Workpaper Group: 001020 - ELEC TRANS LINE RELOCATION PROJECTS

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	0	0	0	0.1	CBUTLER201403271146
Adjustment for FTE allocation						
	0	-0.173	0	-0.173	0.0	CPWITT20131029160237
Adjustment made to remove CIAC from historical costs.						
2009 Total	0	-0.173	0	-0.173	0.1	
2010	0.859	65	0	65	0.1	CPWITT20131029160020
Adjustment made to include 85% of General Plant.						
	0	425	0	425	0.0	CPWITT20131029160209
Adjustment made to remove CIAC from historical costs.						
2010 Total	0.859	490	0	491	0.1	
2011	0	17	0	17	0.0	CPWITT20131029160259
Adjustment made to remove CIAC from historical costs.						
	1	8	0	9	0.1	CPWITT20131029160730
Adjustment made to include 85% of General Plant.						
2011 Total	1	25	0	26	0.1	
2012	0	0	0	0	0.1	CBUTLER201403271146
Adjustment for FTE allocation						
	0	0.457	0	0.457	0.0	CPWITT20131029160624
Adjustment made to remove CIAC from historical costs.						
2012 Total	0	0.457	0	0.457	0.1	
2013	0	12	0	12	0.0	CBUTLER201402040942
Adjustment made to remove CIAC from historical costs.						
	0	0	0	0	0.1	CBUTLER201403271146
Adjustment for FTE allocation						
2013 Total	0	12	0	12	0.1	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 001020

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	00102.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	2. ELEC TRANS LINE RELOCATION PROJECTS
Workpaper Group:	001020 - ELEC TRANS LINE RELOCATION PROJECTS
Workpaper Detail:	001020.001 - Electric Transmission line Relocation Projects Blanket
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	3	3	3
Non-Labor	47	47	47
NSE	0	0	0
Total	**50**	**50**	**50**
FTE	0.1	0.1	0.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
061320 - RELOCATE SOUTH BAY SUBSTATION

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06132.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 3. RELOCATE SOUTH BAY SUBSTATION
Workpaper Group: 061320 - RELOCATE SOUTH BAY SUBSTATION

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	10	0	0	185	480	2
Non-Labor	Zero-Based	0	0	10	2	0	109	1,017	214
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**20**	**2**	**0**	**294**	**1,497**	**216**
FTE	Zero-Based	0.0	0.0	0.1	0.0	0.0	1.9	4.8	0.1

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

The purpose of this CAISO and CPUC (Energy Division) approved project will replace the existing 138/69kV with a new 230/69/12kV substation and relocate the new Bay Boulevard substation property south of the existing substation. The new substation will replace aging infrastructure, mitigate intra zonal congestion and provide for future load growth.

Physical Description:

The project will replace and relocate the existing 138/69kV substation with a new 230/69/12kV substation to the new Bay Boulevard property south of the existing substation.

Project Justification:

South Bay substation is over 50 years old and it has been a reliability concern for SDG&E for several years. South Bay bank 50 is on the SEA Team watch list, and all the circuit breakers are due for replacement. The 138 kV bus is undersized, and the structural components are not built to modern seismic criteria. In addition, South Bay Power Plant retired at the end of 2009, which removed the strong source serving the 69 kV bus at South Bay substation. A new source to serve 69 kV load is needed without the generator that is presently connected to the South Bay 69 kV bus. In addition, the City of Chula Vista has plans to redevelop their bayfront so the substation will be moved .5 miles to the south.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	06132.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	3. RELOCATE SOUTH BAY SUBSTATION
Workpaper Group:	061320 - RELOCATE SOUTH BAY SUBSTATION

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06132.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 3. RELOCATE SOUTH BAY SUBSTATION
Workpaper Group: 061320 - RELOCATE SOUTH BAY SUBSTATION

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	185	480	2	0	0	0	185	480	2
Non-Labor	Zero-Based	109	1,017	214	0	0	0	109	1,017	214
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**294**	**1,497**	**216**	**0**	**0**	**0**	**294**	**1,497**	**216**
FTE	Zero-Based	1.9	4.8	0.1	0.0	0.0	0.0	1.9	4.8	0.1

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06132.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 3. RELOCATE SOUTH BAY SUBSTATION
Workpaper Group: 061320 - RELOCATE SOUTH BAY SUBSTATION

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	193	69	0
Non-Labor	0	0	1,584	859	0
NSE	0	0	0	0	0
Total	**0**	**0**	**1,776**	**928**	**0**
FTE	0.0	0.0	1.9	0.7	0.0
Adjustments (Nominal $) **					
Labor	0	0	-185	-69	0
Non-Labor	0	0	-1,581	-859	0
NSE	0	0	0	0	0
Total	**0**	**0**	**-1,766**	**-928**	**0**
FTE	0.0	0.0	-1.8	-0.7	0.0
Recorded-Adjusted (Nominal $)					
Labor	0	0	8	0	0
Non-Labor	0	0	3	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**10**	**0**	**0**
FTE	0.0	0.0	0.1	0.0	0.0
Vacation & Sick (Nominal $)					
Labor	0	0	1	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**1**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2013$					
Labor	0	0	1	0	0
Non-Labor	0	0	7	2	0
NSE	0	0	0	0	0
Total	**0**	**0**	**9**	**2**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	0	10	0	0
Non-Labor	0	0	10	2	0
NSE	0	0	0	0	0
Total	**0**	**0**	**20**	**2**	**0**
FTE	0.0	0.0	0.1	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06132.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 3. RELOCATE SOUTH BAY SUBSTATION
Workpaper Group: 061320 - RELOCATE SOUTH BAY SUBSTATION

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	-185	-69	0
Non-Labor	0	0	-1,581	-859	0
NSE	0	0	0	0	0
Total	**0**	**0**	**-1,766**	**-928**	**0**
FTE	0.0	0.0	-1.8	-0.7	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	-185	-1,581	0	-1,766	-1.8	CPWITT20131030163204
Adjustment made to exclude Electric Transmission charges.						
2011 Total	-185	-1,581	0	-1,766	-1.8	
2012	-69	-859	0	-928	-0.7	CPWITT20131030163313
Adjustment made to exclude Electric Transmission charges.						
2012 Total	-69	-859	0	-928	-0.7	
2013 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 061320

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	06132.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	3. RELOCATE SOUTH BAY SUBSTATION
Workpaper Group:	061320 - RELOCATE SOUTH BAY SUBSTATION
Workpaper Detail:	061320.001 - Southbay Substation Relocation - ISD #1
In-Service Date:	12/31/2015
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	182	405	0
Non-Labor	28	904	0
NSE	0	0	0
Total	**210**	**1,309**	**0**
FTE	1.8	4.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06132.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 3. RELOCATE SOUTH BAY SUBSTATION
Workpaper Group: 061320 - RELOCATE SOUTH BAY SUBSTATION
Workpaper Detail: 061320.002 - South Bay Substation Relocation ISD #2

In-Service Date: 03/31/2016
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	72	0
Non-Labor	0	34	126
NSE	0	0	0
Total	**0**	**106**	**126**
FTE	0.0	0.7	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 06132.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 3. RELOCATE SOUTH BAY SUBSTATION
Workpaper Group: 061320 - RELOCATE SOUTH BAY SUBSTATION
Workpaper Detail: 061320.003 - South Bay Substation Relocation ISD #3

In-Service Date: 12/31/2016
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	3	3	2
Non-Labor	81	79	88
NSE	0	0	0
Total	**84**	**82**	**90**
FTE	0.1	0.1	0.1

Note: Totals may include rounding differences.

Beginning of Workpaper Group
071390 - ECO SUBSTATION

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07139.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 4. ECO SUBSTATION
Workpaper Group: 071390 - ECO SUBSTATION

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	3	4	34	81	141	0	0
Non-Labor	Zero-Based	0	17	30	7,624	3,996	1,467	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**20**	**34**	**7,657**	**4,077**	**1,608**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.1	0.3	0.9	1.4	0.0	0.0

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

In the case of this project, the Business Purpose is to install a 500/230/138kV substation (ECO Substation) on the Southwest Power Link (SWPL) in eastern San Diego County, install a new 14-mile 138kV transmission line from ECO Substation to Boulevard Substation, and rebuild Boulevard Substation to create a new 138/69/12kV substation. The primary purpose of this project is to integrate large scale renewables into the grid. A secondary benefit, is the creation of a new/second source to Boulevard Substation and Crestwood Substation, which are currently radially fed from the west.

Physical Description:

This project will install a 500/230/138kV substation on the Southwest Power Link (SWPL) in eastern San Diego County. The primary purpose of this substation is to provide a point of interconnection for renewable energy projects in the East County and Mexico. Additionally, a transmission line will connect East County Substation (ECO) to the rebuilt Boulevard Substation, providing a second feed to this portion of the electric system. The project includes:

- Construction for the ECO Substation (500/230/138kV)
- Loop in SWPL at ECO Substation
- Rebuild of Boulevard Substation (138/69/12kV)
- Construction of approximately 14 miles of 138kV transmission line between ECO and Boulevard Substations

Project Justification:

This project provides two new points for renewable projects to interconnect 600MW at Boulevard and 1200MW at ECO. The project also provides a second transmission source to Boulevard, and Improves reliability to the entire East County transmission system.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	07139.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	4. ECO SUBSTATION
Workpaper Group:	071390 - ECO SUBSTATION

Forecast Methodology:

Labor - Zero-Based

This project is currently in construction, and scheduled to be completed by the end of 2014. This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. The remaining costs are known for this project, as contracts are in place, equipment has been purchased, and construction activities are being tracked closely.

Non-Labor - Zero-Based

This project is currently in construction, and scheduled to be completed by the end of 2014. This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. The remaining costs are known for this project, as contracts are in place, equipment has been purchased, and construction activities are being tracked closely.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07139.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 4. ECO SUBSTATION
Workpaper Group: 071390 - ECO SUBSTATION

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	141	0	0	0	0	0	141	0	0
Non-Labor	Zero-Based	1,467	0	0	0	0	0	1,467	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**1,608**	**0**	**0**	**0**	**0**	**0**	**1,608**	**0**	**0**
FTE	Zero-Based	1.4	0.0	0.0	0.0	0.0	0.0	1.4	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07139.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 4. ECO SUBSTATION
Workpaper Group: 071390 - ECO SUBSTATION

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	489	550	1,757	0
Non-Labor	0	3,856	4,293	49,597	3,470
NSE	0	0	0	0	0
Total	**0**	**4,346**	**4,843**	**51,355**	**3,471**
FTE	0.0	5.0	5.7	18.9	0.0
Adjustments (Nominal $) **					
Labor	0	-489	-549	-1,732	70
Non-Labor	0	-3,856	-4,283	-42,237	526
NSE	0	0	0	0	0
Total	**0**	**-4,346**	**-4,831**	**-43,970**	**596**
FTE	0.0	-5.0	-5.6	-18.6	0.8
Recorded-Adjusted (Nominal $)					
Labor	0	0	1	25	70
Non-Labor	0	0	10	7,360	3,996
NSE	0	0	0	0	0
Total	**0**	**0**	**11**	**7,385**	**4,066**
FTE	0.0	0.0	0.1	0.3	0.8
Vacation & Sick (Nominal $)					
Labor	0	0	0	4	11
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**4**	**11**
FTE	0.0	0.0	0.0	0.0	0.1
Escalation to 2013$					
Labor	0	3	3	5	0
Non-Labor	0	17	20	264	0
NSE	0	0	0	0	0
Total	**0**	**20**	**23**	**269**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	3	4	34	81
Non-Labor	0	17	30	7,624	3,996
NSE	0	0	0	0	0
Total	**0**	**20**	**34**	**7,657**	**4,077**
FTE	0.0	0.0	0.1	0.3	0.9

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07139.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 4. ECO SUBSTATION
Workpaper Group: 071390 - ECO SUBSTATION

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	-489	-549	-1,732	70
Non-Labor	0	-3,856	-4,283	-42,237	526
NSE	0	0	0	0	0
Total	**0**	**-4,346**	**-4,831**	**-43,970**	**596**
FTE	0.0	-5.0	-5.6	-18.6	0.8

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009 Total	0	0	0	0	0.0	
2010	-489	-3,856	0	-4,346	-5.0	CPWITT20131030175436
Adjustment made to exclude Electric Transmission charges.						
2010 Total	-489	-3,856	0	-4,346	-5.0	
2011	-0.189	-2	0	-2	0.0	CPWITT20131030175315
Adjustment made to exclude 15% of General Plant.						
	-548	-4,281	0	-4,829	-5.6	CPWITT20131030175509
Adjustment made to exclude Electric Transmission charges.						
2011 Total	-549	-4,283	0	-4,831	-5.6	
2012	-4	-1,299	0	-1,303	-0.1	CPWITT20131030175339
Adjustment made to exclude 15% of General Plant.						
	-1,728	-40,939	0	-42,666	-18.5	CPWITT20131030175540
Adjustment made to exclude Electric Transmission charges.						
2012 Total	-1,732	-42,237	0	-43,970	-18.6	
2013	70	526	0	596	0.8	CPWITT20140212142951
Adjustment made to include 85% of General Plant.						
2013 Total	70	526	0	596	0.8	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 071390

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	07139.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	4. ECO SUBSTATION
Workpaper Group:	071390 - ECO SUBSTATION
Workpaper Detail:	071390.001 - Eco Substation - CPUC Directs
In-Service Date:	11/30/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	141	0	0
Non-Labor	1,467	0	0
NSE	0	0	0
Total	**1,608**	**0**	**0**
FTE	1.4	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07144.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 5. FIBER OPTIC FOR RELAY PROTECT & TELECOM
Workpaper Group: 071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM

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

Forecast Method		Adjusted Recorded					Adjusted Forecast		
Years		2009	2010	2011	2012	2013	2014	2015	2016
Labor	3-YR Average	94	52	69	510	262	280	280	280
Non-Labor	3-YR Average	761	2,075	1,477	1,974	2,115	1,856	1,856	1,856
NSE	3-YR Average	0	0	0	0	0	0	0	0
Total		**855**	**2,127**	**1,546**	**2,485**	**2,377**	**2,136**	**2,136**	**2,136**
FTE	3-YR Average	0.7	0.5	0.7	4.5	2.6	2.6	2.6	2.6

Business Purpose:

This project provides funds for the installation, upgrade, and expansion of SDG&E's Fiber Optic communication system for Control & Protection of Transmission and Distribution lines, and automation. Besides Control and Protection, secure fiber optic communication is required for transporting large amount of data at high speed for Condition Based Maintenance (CBM), Wide Area Measurement and Control (Synchrophasors/Phasor Measurement), OpEx 20/20, Video Security and Surveillance, Smart Grid and Telecommunication.
Currently, many substations use Telephone Company lease circuits and copper wire for protective relaying, and SCADA. These circuits are antiquated, not reliable, and don't meet communication requirements for new digital protective relay systems that are being installed.
The new fiber routes will provide communications media diversity for protective relaying throughout the SDG&E service territory. System protection is a key function in the electrical power grid. It is the key to guard against conditions that would severely harm the electric system infrastructure and cause extended outages. Highly reliable and available communications links are essential to ensuring protective relaying is functional in the event of a system fault.

Physical Description:

This project will complete fiber cable routes between 60 substations attaching nearly 550 miles of new fiber to existing transmission and distribution structures. Fiber routes and project priority are determined by System Protection Engineering and Telecommunications. Installations will primarily utilize transmission line right of ways and facilities. Engineering will utilize standards and engineering designs developed from previous fiber optic cable installations. Due to manpower constraints and to meet schedule requirements, Engineering will utilize proven outside engineering contractors to design fiber optic installations. Transmission Engineering will provide design review and coordination of material procurement, engineering, and construction.
Most of the high dollar fiber optic cable will be procured through bidding process. Two types of fiber optic cable will be utilized:

- All Dielectric Self Supporting (ADSS), mainly used for wood pole attachments, and underground installations
- Optical Ground Wire (OPGW) replaces static ground wire on steel poles and towers.

All line construction activities to be bid. Installations may require replacement of existing wood poles to meet loading or GO-95 clearance requirements. Some installations will require transmission line outages for construction. Environmental surveys will need to be completed for construction activities.

Project Justification:

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	07144.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	5. FIBER OPTIC FOR RELAY PROTECT & TELECOM
Workpaper Group:	071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM

The project when completed will provide a self-healing network to carry multi-gigabit data on demand. Our microwave network will also be upgraded to, or be replaced with higher bandwidth (622 Mbps or higher) system, which is key to real-time applications. Create a solid backbone of Synchronous Optical NETwork (SONET) consisting of fiber optic and high speed digital microwave network.

Modern protection relays require high-speed, dependable, and secure communication for protection and control. Presently, SDG&E's existing communication infrastructure is inadequate for protection of transmission lines, compromising protection dependability and security. SDG&E is lagging behind the industry in providing the quality of communication necessary to meet the demands of today's protection equipment.

This project will install Fiber Optic communication on all 138kV and above transmission lines in the next 3 years and convert major 69 kV system to fiber in 5 years for safe grid operation. It will reduce single-use telecom infrastructures. It will position SDG&E for future automation application, Condition Based Maintenance (CBM), Smart Meter (AMI), Smart Grid, and Op/Ex 20/20.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	07144.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	5. FIBER OPTIC FOR RELAY PROTECT & TELECOM
Workpaper Group:	071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM

Forecast Methodology:

Labor - 3-YR Average

This is a blanket-like budget that covers critical communications for transmission and distribution facilities. A 3-year average was used instead of a 5-year average, because the last 3 years of work more accurately reflects the volume of work that will be occurring in the future.

Non-Labor - 3-YR Average

This is a blanket-like budget that covers critical communications for transmission and distribution facilities. A 3-year average was used instead of a 5-year average, because the last 3 years of work more accurately reflects the volume of work that will be occurring in the future.

NSE - 3-YR Average

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07144.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 5. FIBER OPTIC FOR RELAY PROTECT & TELECOM
Workpaper Group: 071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM

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	3-YR Average	280	280	280	0	0	0	280	280	280
Non-Labor	3-YR Average	1,855	1,855	1,855	0	0	0	1,855	1,855	1,855
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		**2,135**	**2,135**	**2,135**	**0**	**0**	**0**	**2,135**	**2,135**	**2,135**
FTE	3-YR Average	2.6	2.6	2.6	0.0	0.0	0.0	2.6	2.6	2.6

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07144.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 5. FIBER OPTIC FOR RELAY PROTECT & TELECOM
Workpaper Group: 071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	4	1	3	5
Non-Labor	151	778	291	465	59
NSE	0	0	0	0	0
Total	**151**	**782**	**292**	**468**	**64**
FTE	0.0	0.0	0.0	0.0	0.0
Adjustments (Nominal $) **					
Labor	71	37	56	433	221
Non-Labor	513	1,105	1,109	1,466	2,056
NSE	0	0	0	0	0
Total	**584**	**1,142**	**1,164**	**1,899**	**2,277**
FTE	0.6	0.4	0.6	3.9	2.2
Recorded-Adjusted (Nominal $)					
Labor	71	41	57	436	226
Non-Labor	664	1,883	1,399	1,931	2,115
NSE	0	0	0	0	0
Total	**735**	**1,924**	**1,456**	**2,368**	**2,341**
FTE	0.6	0.4	0.6	3.9	2.2
Vacation & Sick (Nominal $)					
Labor	11	7	8	63	36
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**11**	**7**	**8**	**63**	**36**
FTE	0.1	0.1	0.1	0.6	0.4
Escalation to 2013$					
Labor	12	5	4	11	0
Non-Labor	98	192	78	43	0
NSE	0	0	0	0	0
Total	**110**	**197**	**82**	**54**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	94	52	69	510	262
Non-Labor	761	2,075	1,477	1,974	2,115
NSE	0	0	0	0	0
Total	**855**	**2,127**	**1,546**	**2,485**	**2,377**
FTE	0.7	0.5	0.7	4.5	2.6

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 07144.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 5. FIBER OPTIC FOR RELAY PROTECT & TELECOM
Workpaper Group: 071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM

Adjustments to Recorded:

In Nominal $(000)					
Years	2009	2010	2011	2012	2013
Labor	71	37	56	433	221
Non-Labor	513	1,105	1,109	1,466	2,056
NSE	0	0	0	0	0
Total	**584**	**1,142**	**1,164**	**1,899**	**2,277**
FTE	0.6	0.4	0.6	3.9	2.2

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	71	513	0	584	0.6	EAMARE2013103013295
Adjustment made to include 85% of General Plant.						
2009 Total	71	513	0	584	0.6	
2010	37	1,105	0	1,142	0.4	EAMARE2013103013302
Adjustment made to include 85% of General Plant.						
2010 Total	37	1,105	0	1,142	0.4	
2011	56	1,109	0	1,164	0.6	EAMARE2013103013304
Adjustment made to include 85% of General Plant.						
2011 Total	56	1,109	0	1,164	0.6	
2012	433	1,466	0	1,899	3.9	EAMARE2013103013310
Adjustment made to include 85% of General Plant.						
2012 Total	433	1,466	0	1,899	3.9	
2013	221	2,056	0	2,277	2.2	CPWITT20140212154732
Adjustment made to include 85% of General Plant.						
2013 Total	221	2,056	0	2,277	2.2	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 071440

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	07144.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	5. FIBER OPTIC FOR RELAY PROTECT & TELECOM
Workpaper Group:	071440 - FIBER OPTIC FOR RELAY PROTECT & TELECOM
Workpaper Detail:	071440.001 - Fiber Optic for Relay and Telecommunications
In-Service Date:	Not Applicable
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	280	280	280
Non-Labor	1,856	1,856	1,856
NSE	0	0	0
Total	**2,136**	**2,136**	**2,136**
FTE	2.6	2.6	2.6

Note: Totals may include rounding differences.

Beginning of Workpaper Group
081650 - Cleveland National Forest Power Line Replacement Projects

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08165.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 6. Cleveland National Forest Fire Hardening Projects
Workpaper Group: 081650 - Cleveland National Forest Power Line Replacement Projects

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	23	7	19	35	38	61	364	194
Non-Labor	Zero-Based	853	15	182	300	263	119	3,737	2,028
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**876**	**21**	**201**	**335**	**301**	**180**	**4,101**	**2,222**
FTE	Zero-Based	0.2	0.1	0.2	0.3	0.4	0.7	3.6	1.9

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

The purpose of these projects is to improve the reliability of transmission line 625, 626, 629, 682, and 6923 in an area of extreme fire risk and subject to extreme winds. fire and wind-prone area by Furthermore, the reliability of the currently underbuilt distribution circuits will be improved at the same time. This project is part of the CNF Master Special Use Permit Wood-to-Steel effort. The entire project is scheduled for construction between 2015 and 2019. The costs shown in this forecast are only for the distribution component of the transmission project segments expected to be placed into service in 2016.

Physical Description:

The specific pole replacement projects include; TL 625B Loveland to Tap, TL 625C Barrett Tap to Descanso, TL625D Barrett Tap to Barrett, TL 626A Santa Ysabel to Boulder Creek, TL 626B Descanso to Boulder Creek, TL 629A Descanso to Glencliff, TL629C Glencliff to Boulevard Tap, TL 629D Cameron To Boulevard Tap, TL 629E Boulevard Tap to Crestwood, TL 682 Rincon To Warners, TL 6923 Barrett to Cameron. The scope of work includes replacing approximately 1,384 wood poles with steel poles, and replacing approximately 105 circuit miles of line. The aged copper transmission and distribution conductors, will be replaced with 636 ACSS/AW conductor and ACSR/AW, respectively.

Project Justification:

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	08165.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	6. Cleveland National Forest Fire Hardening Projects
Workpaper Group:	081650 - Cleveland National Forest Power Line Replacement Projects

The project will improve the reliability of the SDG&E backcountry electric system and reduce the risk and potential for utility equipment being an ignition source source for wild fires. The project is one of 5 tie line wood to steel replacement projects proposed as part of the Cleveland National Forest Master Special Use Permit and Powerline Replacement Projects. These projects are required in order to obtain a Master Special Use Permit to maintain our existing facilities on National Forest System land. This project syncs up with the other transmission wood-to-steel projects that have been completed, and the projects that are planned for the future.

The overall wood-to-steel effort began as a result of the fires in San Diego County in 2003, 324 wood transmission poles and 45 miles of transmission line were repaired at a cost of approximately $7 million. As a result of the fires in 2007, 309 wood transmission poles were replaced, and 56 miles of transmission line were repaired at a cost of approximately $16 million. Transmission line outages due to fires have a serious impact on utility electric system reliability and the resulting loss of electric service can debilitate emergency services and our customer's abilities to cope during the fire emergency. In an effort to reduce future damage, enhance the reliability of the transmission grid, and enhance overall fire safety, SDG&E has been hardening the transmission grid within the Fire Threat Zone since 2008. SDG&E has hardened over 2,000 poles over the last 6 years, and has plans to complete the remainder of the transmission line hardening work over the next 6 years. This project hardens one of the transmission lines in the Fire Threat Zone.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	08165.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	6. Cleveland National Forest Fire Hardening Projects
Workpaper Group:	081650 - Cleveland National Forest Power Line Replacement Projects

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08165.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 6. Cleveland National Forest Fire Hardening Projects
Workpaper Group: 081650 - Cleveland National Forest Power Line Replacement Projects

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	61	364	194	0	0	0	61	364	194
Non-Labor	Zero-Based	119	3,737	2,028	0	0	0	119	3,737	2,028
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**180**	**4,101**	**2,222**	**0**	**0**	**0**	**180**	**4,101**	**2,222**
FTE	Zero-Based	0.7	3.6	1.9	0.0	0.0	0.0	0.7	3.6	1.9

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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08165.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 6. Cleveland National Forest Fire Hardening Projects
Workpaper Group: 081650 - Cleveland National Forest Power Line Replacement Projects

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	0	0
Non-Labor	0	1	0	0	0
NSE	0	0	0	0	0
Total	**0**	**1**	**0**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Adjustments (Nominal $) **					
Labor	17	5	16	30	33
Non-Labor	742	13	171	293	263
NSE	0	0	0	0	0
Total	**759**	**18**	**187**	**323**	**296**
FTE	0.2	0.1	0.2	0.3	0.3
Recorded-Adjusted (Nominal $)					
Labor	17	5	16	30	33
Non-Labor	742	13	172	293	263
NSE	0	0	0	0	0
Total	**759**	**18**	**187**	**323**	**296**
FTE	0.2	0.1	0.2	0.3	0.3
Vacation & Sick (Nominal $)					
Labor	3	1	2	4	5
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**3**	**1**	**2**	**4**	**5**
FTE	0.0	0.0	0.0	0.0	0.1
Escalation to 2013$					
Labor	3	1	1	1	0
Non-Labor	112	1	10	7	0
NSE	0	0	0	0	0
Total	**115**	**2**	**11**	**8**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	23	7	19	35	38
Non-Labor	853	15	182	300	263
NSE	0	0	0	0	0
Total	**876**	**21**	**201**	**335**	**301**
FTE	0.2	0.1	0.2	0.3	0.4

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08165.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 6. Cleveland National Forest Fire Hardening Projects
Workpaper Group: 081650 - Cleveland National Forest Power Line Replacement Projects

Adjustments to Recorded:

In Nominal $(000)					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	17	5	16	30	33
Non-Labor	742	13	171	293	263
NSE	0	0	0	0	0
Total	**759**	**18**	**187**	**323**	**296**
FTE	0.2	0.1	0.2	0.3	0.3

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 08165.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 6. Cleveland National Forest Fire Hardening Projects
Workpaper Group: 081650 - Cleveland National Forest Power Line Replacement Projects

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID

Detail of Adjustments to Recorded in Nominal $:

Year/Explanation	Labor	NLbr	NSE	Total	FTE	RefID
2009	17	742	0	759	0.2	CPWITT20140218112328
Adjustment to capture unaccounted for Electric Distribution direct costs.						
2009 Total	17	742	0	759	0.2	
2010	0	665	0	665	0.0	CPWITT20140214154748
Adjustment to move costs from CNF Budget Code - 8164 to the CNF Master Budget Code - 08165.						
	5	-652	0	-647	0.1	CPWITT20140218112425
Adjustment to capture unaccounted for Electric Distribution direct costs.						
2010 Total	5	13	0	18	0.1	
2011	1	24	0	25	0.0	CPWITT20140214154813
Adjustment to move costs from CNF Budget Code - 8164 to the CNF Master Budget Code - 08165.						
	0.198	0	0	0.198	0.0	CPWITT20140214154909
Adjustment to move costs from CNF Budget Code - 8166 to the CNF Master Budget Code - 08165.						
	14	147	0	162	0.2	CPWITT20140218112622
Adjustment to capture unaccounted for Electric Distribution direct costs.						
2011 Total	16	171	0	187	0.2	
2012	30	293	0	323	0.3	CPWITT20140218113027
Adjustment to capture unaccounted for Electric Distribution direct costs.						
2012 Total	30	293	0	323	0.3	
2013	0	-51	0	-51	0.0	CPWITT20140214154845
Adjustment to move costs from CNF Budget Code - 8164 to the CNF Master Budget Code - 08165.						
	9	114	0	123	0.1	CPWITT20140218110645
Adjustment made to include 85% of General Plant.						
	23	200	0	223	0.2	CPWITT20140218113206
Adjustment to capture unaccounted for Electric Distribution direct costs.						
2013 Total	33	263	0	296	0.3	

Note: Totals may include rounding differences.

Beginning of Workpaper Sub Details for
Workpaper Group 081650

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	08165.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	6. Cleveland National Forest Fire Hardening Projects
Workpaper Group:	081650 - Cleveland National Forest Power Line Replacement Projects
Workpaper Detail:	081650.001 - Cleveland National Forest Fire Hardening Projects - TL625 Segment B
In-Service Date:	04/01/2016

Description:

TL625 Segment B

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	17	134	57
Non-Labor	41	1,910	782
NSE	0	0	0
Total	**58**	**2,044**	**839**
FTE	0.2	1.3	0.6

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	08165.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	6. Cleveland National Forest Fire Hardening Projects
Workpaper Group:	081650 - Cleveland National Forest Power Line Replacement Projects
Workpaper Detail:	081650.002 - Cleveland National Forest Fire Hardening Projects - TL629 Segment E
In-Service Date:	06/01/2016

Description:

TL629 Segment E

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	8	26	15
Non-Labor	32	869	457
NSE	0	0	0
Total	**40**	**895**	**472**
FTE	0.1	0.3	0.1

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	08165.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	6. Cleveland National Forest Fire Hardening Projects
Workpaper Group:	081650 - Cleveland National Forest Power Line Replacement Projects
Workpaper Detail:	081650.003 - Cleveland National Forest Fire Hardening Projects - TL682
In-Service Date:	04/01/2016

Description:

TL682

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	36	204	122
Non-Labor	46	958	789
NSE	0	0	0
Total	**82**	**1,162**	**911**
FTE	0.4	2.0	1.2

Note: Totals may include rounding differences.

Beginning of Workpaper Group
091250 - TL 637 CRE-ST Wood to Steel

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09125.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 7. TL 637 CRE-ST SW POL
Workpaper Group: 091250 - TL 637 CRE-ST Wood to Steel

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	269	0	0
Non-Labor	Zero-Based	0	0	0	20	-10	1,590	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**20**	**-10**	**1,859**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

In the case of this project, the Business Purpose is to fire harden transmission line TL637 between Creelman Substation and Santa Ysabel Substation. This transmission line traverses across one of the areas of highest fire risk in San Diego County. With this line hardened, the reliability at Santa Ysabel Substation and Warners Substation will be greatly enhanced.

Physical Description:

This high priority fire hardening project will replace wood poles with steel poles from Creelman Substation to Santa Ysabel Substation for a distance of approximately thirteen miles. The scope of this project will mirror the other transmission hardening projects that have occurred over the last several years, including the replacement of wood poles with steel, replacement of the existing conductor with 636 ACSS/AW conductor, installation of larger insulators to increase spacing, and installation of a 48-count ADSS fiber optic line for improved system protection capability.

Project Justification:

As a result of the fires in San Diego County in 2003, 324 wood transmission poles and 45 miles of transmission line were repaired at a cost of approximately $7 million. As a result of the fires in 2007, 309 wood transmission poles were replaced, and 56 miles of transmission line were repaired at a cost of approximately $16 million. Transmission line outages due to fires have a serious impact on utility electric system reliability and the resulting loss of electric service can debilitate emergency services and our customer's abilities to cope during the fire emergency. In an effort to reduce future damage, enhance the reliability of the transmission grid, and enhance overall fire safety, SDG&E has been hardening the transmission grid within the Fire Threat Zone since 2008. SDG&E has hardened over 2,000 poles over the last 6 years, and has plans to complete the remainder of the transmission line hardening work over the next 6 years. This project hardens one of the transmission lines in the Fire Threat Zone.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	09125.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	7. TL 637 CRE-ST SW POL
Workpaper Group:	091250 - TL 637 CRE-ST Wood to Steel

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects. This project is scheduled to be completed by the end of 2014.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects. This project is scheduled to be completed by the end of 2014.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09125.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 7. TL 637 CRE-ST SW POL
Workpaper Group: 091250 - TL 637 CRE-ST Wood to Steel

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	269	0	0	0	0	0	269	0	0
Non-Labor	Zero-Based	1,590	0	0	0	0	0	1,590	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**1,859**	**0**	**0**	**0**	**0**	**0**	**1,859**	**0**	**0**
FTE	Zero-Based	2.7	0.0	0.0	0.0	0.0	0.0	2.7	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09125.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 7. TL 637 CRE-ST SW POL
Workpaper Group: 091250 - TL 637 CRE-ST Wood to Steel

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	0	0
Non-Labor	0	0	0	20	-10
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**20**	**-10**
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	0	0	0	20	-10
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**20**	**-10**
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	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 (Constant 2013$)					
Labor	0	0	0	0	0
Non-Labor	0	0	0	20	-10
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**20**	**-10**
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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09125.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 7. TL 637 CRE-ST SW POL
Workpaper Group: 091250 - TL 637 CRE-ST Wood to Steel

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 091250

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	09125.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	7. TL 637 CRE-ST SW POL
Workpaper Group:	091250 - TL 637 CRE-ST Wood to Steel
Workpaper Detail:	091250.001 - TL 637
In-Service Date:	09/30/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	269	0	0
Non-Labor	1,590	0	0
NSE	0	0	0
Total	**1,859**	**0**	**0**
FTE	2.7	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
091360 - TL6914 Los Coches-Loveland Wood to Steel

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09136.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 8. TL6914 Los Coches-Loveland SW Pole Repl
Workpaper Group: 091360 - TL6914 Los Coches-Loveland Wood to Steel

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	5	217	0
Non-Labor	Zero-Based	0	0	0	0	18	53	2,179	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**18**	**58**	**2,396**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	2.2	0.0

Business Purpose:

The TL 6914 Los Coches to Loveland SW Pole Replacements project will improve the reliability of transmission line 6914 in fire-prone or wind-prone areas by replacing 125 wood poles with equivalent steel poles for a distance of approximately 8 miles. Furthermore the reliability of the currently underbuilt distribution circuits will be improved.

Physical Description:

To rebuild TL 6914 with steel/wood (SW) equivalent structures for a distance of approximately 8 miles. Reconductor the transmission line and portions of the distribution system by installing 636 ACSR/AW on the 69kV system and 636 ASCR/AW on the 12kV system.

Project Justification:

Project will bring TL6914 up to the new standard for 69kV construction design, reduce future operation and maintenance expenses by replacing wood poles with steel and improve system reliability by decreasing the number of unplanned outages to the line.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	09136.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	8. TL6914 Los Coches-Loveland SW Pole Repl
Workpaper Group:	091360 - TL6914 Los Coches-Loveland Wood to Steel

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09136.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 8. TL6914 Los Coches-Loveland SW Pole Repl
Workpaper Group: 091360 - TL6914 Los Coches-Loveland Wood to Steel

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	5	217	0	0	0	0	5	217	0
Non-Labor	Zero-Based	53	2,179	0	0	0	0	53	2,179	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**58**	**2,396**	**0**	**0**	**0**	**0**	**58**	**2,396**	**0**
FTE	Zero-Based	0.1	2.2	0.0	0.0	0.0	0.0	0.1	2.2	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09136.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 8. TL6914 Los Coches-Loveland SW Pole Repl
Workpaper Group: 091360 - TL6914 Los Coches-Loveland Wood to Steel

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	18
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**18**
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	0	0	0	0	18
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**18**
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	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 (Constant 2013$)					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	18
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**18**
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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09136.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 8. TL6914 Los Coches-Loveland SW Pole Repl
Workpaper Group: 091360 - TL6914 Los Coches-Loveland Wood to Steel

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 091360

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	09136.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	8. TL6914 Los Coches-Loveland SW Pole Repl
Workpaper Group:	091360 - TL6914 Los Coches-Loveland Wood to Steel
Workpaper Detail:	091360.001 - TL6914 Los Coches-Loveland SW Pole Repl
In-Service Date:	07/01/2015
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	5	217	0
Non-Labor	53	2,179	0
NSE	0	0	0
Total	**58**	**2,396**	**0**
FTE	0.1	2.2	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
09153A - TL676 MIssion to Mesa Heights Reconductor

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09153.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 9. TL676 MIssion to Mesa Heights Reconductor
Workpaper Group: 09153A - TL676 MIssion to Mesa Heights Reconductor

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	3	0	0
Non-Labor	Zero-Based	0	0	0	0	0	49	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**52**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

In the case of this project, the Business Purpose is to provide a long term "wires" mitigation for the identified NERC CAT B reliability criteria contingency scenario. The non-wires options of depending on the Kearny gas turbines, though effective short term, provide loading relief only for the few remaining years they are available to operate.

Physical Description:

The scope of the project includes reconductoring 4.3 miles of 2-336 ACSR/AW to 2-636 ACSS, replacing all 93 existing wood poles with wood equivalent steel poles, removing the existing cable pole, constructing a new double-circuit trench, and erecting a new double circuit steel cable pole in the franchise position. This scope of work will provide a line capable of a new minimum continuous rating of 204MVA. In addition, Mesa Heights substation will require replacement of two disconnect switches from 1200A to 2000A and the rebuilding of a portion of the south bus from 2-inch aluminum to 3.5-inch aluminum. No work is required at Mission substation.

Project Justification:

Beginning in 2015, NERC Category B reliability criteria indications occur as a result of overloads on TL676 (MS-MSH). They are caused by the outage of TL663 (Kearny–Mission). In addition, beginning in 2010 and throughout the study window, Category C indications occur during outage simulations for the Kearny 69kV east bus and the Mission 69kV north bus. The existing limitations are caused by the 1750MCM AL UG cable and on the bundled 336 ACSR/AW overhead conductor. NERC Category A base case indications also begin to occur by 2020. This is a CAISO approved project.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	09153.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	9. TL676 MIssion to Mesa Heights Reconductor
Workpaper Group:	09153A - TL676 MIssion to Mesa Heights Reconductor

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

Beginning of Workpaper Sub Details for
Workpaper Group 09153A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	09153.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	9. TL676 MIssion to Mesa Heights Reconductor
Workpaper Group:	09153A - TL676 MIssion to Mesa Heights Reconductor
Workpaper Detail:	09153A.001 - TL676 MIssion to Mesa Heights Reconductor
In-Service Date:	12/31/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	3	0	0
Non-Labor	49	0	0
NSE	0	0	0
Total	**52**	**0**	**0**
FTE	0.1	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
091660 - TL13821 & 28-FANITA JUNCTION ENHANCE

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09166.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 10. TL13821 & 28-FANITA JUNCTION ENHANCE
Workpaper Group: 091660 - TL13821 & 28-FANITA JUNCTION ENHANCE

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	1	56	0
Non-Labor	Zero-Based	0	0	0	1	0	7	564	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**1**	**0**	**8**	**620**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.0

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

In the case of this project, the Business Purpose is to mitigateNERC Category B overloads forecasted for TL13821.

Physical Description:

Remove Carlton Hills Tap to reconfigure a 3-terminal transmission line to create two spearate 138kV lines: a Sycamore Canyon Substation to Carlton Hills Substation and a Sycamore Canyon Substation to Santee Substation transmission line. Each line will be designed to have a 326 MVA continuous/emergency rating.

Project Justification:

In addition to being a CAISO approved grid reliability project, the project will also replace wood pole structures with steel structures in fire prone areas. The line will be designed using the wood-to-steel criteria.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	09166.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	10. TL13821 & 28-FANITA JUNCTION ENHANCE
Workpaper Group:	091660 - TL13821 & 28-FANITA JUNCTION ENHANCE

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09166.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 10. TL13821 & 28-FANITA JUNCTION ENHANCE
Workpaper Group: 091660 - TL13821 & 28-FANITA JUNCTION ENHANCE

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	1	56	0	0	0	0	1	56	0
Non-Labor	Zero-Based	7	564	0	0	0	0	7	564	0
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**8**	**620**	**0**	**0**	**0**	**0**	**8**	**620**	**0**
FTE	Zero-Based	0.1	0.6	0.0	0.0	0.0	0.0	0.1	0.6	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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09166.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 10. TL13821 & 28-FANITA JUNCTION ENHANCE
Workpaper Group: 091660 - TL13821 & 28-FANITA JUNCTION ENHANCE

Determination of Adjusted-Recorded:

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
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
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	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
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	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 (Constant 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

* 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: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09166.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 10. TL13821 & 28-FANITA JUNCTION ENHANCE
Workpaper Group: 091660 - TL13821 & 28-FANITA JUNCTION ENHANCE

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 091660

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 09166.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 10. TL13821 & 28-FANITA JUNCTION ENHANCE
Workpaper Group: 091660 - TL13821 & 28-FANITA JUNCTION ENHANCE
Workpaper Detail: 091660.001 - TL13821/28 - Fanita Junction

In-Service Date: 12/31/2015
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	1	56	0
Non-Labor	7	564	0
NSE	0	0	0
Total	**8**	**620**	**0**
FTE	0.1	0.6	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
10135A - Los Coches Rebuild 138/69/12kV Substation

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 10135.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 11. Los Coches Rebuild 138/69/12kV Substation
Workpaper Group: 10135A - Los Coches Rebuild 138/69/12kV Substation

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	934	2,184	1,946
Non-Labor	Zero-Based	0	0	0	0	0	5,592	2,208	2,940
NSE	Zero-Based	0	0	0	0	0	276	744	348
Total		**0**	**0**	**0**	**0**	**0**	**6,802**	**5,136**	**5,234**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	9.3	21.8	19.5

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

In the case of this project, the Business Purpose is to rebuild Los Coches 138/69/12kV substation due to reliability concerns. Los Coches substation is an existing SDG&E 138/69/12kV substation constructed in 1950's. Banks 50 and 51 are approaching end of their useful life, they are smaller than the current standard size transformers and under N-1 condition, one transformer out of service, the remaining transformer cannot handle the load. The 138kV and 69kV buses are at capacity, under sized and do not meet current seismic specification. The 12kV yard is at capacity with no room for installing the 4th 69/12kV distribution transformer.

Physical Description:

For this project, the substation scope of work includes building a new 138kV, 3000A bus outside the current fence on the SDG&E fee owned property in breaker and half configuration. The new yard will accommodate four bays ultimately; only two bays will be installed initially in this project. The scope includes dismantling the existing 138kV bus to make room for the new 69kV, double-breaker- double bus configuration. There will be a total of sixteen bays to accommodate the existing transmission and distribution transformers, lines and also positions for future additions. The new yard arrangement will make room for the 4th, 69/12kV transformer and additional four 12kV circuits shunt capacitors and reactors.

The transmission scope of work entails replacing and relocating approximately six 138kV poles, reconductoring approximately 3,200 circuit feet of conductor, replacing and relocating approximately six 69kV transmission poles, and reconductoring approximately 1,000 circuit feet of conductor.

The distribution scope of work includes transferring 12kV facilties underbuilt on the transmission structures, relocating and cutting over 12kV circuits to the new getaway structures, and modifying the existing facilities to facilitate transmission construction.

Project Justification:

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10135.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	11. Los Coches Rebuild 138/69/12kV Substation
Workpaper Group:	10135A - Los Coches Rebuild 138/69/12kV Substation

Los Coches substation is a critical transmission and distribution power center within the SDG&E grid. Los Coches substation sited in the outer eastern edge of the more densely populated SDG&E load center, functions as a gateway for power to the eastern San Diego County customer base.

This project is required to enhance reliability by replacing the obsolete and under-rated transformer banks 50, 51, oil breakers; upgrading the 138kV and 69kV buses to 3000A capacity, increasing customer reliability with 69kV quad bus arrangement, enhance the seismic capability and make room for the proposed distribution 4th bank. In the past, various projects have been proposed and approved to mitigate the reliability and load issues. This project consolidates all the pending projects and it needs to be done at an accelerated schedule.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10135.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	11. Los Coches Rebuild 138/69/12kV Substation
Workpaper Group:	10135A - Los Coches Rebuild 138/69/12kV Substation

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Beginning of Workpaper Sub Details for
Workpaper Group 10135A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10135.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	11. Los Coches Rebuild 138/69/12kV Substation
Workpaper Group:	10135A - Los Coches Rebuild 138/69/12kV Substation
Workpaper Detail:	10135A.001 - Los Coches Rebuild 138/69/12kV Substation
In-Service Date:	10/31/2016
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	934	2,184	1,946
Non-Labor	5,592	2,208	2,940
NSE	276	744	348
Total	**6,802**	**5,136**	**5,234**
FTE	9.3	21.8	19.5

Note: Totals may include rounding differences.

Beginning of Workpaper Group
10150A - TL13833 Wood to Steel

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 10150.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 12. TL13833 W2S
Workpaper Group: 10150A - TL13833 Wood to Steel

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	26	0	0
Non-Labor	Zero-Based	0	0	0	0	0	259	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**285**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

In the case of this project, the Business Purpose is to fire harden transmission line TL13833 between Pico Substation and Trabuco Substation. As with the other transmission wood-to-steel projects, this line will only be hardened in areas where there is fire risk.

Physical Description:

The purpose of this project is to replace approximately 6 wood poles with steel poles, and install high-strength multi-stranded steel core conductors in place of the existing conductor, as required. The final work scope will be further defined once detailed engineering is completed.

Project Justification:

As a result of the fires in San Diego County in 2003, 324 wood transmission poles and 45 miles of transmission line were repaired at a cost of approximately $7 million. As a result of the fires in 2007, 309 wood transmission poles were replaced, and 56 miles of transmission line were repaired at a cost of approximately $16 million. Transmission line outages due to fires have a serious impact on utility electric system reliability and the resulting loss of electric service can debilitate emergency services and our customer's abilities to cope during the fire emergency. In an effort to reduce future damage, enhance the reliability of the transmission grid, and enhance overall fire safety, SDG&E has been hardening the transmission grid within the Fire Threat Zone since 2008. SDG&E has hardened over 2,000 poles over the last 6 years, and has plans to complete the remainder of the transmission line hardening work over the next 6 years. This project hardens one of the transmission lines in the Fire Threat Zone.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	10150.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	12. TL13833 W2S
Workpaper Group:	10150A - TL13833 Wood to Steel

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

Beginning of Workpaper Sub Details for
Workpaper Group 10150A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 10150.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 12. TL13833 W2S
Workpaper Group: 10150A - TL13833 Wood to Steel
Workpaper Detail: 10150A.003 - TL13833 W2S

In-Service Date: 02/28/2014
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	26	0	0
Non-Labor	259	0	0
NSE	0	0	0
Total	**285**	**0**	**0**
FTE	0.3	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
11126A - TL663 Mission to Kearny Reconductor

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11126.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 13. TL663 Mission to Kearny Reconductor
Workpaper Group: 11126A - TL663 Mission to Kearny Reconductor

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	2	1	0
Non-Labor	Zero-Based	0	0	0	0	0	47	16	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**49**	**17**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

In the case of this project, the Business Purpose is to provide a long term "wires" mitigation for the identified NERC CAT B reliability criteria indications. Availability of the short-term non-wires option of depending on the pre-contingency dispatch of the Kearny gas turbines to provide loading relief is no longer available after 2013. Additionally, SDG&E does not consider reliance on pre-contingency gas turbine dispatch as a suitable long-term solution for sustained NERC reliability criteria indications.

Physical Description:

The purpose of this project is to improve the 69kV transmission local area system within the Mission/Kearny/Mesa Heights load center and mitigate NERC Category B reliability criteria. The scope of work entails reconductoring the line to provide a new minimum continous rating of 204MVA. The scope requires a complete reconductor of overhead line from 1-1033.5ACSR/AW and 2-336.4ACSR/AW to 2-636ACSS. The underground portion of the project requires pulling new cable through existing ducts to create bundled 1750MCM AL cable. Excluding the existing steel poles in the line, there will be a 100% wood pole change-out to accommodate the increased loading of the new conductors. The terminal equipment at both ends of the line were evaluated and only the Kearny substation end of TL663 will require equipment replacement to 2000A capacity to match the Mission end in order to achieve the new required rating.

Project Justification:

Beginning in 2015, NERC Category B reliability criteria indicate overloads on TL663 (Mission-Kearny), caused by the outage of TL676 (Kearny–Mesa Heights). In addition, beginning in 2015 and beyond, NERC Category C indications appear during outage simulations for the Mission 69kV south bus. The scope of the mitigation is reconductoring the existing 69kV line to a minimum of 204MVA continuous rating. The limitations are caused by the 1750MCM AL UG cable and the bundled 336ACSR/AW overhead conductor. The existing continuous rating of TL663 is 97MVA and the 9 hour emergency rating is 129MVA.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11126.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	13. TL663 Mission to Kearny Reconductor
Workpaper Group:	11126A - TL663 Mission to Kearny Reconductor

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

Beginning of Workpaper Sub Details for
Workpaper Group 11126A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11126.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	13. TL663 Mission to Kearny Reconductor
Workpaper Group:	11126A - TL663 Mission to Kearny Reconductor
Workpaper Detail:	11126A.001 - TL663 Mission to Kearny Reconductor
In-Service Date:	06/30/2015
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	2	1	0
Non-Labor	47	16	0
NSE	0	0	0
Total	**49**	**17**	**0**
FTE	0.1	0.1	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
11127A - TL670 Mission to Clairemont Reconductor

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 11127.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 14. TL670 Mission to Clairemont Reconductor
Workpaper Group: 11127A - TL670 Mission to Clairemont Reconductor

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	3	0	0
Non-Labor	Zero-Based	0	0	0	0	0	49	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**52**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

In the case of this project, the Business Purpose is to provide a long term "wires" mitigation solution for the identified NERC CAT B reliability criteria indications. Availability of the non-wires short-term mitigation options of depending on the Kearny gas turbines to provide loading relief will not be available after 2013. Additionally, SDG&E does not consider reliance on pre-contingency gas turbine dispatch as a suitable long-term mitigation for sustained NERC reliability criteria indications.

Physical Description:

The scope of the project includes: a) reconductor of approximately 8 miles of 4/0 copper overhead conductor and install 8 miles of 636 ACSS conductor to achieve a minimum rating of 137MVA. Stringing approximately 3 miles of new conductor on existing steel pole and tower structures requires no pole change outs. The five miles of conductor on wood pole structures assumes 100% structure change outs. This is based on the increased sag characteristics of 636ACSS conductor, the increased transverse wind loading on aging wood poles, and existing 12kV circuit under built on approximately 50% of the existing poles. The substation terminal equipment ratings on both ends of TL670 were evaluated and determined to be adequate for the minimum rating required.

Project Justification:

Beginning in 2015, NERC Category B reliability criteria indications appear as a result of overloads on TL670 [Mission-Clairemont]. The violations are caused by the outage of TL663 [Mission-Kearny] or TL676 [Kearny–Mesa Heights]. In addition, beginning in 2015, Category C indications occur during outage simulations for the Kearny east 69kV bus, the Kearny west 69kV bus, or the Mission 69kV south bus. The scope of the mitigation is the reconductoring of the existing 69kV line to a minimum continuous of 137MVA. The limitations for this 8 mile long line are caused by the 4/0 copper overhead conductor. The existing continuous rating of TL670 is 50MVA. There is no emergency rating and one is not feasible for copper overhead conductor material. This is a CAISO approved project.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11127.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	14. TL670 Mission to Clairemont Reconductor
Workpaper Group:	11127A - TL670 Mission to Clairemont Reconductor

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

Beginning of Workpaper Sub Details for
Workpaper Group 11127A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	11127.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	14. TL670 Mission to Clairemont Reconductor
Workpaper Group:	11127A - TL670 Mission to Clairemont Reconductor
Workpaper Detail:	11127A.001 - TL670 Mission to Clairemont Reconductor
In-Service Date:	12/31/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	3	0	0
Non-Labor	49	0	0
NSE	0	0	0
Total	**52**	**0**	**0**
FTE	0.1	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
12154A - TL631 Reconductor Project

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12154.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 15. TL631 Reconductor Project
Workpaper Group: 12154A - TL631 Reconductor Project

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	246	0
Non-Labor	Zero-Based	0	0	0	0	0	0	1,936	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**2,182**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

In the case of this project, the Business Purpose is to reconductor transmission line TL631, between El Cajon Substation and Los Coches Substation. This is a CAISO approved project. This project was identified by the Transmission Planning department due to NERC reliability criteria indications.

Physical Description:

This project will replace existing conductor with new condcutor for a distance of approximately 8 miles, to achieve a desired rating of 98MVA. Poles will be replaced as required to accommodate the new conductor.

Project Justification:

This project was identified by the Transmission Planning department due to NERC reliability criteria indications.
Forecasted Category B overload starts in 2013 for loss of any section of TL632 (GR-ML-LC).

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	12154.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	15. TL631 Reconductor Project
Workpaper Group:	12154A - TL631 Reconductor Project

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

Beginning of Workpaper Sub Details for
Workpaper Group 12154A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	12154.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	15. TL631 Reconductor Project
Workpaper Group:	12154A - TL631 Reconductor Project
Workpaper Detail:	12154A.001 - TL631 Reconductor Project
In-Service Date:	12/31/2015
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	246	0
Non-Labor	0	1,936	0
NSE	0	0	0
Total	**0**	**2,182**	**0**
FTE	0.0	2.5	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
12156A - TL600 Reliability Pole Replacements

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 12156.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 16. TL600 Reliability Pole Replacements
Workpaper Group: 12156A - TL600 Reliability Pole Replacements

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	5	0	0
Non-Labor	Zero-Based	0	0	0	0	0	125	0	0
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**130**	**0**	**0**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

In the case of this project, the Business Purpose is to enhance the reliability of transmission line TL600 (Claremont - Kearny - Rose Canyon). TL600 was analyzed to determine if fiber optic could be added to the poles. During the analysis and modeling, it was determined that approximately 20 poles were overloaded or heavily loaded in their current state. These poles were determined to need replacement for reliability reasons.

Physical Description:

Replace approximately 20 poles with poles designed to adequately handle the existing loads and the proposed future loads.

Project Justification:

Enhance the reliability of TL600, which currently links three substations together, Claremont, Kearny and Rose Canyon.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	12156.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	16. TL600 Reliability Pole Replacements
Workpaper Group:	12156A - TL600 Reliability Pole Replacements

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

Beginning of Workpaper Sub Details for
Workpaper Group 12156A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	12156.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	16. TL600 Reliability Pole Replacements
Workpaper Group:	12156A - TL600 Reliability Pole Replacements
Workpaper Detail:	12156A.001 - TL600 Reliability Pole Replacements
In-Service Date:	12/31/2014
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	5	0	0
Non-Labor	125	0	0
NSE	0	0	0
Total	**130**	**0**	**0**
FTE	0.1	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper Group
13130A - Loop TL674 Into Del Mar and RFS TL666D

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13130.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 17. TL674Loop-in [Del Mar – North City West] & [Encin
Workpaper Group: 13130A - Loop TL674 Into Del Mar and RFS TL666D

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	132
Non-Labor	Zero-Based	0	0	0	0	0	0	0	1,037
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,169**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

In the case of this project, the Business Purpose is to enhance reliability for Del Mar Substation, and to remove a segment of TL666 that runs through environmentally sensative areas. This is a CAISO approved project.

Physical Description:

TL674A will be tied into Del Mar Substation, removing a 3-terminal line between North City West, Rancho Santa Fe, and Encinitas Substation. The 3-terminal line will be replaced with two 2-terminal lines, one from North City West to Rancho Santa Fe, and the other from Encinitas to Del Mar. TL666D will be removed from serivce once the new facilities are energized. TL666D traverses across two lagoon areas and an inaccessible cliff. This segment of TL666 has been problematic for maintenance personnel, and has the potential for extended outages if something occurs in the inaccessible areas. The removal of TL666D from the Lagoons will not only enhance reliability, it will reduce the environmental impacts associated with future O&M activities, and it will enhance the viewshed in these scenic locations.

Project Justification:

This project was approved by the CAISO.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13130.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	17. TL674Loop-in [Del Mar – North City West] & [Encin
Workpaper Group:	13130A - Loop TL674 Into Del Mar and RFS TL666D

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

Beginning of Workpaper Sub Details for
Workpaper Group 13130A

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13130.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	17. TL674Loop-in [Del Mar – North City West] & [Encin
Workpaper Group:	13130A - Loop TL674 Into Del Mar and RFS TL666D
Workpaper Detail:	13130A.001 - TL674Loop-in [Del Mar North City West] & [Encinitas Rancho Santa Fe]
In-Service Date:	06/30/2016
Description:	

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	132
Non-Labor	0	0	1,037
NSE	0	0	0
Total	**0**	**0**	**1,169**
FTE	0.0	0.0	1.3

Note: Totals may include rounding differences.

Beginning of Workpaper Group
13143A - TL 695B Reconductor

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13143.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 18. TL 695B Reconductor
Workpaper Group: 13143A - TL 695B Reconductor

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	119
Non-Labor	Zero-Based	0	0	0	0	0	0	0	339
NSE	Zero-Based	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**458**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2

Business Purpose:

This is a FERC project with associated distribution/CPUC forecasted spend. FERC projects are funded though the formula rate making process. Ideally, the CPUC components of those projects would follow the same process, but that mechanism isn't currently in place, so the distribution component of transmission projects are covered through the General Rate Case process.

In the case of this project, the business purpose is to mitigate overloads on TL695B (segment of TL695 between Basilone Substation and Talega Tap) during an outage on TL690 (4-terminal line between Las Pulgas Substation, Oceanside Substation, Stuart Substation, and San Luis Rey Substation). The purpose of this project is to prevent the damage to conductors and equipment on the B-segment of TL695 that could occur as a result of the overload described above.

Physical Description:

The scope of work includes reconductoring approximately 6 miles of the Transmission Line with 336 ACSR/AW. The scope involves replacing 124 wood poles with steel poles and approximately 37,000 circuit feet of small copper conductor with 336 ACSR/AW. This project will be built to the current wood-to-steel standards within the Fire Threat Zone.

Project Justification:

This is a CAISO approved reconductor project, to mitigate an overload scenario that would occur under certain contingency situations.

Note: Totals may include rounding differences.

Area:	ELECTRIC DISTRIBUTION
Witness:	John D. Jenkins
Budget Code:	13143.0
Category:	K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub:	18. TL 695B Reconductor
Workpaper Group:	13143A - TL 695B Reconductor

Forecast Methodology:

Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

Non-Labor - Zero-Based

This is a FERC project with a CPUC component. The forecast is based on detailed cost estimates that were developed based on the specific scope of work for the project. SDG&E utilizes comprehensive cost estimating programs to develop detailed cost estimates, based on current construction labor rates, material costs, overhead rates, contract pricing/quotes, and other project specific details. When projects are completed, actual costs are compared to the estimate to verify the estimates are accurate. Any significant variances between the estimated cost for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.

NSE - Zero-Based

N/A

Beginning of Workpaper Sub Details for
Workpaper Group 13143A

Area: ELECTRIC DISTRIBUTION
Witness: John D. Jenkins
Budget Code: 13143.0
Category: K. TRANSMISSION/FERC DRIVEN PROJECTS
Category-Sub: 18. TL 695B Reconductor
Workpaper Group: 13143A - TL 695B Reconductor
Workpaper Detail: 13143A.001 - TL 695B Reconductor

In-Service Date: 06/30/2016
Description:

Forecast In 2013 $(000)			
Years	**2014**	**2015**	**2016**
Labor	0	0	119
Non-Labor	0	0	339
NSE	0	0	0
Total	**0**	**0**	**458**
FTE	0.0	0.0	1.2

Note: Totals may include rounding differences.