Application of Southern California Gas Company (U904G) for Authorization to Implement Revenue Requirement for Advanced Meter Infrastructure Replacement Project	)

Application: A.25-12-019

Exhibit No: _____

[PUBLIC]

REVISED WORKPAPER TO

PREPARED DIRECT TESTIMONY OF

AMY D. VULIN

ON BEHALF OF

SOUTHERN CALIFORNIA GAS COMPANY

(CHAPTER III – TECHNOLOGY)

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

June 30, 2026

INDEX OF WORKPAPERS

Chapter III - Technology

Overall Summary for Chapter III - Technology

Chapter:	TECHNOLOGY

Witness:	Amy D. Vulin

			In 2025 $ (000)		
			Forecast (2025-2034)		
			Total	O&M	Capital
A. Endpoints	WP3-01		**648,787**	**-**	**648,787**
B. Communication Network	WP3-02C		**93,599**	**9,634**	**83,965**
C. SoCalGas Systems			**175,986**	**13,748**	**162,238**
1. AMI Core Systems			104,226	5,137	99,088
- HeadEnd System	WP3-03		71,683	3,677	68,006
- MDM System	WP3-04		21,710	1,091	20,619
- NEMO System	WP3-05		10,832	369	10,463
2. Connected Systems			71,761	8,611	63,150
- Connected AMI Systems	WP3-06		48,947	6,631	42,316
- Connected Deployment Systems	WP3-07		22,814	1,980	20,834
		Total	**918,372**	**23,382**	**894,990**

Notes:
(1) Totals may include rounding differences.
(2) Costs are direct.

WP3-01 - EndPoints

Chapter: III – TECHNOLOGY
Witness: Amy D. Vulin
Category: EndPoints
Workpaper Name EndPoints
Workpaper ID: WP3-01C

O&M Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	0	0	0	0	0	0	0	0	0	0
Non-Labor	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Capital Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	0	0	0	0	0	0	0	0	0	0
Non-Labor	0	0	0	4,997	122,955	181,925	172,741	133,982	31,963	223	648,787
Total	**0**	**0**	**0**	**4,997**	**122,955**	**181,925**	**172,741**	**133,982**	**31,963**	**223**	**648,787**
FTE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Total Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	0	0	0	0	0	0	0	0	0	0
Non-Labor	0	0	0	4,997	122,955	181,925	172,741	133,982	31,963	223	648,787
Total	**0**	**0**	**0**	**4,997**	**122,955**	**181,925**	**172,741**	**133,982**	**31,963**	**223**	**648,787**
FTE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:
(1) Totals may include rounding differences.
(2) Costs are direct.

Activity Description

Endpoints primarily consist of more than six million meter modules. These modules are electronic devices attached to customer meters that record and transmit meter readings and other operational data through the Communication Network to SoCalGas Systems.

While the majority of the Endpoint costs are for new meter modules, costs also include new modules for electronic pressure monitors (EPMs), electronic volume correctors (EVCs), and electronic correctors (ECs) which enable transmission of pressure and volume data through the Communication Network to SoCalGas Systems. The project also anticipates minor ancillary replacements, including approximately two percent meter breakage during module installation, and replacement of all ECs.

Labor Forecast Description

Not applicable. Endpoint procurement costs do not include labor.

Non-Labor Forecast Description

The Non-Labor forecast includes costs for endpoints (modules, meters, and electronic correctors).

Forecast Details (2025-2034)

Year	Cost Type	Labor	NIbr	Total	FTE
2025	O&M	0	0	0	0.0
2025	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2025 Total		0	0	0	0.0
2026	O&M	0	0	0	0.0
2026	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2026 Total		0	0	0	0.0
2027	O&M	0	0	0	0.0
2027	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2027 Total		0	0	0	0.0
2028	O&M	0	0	0	0.0
2028	Capital	0	4,997	4,997	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		Costs for replacement endpoints (modules, meters, and electronic correctors)			
2028 Total		0	4,997	4,997	0.0
2029	O&M	0	0	0	0.0
2029	Capital	0	122,955	122,955	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		Costs for replacement endpoints (modules, meters, and electronic correctors) and meter salvage.			
2029 Total		0	122,955	122,955	0.0
2030	O&M	0	0	0	0.0
2030	Capital	0	181,925	181,925	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		Costs for replacement endpoints (modules, meters, and electronic correctors) and meter salvage.			
2030 Total		0	181,925	181,925	0.0
2031	O&M	0	0	0	0.0
2031	Capital	0	172,741	172,741	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		Costs for replacement endpoints (modules, meters, and electronic correctors) and meter salvage.			
2031 Total		0	172,741	172,741	0.0
2032	O&M	0	0	0	0.0
2032	Capital	0	133,982	133,982	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		Costs for replacement endpoints (modules, meters, and electronic correctors) and meter salvage.			
2032 Total		0	133,982	133,982	0.0
2033	O&M	0	0	0	0.0
2033	Capital	0	31,963	31,963	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		Costs for replacement endpoints (modules, meters, and electronic correctors) and meter salvage.			
2033 Total		0	31,963	31,963	0.0
2034	O&M	0	0	0	0.0
2034	Capital	0	223	223	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		Costs for meter salvage.			
2034 Total		0	223	223	0.0

WP3-01 - EndPoints (Workpaper Detail)

ID	Non-Labor Description	In 2025 $ (000s) 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total NL $	Total NL $ (w/5% contingency)	Cost Type	Notes
	Modules, Meters, and Instruments														
1	EndPoints.				4,200	99,377	146,225	138,417	107,185	24,905		$ 520,309	$ 546,324	Capital	See (a)(b) below. Includes warranty.
2	Modules, Meters, and Instruments Total											$ 520,309	$ 546,324	Total	
3	O&M - Total ($)	$ -	0	0	0	0	0	0	0	0	0	$ -			
4	Capital - Total ($)	$ -	0	0	4,200	99,377	146,225	138,417	107,185	24,905	0	$ 520,309			
5	O&M - Total (including 5% contingency) ($)*	$ -	0	0	0	0	0	0	0	0	0	$ -			
6	Capital - Total (including 5% contingency) ($)*	$ -	0	0	4,410	104,346	153,536	145,338	112,544	26,151	0	$ 546,324			
7	**Total Modules, Meters, and Instruments**	**$ -**	**0**	**0**	**4,410**	**104,346**	**153,536**	**145,338**	**112,544**	**26,151**	**0**	**$ 546,324**			

	Forecast Methodology/Assumptions	*2025*	*2026*	*2027*	*2028*	*2029*	*2030*	*2031*	*2032*	*2033*	*2034*	*Total*
8	a) Number of Modules Purchased (year prior to installation):	-	-	-	25,000	1,200,000	1,800,000	1,700,000	1,300,000	275,000	-	6,300,000
9	b) Number of Meters Purchased (year prior to installation):	-	-	-	500	24,000	36,000	34,000	26,000	5,500	-	126,000

	Other														
10	Tariffs.				161	7,908	11,693	11,062	8,539	2,070		$ 41,433	$ 43,505	Capital	
11	Taxes.				398	9,795	14,418	13,647	10,566	2,463		$ 51,287	$ 53,851	Capital	Tax rate (9.13%).
12	Salvage.					20	926	1,389	1,312	1,003	212	$ 4,863	$ 5,106	Capital	Includes shipping.
13	Other Total											$ 97,583	$ 102,462	Total	
14	O&M - Total ($)	$ -	0	0	0	0	0	0	0	0	0	$ -			
15	Capital - Total ($)	$ -	0	0	560	17,723	27,037	26,099	20,417	5,536	212	$ 97,583			
16	O&M - Total (including 5% contingency) ($)*	$ -	0	0	0	0	0	0	0	0	0	$ -			
17	Capital - Total (including 5% contingency) ($)*	$ -	0	0	588	18,609	28,389	27,404	21,437	5,813	223	$ 102,462			
18	**Total Other**	**$ -**	**0**	**0**	**588**	**18,609**	**28,389**	**27,404**	**21,437**	**5,813**	**223**	**$ 102,462**			

	Total: Non-Labor	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total $
19	O&M Total	$ -	0	0	0	0	0	0	0	0	0	$ -
20	Capital Total	$ -	0	0	4,997	122,955	181,925	172,741	133,982	31,963	223	$ 648,787
21	**Total EndPoints**	**$ -**	**0**	**0**	**4,997**	**122,955**	**181,925**	**172,741**	**133,982**	**31,963**	**223**	**$ 648,787**

Note: Totals may include rounding differences.
* EndPoints Contingency rate is 5%.

WP3-02C - Communication Network

Chapter: III – TECHNOLOGY
Witness: Amy D. Vulin
Category: Communication Network
Workpaper Name Communication Network
Workpaper ID: WP3-02C

O&M Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	374	374	230	0	71	285	0	0	233	1,566
Non-Labor	0	0	0	6	369	1,728	2,403	1,397	0	2,165	8,068
Total	**0**	**374**	**374**	**236**	**369**	**1,799**	**2,688**	**1,397**	**0**	**2,398**	**9,634**
FTE	0.0	2.3	2.3	1.4	0.0	0.5	2.0	0.0	0.0	1.5	10.1

Capital Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	131	0	827	1,823	2,819	2,325	0	0	0	7,923
Non-Labor	0	0	2,501	1,558	24,754	35,919	11,309	0	0	0	76,042
Total	**0**	**131**	**2,501**	**2,385**	**26,576**	**38,738**	**13,634**	**0**	**0**	**0**	**83,965**
FTE	0.0	0.8	0.0	5.3	11.6	18.0	15.0	0.0	0.0	0.0	50.6

Total Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	504	374	1,057	1,823	2,890	2,609	0	0	233	9,489
Non-Labor	0	0	2,501	1,564	25,123	37,647	13,712	1,397	0	2,165	84,110
Total	**0**	**504**	**2,875**	**2,621**	**26,946**	**40,537**	**16,322**	**1,397**	**0**	**2,398**	**93,599**
FTE	0.0	3.1	2.3	6.7	11.6	18.5	17.0	0.0	0.0	1.5	60.7

Notes:
(1) Totals may include rounding differences.
(2) Costs are direct.

Activity Description

A secure and scalable two-way gas communication network forms the foundation of the AMI system, enabling data transmission between Endpoints and SoCalGas Systems. The Communication Network supports automated, near real-time data collection from more than six million customer meters and pressure monitoring devices providing secure transmission of usage and operational data.

Following deployment, legacy network equipment will be decommissioned with obsolete hardware removed and disposed of as part of the project closeout activities.

Labor Forecast Description

This is the internal labor forecast for network deployment and decommissioning.

Non-Labor Forecast Description

This is the network deployment (e.g., equipment, tools, software, external labor, etc.) and decommissioning forecast for the Communication Network.

Forecast Details (2025-2034)

Year	Cost Type	Labor	NIbr	Total	FTE
2025	O&M	0	0	0	0.0
2025	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2025 Total		0	0	0	0.0
2026	O&M	374	0	374	2.3
2026	Capital	131	0	131	0.8
Labor Explanation:		Develop proof of concept for network deployment to validate the selected technology and solution meet defined requirements in a limited, controlled environment before full-scale rollout. Initiate planning for network permitting activities.			
Non-Labor Explanation:		N/A			
2026 Total		504	0	504	3.1
2027	O&M	374	0	374	2.3
2027	Capital	0	2,501	2,501	0.0
Labor Explanation:		Outreach activities related to network permitting.			
Non-Labor Explanation:		Purchase materials and services to support the network permitting and deployment process.			
2027 Total		374	2,501	2,875	2.3
2028	O&M	230	6	236	1.4
2028	Capital	827	1,558	2,385	5.3
Labor Explanation:		Issue the network deployment vendor RFP and subsequent contract, outreach activities related to network permitting, and initiation of the network deployment.			
Non-Labor Explanation:		Software licensing costs, document management software, and external labor to support NCD permitting and deployment.			
2028 Total		1,057	1,564	2,621	6.7
2029	O&M	0	369	369	0.0
2029	Capital	1,823	24,754	26,576	11.6
Labor Explanation:		Support for network deployment activities.			
Non-Labor Explanation:		Software licensing and support for NCD deployment and document management software. NCD equipment acquisition, permitting, license agreements, infrastructure attachment fees, construction and installation.			
2029 Total		1,823	25,123	26,946	11.6
2030	O&M	71	1,728	1,799	0.5
2030	Capital	2,819	35,919	38,738	18.0
Labor Explanation:		Continue network deployment activities. Network engineering and maintenance to support the network.			
Non-Labor Explanation:		Software licensing and support for NCD deployment and document management software. NCD equipment acquisition, permitting, license agreements, infrastructure attachment fees, construction and installation. In addition, back-office network maintenance support, network analysis tools, network fees, and construction-related costs.			
2030 Total		2,890	37,647	40,537	18.5
2031	O&M	285	2,403	2,688	2.0
2031	Capital	2,325	11,309	13,634	15.0
Labor Explanation:		Continue network deployment activities. Network engineering and maintenance to support the network.			
Non-Labor Explanation:		Software licensing and support for NCD deployment and document management software. NCD equipment acquisition, permitting, license agreements, infrastructure attachment fees, construction and installation. In addition, back-office network maintenance support, network analysis tools, network fees, and construction-related costs.			
2031 Total		2,609	13,712	16,322	17.0
2032	O&M	0	1,397	1,397	0.0
2032	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		Disposal of legacy NCD devices including removal, handling, transportation and other fees.			
2032 Total		0	1,397	1,397	0.0

Forecast Details (2025-2034)

Year	Cost Type	Labor	Nlbr	Total	FTE
2033	O&M	0	0	0	0.0
2033	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2033 Total		0	0	0	0.0
2034	O&M	233	2,165	2,398	1.5
2034	Capital	0	0	0	0.0
Labor Explanation:		Planning, coordination, and close-out activities to support decommissioning of the legacy AMI network.			
Non-Labor Explanation:		Traffic control and permitting fees to support removal of legacy equipment.			
2034 Total		233	2,165	2,398	1.5

WP3-02C - Communication Network (Workpaper Detail)

ID	Non-Labor Description	In 2025 $ (000s) 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total NL $	Total NL $ (w/5% contingency)	Cost Type	Notes
	Equipment (NCD's and Solar Panels)														
1	Network Communication Device Equipment.					[redacted]						[redacted]		Capital	[redacted]
2	Solar Panels for Network Communication Devices.													Capital	
3	Equipment (NCD's and Solar Panels) Total											$ 37,762	$ 39,650	Total	
4	O&M - Total ($)	$ -	0	0	0	[redacted]		0	0	0	0	$ -			
5	Capital - Total ($)	$ -	0	0	0			0	0	0	0	$ 37,762			
6	O&M - Total (including 5% contingency) ($)*	$ -	0	0	0	[redacted]		0	0	0	0	$ -			
7	Capital - Total (including 5% contingency) ($)*	$ -	0	0	0			0	0	0	0	$ 39,650			
8	**Total Equipment (NCD's and Solar Panels)**	**$ -**	**0**	**0**	**0**			**0**	**0**	**0**	**0**	**$ 39,650**			
	Equipment, Tools, Software, Other														
	Equipment														
9	Poles for Network Communication Devices.					303	303					$ 606	$ 697	O&M	[redacted]
10	Back Office Network Maintenance Support.						250	250				$ 500	$ 575	O&M	
	Network Tools														
11	RF Tools for Interference; Mitigation; Cellular Signal.						33	33				$ 67	$ 77	O&M	
12	Tools Calibration to Support RF Network.						4	4				$ 8	$ 9	O&M	
	Software - Deployment & Document Management														
13	Software (NCD Deployment & Document Mgnt System).					5	18	18	18			$ 59	$ 68	O&M	Approx. 30 users.
	Other														
14	Network Backhaul.						375	750				$ 1,125	$ 1,294	O&M	Ramp-up (50%) in 2030.
15	NCD - Permitting.					[redacted]						[redacted]		Capital	
16	NCD - License Agreement & Attachment Fees.													Capital	
17	Network Materials and Services for NCDs.			2,175	930							$ 3,105	$ 3,571	Capital	
18	Equipment, Tools, Software, Other Total											$ 11,421	$ 13,134	Total	
19	O&M - Total ($)	$ -	0	0	5	[redacted]			0	0	0	$ 2,365			
20	Capital - Total ($)	$ -	0	2,175	930				0	0	0	$ 9,056			
21	O&M - Total (including 15% contingency) ($)*	$ -	0	0	6	[redacted]			0	0	0	$ 2,720			
22	Capital - Total (including 15% contingency) ($)*	$ -	0	2,501	1,070				0	0	0	$ 10,414			
23	**Total Equipment, Tools, Software, Other**	**$ -**	**0**	**2,501**	**1,075**				**0**	**0**	**0**	**$ 13,134**			
	External Labor														
24	NCD Construction and Installation.					3,268	10,895	7,626				$ 21,789	$ 25,058	Capital	
25	NCD Deployment & Document Management Software.				425	125	125	125				$ 800	$ 920	Capital	
26	NCD Construction Maintenance.						516	1,031				$ 1,547	$ 1,779	O&M	
27	NCD Pole Mast Maintenance.						3	3				$ 6	$ 7	O&M	
28	External Labor Total											$ 24,142	$ 27,764	Total	
29	O&M - Total ($)	$ -	0	0	0	0	519	1,034	0	0	0	$ 1,553			
30	Capital - Total ($)	$ -	0	0	425	3,393	11,020	7,751	0	0	0	$ 22,589			
31	O&M - Total (including 15% contingency) ($)*	$ -	0	0	0	0	597	1,189	0	0	0	$ 1,786			
32	Capital - Total (including 15% contingency) ($)*	$ -	0	0	489	3,902	12,673	8,914	0	0	0	$ 25,978			
33	**Total External Labor**	**$ -**	**0**	**0**	**489**	**3,902**	**13,269**	**10,103**	**0**	**0**	**0**	**$ 27,764**			
	Decommissioning														
34	Disposal Fees for All Legacy NCD Devices.								1,215			$ 1,215	$ 1,397	O&M	
35	Removal of Surplus legacy NCD Infrustructure.										1,251	$ 1,251	$ 1,438	O&M	
36	Traffic Control for Removal of Surplus Legacy Infrustructure.										172	$ 172	$ 198	O&M	
37	Permitting Fees for Infrustructure Removal.										460	$ 460	$ 529	O&M	
38	**Decommissioning Total**											**$ 3,098**	**$ 3,562**	Total	
39	O&M - Total ($)	$ -	0	0	0	0	0	0	1,215	0	1,883	$ 3,098			
40	Capital - Total ($)	$ -	0	0	0	0	0	0	0	0	0	$ -			
41	O&M - Total (including 15% contingency) ($)*	$ -	0	0	0	0	0	0	1,397	0	2,165	$ 3,562			
42	Capital - Total (including 15% contingency) ($)*	$ -	0	0	0	0	0	0	0	0	0	$ -			
43	**Total Decommissioning**	**$ -**	**0**	**0**	**0**	**0**	**0**	**0**	**1,397**	**0**	**2,165**	**$ 3,562**			
44	O&M - Total ($)	$ -	0	0	6	369	1,728	2,403	1,397	0	2,165	$ 8,068			
45	Capital - Total ($)	$ -	0	2,501	1,558	24,754	35,919	11,309	0	0	0	$ 76,042			
46	**Total Non-Labor**	**$ -**	**0**	**2,501**	**1,564**	**25,123**	**37,647**	**13,712**	**1,397**	**0**	**2,165**	**$ 84,110**			

ID	Labor / Project Role	TE Count (A) 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total Hrs** (B)	Avg. Hourly Rate (C)	Total Labor $ (B) x (C)	Total Labor $ (w/15% contingency)	Cost Type	Notes
	Network Deployment																
47	AMI Technology Proof of Concept (Hardware and Network).		0.8									1,560	$72.80	$ 114	$ 131	Capital	
48	Network Installation Vendor Selection.				1.0							2,080	$65.51	$ 136	$ 157	Capital	
49	Network Deployment Support.				4.3	11.6	18.0	15.0				101,660	$65.32	$ 6,640	$ 7,636	Capital	
50	Network Engineer for NCD Maintenance.						0.5	2.0				5,200	$59.50	$ 309	$ 356	O&M.	
51	Network Permitting Communications.		2.3	2.3	1.4							12,606	$67.43	$ 850	$ 978	O&M	
52	FTE Totals - O&M	0.0	2.3	2.3	1.4	0.0	0.5	2.0	0.0	0.0	0.0	8.6	O&M FTE's				
53	FTE Totals - Capital	0.0	0.8	0.0	5.3	11.6	18.0	15.0	0.0	0.0	0.0	50.6	Capital FTE				
54	O&M - Total ($)	$ -	325	325	200	0	62	248	0	0	0			$ 1,159			
55	Capital - Total ($)	$ -	114	0	719	1,585	2,451	2,022	0	0	0			$ 6,890			
56	O&M - Total (including 15% contingency) ($)*	$ -	374	374	230	0	71	285	0	0	0			$ 1,333			
57	Capital - Total (including 15% contingency) ($)*	$ -	131	0	827	1,823	2,819	2,325	0	0	0			$ 7,923			
58	**Total Network Deployment Internal Labor**	**$ -**	**504**	**374**	**1,057**	**1,823**	**2,890**	**2,609**	**0**	**0**	**0**			**$ 9,256**			
	Decommissioning																
59	NCD Field Operations Project Manager.										1.0	2,080	$59.50	$ 124		O&M.	
60	NCD Field Operations Program Delivery Manager.										0.50	1,040	$75.48	$ 78		O&M.	
61	FTE Totals - O&M	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50	O&M FTE's				
62	FTE Totals - Capital	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Capital FTE				
63	O&M - Total ($)	$ -	0	0	0	0	0	0	0	0	202			$ 202			
64	Capital - Total ($)	$ -	0	0	0	0	0	0	0	0	0			$ -			
65	O&M - Total (including 15% contingency) ($)*	$ -	0	0	0	0	0	0	0	0	233			$ 233			
66	Capital - Total (including 15% contingency) ($)*	$ -	0	0	0	0	0	0	0	0	0			$ -			
67	**Total Decommissioning Internal Labor**	**$ -**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**233**			**$ 233**			
X																	
X																	
68	O&M - Total ($)	$ -	374	374	230	0	71	285	0	0	233			$ 1,566			
69	Capital - Total ($)	$ -	131	0	827	1,823	2,819	2,325	0	0	0			$ 7,923			
70	**Total Labor**	**$ -**	**504**	**374**	**1,057**	**1,823**	**2,890**	**2,609**	**0**	**0**	**233**			**$ 9,489**			

	Total: Non-Labor & Labor	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total $
71	O&M Total	$ -	374	374	236	369	1,799	2,688	0	0	0	$ 5,839
72	Capital Total	$ -	131	2,501	2,385	26,577	38,738	13,634	0	0	0	$ 83,965
73	**Total Network Deployment**	**$ -**	**504**	**2,875**	**2,621**	**26,946**	**40,537**	**16,322**	**0**	**0**	**0**	**$ 89,804**
74	O&M Total	$ -	0	0	0	0	0	0	1,397	0	2,398	$ 3,795
75	Capital Total	$ -	0	0	0	0	0	0	0	0	0	$ -
76	**Total Decommissioning**	**$ -**	**0**	**0**	**0**	**0**	**0**	**0**	**1,397**	**0**	**2,398**	**$ 3,795**
77	O&M Total	$ -	374	374	236	369	1,799	2,688	1,397	0	2,398	$ 9,634
78	Capital Total	$ -	131	2,501	2,385	26,577	38,738	13,634	0	0	0	$ 83,965
79	**Total Communication Network**	**$ -**	**504**	**2,875**	**2,621**	**26,946**	**40,537**	**16,322**	**1,397**	**0**	**2,398**	**$ 93,599**

Note: Totals may include rounding differences.
* Communication Network Equipment Contingency rate is 5%; Communication Network Contingency rate is 15%.
** The (B) Total Labor Hours is calculated by multiplying the annual (A) FTE Count per project role by 2,080 hours (working hours per year).

WP3-03 - HeadEnd System

Chapter: III – TECHNOLOGY
Witness: Amy D. Vulin
Category: SoCalGas Systems
Workpaper Name HeadEnd System
Workpaper ID: WP3-03C

O&M Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	325	0	0	32	1,430	1,599	0	0	0	3,386
Non-Labor	0	240	0	13	13	13	13	0	0	0	291
Total	**0**	**565**	**0**	**13**	**44**	**1,443**	**1,612**	**0**	**0**	**0**	**3,677**
FTE	0.0	1.7	0.0	0.0	0.2	8.0	9.0	0.0	0.0	0.0	18.9

Capital Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	174	1,250	4,069	6,141	6,070	0	0	0	0	0	17,704
Non-Labor	1,981	2,459	14,668	14,169	7,789	3,124	6,112	0	0	0	50,302
Total	**2,155**	**3,709**	**18,737**	**20,311**	**13,858**	**3,124**	**6,112**	**0**	**0**	**0**	**68,006**
FTE	1.0	6.7	22.9	35.5	36.1	0.0	0.0	0.0	0.0	0.0	102.3

Total Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	174	1,575	4,069	6,141	6,101	1,430	1,599	0	0	0	21,090
Non-Labor	1,981	2,699	14,668	14,182	7,802	3,137	6,125	0	0	0	50,594
Total	**2,155**	**4,274**	**18,737**	**20,324**	**13,903**	**4,567**	**7,723**	**0**	**0**	**0**	**71,683**
FTE	1.0	8.4	22.9	35.5	36.3	8.0	9.0	0.0	0.0	0.0	121.1

Notes:
(1) Totals may include rounding differences.
(2) Costs are direct.

Activity Description

The HeadEnd System manages the Endpoints and the Communication Network. The HeadEnd System interfaces with SoCalGas Systems including systems responsible for work order management, AMI system performance, meter usage data storage, and enterprise applications. Its primary functions include encrypting and decrypting data, collecting and processing endpoint data, handling usage requests, and managing field assets (e.g., performing firmware updates). The HeadEnd System also enables all system programming capabilities such as adjusting module transmission intervals during emergencies or extreme weather events. The replacement HeadEnd System will include a modern cloud-based software platform with an integrated design to support all AMI SoCalGas systems. This new platform will provide greater scalability, cybersecurity controls, and interoperability with enterprise applications. The HeadEnd category includes system planning, design, configuration, testing, implementation, and stabilization of the software, as well as the data migration and mapping to support dual system operations and cutover process, cybersecurity, and integration activities necessary to support communication with endpoints and SoCalGas enterprise systems.

Labor Forecast Description

This is the internal labor forecast for the HeadEnd System.

Non-Labor Forecast Description

This is the software and external labor forecast for the HeadEnd System.

Forecast Details (2025-2034)

Year	Cost Type	Labor	Nlbr	Total	FTE
2025	O&M	0	0	0	0.0
2025	Capital	174	1,981	2,155	1.0
Labor Explanation:		Define project scope, plan resources, develop project schedule, and establish scoring and evaluation criteria for the RFI/RFP for both the AMI Technology vendor and the System Integrator (SI) vendor.			
Non-Labor Explanation:		Define the functional requirements, technical requirements, and scoring criteria for the RFI/RFP for both the AMI Technology vendor and the SI vendor.			
2025 Total		174	1,981	2,155	1.0
2026	O&M	325	240	565	1.7
2026	Capital	1,250	2,459	3,709	6.7
Labor Explanation:		Vendor selection and contracting for the AMI Technology and SI vendors. Pre-planning activities for system build and development of the system architecture, requirements, and software design.			
Non-Labor Explanation:		Architecture design, requirements definition, and software design. Development of the AMI Core Systems cutover strategy. Security governance and support for the architecture, requirements, and design compliance.			
2026 Total		1,575	2,699	4,274	8.4
2027	O&M	0	0	0	0.0
2027	Capital	4,069	14,668	18,737	22.9
Labor Explanation:		Establishment of test environments for SI development and interoperability testing between the replacement HeadEnd system and Connected Systems and support of the cutover process. Configuration of the HeadEnd solution to meet business requirements. Network configuration and data simulations to support network validation. Network configuration and data simulations to support network validation.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs for the development, test, and quality assurance environments to validate system functionality. Implement and deliver an initial software release, the system design, the installation procedures, and the test plans and test results. Support the deployment of the test environments and begin implementation of the AMI Core Systems cutover solution. Security governance and compliance oversight and will initiate penetration testing on the Meter Communication Modules (MCMs).			
2027 Total		4,069	14,668	18,737	22.9
2028	O&M	0	13	13	0.0
2028	Capital	6,141	14,169	20,311	35.5
Labor Explanation:		Comprehensive testing to be performed in the test environments. Engagement with subject matter experts (SMEs) from connected systems to conduct system-level testing and validate platform interoperability. Provision MCMs within the test environments to simulate production conditions. Architectural oversight to confirm data exchanges adhere to security standards.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs for the development, test, and quality assurance environments to validate system functionality. Implement and deliver hotfix releases to remediate defects; identify and resolve issues, refine detailed designs, provide installation support, and support system testing. Security governance and compliance oversight and will initiate penetration testing on the Network Communication Device (NCD).			
2028 Total		6,141	14,182	20,324	35.5
2029	O&M	32	13	44	0.2
2029	Capital	6,070	7,789	13,858	36.1
Labor Explanation:		Perform regression and performance testing for data flow from HeadEnd to connected systems. Execute the phased cutover strategy. Establishment and configuration of the production and disaster recovery environments. Stabilization and maintenance support following the deployment into the production environment.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs for the development, test, quality assurance, production and disaster recovery environments. Regression and performance testing. Execute data migration for the phased cutover strategy from the legacy system, provide remediation for issues identified during the regression testing, and support system stabilization. Security governance and compliance oversight and penetration testing on the AMI Core Systems.			
2029 Total		6,101	7,802	13,903	36.3

Forecast Details (2025-2034)

Year	Cost Type	Labor	Nlbr	Total	FTE
2030	O&M	1,430	13	1,443	8.0
2030	Capital	0	3,124	3,124	0.0
Labor Explanation:		Stabilization and maintenance support during the ramp-up of Meter Communication Module (MCM) installations in the field, and knowledge transfer and training. Begin the decommissioning of the legacy system.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs for the development, test, quality assurance, production and disaster recovery environments. Security governance and compliance oversight and oversight during the ramp-up of MCM installations.			
2030 Total		1,430	3,137	4,567	8.0
2031	O&M	1,599	13	1,612	9.0
2031	Capital	0	6,112	6,112	0.0
Labor Explanation:		Stabilization and maintenance support for MCM installations.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs for the development, test, quality assurance, production and disaster recovery environments.			
2031 Total		1,599	6,125	7,723	9.0
2032	O&M	0	0	0	0.0
2032	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2032 Total		0	0	0	0.0
2033	O&M	0	0	0	0.0
2033	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2033 Total		0	0	0	0.0
2034	O&M	0	0	0	0.0
2034	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2034 Total		0	0	0	0.0

WP3-03 - HeadEnd System (Workpaper Detail)

ID	Non-Labor Description	In 2025 $ (000s) 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total NL $	Total NL $ (w/20% contingency)	Cost Type	Notes
	Software														
1	Software (All Environments).			917	917	1,061	2,465	5,093				$ 10,453	$ 12,544	Capital	See (a)(b) below.
2	Egress Fees.				11	11	11	11				$ 43	$ 51	O&M	
3	Software Total											$ 10,496	$ 12,595	Total	
4	O&M - Total ($)	$ -	0	0	11	11	11	11	0	0	0	$ 43			
5	Capital - Total ($)	$ -	0	917	917	1,061	2,465	5,093	0	0	0	$ 10,453			
6	O&M - Total (including 20% contingency) ($)*	$ -	0	0	13	13	13	13	0	0	0	$ 51			
7	Capital - Total (including 20% contingency) ($)*	$ -	0	1,100	1,100	1,273	2,958	6,112	0	0	0	$ 12,544			
8	**Total Software**	**$ -**	**0**	**1,100**	**1,113**	**1,286**	**2,971**	**6,125**	**0**	**0**	**0**	**$ 12,595**			
	Forecast Methodology/Assumptions	*2025*	*2026*	*2027*	*2028*	*2029*	*2030*	*2031*	*2032*	*2033*	*2034*				
9	a) Number of Endpoints Per Year (Production & DR)	-	-	-	-	25,000	1,225,000	3,025,000							
10	b) Number of Endpoints Per Year (Dev., Test, QA)	-	-	500,000	500,000	750,000	1,225,000	3,025,000							
	External Labor														
11	AMI Solicitation Vendors.	$ 1,796										$ 1,796	$ 1,796	Capital	
12	AMI Technology Vendor.		113	4,397	3,981	3,634						$ 12,125	$ 14,550	Capital	
13	SI Vendor.		200									$ 200	$ 240	O&M	SI Solicitation Vendor.
14	SI Vendor.		1,605	6,420	6,420	1,605						$ 16,050	$ 19,260	Capital	
15	Security Consulting Vendor.	$ 185	332	490	490	190	138					$ 1,825	$ 2,153	Capital	
16	External Labor Total											$ 31,996	$ 37,999	Total	
17	O&M - Total ($)	$ -	200	0	0	0	0	0	0	0	0	$ 200			
18	Capital - Total ($)	$ 1,981	2,050	11,307	10,891	5,429	138	0	0	0	0	$ 31,796			
19	O&M - Total (including 20% contingency) ($)*	$ -	240	0	0	0	0	0	0	0	0	$ 240			
20	Capital - Total (including 20% contingency) ($)*	$ 1,981	2,459	13,568	13,069	6,515	166	0	0	0	0	$ 37,759			
21	**Total External Labor**	**$ 1,981**	**2,699**	**13,568**	**13,069**	**6,515**	**166**	**0**	**0**	**0**	**0**	**$ 37,999**			
22	O&M - Total ($)	$ -	240	0	13	13	13	13	0	0	0	$ 291			
23	Capital - Total ($)	$ 1,981	2,459	14,668	14,169	7,789	3,124	6,112	0	0	0	$ 50,302			
24	**Total Non-Labor**	**$ 1,981**	**2,699**	**14,668**	**14,182**	**7,802**	**3,137**	**6,125**	**0**	**0**	**0**	**$ 50,594**			

ID	Labor Project Role	FTE Count (A) 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total Hrs** (B)	Avg. Hourly Rate (C)	Total Labor $ (B) x (C)	Total Labor $ (w/20% contingency)	Cost Type	Notes
25	HeadEnd Software Support.		1.4	6.8	7.0	6.0						43,940	$69.84	$ 3,069	$ 3,682	Capital	
26	HeadEnd System Testing.			0.1	5.0	1.0						12,610	$65.57	$ 827	$ 992	Capital	
27	HeadEnd Regression Testing.					11.1						23,140	$64.51	$ 1,493	$ 1,791	Capital	
28	HeadEnd Stabilization and Transition Support.						3.0	3.0				12,480	$71.74	$ 895	$ 1,074	O&M	
29	AMI Platform Software Planning.		1.7									3,462	$78.30	$ 271	$ 325	O&M	
30	AMI Platform Software Support.	1.0	4.5	8.7	10.0	11.0						73,125	$72.58	$ 5,308	$ 6,334	Capital	
31	Data Transformation Support.		0.5	4.0	5.0	5.0						30,160	$67.43	$ 2,034	$ 2,440	Capital	
32	System Integration Hardware Testing.			0.1	0.5	0.3						1,820	$67.43	$ 123	$ 147	Capital	
33	System Integration for Edge Software Testing.			2.3	3.5	0.5						13,000	$70.01	$ 910	$ 1,092	Capital	
34	Architecture - Network Support.		0.4	1.1	1.1	0.3						5,720	$75.52	$ 432	$ 518	Capital	
35	Network System Integration Testing.				3.5	1.0						9,204	$63.92	$ 588	$ 706	Capital	
36	System Stabilization and Transition Support.					0.2	5.0	6.0				23,270	$71.14	$ 1,655	$ 1,986	O&M	
37	FTE Totals - O&M	0.0	1.7	0.0	0.0	0.2	8.0	9.0	0.0	0.0	0.0	18.9	O&M FTE's				
38	FTE Totals - Capital	1.0	6.7	22.9	35.5	36.1	0.0	0.0	0.0	0.0	0.0	102.3	Capital FTE's				
39	O&M - Total ($)	$ -	271	0	0	26	1,192	1,332	0	0	0			$ 2,822			
40	Capital - Total ($)	$ 174	1,041	3,391	5,118	5,058	0	0	0	0	0			$ 14,783			
41	O&M - Total (including 20% contingency) ($)*	$ -	325	0	0	32	1,430	1,599	0	0	0			$ 3,386			
42	Capital - Total (including 20% contingency) ($)*	$ 174	1,250	4,069	6,142	6,070	0	0	0	0	0			$ 17,704			
43	**Total Internal Labor**	**$ 174**	**1,575**	**4,069**	**6,142**	**6,101**	**1,430**	**1,599**	**0**	**0**	**0**			**$ 21,090**			

	Total: Non-Labor & Labor	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total $
44	O&M Total	$ -	565	0	13	44	1,443	1,612	0	0	0	$ 3,677
45	Capital Total	$ 2,155	3,709	18,737	20,311	13,859	3,124	6,112	0	0	0	$ 68,007
46	**Total HeadEnd Software**	**$ 2,155**	**4,274**	**18,737**	**20,324**	**13,903**	**4,567**	**7,723**	**0**	**0**	**0**	**$ 71,684**

Note: Totals may include rounding differences.
* HeadEnd Contingency rate is 20%.
** The (B) Total Labor Hours is calculated by multiplying the annual (A) FTE Count per project role by 2,080 hours (working hours per year).

WP3-04 - MDM System

Chapter: III – TECHNOLOGY
Witness: Amy D. Vulin
Category: SoCalGas Systems
Workpaper Name MDM System
Workpaper ID: WP3-04C

O&M Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	0	0	0	0	537	537	0	0	0	1,074
Non-Labor	0	0	0	4	4	4	4	0	0	0	17
Total	**0**	**0**	**0**	**4**	**4**	**541**	**541**	**0**	**0**	**0**	**1,091**
FTE	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	0.0	6.0

Capital Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	0	1,054	1,777	2,045	0	0	0	0	0	4,876
Non-Labor	0	0	4,041	4,041	4,109	1,084	2,467	0	0	0	15,743
Total	**0**	**0**	**5,095**	**5,819**	**6,154**	**1,084**	**2,467**	**0**	**0**	**0**	**20,619**
FTE	0.0	0.0	6.1	10.8	12.3	0.0	0.0	0.0	0.0	0.0	29.1

Total Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	0	1,054	1,777	2,045	537	537	0	0	0	5,950
Non-Labor	0	0	4,041	4,046	4,114	1,089	2,471	0	0	0	15,760
Total	**0**	**0**	**5,095**	**5,823**	**6,158**	**1,626**	**3,008**	**0**	**0**	**0**	**21,710**
FTE	0.0	0.0	6.1	10.8	12.3	3.0	3.0	0.0	0.0	0.0	35.1

Notes:
(1) Totals may include rounding differences.
(2) Costs are direct.

Activity Description

The MDM System functions as the official system of record for AMI metering data. It receives usage information from the HeadEnd System and interfaces with SoCalGas Systems. The MDM System performs validations, identifies missing reads and estimates usage, and supports billing.

Labor Forecast Description

This is the internal labor forecast for the MDM System.

Non-Labor Forecast Description

This is the software and external labor forecast for the MDM System.

Forecast Details (2025-2034)

Year	Cost Type	Labor	Nlbr	Total	FTE
2025	O&M	0	0	0	0.0
2025	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2025 Total		0	0	0	0.0
2026	O&M	0	0	0	0.0
2026	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2026 Total		0	0	0	0.0
2027	O&M	0	0	0	0.0
2027	Capital	1,054	4,041	5,095	6.1
Labor Explanation:		Establishment of test environments for SI development and interoperability testing between the replacement MDM system and Connected Systems. Configuration of the MDM solution to meet business requirements.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs for development, test, and quality assurance environments to validate system functionality. Implement and deliver an initial software release, the system design, the installation procedures, and the test plans and test results.			
2027 Total		1,054	4,041	5,095	6.1
2028	O&M	0	4	4	0.0
2028	Capital	1,777	4,041	5,819	10.8
Labor Explanation:		Comprehensive testing to be performed in the test environments. Engagement with subject matter experts (SMEs) from connected systems to conduct system-level testing and validate interoperability.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs for the development, test and quality assurance environments used to validate system functionality. Implement and deliver hotfix releases to remediate defects; identify and resolve issues, refine detailed designs, provide installation support, and support system testing.			
2028 Total		1,777	4,046	5,823	10.8
2029	O&M	0	4	4	0.0
2029	Capital	2,045	4,109	6,154	12.3
Labor Explanation:		Perform regression and performance testing for data flow from MDM to connected systems. Establishment and configuration of the production and disaster recovery environments. Stabilization and maintenance support following the deployment into the production environment.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs for the development, test, quality assurance, production and disaster recovery environments. Regression and performance testing. Provide remediation for issues identified during the regression testing, and support system stabilization.			
2029 Total		2,045	4,114	6,158	12.3
2030	O&M	537	4	541	3.0
2030	Capital	0	1,084	1,084	0.0
Labor Explanation:		Stabilization and maintenance support during the ramp-up of Meter Communication Module (MCM) installations in the field, and knowledge transfer and training. Begin the decommissioning of the legacy system.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs for the development, test, quality assurance, production and disaster recovery environments.			
2030 Total		537	1,089	1,626	3.0

Forecast Details (2025-2034)

Year	Cost Type	Labor	Nlbr	Total	FTE
2031	O&M	537	4	541	3.0
2031	Capital	0	2,467	2,467	0.0
Labor Explanation:		Stabilization and maintenance support for MCM installations.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs for the development, test, quality assurance, production and disaster recovery environments.			
2031 Total		537	2,471	3,008	3.0
2032	O&M	0	0	0	0.0
2032	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2032 Total		0	0	0	0.0
2033	O&M	0	0	0	0.0
2033	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2033 Total		0	0	0	0.0
2034	O&M	0	0	0	0.0
2034	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2034 Total		0	0	0	0.0

WP3-04 - MDM System (Workpaper Detail)

ID	Non-Labor Description	In 2025 $ (000s) 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total NL $	Total NL $ (w/20% contingency)	Cost Type	Notes
	Software														
1	Software (All Environments).			210	210	266	904	2,056				$ 3,644	$ 4,373	Capital	Same as HeadEnd (# of endpoints).
2	Egress Fees.				4	4	4	4				$ 14	$ 17	O&M	
3	Software Total											$ 3,659	$ 4,390	Total	
4	O&M - Total ($)	$ -	0	0	4	4	4	4	0	0	0	$ 14			
5	Capital - Total ($)	$ -	0	210	210	266	904	2,056	0	0	0	$ 3,644			
6	O&M - Total (including 20% contingency) ($)*	$ -	0	0	4	4	4	4	0	0	0	$ 17			
7	Capital - Total (including 20% contingency) ($)*	$ -	0	251	251	319	1,084	2,467	0	0	0	$ 4,373			
8	**Total Software**	**$ -**	**0**	**251**	**256**	**324**	**1,089**	**2,471**	**0**	**0**	**0**	**$ 4,390**			
	External Labor														
9	AMI Technology Vendor.			1,325	1,325	1,325						$ 3,975	$ 4,770	Capital	
10	Systems Integrator Vendor.			1,833	1,833	1,833						$ 5,500	$ 6,600	Capital	
11	External Labor Total											$ 9,475	$ 11,370	Total	
12	O&M - Total ($)	$ -	0	0	0	0	0	0	0	0	0	$ -			
13	Capital - Total ($)	$ -	0	3,158	3,158	3,158	0	0	0	0	0	$ 9,475			
14	O&M - Total (including 20% contingency) ($)*	$ -	0	0	0	0	0	0	0	0	0	$ -			
15	Capital - Total (including 20% contingency) ($)*	$ -	0	3,790	3,790	3,790	0	0	0	0	0	$ 11,370			
16	**Total External Labor**	**$ -**	**0**	**3,790**	**3,790**	**3,790**	**0**	**0**	**0**	**0**	**0**	**$ 11,370**			
17	O&M - Total ($)	$ -	0	0	4	4	4	4	0	0	0	$ 17			
18	Capital - Total ($)	$ -	0	4,041	4,041	4,109	1,084	2,467	0	0	0	$ 15,743			
19	**Total Non-Labor**	**$ -**	**0**	**4,041**	**4,046**	**4,114**	**1,089**	**2,471**	**0**	**0**	**0**	**$ 15,760**			

ID	Labor Project Role	FTE Count (A) 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total Hrs** (B)	Avg. Hourly Rate (C)	Total Labor $ (B) x (C)	Total Labor $ (w/20% contingency)	Cost Type	Notes
20	System Manager.			0.5	0.5	0.5						3,120	$85.22	$ 266	$ 319	Capital	
21	Software Lead.			1.0	1.0	1.0						6,240	$75.48	$ 471	$ 565	Capital	
22	Technology Support.			3.0	3.0	3.0						18,720	$67.43	$ 1,262	$ 1,515	Capital	
23	Configuration Environment Management Support.			1.0	1.0	1.0						6,240	$67.43	$ 421	$ 505	Capital	
24	System and Regression Testing.			0.6	5.3	6.8						26,130	$62.90	$ 1,643	$ 1,972	Capital	
25	Stabilization and Transition Support.						3.0	3.0				12,480	$71.74	$ 895	$ 1,074	O&M	
26	FTE Totals - O&M	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	0.0	6.0	O&M FTE's				
27	FTE Totals - Capital	0.0	0.0	6.1	10.8	12.3	0.0	0.0	0.0	0.0	0.0	29.1	Capital FTE's				
28	O&M - Total ($)	$ -	0	0	0	0	448	448	0	0	0			$ 895			
29	Capital - Total ($)	$ -	0	878	1,481	1,704	0	0	0	0	0			$ 4,063			
30	O&M - Total (including 20% contingency) ($)*	$ -	0	0	0	0	537	537	0	0	0			$ 1,074			
31	Capital - Total (including 20% contingency) ($)*	$ -	0	1,054	1,777	2,045	0	0	0	0	0			$ 4,876			
32	**Total Internal Labor**	**$ -**	**0**	**1,054**	**1,777**	**2,045**	**537**	**537**	**0**	**0**	**0**			**$ 5,950**			

	Total: Non-Labor & Labor	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total $
33	O&M Total	$ -	0	0	4	4	541	541	0	0	0	$ 1,091
34	Capital Total	$ -	0	5,095	5,819	6,154	1,084	2,467	0	0	0	$ 20,619
35	**Total MDM Software**	**$ -**	**0**	**5,095**	**5,823**	**6,158**	**1,626**	**3,008**	**0**	**0**	**0**	**$ 21,711**

Note: Totals may include rounding differences.
* MDM Contingency rate is 20%.
** The (B) Total Labor Hours is calculated by multiplying the annual (A) FTE Count per project role by 2,080 hours (working hours per year).

WP3-05 - NEMO System

Chapter: III – TECHNOLOGY
Witness: Amy D. Vulin
Category: SoCalGas Systems
Workpaper Name NEMO System
Workpaper ID: WP3-05

O&M Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	0	97	194	0	0	77	0	0	0	369
Non-Labor	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**97**	**194**	**0**	**0**	**77**	**0**	**0**	**0**	**369**
FTE	0.0	0.0	0.6	1.2	0.0	0.0	0.5	0.0	0.0	0.0	2.3

Capital Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	0	6	321	753	1,123	0	0	0	0	2,204
Non-Labor	0	0	0	2,750	4,400	554	554	0	0	0	8,259
Total	**0**	**0**	**6**	**3,071**	**5,153**	**1,678**	**554**	**0**	**0**	**0**	**10,463**
FTE	0.0	0.0	0.0	2.1	4.8	7.2	0.0	0.0	0.0	0.0	14.1

Total Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	0	104	516	753	1,123	77	0	0	0	2,573
Non-Labor	0	0	0	2,750	4,400	554	554	0	0	0	8,259
Total	**0**	**0**	**104**	**3,266**	**5,153**	**1,678**	**632**	**0**	**0**	**0**	**10,832**
FTE	0.0	0.0	0.6	3.3	4.8	7.2	0.5	0.0	0.0	0.0	16.4

Notes:
(1) Totals may include rounding differences.
(2) Costs are direct.

Activity Description

The NEMO System provides the analytical and monitoring capabilities to maintain visibility into the performance of the modules and the communication network. The NEMO System provides automated reporting, data aggregation, and advanced visualization tools. It enables back-office personnel to diagnose, detect, analyze, and manage device and communication issues, monitor the health of the radio network and modules, and identify field device or equipment conditions that may require maintenance or corrective action. The NEMO System will enhance performance monitoring and issue management through scalable analytics, automated event detection, and cross-system correlation.

Labor Forecast Description

This is the internal labor forecast for the NEMO System.

Non-Labor Forecast Description

This is the software and external labor forecast for the NEMO System.

Forecast Details (2025-2034)

Year	Cost Type	Labor	NIbr	Total	FTE
2025	O&M	0	0	0	0.0
2025	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2025 Total		0	0	0	0.0
2026	O&M	0	0	0	0.0
2026	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2026 Total		0	0	0	0.0
2027	O&M	97	0	97	0.6
2027	Capital	6	0	6	0.0
Labor Explanation:		Develop project scope, resource planning, the preliminary project schedule, and RFP preparation.			
Non-Labor Explanation:		N/A			
2027 Total		104	0	104	0.6
2028	O&M	194	0	194	1.2
2028	Capital	321	2,750	3,071	2.1
Labor Explanation:		Manage the RFP, including vendor evaluation and selection, contract finalization; system architecture development, functional and technical requirements, and build out of the test environment.			
Non-Labor Explanation:		Solution design workshops, architecture and security assessments, requirements validation, and initial configuration planning.			
2028 Total		516	2,750	3,266	3.3
2029	O&M	0	0	0	0.0
2029	Capital	753	4,400	5,153	4.8
Labor Explanation:		Subject matter expert support, including functional requirements, data mapping and transformation, and design specification review.			
Non-Labor Explanation:		Functional validation, data mapping, business requirements, design specification review, configuration support, integration planning, technical workshops, and SME engagement. This includes documentation and preparation for user acceptance testing.			
2029 Total		753	4,400	5,153	4.8
2030	O&M	0	0	0	0.0
2030	Capital	1,123	554	1,678	7.2
Labor Explanation:		Production environment build out, including installation and system validation. Performance testing, system testing, user acceptance testing, and regression testing.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs for test and production environments. Performance testing, system testing, user acceptance testing, and regression testing.			
2030 Total		1,123	554	1,678	7.2
2031	O&M	77	0	77	0.5
2031	Capital	0	554	554	0.0
Labor Explanation:		Deployment, stabilization, maintenance support for system monitoring and knowledge transfer.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs for test and production environments.			
2031 Total		77	554	632	0.5
2032	O&M	0	0	0	0.0
2032	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2032 Total		0	0	0	0.0

Forecast Details (2025-2034)

Year	Cost Type	Labor	Nlbr	Total	FTE
2033	O&M	0	0	0	0.0
2033	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2033 Total		0	0	0	0.0
2034	O&M	0	0	0	0.0
2034	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2034 Total		0	0	0	0.0

WP3-05 - NEMO System (Workpaper Detail)

ID	Non-Labor Description	In 2025 $ (000s) 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total NL $	Total NL $ (w/10% contingency)	Cost Type	Notes
	Software														
1	Software Subscription Fees.						504	504				$ 1,008	$ 1,109	Capital	
2	Software Total											$ 1,008	$ 1,109	Total	
3	O&M - Total ($)	$ -	0	0	0	0	0	0	0	0	0	$ -			
4	Capital - Total ($)	$ -	0	0	0	0	504	504	0	0	0	$ 1,008			
5	O&M - Total (including 10% contingency) ($)*	$ -	0	0	0	0	0	0	0	0	0	$ -			
6	Capital - Total (including 10% contingency) ($)*	$ -	0	0	0	0	554	554	0	0	0	$ 1,109			
7	**Total Software**	**$ -**	**0**	**0**	**0**	**0**	**554**	**554**	**0**	**0**	**0**	**$ 1,109**			
	External Labor														
8	Software Development and Configuration.				2,500	4,000						$ 6,500	$ 7,150	Capital	
9	External Labor Total											$ 6,500	$ 7,150	Total	
10	O&M - Total ($)	$ -	0	0	0	0	0	0	0	0	0	$ -			
11	Capital - Total ($)	$ -	0	0	2,500	4,000	0	0	0	0	0	$ 6,500			
12	O&M - Total (including 10% contingency) ($)*	$ -	0	0	0	0	0	0	0	0	0	$ -			
13	Capital - Total (including 10% contingency) ($)*	$ -	0	0	2,750	4,400	0	0	0	0	0	$ 7,150			
14	**Total External Labor**	**$ -**	**0**	**0**	**2,750**	**4,400**	**0**	**0**	**0**	**0**	**0**	**$ 7,150**			
15	O&M - Total ($)	$ -	0	0	0	0	0	0	0	0	0	$ -			
16	Capital - Total ($)	$ -	0	0	2,750	4,400	554	554	0	0	0	$ 8,259			
17	**Total Non-Labor**	**$ -**	**0**	**0**	**2,750**	**4,400**	**554**	**554**	**0**	**0**	**0**	**$ 8,259**			

ID	Labor Project Role	FTE Count (A) 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total Hrs** (B)	Avg. Hourly Rate (C)	Total Labor $ (B) x (C)	Total Labor $ (w/10% contingency)	Cost Type	Notes
18	Planning Support.			0.6	1.4	0.2						4,446	$71.53	$ 318	$ 350	O&M/Capital	
19	Implementation Support.				1.9	3.6	1.8					15,158	$68.97	$ 1,045	$ 1,150	Capital	
20	System and Regression Testing.					1.0	5.5					13,442	$67.37	$ 906	$ 996	Capital	
21	Technology Support & Software Maintenance.							0.5				1,040	$67.43	$ 70	$ 77	O&M	
22	FTE Totals - O&M	0.0	0.0	0.6	1.2	0.0	0.0	0.5	0.0	0.0	0.0	2.3	O&M FTE's				
23	FTE Totals - Capital	0.0	0.0	0.0	2.1	4.8	7.2	0.0	0.0	0.0	0.0	14.1	Capital FTE's				
24	O&M - Total ($)	$ -	0	88	177	0	0	70	0	0	0	$ 335					
25	Capital - Total ($)	$ -	0	6	292	685	1,021	0	0	0	0	$ 2,004					
26	O&M - Total (including 10% contingency) ($)*	$ -	0	97	194	0	0	77	0	0	0	$ 369					
27	Capital - Total (including 10% contingency) ($)*	$ -	0	6	321	753	1,124	0	0	0	0	$ 2,204					
28	**Total Internal Labor**	**$ -**	**0**	**104**	**516**	**753**	**1,124**	**77**	**0**	**0**	**0**	**$ 2,573**					

	Total: Non-Labor & Labor	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total $
29	O&M Total	$ -	0	97	194	0	0	77	0	0	0	$ 369
30	Capital Total	$ -	0	6	3,071	5,153	1,678	554	0	0	0	$ 10,463
31	**Total NEMO Software**	**$ -**	**0**	**104**	**3,266**	**5,153**	**1,678**	**632**	**0**	**0**	**0**	**$ 10,832**

Note: Totals may include rounding differences.
*** NEMO Contingency rate is 10%.
** The (B) Total Labor Hours is calculated by multiplying the annual (A) FTE Count per project role by 2,080 hours (working hours per year).

WP3-06 - Connected AMI Systems

Chapter: III – TECHNOLOGY
Witness: Amy D. Vulin
Category: SoCalGas Systems
Workpaper Name Connected AMI Systems
Workpaper ID: WP3-06

O&M Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	0	0	0	0	365	365	0	0	0	730
Non-Labor	0	0	200	572	572	2,315	2,243	0	0	0	5,900
Total	**0**	**0**	**200**	**572**	**572**	**2,680**	**2,608**	**0**	**0**	**0**	**6,631**
FTE	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	4.0

Capital Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	157	2,517	3,171	2,604	0	0	0	0	323	8,771
Non-Labor	0	2,559	10,016	10,424	8,932	828	784	0	0	0	33,545
Total	**0**	**2,716**	**12,534**	**13,595**	**11,536**	**828**	**784**	**0**	**0**	**323**	**42,316**
FTE	0.0	0.9	15.2	19.5	15.8	0.0	0.0	0.0	0.0	2.0	53.4

Total Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	157	2,517	3,171	2,604	365	365	0	0	323	9,501
Non-Labor	0	2,559	10,216	10,996	9,504	3,144	3,027	0	0	0	39,445
Total	**0**	**2,716**	**12,733**	**14,167**	**12,108**	**3,509**	**3,392**	**0**	**0**	**323**	**48,947**
FTE	0.0	0.9	15.2	19.5	15.8	2.0	2.0	0.0	0.0	2.0	57.4

Notes:
(1) Totals may include rounding differences.
(2) Costs are direct.

Activity Description

Connected AMI Systems are enterprise applications that rely on AMI data for safety monitoring, customer billing, operations, gas procurement, and analytics functions. The Connected AMI Systems must be reintegrated to maintain compatibility and interoperability with the AMI Core Systems. The remediation work will include implementing a new data platform to maintain data availability and transform the data structure to support reintegration to impacted Connected AMI Systems, updating and validating existing applications and interfaces, providing infrastructure support, and developing non-production and production environments to verify system functionality. These activities will allow enterprise applications to continue receiving accurate and timely AMI data so that downstream processes will remain uninterrupted.

Labor Forecast Description

This is the internal labor forecast for the Connected AMI System.

Non-Labor Forecast Description

This is the software and external labor forecast for the Connected AMI System.

Forecast Details (2025-2034)

Year	Cost Type	Labor	NIbr	Total	FTE
2025	O&M	0	0	0	0.0
2025	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2025 Total		0	0	0	0.0
2026	O&M	0	0	0	0.0
2026	Capital	157	2,559	2,716	0.9
Labor Explanation:		Requirements gathering to build a Data Transformation Service (DTS) platform to mitigate system impacts of the connected systems.			
Non-Labor Explanation:		Initiate the contractual process with vendor-developed connected systems, including vendor software customizations. Begin architectural design of DTS.			
2026 Total		157	2,559	2,716	0.9
2027	O&M	0	200	200	0.0
2027	Capital	2,517	10,016	12,534	15.2
Labor Explanation:		Integration support with connected systems, including data structure changes, integration point development, and resolution of interoperability challenges.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs to support the DTS and dedicated test environments. Implement a Data Transformation Service (DTS) platform to extract data and transform it into a compatible format for the connected systems.			
2027 Total		2,517	10,216	12,733	15.2
2028	O&M	0	572	572	0.0
2028	Capital	3,171	10,424	13,595	19.5
Labor Explanation:		Collaboration with the connected system SMEs to support multi-system testing, focusing on validating integration points, assisting in resolving interoperability challenges.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs to support the DTS and dedicated test environments. Implement software updates to DTS platform and perform system testing.			
2028 Total		3,171	10,996	14,167	19.5
2029	O&M	0	572	572	0.0
2029	Capital	2,604	8,932	11,536	15.8
Labor Explanation:		Regression and performance testing and production deployment, including troubleshooting, and system stability support.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs to support the DTS and dedicated test environments, including production and disaster recovery environments. Activities include DTS system validation, performance testing, regression, and the execution of vendor deployment and pilot readiness plans.			
2029 Total		2,604	9,504	12,108	15.8
2030	O&M	365	2,315	2,680	2.0
2030	Capital	0	828	828	0.0
Labor Explanation:		Stabilization and maintenance support for post-deployment system reliability and performance.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs to support the DTS and dedicated test environments, including production and disaster recovery environments. Stabilization support and maintenance activities.			
2030 Total		365	3,144	3,509	2.0

Forecast Details (2025-2034)

Year	Cost Type	Labor	Nlbr	Total	FTE
2031	O&M	365	2,243	2,608	2.0
2031	Capital	0	784	784	0.0
Labor Explanation:		Stabilization and maintenance support for post-deployment system reliability and performance and knowledge transfer.			
Non-Labor Explanation:		Cloud subscription fees and software licensing costs to support the DTS and dedicated test environments, including production and disaster recovery environments. Stabilization support and maintenance activities; facilitate knowledge transfer.			
2031 Total		365	3,027	3,392	2.0
2032	O&M	0	0	0	0.0
2032	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2032 Total		0	0	0	0.0
2033	O&M	0	0	0	0.0
2033	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2033 Total		0	0	0	0.0
2034	O&M	0	0	0	0.0
2034	Capital	323	0	323	2.0
Labor Explanation:		Export historical data to the data warehouse.			
Non-Labor Explanation:		N/A			
2034 Total		323	0	323	2.0

WP3-06 - Connected AMI Systems (Workpaper Detail)

ID	Non-Labor Description	In 2025 $ (000s) 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total NL $	Total NL $ (w/15% contingency)	Cost Type	Notes
	Software														
1	Server Licensing (SQL) for Data Transformation Services.				150	150	150	150				$ 600	$ 690	O&M	
2	Sempra Cloud Fees for Data Transformation Services.				250	250	500	500				$ 1,500	$ 1,725	Capital	All environments.
3	Test Environment to Support Edge Partners.			174	347	347	63	0				$ 931	$ 1,070	O&M	
4	Test Environments for SAP.			105	210	210	38					$ 562	$ 646	Capital	
5	Software Total											$ 3,593	$ 4,132	Total	
6	O&M - Total ($)	$ -	0	174	497	497	213	150	0	0	0	$ 1,531			
7	Capital - Total ($)	$ -	0	105	460	460	538	500	0	0	0	$ 2,062			
8	O&M - Total (including 15% contingency) ($)*	$ -	0	200	572	572	245	173	0	0	0	$ 1,760			
9	Capital - Total (including 15% contingency) ($)*	$ -	0	120	528	528	619	575	0	0	0	$ 2,371			
10	**Total Software**	**$ -**	**0**	**320**	**1,100**	**1,100**	**864**	**748**	**0**	**0**	**0**	**$ 4,132**			
	External Labor														
11	Systems Integrator Vendor.		1,956	6,356	6,356	5,867	182	182				$ 20,900	$ 24,035	Capital	
12	Systems Integrator Vendor.						1,800	1,800				$ 3,600	$ 4,140	O&M	Maintain data transformation services.
13	Software Vendor Customization.		270	1,300	1,300	491						$ 3,360	$ 3,864	Capital	
14A	Software Vendor Modification and Support.			949	949	949						$ 2,847	$ 3,274	Capital	
14B	External Labor Total											$ 30,708	$ 35,314	Total	
15	O&M - Total ($)	$ -	0	0	0	0	1,800	1,800	0	0	0	$ 3,600			
16	Capital - Total ($)	$ -	2,225	8,605	8,605	7,308	182	182	0	0	0	$ 27,108			
17	O&M - Total (including 15% contingency) ($)*	$ -	0	0	0	0	2,070	2,070	0	0	0	$ 4,140			
18	Capital - Total (including 15% contingency) ($)*	$ -	2,559	9,896	9,896	8,404	209	209	0	0	0	$ 31,174			
19	**Total External Labor**	**$ -**	**2,559**	**9,896**	**9,896**	**8,404**	**2,279**	**2,279**	**0**	**0**	**0**	**$ 35,314**			
20	O&M - Total ($)	$ -	0	200	572	572	2,315	2,243	0	0	0	$ 5,900			
21	Capital - Total ($)	$ -	2,559	10,016	10,424	8,932	828	784	0	0	0	$ 33,545			
22	**Total Non-Labor**	**$ -**	**2,559**	**10,216**	**10,996**	**9,504**	**3,144**	**3,027**	**0**	**0**	**0**	**$ 39,445**			

ID	Labor Project Role	FTE Count (A) 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total Hrs** (B)	Avg. Hourly Rate (C)	Total Labor $ (B) x (C)	Total Labor $ (w/15% contingency)	Cost Type	Notes
23	Data Transformation Services & Edge Assessment Support.		0.5	2.0	2.0	2.0						13,520	$80.35	$ 1,086	$ 1,249	Capital	
24	Data Transformation Services & Edge Maintenance.						2.0	2.0				8,320	$76.33	$ 635	$ 730	O&M	
25	Connected Systems Remediations (includes Testing).		0.4	13.2	13.2	13.5					2.0	87,974	$67.43	$ 5,932	$ 6,822	Capital	Approx. 20 Connected Systems.
26	Module Enhancement Support.				0.3	0.3						1,200	$67.43	$ 81	$ 93	Capital	
27	Edge-of-Edge Testing.				4.0							8,320	$63.47	$ 528	$ 607	Capital	
28	FTE Totals - O&M	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	4.0	O&M FTE's				
29	FTE Totals - Capital	0.0	0.9	15.2	19.5	15.8	0.0	0.0	0.0	0.0	2.0	53.4	Capital FTE's				
30	O&M - Total ($)	$ -	0	0	0	0	318	318	0	0	0	$ 635					
31	Capital - Total ($)	$ -	136	2,189	2,757	2,264	0	0	0	0	281	$ 7,627					
32	O&M - Total (including 15% contingency) ($)*	$ -	0	0	0	0	365	365	0	0	0	$ 730					
33	Capital - Total (including 15% contingency) ($)*	$ -	157	2,517	3,171	2,604	0	0	0	0	323	$ 8,771					
34	**Total Internal Labor**	**$ -**	**157**	**2,517**	**3,171**	**2,604**	**365**	**365**	**0**	**0**	**323**	**$ 9,502**					

	Total: Non-Labor & Labor	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total $
35	O&M Total	$ -	0	200	572	572	2,680	2,608	0	0	0	$ 6,631
36	Capital Total	$ -	2,716	12,534	13,595	11,536	828	784	0	0	323	$ 42,316
37	**Total Connected AMI Systems Software**	**$ -**	**2,716**	**12,733**	**14,167**	**12,108**	**3,509**	**3,392**	**0**	**0**	**323**	**$ 48,947**

Note: Totals may include rounding differences.
*** Connected AMI Systems Contingency rate is 15%.
** The (B) Total Labor Hours is calculated by multiplying the annual (A) FTE Count per project role by 2,080 hours (working hours per year).

WP3-07 - Connected Deployment Systems

Chapter: III – TECHNOLOGY
Witness: Amy D. Vulin
Category: SoCalGas Systems
Workpaper Name Connected Deployment Systems
Workpaper ID: WP3-07

O&M Summary of Results:		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)												
Labor		0	0	0	0	0	0	0	220	220	220	660
Non-Labor		0	0	0	0	0	264	264	264	264	264	1,320
NSE	Zero-Based	0	0	0	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**264**	**264**	**484**	**484**	**484**	**1,980**
FTE		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	3.0

Capital Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	0	650	920	941	377	377	377	377	377	4,394
Non-Labor	0	0	1,434	5,131	3,657	2,461	1,265	1,240	972	280	16,439
Total	**0**	**0**	**2,084**	**6,050**	**4,597**	**2,838**	**1,642**	**1,616**	**1,348**	**657**	**20,834**
FTE	0.0	0.0	3.6	5.2	5.3	2.0	2.0	2.0	2.0	2.0	24.1

Total Summary of Results:	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
In 2025 $ (000s)											
Labor	0	0	650	920	941	377	377	597	597	597	5,055
Non-Labor	0	0	1,434	5,131	3,657	2,725	1,529	1,504	1,236	544	17,759
Total	**0**	**0**	**2,084**	**6,050**	**4,597**	**3,102**	**1,906**	**2,100**	**1,832**	**1,141**	**22,814**
FTE	0.0	0.0	3.6	5.2	5.3	2.0	2.0	3.0	3.0	3.0	27.1

Notes :
(1) Totals may include rounding differences.
(2) Costs are direct.

Activity Description

Connected Deployment Systems are the systems that coordinate field activities, workforce logistics, and asset tracking to support successful implementation of the AMIR Project. There are four Connected Deployment Systems areas that require enhancements to the current software, or new software, to support deployment activities and provide the digital foundation to coordinate installation schedules, manage workforce logistics, resolve customer issues efficiently, and maintain digital records and asset tracking.

Labor Forecast Description

This is the internal labor forecast for the Connected Deployment System.

Non-Labor Forecast Description

This is the software and external labor forecast for the Connected Deployment System.

Forecast Details (2025-2034)

Year	Cost Type	Labor	NIbr	Total	FTE
2025	O&M	0	0	0	0.0
2025	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2025 Total		0	0	0	0.0
2026	O&M	0	0	0	0.0
2026	Capital	0	0	0	0.0
Labor Explanation:		N/A			
Non-Labor Explanation:		N/A			
2026 Total		0	0	0	0.0
2027	O&M	0	0	0	0.0
2027	Capital	650	1,434	2,084	3.6
Labor Explanation:		Support for development of Deployment system solutions, including business impact analysis and system integrations.			
Non-Labor Explanation:		Cloud subscription fees for the data simulator. Development of Deployment system solutions, including business impact analysis, and system integrations.			
2027 Total		650	1,434	2,084	3.6
2028	O&M	0	0	0	0.0
2028	Capital	920	5,131	6,050	5.2
Labor Explanation:		Support for system testing of Deployment system solutions, including data integration.			
Non-Labor Explanation:		Cloud subscription fees for the data simulator. System testing of Deployment system solutions, including data integration.			
2028 Total		920	5,131	6,050	5.2
2029	O&M	0	0	0	0.0
2029	Capital	941	3,657	4,597	5.3
Labor Explanation:		Support Deployment system solutions regression and performance testing across integrated components. Assist with troubleshooting and maintain system stability during the pilot phase.			
Non-Labor Explanation:		Cloud subscription fees for the data simulator. Software licenses fees for workforce management and route planning software. Deployment system solutions regression and performance testing across integrated components. Manage troubleshooting and maintain system stability during the pilot phase.			
2029 Total		941	3,657	4,597	5.3
2030	O&M	0	264	264	0.0
2030	Capital	377	2,461	2,838	2.0
Labor Explanation:		Technical support and system monitoring during MCM deployment period.			
Non-Labor Explanation:		Software licenses fees for workforce management and route planning software. Deployment technology equipment to support module activation. System stabilization and system monitoring during MCM deployment period.			
2030 Total		377	2,725	3,102	2.0
2031	O&M	0	264	264	0.0
2031	Capital	377	1,265	1,642	2.0
Labor Explanation:		Technical support and system monitoring during MCM deployment period.			
Non-Labor Explanation:		Software licenses fees for workforce management and route planning software. System stabilization and system monitoring during MCM deployment period.			
2031 Total		377	1,529	1,906	2.0

Forecast Details (2025-2034)

Year	Cost Type	Labor	Nlbr	Total	FTE
2032	O&M	220	264	484	1.0
2032	Capital	377	1,240	1,616	2.0
Labor Explanation:		Technical support and system monitoring during MCM deployment period.			
Non-Labor Explanation:		Software licenses fees for workforce management and route planning software. System stabilization and system monitoring during MCM deployment period.			
2032 Total		597	1,504	2,100	3.0
2033	O&M	220	264	484	1.0
2033	Capital	377	972	1,348	2.0
Labor Explanation:		Technical support and system monitoring during MCM deployment period.			
Non-Labor Explanation:		Software licenses fees for workforce management and route planning software. System stabilization and system monitoring during MCM deployment period.			
2033 Total		597	1,236	1,832	3.0
2034	O&M	220	264	484	1.0
2034	Capital	377	280	657	2.0
Labor Explanation:		Technical support and system monitoring during MCM deployment period.			
Non-Labor Explanation:		Software licenses fees for workforce management and route planning software. System stabilization and system monitoring during MCM deployment period. Software licensing costs for customer call storage.			
2034 Total		597	544	1,141	3.0

WP3-07 - Connected Deployment Systems (Workpaper Detail)

ID	Non-Labor Description	In 2025 $ (000s) 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total NL $	Total NL $ (w/20% contingency)	Cost Type	Notes
	Equipment and Software														
1	Software Licensing Costs.					66	480	697	694	542	150	$ 2,628	$ 3,154	Capital	Based on installer headcount.
2	Subscription and Software Fees.			105	1,165	380						$ 1,651	$ 1,981	Capital	All environments.
3	Data Storage Costs.										0	$ -	$ -	Capital	
4	Route-Planning Software.					14	233	340	322	251	67	$ 1,227	$ 1,472	Capital	Based on installer headcount.
5	Handheld Device Equipment.						755					$ 755	$ 906	Capital	Based on installer headcount.
6	Equipment and Software Total											$ 6,261	$ 7,513	Total	
7	O&M - Total ($)	$ -	0	0	0	0	0	0	0	0	0	$ -			
8	Capital - Total ($)	$ -	0	105	1,165	461	1,468	1,037	1,016	792	216	$ 6,261			
9	O&M - Total (including 20% contingency) ($)*	$ -	0	0	0	0	0	0	0	0	0	$ -			
10	Capital - Total (including 20% contingency) ($)*	$ -	0	126	1,398	553	1,761	1,244	1,219	951	260	$ 7,513			
11	**Total Equipment and Software**	**$ -**	**0**	**126**	**1,398**	**553**	**1,761**	**1,244**	**1,219**	**951**	**260**	**$ 7,513**			
	External Labor														
6	Customer Information Systems Integration Vendor.			524	1,048	524						$ 2,096	$ 2,515	Capital	Includes asset management.
7	Software Vendors.				1,496	1,496						$ 2,993	$ 3,591	Capital	
8	Systems Integrator Vendor.			566	566	566	583	17	17	17	17	$ 2,350	$ 2,820	Capital	
9	Systems Integrator Vendor.						220	220	220	220	220	$ 1,100	$ 1,320	O&M	Maintenance support.
10	External Labor Total											$ 8,539	$ 10,246	Total	
11	O&M - Total ($)	$ -	0	0	0	0	220	220	220	220	220	$ 1,100			
12	Capital - Total ($)	$ -	0	1,090	3,110	2,586	583	17	17	17	17	$ 7,439			
13	O&M - Total (including 20% contingency) ($)*	$ -	0	0	0	0	264	264	264	264	264	$ 1,320			
14	Capital - Total (including 20% contingency) ($)*	$ -	0	1,308	3,732	3,104	700	21	21	21	21	$ 8,926			
15	**Total External Labor**	**$ -**	**0**	**1,308**	**3,732**	**3,104**	**964**	**285**	**285**	**285**	**285**	**$ 10,246**			
16	O&M - Total ($)	$ -	0	0	0	0	264	264	264	264	264	$ 1,320			
17	Capital - Total ($)	$ -	0	1,434	5,131	3,657	2,461	1,265	1,240	972	280	$ 16,439			
18	**Total Non-Labor**	**$ -**	**0**	**1,434**	**5,131**	**3,657**	**2,725**	**1,529**	**1,504**	**1,236**	**544**	**$ 17,759**			

ID	Labor Project Role	FTE Count (A) 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total Hrs** (B)	Avg. Hourly Rate (C)	Total Labor $ (B) x (C)	Total Labor $ (w/20% contingency)	Cost Type	Notes
19	Deployment Technology Lead.								1.0	1.0	1.0	6,240	$88.17	$ 550	$ 660	O&M	
20	Deployment Technology Solution Support.			2.5	3.1	3.2						18,200	$73.53	$ 1,338	$ 1,606	Capital	
21	Technology Support & Software Maintenance.						2.0	2.0	2.0	2.0	2.0	20,800	$75.48	$ 1,570	$ 1,884	Capital	
22	System and Regression Testing.			1.1	2.1	2.2						11,180	$67.43	$ 754	$ 905	Capital	
23	FTE Totals - O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	3.0	O&M FTE's				
24	FTE Totals - Capital	0.0	0.0	3.6	5.2	5.3	2.0	2.0	2.0	2.0	2.0	24.1	Capital FTE's				
25	O&M - Total ($)	$ -	0	0	0	0	0	0	183	183	183	$ 550					
26	Capital - Total ($)	$ -	0	542	766	784	314	314	314	314	314	$ 3,662					
27	O&M - Total (including 20% contingency) ($)*	$ -	0	0	0	0	0	0	220	220	220	$ 660					
28	Capital - Total (including 20% contingency) ($)*	$ -	0	650	920	941	377	377	377	377	377	$ 4,395					
29	**Total Internal Labor**	**$ -**	**0**	**650**	**920**	**941**	**377**	**377**	**597**	**597**	**597**	**$ 5,055**					

	Total: Non-Labor & Labor	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total $
30	O&M Total	$ -	0	0	0	0	264	264	484	484	484	$ 1,980
31	Capital Total	$ -	0	2,084	6,050	4,597	2,838	1,642	1,616	1,348	657	$ 20,834
32	**Total Connected Deployment Systems**	**$ -**	**0**	**2,084**	**6,050**	**4,597**	**3,102**	**1,906**	**2,100**	**1,832**	**1,141**	**$ 22,814**

Note: Totals may include rounding differences.
* Connected Deployment Systems Contingency rate is 20%.
** The (B) Total Labor Hours is calculated by multiplying the annual (A) FTE Count per project role by 2,080 hours (working hours per year).