

Application: A.25-12-~~XXX~~019

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**REVISED**

**PREPARED DIRECT TESTIMONY OF**

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**ON BEHALF OF**

**SOUTHERN CALIFORNIA GAS COMPANY (U 904 G)**

**(CHAPTER III – TECHNOLOGY)**

**BEFORE THE PUBLIC UTILITIES COMMISSION**

**OF THE STATE OF CALIFORNIA**

July 2, 2026~~December 30, 2025~~

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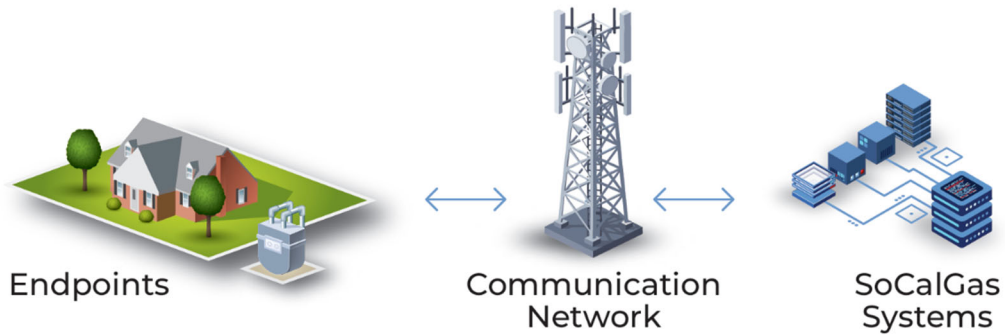
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1 **II. THE AMIR PROJECT TECHNOLOGY COMPONENTS**

2 The AMIR Project technology is categorized into three major components: (1) Endpoints,  
3 (2) the Communication Network, and (3) SoCalGas Systems. Figure III-1 below depicts these  
4 components.

5 **Figure III-1 – AMIR Technology Components**



6 **A. Endpoints**

7 Endpoints primarily consist of more than six million modules.<sup>2</sup> These modules are  
8 electronic devices attached to customer meters that record and transmit meter readings and other  
9 operational data through the Communication Network to SoCalGas Systems. Each module  
10 contains an integrated network interface card that automatically and securely transmits data  
11 through the Communication Network to SoCalGas Systems (e.g., to the HeadEnd System which  
12 serves as the central processing hub, or “system brain,” of the AMI system). To confirm system  
13 interoperability, a single AMI Technology Vendor is necessary to support seamless  
14 communication across all components of the Advanced Metering Infrastructure (AMI) system,  
15 including Endpoints, the Communications Network, and SoCalGas Systems (e.g., the HeadEnd  
16 System).

17 As explained in the Direct Testimony of David M. Mercer (Chapter II), the module end  
18 of life analyses for SoCalGas’s current AMI system confirm that modules are approaching the  
19

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<sup>2</sup> 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. SoCalGas also anticipates minor ancillary replacements, including approximately two percent meter breakage during module installation, and replacement of all ECs since the instrument and module typically cannot be separated without breaking the instrument. For additional information on module, instrument, and meter counts, *see* Table III-3.

1 end of their useful life and that widespread failures are expected to begin in 2030. Moreover, in  
2 addition to the projected end of life battery failures, the current module itself is becoming  
3 obsolete, with the manufacturer no longer producing the current module at any scale after mid-  
4 2031 beyond what is required to service the existing warranty obligations. Accordingly,  
5 SoCalGas proposes the AMIR Project, a planned, systemwide replacement for its AMI system  
6 where it will replace more than six million modules to preserve existing functions and benefits  
7 while incorporating enhanced processing capability, more timely data transmission, and  
8 cybersecurity features.<sup>3</sup>

### 9 **B. Communication Network**

10 A secure and scalable two-way gas communication network forms the foundation of  
11 SoCalGas’s AMI system, enabling data transmission between Endpoints and SoCalGas Systems,  
12 including the AMI Core Systems (i.e., the HeadEnd System, the MDM System, and the NEMO  
13 System) and Connected Systems (Connected AMI Systems and Deployment Systems) (*see*  
14 Figure III-2). The Communication Network supports automated, near real-time data collection  
15 from more than six million customer meters and pressure monitoring devices, providing the  
16 secure transmission of usage and operational data. The current Communication Network is  
17 comprised of three primary components:

- 18 • The Radio Frequency Network: Transmits data between each module and the  
19 Network Communication Device (NCD) on a licensed radio spectrum.
- 20 • The Network Communication Device (NCD): Serves as the aggregation point that  
21 collects data from multiple modules.
- 22 • Cellular Network: Transmits data from the NCDs to SoCalGas Systems (e.g., to  
23 the HeadEnd System “or “system brain” for centralizing processing and  
24 integration with the MDM System or “system storage” and other enterprise  
25 systems).

26 The current AMI Communication Network consists of approximately 4,700 NCDs  
27 operating on SoCalGas’s encrypted network and spans approximately 24,000 square miles of  
28 diverse terrain across Central and Southern California. These NCDs provide continuous  
29 coverage across urban, suburban, and rural environments, providing consistent communication  
30 with endpoints even under challenging geographic and environmental conditions.

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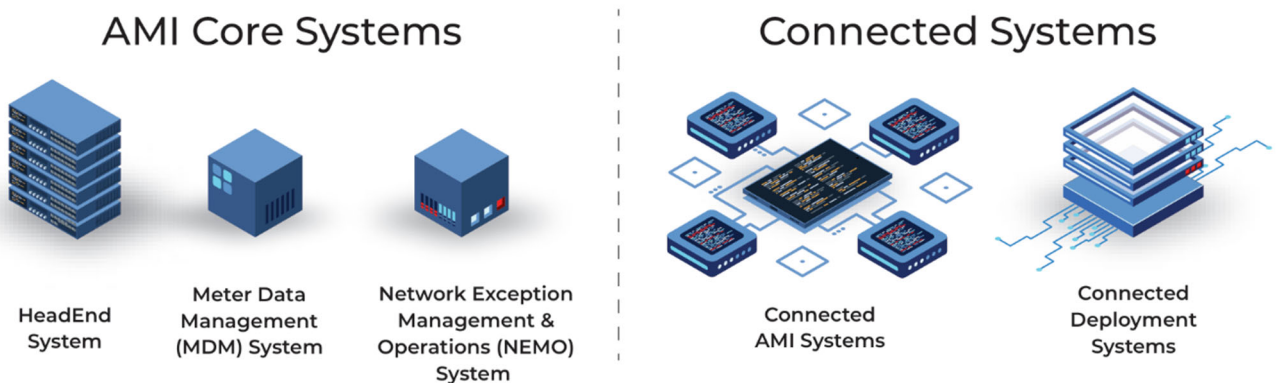
<sup>3</sup> For details regarding the essential benefits the AMIR Project preserves and enhances, refer to the Direct Testimony of Jennifer L. Walker (Chapter I).

1 The replacement Communication Network will maintain these core functions while  
2 incorporating several enhanced capabilities to meet modern operational and cybersecurity needs.  
3 Specifically, the modernized network will securely prioritize traffic for safety-critical messages,  
4 provide more frequent and timely usage data transmission, and incorporate modern cybersecurity  
5 standards with expanded bandwidth to support future endpoint technologies. The AMIR Project  
6 scope encompasses the full lifecycle of network implementation, including system design,  
7 configuration, testing, and transition to production. Following deployment, legacy network  
8 equipment will be decommissioned, with obsolete hardware removed and disposed of as part of  
9 the project closeout.

### 10 C. SoCalGas Systems

11 SoCalGas Systems include applications, software, and information technology (IT)  
12 platforms that support the AMI system. These systems are divided into two categories, AMI  
13 Core Systems and Connected Systems. The AMI Core Systems include: (1) the HeadEnd  
14 System (or the “system brain”); (2) the Meter Data Management (MDM) System (or “system  
15 storage”); and (3) the Network Exception Management and Operations (NEMO) System (or  
16 “system health”). The Connected Systems include: (1) Connected AMI Systems (or “enterprise  
17 systems”), and (2) Connected Deployment Systems (or “module implementation systems”).  
18 Figure III-2 below depicts these system components.

19 **Figure III-2 - SoCalGas Systems**



1                   **1.     AMI Core Systems**

2                   **a.     The HeadEnd System**

3                   The HeadEnd System (or “system brain”) manages the Endpoints and the  
4                   Communication Network. The HeadEnd System interfaces with SoCalGas Systems including  
5                   systems responsible for work order management, AMI system performance, meter usage data  
6                   storage, and enterprise applications. Its primary functions include encrypting and decrypting  
7                   data, collecting and processing endpoint data, handling usage requests, and managing field assets  
8                   (e.g., performing firmware updates). The HeadEnd System also enables all system programming  
9                   capabilities, such as adjusting module transmission intervals during emergencies or extreme  
10                  weather events. The HeadEnd System must be replaced to maintain compatibility with the  
11                  replacement modules. Moreover, the current software will become obsolete as the manufacturer  
12                  will no longer support this legacy system after 2038 and, until then, only limited support is  
13                  available. The replacement HeadEnd System will be compatible with replacement modules and  
14                  preserve essential capabilities, while introducing on-demand usage requests, enhanced two-way  
15                  communication, and support for new endpoint technologies such as ultrasonic meters with  
16                  remote valve control (to allow the stoppage of gas flow) and residential methane detectors.

17                  The replacement HeadEnd System will also include a modern cloud-based software  
18                  platform with an integrated design to support all AMI SoCalGas systems. This new platform  
19                  will provide greater scalability, cybersecurity controls, and interoperability with enterprise  
20                  applications. This modernized platform will also serve as the transformation layer, integrating  
21                  data from the current and replacement systems to facilitate the transition to the new system while  
22                  maintaining data integrity.

23                   **b.     The Meter Data Management (MDM) System**

24                  The MDM System (or “system storage”) functions as the official system of record for  
25                  AMI metering data, receiving usage information from the HeadEnd System. The MDM System  
26                  performs validations, identifies missing reads and estimates usage, and supports billing.  
27                  Replacement of the MDM System is required to support continued communication with the  
28                  replacement HeadEnd System and other SoCalGas enterprise applications. Moreover, the  
29                  software company will no longer support this legacy system after 2038 and, until then, only  
30                  limited support is available. The replacement MDM System will maintain the functions and  
31                  benefits of the current system.

1                                   **c.     Network Exception Management and Operations (NEMO)**  
2                                   **System**

3             The current NEMO System (or “system health”) provides the analytical and monitoring  
4 capabilities to maintain visibility into the performance of the modules and the communication  
5 network. The current NEMO System is a custom-developed application that provides automated  
6 reporting, data aggregation, and advanced visualization tools. It enables SoCalGas to diagnose,  
7 detect, analyze, and manage device and communication issues, monitor the health of the network  
8 and modules, and identify field device or equipment conditions that may require maintenance or  
9 corrective action.

10            A replacement NEMO system will be required as changes in the data structure of the  
11 replacement modules and the HeadEnd System will create incompatibility. The replacement  
12 NEMO System will be a configurable, commercial off-the-shelf cloud solution, tailored to  
13 SoCalGas’s operational needs. The replacement NEMO System will enhance performance  
14 monitoring and issue management through scalable analytics, automated event detection, and  
15 cross-system correlation. These capabilities will minimize service disruptions, optimize the use  
16 of field resources, and strengthen situational awareness across the AMI network.

17                                   **2.     Connected Systems**

18                                   **a.     Connected AMI Systems**

19            Connected AMI Systems are enterprise applications that rely on AMI data for safety  
20 monitoring, customer billing, operations, procurement, and analytics functions. These include:

- 21            • Safety Systems (e.g., Aveva Pi, Gas Control Center systems, Continuous  
22 Consumption Analytics, Emergency Services and Safety Monitoring, Top View)
- 23            • Customer & Billing Systems (e.g., Core Balancing, Gas Measurement &  
24 Analysis, Customer Information (Vista), My Account, Bill Tracker)
- 25            • Enterprise Integration & Automation Systems (e.g., Control-M, Electronic Data  
26 Interchange (EDIX))
- 27            • Enterprise Systems (e.g., Work Order Management (Dispatch, Industrial and  
28 Financial Systems (IFS), Click), System Applications and Products in Data  
29 Processing (SAP))
- 30            • Data Analytics (e.g., High Performance Operational Data Store, Data Warehouse  
31 & Strategic Transformation of Analytics & Reporting, NetOps)

32            The Connected AMI Systems must be reintegrated to maintain compatibility and  
33 interoperability with the AMI Core Systems. There are two categories of reintegration activities.  
34 The first involves modifications to operations-critical applications for which the software is not

1 directly controlled by SoCalGas, thereby limiting the scope of remediations that SoCalGas can  
2 perform independently and necessitating reliance on the respective software vendors to  
3 implement required changes. These entities will perform the required changes or provide  
4 consulting support for end-to-end workflow testing and integration validation. The second  
5 category involves efforts to minimize remediation activities using middleware solutions, or by  
6 facilitating the integration of new data into the system, while endeavoring to limit modifications  
7 to existing applications.

8 The remediation work will include implementing a new data platform to maintain data  
9 availability across all impacted Connected AMI Systems, updating and validating existing  
10 applications and interfaces, providing infrastructure support, and developing non-production and  
11 test environments to verify system functionality. These activities will allow enterprise  
12 applications to continue receiving accurate and timely AMI data so that downstream processes  
13 will remain uninterrupted.

#### 14 **b. Connected Deployment Systems**

15 The successful implementation of the AMIR Project depends on a coordinated approach  
16 to customer deployment and field execution, effectively managed and orchestrated through  
17 software systems. Connected Deployment Systems are the systems that coordinate field  
18 activities, workforce logistics, and asset tracking to support successful implementation of the  
19 AMIR Project. There are four Connected Deployment Systems areas that require enhancements  
20 to the current software, or new software, to support deployment activities and provide the digital  
21 foundation to coordinate installation schedules, manage workforce logistics, resolve customer  
22 issues efficiently, and maintain digital records and asset tracking: (1) Customer Contact Center  
23 Systems, (2) Dispatch, (3) Mobile Workforce Management and Work Order System, and (4)  
24 Inventory Control. In addition, field installers will require new equipment to enable on-site  
25 activation and deactivation of replacement modules using handheld devices.

26 The primary drivers for the Connected Deployment Systems enhancements are the  
27 increased system capacity needs resulting from the addition of approximately five hundred field  
28 technicians and the introduction of new processes, assets, tools, and procedures necessary to  
29 support efficient operations for the deployment of more than six million modules.<sup>4</sup>

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<sup>4</sup> For more information regarding AMIR Project deployment, refer to the Direct Testimony of Linden S. Olah (Chapter IV).

1           These Connected Deployment Systems will comprise a secure and modular platform built  
2 on extensible architecture that enables effective field data collection with minimal disruption to  
3 existing operations. Scalability will be achieved through horizontal scaling, which allows  
4 dynamic addition of cloud-based servers in response to workload demands. This approach  
5 facilitates dynamic deployment of new system capabilities and provides timely access to updated  
6 software releases.

### 7 **III. FORECASTED COSTS AND METHODOLOGY**

#### 8 **A. Overview of Cost Forecast Methodology**

9           SoCalGas developed the technology cost forecast using a range of inputs, including labor  
10 estimates, vendor data, and subject matter expertise, to produce a data-driven and reasonable cost  
11 estimate for the technology components and activities associated with the AMIR Project. The  
12 following describes the process or categorization used to develop the technology cost forecast for  
13 the AMIR Project. Additional details are provided in the workpapers supporting my testimony.

- 14           1. Functional Decomposition: SoCalGas first defined the scope and work  
15 requirements for each system area to clearly identify all activities  
16 necessary for implementation. SoCalGas subject matter experts (SME)  
17 and consultants collaborated to review the scope of work. Each AMI  
18 technology component was broken down into specific activities and  
19 associated cost categories, including hardware, software, external labor,  
20 and internal labor.
- 21           2. Bottom-Up Cost Estimation: SoCalGas then applied a detailed, bottom-up  
22 estimation process to quantify costs for each activity. Labor hours,  
23 material quantities, vendor pricing, and other associated cost elements  
24 were estimated using historical performance, comparable company  
25 projects, and current market data (data from outside sources that reflect  
26 prevailing industry prices or wage rates). Quantities such as modules,  
27 meters, instruments, subscriptions, licenses, and number of users were  
28 multiplied by validated unit costs derived from vendor pricing information  
29 and SME inputs.
- 30           3. Labor: SoCalGas labor cost assumptions were developed through  
31 coordination with SMEs and are generally based on the number of full-

1 time equivalent employees multiplied by the annual labor rate for the  
2 relevant job classification.

- 3 4. Non-Labor: Vendor Request for Proposal (RFP) responses, SME and  
4 consultant estimates, historical costs, invoices, and prior statements of  
5 work were used to develop non-labor cost estimates. These inputs  
6 established pricing for non-labor items such as hardware, software  
7 licenses, subscription fees, configuration, implementation, egress fees, and  
8 ongoing support. Using multiple data sources enabled non-labor cost  
9 estimates to reflect current market conditions, vendor pricing, and  
10 contractual assumptions.
- 11 5. Competitive Solicitation (RFI/RFP): SoCalGas conducted Request for  
12 Information (RFI) and RFP processes to select qualified and cost-  
13 competitive vendors for the AMIR Project.<sup>5</sup> The RFI/RFP process is used  
14 to procure major technology components, including the AMI Technology  
15 Vendor (modules, hardware, network, software), System Integration  
16 Vendor (the HeadEnd System, the MDM System, Connected AMI and  
17 Deployment Systems), Network Installation Vendor, and Deployment  
18 Software Vendor. SoCalGas's solicitation process evaluates vendors  
19 based on technical capability, implementation experience, safety, customer  
20 affordability, cost competitiveness, operational efficiency, and market  
21 risk. The results of these RFI/RFP processes form the basis for  
22 SoCalGas's technology cost forecast.
- 23 6. Meter Growth Forecasts: Forecasts are based on estimated demand for  
24 new meters expected to be installed as of 2029 year end and are used to  
25 inform the total module and meter forecasts.<sup>6</sup>
- 26 7. Import Tariffs: Tariffs were assumed and included for equipment  
27 hardware, including meters, modules, network equipment and handheld

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<sup>5</sup> SoCalGas also plans to conduct additional RFI/RFP solicitations throughout the duration of the AMIR Project, as appropriate.

<sup>6</sup> Costs for module installation for meter growth for 2030 and beyond will be funded through the appropriate General Rate Case (GRC).

1 devices. Given that the future import tariff is not currently known, a 10  
2 percent tariff was chosen as a conservative planning assumption.

- 3 8. Contingency: The contingency framework was developed and implemented  
4 through an evaluation of activities at both the category and sub-category  
5 levels. This assessment was conducted to determine the degree of risk  
6 associated with each area, taking into account factors such as evolving  
7 market conditions. Based on the risk profile determined for each area,  
8 differentiated contingency rates were applied in a manner proportionate to  
9 the identified level of exposure.

10 The technology cost forecasting methodology reflects a structured and data-driven  
11 approach that integrates detailed activity-based forecasting, vendor data and pricing information,  
12 market data, SME input, historical cost information, and analysis of comparable internal  
13 company projects. The resulting forecasted costs represent a reasonable and supported estimate  
14 of the costs required for the technology components and associated activities of the AMIR  
15 Project.

#### 16 **B. AMIR Technology Forecasted Costs**

17 SoCalGas is requesting ~~\$25.706~~\$23.382 million in direct O&M costs and ~~\$903.031~~  
18 \$894.990 million in direct capital costs, totaling ~~\$928.737~~\$918.372 million in direct costs for  
19 AMIR technology activities.<sup>7</sup> O&M costs primarily reflect RFI/RFP and planning activities  
20 from 2026 through 2028 and stabilization and maintenance transition activities from 2030  
21 through 2031. Capital costs primarily reflect equipment and software and AMIR system  
22 implementation activities, from 2025 to 2034, that result in long-term system capability. Table  
23 III-1 below provides the AMIR Technology Total Costs by area (Endpoints, Communication  
24 Network, SoCalGas Systems) from 2025 through 2034.

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<sup>7</sup> In SoCalGas's Test Year (TY) 2024 GRC Decision (D.) 24-12-074, the Commission authorized a limited amount of technology costs for preliminary upgrades to the HeadEnd System, the MDM System, and NCD hardware. These early upgrades were planned based on the vendor's expected release schedule; however, the vendor's hardware and software were ultimately not commercially available as anticipated, requiring SoCalGas to defer these activities.

**Table III-1**  
**AMIR Technology Total Costs (2025-2034)**  
**In 2025 \$ (000s)**

<b>Technology Areas</b>	<b>Total</b>	<b>O&amp;M</b>	<b>Capital</b>
Endpoints	\$ 648,787	\$ -	\$ 648,787
Communication Network	93,599	9,634	83,965
SoCalGas Systems	175,986	13,748	162,238
<b>Total</b>	<b>\$ 918,372</b>	<b>\$ 23,382</b>	<b>\$ 894,990</b>

<b>Technology Areas</b>	<b>Total</b>	<b>O&amp;M</b>	<b>Capital</b>
Endpoints	\$ 655,661	\$ -	\$ 655,661
<del>Communication Network</del>	<del>95,570</del>	<del>12,317</del>	<del>83,252</del>
SoCalGas Systems	177,506	13,388	164,118
<b>Total</b>	<b>\$ 928,737</b>	<b>\$ 25,706</b>	<b>\$ 903,031</b>

**1. Endpoints**

SoCalGas is requesting ~~\$655.661~~ \$648.787 million in direct capital costs for Endpoint hardware (modules, meters, and instruments) required to support AMIR deployment.<sup>8</sup> Table III-2 below provides the Endpoints costs by cost type.

<sup>8</sup> The labor to install endpoints is discussed in the Direct Testimony of Linden S. Olah (Chapter IV).

1  
2  
3

**Table III-2  
Endpoint Total Costs by Year  
In 2025 \$ (000s)**

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Type</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
O&M	\$ -	\$ -	\$ -	\$ -	\$ -
Capital	-	-	-	4,997	122,955
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 4,997</b>	<b>\$ 122,955</b>

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Type</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
O&M	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Capital	181,925	172,741	133,982	31,963	223	<b>648,787</b>
<b>Total</b>	<b>\$ 181,925</b>	<b>\$ 172,741</b>	<b>\$ 133,982</b>	<b>\$ 31,963</b>	<b>\$ 223</b>	<b>\$ 648,787</b>

4

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Type</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
O&M	\$ -	\$ -	\$ -	\$ -	\$ -
Capital	-	-	-	2,453	124,244
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,453</b>	<b>\$ 124,244</b>

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Type</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
O&M	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Capital	184,078	174,750	135,414	34,498	223	<b>655,661</b>
<b>Total</b>	<b>\$ 184,078</b>	<b>\$ 174,750</b>	<b>\$ 135,414</b>	<b>\$ 34,498</b>	<b>\$ 223</b>	<b>\$ 655,661</b>

5

6 While the majority of the Endpoint costs are for new meter modules, costs also include new  
7 modules for electronic pressure monitors (EPMs), electronic volume correctors (EVCs), and  
8 electronic correctors (ECs) which enable transmission of pressure and volume data through the  
9 Communication Network to SoCalGas Systems. SoCalGas also anticipates minor ancillary  
10 replacements, including approximately two percent meter breakage during module installation,  
11 and replacement of all ECs since the instrument design prohibits module replacement in field.  
12 The Endpoint unit counts necessary for the AMIR Project include replacement modules, meters,  
13 and instruments, and are provided in Table III-3 below.

1  
2

**Table III-3**  
**AMIR Deployment Module, Meter, Instrument Counts**

<b>Endpoint Type</b>	<b># Module Replacements</b>	<b># Meter*/Instrument Replacements</b>
Standard Residential Commercial & Industrial Meters	6,292,300	126,000 (Meters)
Electronic Correctors (EC)	4,500	4,500 (Instruments)
Electronic Volume Correctors (EVC)	1,000	0
Electronic Pressure Monitors (EPM)	2,200	0
<b>Total</b>	<b>6,300,000</b>	<b>130,500</b>

3  
4  
5  
6  
7

\* Replacement meter quantities have been modeled using a breakage rate of approximately 2% consistent with the original AMI 1.0 program for Meters Damaged During Meter Module Installation.

~~\* Replacement meter quantities have been modeled using a 2% breakage rate derived from historical field performance during the original AMI installations.~~

8 Table III-4 below summarizes the Endpoints costs by cost category. Additional detailed cost  
9 information and assumptions can be found in my supporting workpapers (SCG-III-WP, SCG-III-  
10 WP3-01C).

**Table III-4  
Endpoint Total Costs by Category**

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Category</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
Modules, Meters, and Instruments	\$ -	\$ -	\$ -	\$ 4,410	\$ 104,346
Other	-	-	-	588	18,609
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 4,997</b>	<b>\$ 122,955</b>

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Category</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
Modules, Meters, and Instruments	\$ 153,536	\$ 145,338	\$ 112,544	\$ 26,151	\$ -	\$ 546,324
Other	28,389	27,404	21,437	5,813	223	102,462
<b>Total</b>	<b>\$ 181,925</b>	<b>\$ 172,741</b>	<b>\$ 133,982</b>	<b>\$ 31,963</b>	<b>\$ 223</b>	<b>\$ 648,787</b>

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Category</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
Modules, Meters, and Instruments	\$ -	\$ -	\$ -	\$ 2,084	\$ 105,403
Other	-	-	-	369	18,840
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,453</b>	<b>\$ 124,244</b>

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Category</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
Modules, Meters, and Instruments	\$ 155,419	\$ 147,083	\$ 113,739	\$ 28,296	\$ -	\$ 552,025
Other	28,659	27,667	21,675	6,202	223	103,636
<b>Total</b>	<b>\$ 184,078</b>	<b>\$ 174,750</b>	<b>\$ 135,414</b>	<b>\$ 34,498</b>	<b>\$ 223</b>	<b>\$ 655,661</b>

The total forecast for the combined cost of Modules, Meters, and Instruments is ~~\$552.025~~\$546.324 million. The Endpoint vendors will provide all modules, meters, and instruments for purchase in the quantities specified in Table III-3. Each module includes a standard 20-year warranty coverage period, provided by the AMI Technology Vendor, transferring the risk of non-performance and manufacturing defects to the AMI Technology Vendor. The forecast for module unit costs is based on the RFP responses received from the competitive solicitation process, while meter and instrument costs reflect current vendor costs. Although endpoint purchases span from 2028 through 2033, the majority of purchases are projected to occur from 2029 through 2032, one year ahead of mass module deployment.<sup>9</sup>

The total forecast for Other costs is ~~\$103.636~~\$102.462 million and includes sales tax, import tariffs, and decommissioning costs. Sales taxes were applied using a weighted average

<sup>9</sup> For more information regarding deployment, refer to the Direct Testimony of Linden S. Olah (Chapter IV).

1 rate of 9.13 percent, which reflects the average sales tax rate for the destination cities of the  
2 module shipments. Import tariffs were applied to all modules, meters, and instruments  
3 anticipated to be sourced outside the United States. Decommissioning and salvage costs for  
4 modules were calculated using the weight of legacy modules multiplied by the number of  
5 modules removed, along with the salvage cost per pound and shipping costs to the recycling  
6 facility. Taxes and tariff costs are aligned with endpoint purchases, which occur from 2028  
7 through 2033, and module decommissioning and salvage costs are aligned with the mass module  
8 deployment, which is scheduled from 2030 through 2034.

## 9 **2. The Communication Network**

10 SoCalGas is requesting ~~\$12.317~~\$9.634 million in direct O&M costs and ~~\$83.252~~\$83.965  
11 million in direct capital costs, totaling ~~\$95.570~~\$93.599 million in direct costs to replace the  
12 Communication Network. These costs include the procurement of communication network  
13 equipment, licensing fees, cellular fees, and materials; external labor for system design,  
14 configuration, and deployment; and the decommissioning of existing communication network  
15 equipment at approximately 4,700 locations in coordination with the transition to the new  
16 communication network. Table III-5 below provides the Communication Network costs by cost  
17 type (O&M and capital). Table III-6 below summarizes the Communication Network costs by  
18 cost category. Additional detailed cost information, assumptions, and cost sources can be found  
19 in my supporting workpapers (SCG-III-WP, WP3-02C).

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**Table III-5  
Communication Network Total Costs by Year  
In 2025 \$ (000s)**

Forecasted Years: 2025-2029						
Cost Type	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	
O&M	\$ -	\$ 374	\$ 374	\$ 236	\$ 369	
Capital	-	131	2,501	2,385	26,576	
<b>Total</b>	<b>\$ -</b>	<b>\$ 504</b>	<b>\$ 2,875</b>	<b>\$ 2,621</b>	<b>\$ 26,946</b>	

Forecasted Years: 2030-2034						
Cost Type	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
O&M	\$ 1,799	\$ 2,688	\$ 1,397	\$ -	\$ 2,398	\$ 9,634
Capital	38,738	13,634	-	-	-	83,965
<b>Total</b>	<b>\$ 40,537</b>	<b>\$ 16,322</b>	<b>\$ 1,397</b>	<b>\$ -</b>	<b>\$ 2,398</b>	<b>\$ 93,599</b>

Forecasted Years: 2025-2029						
Cost Type	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	
O&M	\$ -	\$ 374	\$ 2,875	\$ 1,305	\$ 21	
Capital	-	131	-	1,315	27,082	
<b>Total</b>	<b>\$ -</b>	<b>\$ 504</b>	<b>\$ 2,875</b>	<b>\$ 2,621</b>	<b>\$ 27,102</b>	

Forecasted Years: 2030-2034						
Cost Type	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
O&M	\$ 1,450	\$ 2,688	\$ 1,409	\$ -	\$ 2,196	\$ 12,317
Capital	40,167	14,558	-	-	-	83,252
<b>Total</b>	<b>\$ 41,617</b>	<b>\$ 17,246</b>	<b>\$ 1,409</b>	<b>\$ -</b>	<b>\$ 2,196</b>	<b>\$ 95,570</b>

**Table III-6  
Communication Network Total Costs by Category  
In 2025 \$ (000s)**

Forecasted Years: 2025-2029					
Cost Category	2025	2026	2027	2028	2029
Network Deployment	\$ -	\$ 504	\$ 2,875	\$ 2,621	\$ 26,946
Decommissioning	-	-	-	-	-
<b>Total</b>	<b>\$ -</b>	<b>\$ 504</b>	<b>\$ 2,875</b>	<b>\$ 2,621</b>	<b>\$ 26,946</b>

Forecasted Years: 2030-2034						
Cost Category	2030	2031	2032	2033	2034	Total
Network Deployment	\$ 40,537	\$ 16,322	\$ -	\$ -	\$ -	\$ 89,804
Decommissioning	-	-	1,397	-	2,398	3,795
<b>Total</b>	<b>\$ 40,537</b>	<b>\$ 16,322</b>	<b>\$ 1,397</b>	<b>\$ -</b>	<b>\$ 2,398</b>	<b>\$ 93,599</b>

Forecasted Years: 2025-2029					
Cost Category	2025	2026	2027	2028	2029
Network Deployment	\$ -	\$ 504	\$ 2,875	\$ 2,621	\$ 27,102
Decommissioning	-	-	-	-	-
<b>Total</b>	<b>\$ -</b>	<b>\$ 504</b>	<b>\$ 2,875</b>	<b>\$ 2,621</b>	<b>\$ 27,102</b>

Forecasted Years: 2030-2034						
Cost Category	2030	2031	2032	2033	2034	Total
Network Deployment	\$ 41,617	\$ 17,246	\$ -	\$ -	\$ -	\$ 91,965
Decommissioning	-	-	1,409	-	2,196	3,605
<b>Total</b>	<b>\$ 41,617</b>	<b>\$ 17,246</b>	<b>\$ 1,409</b>	<b>\$ -</b>	<b>\$ 2,196</b>	<b>\$ 95,570</b>

The total forecast for Network Deployment is ~~\$89.804~~~~\$91.965~~ million. This forecast includes costs for communication hardware, cellular data transmission fees, network installation and document management tools, network deployment permitting and easements, and labor for deployment and configuration. Network hardware, data transmission, and installation fees are projected to occur primarily from 2029 through 2031 and are aligned with mass module deployment to support network readiness.

The forecast for Decommissioning costs is ~~\$3.605~~~~\$3.795~~ million. This forecast includes internal labor, contractor support, and disposal fees associated with the removal of approximately 4,700 legacy network devices. This forecast is based on internal labor estimates and current vendor pricing from existing third-party contracts. Network decommissioning costs are projected to occur in 2032 and 2034, following the completion of network replacement.

### 3. SoCalGas Systems

SoCalGas is requesting ~~\$13.748~~~~\$13.388~~ million in direct O&M costs and ~~\$162.238~~~~\$164.118~~ million in direct capital costs, totaling ~~\$177.506~~~~\$175.986~~ million in direct costs to replace and reintegrate SoCalGas Systems. These costs include system transition process,

1 software implementation, integration services, subscription fees, and the related internal labor  
 2 required to manage, test, and validate the continued operation and interoperability of the AMIR  
 3 technology platform. Table III-7 below provides the SoCalGas Systems costs by cost type  
 4 (O&M and capital). Table III-8 below summarizes the SoCalGas Systems costs by area.  
 5 Additional detailed cost information, assumptions, and cost sources can be found in my  
 6 supporting workpapers (SCG-III-WP, SCG-III-WP3-03C, SCG-III-WP3-04C, and SCG-III-  
 7 WP3-05).

8 **Table III-7**  
 9 **SoCalGas Systems Total Costs by Year**  
 10 **In 2025 \$ (000s)**

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Type</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
O&M	\$ -	\$ 565	\$ 297	\$ 783	\$ 620
Capital	2,155	6,425	38,457	48,847	41,299
<b>Total</b>	<b>\$ 2,155</b>	<b>\$ 6,990</b>	<b>\$ 38,754</b>	<b>\$ 49,630</b>	<b>\$ 41,919</b>

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Type</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
O&M	\$ 4,929	\$ 5,102	\$ 484	\$ 484	\$ 484	\$ 13,748
Capital	9,552	11,559	1,616	1,348	980	162,238
<b>Total</b>	<b>\$ 14,481</b>	<b>\$ 16,661</b>	<b>\$ 2,100</b>	<b>\$ 1,832</b>	<b>\$ 1,464</b>	<b>\$ 175,986</b>

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Type</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
O&M	\$ -	\$ 565	\$ 235	\$ 522	\$ 428
Capital	2,155	6,425	39,070	50,146	42,338
<b>Total</b>	<b>\$ 2,155</b>	<b>\$ 6,991</b>	<b>\$ 39,305</b>	<b>\$ 50,668</b>	<b>\$ 42,766</b>

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Type</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
O&M	\$ 5,025	\$ 5,160	\$ 484	\$ 484	\$ 484	\$ 13,388
Capital	9,234	11,169	1,247	1,080	1,254	164,118
<b>Total</b>	<b>\$ 14,259</b>	<b>\$ 16,329</b>	<b>\$ 1,732</b>	<b>\$ 1,564</b>	<b>\$ 1,738</b>	<b>\$ 177,506</b>

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 13 **Table III-8**

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**SoCalGas Systems Total Costs  
In 2025 \$ (000s)**

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<b>SoCalGas Systems</b>	<b><u>Total</u></b>	<b><u>O&amp;M</u></b>	<b><u>Capital</u></b>
AMI Core Systems	\$ 104,226	\$ 5,137	\$ 99,088
Connected Systems	71,761	8,611	63,150
<b>Total</b>	<b>\$ 175,986</b>	<b>\$ 13,748</b>	<b>\$ 162,238</b>

4

<b>SoCalGas Systems</b>	<b><u>Total</u></b>	<b><u>O&amp;M</u></b>	<b><u>Capital</u></b>
AMI Core Systems	\$ 104,226	\$ 5,137	\$ 99,088
Connected Systems	73,281	8,251	65,030
<b>Total</b>	<b>\$ 177,506</b>	<b>\$ 13,388</b>	<b>\$ 164,118</b>

1 **a. AMI Core System**

2 SoCalGas is requesting \$5.137 million in direct O&M costs and \$99.088 million in direct  
 3 capital costs, totaling \$104.226 million in direct costs to replace the AMI Core Systems. This  
 4 category includes costs to implement the HeadEnd System, the MDM System, and NEMO  
 5 Systems. Table III-9 below provides the AMI Core System costs by area.

6 **Table III-9**  
 7 **AMI Core Systems Total Costs**  
 8 **In 2025 \$ (000s)**

<b>AMI Core Systems</b>	<b>Total</b>	<b>O&amp;M</b>	<b>Capital</b>
HeadEnd System	\$ 71,683	\$ 3,677	\$ 68,006
MDM System	21,710	1,091	20,619
NEMO System	10,832	369	10,463
<b>Total</b>	<b>\$ 104,226</b>	<b>\$ 5,137</b>	<b>\$ 99,088</b>

9  
 10 **(1) The HeadEnd System**

11 SoCalGas is requesting \$3.677 million in direct O&M costs and \$68.006 million in direct  
 12 capital costs, totaling \$71.683 million in direct costs to replace its HeadEnd System. These costs  
 13 include system planning, design, configuration, testing, implementation, and stabilization of the  
 14 software, as well as the data migration, cybersecurity, and integration activities necessary to  
 15 support communication with endpoints and SoCalGas enterprise systems. Table III-10 below  
 16 provides the HeadEnd System costs by cost type (O&M and capital). Table III-11 below  
 17 summarizes the HeadEnd System costs by cost category. Additional detailed cost information  
 18 and assumptions can be found in my supporting workpapers (SCG-III-WP, WP3-03C).

19 **Table III-10**  
 20 **HeadEnd System Total Costs by Year**  
 21 **In 2025 \$ (000s)**

<b>Forecasted Years: 2025-2029</b>						
<b>Cost Type</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	
O&M	\$ -	\$ 565	\$ -	\$ 13	\$ 44	
Capital	2,155	3,709	18,737	20,311	13,858	
<b>Total</b>	<b>\$ 2,155</b>	<b>\$ 4,274</b>	<b>\$ 18,737</b>	<b>\$ 20,324</b>	<b>\$ 13,903</b>	

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Type</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
O&M	\$ 1,443	\$ 1,612	\$ -	\$ -	\$ -	\$ 3,677
Capital	3,124	6,112	-	-	-	68,006
<b>Total</b>	<b>\$ 4,567</b>	<b>\$ 7,723</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 71,683</b>

**Table III-11**  
**HeadEnd System Total Costs by Category**  
**In 2025 \$ (000s)**

<b>Forecasted Years: 2025-2029</b>						
<b>Cost Category</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	
Software	\$ -	\$ -	\$ 1,100	\$ 1,113	\$ 1,286	
External Labor	1,981	2,699	13,568	13,069	6,515	
Internal Labor	174	1,575	4,069	6,141	6,101	
<b>Total</b>	<b>\$ 2,155</b>	<b>\$ 4,274</b>	<b>\$ 18,737</b>	<b>\$ 20,324</b>	<b>\$ 13,903</b>	

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Category</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
Software	\$ 2,971	\$ 6,125	\$ -	\$ -	\$ -	\$ 12,595
External Labor	166	-	-	-	-	37,999
Internal Labor	1,430	1,599	-	-	-	21,090
<b>Total</b>	<b>\$ 4,567</b>	<b>\$ 7,723</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 71,683</b>

The total forecast for Software is \$12.595 million. This forecasted cost is primarily for AMI Technology Vendor subscription fees for the production, disaster recovery, test, and quality assurance (QA) environments required for this type of software development project.

The forecast for software subscription fees was based on the RFP responses received from the competitive solicitation process. Software subscription costs are priced per-module and are projected to begin in 2027 and ramp up through 2031.

The total forecast for External Labor is \$37.999 million which includes costs for (1) the AMI Technology Vendor, (2) the System Integration (SI) Vendor, (3) the Security Consulting Vendor, and (4) the AMI Solicitation Vendor.

1. AMI Technology Vendor - \$14.550 million: This forecast includes labor costs for implementation support and system customization services necessary to configure the HeadEnd System in alignment with business requirements and to enable interoperability with the MDM System. The forecast for AMI technology vendor labor costs was based on RFP responses received from the competitive solicitation process. AMI Technology Vendor costs are projected to occur from 2027 through 2029.
2. Systems Integrator (SI) Vendor – \$19.500 million: This forecast includes systems planning, architecture design, and software implementation labor for the AMI Core Systems. The scope also includes developing a

1 transition strategy, configuring a transitional environment, and designing a  
2 phased cutover process between the legacy and replacement HeadEnd  
3 Systems. These activities are required to maintain uninterrupted  
4 operational connectivity between the HeadEnd System and the Connected  
5 AMI Systems. The cost forecast for the SI Vendor was developed using  
6 multiple vendor proposals. SoCalGas solicited and evaluated proposals  
7 from multiple SI vendors to support integration of the HeadEnd System,  
8 the MDM System, the Connected AMI Systems, and the Connected  
9 Deployment Systems. These quotations were used to validate total  
10 estimated labor hours across workstreams, with adjustments informed by  
11 SMEs based on experience from the initial AMI deployment and  
12 comparable SoCalGas projects. The total SI Vendor hours were then  
13 distributed proportionally according to project scope and multiplied by a  
14 blended SI billing rate to derive cost estimates for each workstream.  
15 SoCalGas allocated 72,750 hours to the HeadEnd System integration  
16 workstream. SoCalGas will conduct a formal RFP process in 2026 to  
17 select an SI Vendor with demonstrated AMI systems integration expertise  
18 and large-scale utility experience to support the AMIR technology  
19 implementation. SI vendor costs are projected to occur from 2026 through  
20 2029.

- 21 3. Security Consulting Vendor – \$2.153 million: This forecast includes costs  
22 for the cyber and physical security, as well as architecture and design  
23 reviews for alignment with company IT standards and processes,  
24 penetration testing, and lifecycle assessments. The forecast for labor  
25 pricing for penetration testing was developed using comparable scopes of  
26 work from prior security projects performed by established SoCalGas  
27 vendors. The remaining cybersecurity scope was defined in collaboration  
28 with the SoCalGas SMEs. Security consulting vendor costs began in  
29 2025, supporting the RFI/RFP process, and are projected to continue  
30 through 2030.

4. AMI Solicitation Vendor – \$1.796 million: This forecast includes costs for the support for the execution of both the AMI RFI and RFP processes, including vendor evaluation, procurement support, and assistance with the vendor selection process. A competitive solicitation was performed for third-party advisory in 2024. The consulting vendor for AMI solicitation costs primarily occurred in 2025 and some costs are projected to occur in 2026.

The total forecast for Internal Labor is \$21.090 million to support implementation and management activities for the replacement HeadEnd System. Forecasts were developed using bottom-up cost estimating with SoCalGas SMEs, informed by the initial AMI deployment and comparable company projects. Approximately 216,500 hours are projected from 2025 through 2029 to define detailed system requirements, manage the design, testing, implementation, and stabilization, followed by approximately 35,400 hours projected from 2030 through 2031 for ongoing stabilization and maintenance.

**(2) The MDM System**

SoCalGas is requesting \$1.091 million in direct O&M costs and \$20.169 million in direct capital costs, totaling \$21.710 million in direct costs to replace its MDM System. Table III-12 below provides the MDM System costs by cost type (O&M and capital). Table III-13 below summarizes the MDM System costs by cost category. Additional detailed cost information, assumptions, and cost sources can be found in my supporting workpapers (SCG-III-WP, WP3-04C).

**Table III-12  
Meter Data Management System Total Costs by Year  
In 2025 \$ (000s)**

Forecasted Years: 2025-2029						
Cost Type	2025	2026	2027	2028	2029	
O&M	\$ -	\$ -	\$ -	\$ 4	\$ 4	
Capital	-	-	5,095	5,819	6,154	
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 5,095</b>	<b>\$ 5,823</b>	<b>\$ 6,158</b>	

Forecasted Years: 2030-2034						
Cost Type	2030	2031	2032	2033	2034	Total
O&M	\$ 541	\$ 541	\$ -	\$ -	\$ -	\$ 1,091
Capital	1,084	2,467	-	-	-	20,619
<b>Total</b>	<b>\$ 1,626</b>	<b>\$ 3,008</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 21,710</b>

**Table III-13**  
**Meter Data Management System Total Costs**  
**In 2025 \$ (000s)**

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Category</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
Software	\$ -	\$ -	\$ 251	\$ 256	\$ 324
External Labor	-	-	3,790	3,790	3,790
Internal Labor	-	-	1,054	1,777	2,045
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 5,095</b>	<b>\$ 5,823</b>	<b>\$ 6,158</b>

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Category</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
Software	\$ 1,089	\$ 2,471	\$ -	\$ -	\$ -	\$ 4,390
External Labor	-	-	-	-	-	11,370
Internal Labor	537	537	-	-	-	5,950
<b>Total</b>	<b>\$ 1,626</b>	<b>\$ 3,008</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 21,710</b>

The total forecast for Software is \$4.390 million. The forecast is primarily for AMI Technology Vendor subscription fees for the production, disaster recovery, test, and QA environments required for this type of software development project. The forecast for software subscription fees was based on RFP responses received from the competitive solicitation process. The majority of software subscription costs are priced per-module and are projected to begin in 2027 and ramp up through 2031.

The total forecast for External Labor is \$11.370 million which includes costs to engage both the AMI Technology Vendor and a SI Vendor.

1. AMI Technology Vendor - \$4.770 million: This forecast includes costs to implement the MDM System and customize it to align with SoCalGas’s billing needs. The forecast for external labor costs were based on RFP responses received from the competitive solicitation process. The AMI Technology Vendor costs are projected to occur from 2027 through 2029.
2. SI Vendor - \$6.600 million: This forecast reflect costs to develop a transition strategy, configure a transitional environment, and design a phased cutover process between the legacy and replacement MDM systems. These activities are required to maintain system functionality during migration and to maintain uninterrupted operational connectivity between the MDM system and the Connected AMI Systems, including

1 systems supporting safety, customer service, and billing. The SI Vendor  
 2 cost forecast applies the same methodology as described for the HeadEnd  
 3 System, utilizing vendor proposals, SME input, and allocation of labor  
 4 hours across workstreams using a blended billing rate. SoCalGas  
 5 allocated 25,000 hours to the MDM SI workstream. These services are  
 6 expected to be performed from 2026 through 2029.

7 The total forecast for Internal Labor is \$5.950 million to support implementation and  
 8 management activities for the replacement MDM System. Forecasts were developed using  
 9 bottom-up cost estimating with SoCalGas SMEs, informed by the initial AMI deployment and  
 10 comparable company projects. Approximately 60,500 hours are projected from 2027 through  
 11 2029 to define system requirements and manage the design, testing, implementation, and  
 12 stabilization, followed by approximately 12,500 hours projected from 2030 through 2031 for  
 13 ongoing stabilization and maintenance.

14 **(3) NEMO System**

15 SoCalGas is requesting \$0.369 million in direct O&M costs and \$10.463 million in direct  
 16 capital costs, totaling \$10.832 million for the implementation of the replacement NEMO System.  
 17 Table III-14 below provides the NEMO System costs by cost type (O&M and capital). Table III-  
 18 15 below summarizes the NEMO System costs by cost category. Additional detailed cost  
 19 information, assumptions, and cost sources can be found in my supporting workpapers (SCG-III-  
 20 WP, WP3-05).

21 **Table III-14**  
 22 **NEMO System Total Costs by Year**  
 23 **In 2025 \$ (000s)**

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Type</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
O&M	\$ -	\$ -	\$ 97	\$ 194	\$ -
Capital	-	-	6	3,071	5,153
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 104</b>	<b>\$ 3,266</b>	<b>\$ 5,153</b>

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Type</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
O&M	\$ -	\$ 77	\$ -	\$ -	\$ -	\$ 369
Capital	1,678	554	-	-	-	10,463
<b>Total</b>	<b>\$ 1,678</b>	<b>\$ 632</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 10,832</b>

**Table III-15**  
**NEMO System Total Costs by Category**  
**In 2025 \$ (000s)**

<b>Forecasted Years: 2025-2029</b>						
<b>Cost Category</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	
Software	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Labor	-	-	-	2,750	4,400	
Internal Labor	-	-	104	516	753	
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 104</b>	<b>\$ 3,266</b>	<b>\$ 5,153</b>	

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Category</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
Software	\$ 554	\$ 554	\$ -	\$ -	\$ -	\$ 1,109
External Labor	-	-	-	-	-	7,150
Internal Labor	1,123	77	-	-	-	2,573
<b>Total</b>	<b>\$ 1,678</b>	<b>\$ 632</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 10,832</b>

The total forecast for Software is \$1.109 million. These costs are for the NEMO Software Vendor subscription fees for the production, disaster recovery, test, and QA environments required for this type of software development project. Subscription fee amounts were based on the current NEMO System subscription costs. Software costs are projected to occur from 2030 through 2031.

The total forecast for External Labor is \$7.150 million. The forecast is for costs to engage a software vendor to provide a customized off-the-shelf solution that meets SoCalGas's communication network and endpoint performance management needs. The forecast for external labor was based on RFP responses received from a competitive solicitation process in 2020 for the current NEMO System. External labor costs are projected to occur from 2028 through 2029.

The total forecast for Internal Labor is \$2.573 million to support implementation and management activities for the replacement NEMO System. The forecast was developed using bottom-up cost estimating with SoCalGas SMEs, informed by the current NEMO solution and comparable company projects. Approximately 33,000 hours are projected from 2027 through 2030 to define system requirements and manage the design, testing, implementation, and stabilization, followed by approximately 1,000 hours planned in 2031 for ongoing stabilization and maintenance.

1 **a. Connected Systems**

2 SoCalGas is requesting ~~\$73.281~~\$71.761 million; ~~\$8.251~~\$8.611 million in direct O&M  
 3 costs and ~~\$65.030~~\$63.150 million in direct capital costs to reintegrate the Connected Systems.  
 4 Table III-16 below provides the Connected System cost by area.

5 **Table III-16**  
 6 **Connected Systems Total Costs**  
 7 **In 2025 \$ (000s)**

Connected Systems	<u>Total</u>	<u>O&amp;M</u>	<u>Capital</u>
Connected AMI Systems	\$ 48,947	\$ 6,631	\$ 42,316
Connected Deployment Systems	22,814	1,980	20,834
<b>Total</b>	<b>\$ 71,761</b>	<b>\$ 8,611</b>	<b>\$ 63,150</b>

Connected Systems	<u>Total</u>	<u>O&amp;M</u>	<u>Capital</u>
Connected AMI Systems	\$ 49,729	\$ 6,271	\$ 43,458
Connected Deployment Systems	23,552	1,980	21,571
<b>Total</b>	<b>\$ 73,281</b>	<b>\$ 8,251</b>	<b>\$ 65,030</b>

8  
 9  
 10 **(4) Connected AMI Systems**

11 SoCalGas is requesting ~~\$6.271~~\$6.631 million in direct O&M costs and ~~\$43.458~~\$42.316  
 12 million in direct capital costs, totaling ~~\$49.729~~\$48.947 million in direct costs to develop new  
 13 data interfaces and reconnect approximately 20 Connected AMI Systems to the replacement  
 14 HeadEnd System and MDM System. Table III-17 below provides the Connected AMI Systems  
 15 costs by cost type (O&M and capital). Table III-18 below summarizes the Connected AMI  
 16 Systems costs by cost category. Additional detailed cost information, assumptions, and cost  
 17 sources can be found in my supporting workpapers (SCG-III-WP, WP3-06).

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2  
3

**Table III-17**  
**Connected AMI Systems Total Costs by Year**  
**In 2025 \$ (000s)**

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Type</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
O&M	\$ -	\$ -	\$ 200	\$ 572	\$ 572
Capital	-	2,716	12,534	13,595	11,536
<b>Total</b>	<b>\$ -</b>	<b>\$ 2,716</b>	<b>\$ 12,733</b>	<b>\$ 14,167</b>	<b>\$ 12,108</b>

4

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Type</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
O&M	\$ 2,680	\$ 2,608	\$ -	\$ -	\$ -	\$ 6,631
Capital	828	784	-	-	323	42,316
<b>Total</b>	<b>\$ 3,509</b>	<b>\$ 3,392</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 323</b>	<b>\$ 48,947</b>

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Type</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
O&M	\$ -	\$ -	\$ 138	\$ 311	\$ 380
Capital	-	2,716	12,875	14,018	11,957
<b>Total</b>	<b>\$ -</b>	<b>\$ 2,716</b>	<b>\$ 13,013</b>	<b>\$ 14,328</b>	<b>\$ 12,337</b>

5

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Type</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
O&M	\$ 2,777	\$ 2,666	\$ -	\$ -	\$ -	\$ 6,271
Capital	784	784	-	-	323	43,458
<b>Total</b>	<b>\$ 3,561</b>	<b>\$ 3,450</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 323</b>	<b>\$ 49,729</b>

**Table III-18**  
**Connected AMI System Total Costs by Category**  
**In 2025 \$ (000s)**

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Category</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
Software	\$ -	\$ -	\$ 320	\$ 1,100	\$ 1,100
External Labor	-	2,559	9,896	9,896	8,404
Internal Labor	-	157	2,517	3,171	2,604
<b>Total</b>	<b>\$ -</b>	<b>\$ 2,716</b>	<b>\$ 12,733</b>	<b>\$ 14,167</b>	<b>\$ 12,108</b>

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Category</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
Software	\$ 864	\$ 748	\$ -	\$ -	\$ -	\$ 4,132
External Labor	2,279	2,279	-	-	-	35,314
Internal Labor	365	365	-	-	323	9,501
<b>Total</b>	<b>\$ 3,509</b>	<b>\$ 3,392</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 323</b>	<b>\$ 48,947</b>

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Category</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
Software	\$ -	\$ -	\$ 339	\$ 1,001	\$ 1,070
External Labor	-	2,560	10,157	10,157	8,663
Internal Labor	-	157	2,517	3,171	2,604
<b>Total</b>	<b>\$ -</b>	<b>\$ 2,716</b>	<b>\$ 13,013</b>	<b>\$ 14,328</b>	<b>\$ 12,337</b>

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Category</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
Software	\$ 917	\$ 806	\$ -	\$ -	\$ -	\$ 4,132
External Labor	2,279	2,279	-	-	-	36,096
Internal Labor	365	365	-	-	323	9,501
<b>Total</b>	<b>\$ 3,561</b>	<b>\$ 3,450</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 323</b>	<b>\$ 49,729</b>

The total forecast for Software is \$4.132 million. These costs include cloud subscription fees and server licensing for development and test environments supporting the data transformation platform hosted in a cloud environment. This platform will function as the intermediary between the AMI Core Systems and the Connected AMI Systems, translating the data structure to minimize the remediation efforts required for reconnection of the Connected AMI Systems. Subscription and licensing fee estimates were based on comparable work performed for a recent company project. Software costs are projected to occur from 2027 through 2031.

The total forecast for External Labor is ~~\$36.096~~ \$35.314 million which includes third-party contractor costs, including a SI Vendor and software vendors providing professional

1 services to customize applications, develop data interfaces, and reintegrate Connected AMI  
2 Systems with the AMIR platform.

- 3 1. SI Vendor – \$28.175 million: This forecast includes cost to develop the  
4 data-transformation platform and to reintegrate the HeadEnd System and  
5 the MDM System with the Connected AMI Systems. The SI Vendor cost  
6 forecast applies the same methodology as described for the HeadEnd  
7 System, utilizing vendor proposals, SME input, and an allocation of labor  
8 hours across workstreams using a blended billing rate. SoCalGas  
9 allocated 111,250 hours to the Connected AMI Systems workstream. SI  
10 vendor costs are projected to occur from 2026 through 2029.
- 11 2. Software Vendor Customization – \$3.864 million: This forecast includes  
12 costs from multiple software vendors to perform SoCalGas specific  
13 software customizations. These customizations include updates to SAP  
14 (asset management and customer information system), IFS (core meter  
15 work order system), and Click (non-core meter and instrument work order  
16 system). The forecast was based on comparable work for a recent  
17 company project as a baseline and was subsequently adjusted by  
18 SoCalGas SMEs to reflect differences in project complexity. Software  
19 vendor customization costs are expected to occur from 2027 through 2031.
- 20 3. Software Vendor Modification and Support – ~~\$4.057~~\$3.275 million: This  
21 forecast includes costs to modify and support required changes to  
22 approximately half of the Connected AMI Systems. The forecast was  
23 based on comparable work for a recent company project as a baseline and  
24 was subsequently adjusted by SoCalGas SMEs to reflect differences in  
25 project complexity. Software vendor modification and support costs are  
26 projected to occur from 2027 through 2029.

27 The total forecast for Internal Labor is \$9.501 million for AMIR project personnel to  
28 manage the integration workstream and company SMEs to support, test, and validate  
29 reintegration with the Connected AMI Systems. The cost forecast was developed using  
30 comparable work for a recent company project, as well as SoCalGas SME input, to create  
31 estimates for each of the 20 interface types. Key cost drivers for each interface type include: (1)

1 the type of the system call, (2) payload size, (3) the complexity and number of fields.  
 2 Approximately 119,300 hours were projected for these activities. Internal labor was allocated by  
 3 year to align with the project schedule, with approximately 90 percent of the hours projected  
 4 from 2027 through 2029.

5 **(5) Connected Deployment Systems**

6 SoCalGas is requesting \$1.980 million in direct O&M costs and ~~\$21.571~~\$20.834 million  
 7 in direct capital costs, totaling ~~\$23.552~~\$22.814 million in direct costs to modify the Connected  
 8 Deployment Systems as needed to support module deployment. Table III-19 below provides the  
 9 Connected Deployment Systems costs by cost type (O&M and capital). Table III-20 below  
 10 summarizes the Connected Deployment Systems costs by cost category. Additional detailed cost  
 11 information and assumptions can be found in my supporting workpapers (SCG-III-WP, WP3-  
 12 07).

13 **Table III-19**  
 14 **Connected Deployment Systems Total Costs by Year**  
 15 **In 2025 \$ (000s)**

Forecasted Years: 2025-2029					
Cost Type	2025	2026	2027	2028	2029
O&M	\$ -	\$ -	\$ -	\$ -	\$ -
Capital	-	-	2,084	6,050	4,597
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,084</b>	<b>\$ 6,050</b>	<b>\$ 4,597</b>

Forecasted Years: 2030-2034						
Cost Type	2030	2031	2032	2033	2034	Total
O&M	\$ 264	\$ 264	\$ 484	\$ 484	\$ 484	\$ 1,980
Capital	2,838	1,642	1,616	1,348	657	20,834
<b>Total</b>	<b>\$ 3,102</b>	<b>\$ 1,906</b>	<b>\$ 2,100</b>	<b>\$ 1,832</b>	<b>\$ 1,141</b>	<b>\$ 22,814</b>

Forecasted Years: 2025-2029					
Cost Type	2025	2026	2027	2028	2029
O&M	\$ -	\$ -	\$ -	\$ -	\$ -
Capital	-	-	2,355	6,927	5,215
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,355</b>	<b>\$ 6,927</b>	<b>\$ 5,215</b>

Forecasted Years: 2030-2034						
Cost Type	2030	2031	2032	2033	2034	Total
O&M	\$ 264	\$ 264	\$ 484	\$ 484	\$ 484	\$ 1,980
Capital	2,564	1,252	1,247	1,080	931	21,571
<b>Total</b>	<b>\$ 2,828</b>	<b>\$ 1,516</b>	<b>\$ 1,732</b>	<b>\$ 1,564</b>	<b>\$ 1,415</b>	<b>\$ 23,552</b>

**Table III-20**  
**Connected Deployment System Total Costs by Cost Category**  
**In 2025 \$ (000s)**

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Category</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
Equipment and Software	\$ -	\$ -	\$ 126	\$ 1,398	\$ 553
External Labor	-	-	1,308	3,732	3,104
Internal Labor	-	-	650	920	941
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,084</b>	<b>\$ 6,050</b>	<b>\$ 4,597</b>

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Category</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
Equipment and Software	\$ 1,761	\$ 1,244	\$ 1,219	\$ 951	\$ 260	\$ 7,513
External Labor	964	285	285	285	285	10,246
Internal Labor	377	377	597	597	597	5,055
<b>Total</b>	<b>\$ 3,102</b>	<b>\$ 1,906</b>	<b>\$ 2,100</b>	<b>\$ 1,832</b>	<b>\$ 1,141</b>	<b>\$ 22,814</b>

<b>Forecasted Years: 2025-2029</b>					
<b>Cost Category</b>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
Equipment and Software	\$ -	\$ -	\$ 126	\$ 1,398	\$ 565
External Labor	-	-	1,579	4,609	3,709
Internal Labor	-	-	650	920	941
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,355</b>	<b>\$ 6,927</b>	<b>\$ 5,215</b>

<b>Forecasted Years: 2030-2034</b>						
<b>Cost Category</b>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<b>Total</b>
Equipment and Software	\$ 1,487	\$ 854	\$ 850	\$ 682	\$ 534	\$ 6,497
External Labor	964	285	285	285	285	12,000
Internal Labor	377	377	597	597	597	5,055
<b>Total</b>	<b>\$ 2,828</b>	<b>\$ 1,516</b>	<b>\$ 1,732</b>	<b>\$ 1,564</b>	<b>\$ 1,415</b>	<b>\$ 23,552</b>

The total forecast for Equipment and Software is ~~\$6.497~~\$7.513 million. These costs include all equipment and software-related costs required to support module deployment. This forecast includes equipment, software licensing, software customization, and data storage. All software costs below were based on current pricing contracts between SoCalGas and its software vendors.

1. Software Licensing Costs – ~~\$2.695~~\$3.154 million: This forecast includes license costs for (1) Mobile Workforce Management System, (2) Planning Scheduling Optimization tool, and (3) Dispatch System. The forecast is based on a per-user (field technician) licensing fee. Software licensing costs are projected to begin in 2029 with approximately 30 users, scale to over 500 users by 2031, and then decline to approximately 75 users by 2034 as the number of field technicians decreases.
2. Subscription and Software Fees - \$1.981 million: This forecast is primarily for subscription fees for development, QA, and performance-testing environments, as well as software costs for a data simulator. The forecast for subscription fees is based on a per-unit cost and software costs were based on an annual licensing cost. Subscription and software fees are projected to occur from 2027 through 2029.
3. Data Storage Costs – ~~\$0.288 million~~: This forecast is for data storage costs for the AMIR Customer Contact Center. The forecast is based on the current call center pricing for retention services, with costs expected to be incurred in 2034. See Software Vendors below.
4. Route-Planning Software – ~~\$0.660~~\$1.472 million: This forecast is for the purchase of new route planning software to support geographically clustered and efficient work routes for field technicians. Data storage costs are priced by annual licensing cost and are projected to occur from 2029 through 2034.
5. Handheld Device Equipment - ~~\$0.873~~\$0.906 million: This forecast is for the purchase of handheld device equipment from the AMI Technology Vendor. This equipment will interface with the modules to execute activation and deactivation commands performed by field technicians. The forecast for equipment pricing is based on the RFP responses received from the competitive solicitation process after determining quantities required and applying per-unit pricing. Handheld devices are projected to be purchased at one time by 2030.

1 The total forecast for External Labor is ~~\$12.000~~\$10.246 million which includes costs for  
2 professional services to make required modifications to Connected Deployment Systems. A  
3 forecast summary for each External Labor Vendor is provided below.

- 4 1. Customer Information Systems (CIS) Integration Vendor - ~~\$3.600~~\$2.515  
5 million: This forecast includes costs to modify the CIS system to  
6 accommodate AMIR-related work orders. The forecast is based on  
7 discussions with SoCalGas SME input. CIS Software vendor modification  
8 support costs are projected to occur from 2027 through 2029.
- 9 2. Software Vendors - ~~\$4.260~~\$3.591 million: This forecast includes costs for  
10 services to perform requisite enhancements to the Mobile Workforce  
11 Management tool, Dispatch System, ~~and~~ inventory management software,  
12 ~~and perform~~ Customer Contact Center enhancements and call storage.  
13 The forecast is based on vendor and SoCalGas SME input. Software  
14 vendor modification support costs are projected to occur from 2028  
15 through 2029.
- 16 3. SI Vendor – \$4.140 million: This forecast includes costs to support the  
17 planning and development of the data migration and interfaces between  
18 the AMI Core Systems and the Connected Deployment Systems. The SI  
19 Vendor cost forecast applies the same methodology as described for the  
20 HeadEnd System, utilizing vendor proposals, SME input, and allocation of  
21 labor hours across workstreams using a blended billing rate. SoCalGas  
22 allocated 16,000 hours to the Connected Deployment Systems SI  
23 workstream. SI vendor costs are projected to occur from 2027 through  
24 2030, and then remaining services to maintain the system are projected to  
25 be performed from 2030 through 2034.

26 The total forecast for Internal Labor is \$5.055 million to gather technical requirements  
27 and develop a deployment technology solution for Connected Deployment Systems. This  
28 includes labor to configure data exchanges and interfaces to support internal systems, and  
29 accommodate the new data required to meet system functionality. The forecast was developed  
30 using bottom-up cost estimating with SoCalGas SME input, informed by the initial AMI  
31 deployment, and comparable company projects. Approximately 29,400 hours are projected from

1 2027 through 2029 in support of the system planning, development, and testing activities,  
2 followed by approximately 27,000 hours forecasted from 2030 through 2034 for stabilization and  
3 maintenance through the end of deployment.

#### 4 **IV. AMIR PROJECT TECHNOLOGY TEAM ORGANIZATION AND ROADMAP**

##### 5 **A. AMIR Project Technology Team**

6 The AMIR Project Technology Team will provide the organizational structure and skilled  
7 resources necessary to execute the technology activities and deliver the roadmap described in  
8 Section IV.B. This team structure will support the delivery of a coordinated technology  
9 implementation.

10 The AMIR Project Technology Team will consist of employees with expertise in AMI  
11 operations, IT integration, data management and governance, project management, and  
12 connected enterprise systems. SoCalGas will leverage experience gained from the  
13 implementation of the existing AMI system as well as other comparable projects, to guide design  
14 decisions, data-conversion activities, and vendor coordination. At the peak, more than 85 project  
15 team members are expected to support the technology activities for the project, including system,  
16 network and domain architects, IT specialists, product owners, scrum masters, business analysts,  
17 testers, and change management professionals. The AMIR Project Technology Team will  
18 facilitate knowledge transfer and business process alignment to deliver continued performance of  
19 the AMIR Project once deployed.

20 A project of this size requires specialized vendor expertise. SoCalGas will employ a  
21 multi-vendor strategy through competitive solicitation processes to maximize technical  
22 competence and cost efficiency.

23 The AMIR Project Technology Team will be organized by workstream as follows:

- 24 • Functional Teams - responsible for overall solution strategy, architecture,  
25 business process design, data governance, and cybersecurity. Functional teams  
26 will also be responsible for vendor selections, proof of concepts, vendor  
27 demonstrations, vendor technology management, and oversight of all systems in  
28 scope (*see* Figure III-1).
- 29 • Technical Teams – responsible for all technology and systems, including  
30 middleware, system integrators, AMI Technology Vendor, requirements  
31 gathering, security strategy and execution, data cleansing and conversion, data  
32 transformation services execution, connected systems remediations,  
33 decommissioning approach, and cloud implementation.

- 1 • Testing Teams – responsible for technology component testing including system  
2 integration testing, environment testing, user acceptance testing, regression  
3 testing, and performance testing, including validation of data migration and  
4 business processes.
- 5 • Organizational Readiness Team – responsible for the people, processes, and  
6 supporting functions required to adopt and sustain the new technologies, systems,  
7 and business impact and processes.
- 8 • Security Team – responsible for security strategy, security implementation and  
9 penetration testing, user access roles, procedures to protect company equipment  
10 and user data, and vendor product testing.
- 11 • Technology Decommissioning Team – responsible for the retirement of legacy  
12 systems and network equipment.

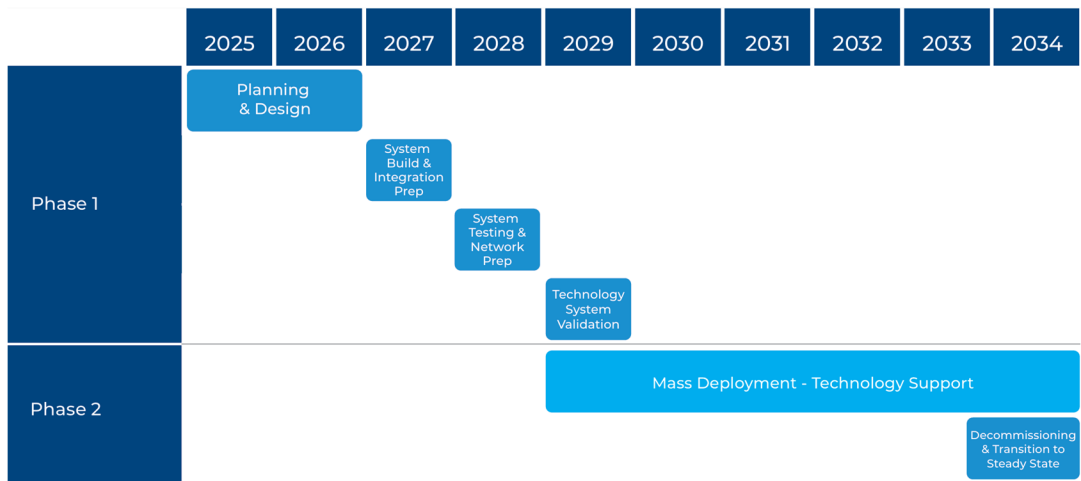
13 Each technology workstream will have defined deliverables, milestones, and performance  
14 metrics, with periodic reviews to assess progress. The AMIR Project Technology Team will  
15 report project status updates to the AMIR Project Management Office (PMO), which will  
16 provide overall governance, coordination, and oversight of all workstream activities. For more  
17 details regarding the PMO, refer to the Direct Testimony of Linden S. Olah (Chapter IV).

18 **B. AMIR Project Technology Roadmap (2025 – 2034)**

19 The AMIR technology roadmap defines two primary phases of implementation: (1)  
20 technology planning, build, and testing (2025-2029); and (2) mass deployment and  
21 decommissioning (2030-2034). This phased approach supports operational continuity, system  
22 reliability, and cybersecurity needs throughout the transition from the existing AMI system to the  
23 replacement platform, while maintaining data integrity and the AMI benefits described in the  
24 Direct Testimony of Jennifer L. Walker (Chapter I).

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**Figure III-3**  
**AMIR Technology Roadmap and Timeline**  
**2025 – 2034**



4

1                   **1. Phase 1: Technology Planning, Build, and Testing (2025 – 2029)**

2                   **a. 2025 – 2026 – Planning and Design**

3                   The planning years of the AMIR Project will be focused on finalizing vendor selection,  
4                   executing third-party contracts, and establishing the technology program management team and  
5                   structure. During this period, SoCalGas will complete detailed architecture and design activities  
6                   for the AMI Core Systems (the HeadEnd System, the MDM System, and the NEMO System).

7                   Key activities include:

- 8                   • Finalizing system requirements and data architecture based on RFP vendor inputs  
9                   and internal SME review;
- 10                  • Coordinating design alignment across dependent enterprise systems and other  
11                  concurrent IT programs;
- 12                  • Defining the cloud-hosting environment and cybersecurity framework consistent  
13                  with SoCalGas’s IT standards; and
- 14                  • Developing the detailed schedule and associated costs.

15                  This period will be the foundation for determining the final cloud configuration  
16                  standards, sequencing for integration testing, and identification of systems requiring remediation  
17                  to interface with the new AMI platform.

18                   **b. 2027 – System Build and Integration Preparation**

19                  In 2027, SoCalGas and selected consultants will begin configuration and development of  
20                  the new AMI Core Systems. The HeadEnd System and the MDM System will be implemented  
21                  on a cloud platform and integrated with internal systems to establish the data flow between the  
22                  Communication Network and SoCalGas Systems. Key activities include:

- 23                  • A structured remediation plan which will proceed along with architecture and  
24                  design of a data transformation platform to mitigate system impacts of Connected  
25                  Systems. Connected Systems vendors and relevant SoCalGas departments will be  
26                  engaged to progress interface development and data alignment;
- 27                  • Configuration and customization of vendor software;
- 28                  • Development of Application Programming Interfaces and other types of data  
29                  exchanges to re-establish data flow between the AMI Core Systems and  
30                  Connected Systems;
- 31                  • System modifications and solution development to support work dispatching,  
32                  routing, and work order application and management in support of the  
33                  deployment workforce;
- 34                  • An RFP will be issued to evaluate the landscape and select a vendor for the  
35                  NEMO System;

- Initial setup of the AMI Core Systems, including detailed requirements; and
- Preparation for propagation modeling and network design for replacement Communication Network.

**c. 2028 – System Integration Testing and Network Preparation**

In 2028, focus shifts to comprehensive system integration and validation testing. The network installation vendor will be selected and support endpoint propagation modeling and preliminary equipment procurement. Key activities include:

- Test completion of the HeadEnd System and the MDM System;
- Integration testing with customer billing, field work management, and data analytics platforms;
- Development and testing of the NEMO System and Connected Deployment System;
- RFP to select a network deployment vendor;
- Execution of cybersecurity and privacy validation reviews;
- Completion of deployment-support applications and call-center systems required for the module replacement rollout; and
- System and integration work to support the AMIR deployment to allow for full regression testing of these systems and functionality in 2029.

**d. 2029 – Technology System Validation**

The 2029 project year serves as a bridge between system build and field deployment. Evaluate and validate the data transfer and end-to-end system performance of approximately 25,000 modules to establish readiness for full deployment.<sup>10</sup> Key activities include:

- Data validation of network performance and module communication;
- Parallel operations of the legacy and new AMI systems to confirm data consistency and billing efficiency;
- Final adjustments to Connected Deployment Systems, workforce scheduling tools, and reporting interfaces;
- End-to-end regression testing of the AMI ecosystem including downstream connected systems; and
- Performance testing for cloud software systems.

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<sup>10</sup> For more information regarding field deployment, refer to the Direct Testimony of Linden S. Olah (Chapter IV).

1                   **2. Phase 2: Technology Support for Mass Deployment and Network**  
2                   **Equipment Decommissioning (2029 – 2034)**

3                   **a. 2029 – 2034 – Technology Support for Mass Deployment**

4                   Following successful technology system validation completion in 2029, SoCalGas will  
5 conduct the full five-year mass deployment of over 6 million modules. Key technology activities  
6 include:

- 7                   • Data flow and functional validation for replaced AMI system
- 8                   • Coordinating network deployment with geographically phased module  
9                   deployment;
- 10                  • Maintaining dual-system operation to maintain uninterrupted billing and data  
11                  collection;
- 12                  • Continuous performance monitoring through the NEMO System analytics  
13                  dashboards; and
- 14                  • Transitioning completed regions to steady-state operations and initiating legacy  
15                  system decommissioning in corresponding areas.

16                   **b. 2034 – Network Equipment Decommissioning and Transition**  
17                   **to Steady State**

18                  Upon completion of deployment, SoCalGas will retire legacy AMI network systems.  
19 Key technology activities include:

- 20                  • Full cutover to the new AMI platform for all customers;
- 21                  • Decommissioning of obsolete network equipment;
- 22                  • Transfer of responsibility to relevant SoCalGas teams; and

23 **V. CONCLUSION**

24                  The technology components and activities described in my testimony form the core of the  
25 AMIR Project. These replacements, including the Endpoints, the Communication Network,  
26 SoCalGas Systems (e.g., the HeadEnd System, the MDM System, and the NEMO System), and  
27 Connected Systems (e.g., AMI Support Systems, and Connected Deployment Systems) are  
28 essential to maintain the functionality, reliability, and cybersecurity of SoCalGas’s AMI  
29 platform. The cost forecasts, technology team organization, and implementation approach  
30 provide a prudent and cost-efficient plan for achieving this systemwide replacement.

31                  This concludes my prepared direct testimony.  
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1 **VI. WITNESS QUALIFICATIONS**

2 My name is Amy D. Vulin. I am employed by Southern California Gas Company  
3 (SoCalGas), and my current position is Group Product Manager within the Customer Systems  
4 and Technology department where I have overall responsibility for the planning, organization  
5 and execution of the technology portion of the AMIR Project. My business address is 555 West  
6 Fifth Street, Los Angeles, CA 90013. I have over 20 years of experience with SoCalGas utility  
7 operations and technology. At SoCalGas I have held a variety of management positions in  
8 Advanced Meter Operations, Customer Service Field Technology, and Customer Strategy. Prior  
9 to joining SoCalGas, I worked for Bonterra Consulting and the City of Huntington Beach. I have  
10 a bachelor's degree in Geography and GIS from California State University at Long Beach. I  
11 have not previously testified before the Commission.