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. 14-11-003

Exhibit No.: (SDG&E-10-WP-R)

REVISED WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF JONATHAN WOLDEMARIAM
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

MARCH 2015

2016 General Rate Case - REVISED

INDEX OF WORKPAPERS

Exhibit SDG&E-10-WP-R - ELECTRIC DISTRIBUTION

2016 General Rate Case - REVISED

INDEX OF WORKPAPERS

Exhibit SDG&E-10-WP-R - ELECTRIC DISTRIBUTION

Overall Summary For Exhibit No. SDG&E-10-WP-R

Area: **ELECTRIC DISTRIBUTION**

Witness: **Jonathan Woldemariam**

	In 2013 $ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
Description	**2013**	**2014**	**2015**	**2016**
Non-Shared Services	107,481	124,848	129,530	140,119
Shared Services	0	0	0	0
Total	**107,481**	**124,848**	**129,530**	**140,119**

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam

Summary of Non-Shared Services Workpapers:

	In 2013 $ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
Description	**2013**	**2014**	**2015**	**2016**
A. System Maintenance	41,027	47,668	47,460	47,720
B. Reliability	20,469	23,454	24,925	26,156
C. Regulatory Compliance	31,001	33,239	33,239	33,239
D. Workforce Development	3,660	5,222	6,142	5,087
F. Aging Infrastructure	6,632	9,405	11,504	21,264
G. Technology Utilization	3,965	5,110	5,460	5,853
H. Distribution Support	727	750	800	800
Total	**107,481**	**124,848**	**129,530**	**140,119**

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Workpaper: VARIOUS

Summary for Category: A. System Maintenance

	In 2013$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	28,770	32,450	32,450	32,450
Non-Labor	12,258	15,219	15,011	15,271
NSE	0	0	0	0
Total	**41,028**	**47,669**	**47,461**	**47,721**
FTE	276.8	283.2	283.2	283.2

Workpapers belonging to this Category:

1ED006.000 Kearny Operations Services

Labor	1,722	1,983	1,983	1,983
Non-Labor	116	176	176	256
NSE	0	0	0	0
Total	**1,838**	**2,159**	**2,159**	**2,239**
FTE	21.2	21.2	21.2	21.2

1ED011.000 Electric Regional Operations

Labor	22,172	24,542	24,542	24,542
Non-Labor	9,577	12,170	12,137	12,317
NSE	0	0	0	0
Total	**31,749**	**36,712**	**36,679**	**36,859**
FTE	205.9	210.2	210.2	210.2

1ED015.000 Substation C&O

Labor	3,734	4,730	4,730	4,730
Non-Labor	2,162	2,417	2,182	2,182
NSE	0	0	0	0
Total	**5,896**	**7,147**	**6,912**	**6,912**
FTE	38.4	39.7	39.7	39.7

1ED017.000 System Protection

Labor	1,142	1,195	1,195	1,195
Non-Labor	403	456	516	516
NSE	0	0	0	0
Total	**1,545**	**1,651**	**1,711**	**1,711**
FTE	11.3	12.1	12.1	12.1

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED006.000 - Kearny Operations Services

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub 1. System Maintenance
Workpaper: 1ED006.000 - Kearny Operations Services

Activity Description:

There are five functional work groups in the Kearny Maintenance Shops and Lab (Shop): (1) Tool Repair Group - the Shop maintains, repairs, fabricates, and acquires tooling, such as live-line tools, hotsticks, electric and hydraulic equipment and hand-tools. This is instrumental in maintaining the safety of the electric line and substation employees. (2) Apparatus Group - the condition-based maintenance program has necessitated the replacement of an increased number of electrical equipment. This includes the disposal or refurbishment of transformers, capacitors, switches, breakers, and bushings, along with associated gas and oil reclamation and recycling. Environmental concerns have been instrumental in the decision to scrap versus refurbishment. (3) Transformer Repair & High Voltage Testing - the Shop is a certified high voltage test station which tests to confirm the electrical condition of transformers, regulators, mechanical jumpers, grounds, hot sticks and other live line tools and equipment. Due to a fatality in the company in May 2008, there has been an increased demand for testing in the Shop to ensure tool testing compliance. (4) Protective Equipment Testing Lab - the Shop is certified to inspect and test rubber goods used for electrical work personal protection. (5) Miramar Material Test Lab - this Lab supports failure analysis of electrical underground cable and components as well as electrical overhead components.

Forecast Explanations:

Labor - Base YR Rec

Labor costs are based on the 2013 Base Year Recorded data. The Union Agreement requires that journeyman electrical employees are utilized for the test repair and inspection activities. The Union Agreement has resulted in increased wage rates over the past several years, which have driven operating costs.

Non-Labor - 4-YR Average

The 4 Year Average forecasting methodology was selected for non-labor based on the projected tooling expenses and FR shirt replacements for union employees.

NSE - Base YR Rec

No non-standard escalation issues.

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	1,709	1,633	1,711	1,669	1,722	1,983	1,983	1,983
Non-Labor	300	208	188	192	116	176	176	256
NSE	0	0	0	0	0	0	0	0
Total	**2,009**	**1,840**	**1,898**	**1,861**	**1,838**	**2,159**	**2,159**	**2,239**
FTE	21.3	18.4	18.6	20.9	21.2	21.2	21.2	21.2

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED006.000 - Kearny Operations Services

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Base YR Rec	1,722	1,722	1,722	261	261	261	1,983	1,983	1,983
Non-Labor	4-YR Average	176	176	176	0	0	80	176	176	256
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**1,898**	**1,898**	**1,898**	**261**	**261**	**341**	**2,159**	**2,159**	**2,239**
FTE	Base YR Rec	21.2	21.2	21.2	0.0	0.0	0.0	21.2	21.2	21.2

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	261	0	0	261	0.0	1-Sided Adj

The Union Agreement requires that qualified electrical employees are utilized for the test repair and inspection activities in the Maintenance Shops. This Agreement has resulted in increased wage rates over the past several years, which have driven operating costs.

2014 Total	**261**	**0**	**0**	**261**	**0.0**	
2015	261	0	0	261	0.0	1-Sided Adj

The Union Agreement requires that qualified electrical employees are utilized for the test repair and inspection activities in the Maintenance Shops. This Agreement has resulted in increased wage rates over the past several years, which have driven operating costs.

2015 Total	**261**	**0**	**0**	**261**	**0.0**	
2016	261	0	0	261	0.0	1-Sided Adj

The Union Agreement requires that qualified electrical employees are utilized for the test repair and inspection activities in the Maintenance Shops. This Agreement has resulted in increased wage rates over the past several years, which have driven operating costs.

2016	0	80	0	80	0.0	1-Sided Adj

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED006.000 - Kearny Operations Services

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type

SDG&E is required to prepare and submit an annual report for SF6 emissions in accordance with Subpart DD of the Environmental Protection Agency's ("EPA's") Greenhouse Gas (GHG) Mandatory Reporting Rule ("MRR"). Additionally, SDG&E also has to comply with CARB's Regulation for Reducing Sulfur Hexafluoride (SF6) Emissions from Gas Insulated Switchgear (as part of the Assembly Bill (AB) 32 requirements) and the SF6 emission rate limits and annual reporting requirements therein. SF6 is a potent greenhouse gas with a global warming potential (GWP) 22,800 times that of carbon dioxide (CO2).

2016 Total	**261**	**80**	**0**	**341**	**0.0**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED006.000 - Kearny Operations Services

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	1,363	1,325	1,432	1,427	1,486
Non-Labor	272	192	181	189	116
NSE	0	0	0	0	0
Total	**1,635**	**1,517**	**1,613**	**1,616**	**1,602**
FTE	18.3	15.7	16.0	18.0	18.0
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	1,363	1,325	1,432	1,427	1,486
Non-Labor	272	192	181	189	116
NSE	0	0	0	0	0
Total	**1,635**	**1,517**	**1,613**	**1,616**	**1,602**
FTE	18.3	15.7	16.0	18.0	18.0
Vacation & Sick (Nominal $)					
Labor	210	211	211	207	236
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**210**	**211**	**211**	**207**	**236**
FTE	3.0	2.7	2.6	2.9	3.1
Escalation to 2013$					
Labor	135	97	67	35	0
Non-Labor	29	16	7	3	0
NSE	0	0	0	0	0
Total	**164**	**113**	**74**	**38**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	1,709	1,633	1,711	1,669	1,722
Non-Labor	300	208	188	192	116
NSE	0	0	0	0	0
Total	**2,009**	**1,840**	**1,898**	**1,861**	**1,838**
FTE	21.3	18.4	18.6	20.9	21.1

* After company-wide exclusions of Non-GRC costs
** Refer to "Detail of Adjustments to Recorded" page for line item adjustments
Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED006.000 - Kearny Operations Services

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED011.000 - Electric Regional Operations

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub 1. System Maintenance
Workpaper: 1ED011.000 - Electric Regional Operations

Activity Description:

The Electric Regional Operations organization consists of the electric distribution crews within six districts and either operating centers. These crews provide coverage for all of SDG&E's electric distribution system throughout its service territory. The ERO group consists of electric linemen, apprentices, line assistants, dispatchers, office support personnel, and management supervision. Their primary job functions are to maintain the electric distribution system, restore service due to outages, and fix service problems and other customer issues.

Forecast Explanations:

Labor - Base YR Rec

The Base Year Recorded Plus Incremental Increases methodology was utilized in order to capture future increases in Red Flag fire preparedness, elevated wind conditions and outage patrolling during high fire risk periods. Additional manning in the form of Apprentice Linemen, C&O Planners and Supervisors, Schedules and Dispatch personnel is anticipated in order to meet the demands of increased compliance work.

Non-Labor - Base YR Rec

The Base Year Recorded Plus Incremental Increases methodology records the increased traffic control measures, intrusive wood pole inspections, fire-resistant shirt change-outs for field personnel, and upward pressures to refine work management processes and system enhancements.

NSE - Base YR Rec

N/A

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	26,341	24,780	23,405	23,005	22,172	24,542	24,542	24,542
Non-Labor	10,977	9,757	10,771	11,473	9,577	12,170	12,137	12,317
NSE	0	0	0	0	0	0	0	0
Total	**37,318**	**34,538**	**34,176**	**34,478**	**31,749**	**36,712**	**36,679**	**36,859**
FTE	246.5	225.6	207.6	208.0	205.9	210.2	210.2	210.2

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED011.000 - Electric Regional Operations

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Base YR Rec	22,172	22,172	22,172	2,370	2,370	2,370	24,542	24,542	24,542
Non-Labor	Base YR Rec	9,577	9,577	9,577	2,593	2,560	2,740	12,170	12,137	12,317
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**31,749**	**31,749**	**31,749**	**4,963**	**4,930**	**5,110**	**36,712**	**36,679**	**36,859**
FTE	Base YR Rec	205.9	205.9	205.9	4.3	4.3	4.3	210.2	210.2	210.2

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	2,370	2,593	0	4,963	4.3	1-Sided Adj
Please see attached combined listing of upward pressures.						
2014 Total	**2,370**	**2,593**	**0**	**4,963**	**4.3**	
2015	2,370	2,560	0	4,930	4.3	1-Sided Adj
Please see attached listing of combined upward pressures.						
2015 Total	**2,370**	**2,560**	**0**	**4,930**	**4.3**	
2016	2,370	2,730	0	5,100	4.3	1-Sided Adj
Please see attached listing of combined upward pressures.						
2016	0	10	0	10	0.0	1-Sided Adj
SDG&E is required to prepare and submit an annual report for SF6 emissions in accordance with Subpart DD of the Environmental Protection Agency's ("EPA's") Greenhouse Gas (GHG) Mandatory Reporting Rule ("MRR"). Additionally, SDG&E also has to comply with CARB's Regulation for Reducing Sulfur Hexafluoride (SF6) Emissions from Gas Insulated Switchgear (as part of the Assembly Bill (AB) 32 requirements) and the SF6 emission rate limits and annual reporting requirements therein. SF6 is a potent greenhouse gas with a global warming potential (GWP) 22,800 times that of carbon dioxide (CO2).						
2016 Total	**2,370**	**2,740**	**0**	**5,110**	**4.3**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED011.000 - Electric Regional Operations

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	21,013	20,103	19,598	19,670	19,105
Non-Labor	9,931	9,025	10,373	11,302	9,577
NSE	0	0	0	0	0
Total	**30,944**	**29,128**	**29,971**	**30,971**	**28,682**
FTE	211.2	192.3	178.3	179.1	174.6
Adjustments (Nominal $) **					
Labor	0	0	0	0	31
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**31**
FTE	0.0	0.0	0.0	0.0	0.6
Recorded-Adjusted (Nominal $)					
Labor	21,013	20,103	19,598	19,670	19,136
Non-Labor	9,931	9,025	10,373	11,302	9,577
NSE	0	0	0	0	0
Total	**30,944**	**29,128**	**29,971**	**30,971**	**28,713**
FTE	211.2	192.3	178.3	179.1	175.2
Vacation & Sick (Nominal $)					
Labor	3,244	3,200	2,887	2,850	3,035
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**3,244**	**3,200**	**2,887**	**2,850**	**3,035**
FTE	35.3	33.3	29.3	28.9	30.7
Escalation to 2013$					
Labor	2,084	1,477	920	485	0
Non-Labor	1,046	732	399	171	0
NSE	0	0	0	0	0
Total	**3,130**	**2,209**	**1,318**	**656**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	26,341	24,780	23,405	23,005	22,172
Non-Labor	10,977	9,757	10,771	11,473	9,577
NSE	0	0	0	0	0
Total	**37,318**	**34,538**	**34,176**	**34,478**	**31,749**
FTE	246.5	225.6	207.6	208.0	205.9

* 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: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED011.000 - Electric Regional Operations

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	31
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**31**
FTE	0.0	0.0	0.0	0.0	0.6

Detail of Adjustments to Recorded:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013	31	0	0	0.6	CCTR Transf	From 2100-0648.000	CSCHRAMM2014 0211165529660
Transfer labor and FTE associated with Relief District Crew Dispactcher from cost center 2100-0648 in work group 1OO001 Meter Reading to cost center 2100-3792 in work group 1ED011 Electric Distribution to align function to where activity resides.							
2013 Total	**31**	**0**	**0**	**0.6**			

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 1ED011.000

Beginning of Workpaper
1ED015.000 - Substation C&O

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub 1. System Maintenance
Workpaper: 1ED015.000 - Substation C&O

Activity Description:

The Substation Construction & Maintenance and associated support organizations are responsible for the installation and maintenance of 140 distribution substations on the SDG&E system. This section also installs and maintains the control functions of approximately 1300 overhead and underground distribution field devices.

Forecast Explanations:

Labor - Base YR Rec

The Base Year Recorded Plus Incremental Increases methodology outlines the necessity for manning increases in Apprentice Electricians, NERC Project Manager, and NERC CIP cyber security regulations which will impact electric substations, structures and lines. Additionally, increased labor hour are associated with mandated proactive and reactive maintenance compliance regulations tied directly to distribution substation equipment maintenance.

Non-Labor - Base YR Rec

The Base Year Recorded Plus Incremental Increases was utilized to identify Arc Flash engineering analysis on fault energy within electric distribution substation switchgear which presents risk to SDG&E electrical workers. Also identified are the fire-resistant shirt replacement program and tooling for the Apprentice Electricians.

NSE - Base YR Rec

N/A

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	5,201	5,065	5,193	4,321	3,734	4,730	4,730	4,730
Non-Labor	2,698	2,229	2,781	2,370	2,162	2,417	2,182	2,182
NSE	0	0	0	0	0	0	0	0
Total	**7,898**	**7,294**	**7,974**	**6,692**	**5,896**	**7,147**	**6,912**	**6,912**
FTE	52.9	50.5	47.9	41.8	38.4	39.7	39.7	39.7

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED015.000 - Substation C&O

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Base YR Rec	3,734	3,734	3,734	996	996	996	4,730	4,730	4,730
Non-Labor	Base YR Rec	2,162	2,162	2,162	255	20	20	2,417	2,182	2,182
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**5,896**	**5,896**	**5,896**	**1,251**	**1,016**	**1,016**	**7,147**	**6,912**	**6,912**
FTE	Base YR Rec	38.4	38.4	38.4	1.3	1.3	1.3	39.7	39.7	39.7

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	996	255	0	1,251	1.3	1-Sided Adj
Please see attached combined listing of upward pressures.						
2014 Total	**996**	**255**	**0**	**1,251**	**1.3**	
2015	996	20	0	1,016	1.3	1-Sided Adj
Please see attached combined listing of upward pressures.						
2015 Total	**996**	**20**	**0**	**1,016**	**1.3**	
2016	996	20	0	1,016	1.3	1-Sided Adj
Please see attached combined listing of upward pressures.						
2016 Total	**996**	**20**	**0**	**1,016**	**1.3**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED015.000 - Substation C&O

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	4,149	4,109	4,349	3,695	3,223
Non-Labor	2,441	2,062	2,678	2,335	2,162
NSE	0	0	0	0	0
Total	**6,589**	**6,171**	**7,027**	**6,030**	**5,385**
FTE	45.3	43.0	41.1	35.9	32.7
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	4,149	4,109	4,349	3,695	3,223
Non-Labor	2,441	2,062	2,678	2,335	2,162
NSE	0	0	0	0	0
Total	**6,589**	**6,171**	**7,027**	**6,030**	**5,385**
FTE	45.3	43.0	41.1	35.9	32.7
Vacation & Sick (Nominal $)					
Labor	641	654	641	535	511
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**641**	**654**	**641**	**535**	**511**
FTE	7.6	7.5	6.8	5.8	5.7
Escalation to 2013$					
Labor	411	302	204	91	0
Non-Labor	257	167	103	35	0
NSE	0	0	0	0	0
Total	**668**	**469**	**307**	**126**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	5,201	5,065	5,193	4,321	3,734
Non-Labor	2,698	2,229	2,781	2,370	2,162
NSE	0	0	0	0	0
Total	**7,898**	**7,294**	**7,974**	**6,692**	**5,896**
FTE	52.9	50.5	47.9	41.7	38.4

* 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: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED015.000 - Substation C&O

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 1ED015.000

Beginning of Workpaper
1ED017.000 - System Protection

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub 1. System Maintenance
Workpaper: 1ED017.000 - System Protection

Activity Description:

System Protection Maintenance maintains protective relays and control systems within SDG&E's substations. This involves routine preventive maintenance on time-based intervals - calibrating and trip-testing protective relays. This also involves corrective maintenance, or trouble-shooting, existing systems that alarm or fail to function properly. Cost Center staffing is on-call around the clock, and in addition, provides standby personnel for fire preparedness and responds to system emergencies, e.g., unscheduled load shedding and earthquakes. This is a technical group that uses computer driven test equipment. Databases are used to generate work orders and store test results. The aging infrastructure includes old electromechancial relays that are replaced with microprocessor based relays. These new relays have considerably more functionality than the older discrete single-function electromechanical units, but they also require a greater degree of technical expertise and skill to maintain. In particular, computer and logic skills are essential to work with these devices, whereas in the past, it was not required. The new, more complex, protection schemes are being implemented for these relays which take advantage of the increased functionality. As a result, the company has increased the training it provides to relay technicians.

The SCADA group, which was moved to SPM in 2012 works on installing and maintaining distribution voltage regulators, capacitors, distribution reclosers, installs weather stations, distribution SCADA controlled equipment and switchgear, maintains substation batteries, and aircraft warning lights.

Forecast Explanations:

Labor - Base YR Rec

The Base Year Recorded forecasting methodology was utilized due to a department reorganization which transferred the SCADA function from Substation Construction & Maintenance to System Protection Maintenance in 2012.

Non-Labor - Base YR Rec

The Base Year Recorded forecasting methology was utilized due to a department reorganization which transferred the SCADA function from Substation Construction & Maintenance to System Protection Maintenance in 2012.

NSE - Base YR Rec

N/A

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	634	432	641	1,190	1,142	1,195	1,195	1,195
Non-Labor	74	88	103	335	403	456	516	516
NSE	0	0	0	0	0	0	0	0
Total	**708**	**521**	**744**	**1,525**	**1,545**	**1,651**	**1,711**	**1,711**
FTE	5.4	3.7	5.3	10.9	11.3	12.1	12.1	12.1

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED017.000 - System Protection

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Base YR Rec	1,142	1,142	1,142	53	53	53	1,195	1,195	1,195
Non-Labor	Base YR Rec	403	403	403	53	113	113	456	516	516
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**1,545**	**1,545**	**1,545**	**106**	**166**	**166**	**1,651**	**1,711**	**1,711**
FTE	Base YR Rec	11.3	11.3	11.3	0.8	0.8	0.8	12.1	12.1	12.1

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	53	0	0	53	0.8	1-Sided Adj

Project Coordinator position to schedule field work and process jobs for SCADA (Supervisory Control and Data Acquisition) and Relay Technicians. Labor distriburtion will be 80% O&M, 20% Capital.

2014	0	53	0	53	0.0	1-Sided Adj

$30K - Four (4) new field vehicles will need to be outfitted with cabinets and tooling for relay technicians. To include steel case cabinets and small tooling for maintenance activities. $23K - Replacement of current supply of FR shirts (personal protective equipment). A supply of 11 shirts each for 35 union field employees, and 3 shirts each for 5 management employees.

2014 Total	**53**	**53**	**0**	**106**	**0.8**	
2015	53	0	0	53	0.8	1-Sided Adj

Project Coordinator position to schedule field work and process jobs for SCADA (Supervisory Control and Data Acquisition) and Relay Technicians. Labor distribution will be 80% O&M, 20% Capital.

2015	0	113	0	113	0.0	1-Sided Adj

$30K - Four (4) new field vehicles will need to be outfitted with cabinets and tooling for relay technicians. To include steel case cabinets and small tooling for maintenance activities. $23K - Replacement of current supply of FR shirts (personal protective equipment). A supply of 11 shirts each for 35 union field employees, and 3 shirts each for 5 management employees. $30K - Contractor training for synchronous condenser and STATCOM equipment to be installed and modified at Talega Substation. $30K - Expansion of phone and field support maintenance contract for 500kV Series Capacitors at Suncrest Substation.

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED017.000 - System Protection

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2015 Total	**53**	**113**	**0**	**166**	**0.8**	
2016	53	0	0	53	0.8	1-Sided Adj

Project Coordinator position to schedule field work and process jobs for SCADA (Supervisory Control and Data Acquisition) and Relay Technicians. Labor distribution will be 80% O&M, 20% Capital.

2016	0	113	0	113	0.0	1-Sided Adj

$30K - Four (4) new field vehicles will need to be outfitted with cabinets and tooling for relay technicians. To include steel case cabinets and small tooling for maintenance activities. $23K - Replacement of current supply of FR shirts (personal protective equipment). A supply of 11 shirts each for 35 union field employees, and 3 shirts each for 5 management employees. $30K - Contractor training for synchronous condenser and STATCOM equipment to be installed and modified at Talega Substation. $30K - Expansion of phone and field support maintenance contract for 500kV Series Capacitors at Suncrest Substation.

2016 Total	**53**	**113**	**0**	**166**	**0.8**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED017.000 - System Protection

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	506	351	537	1,018	986
Non-Labor	67	82	99	330	403
NSE	0	0	0	0	0
Total	**573**	**432**	**636**	**1,347**	**1,389**
FTE	4.6	3.1	4.5	9.3	9.6
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	506	351	537	1,018	986
Non-Labor	67	82	99	330	403
NSE	0	0	0	0	0
Total	**573**	**432**	**636**	**1,347**	**1,389**
FTE	4.6	3.1	4.5	9.3	9.6
Vacation & Sick (Nominal $)					
Labor	78	56	79	147	156
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**78**	**56**	**79**	**147**	**156**
FTE	0.8	0.5	0.7	1.5	1.7
Escalation to 2013$					
Labor	50	26	25	25	0
Non-Labor	7	7	4	5	0
NSE	0	0	0	0	0
Total	**57**	**32**	**29**	**30**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	634	432	641	1,190	1,142
Non-Labor	74	88	103	335	403
NSE	0	0	0	0	0
Total	**708**	**521**	**744**	**1,525**	**1,545**
FTE	5.4	3.6	5.2	10.8	11.3

* 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: Jonathan Woldemariam
Category: A. System Maintenance
Category-Sub: 1. System Maintenance
Workpaper: 1ED017.000 - System Protection

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Regional Construction & Operations
Work Group - 1ED011.000
Cost Center - multiple C&O Districts

Witness - J Woldemariam
Cost Center Mgr - N Boyle, A Colton, L Fotland, M Gonzales, P Kinsella, R Shoemaker, J Valentine

$000's	2009 Actual			2010 Actual			2011 Actual			2012 Actual			2013 Actual		
	Labor	Non-Labor	FTE	Labor	Non-Labor	FTE	Labor	Non-Labor	FTE	Labor	Non-Labor	FTE	Labor	Non-Labor	FTE
Recorded Historical	26,577	10,976	246	24,916	9,753	226	23,454	10,748	208	23,029	11,434	208	22,172	9,577	206
Adjustments															
TOTAL	**26,577**	**10,976**	**246**	**24,916**	**9,753**	**226**	**23,454**	**10,748**	**208**	**23,029**	**11,434**	**208**	**22,172**	**9,577**	**206**

Explanation for Adjustments:

Year	Labor	Non-Labor	FTE	Explanation
				2013 Actual now reports the 2013 Base Year Recorded

FORECAST

2014			2015			2016			FORECASTING METHODOLOGY
Labor	Non-Labor		Labor	Non-Labor		Labor	Non-Labor		
24,542	12,171	210	24,542	12,137	210	24,542	12,308	210	**Base year recorded plus incremental increases identified**

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2014	200		0.2	Behavior Based Safety training program - Will work through cost expectations for BBS over next three years.
2014	350		0.5	**(Workforce Development)** Additional Apprentice Class annually (will need 2 annually). Levels of apprentices has decreased over the past 2 years. Due to projected journeymen attrition and declining levels of apprentices To enhance this apprentice population to keep up with journeyman attrition, apprentice training must be increased. For these additional training classes borrowed instructors from the districts are utilized, and STC will be charged by the district for borrowed instructors.(3)
2014	127		0.1	Overhead Switch Inspection and Maintenance - The overhead switch inspection program provides service to our customers when a switch needs to be operated. We need to insure that all overhead switches are maintained and in good working condition. An overhead switch is usually found inoperable or dead when called upon to be operated on either trouble situations or routine switching (e.g. parallel switching). The work consists of a WF-3 crew and includes inspection and exercising of the switch blades, maintenance of the contacts and checking/adjusting the control rod for gang operated switches. 185 switches will be inspected each year within SDG&E's Service Territory.
2014	727		1.7	Overhead Connector Program - Ensure integrity and reliability of overhead connectors. These costs do not include loadings or vehicle expense.
2014	56		0.1	CMP Inspection Intervals - District Engineering labor costs to determine requirements and to update systems to meet GO165 anniversary requirement for 1-year, 3-year, and 5-year cycles.
2014		500		Intrusive Wood Pole Inspection Load Calculation Increases - It is anticipated that over the next three years additional pole loading calculations will need to be done for each inspected pole in order to ensure that all pole safety factors are meeting GO95 requirements. This is focused on the intrusive wood pole inspections and is not part of the Pole CARE project. It is estimated that 50% more pole loading calculations will be completed on a yearly basis with an average cost of $160 per pole. This will be completed by contract labor.

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2014		55		Badge Access to Military Bases - The RAPIDGate program has been developed to enhance access security at participating United States military and other government facilities. It also is designed to improve on-site access for eligible companies and their employees who conduct official business on such facilities on a recurring basis.
2014		214		FR Shirt Replacement - Assumed fire-resistant shirt change-outs for each lineman in 2014 at 11 shirts per lineman. One time cost plus annual cost for outfitting 40 Line Assistants going forward.
2014		100		Phase 2 of the Performance Management Reporting System. This is an on-line reporting tool to provide visibility around job performance. By extracting data from Click, GIS and SAP software, PMR2 will assist Electric Regional Operations and Field Services drive performance improvement and accountability.
2014		75		Automated Roster Callout System - This is replacement software for the current callout system using IVR technology to automatically call employees when needed for gas and electric outages or emergencies before, during and after normal business.
2014		100		Work Management Process and Systems Support - Estimated upward pressure each year to establish and refine work management business processes and to determine business requirements for system enhancements.
2014	731		1.7	Additional C&O Planners and Supervisors to meet future needs - Assumptions made were that FTEs would be hired at mid-range of MRR and are generally charged at 60% capital and 40% O&M except SOT FTEs which are charged at 98% capital and 2% O&M.
2014	32		0.1	Resource Needs for ARSO and Forecaster - ARSO anticipates an increase of 1 scheduler and 1 dispatcher over the next three years. These resources are needed to help meet the demands of the increased compliance work created by the new interpretation of annual inspections and follow-up requirements.
2014	147	320	0.1	Jurisdictional Permitting and OT Drivers - Includes such expenses as permit costs, overtime labor, governmental agency requirements.
2014		1,230		Traffic Control Expenses - These expenses are based on 2013 actual expenditures with a 10% increase estimated each year based on permitting trends and jurisdictional requirements.
2014 TOTAL	**2,370**	**2,594**	**4.4**	
2015	200		0.2	Behavior Based Safety training program - Will work through cost expectations for BBS over next three years.
2015	350		0.5	**(Workforce Development)** Additional Apprentice Class annually (will need 2 annually). Levels of apprentices has decreased over the past 2 years. Due to projected journeymen attrition and declining levels of apprentices To enhance this apprentice population to keep up with journeyman attrition, apprentice training must be increased. For these additional training classes borrowed instructors from the districts are utilized, and STC will be charged by the district for borrowed instructors.(3)
2015	127		0.1	Overhead Switch Inspection and Maintenance - The overhead switch inspection program provides service to our customers when a switch needs to be operated. We need to insure that all overhead switches are maintained and in good working condition. An overhead switch is usually found inoperable or dead when called upon to be operated on either trouble situations or routine switching (e.g. parallel switching). The work consists of a WF-3 crew and includes inspection and exercising of the switch blades, maintenance of the contacts and checking/adjusting the control rod for gang operated switches. 185 switches will be inspected each year within SDG&E's Service Territory.
2015	727		1.7	Overhead Connector Program - Ensure integrity and reliability of overhead connectors. These costs do not include loadings or vehicle expense.
2015	56		0.1	CMP Inspection Intervals - District Engineering labor costs to determine requirements and to update systems to meet GO165 anniversary requirement for 1-year, 3-year, and 5-year cycles.

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2015		500		Intrusive Wood Pole Inspection Load Calculation Increases - It is anticipated that over the next three years additional pole loading calculations will need to be done for each inspected pole in order to ensure that all pole safety factors are meeting GO95 requirements. This is focused on the intrusive wood pole inspections and is not part of the Pole CARE project. It is estimated that 50% more pole loading calculations will be completed on a yearly basis with an average cost of $160 per pole. This will be completed by contract labor.
2015		55		Badge Access to Military Bases - The RAPIDGate program has been developed to enhance access security at participating United States military and other government facilities. It also is designed to improve on-site access for eligible companies and their employees who conduct official business on such facilities on a recurring basis.
2015		25		FR Shirt Replacement - Assumed fire-resistant shirt change-outs for each lineman in 2014 at 11 shirts per lineman. One time cost plus annual cost for outfitting 40 Line Assistants going forward.
2015		100		Phase 2 of the Performance Management Reporting System. This is an on-line reporting tool to provide visibility around job performance. By extracting data from Click, GIS and SAP software, PMR2 will assist Electric Regional Operations and Field Services drive performance improvement and accountability.
2015		75		Automated Roster Callout System - This is replacement software for the current callout system using IVR technology to automatically call employees when needed for gas and electric outages or emergencies before, during and after normal business.
2015		100		Work Management Process and Systems Support - Estimated upward pressure each year to establish and refine work management business processes and to determine business requirements for system enhancements.
2015	731		1.7	Additional C&O Planners and Supervisors to meet future needs - Assumptions made were that FTEs would be hired at mid-range of MRR and are generally charged at 60% capital and 40% O&M except SOT FTEs which are charged at 98% capital and 2% O&M.
2015	32		0.1	Resource Needs for ARSO and Forecaster - ARSO anticipates an increase of 1 scheduler and 1 dispatcher over the next three years. These resources are needed to help meet the demands of the increased compliance work created by the new interpretation of annual inspections and follow-up requirements.
2015	147	352	0.1	Jurisdictional Permitting and OT Drivers - Includes such expenses as permit costs, overtime labor, governmental agency requirements.
2015		1,353		Traffic Control Expenses - These expenses are based on 2013 actual expenditures with a 10% increase estimated each year based on permitting trends and jurisdictional requirements.
2015 TOTAL	**2,370**	**2,560**	**4.4**	
2016	200		0.2	Behavior Based Safety training program - Will work through cost expectations for BBS over next three years.
2016	350		0.5	**(Workforce Development)** Additional Apprentice Class annually (will need 2 annually). Levels of apprentices has decreased over the past 2 years. Due to projected journeymen attrition and declining levels of apprentices To enhance this apprentice population to keep up with journeyman attrition, apprentice training must be increased. For these additional training classes borrowed instructors from the districts are utilized, and STC will be charged by the district for borrowed instructors.(3)
2016	127		0.1	Overhead Switch Inspection and Maintenance - The overhead switch inspection program provides service to our customers when a switch needs to be operated. We need to insure that all overhead switches are maintained and in good working condition. An overhead switch is usually found inoperable or dead when called upon to be operated on either trouble situations or routine switching (e.g. parallel switching). The work consists of a WF-3 crew and includes inspection and exercising of the switch blades, maintenance of the contacts and checking/adjusting the control rod for gang operated switches. 185 switches will be inspected each year within SDG&E's Service Territory.

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2016	727		1.7	Overhead Connector Program - Ensure integrity and reliability of overhead connectors. These costs do not include loadings or vehicle expense.
2016	56		0.1	CMP Inspection Intervals - District Engineering labor costs to determine requirements and to update systems to meet GO165 anniversary requirement for 1-year, 3-year, and 5-year cycles.
2016		500		Intrusive Wood Pole Inspection Load Calculation Increases - It is anticipated that over the next three years additional pole loading calculations will need to be done for each inspected pole in order to ensure that all pole safety factors are meeting GO95 requirements. This is focused on the intrusive wood pole inspections and is not part of the Pole CARE project. It is estimated that 50% more pole loading calculations will be completed on a yearly basis with an average cost of $160 per pole. This will be completed by contract labor.
2016		55		Badge Access to Military Bases - The RAPIDGate program has been developed to enhance access security at participating United States military and other government facilities. It also is designed to improve on-site access for eligible companies and their employees who conduct official business on such facilities on a recurring basis.
2016		25		FR Shirt Replacement - Assumed fire-resistant shirt change-outs for each lineman in 2014 at 11 shirts per lineman. One time cost plus annual cost for outfitting 40 Line Assistants going forward.
2016		100		Phase 2 of the Performance Management Reporting System. This is an on-line reporting tool to provide visibility around job performance. By extracting data from Click, GIS and SAP software, PMR2 will assist Electric Regional Operations and Field Services drive performance improvement and accountability.
2016		75		Automated Roster Callout System - This is replacement software for the current callout system using IVR technology to automatically call employees when needed for gas and electric outages or emergencies before, during and after normal business.
2016		100		Work Management Process and Systems Support - Estimated upward pressure each year to establish and refine work management business processes and to determine business requirements for system enhancements.
2016	731		1.7	Additional C&O Planners and Supervisors to meet future needs - Assumptions made were that FTEs would be hired at mid-range of MRR and are generally charged at 60% capital and 40% O&M except SOT FTEs which are charged at 98% capital and 2% O&M.
2016	32		0.1	Resource Needs for ARSO and Forecaster - ARSO anticipates an increase of 1 scheduler and 1 dispatcher over the next three years. These resources are needed to help meet the demands of the increased compliance work created by the new interpretation of annual inspections and follow-up requirements.
2016	147	387	0.1	Jurisdictional Permitting and OT Drivers - Includes such expenses as permit costs, overtime labor, governmental agency requirements.
2016		1,489		Traffic Control Expenses - These expenses are based on 2013 actual expenditures with a 10% increase estimated each year based on permitting trends and jurisdictional requirements.
2016 TOTAL	**2,370**	**2,731**	**4.4**	

Substation C&O
Work Group - 1ED015.000
Cost Center - multiple

Witness - J Woldemariam
Cost Center Mgr - L Brown, J Lopez, J Ball, K Fremo

	2009 Actual			2010 Actual			2011 Actual			2012 Actual			2013 Actual		
$000's	**Labor**	**Non-Labor**	**FTE**	**Labor**	**Non-Labor**	**FTE**	**Labor**	**Non-Labor**	**FTE**	**Labor**	**Non-Labor**	**FTE**	**Labor**	**Non-Labor**	**FTE**
Recorded Historical	5,248	2,697	52.9	5,093	2,228	50.5	5,203	2,775	47.9	4,326	2,363	41.8	3,734	2,162	38.4
Adjustments															
TOTAL	**5,248**	**2,697**	**52.9**	**5,093**	**2,228**	**50.5**	**5,203**	**2,775**	**47.9**	**4,326**	**2,363**	**41.8**	**3,734**	**2,162**	**38.4**

Explanation for Adjustments:

Year	Labor	Non-Labor	FTE	Explanation
				2013 Actual now reports the 2013 Base Year Recorded

FORECAST

2014			2015			2016			FORECASTING METHODOLOGY
Labor	**Non-Labor**		**Labor**	**Non-Labor**		**Labor**	**Non-Labor**		**Base Year Recorded plus incremental increases**
4,730	2,417	39.7	4,730	2,182	39.7	4,730	2,182	39.7	

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2014	22		0.2	NERC Project Manager - only V&S expense. Productive labor will be transmission.
2014	294		0.3	Apprentice Electricians (10) - 30% O&M expense plus V&S.
2014		105		FR shirt replacement - safety personal protective equipment
2014		130		The Arc Flash studies will perform an engineering analysis on the available fault energy located within SDG&E electric distribution substations' metal clad switchgear in order to determine if an arc flash hazard is present or presents risk to SDG&E electrical workers. These studies will be performed in accordance with NFPA 70E standards and determine the minimal safe levels of personal protective equipment necessary to safely operate the equipment when in close proximity. The studies will determine the Arc Flash hazard risk, provide Arc Flash hazard mitigation recommendations and provide recommendations to the PPE required. This study should bring us up to NFPA 70E standards.
2014	200		0.2	Increased labor hours associated with mandated proactive and reactive maintenance compliance regulations. The compliance regulations are directly tied to distribution substation equipment maintenance.
2014	300		0.3	Increased labor hours associated with added infrastructure of new substations in our system.
2014	60		0.1	Two (2) Equipment Operator Washers, one (1) Equipment Operator Construction, and one (1) Lineman - only V&S expense. Productive labor will be transmission and capital.
2014	120		0.2	New NERC CIP cyber security regulations will impact electric substations, structures and lines that will require additional employees to manage the implementation and ongoing compliance. Expense is for V&S only - productive time will be non-GRC.

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2014		20		Tools, equipment and FR shirts for new Apprentice Electricians.
2014 TOTAL	**996**	**255**	**1.3**	
2015	22		0.2	NERC Project Manager - only V&S expense. Productive labor will be transmission.
2015	294		0.3	Apprentice Electricians (10) - 30% O&M expense plus V&S.
2015	200		0.2	Increased labor hours associated with mandated proactive and reactive maintenance compliance regulations. The compliance regulations are directly tied to distribution substation equipment maintenance.
2015	300		0.3	Increased labor hours associated with added infrastructure of new substations in our system.
2015	120		0.2	New NERC CIP cyber security regulations will impact electric substations, structures and lines that will require additional employees to manage the implementation and ongoing compliance. Expense is for V&S only - productive time will be non-
2015	60		0.1	Two (2) Equipment Operator Washers, one (1) Equipment Operator Construction, and one (1) Lineman - only V&S expense. Productive labor will be transmission and capital.
2015		20		Tools, equipment and FR shirts for new Apprentice Electricians.
2015 TOTAL	**996**	**20**	**1.3**	
2016	22		0.2	NERC Project Manager - only V&S expense. Productive labor will be transmission.
2016	294		0.3	Apprentice Electricians (10) - 30% O&M expense plus V&S.
2016	200		0.2	Increased labor hours associated with mandated proactive and reactive maintenance compliance regulations. The compliance regulations are directly tied to distribution substation equipment maintenance.
2016	300		0.3	Increased labor hours associated with added infrastructure of new substations in our system.
2016	120		0.2	New NERC CIP cyber security regulations will impact electric substations, structures and lines that will require additional employees to manage the implementation and ongoing compliance. Expense is for V&S only - productive time will be non-GRC.
2016	60		0.1	Two (2) Equipment Operator Washers, one (1) Equipment Operator Construction, and one (1) Lineman - only V&S expense. Productive labor will be transmission and capital.
2016		20		Tools, equipment and FR shirts for new Apprentice Electricians.
2016 TOTAL	**996**	**20**	**1.3**	

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Workpaper: VARIOUS

Summary for Category: B. Reliability

	In 2013$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	12,327	13,884	14,851	15,577
Non-Labor	8,141	9,569	10,074	10,578
NSE	0	0	0	0
Total	**20,468**	**23,453**	**24,925**	**26,155**
FTE	102.7	117.0	126.8	133.5

Workpapers belonging to this Category:

1ED001.001 Reliability & Capacity

Labor	229	299	309	309
Non-Labor	308	308	308	308
NSE	0	0	0	0
Total	**537**	**607**	**617**	**617**
FTE	2.2	2.9	3.0	3.0

1ED004.000 Electric Distribution Operations

Labor	3,790	4,431	5,068	5,704
Non-Labor	7,148	8,376	8,994	9,611
NSE	0	0	0	0
Total	**10,938**	**12,807**	**14,062**	**15,315**
FTE	32.2	37.0	42.7	48.4

1ED008.000 Grid Operations

Labor	92	192	292	292
Non-Labor	57	57	57	57
NSE	0	0	0	0
Total	**149**	**249**	**349**	**349**
FTE	1.2	2.2	3.2	3.2

1ED018.000 Distribution Engineering

Labor	1,001	1,307	1,527	1,617
Non-Labor	318	318	305	292
NSE	0	0	0	0
Total	**1,319**	**1,625**	**1,832**	**1,909**
FTE	11.3	15.1	18.1	19.1

1ED020.000 Troubleshooting

Labor	7,215	7,655	7,655	7,655
Non-Labor	310	510	410	310
NSE	0	0	0	0
Total	**7,525**	**8,165**	**8,065**	**7,965**
FTE	55.8	59.8	59.8	59.8

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED001.001 - Reliability & Capacity

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub 1. Reliability
Workpaper: 1ED001.001 - Reliability & Capacity

Activity Description:

The reliability and capacity workgroups provide technical support services related to the operations and maintenance of the electric distribution system. These services are administered by two main workgroups: Technical Analysis and Distribution Planning. The Technical Analysis group is also tasked with maximizing the utilization of distribution substation equipment while managing risks to maintain system performance. Maintaining an economically justifiable repair or replacement strategy for all major substation equipment based on such factors as criticality, health, and risk is a key component of the groups responsibilities. the Technical Analysis workgroup actively supports the Emergency Operations Center as well as Construction and Operations districts during major events and storm drills. Other responsibilities include Reliability Circuit Analysis, tie capacity analysis studies, support of Community Fire Safety Program, training, managing the Underground Cable Replacement program, responding to internal and external customer data requests, and attending relevant technical committee meetings. In general, the majority of Distribution Planning workgroup activities are related to the development and engineering of capital projects to support capacity expansion of the electric distribution system. Costs for these activities are recorded as capital related costs and are not included in this testimony related to O&M.

Forecast Explanations:

Labor - Base YR Rec

The 3-year average is the most indicative of the current and future forecasted base-line spending of this group due to the fact that the O&M component of the costs are expected to remain fairly stable over the next several years. A higher percentage of the costs in this group are capitalized.

Non-Labor - Base YR Rec

The 3-year average is the most indicative of the current and future forecasted base-line spending of this group due to the fact that the O&M component of the costs are expected to remain fairly stable over the next several years. A higher percentage of the costs in this group are capitalized.

NSE - Base YR Rec

na

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	389	377	413	386	229	299	309	309
Non-Labor	145	101	523	230	308	308	308	308
NSE	0	0	0	0	0	0	0	0
Total	**534**	**477**	**936**	**617**	**538**	**608**	**618**	**618**
FTE	4.4	4.2	4.5	4.5	2.2	2.9	3.0	3.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED001.001 - Reliability & Capacity

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Base YR Rec	229	229	229	70	80	80	299	309	309
Non-Labor	Base YR Rec	308	308	308	0	0	0	308	308	308
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**538**	**538**	**538**	**70**	**80**	**80**	**608**	**618**	**618**
FTE	Base YR Rec	2.2	2.2	2.2	0.7	0.8	0.8	2.9	3.0	3.0

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	20	0	0	20	0.2	1-Sided Adj

Fusing Specialists (2) and Administrative Asst. (1) positions needed to ensure the safety of the public and construction employees, impact the safety and reliability of the distribution system. If positions remain unfilled, there will be workflow delays in design of distribution capital projects. Labor splits are approximately 90% Capital, 10% O&M.(2 FTE's in 2014, 1 FTE in 2015)

2014	50	0	0	50	0.5	1-Sided Adj

Principal Engineer needed for Technical Analysis and Reliability Projects. Labor split to be 50% O&M and 50% Capital. Position filled in 2014.

2014 Total	**70**	**0**	**0**	**70**	**0.7**	
2015	30	0	0	30	0.3	1-Sided Adj

Fusing Specialists (2) and Administrative Asst. (1) positions needed to ensure the safety of the public and construction employees, impact the safety and reliability of the distribution system. If positions remain unfilled, there will be workflow delays in design of distribution capital projects. Labor splits are approximately 90% Capital, 10% O&M.(2 FTE's in 2014, 1 FTE in 2015)

2015	50	0	0	50	0.5	1-Sided Adj

Principal Engineer needed for Technical Analysis and Reliability Projects. Labor split to be 50% O&M and 50% Capital. Position filled in 2014.

2015 Total	**80**	**0**	**0**	**80**	**0.8**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED001.001 - Reliability & Capacity

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2016	30	0	0	30	0.3	1-Sided Adj

Fusing Specialists (2) and Administrative Asst. (1) positions needed to ensure the safety of the public and construction employees, impact the safety and reliability of the distribution system. If positions remain unfilled, there will be workflow delays in design of distribution capital projects. Labor splits are approximately 90% Capital, 10% O&M.(2 FTE's in 2014, 1 FTE in 2015)

2016	50	0	0	50	0.5	1-Sided Adj

Principal Engineer needed for Technical Analysis and Reliability Projects. Labor split to be 50% O&M and 50% Capital. Position filled in 2014.

2016 Total	**80**	**0**	**0**	**80**	**0.8**

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED001.001 - Reliability & Capacity

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	310	306	346	330	198
Non-Labor	131	93	503	227	308
NSE	0	0	0	0	0
Total	**441**	**399**	**849**	**557**	**506**
FTE	3.7	3.6	3.9	3.8	1.9
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	310	306	346	330	198
Non-Labor	131	93	503	227	308
NSE	0	0	0	0	0
Total	**441**	**399**	**849**	**557**	**506**
FTE	3.7	3.6	3.9	3.8	1.9
Vacation & Sick (Nominal $)					
Labor	48	49	51	48	31
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**48**	**49**	**51**	**48**	**31**
FTE	0.6	0.6	0.6	0.6	0.3
Escalation to 2013$					
Labor	31	22	16	8	0
Non-Labor	14	8	19	3	0
NSE	0	0	0	0	0
Total	**45**	**30**	**36**	**12**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	389	377	413	386	229
Non-Labor	145	101	523	230	308
NSE	0	0	0	0	0
Total	**534**	**477**	**936**	**617**	**538**
FTE	4.3	4.2	4.5	4.4	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: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED001.001 - Reliability & Capacity

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED004.000 - Electric Distribution Operations

Area:	ELECTRIC DISTRIBUTION
Witness:	Jonathan Woldemariam
Category:	B. Reliability
Category-Sub	1. Reliability
Workpaper:	1ED004.000 - Electric Distribution Operations

Activity Description:

This workgroup is made up of the following: (1) Electric Distribution Operations & Training (EDO&T) The Electric Distribution Operations and Training Team is responsible for operating the Electric Distribution System safely and reliably for planned and unplanned events (e.g., outages). This team has two main resource types: technical support personnel and operators/programmers. Each of these resource types has specific roles and responsibilities. ensuring resources are interchangeable, meaning that every resource has the ability to act in either type of role. This group supports 24/7 Operations management and oversight of the electric distribution system, Distribution System Operations, “Reliability on the Fly” and support District Engineers with Reliability Analysis of feeders and branches, Customer Call-Backs initiated by the Technical Support Team (TST) for every outage event, Emergency Communications and Crew Mobilization. (2) EDO Major Projects (EDOMP). The EDO Major Projects Team is responsible for providing weather forecast and executing special projects, usually upon the request of senior management. SDG&E Weather Network - Meteorology in charge of approximately 144 company owned & operated Weather Stations, Partnership with Universities, Local Agencies & National Organizations, Collaboration Efforts, Santa Ana Winds Classification, Fire Potential Index (FPI), Weather Forecasting, Situational Awareness Cameras, Visual Fire Detection, NICS – Next Generation Incident Command, RedZone Fire Alerts, Seismic Strong Motion Sensors and Mobile Filed Command Centers. (3) EDO System Services (EDOSS). The EDO System Services Team is responsible for providing operational, technical and process support to the Distribution Control Center including support of Supervisory Control and Data Acquisition Systems (SCADA) and N

Forecast Explanations:

Labor - 3-YR Linear

The 3-YR Linear Forecast was chosen due to the creation of the Business Solutions and Training Team, as well as filling vacancies within the control center.

Non-Labor - 3-YR Linear

The 3-YR Linear Forecast was chosen for non-labor costs due to increasing maintenance costs for both hardware and software and exempt materials. These costs go up as more hardware is installed in the field, for example, for more weather instrumentation, cameras, or SCADA devices, which enhance fire, security, and reliability risk mitigation. The servers that manage and collect the data for these risk mitigation and other devices will also need upgrading and/or replacing. The exempt materials are the largest portion of non-labor in this workgroup.

NSE - 3-YR Linear

na

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub 1. Reliability
Workpaper: 1ED004.000 - Electric Distribution Operations

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	2,791	2,880	2,518	3,167	3,790	4,431	5,068	5,704
Non-Labor	7,507	6,564	5,913	8,364	7,148	8,376	8,994	9,611
NSE	0	0	0	0	0	0	0	0
Total	**10,297**	**9,444**	**8,430**	**11,531**	**10,938**	**12,807**	**14,061**	**15,315**
FTE	25.0	26.7	20.7	24.0	32.2	37.0	42.7	48.4

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED004.000 - Electric Distribution Operations

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	3-YR Linear	4,431	5,068	5,704	0	0	0	4,431	5,068	5,704
Non-Labor	3-YR Linear	8,376	8,994	9,611	0	0	0	8,376	8,994	9,611
NSE	3-YR Linear	0	0	0	0	0	0	0	0	0
Total		**12,807**	**14,061**	**15,315**	**0**	**0**	**0**	**12,807**	**14,061**	**15,315**
FTE	3-YR Linear	37.0	42.7	48.4	0.0	0.0	0.0	37.0	42.7	48.4

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
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: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED004.000 - Electric Distribution Operations

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	2,226	2,337	2,108	2,708	3,272
Non-Labor	6,791	6,072	5,694	8,240	7,148
NSE	0	0	0	0	0
Total	**9,018**	**8,409**	**7,802**	**10,947**	**10,419**
FTE	21.4	22.7	17.8	20.6	27.4
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	2,226	2,337	2,108	2,708	3,272
Non-Labor	6,791	6,072	5,694	8,240	7,148
NSE	0	0	0	0	0
Total	**9,018**	**8,409**	**7,802**	**10,947**	**10,419**
FTE	21.4	22.7	17.8	20.6	27.4
Vacation & Sick (Nominal $)					
Labor	344	372	311	392	519
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**344**	**372**	**311**	**392**	**519**
FTE	3.6	3.9	2.9	3.3	4.8
Escalation to 2013$					
Labor	221	172	99	67	0
Non-Labor	715	492	219	125	0
NSE	0	0	0	0	0
Total	**936**	**664**	**318**	**191**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	2,791	2,880	2,518	3,167	3,790
Non-Labor	7,507	6,564	5,913	8,364	7,148
NSE	0	0	0	0	0
Total	**10,297**	**9,444**	**8,430**	**11,531**	**10,938**
FTE	25.0	26.6	20.7	23.9	32.2

* 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: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED004.000 - Electric Distribution Operations

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED008.000 - Grid Operations

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub 1. Reliability
Workpaper: 1ED008.000 - Grid Operations

Activity Description:

The Electronic Control Technician is responsible for the overall installation, testing, calibration and maintenance for all Supervisory, Control & Data Acquisition (SCADA) equipment that interfaces with both the Transmission Emergency Management Systems (EMS) and Distribution Operations master stations, system totals & major intertie load reads to the Independent System Operator (ISO), as well as the A- & AV signals from customer facilities to SDG&E. The accuracy and availability of the SCADA system is the 24 hour a day responsibility of the Emergency Control Technician (ECT). Primary duties include the following: program & configure Remote Terminal Units (RTU's), check SCADA site communication lines and levels
from end-to-end, respond to any RTU related trouble calls from EMS & Distribution Operations and perform schedule maintenance and troubleshooting on existing systems.

Forecast Explanations:

Labor - Base YR Rec

Due to organizational changes and added responsibilities a 3-Year Average Forecast is most reflective of the cost to be incurred for labor and non-labor in the Test Year 2016. Two additional Electronic Control Technicians required to support increased workload as a result of additional responsibilities and equipment deployment.

Non-Labor - Base YR Rec

The 3-Year Average Forecast methodology is most reflective of the cost to be incurred for labor and non-labor in the Test Year 2016. Non labor expenses are non-transmission O&M expenses for items including training, office supplies and employee travel.

NSE - Base YR Rec

N/A

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	321	256	290	258	92	192	292	292
Non-Labor	1	6	9	26	57	57	57	57
NSE	0	0	0	0	0	0	0	0
Total	**322**	**262**	**299**	**284**	**148**	**248**	**348**	**348**
FTE	3.1	2.5	2.5	2.5	1.2	2.2	3.2	3.2

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED008.000 - Grid Operations

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Base YR Rec	92	92	92	100	200	200	192	292	292
Non-Labor	Base YR Rec	57	57	57	0	0	0	57	57	57
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**148**	**148**	**148**	**100**	**200**	**200**	**248**	**348**	**348**
FTE	Base YR Rec	1.2	1.2	1.2	1.0	2.0	2.0	2.2	3.2	3.2

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	100	0	0	100	1.0	1-Sided Adj

One added Electronic Control Technician to support increase in the number of SCADA RTU's put into service as a result of various SDGE initiatives including OpEx 20/20 and SmartGrid. Increased RTU count will in turn, increase the need for the planned and unplanned maintenance of the devices.

2014 Total	**100**	**0**	**0**	**100**	**1.0**	
2015	200	0	0	200	2.0	1-Sided Adj

Two added Electronic Control Technician to support increase in the number of SCADA RTU's put into service as a result of various SDGE initiatives including OpEx 20/20 and SmartGrid. Increased RTU count will in turn, increase the need for the planned and unplanned maintenance of the devices.

2015 Total	**200**	**0**	**0**	**200**	**2.0**	
2016	200	0	0	200	2.0	1-Sided Adj

Two added Electronic Control Technician to support increase in the number of SCADA RTU's put into service as a result of various SDGE initiatives including OpEx 20/20 and SmartGrid. Increased RTU count will in turn, increase the need for the planned and unplanned maintenance of the devices.

2016 Total	**200**	**0**	**0**	**200**	**2.0**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED008.000 - Grid Operations

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	256	208	242	221	79
Non-Labor	1	5	9	26	57
NSE	0	0	0	0	0
Total	**257**	**213**	**251**	**247**	**136**
FTE	2.6	2.1	2.2	2.1	1.1
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	256	208	242	221	79
Non-Labor	1	5	9	26	57
NSE	0	0	0	0	0
Total	**257**	**213**	**251**	**247**	**136**
FTE	2.6	2.1	2.2	2.1	1.1
Vacation & Sick (Nominal $)					
Labor	40	33	36	32	13
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**40**	**33**	**36**	**32**	**13**
FTE	0.4	0.4	0.4	0.3	0.2
Escalation to 2013$					
Labor	25	15	11	5	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**26**	**16**	**12**	**6**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	321	256	290	258	92
Non-Labor	1	6	9	26	57
NSE	0	0	0	0	0
Total	**322**	**262**	**299**	**284**	**148**
FTE	3.0	2.5	2.6	2.4	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: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED008.000 - Grid Operations

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED018.000 - Distribution Engineering

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub 1. Reliability
Workpaper: 1ED018.000 - Distribution Engineering

Activity Description:

This group is the Electric Transmission and Distribution Engineering (ETDE) department. Within this group are the following: Electric Distribution Standards, Customer Generation, Substation Engineering and Design, System Protection Engineering, and Civil/Structural Engineering. The costs represented are only those related to Distribution employees and Distribution non-labor.

Forecast Explanations:

Labor - 4-YR Linear

The 4-YR Linear Forecast is used due to the increasing need for support in the Net Energy Metering group. The Net Energy Metering team has seen incredible growth in the number of customers installing solar. Last year there was a 35% growth in authorizations for NEM customers over the prior year. In total, over the last 5 years, the Customer Generation team has seen a 351% growth. A conservative forecast predicts our growth year over year through 2016 at 35%. The rate increase has already started to have an impact and is expected to have an even greater impact on the number of customers adopting solar in the coming year. In comparing 2013 to the 2012, there has already been a 100% increase in authorized NEM Customers. In 2012 the NEM team processed 6,101 applications. With the 100% growth this year, they are expecting to process over 12,000 applications in 2013. With this growth, the number of inspections is rapidly increasing, as well as the number of issues with systems in the field rise. To manage the additional workload, they need to add a full time employee as an ELECTRIC DISTRIBUTION ANALYST to meet our customer's expectations and ensure that they are in compliance with the CPUC. Additionally, they have been in a production environment trying to process applications and authorize customers. With the volume they are seeing, other aspects of our job are getting put on hold due to lack of time. Many of the things being put on hold are the organization, strategy and streamlining of the process. An effective PROJECT COORDINATOR will enable the team to focus on these other important tasks that may be forgotten. A 10-12 hour day is the standard for the NEM team.

Non-Labor - 3-YR Linear

The 3-YR Linear Forecast is used due to the increase of generator storage costs associated with the Customer Fire Safety Program.

NSE - 4-YR Linear

na

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	805	719	1,016	1,071	1,001	1,307	1,527	1,617
Non-Labor	150	367	344	369	318	318	305	292
NSE	0	0	0	0	0	0	0	0
Total	**955**	**1,086**	**1,360**	**1,440**	**1,319**	**1,625**	**1,832**	**1,909**
FTE	8.6	7.9	11.6	11.5	11.3	15.1	18.1	19.1

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED018.000 - Distribution Engineering

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	4-YR Linear	1,177	1,267	1,357	130	260	260	1,307	1,527	1,617
Non-Labor	3-YR Linear	318	305	292	0	0	0	318	305	292
NSE	4-YR Linear	0	0	0	0	0	0	0	0	0
Total		**1,495**	**1,572**	**1,649**	**130**	**260**	**260**	**1,625**	**1,832**	**1,909**
FTE	4-YR Linear	13.1	14.1	15.1	2.0	4.0	4.0	15.1	18.1	19.1

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	130	0	0	130	2.0	1-Sided Adj
These are the 2 NEM employees at 100& Dsitribution O&M.						
2014 Total	**130**	**0**	**0**	**130**	**2.0**	
2015	130	0	0	130	2.0	1-Sided Adj
These are the 2 NEM people at 100% Distribution O&M						
2015	130	0	0	130	2.0	1-Sided Adj
Along with the 2 employees needed in 2014, 2 additional employees will be needed in 2015 and 2016. These are all 100% Sistribution O&M.						
2015 Total	**260**	**0**	**0**	**260**	**4.0**	
2016	130	0	0	130	2.0	1-Sided Adj
These are the 2 people for NEM at 100% Dsitrubition O&M						
2016	130	0	0	130	2.0	1-Sided Adj
These 2 employees are the carry-over from the previous 2 years in support of the growing trend of NEM. Both of these area Electrci Distribution Analysts ar 100% O&M.						
2016 Total	**260**	**0**	**0**	**260**	**4.0**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED018.000 - Distribution Engineering

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	642	583	851	916	864
Non-Labor	136	221	321	363	318
NSE	0	0	0	0	0
Total	**778**	**804**	**1,172**	**1,279**	**1,182**
FTE	7.3	6.7	10.0	9.9	9.6
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	0	119	10	0	0
NSE	0	0	0	0	0
Total	**0**	**119**	**10**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	642	583	851	916	864
Non-Labor	136	339	332	363	318
NSE	0	0	0	0	0
Total	**778**	**923**	**1,182**	**1,279**	**1,182**
FTE	7.3	6.7	10.0	9.9	9.6
Vacation & Sick (Nominal $)					
Labor	99	93	125	133	137
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**99**	**93**	**125**	**133**	**137**
FTE	1.2	1.2	1.6	1.6	1.7
Escalation to 2013$					
Labor	64	43	40	23	0
Non-Labor	14	28	13	5	0
NSE	0	0	0	0	0
Total	**78**	**70**	**53**	**28**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	805	719	1,016	1,071	1,001
Non-Labor	150	367	344	369	318
NSE	0	0	0	0	0
Total	**955**	**1,086**	**1,360**	**1,440**	**1,319**
FTE	8.5	7.9	11.6	11.5	11.3

* 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: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED018.000 - Distribution Engineering

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	0	119	10	0	0
NSE	0	0	0	0	0
Total	**0**	**119**	**10**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0

Detail of Adjustments to Recorded:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010	0	119	0	0.0	CCTR Transf	From 2100-0725.000	CSTRIEBE20131107125743947
Transfer generator storage costs to Electric Transmission & Distribution Engineering.							
2010 Total	**0**	**119**	**0**	**0.0**			
2011	0	10	0	0.0	CCTR Transf	From 2100-0725.000	CSTRIEBE20131107132759020
Transfer generator storage costs to Electric Transmission & Distribution Engineering.							
2011 Total	**0**	**10**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED020.000 - Troubleshooting

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub 1. Reliability
Workpaper: 1ED020.000 - Troubleshooting

Activity Description:

The Troubleshooting organization is responsible for ensuring safe and reliable electric service to SDG&E's customer. The group covers six districts and two satellite locations within the service territory. Each of the six districts has electric troubleshooters, engineers, a planner, technical assistants, and management supervision. The troubleshooters are the primary contact with customers who are experiencing service problems, and work closely with emergency response agencies to protect the public and SDG&E employees from potentially hazardous conditions.

Forecast Explanations:

Labor - Base YR Rec

The Base Year recorded plus incremental increases methodology was utilized to identify need for additional Troubleshooting personnel in the field due to system growth.

Non-Labor - Base YR Rec

The Base Year recorded plus incremental increases methodology identifies the additional training, tools and equipment needed as the field employee personnel level increases.

NSE - Base YR Rec

N/A

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	7,559	7,373	7,734	7,714	7,215	7,655	7,655	7,655
Non-Labor	285	265	350	385	310	510	410	310
NSE	0	0	0	0	0	0	0	0
Total	**7,844**	**7,638**	**8,084**	**8,100**	**7,525**	**8,165**	**8,065**	**7,965**
FTE	61.5	59.2	60.1	61.0	55.8	59.8	59.8	59.8

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED020.000 - Troubleshooting

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Base YR Rec	7,215	7,215	7,215	440	440	440	7,655	7,655	7,655
Non-Labor	Base YR Rec	310	310	310	200	100	0	510	410	310
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**7,525**	**7,525**	**7,525**	**640**	**540**	**440**	**8,165**	**8,065**	**7,965**
FTE	Base YR Rec	55.8	55.8	55.8	4.0	4.0	4.0	59.8	59.8	59.8

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	440	200	0	640	4.0	1-Sided Adj

Additional Troubleshooters to cover system growth requirements. Non labor expenses account for tools and equipment necessary for new employees.

2014 Total	**440**	**200**	**0**	**640**	**4.0**	
2015	440	100	0	540	4.0	1-Sided Adj

Additional Troubleshooters to cover system growth requirements. Non labor expenses account for tools and equipment necessary for new employees.

2015 Total	**440**	**100**	**0**	**540**	**4.0**	
2016	440	0	0	440	4.0	1-Sided Adj

Additional Troubleshooters to cover system growth requirements.

2016 Total	**440**	**0**	**0**	**440**	**4.0**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED020.000 - Troubleshooting

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	6,030	5,981	6,476	6,596	6,227
Non-Labor	258	245	337	380	310
NSE	0	0	0	0	0
Total	**6,288**	**6,226**	**6,813**	**6,975**	**6,538**
FTE	52.7	50.5	51.7	52.5	47.5
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	6,030	5,981	6,476	6,596	6,227
Non-Labor	258	245	337	380	310
NSE	0	0	0	0	0
Total	**6,288**	**6,226**	**6,813**	**6,975**	**6,538**
FTE	52.7	50.5	51.7	52.5	47.5
Vacation & Sick (Nominal $)					
Labor	931	952	954	956	988
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**931**	**952**	**954**	**956**	**988**
FTE	8.8	8.7	8.5	8.5	8.3
Escalation to 2013$					
Labor	598	439	304	163	0
Non-Labor	27	20	13	6	0
NSE	0	0	0	0	0
Total	**625**	**459**	**317**	**169**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	7,559	7,373	7,734	7,714	7,215
Non-Labor	285	265	350	385	310
NSE	0	0	0	0	0
Total	**7,844**	**7,638**	**8,084**	**8,100**	**7,525**
FTE	61.5	59.2	60.2	61.0	55.8

* 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: Jonathan Woldemariam
Category: B. Reliability
Category-Sub: 1. Reliability
Workpaper: 1ED020.000 - Troubleshooting

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 1ED020.000

Troubleshooting
Work Group - 1ED020.000
Cost Center - multiple

Witness - J Woldemariam
Cost Center Mgr - N Boyle, A Colton, L Fotland, M Gonzales, P Kinsella, R Shoemaker

	2009 Actual			2010 Actual			2011 Actual			2012 Actual			2013 Actual		
$000's	**Labor**	**Non-Labor**	**FTE**	**Labor**	**Non-Labor**	**FTE**	**Labor**	**Non-Labor**	**FTE**	**Labor**	**Non-Labor**	**FTE**	**Labor**	**Non-Labor**	**FTE**
Recorded Historical	7,627	285	61.5	7,413	265	59.2	7,750	349	60.1	7,722	384	61.0	7,215	310	55.8
Adjustments															
TOTAL	**7,627**	**285**	**61.5**	**7,413**	**265**	**59.2**	**7,750**	**349**	**60.1**	**7,722**	**384**	**61.0**	**7,215**	**310**	**55.8**

Explanation for Adjustments:

Year	Labor	Non-Labor	FTE	Explanation
				2013 Actual now reports the 2013 Base Year Recorded

FORECAST

2014			2015			2016			FORECASTING METHODOLOGY
Labor	**Non-Labor**		**Labor**	**Non-Labor**		**Labor**	**Non-Labor**		**Base Year Recorded plus incremental increases**
7,655	510	59.8	7,655	410	59.8	7,655	310	59.8	

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2014	440		4.0	System growth
2014		100		Electric Troubleshooter tools/equipment
2014		100		Relief ETS class
2014 TOTAL	**440**	**200**	**4.0**	
2015	440		4.0	System growth
2015		100		Relief ETS class
2014 TOTAL	**440**	**100**	**4.0**	
2016	440		4.0	System growth
2014 TOTAL	**440**	**-**	**4.0**	

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Workpaper: VARIOUS

Summary for Category: C. Regulatory Compliance

	In 2013$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	2,753	2,958	2,958	2,958
Non-Labor	28,248	30,283	30,283	30,283
NSE	0	0	0	0
Total	**31,001**	**33,241**	**33,241**	**33,241**
FTE	31.6	34.8	34.8	34.8

Workpapers belonging to this Category:

1ED021.000 Vegetation Management (Pole Brushing)

Labor	206	177	177	177
Non-Labor	3,547	4,116	4,116	4,116
NSE	0	0	0	0
Total	**3,753**	**4,293**	**4,293**	**4,293**
FTE	2.8	2.3	2.3	2.3

1ED021.001 Vegetation Management (Tree Trimming)

Labor	912	1,061	1,061	1,061
Non-Labor	22,191	23,498	23,498	23,498
NSE	0	0	0	0
Total	**23,103**	**24,559**	**24,559**	**24,559**
FTE	12.1	14.4	14.4	14.4

1ED022.000 Regional Public Affairs

Labor	935	935	935	935
Non-Labor	752	752	752	752
NSE	0	0	0	0
Total	**1,687**	**1,687**	**1,687**	**1,687**
FTE	8.4	8.4	8.4	8.4

1ED025.000 Compliance & Asset Management

Labor	700	785	785	785
Non-Labor	1,758	1,917	1,917	1,917
NSE	0	0	0	0
Total	**2,458**	**2,702**	**2,702**	**2,702**
FTE	8.3	9.7	9.7	9.7

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED021.000 - Vegetation Management (Pole Brushing)

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub 1. Regulatory Compliance
Workpaper: 1ED021.000 - Vegetation Management (Pole Brushing)

Activity Description:

Pole brushing for SDG&E involves the clearing of flammable brush and vegetation away from SDG&E distribution poles subject to the California Public Resource Code (PRC), section 4292. PRC 4292 is intended to prevent energized electrical hardware from igniting a fire by keeping the area under the subject poles clear of flammable vegetation at all times.

Forecast Explanations:

Labor - 3-YR Average

Labor costs are based on a 3-year average. Labor includes a portion of several positions that administer the pole brush program. The most recent 3-year average appears most indicative of forecasted expenses for this group, because it represents the funding level needed to complete the forecasted level of pole brush activity while accounting for slight fluctuations in year-to-year costs.

Non-Labor - 3-YR Average

Non-labor includes field work performed by outside contractors plus the pole brushing share of contractor insurance coverage. The most recent 3-year average appears most indicative of forecasted expenses for this group, because it represents the funding level needed to complete the forecasted level of pole brush activity while accounting for slight fluctuations in year-to-year costs.

NSE - 3-YR Average

na

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	188	149	146	178	206	177	177	177
Non-Labor	4,026	4,147	4,157	4,643	3,547	4,116	4,116	4,116
NSE	0	0	0	0	0	0	0	0
Total	**4,215**	**4,296**	**4,302**	**4,821**	**3,752**	**4,292**	**4,292**	**4,292**
FTE	3.4	1.8	1.8	2.4	2.8	2.3	2.3	2.3

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED021.000 - Vegetation Management (Pole Brushing)

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	3-YR Average	177	177	177	0	0	0	177	177	177
Non-Labor	3-YR Average	4,116	4,116	4,116	0	0	0	4,116	4,116	4,116
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		**4,292**	**4,292**	**4,292**	**0**	**0**	**0**	**4,292**	**4,292**	**4,292**
FTE	3-YR Average	2.3	2.3	2.3	0.0	0.0	0.0	2.3	2.3	2.3

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
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: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED021.000 - Vegetation Management (Pole Brushing)

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	235	121	122	152	178
Non-Labor	3,246	3,325	3,285	3,589	2,999
NSE	0	0	0	0	0
Total	**3,482**	**3,446**	**3,407**	**3,741**	**3,176**
FTE	2.9	1.5	1.5	2.1	2.4
Adjustments (Nominal $) **					
Labor	-85	0	0	0	0
Non-Labor	396	511	718	985	548
NSE	0	0	0	0	0
Total	**311**	**511**	**718**	**985**	**548**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	150	121	122	152	178
Non-Labor	3,643	3,836	4,003	4,574	3,547
NSE	0	0	0	0	0
Total	**3,793**	**3,957**	**4,125**	**4,726**	**3,724**
FTE	2.9	1.5	1.5	2.1	2.4
Vacation & Sick (Nominal $)					
Labor	23	19	18	22	28
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**23**	**19**	**18**	**22**	**28**
FTE	0.5	0.3	0.3	0.3	0.4
Escalation to 2013$					
Labor	15	9	6	4	0
Non-Labor	384	311	154	69	0
NSE	0	0	0	0	0
Total	**399**	**320**	**160**	**73**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	188	149	146	178	206
Non-Labor	4,026	4,147	4,157	4,643	3,547
NSE	0	0	0	0	0
Total	**4,215**	**4,296**	**4,302**	**4,821**	**3,752**
FTE	3.4	1.8	1.8	2.4	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: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED021.000 - Vegetation Management (Pole Brushing)

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	-85	0	0	0	0
Non-Labor	396	511	718	985	548
NSE	0	0	0	0	0
Total	**311**	**511**	**718**	**985**	**548**
FTE	0.0	0.0	0.0	0.0	0.0

Detail of Adjustments to Recorded:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj Type	From CCtr	RefID
2009	-85	-33	0	0.0	CCTR Transf	To 2100-3761.000	CSTRIEBE20131 113091538203
To report fire coordinator expenses in different workpaper group ED002.							
2009	0	429	0	0.0	1-Sided Adj	N/A	RPISANES20140 506104941250
To reflect the pole brush associated portion of the insurance reimbursement made to vegetation management contractors. (further explained in testimony in the vegetation management tree trim section)							
2009 Total	**-85**	**396**	**0**	**0.0**			
2010	0	511	0	0.0	1-Sided Adj	N/A	RPISANES20140 506105039190
To reflect the pole brush associated portion of the insurance reimbursement made to vegetation management contractors. (further explained in testimony in the vegetation management tree trim section)							
2010 Total	**0**	**511**	**0**	**0.0**			
2011	0	718	0	0.0	1-Sided Adj	N/A	RPISANES20140 506105155940
To reflect the pole brush associated portion of the insurance reimbursement made to vegetation management contractors. (further explained in testimony in the vegetation management tree trim section)							
2011 Total	**0**	**718**	**0**	**0.0**			

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED021.000 - Vegetation Management (Pole Brushing)

Year/Expl.	Labor	NLbr	NSE	FTE	Adj Type	From CCtr	RefID
2012	0	985	0	0.0	1-Sided Adj	N/A	RPISANES20140 506105239157
To reflect the pole brush associated portion of the insurance reimbursement made to vegetation management contractors. (further explained in testimony in the vegetation management tree trim section)							
2012 Total	**0**	**985**	**0**	**0.0**			
2013	0	78	0	0.0	1-Sided Adj	N/A	CSTRIEBE20140 417131357713
2013 pole brushing costs that were not accrued in 2013 and recorded in 2014.							
2013	0	470	0	0.0	1-Sided Adj	N/A	RPISANES20140 506105327450
To reflect the pole brush associated portion of the insurance reimbursement made to vegetation management contractors. (further explained in testimony in the vegetation management tree trim section)							
2013 Total	**0**	**548**	**0**	**0.0**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED021.001 - Vegetation Management (Tree Trimming)

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub 1. Regulatory Compliance
Workpaper: 1ED021.001 - Vegetation Management (Tree Trimming)

Activity Description:

Vegetation Management Tree Trim program includes inspecting and maintaining an inventory of approximately 400,000 trees that have the potential to encroach within the minimum required compliance distance between vegetation and overhead power lines. This work includes pruning healthy trees growing into overhead power lines as well as the pruning or removal of dead, dying, diseased, or structurally unsound trees with the potential to fall into overhead lines. Associated program management, as well as administrative and information technology support, are also included as part of this activity.

Forecast Explanations:

Labor - 3-YR Average

Labor costs are based on the most recent 3-year historical average. Labor consists of Vegetation Management staff labor and other support activities.

Non-Labor - 3-YR Average

Non-labor costs are based on a 3-year historical average. Non-labor includes field work plus tree trim's share of contractor insurance. In spite of a host of potential upward cost pressures, the 3-year historical average plus a modest adjustment associated with the new Powerworkz information system appropriately represents forecasted expenses for this group.

NSE - 3-YR Average

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Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	980	957	975	906	912	1,061	1,061	1,061
Non-Labor	26,904	24,690	22,308	25,202	22,191	23,498	23,498	23,498
NSE	0	0	0	0	0	0	0	0
Total	**27,884**	**25,647**	**23,283**	**26,107**	**23,104**	**24,559**	**24,559**	**24,559**
FTE	13.2	12.8	13.3	12.3	12.1	14.4	14.4	14.4

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED021.001 - Vegetation Management (Tree Trimming)

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	3-YR Average	931	931	931	130	130	130	1,061	1,061	1,061
Non-Labor	3-YR Average	23,234	23,234	23,234	264	264	264	23,498	23,498	23,498
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		**24,165**	**24,165**	**24,165**	**394**	**394**	**394**	**24,559**	**24,559**	**24,559**
FTE	3-YR Average	12.6	12.6	12.6	1.8	1.8	1.8	14.4	14.4	14.4

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	130	264	0	394	1.8	1-Sided Adj

Administrative operational and information technology related O&M expenses associated with PowerWorkz Vegetation Management information system. 2014 is the first full year of operation for the new PowerWorkz system and thus expenses are incremental over prior years. Expenses are anticipated to be constant in future years.

2014 Total	**130**	**264**	**0**	**394**	**1.8**	
2015	130	264	0	394	1.8	1-Sided Adj

Administrative operational and information technology related O&M expenses associated with PowerWorkz Vegetation Management information system. 2014 is the first full year of operation for the new PowerWorkz system and thus expenses are incremental over prior years. Expenses are anticipated to be constant in future years.

2015 Total	**130**	**264**	**0**	**394**	**1.8**	
2016	130	264	0	394	1.8	1-Sided Adj

Administrative operational and information technology related O&M expenses associated with PowerWorkz Vegetation Management information system. 2014 is the first full year of operation for the new PowerWorkz system and thus expenses are incremental over prior years. Expenses are anticipated to be constant in future years.

2016 Total	**130**	**264**	**0**	**394**	**1.8**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED021.001 - Vegetation Management (Tree Trimming)

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	782	777	816	774	787
Non-Labor	21,980	20,028	17,531	19,406	19,607
NSE	0	0	0	0	0
Total	**22,762**	**20,804**	**18,348**	**20,180**	**20,394**
FTE	11.3	10.9	11.4	10.6	10.3
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	2,360	2,811	3,951	5,420	2,585
NSE	0	0	0	0	0
Total	**2,360**	**2,811**	**3,951**	**5,420**	**2,585**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	782	777	816	774	787
Non-Labor	24,340	22,838	21,482	24,826	22,191
NSE	0	0	0	0	0
Total	**25,122**	**23,615**	**22,299**	**25,601**	**22,979**
FTE	11.3	10.9	11.4	10.6	10.3
Vacation & Sick (Nominal $)					
Labor	121	124	120	112	125
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**121**	**124**	**120**	**112**	**125**
FTE	1.9	1.9	1.9	1.7	1.8
Escalation to 2013$					
Labor	78	57	38	19	0
Non-Labor	2,564	1,852	825	375	0
NSE	0	0	0	0	0
Total	**2,641**	**1,909**	**864**	**395**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	980	957	975	906	912
Non-Labor	26,904	24,690	22,308	25,202	22,191
NSE	0	0	0	0	0
Total	**27,884**	**25,647**	**23,283**	**26,107**	**23,104**
FTE	13.2	12.8	13.3	12.3	12.1

* 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: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED021.001 - Vegetation Management (Tree Trimming)

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	2,360	2,811	3,951	5,420	2,585
NSE	0	0	0	0	0
Total	**2,360**	**2,811**	**3,951**	**5,420**	**2,585**
FTE	0.0	0.0	0.0	0.0	0.0

Detail of Adjustments to Recorded:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj Type	From CCtr	RefID
2009	0	2,360	0	0.0	1-Sided Adj	N/A	CSTRIEBE20131 113135811260
Insurance reimbursement to Tree Trim service providers.							
2009 Total	**0**	**2,360**	**0**	**0.0**			
2010	0	2,811	0	0.0	1-Sided Adj	N/A	CSTRIEBE20131 113140238590
Insurance reimbursement to Tree Trim service providers.							
2010 Total	**0**	**2,811**	**0**	**0.0**			
2011	0	3,951	0	0.0	1-Sided Adj	N/A	CSTRIEBE20131 113140356160
Insurance reimbursement to Tree Trim service providers.							
2011 Total	**0**	**3,951**	**0**	**0.0**			
2012	0	5,420	0	0.0	1-Sided Adj	N/A	CSTRIEBE20131 113140451273
Insurance reimbursement to Tree Trim service providers.							
2012 Total	**0**	**5,420**	**0**	**0.0**			

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED021.001 - Vegetation Management (Tree Trimming)

Year/Expl.	Labor	NLbr	NSE	FTE	Adj Type		From CCtr	RefID
2013	0	2,585	0	0.0	1-Sided Adj	N/A		TPGMG20140415 164435657
Tree Trimming insurance reimbursements provided to the service providers								
2013 Total	**0**	**2,585**	**0**	**0.0**				

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED022.000 - Regional Public Affairs

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub 1. Regulatory Compliance
Workpaper: 1ED022.000 - Regional Public Affairs

Activity Description:

The Regional Public Affairs organization engages in activites that support communication with local and regional governments, community based organizations and customers on issues related to construction, operations and maintenance activities for SDG&E electric distribution.

Forecast Explanations:

Labor - Base YR Rec

Labor costs use Base Year methodology, because it best reflects current and future operating requirements. No incremental increases are being requested for this group.

Non-Labor - Base YR Rec

Non-Labor costs use Base year methodology, adjusted for non-recurring costs. No incremental increases are being requested for this group.

NSE - Base YR Rec

N/A

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	824	824	753	629	935	935	935	935
Non-Labor	282	591	465	446	752	752	752	752
NSE	0	0	0	0	0	0	0	0
Total	**1,107**	**1,415**	**1,218**	**1,076**	**1,687**	**1,687**	**1,687**	**1,687**
FTE	8.1	7.6	6.8	5.7	8.4	8.4	8.4	8.4

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED022.000 - Regional Public Affairs

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Base YR Rec	935	935	935	0	0	0	935	935	935
Non-Labor	Base YR Rec	752	752	752	0	0	0	752	752	752
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**1,687**	**1,687**	**1,687**	**0**	**0**	**0**	**1,687**	**1,687**	**1,687**
FTE	Base YR Rec	8.4	8.4	8.4	0.0	0.0	0.0	8.4	8.4	8.4

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
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: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED022.000 - Regional Public Affairs

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	658	668	630	538	807
Non-Labor	256	547	448	440	752
NSE	0	0	0	0	0
Total	**913**	**1,215**	**1,078**	**978**	**1,559**
FTE	6.9	6.5	5.9	4.9	7.1
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	658	668	630	538	807
Non-Labor	256	547	448	440	752
NSE	0	0	0	0	0
Total	**913**	**1,215**	**1,078**	**978**	**1,559**
FTE	6.9	6.5	5.9	4.9	7.1
Vacation & Sick (Nominal $)					
Labor	102	106	93	78	128
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**102**	**106**	**93**	**78**	**128**
FTE	1.2	1.1	1.0	0.8	1.2
Escalation to 2013$					
Labor	65	49	30	13	0
Non-Labor	27	44	17	7	0
NSE	0	0	0	0	0
Total	**92**	**93**	**47**	**20**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	824	824	753	629	935
Non-Labor	282	591	465	446	752
NSE	0	0	0	0	0
Total	**1,107**	**1,415**	**1,218**	**1,076**	**1,687**
FTE	8.1	7.6	6.9	5.7	8.3

* 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: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED022.000 - Regional Public Affairs

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED025.000 - Compliance & Asset Management

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub 1. Regulatory Compliance
Workpaper: 1ED025.000 - Compliance & Asset Management

Activity Description:

The Compliance and Asset Management workgroups are focused on ensuring SDG&E maintains its compliance with internal and external regulations, policies, and procedures as they relate to operating and maintaining the electric distribution system in a safe and efficient manner. The three main subsections that comprise the Compliance and Asset Management Workgroup are the “Compliance Management Group”, the “Program Management Group", and the "Aerial Marking Group".

Forecast Explanations:

Labor - 3-YR Average

Labor costs recorded to this workpaper group include the manager and supporting project managers and business analysts salary and personal expenses; salaries of employees supporting general administration and recording keeping, The 3-year average forecast appears to be the most representative methodology in estimating the future labor costs associated with this group.

Non-Labor - 3-YR Average

Non-labor expenditures include costs for consultants, training, prototyping new systems, testing materials and limited purchase of tools in support of field Mobile Data Terminals (MDT’s). The 3-year average forecast appears to be the most representative methodology in estimating the future non labor costs associated with this group.

NSE - 3-YR Average

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Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	185	288	291	785	700	785	785	785
Non-Labor	1,628	1,363	1,906	1,742	1,758	1,917	1,917	1,917
NSE	0	0	0	0	0	0	0	0
Total	**1,813**	**1,652**	**2,197**	**2,526**	**2,458**	**2,702**	**2,702**	**2,702**
FTE	2.2	3.3	3.4	8.5	8.3	9.7	9.7	9.7

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED025.000 - Compliance & Asset Management

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	3-YR Average	592	592	592	193	193	193	785	785	785
Non-Labor	3-YR Average	1,802	1,802	1,802	115	115	115	1,917	1,917	1,917
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		**2,394**	**2,394**	**2,394**	**308**	**308**	**308**	**2,702**	**2,702**	**2,702**
FTE	3-YR Average	6.7	6.7	6.7	3.0	3.0	3.0	9.7	9.7	9.7

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	193	0	0	193	3.0	1-Sided Adj

(1) Engineer for significant increase in data request for pole load calcs across system ($42.5k).
(2) Program Analyst to deal with increase in infractions from the fire risk mitigation program and increased pole load calcs ($65k). New QA Administrator to handle increased QA workload due to introduction of post-construction CIP audits ($85k).

2014	0	115	0	115	0.0	1-Sided Adj

OIR Phase 3 Track 2- add intrusive inspections if pole hasn t been inspected within 5 years. Results in 10% more intrusive inspections.

2014 Total	**193**	**115**	**0**	**308**	**3.0**	
2015	193	0	0	193	3.0	1-Sided Adj

(1) Engineer for significant increase in data request for pole load calcs across system ($42.5k).
(2) Program Analyst to deal with increase in infractions from the fire risk mitigation program and increased pole load calcs ($65k). New QA Administrator to handle increased QA workload due to introduction of post-construction CIP audits ($85k).

2015	0	115	0	115	0.0	1-Sided Adj

OIR Phase 3 Track 2- add intrusive inspections if pole hasn t been inspected within 5 years. Results in 10% more intrusive inspections.

2015 Total	**193**	**115**	**0**	**308**	**3.0**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED025.000 - Compliance & Asset Management

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2016	193	0	0	193	3.0	1-Sided Adj

(1) Engineer for significant increase in data request for pole load calcs across system ($42.5k). (2) Program Analyst to deal with increase in infractions from the fire risk mitigation program and increased pole load calcs ($65k). New QA Administrator to handle increased QA workload due to introduction of post-construction CIP audits ($85k).

2016	0	115	0	115	0.0	1-Sided Adj

OIR Phase 3 Track 2- add intrusive inspections if pole hasn t been inspected within 5 years. Results in 10% more intrusive inspections.

2016 Total	**193**	**115**	**0**	**308**	**3.0**

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED025.000 - Compliance & Asset Management

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	147	234	244	671	604
Non-Labor	1,473	1,261	1,835	1,716	1,758
NSE	0	0	0	0	0
Total	**1,620**	**1,495**	**2,079**	**2,387**	**2,362**
FTE	1.9	2.9	2.9	7.3	7.0
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	147	234	244	671	604
Non-Labor	1,473	1,261	1,835	1,716	1,758
NSE	0	0	0	0	0
Total	**1,620**	**1,495**	**2,079**	**2,387**	**2,362**
FTE	1.9	2.9	2.9	7.3	7.0
Vacation & Sick (Nominal $)					
Labor	23	37	36	97	96
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**23**	**37**	**36**	**97**	**96**
FTE	0.3	0.5	0.5	1.2	1.2
Escalation to 2013$					
Labor	15	17	11	17	0
Non-Labor	155	102	71	26	0
NSE	0	0	0	0	0
Total	**170**	**119**	**82**	**43**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	185	288	291	785	700
Non-Labor	1,628	1,363	1,906	1,742	1,758
NSE	0	0	0	0	0
Total	**1,813**	**1,652**	**2,197**	**2,526**	**2,458**
FTE	2.2	3.4	3.4	8.5	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: Jonathan Woldemariam
Category: C. Regulatory Compliance
Category-Sub: 1. Regulatory Compliance
Workpaper: 1ED025.000 - Compliance & Asset Management

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: D. Workforce Development
Workpaper: 1ED013.000

Summary for Category: D. Workforce Development

	In 2013$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	2,751	4,181	4,181	4,181
Non-Labor	909	1,041	1,961	906
NSE	0	0	0	0
Total	**3,660**	**5,222**	**6,142**	**5,087**
FTE	26.6	42.6	42.6	42.6

Workpapers belonging to this Category:

1ED013.000 Skills & Compliance Training

Labor	2,751	4,181	4,181	4,181
Non-Labor	909	1,041	1,961	906
NSE	0	0	0	0
Total	**3,660**	**5,222**	**6,142**	**5,087**
FTE	26.6	42.6	42.6	42.6

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED013.000 - Skills & Compliance Training

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: D. Workforce Development
Category-Sub 1. Workforce Development
Workpaper: 1ED013.000 - Skills & Compliance Training

Activity Description:

Skills Training is responsible for the development and training of the Electric Regional Operations (ERO) workforce, which consists of electric field personnel, non-electrical support personnel, and supervisory staff. The core training provided by this organization consists of the following: electric linemen development using a three-year apprenticeship program; compliance trraining to meet federal, state, local safety, and environmental regulations; equipment operations and commercial drivers' training; and providing training support for other business units.

Forecast Explanations:

Labor - Base YR Rec

The Base Year Recorded Plus Incremental Increases methodology outlines the increased workforce and safety compliance program support along with a three-year projection for adding Instructional Designers and a structured training program for more than 25 ERO job classifications.

Non-Labor - Base YR Rec

The Base Year recorded plus incremental increases methodology records the need to expand the training programs to enhance safety and environmental concerns, purchase primary and secondary metering equipment for SDG&E's Skills City, training technology, and funding for tools and work methods to enhance system reliability.

NSE - Base YR Rec

N/A

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	2,635	2,202	2,364	2,313	2,751	4,181	4,181	4,181
Non-Labor	930	610	647	710	909	1,041	1,961	906
NSE	0	0	0	0	0	0	0	0
Total	**3,564**	**2,812**	**3,011**	**3,023**	**3,660**	**5,222**	**6,142**	**5,087**
FTE	25.6	23.5	24.3	22.3	26.6	42.6	42.6	42.6

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: D. Workforce Development
Category-Sub: 1. Workforce Development
Workpaper: 1ED013.000 - Skills & Compliance Training

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Base YR Rec	2,751	2,751	2,751	1,430	1,430	1,430	4,181	4,181	4,181
Non-Labor	Base YR Rec	909	909	909	132	1,052	-3	1,041	1,961	906
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**3,660**	**3,660**	**3,660**	**1,562**	**2,482**	**1,427**	**5,222**	**6,142**	**5,087**
FTE	Base YR Rec	26.6	26.6	26.6	16.0	16.0	16.0	42.6	42.6	42.6

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	1,430	132	0	1,562	16.0	1-Sided Adj
Please see attached combined listing of upward pressures.						
2014 Total	**1,430**	**132**	**0**	**1,562**	**16.0**	
2015	1,430	1,052	0	2,482	16.0	1-Sided Adj
Please see attached combined listing of upward pressures.						
2015 Total	**1,430**	**1,052**	**0**	**2,482**	**16.0**	
2016	1,430	-3	0	1,427	16.0	1-Sided Adj
Please see attached combined listing of upward pressures.						
2016 Total	**1,430**	**-3**	**0**	**1,427**	**16.0**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: D. Workforce Development
Category-Sub: 1. Workforce Development
Workpaper: 1ED013.000 - Skills & Compliance Training

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	2,102	1,786	1,980	1,974	2,081
Non-Labor	841	564	623	659	767
NSE	0	0	0	0	0
Total	**2,943**	**2,350**	**2,603**	**2,633**	**2,848**
FTE	21.9	20.0	20.8	19.2	19.7
Adjustments (Nominal $) **					
Labor	0	0	0	4	294
Non-Labor	0	0	0	40	142
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**43**	**436**
FTE	0.0	0.0	0.0	0.0	3.0
Recorded-Adjusted (Nominal $)					
Labor	2,102	1,786	1,980	1,978	2,375
Non-Labor	841	564	623	699	909
NSE	0	0	0	0	0
Total	**2,943**	**2,350**	**2,603**	**2,677**	**3,284**
FTE	21.9	20.0	20.8	19.2	22.7
Vacation & Sick (Nominal $)					
Labor	325	284	292	287	377
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**325**	**284**	**292**	**287**	**377**
FTE	3.7	3.5	3.4	3.1	4.0
Escalation to 2013$					
Labor	208	131	93	49	0
Non-Labor	89	46	24	11	0
NSE	0	0	0	0	0
Total	**297**	**177**	**117**	**59**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	2,635	2,202	2,364	2,313	2,751
Non-Labor	930	610	647	710	909
NSE	0	0	0	0	0
Total	**3,564**	**2,812**	**3,011**	**3,023**	**3,660**
FTE	25.6	23.5	24.2	22.3	26.7

* 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: Jonathan Woldemariam
Category: D. Workforce Development
Category-Sub: 1. Workforce Development
Workpaper: 1ED013.000 - Skills & Compliance Training

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	4	294
Non-Labor	0	0	0	40	142
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**43**	**436**
FTE	0.0	0.0	0.0	0.0	3.0

Detail of Adjustments to Recorded:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012	4	40	0	0.0	CCTR Transf	From 2100-3758.000	LBROUGH201402 27155929367
Transfer of the O&M portion of IT CPD costs to SDGE Electric Distribution wkgrp 1ED013							
2012 Total	**4**	**40**	**0**	**0.0**			
2013	294	142	0	3.0	CCTR Transf	From 2100-3758.000	LBROUGH201402 27155703640
Transfer of the O&M portion of IT CPD costs to SDGE Electric Distribution (wkgrp 1ED013)							
2013 Total	**294**	**142**	**0**	**3.0**			

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 1ED013.000

Skills Training
Work Group - 1ED013.000
Cost Center - Various

Witness - J Woldemariam
Cost Center Mgr - A Gelbart

$000's	2009 Actual			2010 Actual			2011 Actual			2012 Actual			2013 Actual		
	Labor	Non-Labor	FTE	Labor	Non-Labor	FTE	Labor	Non-Labor	FTE	Labor	Non-Labor	FTE	Labor	Non-Labor	FTE
Recorded Historical	2,658	929	26	2,214	610	24	2,369	646	24	2,311	667	22	2,751	909	27
Adjustments															
TOTAL	**2,658**	**929**	**26**	**2,214**	**610**	**24**	**2,369**	**646**	**24**	**2,311**	**667**	**22**	**2,751**	**909**	**27**

Explanation for Adjustments:

Year	Labor	Non-Labor	FTE	Explanation
				2013 Actual now reports the 2013 Base Year Recorded

FORECAST

2014			2015			2016			FORECASTING METHODOLOGY
Labor	Non-Labor		Labor	Non-Labor		Labor	Non-Labor		**Base Year Recorded figures plus incremental increases.**
4,181	1,041	43	4,181	1,961	43	4,181	906	43	

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2014		18		Build or purchase a model of multiple UG circuits for demonstrating how to isolate a piece of equipment from a radial feed scheme, loop feed scheme, and/or a back feed scheme using led lights. The lights are used to indicate energized (green)/ de-energized (red) equipment and the circuit which the equipment is on.
2014		80		Purchase a transformer simulator computer program.
2014		250		Purchase primary and secondary metering equipment for the Skills City. (This maybe a AMO expense.)
2014		15		**New Training Technology**: Procure a Mobile Crane Simulator to enhance safety and the training programs for Equipment Operations and Company certified crane operators
2014		15		**New Training Technology**: Procure an Excavator Simulator to enhance safety and the training programs for Equipment Operations heavy equipment operations training program.
2014		12		**Operator Certification:** Fees to cover the cost of classroom training, application fees, and practical examination to recertify 5 certified company crane operators whose license expires this year. (OSHA Title 29 Section 1926)
2014	80		1	**(Safety and Environmental)** Tool Technician: Technician will be in charge of maintaining and operating storeroom; similar to C & O Centers. Responsibilities will include keeping an up to date current inventory or all tools and materials, monitor equipment, provide maintenance support, tracking tools and material utilization.

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2014	90		1	**(Safety , Injury Prevention, Workforce Development)** At Skills Training instructor utilization is dependent upon full-time and borrowed (field) instructors. 1 additional Trainer / Performance Support Analyst: needed to fulfill compliance, ergonomic, strength / conditioning, injury prevention and Behavior Based Training efforts. 1) Position dedicated to • Certified Athletic Trainer / Safety Advisor, assigned to Skills Training: This position will enhance health education to promote a healthier workforce.
2014		281		**(Aging Infrastructure)** Research and Development for tools; work methods to enhance system reliability and produce a safe workforce has been limited based on lace of facility upgrades. Classroom video projectors, MDT (field computers) are functional aids required to facilitate and enhance training are in need of upgrades or replacement. Supervisory positions are dependent field personnel to deliver work information data from the field. To support company initiatives students must learn new operational process that will be in line with company practice that is evolving towards getting people to become more mobile and have quicker access to information. The current training infrastructure has been in place for many years, High-voltage equipment, underground cable, and the overhead wiring system need to be replaced and updated. Tools and current training system upgrades are needed to replicate work activities performed in the field. Most tools, and equipment, have surpassed their useful life expectancy and now pose a risk to employee safety. Update/expansion of the Flex center equipment, due to increase number of training classes, students are required to maintain cardio & fitness and strength levels to perform the work activities in the field. Flex Center Equip. was purchased in 2006.
2014		40		**(Materials)** Frequency of wooden pole change out will occur with the requested above mentioned classes.
2014	1,000	(351)	11	First of three year projection for adding Instructional Designers (EC's). Build a comprehensive portfolio of approximately 25+ structured training programs for ERO Job Classifications. Approximately 49,000 Development Hours (11 Instructional Designers) to create these training programs, over a 3 year period. Reduction of Non Labor due to conversion to EC. After 3 years, there will be a potential to reduce the number of FTE's to maintain curriculums.
2014	180	(235)	2.0	**Workforce**: Convert agency Equipment Training Specialist and Instructional Designer from Agency to RFT. Both are supporting company base (on-going) training programs for SDG&E Operations and Equipment Operations. The agency Equipment Training Specialist was added in 2012 for increased workload in the commercial driver's training program. The Instructional Designer was added to work on the development and maintenance of all training programs delivered by the Equipment Training & Operations Services (ETOS) group. This is base load on-going work.
2014	80		1.0	**Workforce and Safety & Compliance program Support**: Convert vacated Equipment Training Specialist to a new Equipment Training Compliance Programs Analyst position to handle to oversight of all regulations and compliance related to equipment and vehicle training programs, write policies and procedures for related programs; interface with California Highway Patrol and Department of Motor Vehicles for annual audits; oversee the SDG&E Employer Testing program and maintain training and records management systems. Relieves these functions from other Equipment Training Specialists to absorb a new program to incorporate a commercial Smith Driver's Training program to current behind-the-wheel commercial driver's training program utilizing operational vehicles.

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2014		7		**Safety Improvement- Commercial Drivers Training Program:** Certification Class for 5 Instructors to become certified Smith Driver's Training Instructors for the enhance Smith Driver's Training Program in commercial vehicles used in the operating centers. In addition to the 40 hour behind the wheel commercial drier's training program, students will now have their initial Smith Driver's Training Program conducted in a like vehicle they will drive on the job. This replaces their training in a non-commercial vehicle and increases their training from 1 hour to 8 hours.
2014 TOTAL	**1,430**	**132**	**16**	
2015		250		Purchase primary and secondary metering equipment for the Skills City. (This maybe a AMO expense.)
2015		250		**New Training Technology**: Procure a Motor Grader Simulator to enhance the training programs for Equipment Operation heavy equipment operator training program
2015		24		**Operator Certification:** Fees to cover the cost of classroom training, application fees, and practical examination to recertify 10 certified company crane operators whose license expires this year. OSHA Title 29 Section 1926)
2015	80		1	**(Safety and Environmental)** Tool Technician: Technician will be in charge of maintaining and operating storeroom; similar to C & O Centers. Responsibilities will include keeping an up to date current inventory or all tools and materials, monitor equipment, provide maintenance support, tracking tools and material utilization.
2015	90		1	**(Safety , Injury Prevention, Workforce Development)** At Skills Training instructor utilization is dependent upon full-time and borrowed (field) instructors. 1 additional Trainer / Performance Support Analyst: needed to fulfill compliance, ergonomic, strength / conditioning, injury prevention and Behavior Based Training efforts. 1) Position dedicated to • Certified Athletic Trainer / Safety Advisor, assigned to Skills Training: This position will enhance health education to promote a healthier workforce.

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2015		281		**(Aging Infrastructure)** Research and Development for tools; work methods to enhance system reliability and produce a safe workforce has been limited based on lace of facility upgrades. Classroom video projectors, MDT (field computers) are functional aids required to facilitate and enhance training are in need of upgrades or replacement. Supervisory positions are dependent field personnel to deliver work information data from the field. To support company initiatives students must learn new operational process that will be in line with company practice that is evolving towards getting people to become more mobile and have quicker access to information. The current training infrastructure has been in place for many years, High-voltage equipment, underground cable, and the overhead wiring system need to be replaced and updated. Tools and current training system upgrades are needed to replicate work activities performed in the field. Most tools, and equipment, have surpassed their useful life expectancy and now pose a risk to employee safety. Update/expansion of the Flex center equipment, due to increase number of training classes, students are required to maintain cardio & fitness and strength levels to perform the work activities in the field. Flex Center Equip. was purchased in 2006.
2015		40		**(Materials)** Frequency of wooden pole change out will occur with the requested above mentioned classes.
2015	1,000	(351)	11	Second of three year projection for adding Instructional Designers (EC's). Build a comprehensive portfolio of approximately 25+ structured training programs for ERO Job Classifications. Approximately 49,000 Development Hours (11 Instructional Designers) to create these training programs, over a 3 year period. Reduction of Non Labor due to conversion to EC. After 3 years, there will be a potential to reduce the number of FTE's to maintain curriculums.
2015	180		2.0	**Workforce**: Labor Converted 2014 agency Equipment Training Specialist and Instructional Designer from Agency to RFT. Both are supporting company base (on-going) training programs for SDG&E Operations and Equipment Operations. The agency Equipment Training Specialist was added in 2012 for increased workload in the commercial driver's training program. The Instructional Designer was added to work on the development and maintenance of all training programs delivered by the Equipment Training & Operations Services (ETOS) group. This is base load on-going work.
2015	80		1.0	**Workforce and Safety & Compliance program Support**: Convert vacated Equipment Training Specialist to a new Equipment Training Compliance Programs Analyst position to handle to oversight of all regulations and compliance related to equipment and vehicle training programs, write policies and procedures for related programs; interface with California Highway Patrol and Department of Motor Vehicles for annual audits; oversee the SDG&E Employer Testing program and maintain training and records management systems. Relieves these functions from other Equipment Training Specialists to absorb a new program to incorporate a commercial Smith Driver's Training program to current behind-the-wheel commercial driver's training program utilizing operational vehicles.

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2015		555		**New Infrastructure Technology- Skills Training Center:** Procure "SMART"- Board system to enhance the technology utilized to deliver compliance and course curriculum for classes delivered at the Skills Training Center. This system allows for more options to provide interactive exercises, learning modules and demonstrations utilizing a shared curriculum, training files, and ability to download and upload training materials across classrooms. Provides for curriculum collaboration, system simulations, and remote training if end users have system at their locations. This is a proven system in the educations system and used for digital white-boarding, instant capture of meeting and lesson notes, and utilizes touch gestures similar to tablets. Cost includes smart board in all training classrooms at the Skills Training Center and a 3 year System Support Agreement with Vendor.
2015		3		**Training Tools:** Replace 15 year old airbrake board used for commercial driver's training program. Airbrake systems have changed and the current board is obsolete. This s an effective training tool to educate students on the air brake system used in the commercial drivers education class as well as for annual refresher training.
2015 TOTAL	**1,430**	**1,052**	**16**	
2016		15		**New Training Technology**: Procure a Bulldozer Simulator to enhance safety and the training programs for Equipment Operations to enhance the training programs for Equipment Operations heavy equipment operator training programs.
2016		12		**Operator Certification:** Fees to cover the cost of classroom training, application fees, and practical examination to recertify 5 certified company crane operators whose license expires this year. OSHA Title 29 Section 1926)
2016	80		1	**(Safety and Environmental)** Tool Technician: Technician will be in charge of maintaining and operating storeroom; similar to C & O Centers. Responsibilities will include keeping an up to date current inventory or all tools and materials, monitor equipment, provide maintenance support, tracking tools and material utilization.
2016	90		1	**(Safety , Injury Prevention, Workforce Development)** At Skills Training instructor utilization is dependent upon full-time and borrowed (field) instructors. 1 additional Trainer / Performance Support Analyst: needed to fulfill compliance, ergonomic, strength / conditioning, injury prevention and Behavior Based Training efforts. 1) Position dedicated to • Certified Athletic Trainer / Safety Advisor, assigned to Skills Training: This position will enhance health education to promote a healthier workforce.

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2016		281		**(Aging Infrastructure)** Research and Development for tools; work methods to enhance system reliability and produce a safe workforce has been limited based on lace of facility upgrades. Classroom video projectors, MDT (field computers) are functional aids required to facilitate and enhance training are in need of upgrades or replacement. Supervisory positions are dependent field personnel to deliver work information data from the field. To support company initiatives students must learn new operational process that will be in line with company practice that is evolving towards getting people to become more mobile and have quicker access to information. The current training infrastructure has been in place for many years, High-voltage equipment, underground cable, and the overhead wiring system need to be replaced and updated. Tools and current training system upgrades are needed to replicate work activities performed in the field. Most tools, and equipment, have surpassed their useful life expectancy and now pose a risk to employee safety. Update/expansion of the Flex center equipment, due to increase number of training classes, students are required to maintain cardio & fitness and strength levels to perform the work activities in the field. Flex Center Equip. was purchased in 2006.
2016		40		**(Materials)** Frequency of wooden pole change out will occur with the requested above mentioned classes.
2016	1,000	(351)	11	Third of three year projection for adding Instructional Designers (EC's). Build a comprehensive portfolio of approximately 25+ structured training programs for ERO Job Classifications. Approximately 49,000 Development Hours (11 Instructional Designers) to create these training programs, over a 3 year period. Reduction of Non Labor due to conversion to EC. After 3 years, there will be a potential to reduce the number of FTE's to maintain curriculums.
2016	180		2.0	**Workforce**: Labor Converted 2014 agency Equipment Training Specialist and Instructional Designer from Agency to RFT. Both are supporting company base (on-going) training programs for SDG&E Operations and Equipment Operations. The agency Equipment Training Specialist was added in 2012 for increased workload in the commercial driver's training program. The Instructional Designer was added to work on the development and maintenance of all training programs delivered by the Equipment Training & Operations Services (ETOS) group. This is base load on-going work.
2016	80		1.0	**Workforce and Safety & Compliance program Support**: Convert vacated Equipment Training Specialist to a new Equipment Training Compliance Programs Analyst position to handle to oversight of all regulations and compliance related to equipment and vehicle training programs, write policies and procedures for related programs; interface with California Highway Patrol and Department of Motor Vehicles for annual audits; oversee the SDG&E Employer Testing program and maintain training and records management systems. Relieves these functions from other Equipment Training Specialists to absorb a new program to incorporate a commercial Smith Driver's Training program to current behind-the-wheel commercial driver's training program utilizing operational vehicles.
2016 TOTAL	**1,430**	**(3)**	**16**	

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Workpaper: VARIOUS

Summary for Category: F. Aging Infrastructure

	In 2013$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	1,115	1,080	1,746	1,823
Non-Labor	5,516	8,324	9,757	19,440
NSE	0	0	0	0
Total	**6,631**	**9,404**	**11,503**	**21,263**
FTE	12.8	13.0	19.5	20.3

Workpapers belonging to this Category:

1ED002.000 Construction Services

Labor	468	308	308	308
Non-Labor	4,757	7,453	8,857	18,557
NSE	0	0	0	0
Total	**5,225**	**7,761**	**9,165**	**18,865**
FTE	4.8	3.0	3.0	3.0

1ED010.000 Project Management

Labor	287	421	1,084	1,161
Non-Labor	195	195	207	207
NSE	0	0	0	0
Total	**482**	**616**	**1,291**	**1,368**
FTE	3.7	5.8	12.3	13.1

1ED014.000 Service Order Team (SOT)

Labor	317	351	354	354
Non-Labor	529	529	546	529
NSE	0	0	0	0
Total	**846**	**880**	**900**	**883**
FTE	4.0	4.2	4.2	4.2

1ED023.000 Major Projects

Labor	43	0	0	0
Non-Labor	35	147	147	147
NSE	0	0	0	0
Total	**78**	**147**	**147**	**147**
FTE	0.3	0.0	0.0	0.0

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED002.000 - Construction Services

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub 1. Aging Infrastructure
Workpaper: 1ED002.000 - Construction Services

Activity Description:

Construction Services provides oversight of all construction performed by Contractors on Electric Distribution. This is to ensure that all work is built to SDG&E Safety Standards and in accordance with current contracts following G.O. 95 and 128 codes. The O&M portion of the work conducted by Construction Services; locating services; streetlight maintenance; graffiti abatement; and transformer installs/removals and O&M associated with capital construction. The Contracting group is responsible for all jobs administered by Construction Services. This includes the management of all job packages, such as data management, permit verification, environmental releases, purchase orders and negotiation of start and end dates. Additionally, the group interfaces with Supply Management to aid in processing jobs that meet the criteria and constitute bid work therefore requiring request for proposals. Construction Services also oversees the Aviation Services function within SDG&E. Additionally, Construction Services also includes the group that is responsible for fire coordination and prevention.

Forecast Explanations:

Labor - 5-YR Average

Labor costs are based on a 5-year average. Labor includes the O&M portion of several employees whose costs are split among various plan categories. The O&M percentage of this labor ranges from 2% to 70%.

Non-Labor - 5-YR Average

Non-Labor costs are also based on a 5-year average. Non-labor includes additional “associated with Capital” O&M and Transformer installations, contracted wildfire strike team fire prevention and suppression services, contract air-crane firefighting costs, hanger lease payments for the aviation services group, as well as increased cost associated with helicopter utilization due to maintenance and inspections and an offsetting one-time insurance reimbursement.

NSE - 5-YR Average

na

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	229	242	228	373	468	308	308	308
Non-Labor	7,257	5,044	4,284	5,648	4,757	7,453	8,857	18,557
NSE	0	0	0	0	0	0	0	0
Total	**7,486**	**5,286**	**4,512**	**6,021**	**5,226**	**7,761**	**9,165**	**18,865**
FTE	1.2	2.6	2.4	4.0	4.8	3.0	3.0	3.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED002.000 - Construction Services

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	5-YR Average	308	308	308	0	0	0	308	308	308
Non-Labor	5-YR Average	5,398	5,398	5,398	2,055	3,459	13,159	7,453	8,857	18,557
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		**5,706**	**5,706**	**5,706**	**2,055**	**3,459**	**13,159**	**7,761**	**9,165**	**18,865**
FTE	5-YR Average	3.0	3.0	3.0	0.0	0.0	0.0	3.0	3.0	3.0

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	0	252	0	252	0.0	1-Sided Adj

Wildfire Strike Team - contract firefighters. Increased activity as a result of ongoing drought conditions, including increased staging for red flag events to account for a normal amount of red flag events This program has proven successful and warrants funding levels as requested.

2014	0	353	0	353	0.0	1-Sided Adj

Restore O&M portion of air-crane budget to contract level. Some actual expenditures were offset by a one-time insurance refund that was posted in Jan 2013. ALSO increase in O&M helicopter flights for maintenance patrols and inspections. ALSO accounting for $150k firefighting fund which supports protection of utility assets in fire risk areas.

2014	0	250	0	250	0.0	1-Sided Adj

Non-productive labor for additional in-house construction contract administration & support (productive labor is Capital). Also additional "O&M associated with Capital" - O&M associated with construction and Transformer installations.

2014	0	1,200	0	1,200	0.0	1-Sided Adj

O&M associated with capital construction work completed primarily in association with the Fire Risk Mitigation (FiRM) projects. Reference Electric Distribution Capital Projects 13247 and 14247.

2014 Total	**0**	**2,055**	**0**	**2,055**	**0.0**	

2015	0	252	0	252	0.0	1-Sided Adj

Wildfire Strike Team - contract firefighters. Increased activity as a result of ongoing drought conditions, including increased staging for red flag events to account for a normal amount of red flag events This program has proven successful and warrants funding levels as requested.

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED002.000 - Construction Services

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2015	0	353	0	353	0.0	1-Sided Adj
Restore O&M portion of air-crane budget to contract level. Some actual expenditures were offset by a one-time insurance refund that was posted in Jan 2013. ALSO increase in O&M helicopter flights for maintenance patrols and inspections. ALSO accounting for $150k firefighting fund which supports protection of utility assets in fire risk areas.						
2015	0	354	0	354	0.0	1-Sided Adj
Non-productive labor for additional in-house construction contract administration & support (productive labor is Capital). Also additional "O&M associated with Capital" - O&M associated with construction and Transformer installations.						
2015	0	2,500	0	2,500	0.0	1-Sided Adj
O&M associated with capital construction work completed primarily in association with the Fire Risk Mitigation (FiRM) projects. Reference Electric Distribution Capital Projects 13247 and 14247.						
2015 Total	**0**	**3,459**	**0**	**3,459**	**0.0**	
2016	0	252	0	252	0.0	1-Sided Adj
Wildfire Strike Team - contract firefighters. Increased activity as a result of ongoing drought conditions, including increased staging for red flag events to account for a normal amount of red flag events This program has proven successful and warrants funding levels as requested.						
2016	0	353	0	353	0.0	1-Sided Adj
Restore O&M portion of air-crane budget to contract level. Some actual expenditures were offset by a one-time insurance refund that was posted in Jan 2013. ALSO increase in O&M helicopter flights for maintenance patrols and inspections. ALSO accounting for $150k firefighting fund which supports protection of utility assets in fire risk areas.						
2016	0	354	0	354	0.0	1-Sided Adj
Non-productive labor for additional in-house construction contract administration & support (productive labor is Capital). Also additional "O&M associated with Capital" - O&M associated with construction and Transformer installations.						
2016	0	12,200	0	12,200	0.0	1-Sided Adj
O&M associated with capital construction work completed primarily in association with the Fire Risk Mitigation (FiRM) projects. Reference Electric Distribution Capital Projects 13247 and 14247.						

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED002.000 - Construction Services

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2016 Total	**0**	**13,159**	**0**	**13,159**	**0.0**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED002.000 - Construction Services

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	98	197	191	319	404
Non-Labor	5,440	4,667	4,114	4,022	4,757
NSE	0	0	0	0	0
Total	**5,538**	**4,863**	**4,305**	**4,341**	**5,162**
FTE	1.0	2.2	2.0	3.4	4.0
Adjustments (Nominal $) **					
Labor	85	0	0	0	0
Non-Labor	1,125	-1	12	1,542	0
NSE	0	0	0	0	0
Total	**1,210**	**-1**	**12**	**1,542**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	183	197	191	319	404
Non-Labor	6,565	4,666	4,126	5,564	4,757
NSE	0	0	0	0	0
Total	**6,748**	**4,862**	**4,317**	**5,883**	**5,162**
FTE	1.0	2.2	2.0	3.4	4.0
Vacation & Sick (Nominal $)					
Labor	28	31	28	46	64
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**28**	**31**	**28**	**46**	**64**
FTE	0.2	0.4	0.3	0.6	0.7
Escalation to 2013$					
Labor	18	14	9	8	0
Non-Labor	692	378	159	84	0
NSE	0	0	0	0	0
Total	**710**	**393**	**167**	**92**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	229	242	228	373	468
Non-Labor	7,257	5,044	4,284	5,648	4,757
NSE	0	0	0	0	0
Total	**7,486**	**5,286**	**4,512**	**6,021**	**5,226**
FTE	1.2	2.6	2.3	4.0	4.7

* 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: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED002.000 - Construction Services

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	85	0	0	0	0
Non-Labor	1,125	-1	12	1,542	0
NSE	0	0	0	0	0
Total	**1,210**	**-1**	**12**	**1,542**	**0**
FTE	0.0	0.0	0.0	0.0	0.0

Detail of Adjustments to Recorded:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj Type	From CCtr	RefID
2009	0	1,092	0	0.0	CCTR Transf	From 2100-0201.005	CFARETTA20131 108165648220
Transfer of 2009 helicopter utilization costs to Electric Distribution.							
2009	85	33	0	0.0	CCTR Transf	From 2100-0166.000	CSTRIEBE20131 113091538203
To report fire coordinator expenses in different workpaper group ED002.							
2009 Total	**85**	**1,125**	**0**	**0.0**			
2010	0	-1	0	0.0	CCTR Transf	From 2100-0201.005	CFARETTA20131 108165812443
Transfer of 2010 helicopter utilization credits to Electric Distribution.							
2010 Total	**0**	**-1**	**0**	**0.0**			
2011	0	12	0	0.0	CCTR Transf	From 2100-0725.000	CSTRIEBE20131 107135752070
Transfer helicopter lease payments to aviation cost center.							
2011 Total	**0**	**12**	**0**	**0.0**			
2012	0	1,323	0	0.0	CCTR Transf	From 2100-0725.000	CSTRIEBE20131 107141416560
Transfer helicopter lease payments to aviation cost center.							

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED002.000 - Construction Services

Year/Expl.	Labor	NLbr	NSE	FTE	Adj Type	From CCtr	RefID
2012	0	219	0	0.0	CCTR Transf	From 2100-0725.000	CSTRIEBE20131 107141527903
Transfer helicopter insurance payments to aviation cost center.							
2012 Total	**0**	**1,542**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED010.000 - Project Management

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub 1. Aging Infrastructure
Workpaper: 1ED010.000 - Project Management

Activity Description:

Explain forecast

Forecast Explanations:

Labor - Base YR Rec

Labor costs projected here use the recorded costs for 2013 as the base year, rather than a 3, 4 or 5-year average. This most closely represents the annual O&M expense that is only 2% of Project Management's total budget. In years when Project Management conducts Planner Training Classes, the cost of those classes are charged as 100% O&M, having a marked impact on the total O&M expenditures for that year. Because there was a class in 2011, a 3-year average would have been skewed and would not have served as a true representation of Project Management's base O&M costs.

Non-Labor - Base YR Rec

Non-Labor projected costs also use the base year forecast methodology rather than a 3, 4 or 5 year-average for the same reason as labor.

NSE - Base YR Rec

There is no NSE

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	382	300	694	299	287	421	1,084	1,161
Non-Labor	89	72	103	110	195	195	207	207
NSE	0	0	0	0	0	0	0	0
Total	**471**	**372**	**797**	**409**	**482**	**616**	**1,291**	**1,368**
FTE	4.9	4.0	9.6	3.9	3.7	5.8	12.3	13.1

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED010.000 - Project Management

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Base YR Rec	287	287	287	134	797	874	421	1,084	1,161
Non-Labor	Base YR Rec	195	195	195	0	12	12	195	207	207
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**482**	**482**	**482**	**134**	**809**	**886**	**616**	**1,291**	**1,368**
FTE	Base YR Rec	3.7	3.7	3.7	2.1	8.6	9.4	5.8	12.3	13.1

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	134	0	0	134	2.1	1-Sided Adj
Returning OpEx staff increased and increased staffing needs						
2014 Total	**134**	**0**	**0**	**134**	**2.1**	
2015	797	12	0	809	8.6	1-Sided Adj
Planner Class returning OpEx staff and staff ncreae						
2015 Total	**797**	**12**	**0**	**809**	**8.6**	
2016	874	12	0	886	9.4	1-Sided Adj
Planner Class returning OpEx staff and staff increase						
2016 Total	**874**	**12**	**0**	**886**	**9.4**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED010.000 - Project Management

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	304	243	581	255	248
Non-Labor	80	67	99	108	195
NSE	0	0	0	0	0
Total	**385**	**310**	**680**	**364**	**443**
FTE	4.2	3.4	8.3	3.4	3.1
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	304	243	581	255	248
Non-Labor	80	67	99	108	195
NSE	0	0	0	0	0
Total	**385**	**310**	**680**	**364**	**443**
FTE	4.2	3.4	8.3	3.4	3.1
Vacation & Sick (Nominal $)					
Labor	47	39	86	37	39
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**47**	**39**	**86**	**37**	**39**
FTE	0.7	0.6	1.4	0.5	0.5
Escalation to 2013$					
Labor	30	18	27	6	0
Non-Labor	8	5	4	2	0
NSE	0	0	0	0	0
Total	**39**	**23**	**31**	**8**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	382	300	694	299	287
Non-Labor	89	72	103	110	195
NSE	0	0	0	0	0
Total	**471**	**372**	**797**	**409**	**482**
FTE	4.9	4.0	9.7	3.9	3.6

* 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: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED010.000 - Project Management

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED014.000 - Service Order Team (SOT)

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub 1. Aging Infrastructure
Workpaper: 1ED014.000 - Service Order Team (SOT)

Activity Description:

The Service Order Team (SOT) is responsible for planning, overseeing and managing new additions and modifications to the electric and gas distribution systems, primarily related to services. The Service Order Team acts as the SDG&E customer representative on these projects. The O&M costs associated with this team are for its support of construction operations, storm recovery, construction maintenance programs, labor for training activities, and preparing orders to replace property.

Forecast Explanations:

Labor - Base YR Rec

The Base Year Recorded Plus Incremental Increases methodology was utilized to record the increased manning levels in Service Order Team Service Planners for future years. It is anticipated that an additional six (6) SOT Service Planners will be required in business years 2014, eight (8) in 2015, and eight (8) in 2016 to support field operations.

Non-Labor - Base YR Rec

The Base Year Recorded Plus Incremental Increases methodology records the expenses for ESCMP – Safety – Environmental training and technology training for the increased manning anticipated for future years.

NSE - Base YR Rec

N/A

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	127	138	162	306	317	351	354	354
Non-Labor	214	235	89	317	529	529	546	529
NSE	0	0	0	0	0	0	0	0
Total	**341**	**374**	**251**	**624**	**846**	**880**	**900**	**883**
FTE	1.9	2.2	2.3	3.9	4.0	4.2	4.2	4.2

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED014.000 - Service Order Team (SOT)

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Base YR Rec	317	317	317	34	37	37	351	354	354
Non-Labor	Base YR Rec	529	529	529	0	17	0	529	546	529
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**846**	**846**	**846**	**34**	**54**	**37**	**880**	**900**	**883**
FTE	Base YR Rec	4.0	4.0	4.0	0.2	0.2	0.2	4.2	4.2	4.2

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	34	0	0	34	0.2	1-Sided Adj
Increased manning by six (6) Service Order Planners at 2% O&M with V&S.						
2014 Total	**34**	**0**	**0**	**34**	**0.2**	
2015	37	17	0	54	0.2	1-Sided Adj
Increased manning of six (6) Service Order Planners in 2014 plus two (2) additional Planners in 2015 with V&S. Non-labor expenses to include ESCMP/Safety/Environmental training for 2 days for all employees.						
2015 Total	**37**	**17**	**0**	**54**	**0.2**	
2016	37	0	0	37	0.2	1-Sided Adj
Increased manning of eight (8) Service Order Planners in 2014 and 2015 with V&S to carry into 2016.						
2016 Total	**37**	**0**	**0**	**37**	**0.2**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED014.000 - Service Order Team (SOT)

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	102	112	135	262	273
Non-Labor	193	218	86	313	529
NSE	0	0	0	0	0
Total	**295**	**330**	**221**	**574**	**803**
FTE	1.6	1.9	2.0	3.4	3.4
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	102	112	135	262	273
Non-Labor	193	218	86	313	529
NSE	0	0	0	0	0
Total	**295**	**330**	**221**	**574**	**803**
FTE	1.6	1.9	2.0	3.4	3.4
Vacation & Sick (Nominal $)					
Labor	16	18	20	38	43
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**16**	**18**	**20**	**38**	**43**
FTE	0.3	0.3	0.3	0.5	0.6
Escalation to 2013$					
Labor	10	8	6	6	0
Non-Labor	20	18	3	5	0
NSE	0	0	0	0	0
Total	**30**	**26**	**10**	**11**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	127	138	162	306	317
Non-Labor	214	235	89	317	529
NSE	0	0	0	0	0
Total	**341**	**374**	**251**	**624**	**846**
FTE	1.9	2.2	2.3	3.9	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: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED014.000 - Service Order Team (SOT)

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 1ED014.000

Beginning of Workpaper
1ED023.000 - Major Projects

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub 1. Aging Infrastructure
Workpaper: 1ED023.000 - Major Projects

Activity Description:

Major Projects is responsible for effectively managing major transmission line and distribution/transmission substation projects by focusing on a clearly defined project scope, schedule, and budget. Manage projects from project inception to project conclusion, ensuring consistent project management responsibility throughout the life of the project.

Forecast Explanations:

Labor - Zero-Based

N/A

Non-Labor - Zero-Based

Zero Based forecasting methodology was used to forecast non-labor for Major Projects. The forecast utilizes 2013 recorded data with a net upward adjustment to account for the increase in the number of capital projects with distribution components.

NSE - Zero-Based

N/A

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	0	1	19	5	43	0	0	0
Non-Labor	18	19	7	25	35	147	147	147
NSE	0	0	0	0	0	0	0	0
Total	**18**	**20**	**26**	**30**	**78**	**147**	**147**	**147**
FTE	-0.1	0.0	0.2	0.0	0.3	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED023.000 - Major Projects

Forecast Summary:

In 2013 $(000) Incurred Costs										
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	147	147	147	147	147	147
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**147**	**147**	**147**	**147**	**147**	**147**
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/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	0	147	0	147	0.0	1-Sided Adj
Major Projects Miscellaneous O&M						
2014 Total	**0**	**147**	**0**	**147**	**0.0**	
2015	0	147	0	147	0.0	1-Sided Adj
Major Projects Miscellaneous O&M						
2015 Total	**0**	**147**	**0**	**147**	**0.0**	
2016	0	147	0	147	0.0	1-Sided Adj
Major Projects Miscellaneous O&M						
2016 Total	**0**	**147**	**0**	**147**	**0.0**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED023.000 - Major Projects

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	1	16	4	37
Non-Labor	16	18	7	25	35
NSE	0	0	0	0	0
Total	**16**	**18**	**23**	**29**	**72**
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	0	1	16	4	37
Non-Labor	16	18	7	25	35
NSE	0	0	0	0	0
Total	**16**	**18**	**23**	**29**	**72**
FTE	-0.1	0.0	0.1	0.0	0.3
Vacation & Sick (Nominal $)					
Labor	0	0	2	1	6
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**2**	**1**	**6**
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2013$					
Labor	0	0	1	0	0
Non-Labor	2	1	0	0	0
NSE	0	0	0	0	0
Total	**2**	**1**	**1**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	1	19	5	43
Non-Labor	18	19	7	25	35
NSE	0	0	0	0	0
Total	**18**	**20**	**26**	**30**	**78**
FTE	-0.1	0.0	0.1	0.0	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: Jonathan Woldemariam
Category: F. Aging Infrastructure
Category-Sub: 1. Aging Infrastructure
Workpaper: 1ED023.000 - Major Projects

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Service Order Team (SOT)

Work Group 1ED014.000
Cost Center - multiple

Witness - J Woldemariam
Cost Center Mgr - N Boyle, A Colton, M Gonzales, R Shoemaker

	2009 Actual			2010 Actual			2011 Actual			2012 Actual			2013 Actual		
$000's	**Labor**	**Non-Labor**	**FTE**	**Labor**	**Non-Labor**	**FTE**	**Labor**	**Non-Labor**	**FTE**	**Labor**	**Non-Labor**	**FTE**	**Labor**	**Non-Labor**	**FTE**
Recorded Historical	129	214	1.9	139	236	2.2	162	89	2.3	307	316	3.9	317	529	4.0
Adjustments															
TOTAL	**129**	**214**	**1.9**	**139**	**236**	**2.2**	**162**	**89**	**2.3**	**307**	**316**	**3.9**	**317**	**529**	**4.0**

Explanation for Adjustments:

Year	Labor	Non-Labor	FTE	Explanation
				2013 Actual now reports the 2013 Base Year Recorded

FORECAST

2014			2015			2016			FORECASTING METHODOLOGY
Labor	**Non-Labor**		**Labor**	**Non-Labor**		**Labor**	**Non-Labor**		**Base Year Recorded plus incremental increases.**
351	529	4.2	354	546	4.2	354	529	4.2	

Incremental Increases / Decreases for Future Years:

Year	Labor	Non-Labor	FTE	Explanation
2014	34		0.2	Increase of six (6) SOT Service Planners at 95% capital and 2% O&M
2015	37	17	0.2	Increase of eight (8) SOT Service Planners at 95% capital and 2% O&M. Non-labor expenses consist of ESCMP-Safety-Environmental training and technology training for MDT/GPS and mount enhancements.
2016	37		0.2	Increase of eight (8) SOT Service Planners at 95% capital and 2% O&M

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Workpaper: VARIOUS

Summary for Category: G. Technology Utilization

	In 2013$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	2,393	3,080	3,144	3,207
Non-Labor	1,571	2,031	2,318	2,646
NSE	0	0	0	0
Total	**3,964**	**5,111**	**5,462**	**5,853**
FTE	31.9	38.8	38.9	39.0

Workpapers belonging to this Category:

1ED001.000 Technology Innovation & Development

Labor	160	416	448	480
Non-Labor	166	252	327	402
NSE	0	0	0	0
Total	**326**	**668**	**775**	**882**
FTE	2.3	5.4	5.9	6.4

1ED001.003 Information Management Support

Labor	102	217	217	217
Non-Labor	122	122	122	122
NSE	0	0	0	0
Total	**224**	**339**	**339**	**339**
FTE	1.1	2.0	2.0	2.0

1ED003.000 DistOps Enterprise Geographic Information System Standards

Labor	1,171	1,246	1,211	1,175
Non-Labor	919	1,080	1,255	1,472
NSE	0	0	0	0
Total	**2,090**	**2,326**	**2,466**	**2,647**
FTE	19.7	20.1	19.1	18.1

1ED005.000 GEOGRAPHIC BUSINESS SOLUTIONS DESKTOP

Labor	36	36	36	36
Non-Labor	1	1	1	1
NSE	0	0	0	0
Total	**37**	**37**	**37**	**37**
FTE	0.4	0.4	0.4	0.4

1ED024.000 Technology Utilization

Labor	924	1,165	1,232	1,299
Non-Labor	363	576	613	649
NSE	0	0	0	0
Total	**1,287**	**1,741**	**1,845**	**1,948**
FTE	8.4	10.9	11.5	12.1

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED001.000 - Technology Innovation & Development

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub 1. Technology Utilization
Workpaper: 1ED001.000 - Technology Innovation & Development

Activity Description:

The Technology, Innovation, and Development group is reponsible for furthering technological advancement of renewable energy, low cost energy storage, support for PEV infrastructure, integrating customer energy management systems into Smart Grid and development of new energy efficiency technologies for customer use and well as expanding renewable energy options in SDG&E's service territory.
This workgroup also contains the Associate Engineering Program that rotates Distribution and Transmission Associate Engineering employees through three working groups withing the company. The amount presented in the workgroup is only for the Distribution portion of the costs. It also contains the Young Engineering Society (YES) events and summer intern housing.

Forecast Explanations:

Labor - 3-YR Linear

The 3-year linear average appears to be the most reasonable forecasting methodology for labor. Labor costs consist of engineering positions that support project management, planning and administration activities. This work group provides oversight over the technical areas and administers the associate engineer program.

Non-Labor - 3-YR Linear

The 3-year linear average appears to be the most reasonable forecasting methodology for non-labor. The non-labor costs are for supporting project costs as well as memberships. They also include the Young Engineering Society (YES) events and summer intern housing.

NSE - 3-YR Linear

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Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	358	122	97	156	160	416	448	480
Non-Labor	56	16	16	16	166	252	327	402
NSE	0	0	0	0	0	0	0	0
Total	**414**	**138**	**113**	**172**	**327**	**668**	**775**	**882**
FTE	3.8	1.6	1.3	1.9	2.3	5.4	5.9	6.4

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED001.000 - Technology Innovation & Development

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	3-YR Linear	201	233	265	215	215	215	416	448	480
Non-Labor	3-YR Linear	217	292	367	35	35	35	252	327	402
NSE	3-YR Linear	0	0	0	0	0	0	0	0	0
Total		**418**	**525**	**632**	**250**	**250**	**250**	**668**	**775**	**882**
FTE	3-YR Linear	2.9	3.4	3.9	2.5	2.5	2.5	5.4	5.9	6.4

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	215	35	0	250	2.5	1-Sided Adj

Positions would include (1) Full time FTE and (4) Part Time FTE's to staff ITF Lab at 50% O&M and 50% Capital labor split ratio. The ITF lab is nearing completion and will need to be staffed beginning 2014. Non Labor costs include training $15k ($5k / FTE), non-project travel costs: outreach, conferences, off-site training, etc $15k ($5k / FTE). Equipment maintenance, unknown, non currently scheduled, most items ordered will have at least 1 year warranty, Operating budget $5k (copy/printing, coffee, and water service.

2014 Total	**215**	**35**	**0**	**250**	**2.5**	
2015	215	35	0	250	2.5	1-Sided Adj

Positions would include (1) Full time FTE and (4) Part Time FTE's to staff ITF Lab at 50% O&M and 50% Capital labor split ratio. The ITF lab is nearing completion and will need to be staffed beginning 2014. Non Labor costs include training $15k ($5k / FTE), non-project travel costs: outreach, conferences, off-site training, etc $15k ($5k / FTE). Equipment maintenance, unknown, non currently scheduled, most items ordered will have at least 1 year warranty, Operating budget $5k (copy/printing, coffee, and water service.

2015 Total	**215**	**35**	**0**	**250**	**2.5**	
2016	215	35	0	250	2.5	1-Sided Adj

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED001.000 - Technology Innovation & Development

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type

Positions would include (1) Full time FTE and (4) Part Time FTE's to staff ITF Lab at 50% O&M and 50% Capital labor split ratio. The ITF lab is nearing completion and will need to be staffed beginning 2014. Non Labor costs include training $15k ($5k / FTE), non-project travel costs: outreach, conferences, off-site training, etc $15k ($5k / FTE). Equipment maintenance, unknown, non currently scheduled, most items ordered will have at least 1 year warranty, Operating budget $5k (copy/printing, coffee, and water service.

2016 Total	**215**	**35**	**0**	**250**	**2.5**

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED001.000 - Technology Innovation & Development

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	586	554	605	367	711
Non-Labor	1,490	2,076	4,647	681	1,431
NSE	0	0	0	0	0
Total	**2,076**	**2,630**	**5,252**	**1,049**	**2,141**
FTE	5.6	5.8	6.7	4.3	7.3
Adjustments (Nominal $) **					
Labor	-300	-455	-524	-233	-572
Non-Labor	-1,440	-2,062	-4,631	-666	-1,264
NSE	0	0	0	0	0
Total	**-1,740**	**-2,516**	**-5,155**	**-899**	**-1,836**
FTE	-2.4	-4.4	-5.6	-2.6	-5.3
Recorded-Adjusted (Nominal $)					
Labor	286	99	81	134	138
Non-Labor	51	14	15	15	166
NSE	0	0	0	0	0
Total	**336**	**114**	**96**	**149**	**305**
FTE	3.2	1.4	1.1	1.7	2.0
Vacation & Sick (Nominal $)					
Labor	44	16	12	19	22
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**44**	**16**	**12**	**19**	**22**
FTE	0.5	0.2	0.2	0.3	0.3
Escalation to 2013$					
Labor	28	7	4	3	0
Non-Labor	5	1	1	0	0
NSE	0	0	0	0	0
Total	**34**	**8**	**4**	**4**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	358	122	97	156	160
Non-Labor	56	16	16	16	166
NSE	0	0	0	0	0
Total	**414**	**138**	**113**	**172**	**327**
FTE	3.7	1.6	1.3	2.0	2.3

* 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: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED001.000 - Technology Innovation & Development

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	-300	-455	-524	-233	-572
Non-Labor	-1,440	-2,062	-4,631	-666	-1,264
NSE	0	0	0	0	0
Total	**-1,740**	**-2,516**	**-5,155**	**-899**	**-1,836**
FTE	-2.4	-4.4	-5.6	-2.6	-5.3

Detail of Adjustments to Recorded:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj Type	From CCtr	RefID
2009	-190	-1,307	0	-1.7	1-Sided Adj	N/A	CSTRIEBE20131114133427223
To remove RD&D expenses from GRC filing due to EPIC Decision.							
2009	-55	-41	0	-0.2	1-Sided Adj	N/A	CSTRIEBE20131114134648947
To reconcile actual historical O&M costs.							
2009	-56	-91	0	-0.5	1-Sided Adj	N/A	TPGMG20140610161106097
To reconcile to OM historical data. JE corrections for 2009 were recorded in 2010.							
2009 Total	**-300**	**-1,440**	**0**	**-2.4**			
2010	-510	-2,132	0	-4.9	1-Sided Adj	N/A	CSTRIEBE20131114133522447
To remove RD&D expenses from GRC filing due to EPIC Decision.							
2010	-0.144	-21	0	0.0	1-Sided Adj	N/A	CSTRIEBE20131114135011657
To reconcile actual historical O&M costs.							
2010	56	91	0	0.0	1-Sided Adj	N/A	CSTRIEBE20131118095835457
To reconcile cost center to actual historical O&M expense.							
2010	0	0	0	0.5	1-Sided Adj	N/A	CSTRIEBE20131118095917240
To reconcile headcount to actual							

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED001.000 - Technology Innovation & Development

Year/Expl.	Labor	NLbr	NSE	FTE	Adj Type	From CCtr	RefID
2010 Total	**-455**	**-2,062**	**0**	**-4.4**			
2011	-521	-4,680	0	-5.6	1-Sided Adj	N/A	CSTRIEBE20131114133613883
To remove RD&D expenses from GRC filing due to EPIC Decision.							
2011	-3	49	0	0.0	1-Sided Adj	N/A	CSTRIEBE20131114135219440
To reconcile actual historical O&M expenses.							
2011 Total	**-524**	**-4,631**	**0**	**-5.6**			
2012	-233	-666	0	-2.6	1-Sided Adj	N/A	CSTRIEBE20131114133658950
To remove RD&D expenses from GRC filing due to EPIC Decision.							
2012 Total	**-233**	**-666**	**0**	**-2.6**			
2013	-572	-1,264	0	-5.3	1-Sided Adj	N/A	TPGMG20140613180840710
To remove RD&D costs in GRC filing due to EPIC decision.							
2013 Total	**-572**	**-1,264**	**0**	**-5.3**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED001.003 - Information Management Support

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub 1. Technology Utilization
Workpaper: 1ED001.003 - Information Management Support

Activity Description:

This workgroup is a combination with 1ED005.000. The GIS Business Solutions (GBS) Team is responsible for providing business analytics, (requirements, design, cost benefits, testing, development, etc.), associated with the maintenance and advancement of GIS technology to support existing and future SDG&E enterprise business needs. Services focus on the following applications/user interfaces: Desktop, Web and Mobile supporting the following business operations: Land, Environmental, Electric Transmission, Substation, Electric Distribution and Telecommunication. Services also include the management of GIS interface with other major and mission critical systems: OMS – Outage Management System (GIS Electric Distribution Network Models), GEARS – Environmental System (GIS Polygon Layers), SAP Work Management (GIS Electric Distribution Assets), EDW –Engineering Data Warehouse (GIS Electric Distribution Assets & Network Models), SynerGEE – Power Flow System (GIS Electric Distribution Network Models), CISCO – Customer Care System (GIS Transformer/Customer Relationships), VISA – Situational Awareness Tool (Correlates GIS asset info with near real-time data).

This group will also be responsible for supporting Graphical Work Design (GWD) once the system goes into production in 2015. GWD support will consist of fixes and enhancements to: ArcFM Designer / GWD-2 (Electric Distribution Drawing Tools), Engineering Calculations (Overhead Design Analysis, Volt Drop & Flicker and Cable Pulling), Butterfly Diagrams and Service Order drawing tools.

Forecast Explanations:

Labor - Base YR Rec

The reason the Base YR Recorded is being used is due to this group being moved from a purely capital environment to some O&M in 2013. There will also be 3 more employees moving into the group at the beginning of 2014.

Non-Labor - Base YR Rec

The reason the Base YR Recorded is being used is due to this group being moved from a purely capital environment to some O&M in 2013.

NSE - Base YR Rec

na

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	0	128	3	0	102	217	217	217
Non-Labor	0	13	1	32	122	122	122	122
NSE	0	0	0	0	0	0	0	0
Total	**0**	**141**	**4**	**32**	**224**	**339**	**339**	**339**
FTE	0.0	1.4	0.0	0.0	1.1	2.0	2.0	2.0

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED001.003 - Information Management Support

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Base YR Rec	102	102	102	115	115	115	217	217	217
Non-Labor	Base YR Rec	122	122	122	0	0	0	122	122	122
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**224**	**224**	**224**	**115**	**115**	**115**	**339**	**339**	**339**
FTE	Base YR Rec	1.1	1.1	1.1	0.9	0.9	0.9	2.0	2.0	2.0

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	115	0	0	115	0.9	1-Sided Adj

Three Graphical Work Design (GWD) employees currently in IT to move to EDO. These 3 people are currently on capital projects therefore no Distribution O&M has been charged historically. These 3 people will provide (GWD) support once the system goes into production. No or insufficient support will negatively impact application support to all SDG&E Planning and Design resources (Project Management, Distribution Planning and GTS Gas Design) not to mention jeopardizing user acceptance of the GWD component of the CPD project. Cost represents 3 employees at $50/hr for 1920 productive hours per year at 30% Distribution O&M.

2014 Total	**115**	**0**	**0**	**115**	**0.9**	
2015	115	0	0	115	0.9	1-Sided Adj
same as 2014						
2015 Total	**115**	**0**	**0**	**115**	**0.9**	
2016	115	0	0	115	0.9	1-Sided Adj
same as 2014						
2016 Total	**115**	**0**	**0**	**115**	**0.9**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED001.003 - Information Management Support

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	104	2	0	88
Non-Labor	0	12	1	31	122
NSE	0	0	0	0	0
Total	**0**	**116**	**3**	**31**	**210**
FTE	0.0	1.2	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	104	2	0	88
Non-Labor	0	12	1	31	122
NSE	0	0	0	0	0
Total	**0**	**116**	**3**	**31**	**210**
FTE	0.0	1.2	0.0	0.0	1.0
Vacation & Sick (Nominal $)					
Labor	0	17	0	0	14
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**17**	**0**	**0**	**14**
FTE	0.0	0.2	0.0	0.0	0.2
Escalation to 2013$					
Labor	0	8	0	0	0
Non-Labor	0	1	0	0	0
NSE	0	0	0	0	0
Total	**0**	**9**	**0**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	0	128	3	0	102
Non-Labor	0	13	1	32	122
NSE	0	0	0	0	0
Total	**0**	**141**	**4**	**32**	**224**
FTE	0.0	1.4	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: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED001.003 - Information Management Support

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED003.000 - DistOps Enterprise Geographic Information System Standards

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub 1. Technology Utilization
Workpaper: 1ED003.000 - DistOps Enterprise Geographic Information System Standards

Activity Description:

Enterprise GIS Services (EGISS) personnel are located at the Distribution Control Center, Century Park and Construction & Operation Centers. They are responsible for providing accurate real-time GIS Mapping of electric distribution, transmission, substation and telecommunication information regarding all assets in the field. EGISS has multiple interdepartmental touch points: Preliminary Digitizing, Real-time Mapping Changes – 24-48 hours turn-around time (most within 4 hours), Real-time Energization, Asbuilt Reconciliation, Map Publication, Quality Assurance of Data, Asset Retirement Management for Distribution, Transmission, Substation & Telecommunication.

Forecast Explanations:

Labor - 5-YR Linear

Labor costs are based on a 5-year linear forecast due to the need to backfill positions that will address backlog work resulting from the rollout of the new Geographic Information System (GIS). The new system includes more data points and is more complex than the old system, increasing the time it takes to complete a job by at least 30%. The increase of time without adding to staff has created a 9,000+ backlog of orders. The current staff can only keep up with the day-to-day requests. For labor, the 3 and 4-year linear approaches show a decline in the workforce that cannot be achieved given the backlog in the new, more complex system.

Non-Labor - 5-YR Linear

For non-labor, the 5 year linear method is the only one showing the incremental trend of the GIS software maintenance contract. Non-labor costs are directly related to software maintenance, also based on a 5-year linear forecast.

NSE - 5-YR Linear

na

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	1,344	1,403	1,445	1,395	1,171	1,246	1,211	1,175
Non-Labor	67	118	133	576	919	1,080	1,255	1,472
NSE	0	0	0	0	0	0	0	0
Total	**1,411**	**1,521**	**1,578**	**1,971**	**2,091**	**2,325**	**2,465**	**2,647**
FTE	24.4	24.0	24.7	23.1	19.7	20.1	19.1	18.1

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED003.000 - DistOps Enterprise Geographic Information System Standards

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	5-YR Linear	1,246	1,211	1,175	0	0	0	1,246	1,211	1,175
Non-Labor	5-YR Linear	1,012	1,228	1,444	68	27	28	1,080	1,255	1,472
NSE	5-YR Linear	0	0	0	0	0	0	0	0	0
Total		**2,257**	**2,438**	**2,619**	**68**	**27**	**28**	**2,325**	**2,465**	**2,647**
FTE	5-YR Linear	20.1	19.1	18.1	0.0	0.0	0.0	20.1	19.1	18.1

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	0	68	0	68	0.0	1-Sided Adj
This is the increase for the GIS system maintenance that started in 2013.						
2014 Total	**0**	**68**	**0**	**68**	**0.0**	
2015	0	27	0	27	0.0	1-Sided Adj
This is the amount needed to pay the maintenance for the GIS system.						
2015 Total	**0**	**27**	**0**	**27**	**0.0**	
2016	0	28	0	28	0.0	1-Sided Adj
This is the amount needed to pay the system maintenance for GIS.						
2016 Total	**0**	**28**	**0**	**28**	**0.0**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED003.000 - DistOps Enterprise Geographic Information System Standards

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	1,072	1,138	1,210	1,193	1,011
Non-Labor	61	109	128	568	400
NSE	0	0	0	0	0
Total	**1,133**	**1,247**	**1,338**	**1,761**	**1,411**
FTE	20.9	20.4	21.3	19.9	16.8
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	519
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**519**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	1,072	1,138	1,210	1,193	1,011
Non-Labor	61	109	128	568	919
NSE	0	0	0	0	0
Total	**1,133**	**1,247**	**1,338**	**1,761**	**1,931**
FTE	20.9	20.4	21.3	19.9	16.8
Vacation & Sick (Nominal $)					
Labor	166	181	178	173	160
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**166**	**181**	**178**	**173**	**160**
FTE	3.5	3.5	3.5	3.2	2.9
Escalation to 2013$					
Labor	106	84	57	29	0
Non-Labor	6	9	5	9	0
NSE	0	0	0	0	0
Total	**113**	**92**	**62**	**38**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	1,344	1,403	1,445	1,395	1,171
Non-Labor	67	118	133	576	919
NSE	0	0	0	0	0
Total	**1,411**	**1,521**	**1,578**	**1,971**	**2,091**
FTE	24.4	23.9	24.8	23.1	19.7

* 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: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED003.000 - DistOps Enterprise Geographic Information System Standards

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	519
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**519**
FTE	0.0	0.0	0.0	0.0	0.0

Detail of Adjustments to Recorded:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013	0	519	0	0.0	CCTR Transf	From 2100-0725.000	CSTRIEBE20140 131134806080
Allocation of GIS / ESRI software maintenance expense paid from VP Cost Center.							
2013 Total	**0**	**519**	**0**	**0.0**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED005.000 - GEOGRAPHIC BUSINESS SOLUTIONS DESKTOP

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub 1. Technology Utilization
Workpaper: 1ED005.000 - GEOGRAPHIC BUSINESS SOLUTIONS DESKTOP

Activity Description:

This group is forecasted in workgroup 1ED001.003.

Forecast Explanations:

Labor - Base YR Rec

This group is forecasted in workgroup 1ED001.003.

Non-Labor - Base YR Rec

This group is forecasted in workgroup 1ED001.003.

NSE - Base YR Rec

This group is forecasted in workgroup 1ED001.003.

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	0	0	0	0	36	36	36	36
Non-Labor	0	0	0	0	1	1	1	1
NSE	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**37**	**37**	**37**	**37**
FTE	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED005.000 - GEOGRAPHIC BUSINESS SOLUTIONS DESKTOP

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	Base YR Rec	36	36	36	0	0	0	36	36	36
Non-Labor	Base YR Rec	1	1	1	0	0	0	1	1	1
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**37**	**37**	**37**	**0**	**0**	**0**	**37**	**37**	**37**
FTE	Base YR Rec	0.4	0.4	0.4	0.0	0.0	0.0	0.4	0.4	0.4

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
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: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED005.000 - GEOGRAPHIC BUSINESS SOLUTIONS DESKTOP

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	0	31
Non-Labor	0	0	0	0	1
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**32**
FTE	0.0	0.0	0.0	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	0	0	0	0	31
Non-Labor	0	0	0	0	1
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**32**
FTE	0.0	0.0	0.0	0.0	0.3
Vacation & Sick (Nominal $)					
Labor	0	0	0	0	5
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**5**
FTE	0.0	0.0	0.0	0.0	0.1
Escalation to 2013$					
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	36
Non-Labor	0	0	0	0	1
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**37**
FTE	0.0	0.0	0.0	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: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED005.000 - GEOGRAPHIC BUSINESS SOLUTIONS DESKTOP

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED024.000 - Technology Utilization

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub 1. Technology Utilization
Workpaper: 1ED024.000 - Technology Utilization

Activity Description:

At SDG&E, we are utilizing technology to transform our electric system in order to deliver benefits to customers. SDG&E has been working over the past few years to make the electrical grid more reliable and able to incorporate large-scale renewables, plug-in electric vehicles and rooftop solar panels. Incorporating technology into the electric system is necessary to meet these needs. Advanced technologies will support the intermittency of large-scale wind and solar, and will help us operate our 100-year-old electric system more safely and efficiently. Customers will benefit from the reliability these technology enhancements will provide. By leveraging our forward-thinking workforce and advanced technologies, we can help our customers take advantage of new, exciting energy products such as plug-in electric vehicles, roof top solar panels, home energy management systems and energy smart appliances.

Forecast Explanations:

Labor - 5-YR Linear

Labor costs are based on a 5-year linear forecast. The 5-year linear forecast provides the costs needed to backfill positions needed to support the group.

Non-Labor - 5-YR Linear

Non-labor costs are based on a 5-year linear forecast. The 5-year linear forecast provides the costs needed for the escalating costs of consultants who provide additional support to the group.

NSE - 5-YR Linear

N/A

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	635	1,076	1,019	1,168	924	1,165	1,232	1,299
Non-Labor	252	221	320	364	363	576	613	649
NSE	0	0	0	0	0	0	0	0
Total	**887**	**1,297**	**1,339**	**1,531**	**1,287**	**1,741**	**1,845**	**1,948**
FTE	5.7	10.2	9.6	11.0	8.4	10.9	11.5	12.1

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED024.000 - Technology Utilization

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	5-YR Linear	1,165	1,232	1,299	0	0	0	1,165	1,232	1,299
Non-Labor	5-YR Linear	413	450	486	163	163	163	576	613	649
NSE	5-YR Linear	0	0	0	0	0	0	0	0	0
Total		**1,578**	**1,682**	**1,785**	**163**	**163**	**163**	**1,741**	**1,845**	**1,948**
FTE	5-YR Linear	10.9	11.5	12.1	0.0	0.0	0.0	10.9	11.5	12.1

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	0	105	0	105	0.0	1-Sided Adj

Project expenses for Borrego Springs MicroGrid. $80k for fuel (assuming < 200 hrs operations for emergencies and maintenance), $10k for miscellaneous generator repairs, $15k for maintenance agreement with Hawthorne

2014	0	58	0	58	0.0	1-Sided Adj

Project expenses for Advanced Energy Storage (AES) project. $46k for Post-commissioning Communication services ($1,000/month for 46 months accumulated total (5 systems, all being commissioned at different times in 2014)) typically IT covers $12k for Internal Labor for Operations and Maintenance after commissioning (40 hours/month x 6 months x $50 hour)

2014 Total	**0**	**163**	**0**	**163**	**0.0**	
2015	0	105	0	105	0.0	1-Sided Adj

Project expenses for Borrego Springs MicroGrid. $80k for fuel (assuming < 200 hrs operations for emergencies and maintenance), $10k for miscellaneous generator repairs, $15k for maintenance agreement with Hawthorne

2015	0	58	0	58	0.0	1-Sided Adj

Project expenses for Advanced Energy Storage (AES) project. $46k for Post-commissioning Communication services ($1,000/month for 46 months accumulated total (5 systems, all being commissioned at different times in 2014)) typically IT covers $12k for Internal Labor for Operations and Maintenance after commissioning (40 hours/month x 6 months x $50 hour)

2015 Total	**0**	**163**	**0**	**163**	**0.0**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED024.000 - Technology Utilization

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2016	0	105	0	105	0.0	1-Sided Adj

Project expenses for Borrego Springs MicroGrid. $80k for fuel (assuming < 200 hrs operations for emergencies and maintenance), $10k for miscellaneous generator repairs, $15k for maintenance agreement with Hawthorne

2016	0	58	0	58	0.0	1-Sided Adj

Project expenses for Advanced Energy Storage (AES) project. $46k for Post-commissioning Communication services ($1,000/month for 46 months accumulated total (5 systems, all being commissioned at different times in 2014)) typically IT covers $12k for Internal Labor for Operations and Maintenance after commissioning (40 hours/month x 6 months x $50 hour)

2016 Total	**0**	**163**	**0**	**163**	**0.0**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED024.000 - Technology Utilization

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	507	873	854	998	797
Non-Labor	228	204	308	358	363
NSE	0	0	0	0	0
Total	**735**	**1,077**	**1,162**	**1,357**	**1,160**
FTE	4.9	8.7	8.2	9.5	7.2
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	507	873	854	998	797
Non-Labor	228	204	308	358	363
NSE	0	0	0	0	0
Total	**735**	**1,077**	**1,162**	**1,357**	**1,160**
FTE	4.9	8.7	8.2	9.5	7.2
Vacation & Sick (Nominal $)					
Labor	78	139	126	145	126
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**78**	**139**	**126**	**145**	**126**
FTE	0.8	1.5	1.3	1.5	1.3
Escalation to 2013$					
Labor	50	64	40	25	0
Non-Labor	24	17	12	5	0
NSE	0	0	0	0	0
Total	**74**	**81**	**52**	**30**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	635	1,076	1,019	1,168	924
Non-Labor	252	221	320	364	363
NSE	0	0	0	0	0
Total	**887**	**1,297**	**1,339**	**1,531**	**1,287**
FTE	5.7	10.2	9.5	11.0	8.5

* 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: Jonathan Woldemariam
Category: G. Technology Utilization
Category-Sub: 1. Technology Utilization
Workpaper: 1ED024.000 - Technology Utilization

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: H. Distribution Support
Workpaper: VARIOUS

Summary for Category: H. Distribution Support

	In 2013$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	547	549	599	599
Non-Labor	181	201	201	201
NSE	0	0	0	0
Total	**728**	**750**	**800**	**800**
FTE	3.8	4.0	4.5	4.5

Workpapers belonging to this Category:

1ED000.000 Admin & Mgt				
Labor	201	218	268	268
Non-Labor	8	56	56	56
NSE	0	0	0	0
Total	**209**	**274**	**324**	**324**
FTE	2.1	2.3	2.8	2.8
1ED009.000 Officer				
Labor	346	331	331	331
Non-Labor	173	145	145	145
NSE	0	0	0	0
Total	**519**	**476**	**476**	**476**
FTE	1.7	1.7	1.7	1.7

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED000.000 - Admin & Mgt

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: H. Distribution Support
Category-Sub 1. Distribution Support
Workpaper: 1ED000.000 - Admin & Mgt

Activity Description:

The Administrative and Management group is responsible for supporting the financial system for Electric Distribution. Business Planners in this workgroup have the responsibility to support their respective business units through budget development and oversight, financial analysis, and the production of monthly variance reports to track financial performance.

Forecast Explanations:

Labor - 3-YR Average

Additional labor resources required include Business Analysts which are needed to support increased project work, data requests, budget analysis and value-added services performed on behalf of the Division. The 3-year year average seems to be most indicative of the current and future forecasted base-line spending of this group. Adjustments to the forecast were made for O&M portion of the labor splits for the additional labor resources.

Non-Labor - 3-YR Average

The Administration and Management group has overseen the development and deployment of two separate financial applications referred to as the Performance Management Reporting ("PMR") and the TM1 Capital Reporting tool that collectively are used to collect and report financial results and metrics to interested employees and users across the organization. These applications are in varying stages of deployment. We anticipate that there will be on-going support and maintenance from internal and external sources required of these applications to ensure successful deployment and continued service quality. The 3-year year average seems to be most indicative of the current and future forecasted spending of this group. Adjustments to the forecast were made for anticipated O&M charges attributable to on-going maintenance and support of the financial systems.

NSE - 3-YR Average

N/A

Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	158	138	165	138	201	218	268	268
Non-Labor	5	3	4	6	8	56	56	56
NSE	0	0	0	0	0	0	0	0
Total	**163**	**141**	**169**	**144**	**209**	**274**	**324**	**324**
FTE	1.8	1.5	1.8	1.4	2.1	2.3	2.8	2.8

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: H. Distribution Support
Category-Sub: 1. Distribution Support
Workpaper: 1ED000.000 - Admin & Mgt

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	3-YR Average	168	168	168	50	100	100	218	268	268
Non-Labor	3-YR Average	6	6	6	50	50	50	56	56	56
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		**174**	**174**	**174**	**100**	**150**	**150**	**274**	**324**	**324**
FTE	3-YR Average	1.8	1.8	1.8	0.5	1.0	1.0	2.3	2.8	2.8

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2014	50	0	0	50	0.5	1-Sided Adj
One Business Analyst to support divisional metrics, budgeting due to expanded reporting and analyis requirements. Labor splits are 50% O&M, 25% Capital and 25% Transmission.						
2014	0	50	0	50	0.0	1-Sided Adj
On-going operations support and maintenance of financial system applications.						
2014 Total	**50**	**50**	**0**	**100**	**0.5**	
2015	100	0	0	100	1.0	1-Sided Adj
Two Business Analysts to support divisional metrics, budgeting due to expanded reporting and analyis requirements. Labor splits are 50% O&M, 25% Capital and 25% Transmission.						
2015	0	50	0	50	0.0	1-Sided Adj
On-going operations support and maintenance of financial system applications.						
2015 Total	**100**	**50**	**0**	**150**	**1.0**	
2016	100	0	0	100	1.0	1-Sided Adj
Two Business Analysts to support divisional metrics, budgeting due to expanded reporting and analyis requirements. Labor splits are 50% O&M, 25% Capital and 25% Transmission.						
2016	0	50	0	50	0.0	1-Sided Adj
On-going operations support and maintenance of financial system applications.						

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: H. Distribution Support
Category-Sub: 1. Distribution Support
Workpaper: 1ED000.000 - Admin & Mgt

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
2016 Total	**100**	**50**	**0**	**150**	**1.0**	

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: H. Distribution Support
Category-Sub: 1. Distribution Support
Workpaper: 1ED000.000 - Admin & Mgt

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	126	112	138	118	173
Non-Labor	5	3	4	6	8
NSE	0	0	0	0	0
Total	**130**	**115**	**142**	**124**	**181**
FTE	1.5	1.3	1.6	1.2	1.8
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	126	112	138	118	173
Non-Labor	5	3	4	6	8
NSE	0	0	0	0	0
Total	**130**	**115**	**142**	**124**	**181**
FTE	1.5	1.3	1.6	1.2	1.8
Vacation & Sick (Nominal $)					
Labor	19	18	20	17	27
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**19**	**18**	**20**	**17**	**27**
FTE	0.3	0.2	0.3	0.2	0.3
Escalation to 2013$					
Labor	12	8	6	3	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**13**	**8**	**7**	**3**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	158	138	165	138	201
Non-Labor	5	3	4	6	8
NSE	0	0	0	0	0
Total	**163**	**141**	**169**	**144**	**209**
FTE	1.8	1.5	1.9	1.4	2.1

* 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: Jonathan Woldemariam
Category: H. Distribution Support
Category-Sub: 1. Distribution Support
Workpaper: 1ED000.000 - Admin & Mgt

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
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:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010 Total	**0**	**0**	**0**	**0.0**			
2011 Total	**0**	**0**	**0**	**0.0**			
2012 Total	**0**	**0**	**0**	**0.0**			
2013 Total	**0**	**0**	**0**	**0.0**			

Note: Totals may include rounding differences.

Beginning of Workpaper
1ED009.000 - Officer

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: H. Distribution Support
Category-Sub 1. Distribution Support
Workpaper: 1ED009.000 - Officer

Activity Description:

This workgroup includes the costs one officer (Vice President) and one administrative assistant. Typical activities included in this account include Officer activities in support of electric distribution.

Forecast Explanations:

Labor - 5-YR Average

The total salaries are a direct labor charges. The 5-year year average seems to be most indicative of the current and future forecasted spending of this group.

Non-Labor - 5-YR Average

Non labor expenses typically including consulting fees, benchmarking studies, office supply expenses and officer travel expenses. The 5-year year average seems to be most indicative of the current and future forecasted spending of this group.

NSE - 3-YR Average

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Summary of Results:

	In 2013$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Labor	330	325	325	330	346	331	331	331
Non-Labor	142	121	78	213	173	145	145	145
NSE	0	0	0	0	0	0	0	0
Total	**472**	**445**	**402**	**544**	**518**	**476**	**476**	**476**
FTE	1.7	1.6	1.6	1.6	1.7	1.7	1.7	1.7

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: H. Distribution Support
Category-Sub: 1. Distribution Support
Workpaper: 1ED009.000 - Officer

Forecast Summary:

In 2013 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2014**	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Labor	5-YR Average	331	331	331	0	0	0	331	331	331
Non-Labor	5-YR Average	145	145	145	0	0	0	145	145	145
NSE	3-YR Average	0	0	0	0	0	0	0	0	0
Total		**476**	**476**	**476**	**0**	**0**	**0**	**476**	**476**	**476**
FTE	5-YR Average	1.7	1.7	1.7	0.0	0.0	0.0	1.7	1.7	1.7

Forecast Adjustment Details:

Year/Expl.	Labor	NLbr	NSE	Total	FTE	Adj Type
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: Jonathan Woldemariam
Category: H. Distribution Support
Category-Sub: 1. Distribution Support
Workpaper: 1ED009.000 - Officer

Determination of Adjusted-Recorded (Incurred Costs):

	2009 ($000)	2010 ($000)	2011 ($000)	2012 ($000)	2013 ($000)
Recorded (Nominal $)*					
Labor	263	263	532	282	542
Non-Labor	129	230	1,174	1,752	1,298
NSE	0	0	0	0	0
Total	**392**	**494**	**1,706**	**2,034**	**1,840**
FTE	1.5	1.4	1.4	1.4	1.5
Adjustments (Nominal $) **					
Labor	0	0	-260	0	-244
Non-Labor	0	-119	-1,100	-1,542	-1,126
NSE	0	0	0	0	0
Total	**0**	**-119**	**-1,360**	**-1,542**	**-1,369**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	263	263	272	282	298
Non-Labor	129	112	75	210	173
NSE	0	0	0	0	0
Total	**392**	**375**	**347**	**492**	**471**
FTE	1.5	1.4	1.4	1.4	1.5
Vacation & Sick (Nominal $)					
Labor	41	42	40	41	47
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**41**	**42**	**40**	**41**	**47**
FTE	0.2	0.2	0.2	0.2	0.3
Escalation to 2013$					
Labor	26	19	13	7	0
Non-Labor	14	9	3	3	0
NSE	0	0	0	0	0
Total	**40**	**28**	**16**	**10**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013$)					
Labor	330	325	325	330	346
Non-Labor	142	121	78	213	173
NSE	0	0	0	0	0
Total	**472**	**445**	**402**	**544**	**518**
FTE	1.7	1.6	1.6	1.6	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: Jonathan Woldemariam
Category: H. Distribution Support
Category-Sub: 1. Distribution Support
Workpaper: 1ED009.000 - Officer

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
Years	**2009**	**2010**	**2011**	**2012**	**2013**
Labor	0	0	-260	0	-244
Non-Labor	0	-119	-1,100	-1,542	-1,126
NSE	0	0	0	0	0
Total	**0**	**-119**	**-1,360**	**-1,542**	**-1,369**
FTE	0.0	0.0	0.0	0.0	0.0

Detail of Adjustments to Recorded:

Year/Expl.	Labor	NLbr	NSE	FTE	Adj Type	From CCtr	RefID
2009 Total	**0**	**0**	**0**	**0.0**			
2010	0	-119	0	0.0	CCTR Transf	To 2100-0120.000	CSTRIEBE20131 107125743947
Transfer generator storage costs to Electric Transmission & Distribution Engineering.							
2010 Total	**0**	**-119**	**0**	**0.0**			
2011	-260	0	0	0.0	1-Sided Adj	N/A	CSTRIEBE20131 107132015520
To remove non recurring legal settlement costs.							
2011	0	-1,078	0	0.0	1-Sided Adj	N/A	CSTRIEBE20131 107132127057
To remove non recurring legal settlement costs.							
2011	0	-10	0	0.0	CCTR Transf	To 2100-0120.000	CSTRIEBE20131 107132759020
Transfer generator storage costs to Electric Transmission & Distribution Engineering.							
2011	0	-12	0	0.0	CCTR Transf	To 2100-3773.000	CSTRIEBE20131 107135752070
Transfer helicopter lease payments to aviation cost center.							
2011 Total	**-260**	**-1,100**	**0**	**0.0**			

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam
Category: H. Distribution Support
Category-Sub: 1. Distribution Support
Workpaper: 1ED009.000 - Officer

Year/Expl.	Labor	NLbr	NSE	FTE	Adj Type	From CCtr	RefID
2012	0	-1,323	0	0.0	CCTR Transf	To 2100-3773.000	CSTRIEBE20131 107141416560
Transfer helicopter lease payments to aviation cost center.							
2012	0	-219	0	0.0	CCTR Transf	To 2100-3773.000	CSTRIEBE20131 107141527903
Transfer helicopter insurance payments to aviation cost center.							
2012 Total	**0**	**-1,542**	**0**	**0.0**			
2013	0	-519	0	0.0	CCTR Transf	To 2100-0130.000	CSTRIEBE20140 131134806080
Allocation of GIS / ESRI software maintenance expense paid from VP Cost Center.							
2013	-244	0	0	0.0	1-Sided Adj	N/A	CSTRIEBE20140 131135338137
Employee settlement charges							
2013	0	-115	0	0.0	1-Sided Adj	N/A	CSTRIEBE20140 131135424213
Employee settlement charges							
2013	0	-491	0	0.0	1-Sided Adj	N/A	CSTRIEBE20140 131135724520
Legal fees for employee settlement							
2013 Total	**-244**	**-1,126**	**0**	**0.0**			

Note: Totals may include rounding differences.

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam

Appendix A: List of Non-Shared Cost Centers

Cost Center	Sub	Description
2100-0043	000	C&O CENTER TRAINING - OH TRAINERS
2100-0076	000	METRO CONSTRUCTION & OPER MANAGER
2100-0077	000	METRO C&O-ELECTRIC OH
2100-0080	000	METRO C&O-INSP/PROJ COORD
2100-0082	000	METRO C&O-EQUIPMENT ORDERS
2100-0083	000	METRO C&O-ENGR
2100-0084	000	METRO C&O-TROUBLEMEN
2100-0085	000	NORTH COAST CONST & OPER MANAGER
2100-0086	000	NORTH COAST C&O CENTER - ELEC
2100-0088	000	NORTH COAST C&O-ENG & OPS
2100-0089	000	NORTH COAST C&O-TROUBLEMEN
2100-0090	000	NORTHEAST CONSTRUCTION & OPER MANAGER
2100-0091	000	NORTHEAST C&O-ELECT OH
2100-0095	000	NORTHEAST C&O-EQUIPMENT OPER
2100-0096	000	NORTHEAST C&O-INSP/PROJ COORD
2100-0097	000	NORTHEAST C&O-ENG & OPS
2100-0098	000	NORTHEAST C&O-TROUBLEMEN
2100-0099	000	NORTHEAST C&O-RAMONA SATELLITE
2100-0100	000	BEACH CITIES CONST & OPER MANAGER
2100-0101	000	BEACH CITIES C&O CENTER-ELEC
2100-0103	000	BEACH CITIES C&O-ENG & OPS
2100-0104	000	BEACH CITIES C&O-TROUBLEMEN
2100-0105	000	EASTERN CONST & OPS MANAGER
2100-0106	000	EASTERN C&O CENTER-ELEC
2100-0108	000	C&O SERVICES-MTN EMPIRE
2100-0109	000	EASTERN C&O-ENG & OPS
2100-0110	000	EASTERN C&O-TROUBLEMEN
2100-0111	000	ORANGE COUNTY CONST & OPER MANAGER
2100-0112	000	PROJECT MGMT ORANGE COUNTY
2100-0113	000	ORANGE CO CONST & OPERATIONS MANAGER
2100-0114	000	ORANGE CO CONST & OPS-ELEC
2100-0115	000	ORANGE CO C&O-GAS
2100-0116	000	ORANGE CO C&O-ENG & OPS
2100-0117	000	ORANGE CO C&O-TROUBLEMEN
2100-0119	000	T&D ASSET MGMT DIR
2100-0120	000	DISTRIB STANDARDS & COST MGMT
2100-0122	000	ELE DIST PLANNING
2100-0124	000	DISTRIB PROJECTS & PROG
2100-0125	000	ELE TRANS & DIST TECHNOLOGY DEVELOPMENT
2100-0126	000	ENERGY MGMT & SERVICE STANDARDS
2100-0127	000	ELE DIST OPERATIONS DIR
2100-0128	000	DIST SWITCHING
2100-0130	000	ELE GEOGRAPHIC INFO MGMT
2100-0131	000	PROJECT MGMT TRAINING
2100-0132	000	PROJECT MGMT METRO A

Area: ELECTRIC DISTRIBUTION
Witness: Jonathan Woldemariam

Appendix A: List of Non-Shared Cost Centers

Cost Center	Sub	Description
2100-0133	000	METRO C&O SOT ORDER TEAM
2100-0134	000	PROJECT MGMT METRO B
2100-0135	000	NORTHEAST C&O SORT ORDER TEAM
2100-0136	000	PROJECT MGMT NORTHERN
2100-0137	000	CS PROJ CONTRACT ADMIN
2100-0138	000	PROJECT MANAGEMENT POLICY & PROCEDURES
2100-0150	000	CONSTRUCTION SERVICES DIRECTOR
2100-0152	000	PROJ CONTR METRO ELECTRIC
2100-0153	000	PROJ CONTR - BEACH CITIES ELE
2100-0154	000	PROJ CONTR NORTHEAST ELE
2100-0155	000	PROJ CONTR EASTERN ELE
2100-0156	000	PROJ CONTR NORTH COAST ELE
2100-0157	000	PROJ CONTR ORANGE COUNTY ELE
2100-0158	000	PROJ CONTR-NON-DISTRICT ELE
2100-0159	000	PROJ CONTR METRO GAS
2100-0160	000	PROJ CONTR BEACH CITIES GAS
2100-0161	000	PROJ CONTR - NORTHEAST GAS
2100-0162	000	PROJ CONTR - EASTERN GAS
2100-0163	000	PROJ CONTR NORTH COAST GAS
2100-0164	000	PROJ CONTR ORANGE COUNTY GAS
2100-0165	000	PROJ CONTR NON-DISTRICT GAS
2100-0166	000	VEGETATION MGMT ADMIN
2100-0175	000	MATERIALS ANALYSIS LAB
2100-0189	000	FLEET EQUIPMENT OPERATIONS
2100-0205	000	EQUIPMENT TRAINING & OPERATIONS SERVICES
2100-0218	000	TREE TRIM PROGRAM
2100-0221	000	ELE TRANS & DIST ENGINEERING DIR
2100-0222	000	TRANS ENGINEERING
2100-0223	000	SUBSTATION ENG & DESIGN
2100-0224	000	SYSTEM PROTECTION ENGINEERING
2100-0225	000	CIVIL/STRUCTURAL ENGINEERING
2100-0228	000	ELECTRIC GRID OPERATIONS DIRECTOR
2100-0229	000	ELECTRIC GRID CONTROL
2100-0230	000	ELECTRIC GRID OPERATIONS
2100-0231	000	ENERGY MGMT SYSTEMS OPERATIONS
2100-0232	000	GRID CONTRACT SERVICES
2100-0233	000	KEARNY MAINT & OPS DIRECTOR
2100-0234	000	SYSTEM PROTECTION MAINTENANCE
2100-0235	000	SUBSTATION CONST & MAINTENANCE
2100-0236	000	TRANSMISSION CONSTRUCTION & MAINTENANCE
2100-0237	000	TRANSMISSION MAINTENANCE & OPERATIONS
2100-0238	000	MAINTENANCE SHOPS
2100-0368	000	INDUSTRY DUES & CONTRIBUTIONS
2100-0369	000	COMMUNITY CONTRIBUTIONS & DONATIONS
2100-0535	000	MATERIALS & SUPPLIES

Area: ELECTRIC DISTRIBUTION
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Appendix A: List of Non-Shared Cost Centers

Cost Center	Sub	Description
2100-0560	000	ELECT RELIAB REPORTING
2100-0703	000	CONTRACT SUPPORT
2100-0720	000	ELE DIST OPS SYSTEM SERVICE
2100-0721	000	EASTERN C&O SORT ORDER TEAM
2100-0722	000	BUSINESS PLANNING & BUDGET ELECTRIC
2100-0725	000	ELE TRANS & DIST VP
2100-0730	000	T&D PERF & BUDGETS MGR
2100-3403	000	ELECTRIC REGIONAL OPERATIONS DIRECTOR
2100-3404	000	NORTH COAST C&O SORT ORDER TEAM
2100-3406	000	BUS PLNG BUD T&D AM & EDO
2100-3438	000	TECHNOLOGY DEVELOPMENT MANAGER
2100-3462	000	REGIONAL PUBLIC AFFAIRS ORANGE CNTY
2100-3463	000	REGIONAL PUBLIC AFFAIRS SAN DIEGO
2100-3540	000	ELE TRANS & DIST PROJECT MGMT
2100-3543	000	CONSTRUCTION OPERATIONS SUPPORT
2100-3557	000	EGIM STRATEGY
2100-3558	000	EGIM DISTRICT OPERATIONS
2100-3559	000	EGIM LAND
2100-3560	000	EGIM REGIONAL SUPPORT
2100-3561	000	EGIM - GIS MANAGEMENT
2100-3566	000	500 KV PROJECT
2100-3592	000	VP REGIONAL/EXTERNAL RELATIONS
2100-3603	000	FRANCHISE & FEES MANAGER
2100-3604	000	SKILLS COMPLIANCE & TRAINING
2100-3616	000	ELECTIC DISTRIBUTION OPS TECH SUPPORT
2100-3643	000	C&O CENTER TRAINING - UG TRAINERS & ETS
2100-3651	000	TECH INNOV & DEVELOP
2100-3652	000	ASSET & INVEST STRGY
2100-3654	000	TECHNICAL ANALYSIS
2100-3655	000	PROGRAM MGMT
2100-3656	000	COMPLIANCE MGMT
2100-3659	000	WORK MGMT SYS
2100-3661	000	COND BASED MAINT
2100-3704	000	SMART ENERGY PROGRAM
2100-3744	000	Major Projects & Budgets Acctg
2100-3751	000	DIRECTOR'S SMART GRID
2100-3752	000	SUNRISE POWERLINK IV OFFICE
2100-3761	000	SDGE F. COORDINATION
2100-3771	000	ENTERPRISE SYSTEMS SUPPORT DIRECTOR
2100-3773	000	HELICOPTER UTILIZATION
2100-3788	000	Major Projects - Subsation
2100-3792	000	MANAGER - AREA RESOURCE SCHEDULING ORG
2100-3793	000	AREA RESOURCE SCHEDULING ORG - NORTH
2100-3794	000	AREA RESOURCE SCHEDULING ORG - SOUTH
2100-3850	000	OPERATIONS & PROJECT MANAGEMENT TRAINING

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Appendix A: List of Non-Shared Cost Centers

Cost Center	Sub	Description
2100-3853	000	Elec T&D - Kearny Maint & Ops
2100-3854	000	AIR COORDINATION
2100-3860	000	Elec T&D - Construction Ops
2100-3872	000	BUSINESS SOLUTIONS & TRAINING
2100-3873	000	FINANCE & OPERATIONS MGMT
2100-3874	000	Elec T&D - Major Projects
2100-3875	000	SAFETY & PROJECT COMPLIANCE MANAGER
2100-3876	000	DIRECTOR ASST MGMT & SMART GRID
2100-3877	000	SMART GRID PROJECTS
2100-3878	000	ADV ASSET PERF ANALYTICS & INTEGRATION
2100-3879	000	MAJOR PROJECT OUTREACH
2100-3881	000	MAJOR PROJECTS - TRANSMISSION
2100-3882	000	MAJOR PROJECTS - SUPPORT SERVICES
2100-3883	000	Elec T&D - T&D Tech Assessment
2100-3892	000	OPERATIONS ENGINEERING
2100-3893	000	MANAGER - SMART GRID
2100-3894	000	BEACH CITIES C&O SORT ORDER TEAM
2100-3908	000	MAJOR PROJECTS SUBST CONST MGMT
2100-3911	000	GEOGRAPHIC BUSINESS SOLUTIONS MOBILE/WEB
2100-3912	000	GEOGRAPHIC BUSINESS SOLUTIONS DESKTOP
2100-3925	000	APS/SRP PARTICIPATION AGREEMENT
2100-3932	000	FIRE & RISK MITIGATION
2100-3936	000	ELECTRIC BUSINESS PROCESS
2100-3937	000	VP ELECTRIC DISTRIBUTION OPERATIONS
2100-3939	000	ERO CONSTRUCTION
2100-3940	000	PROTECTIVE EQUIPMENT TESTING
2100-3941	000	MATERIALS MANAGEMENT