

Application of SAN DIEGO GAS & ELECTRIC)
COMPANY for authority to update its gas and)
electric revenue requirement and base rates)
effective January 1, 2019 (U 902-M))

Application No. 17-10-____

Exhibit No.: (SDG&E-06-WP)

WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF ELIZABETH A. MUSICH
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

OCTOBER 2017



**2019 General Rate Case - APP
INDEX OF WORKPAPERS**

Exhibit SDG&E-06-WP - GAS TRANSMISSION

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Overall Summary For Exhibit No. SDG&E-06-WP

Area:	GAS TRANSMISSION
Witness:	Elizabeth A. Musich

Description	In 2016 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Non-Shared Services	4,370	5,123	5,110	5,110
Shared Services	0	0	0	0
Total	4,370	5,123	5,110	5,110

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich

Summary of Non-Shared Services Workpapers:

Description	In 2016 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
A. Pipeline Operations	1,342	1,839	1,839	1,839
B. Compression Station Operations	2,981	3,137	3,124	3,124
C. Technical Services	47	147	147	147
Total	4,370	5,123	5,110	5,110

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich
Category: A. Pipeline Operations
Workpaper: 1GT000.000

Summary for Category: A. Pipeline Operations

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	876	1,116	1,116	1,116
Non-Labor	466	723	723	723
NSE	0	0	0	0
Total	1,342	1,839	1,839	1,839
FTE	10.6	13.3	13.3	13.3

Workpapers belonging to this Category:

1GT000.000 Pipeline Operations

Labor	876	1,116	1,116	1,116
Non-Labor	466	723	723	723
NSE	0	0	0	0
Total	1,342	1,839	1,839	1,839
FTE	10.6	13.3	13.3	13.3

Note: Totals may include rounding differences.

Beginning of Workpaper
1GT000.000 - Pipeline Operations

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
 Witness: Elizabeth A. Musich
 Category: A. Pipeline Operations
 Category-Sub: 1. Pipeline Operations
 Workpaper: 1GT000.000 - Pipeline Operations

Activity Description:

High Pressure Pipeline Operation and Maintenance

Forecast Explanations:

Labor - 5-YR Average

5 year averaging selected based on its provision for a reliable TY forecast based on reliance of recent historical data.

Non-Labor - 5-YR Average

5 year averaging selected based on its provision for a reliable TY forecast based on reliance of recent historical data.

NSE - Zero-Based

Not Applicable

Summary of Results:

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		755	839	817	839	876	1,116	1,116	1,116	
Non-Labor		282	276	372	348	466	723	723	723	
NSE		0	0	0	0	0	0	0	0	
Total		1,037	1,115	1,189	1,187	1,342	1,839	1,839	1,839	
FTE		9.7	10.6	10.2	10.3	10.5	13.3	13.3	13.3	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich
Category: A. Pipeline Operations
Category-Sub: 1. Pipeline Operations
Workpaper: 1GT000.000 - Pipeline Operations

Summary of Adjustments to Forecast:

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	825	825	825	291	291	291	1,116	1,116	1,116
Non-Labor	5-YR Average	349	349	349	374	374	374	723	723	723
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		1,174	1,174	1,174	665	665	665	1,839	1,839	1,839
FTE	5-YR Average	10.3	10.3	10.3	3.0	3.0	3.0	13.3	13.3	13.3

Forecast Adjustment Details:

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID	
2017	Other	291	4	0	295	3.0	1-Sided Adj	TP2RXL20161127210822630	
Explanation:		Pipeline Operation - Support Staffing							
2017	Other	0	120	0	120	0.0	1-Sided Adj	TP2RXL20170223003503673	
Explanation:		Pipeline Leakage Investigation & Mitigation _ (Non Capital qualifying repairs)							
2017	Other	0	250	0	250	0.0	1-Sided Adj	TP2RXL20170223003800893	
Explanation:		Right-Of-Way Compliance Maintenance							
2017 Total		291	374	0	665	3.0			
2018	Other	291	4	0	295	3.0	1-Sided Adj	TP2RXL20161127210908667	
Explanation:		Pipeline Operation - Support Staffing							
2018	Other	0	120	0	120	0.0	1-Sided Adj	TP2RXL20170223003537253	
Explanation:		Pipeline Leakage Investigation & Mitigation _ (Non Capital qualifying repairs)							
2018	Other	0	250	0	250	0.0	1-Sided Adj	TP2RXL20170223003829397	
Explanation:		Right-Of-Way Compliance Maintenance							
2018 Total		291	374	0	665	3.0			
2019	Other	291	4	0	295	3.0	1-Sided Adj	TP2RXL20161127210951293	
Explanation:		Pipeline Operation - Support Staffing							

Note: Totals may include rounding differences.

SDG&E/GAS TRANSMISSION/Exh No:SDG&E-06-WP/Witness: E. Musich

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
 Witness: Elizabeth A. Musich
 Category: A. Pipeline Operations
 Category-Sub: 1. Pipeline Operations
 Workpaper: 1GT000.000 - Pipeline Operations

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj_Type</u>	<u>RefID</u>
2019	Other	0	120	0	120	0.0	1-Sided Adj	TP2RXL20170223003611770
Explanation:		Pipeline Leakage Investigation & Mitigation _ Non Capital qualifying repairs)						
2019	Other	0	250	0	250	0.0	1-Sided Adj	TP2RXL20170223003858197
Explanation:		Right-Of-Way Compliance Maintenance						
2019 Total		291	374	0	665	3.0		

Note: Totals may include rounding differences.

SDG&E/GAS TRANSMISSION/Exh No:SDG&E-06-WP/Witness: E. Musich

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich
Category: A. Pipeline Operations
Category-Sub: 1. Pipeline Operations
Workpaper: 1GT000.000 - Pipeline Operations

Determination of Adjusted-Recorded (Incurred Costs):

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
Recorded (Nominal \$)*					
Labor	639	717	721	776	807
Non-Labor	271	270	370	346	466
NSE	0	0	0	0	0
Total	910	986	1,092	1,121	1,273
FTE	8.7	9.3	9.0	9.2	9.4
Adjustments (Nominal \$) **					
Labor	-35	-39	-49	-66	-56
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	-35	-39	-49	-66	-56
FTE	-0.3	-0.3	-0.4	-0.5	-0.4
Recorded-Adjusted (Nominal \$)					
Labor	604	678	673	710	751
Non-Labor	271	270	370	346	466
NSE	0	0	0	0	0
Total	875	947	1,043	1,056	1,217
FTE	8.4	9.0	8.6	8.7	9.0
Vacation & Sick (Nominal \$)					
Labor	87	107	107	110	125
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	87	107	107	110	125
FTE	1.4	1.6	1.5	1.5	1.6
Escalation to 2016\$					
Labor	64	54	37	19	0
Non-Labor	11	6	2	2	0
NSE	0	0	0	0	0
Total	75	61	39	22	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2016\$)					
Labor	755	839	817	839	876
Non-Labor	282	276	372	348	466
NSE	0	0	0	0	0
Total	1,037	1,115	1,189	1,187	1,342
FTE	9.8	10.6	10.1	10.2	10.6

* 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.

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich
Category: A. Pipeline Operations
Category-Sub: 1. Pipeline Operations
Workpaper: 1GT000.000 - Pipeline Operations

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	-35	-39	-49	-66	-56
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	-35	-39	-49	-66	-56
FTE	-0.3	-0.3	-0.4	-0.5	-0.4

Detail of Adjustments to Recorded:

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
2012	Other	-35	0	0	-0.3	1-Sided Adj	TP2RXL20161125200750410
Explanation:		Reimbursed gas receipt meter maintenance expense					
2012 Total		-35	0	0	-0.3		
2013	Other	-39	0	0	-0.3	1-Sided Adj	TP2RXL20161125201041710
Explanation:		Reimbursed gas receipt meter maintenance expense					
2013 Total		-39	0	0	-0.3		
2014	Other	-49	0	0	-0.4	1-Sided Adj	TP2RXL20161125201238577
Explanation:		Reimbursed gas receipt meter maintenance expense					
2014 Total		-49	0	0	-0.4		
2015	Other	-66	0	0	-0.5	1-Sided Adj	TP2RXL20161125201347920
Explanation:		Reimbursed gas receipt meter maintenance expense					
2015 Total		-66	0	0	-0.5		
2016	Other	-56	0	0	-0.4	1-Sided Adj	TP2RXL20161125201444233
Explanation:		Reimbursed gas receipt meter maintenance expense					
2016 Total		-56	0	0	-0.4		

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich
Category: A. Pipeline Operations
Category-Sub: 1. Pipeline Operations
Workpaper: 1GT000.000 - Pipeline Operations

RAMP Item # 1

Ref ID: TP2RXL20170628154925520

RAMP Chapter: SDG&E-10

Program Name: Pipeline Patrol

Program Description: Patrol Pipelines For Leaks

Risk/Mitigation:

Risk: Catastrophic Damage Involving Gas Transmission Pipeline Failure

Mitigation: Systems In Place To Monitor And Manage Compliance Activity

Forecast CPUC Cost Estimates (\$000)

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	20	20	20
High	22	22	22

Funding Source: CPUC-GRC

Forecast Method: Average

Work Type: Mandated

Work Type Citation: CPUC

Historical Embedded Cost Estimates (\$000)

Embedded Costs: 20

Explanation:

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich
Category: A. Pipeline Operations
Category-Sub: 1. Pipeline Operations
Workpaper: 1GT000.000 - Pipeline Operations

RAMP Item # 2

Ref ID: TP2RXL20170628160213233

RAMP Chapter: SDG&E-10

Program Name: Maximo Work Order Tracking

Program Description: Track All Compliance Related Conditions In MAXIMO

Risk/Mitigation:

Risk: Catastrophic Damage Involving Gas Transmission Pipeline Failure

Mitigation: Systems in place to monitor and manage compliance activity schedules

Forecast CPUC Cost Estimates (\$000)

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	26	26	26
High	28	28	28

Funding Source: CPUC-GRC

Forecast Method: Average

Work Type: Mandated

Work Type Citation: CPUC

Historical Embedded Cost Estimates (\$000)

Embedded Costs: 27

Explanation:

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich
Category: A. Pipeline Operations
Category-Sub: 1. Pipeline Operations
Workpaper: 1GT000.000 - Pipeline Operations

RAMP Item # 3

Ref ID: TP2RXL20170628161742217

RAMP Chapter: SDG&E-10

Program Name: Transmission M & I Maintenance

Program Description: Inspect Regulators To Ensure Overpressure Protection In Place And Maintained

Risk/Mitigation:

Risk: Catastrophic Damage Involving High-Pressure Pipeline

Mitigation: Systems In Place To Monitor and Manage Compliance Activity

Forecast CPUC Cost Estimates (\$000)

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	14	10	21
High	16	14	29

Funding Source: CPUC-GRC

Forecast Method: Average

Work Type: Mandated

Work Type Citation: CPUC

Historical Embedded Cost Estimates (\$000)

Embedded Costs: 7

Explanation:

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
 Witness: Elizabeth A. Musich
 Category: B. Compression Station Operations
 Workpaper: 1GT001.000

Summary for Category: B. Compression Station Operations

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	1,359	1,632	1,632	1,632
Non-Labor	1,622	1,504	1,491	1,491
NSE	0	0	0	0
Total	2,981	3,136	3,123	3,123
FTE	13.1	16.2	16.2	16.2

Workpapers belonging to this Category:

1GT001.000 Compression Station Operations

Labor	1,359	1,632	1,632	1,632
Non-Labor	1,622	1,504	1,491	1,491
NSE	0	0	0	0
Total	2,981	3,136	3,123	3,123
FTE	13.1	16.2	16.2	16.2

Note: Totals may include rounding differences.

Beginning of Workpaper
1GT001.000 - Compression Station Operations

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
 Witness: Elizabeth A. Musich
 Category: B. Compression Station Operations
 Category-Sub: 1. Compression Station Operations
 Workpaper: 1GT001.000 - Compression Station Operations

Activity Description:

Compressor Station Operation and Maintenance

Forecast Explanations:

Labor - 5-YR Average

5 year averaging selected based on its provision for a reliable TY forecast based on reliance of recent historical data.

Non-Labor - 5-YR Average

5 year averaging selected based on its provision for a reliable TY forecast based on reliance of recent historical data.

NSE - Zero-Based

Not Applicable

Summary of Results:

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		1,420	1,467	1,416	1,430	1,359	1,632	1,632	1,632	
Non-Labor		1,489	1,620	1,577	1,399	1,622	1,505	1,492	1,492	
NSE		0	0	0	0	0	0	0	0	
Total		2,908	3,087	2,993	2,829	2,981	3,137	3,124	3,124	
FTE		13.9	14.3	14.2	14.2	13.1	16.2	16.2	16.2	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
 Witness: Elizabeth A. Musich
 Category: B. Compression Station Operations
 Category-Sub: 1. Compression Station Operations
 Workpaper: 1GT001.000 - Compression Station Operations

Summary of Adjustments to Forecast:

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	1,418	1,418	1,418	214	214	214	1,632	1,632	1,632
Non-Labor	5-YR Average	1,541	1,541	1,541	-37	-50	-50	1,504	1,491	1,491
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		2,960	2,960	2,960	177	164	164	3,137	3,124	3,124
FTE	5-YR Average	14.0	14.0	14.0	2.2	2.2	2.2	16.2	16.2	16.2

Forecast Adjustment Details:

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID	
2017	Other	148	2	0	150	2.0	1-Sided Adj	TP2RXL20161127211517527	
Explanation:		Compression Operations SupportStaffing							
2017	FOF-Ongoing	0	-39	0	-39	-0.3	1-Sided Adj	TP2RXL20161128185142730	
Explanation:		Discontinue operation and maintenance - Rainbow Compressor Station. 75% of FOF Idea # 590 2Q-17 savings.							
2017	Other	66	0	0	66	0.5	1-Sided Adj	TP2RXL20170306180010527	
Explanation:		Peak Load - Extended Maintenance Support Staffing							
2017 Total		214	-37	0	177	2.2			
2018	Other	148	2	0	150	2.0	1-Sided Adj	TP2RXL20161127211556263	
Explanation:		Compression Operations SupportStaffing							
2018	FOF-Ongoing	0	-52	0	-52	-0.3	1-Sided Adj	TP2RXL20161128185358140	
Explanation:		Discontinue operation and maintenance - Rainbow Compressor Station. 75% of FOF Idea # 590 2Q-17 savings.							
2018	Other	66	0	0	66	0.5	1-Sided Adj	TP2RXL20170306180111880	
Explanation:		Peak Load - Extended Maintenance Support Staffing							
2018 Total		214	-50	0	164	2.2			
2019	Other	148	2	0	150	2.0	1-Sided Adj	TP2RXL20161127211633790	
Explanation:		Compression Operations SupportStaffing							

Note: Totals may include rounding differences.

SDG&E/GAS TRANSMISSION/Exh No:SDG&E-06-WP/Witness: E. Musich

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
 Witness: Elizabeth A. Musich
 Category: B. Compression Station Operations
 Category-Sub: 1. Compression Station Operations
 Workpaper: 1GT001.000 - Compression Station Operations

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj_Type</u>	<u>RefID</u>
2019	FOF-Ongoing	0	-52	0	-52	-0.3	1-Sided Adj	TP2RXL20161128185449780
Explanation:		Discontinue operation and maintenance - Rainbow Compressor Station. 75% of FOF Idea # 590 2Q-17 savings.						
2019	Other	66	0	0	66	0.5	1-Sided Adj	TP2RXL20170306180209300
Explanation:		Peak Load - Extended Maintenance Support Staffing						
2019 Total		214	-50	0	164	2.2		

Note: Totals may include rounding differences.

SDG&E/GAS TRANSMISSION/Exh No:SDG&E-06-WP/Witness: E. Musich

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich
Category: B. Compression Station Operations
Category-Sub: 1. Compression Station Operations
Workpaper: 1GT001.000 - Compression Station Operations

Determination of Adjusted-Recorded (Incurred Costs):

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
Recorded (Nominal \$)*					
Labor	1,135	1,189	1,170	1,210	1,166
Non-Labor	1,455	1,585	1,569	1,391	1,622
NSE	0	0	0	0	0
Total	2,590	2,774	2,738	2,601	2,788
FTE	12.1	12.3	12.0	12.1	11.1
Adjustments (Nominal \$) **					
Labor	0	-5	-3	0	0
Non-Labor	-24	-2	-1	-1	0
NSE	0	0	0	0	0
Total	-24	-7	-4	-1	0
FTE	0.0	-0.1	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	1,135	1,184	1,166	1,210	1,166
Non-Labor	1,431	1,583	1,568	1,390	1,622
NSE	0	0	0	0	0
Total	2,566	2,767	2,734	2,601	2,788
FTE	12.1	12.2	12.0	12.1	11.1
Vacation & Sick (Nominal \$)					
Labor	164	188	186	187	193
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	164	188	186	187	193
FTE	1.9	2.1	2.2	2.1	2.0
Escalation to 2016\$					
Labor	120	95	64	33	0
Non-Labor	57	37	9	9	0
NSE	0	0	0	0	0
Total	178	132	73	42	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2016\$)					
Labor	1,420	1,467	1,416	1,430	1,359
Non-Labor	1,489	1,620	1,577	1,399	1,622
NSE	0	0	0	0	0
Total	2,908	3,087	2,993	2,829	2,981
FTE	14.0	14.3	14.2	14.2	13.1

* 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.

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
 Witness: Elizabeth A. Musich
 Category: B. Compression Station Operations
 Category-Sub: 1. Compression Station Operations
 Workpaper: 1GT001.000 - Compression Station Operations

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	-5	-3	0	0
Non-Labor	-24	-2	-0.750	-0.500	0
NSE	0	0	0	0	0
Total	-24	-7	-4	-0.500	0
FTE	0.0	-0.1	0.0	0.0	0.0

Detail of Adjustments to Recorded:

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
2012	Other	0	5	0	0.0	CCTR Transf To 2200-0285.000	TP2RXL20161125202049477
Explanation: SoCal Gas Playa Del Rey Station SCAQMD expense incorrectly charged to SDG&E							
2012	Other	0	-18	0	0.0	1-Sided Adj	TP2RXL20161125202216783
Explanation: Exclusion of 2011 SWRCB Fee incorrectly charged to 2012 expense							
2012	Other	0	-5	0	0.0	CCTR Transf To 2200-0285.000	TP2RXL20161130065605700
Explanation: To correct (reverse) original transfer due to \$ value having been incorrectly entered as a credit instead of a debit.							
2012	Other	0	-5	0	0.0	CCTR Transf To 2200-0285.000	TP2RXL20161130065952847
Explanation: SoCal Gas Playa Del Rey Compressor Station SCAQMD expense incorrectly charged to SDG&E's Moreno Compressor Station							
2012	Other	0	2	0	0.0	1-Sided Adj	TP2RXL20161201195631290
Explanation: Accounting adjustment: 2012 invoice posted to 2013							
2012	Other	0	-2	0	0.0	CCTR Transf To 2100-3968.000	TP2RXL20161201200100493
Explanation: Accounting adjustment: Transfer of qualified 2012 NERBA expense (Beacon Energy Svcs - Fugitive Emissions Testing)							
2012 Total		0	-24	0	0.0		
2013	Other	-5	0	0	-0.1	CCTR Transf To 2100-3968.000	TP2RXL20161129175659030
Explanation: Accounting adjustment: Transfer of NERBA expense							
2013	Other	0	-2	0	0.0	1-Sided Adj	TP2RXL20161201195524883
Explanation: Accounting adjustment: 2012 invoice posted to 2013							

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
 Witness: Elizabeth A. Musich
 Category: B. Compression Station Operations
 Category-Sub: 1. Compression Station Operations
 Workpaper: 1GT001.000 - Compression Station Operations

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
2013 Total		-5	-2	0	-0.1		
2014	Other	0	-1	0	0.0	1-Sided Adj	TP2RXL20161125202646177
Explanation: Exclusion of SCAQMD NOV Settlement Fee							
2014	Other	-3	0	0	0.0	CCTR Transf To 2100-3968.000	TP2RXL20161129175848080
Explanation: Accounting adjustment: Transfer of NERBA expense							
2014 Total		-3	-1	0	0.0		
2015	Other	0	-1	0	0.0	1-Sided Adj	TP2RXL20161125202827110
Explanation: Exclusion of SCAQMD NOV Settlement Fee							
2015 Total		0	-1	0	0.0		
2016 Total		0	0	0	0.0		

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
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Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich
Category: C. Technical Services
Workpaper: 1GT002.000

Summary for Category: C. Technical Services

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	41	125	125	125
Non-Labor	6	23	23	23
NSE	0	0	0	0
Total	47	148	148	148
FTE	0.4	1.3	1.3	1.3

Workpapers belonging to this Category:

1GT002.000 Technical Services

Labor	41	125	125	125
Non-Labor	6	23	23	23
NSE	0	0	0	0
Total	47	148	148	148
FTE	0.4	1.3	1.3	1.3

Note: Totals may include rounding differences.

Beginning of Workpaper
1GT002.000 - Technical Services

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
 Witness: Elizabeth A. Musich
 Category: C. Technical Services
 Category-Sub: 1. Technical Services
 Workpaper: 1GT002.000 - Technical Services

Activity Description:

Field Technical Service and Support

Forecast Explanations:

Labor - 5-YR Average

5 year averaging selected based on its provision for a reliable TY forecast based on reliance of recent historical data.

Non-Labor - 5-YR Average

5 year averaging selected based on its provision for a reliable TY forecast based on reliance of recent historical data.

NSE - Zero-Based

Not Applicable

Summary of Results:

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		103	102	90	64	41	125	125	125	
Non-Labor		7	11	36	38	6	23	23	23	
NSE		0	0	0	0	0	0	0	0	
Total		110	112	126	102	47	148	148	148	
FTE		0.9	1.0	0.9	0.6	0.4	1.3	1.3	1.3	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
 Witness: Elizabeth A. Musich
 Category: C. Technical Services
 Category-Sub: 1. Technical Services
 Workpaper: 1GT002.000 - Technical Services

Summary of Adjustments to Forecast:

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Average	80	80	80	45	45	45	125	125	125
Non-Labor	5-YR Average	20	20	20	3	3	3	23	23	23
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		99	99	99	48	48	48	147	147	147
FTE	5-YR Average	0.8	0.8	0.8	0.5	0.5	0.5	1.3	1.3	1.3

Forecast Adjustment Details:

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID	
2017	Other	45	3	0	48	0.5	1-Sided Adj	TP2RXL20170222231249380	
Explanation:		Engineering Support Staffing							
2017 Total		45	3	0	48	0.5			
2018	Other	45	3	0	48	0.5	1-Sided Adj	TP2RXL20170222231332490	
Explanation:		Engineering Support Staffing							
2018 Total		45	3	0	48	0.5			
2019	Other	45	3	0	48	0.5	1-Sided Adj	TP2RXL20170222231409257	
Explanation:		Engineering Support Staffing							
2019 Total		45	3	0	48	0.5			

Note: Totals may include rounding differences.

SDG&E/GAS TRANSMISSION/Exh No:SDG&E-06-WP/Witness: E. Musich

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich
Category: C. Technical Services
Category-Sub: 1. Technical Services
Workpaper: 1GT002.000 - Technical Services

Determination of Adjusted-Recorded (Incurred Costs):

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
Recorded (Nominal \$)*					
Labor	82	82	74	54	35
Non-Labor	7	11	36	38	6
NSE	0	0	0	0	0
Total	89	93	110	92	41
FTE	0.8	0.9	0.8	0.5	0.4
Adjustments (Nominal \$) **					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	82	82	74	54	35
Non-Labor	7	11	36	38	6
NSE	0	0	0	0	0
Total	89	93	110	92	41
FTE	0.8	0.9	0.8	0.5	0.4
Vacation & Sick (Nominal \$)					
Labor	12	13	12	8	6
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	12	13	12	8	6
FTE	0.1	0.1	0.1	0.1	0.1
Escalation to 2016\$					
Labor	9	7	4	1	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	9	7	4	2	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2016\$)					
Labor	103	102	90	64	41
Non-Labor	7	11	36	38	6
NSE	0	0	0	0	0
Total	110	112	126	102	47
FTE	0.9	1.0	0.9	0.6	0.5

* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
 Witness: Elizabeth A. Musich
 Category: C. Technical Services
 Category-Sub: 1. Technical Services
 Workpaper: 1GT002.000 - Technical Services

Summary of Adjustments to Recorded:

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

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
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Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich
Category: C. Technical Services
Category-Sub: 1. Technical Services
Workpaper: 1GT002.000 - Technical Services

RAMP Item # 1

Ref ID: TP1JMY20170802143638740

RAMP Chapter: SDG&E-10

Program Name: Transmission Operator Qualification

Program Description: Certification, Training, and Compliance With CFR

Risk/Mitigation:

Risk: Operator Qualification

Mitigation: Operation

Forecast CPUC Cost Estimates (\$000)

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	101	101	101
High	116	116	116

Funding Source: CPUC-GRC

Forecast Method: Average

Work Type: Mandated

Work Type Citation: CPUC

Historical Embedded Cost Estimates (\$000)

Embedded Costs: 108

Explanation:

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich
Category: C. Technical Services
Category-Sub: 1. Technical Services
Workpaper: 1GT002.000 - Technical Services

RAMP Item # 2

Ref ID: TP2RXL20170628151511677

RAMP Chapter: SDG&E-10

Program Name: Utility Conflict Review

Program Description: Review Rights Of Way And Other Conflicts For Resolution

Risk/Mitigation:

Risk: Catastrophic Damage Involving High-Pressure Pipeline

Mitigation: Operations

Forecast CPUC Cost Estimates (\$000)

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	30	30	30
High	34	34	34

Funding Source: CPUC-GRC

Forecast Method: Average

Work Type: Mandated

Work Type Citation: CPUC

Historical Embedded Cost Estimates (\$000)

Embedded Costs: 32

Explanation:

San Diego Gas & Electric Company
2019 GRC - APP
Non-Shared Service Workpapers

Area: GAS TRANSMISSION
Witness: Elizabeth A. Musich

Appendix A: List of Non-Shared Cost Centers

Cost Center	Sub	Description
2100-0170	000	GAS TRANSMISSION MORENO STATION
2100-0172	000	GAS TRANSMISSION - MIRAMAR
2100-0296	000	GAS FOR GAS OPERATIONS
2100-3420	000	GAS TRANS TECHNICAL SERVICES
2100-3533	000	GAS TRANSMISSION RAINBOW STATION