BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Application of Pacific Gas and Electric Company for Comprehensive Gas Advanced Metering Infrastructure Replacement Program (U 39 M)	Application No. 24-03-011

JOINT SUPPLEMENTAL STATEMENT OF PACIFIC GAS AND ELECTRIC COMPANY (U 39 M), THE PUBLIC ADVOCATES OFFICE AT THE CALIFORNIA PUBLIC UTILITIES COMMISSION, THE UTILITY REFORM NETWORK, AND SMALL BUSINESS UTILITY ADVOCATES FOR ADOPTION OF SETTLEMENT AGREEMENT

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I. INTRODUCTION

Pursuant to the October 17, 2025 Administrative Law Judge's Ruling Directing Second Filing of Supplemental Information, Pacific Gas and Electric Company ("PG&E"), the Public Advocates Office at the California Public Utilities Commission ("Cal Advocates"), The Utility Reform Network ("TURN"), and Small Business Utility Advocates ("SBUA") (hereinafter collectively referred to as the "Settling Parties")[1] hereby submit this second supplemental statement addressing how the Commission's approval and adoption of the proposed Settlement Agreement resolving PG&E's *Comprehensive Gas Advanced Metering Infrastructure Replacement Program Application* ("GAMI Replacement Application") would address or otherwise resolve Issues 7, 8 and 9 identified in the Scoping Memo in a manner that comports with Commission Rule of Practice and Procedure 12.1(d).

II. SUMMARY OF PARTIES' LITIGATION POSITIONS CONCERNING SCOPING MEMO ISSUES 7, 8 AND 9

Scoping Memo Issues 7, 8 and 9 relate to whether PG&E bears some responsibility for the failure of Gas AMI 1.0 Modules prior to end of their 15 year service lives—a contested issue in PG&E's 2023 General Rate Case ("GRC"), in which PG&E requested approval of approximately $36.5 million in expense and approximately $743.9 million in capital

[1] Pursuant to Rule 1.8(d), PG&E is authorized to file this Joint Supplemental Statement on behalf of the parties listed in this paragraph.

expenditures in 2023-2026 to replace Gas Modules that have failed or were expected to fail.[2] In PG&E's 2023 GRC, Cal Advocates and TURN recommended removing costs associated with replacing Gas Modules from PG&E's forecast, including the cost of replacing all the Gas AMI 1.0 Modules that failed prior to the end of their service lives.[3] TURN argued that PG&E should be required to provide evidence on the degree of responsibility for the earlier-than expected failures of Gas Modules.[4] TURN also argued that PG&E should present a proposal that shares costs between ratepayers and shareholders. Similarly, Cal Advocates recommended that capital costs for replacement of Gas Modules should be shared among ratepayers, shareholders, and the Gas Module manufacturer.[5] Accordingly, the Commission adopted a forecast of $0 for replacing Gas Modules for 2023-2026, but allowed PG&E to file a separate application seeking cost recovery for Gas AMI Replacement.[6]

In response to PG&E's Gas AMI Replacement Application, the parties again raised the issue of whether PG&E bears any responsibility for the earlier-than-expected Gas Module failures as an issue within the scope of this proceeding. The Scoping Memo identified the following three issues that relate to this issue:

Issue 7: Whether the installation and/or maintenance of PG&E's first-generation Gas AMI 1.0 system is tied to any failure, error, or noncompliance on PG&E's part.

Issue 8: Whether PG&E's GAMI Replacement Program costs should be allocated between ratepayers and shareholders.

Issue 9: What is the appropriate ratemaking and cost recovery treatment for any remaining investment in PG&E's removed Gas AMI 1.0 modules.

The Settling Parties took varied positions regarding these issues. PG&E submitted evidence in Chapter 4 of its Prepared Testimony to demonstrate that it acted prudently in installing and maintaining its first-generation Gas AMI 1.0 system, including that the ultimate factor that led to earlier-than-expected failures of Gas Modules involved battery life rather than

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[2] PG&E's March 14, 2024 Application 24-03-011, p. 2.

[3] D.23-11-069, p. 541.

[4] D.23-11-069, p. 541.

[5] D.23-11-069, pp. 541-42.

[6] D.23-11-069, p. 545.

any error or noncompliance on PG&E's part. Based on this evidence, PG&E argued that it does not bear responsibility for the failures of the Gas Modules earlier than expected, and that no shareholder funding is warranted.[7]

In its testimony, Cal Advocates provided a history of Commission decisions concerning the mitigation of so-called "stranded assets," and testified that PG&E (in addition to its Gas Module supplier) bears some responsibility for earlier-than-expected Gas Module failures.[8] As a result, Cal Advocates recommended that PG&E be required to present testimony that discusses how (or if) it plans to handle the stranded assets and resulting costs associated with the early retirement of its original Gas Modules.[9]

In its testimony, TURN stated:

> TURN is concerned that the allocation of responsibility, and therefore costs, for premature equipment failures is placed solely on ratepayers, rather than shared by PG&E's shareholders who are still profiting from the initial deployment, despite early failures.[10]

As its primary recommendation, TURN recommended that "the Commission deny PG&E's Application and instruct PG&E to perform a comprehensive root cause analysis to establish the cause(s) of each type of early failure to avoid recurring failures and conclusively attribute responsibility for early failures."[11] As the first alternative to its primary recommendation, TURN recommended that PG&E earn zero return on any stranded assets in rate base, and the replacement costs for premature failures be shared equally between ratepayers and shareholders.[12]

In its testimony, SBUA asserted that, because some Gas Modules failed before the expiration of their service lives, "[t]here must be some consequences to the shareholders of

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[7] Chapter 4 of PG&E's prepared testimony is attached as Exhibit A.

[8] CA-02, pp. 20-24. Cited excerpts from Cal Advocates' testimony are attached as Exhibit B.

[9] CA-02, pp. 24-30.

[10] TURN-01, p. 5. Cited excerpts from TURN's testimony are attached as Exhibit C.

[11] TURN-01, pp. i, 5-6.

[12] TURN-01, p. 6.

PG&E for this failure."[13] SBUA further recommended that the Commission require PG&E to include at least $10 million in shareholder funds into the Gas AMI Replacement Program.[14]

In rebuttal, PG&E submitted, "Chapter 4 Rebuttal Testimony of Remaining Investment in Gas AMI 1.0 Retired Assets," arguing that there are no stranded costs associated with Gas AMI 1.0 Modules.[15] In addition, to be responsive to Cal Advocates' request that PG&E "quantify the magnitude of the undepreciated portions of those original Gas AMI 1.0 modules that have prematurely failed (and been replaced), as well as the magnitude of the returns associated with those remaining modules,"[16] PG&E calculated $9.83 million of undepreciated plant balances for Gas AMI 1.0 Modules that were replaced between 2023-2026 before they had reached the end of their 15-year service lives.[17] PG&E's calculation of $9.83 million of undepreciated plant balances for Gas AMI 1.0 Modules that were replaced between 2023-2026 before reaching the end of their service lives is explained in a response to a Cal Advocates' data request.[18] In addition, PG&E calculated approximately $1.049 million of revenue requirement associated with the Return on Equity ("ROE") on the $9.83 million of undepreciated plant balances for Gas AMI 1.0 Modules that were replaced between 2023-2026 before reaching the end of their service lives.[19]

III. THE PROPOSED GAS AMI SETTLEMENT AGREEMENT RESOLVES SCOPING MEMO ISSUES 7-9 IN COMPLIANCE WITH RULE 12.1(d)

The proposed Settlement Agreement represents a compromise of the parties' litigation positions concerning these issues. In particular, the Settling Parties each made several concessions with respect to Scoping Memo Issues 7-9 (as well as other contested issues) in order to reach an all-party settlement. *First*, the Settling Parties agreed to reduce the adopted 2023-

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[13] SBUA-01, p. 10. Cited excerpts from SBUA's testimony are attached as Exhibit D.

[14] SBUA-01, pp. 10-22.

[15] See Chapter 4 of PG&E's Rebuttal Testimony, pages 4-2 through 4-3, for a summary of the conclusions reached in Chapter 4. Cited excerpts of PG&E's Rebuttal Testimony are attached as Exhibit E.

[16] CA-02, p. 24.

[17] PG&E Rebuttal Testimony, p. 1-10.

[18] See PG&E's data request response to Cal Advocates_010-Q003, attached as Exhibit F.

[19] PG&E Rebuttal Testimony, p. 5-6.

2026 capital expenditure forecast from $485.058 million to $420.0 million, a reduction of approximately $65 million.[20] *Second*, the Settling Parties agreed to reduce the adopted 2023-2026 expense forecast from $11.173 million to $4 million, a reduction of approximately $7.1 million.[21] *Third*, the Settling Parties agreed that the adopted revenue requirement for 2023-2026 will be reduced by $1.049 million to reflect the calculation described above of the undepreciated portions of the Gas Modules that failed and were replaced prior to reaching 15 years of age.[22] As a result of these concessions made by the Settling Parties, the adopted revenue requirements for 2023-2026 total approximately $88.6 million, approximately $17 million lower than PG&E's request.[23]

The Settling Parties reached agreement on these issues (and others) after considering the possibility that each party may or not prevail on any given issue.[24] The agreed-upon reductions required all parties to move off their strongly-held litigation positions. Commission approval of the proposed Settlement Agreement will resolve Issues 7-9 in the following manner:

Issue 7: The agreed-upon $1.049 million reduction to the 2023-2026 revenue requirement to reflect no ROE earned by PG&E for the approximately $9.83 million in undepreciated plant for the Gas Modules that failed and were replaced prior to reaching 15 years of age is a reasonable compromise among the Settling Parties concerning the issue of whether earlier-than-expected Gas AMI 1.0 Module failures were tied to any failure, error, or noncompliance on PG&E's part.

Issue 8: The Settlement Agreement does not include an explicit allocation of Gas AMI Replacement Program costs among ratepayers and shareholders. However, the agreed-upon approximately $65 million reduction to PG&E's 2023-2026 authorized capital expenditures, and approximately $7.1 million reduction to PG&E's 2023-2026 authorized expenses, is a reasonable

[20] See Settlement Agreement, Sections 2.2 and 3.2.

[21] See Settlement Agreement, Sections 2.2 and 3.1.

[22] See Settlement Agreement, Section 3.3.

[23] See Settlement Agreement, Sections 2.20 and 3.4.

[24] See Settlement Agreement, Section 4.2.

compromise among the Settling Parties concerning the capital expenditures and expenses that should reasonably be recovered from ratepayers.

Issue 9: The agreed-upon $1.049 million reduction to the 2023-2026 revenue requirement to reflect no ROE earned by PG&E for the approximately $9.83 million in undepreciated plant for the Gas Modules that failed and were replaced prior to reaching 15 years of age is a reasonable compromise among the Settling Parties concerning the appropriate ratemaking and cost recovery treatment for the remaining investment in PG&E's removed Gas AMI 1.0 Modules. The Settling Parties' agreement that PG&E will receive no ROE for the undepreciated plant for Gas Modules that failed and were replaced before reaching 15 years of age is an appropriate compromise of litigation positions among the Settling Parties.

The compromises discussed above are reasonable in light of the whole record. Each of the Settling Parties developed testimony that addressed Scoping Memo Issues 7-9. The Settling Parties' litigation positions with respect to these issues are clearly set forth and explained in their respective testimony, developed after engaging in a robust discovery period in which PG&E responded to over 200 data requests (including subparts) from the Settling Parties and participated in several additional informal technical meetings. The Settling Parties are representative of PG&E's customers. Cal Advocates and TURN are charged with advocating on behalf of PG&E's residential customers, and SBUA represents the interests of the small business customers. Through the discovery and settlement process, there has been a thorough discussion among PG&E, Cal Advocates, TURN, and SBUA regarding likely litigation positions concerning these issues, and responses to those positions, in order to come to a compromise settlement. All of this demonstrates that the compromises reached to resolve Scoping Memo Issues 7-9 are reasonable in light of the whole record.

The compromises described above are also consistent with law, in that they comply with all applicable statutes and prior Commission decisions including the Commission's decision in PG&E's 2023 GRC (D.23-11-069), which adopted a forecast of $0 for replacing Gas Modules, but allowed PG&E to file a separate application seeking recovery for the Gas AMI Replacement Program.[25]

[25] D.23-11-069, p. 541.

Finally, Commission adoption of the Settlement Agreement, including the compromises discussed above, is in the public interest. The Settling Parties' Agreement represents significant compromises of adverse litigation positions that would have been taken by the Settling Parties in the proceeding, and thus will avoid needless and contentious litigation and resource drain on the part of the parties and the Commission. None of the Settling Parties precisely obtained the outcome they desired, and all Settling Parties gave up and compromised on significant, strongly-held positions. Furthermore, adoption of the proposed $7.1 million reduction in expenses, $65 million reduction in capital expenditures, and additional $1.049 million reduction to the adopted revenue requirement from what PG&E proposed in the Application is in the public interest.

IV. CONCLUSION

The Settling Parties appreciate the Commission's careful consideration of the proposed Settlement Agreement, and continue to urge the Commission to adopt it because it is reasonable in light of the whole record, consistent with law, and in the public interest.

Respectfully Submitted,

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Dated: October 27,

EXHIBIT A

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 4
PRUDENCY OF MANAGEMENT OF AMI 1.0

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 4

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PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 4
PRUDENCY OF MANAGEMENT OF AMI 1.0

A. Introduction

This chapter demonstrates that Pacific Gas and Electric Company (PG&E or the Company) acted prudently in installing and maintaining its first-generation Gas Advanced Metering Infrastructure (Gas AMI 1.0 or SmartMeter™), consistent with the authorization provided by the California Public Utilities Commission (CPUC or Commission). PG&E, now and throughout the deployment of its AMI Program, has worked to protect its customers from undue risk, and balanced customer experience and cost when replacing end-of-life Gas Modules.

B. Early Large-Scale Adoption of SmartMeter™ in California

The Commission first evaluated and approved PG&E's SmartMeter™ deployment in 2006, finding the program just and reasonable in Decision (D.) 06-07-027. Specifically, the Commission found that:

> PG&E's proposal has sufficient probable and quantifiable economic operating and demand response benefits now, including sufficient flexibility to up-grade for enhanced features, over the expected 20-year useful life.[1]

At the time that PG&E filed its SmartMeter™ deployment application (2005), SmartMeter™ technology was a new and innovative approach to serving utility customers. No other utility had attempted to deploy an advanced metering program on such a large scale, rendering it impossible to project the useful life of each part of the new system with certainty.

The CPUC recognized this when it first approved PG&E's widespread deployment of Gas AMI, noting that:

> Although PG&E expects the system to remain in service for 20 years, **only time will tell whether there will be significant unforeseen developments—good or bad—that may lead to an earlier or later replacement of the AMI system**.[2]

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1 D.06-07-027, p. 10.

2 D.06-07-027, pp. 27-28 (emphasis added).

Accordingly, PG&E took extensive action to prudently address and mitigate uncertainty and risk, from the initial Gas AMI 1.0 Request for Proposal (RFP) process, through the deployment and installation of the Gas AMI 1.0 System, to securing an extended warranty from its Gas AMI supplier, and through the post-installation management of the system and warranties. These steps are addressed in this chapter.[3]

1. PG&E's RFP and Vendor Selection

PG&E selected its Gas AMI 1.0 vendors and products after performing a detailed, extensive RFP and evaluation process that included 77 proposals, with at least five specifically related to Gas Modules. In connection with the RFP, PG&E required these vendors to demonstrate that their proposed technologies had been tested, could be deployed at the scale required by PG&E, and had a proven track record of reliability (even if on a smaller scale). PG&E developed a detailed evaluation and selection process to consider various risk considerations, including product maturity, vendors' experience in AMI deployments, and the products vendors had used for other utilities' AMI installations.

PG&E performed detailed product assessments with each of the vendors involved in the RFP, reviewing extensive details about the products, including designs, raw materials, and manufacturing processes. In addition, PG&E visited manufacturing sites to evaluate these vendors' quality assurance procedures. PG&E also evaluated studies of the estimated meter module battery life and overall expected useful product life.[4]

At the time of PG&E's Gas AMI 1.0 Application, several utilities in the United States had begun to deploy AMI technology, though on a much smaller scale. PG&E's Gas AMI technology evaluation and vendor selection process involved consultation with other utilities and consultants who had direct experience with AMI implementations.

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3 See Appendix B, Glossary of Key Terms, for additional explanations of terminology used in this chapter.

4 See WP 4-1, "Product Adoption Protocol," which includes an example of a recent Gas Module standard asset management and product evaluation process implemented by PG&E.

2. PG&E Conducted a Field Pilot Before Deployment of the Gas AMI 1.0 System

Before starting its full deployment of the Gas AMI 1.0 System, PG&E conducted a months-long field pilot in Vacaville, California. The pilot included the installation of more than 2,650 gas and 2,350 electric AMI devices at customer homes and businesses. PG&E engaged International Business Machines (IBM)—a highly experienced system integrator—to design many of the tests and perform multiple testing protocols. IBM had experience working with AMI systems and operated a state-of-the-art, scalable lab through which they performed and evaluated high volumes of tests. PG&E also performed multiple tests: unit testing, factory acceptance testing, system acceptance testing, and quality assurance testing upon each shipment that it received from its AMI vendors. In addition to confirming the viability of the field devices, PG&E evaluated and confirmed many aspects of the installation process, materials handling, software, and systems operations during the pilot period. PG&E also studied meter module installation methodologies. Further, PG&E evaluated any inadvertent billing exceptions or billing inquiries that resulted from meter exchange transactions.

Through the field pilot, PG&E demonstrated that the products and related software met the Company's criteria for proceeding to contract with the vendors that PG&E had selected through the RFP.

3. PG&E Secured an Extended Supplier Warranty for Customers

PG&E secured a warranty from its Gas Module supplier to support any product claims that might arise over the expected product life. At the time that PG&E entered the contract, it was (to PG&E's knowledge) the longest warranty ever secured in the industry, far exceeding the typical one to three-year warranties that PG&E had found other utilities had negotiated.

It was—and remains PG&E's view—that such an extended warranty represented a significant, reasonable, and practical way to manage and mitigate the risks of product failure, particularly in light of what PG&E could know about SmartMeter™ technology in that timeframe. The negotiated warranty provided PG&E with a credit for the remaining value of an installed Gas Module after taking into account the number of years that the Gas

Module provided effective service. For example, if a Gas Module experienced a product-related failure after 17 years in service (i.e., after a customer benefited from its use for 17 years), then PG&E maintained a residual warranty covering the value for the remainder of the 20-year warranty term, i.e., the last three years of the Gas Module's projected 20-year life.[5]

4. PG&E's Regular Reporting to the Commission and Parties Throughout Its Gas AMI Deployment

PG&E responsibly managed the deployment of its Gas AMI system, consistent with practices that PG&E, intervenors, and the Commission developed through PG&E's original Gas AMI case and that the Commission ordered in D.06-07-027. Specifically, from 2006-2013, PG&E: (a) monitored advances in AMI technology, (b) conducted assessments of AMI system operating performance based on performance criteria established in consultation with the Commission's Energy Division and the Division of Rate Payer Advocates (DRA) (now known as the Public Advocates Office at the California Public Utilities Commission, or Cal Advocates), and (c) assessed the system's ability to provide near real-time usage data, and customer interest in receiving such data.[6] In addition, PG&E filed semi-annual reports to keep the Commission's Energy Division, Cal Advocates, and other parties to Application (A.) 05-06-028 informed of AMI deployment and AMI product performance.[7] PG&E's semi-annual assessments:

> …include[d] general information on advances in metering technology and infrastructure with specific information, when available, on (1) meter/meter module reliability, (as well as) (2) meter/meter module costs and performance....[8]

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5 For example, see confidential WP 4-2, "Gas Module Warranty Discount Schedule."

6 PG&E, intervenors, and the CPUC developed this forward-looking management regimen in PG&E's original Gas AMI case.

7 See, for example, A.05-06-028, Fourteenth Semi-Annual Assessment Report on the Deployment of its AMI Program and Fourteenth Quarterly Report on the implementation progress of its SmartMeter™ Program Upgrade (Dec. 19, 2014), p. 19.

8 D.06-07-027, p. 58.

PG&E also semi-annually conferred with representatives of the Energy Division and Cal Advocates to discuss the scope of topics to be addressed and the metrics by which the Gas AMI system was to be assessed.

C. Oversight and Management Following AMI 1.0 Deployment

Since the completion of PG&E's AMI deployment in 2013, PG&E has instituted significant, effective asset management practices to mitigate Supplier Quality Assurance (SQA) risks. PG&E has sought to reduce costs to customers associated with these risks, including continuously monitoring Gas Module performance and regularly coordinating with suppliers to review performance trends, conduct root cause failure analyses, and implement effective solutions to identified challenges.

1. Quality Assurance Practices

PG&E's SQA Department performs critical AMI product quality oversight to identify, prevent, and reduce risks associated with defective materials originating from the supply chain. PG&E's SQA utilizes rigorous, industry-accepted quality assurance standards to ensure that suppliers have the necessary internal processes and controls in place to manufacture and deliver materials that meet PG&E's high quality and minimal defect requirements. PG&E's quality assurance processes include testing to identify defects prior to releasing new inventory into the field. Testing includes out-of-box visual inspections and comprehensive product quality, performance, and reliability tests. PG&E also conducts periodic SQA reviews at the supplier's Gas Module manufacturing facilities to validate supplier adherence to industry standards. Enforcing these rigorous standards ensures that PG&E's equipment is safe and reliable. By identifying defects early, the Company eliminates potential maintenance and repair activities, reducing costs for customers.[9]

2. Gas Module Replacement Strategies

As discussed in Chapter 2, in addition to PG&E's continued replacement of Gas Modules after failure (Required Maintenance), the Company implemented a focused programmatic Gas Module replacement program in

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9 See WP 4-3, "Gas AMI Supplier Quality Program" for additional information regarding PG&E's Supplier Quality Assurance Program.

select geographic areas to realize efficiencies and economies of scale that increased productivity and lowered costs (Lifecycle Replacement). Additionally, PG&E implemented a program to efficiently identify failed Gas Modules that qualify for warranty coverage and to process the resulting warranty claims with the supplier (Warranty Returns Program). This process includes root-cause failure analysis in appropriate cases. The Company also completed a program under the warranty in which the supplier replaced extended range Gas Modules that had experienced particularly high early failure rates (Supplier Warranty Replacements). In 2023, PG&E completed a comprehensive Gas AMI technology RFP and developed a Gas AMI technology roadmap to address the Company's and its customers' current and future needs. PG&E's actions regarding its Gas AMI Remaining Life Statistical Model, Gas Module Warranty Returns Program, including the Supplier Extended Range Warranty Module Replacement Project, and vendor selection for next-generation AMI technology are further detailed below.

a. Remaining Life Statistical Model Projections for Gas Modules

In 2015, PG&E's supplier advised that some of its Gas Modules might fail earlier than their projected 20-year life. PG&E promptly took action to protect its customers, including engaging with the supplier on the problem, monitoring and assessing early Gas Module failure rates, performing failure rate studies, expanding quality assurance product testing, conducting field-based root cause analyses, replacing failed Gas Modules, activating the Supplier Warranty Program, and monitoring the AMI technology marketplace.[10]

PG&E monitored failure rates to make a data-informed decision on whether it would be more cost-effective to proactively replace Gas Modules on a lifecycle basis based on their expected end-of-life, rather than after they fail. PG&E retained a third-party consultant, Exponent, a leading engineering consulting firm, to perform failure rate analyses and to assess the remaining life of installed legacy standard range Gas

10 PG&E also notified the Commission and parties to the risk of earlier-than-expected Gas Module failure in 2018 when it filed its 2020 GRC. A.18-12-009, HE-91: Exhibit (PG&E-6), p. 6-16, line 9 to p. 6-17, line 23.

Modules (3.4 million as of June 2020). Using data from field-removed Gas Modules and applying a statistical model, the consultant forecasted how long PG&E's installed legacy standard range Gas Modules likely would remain in service. Exponent updated its failure rate statistical model study to analyze failure rates on a geographic basis (i.e., by division) within PG&E's service area.[11]

3. Gas Module Warranty Returns Program

PG&E worked with the supplier to establish and implement two distinct warranty programs for products that reached their end-of-life prior to the 20-year supplier warranty: one for extended range Gas Modules and one for standard range Gas Modules. These programs as described below have enabled the Company to realize warranty claims on behalf of its customers, which significantly reduced the cost of replacing failed Gas Modules.

a. Extended Range Module Replacements

In 2018, PG&E and its Gas AMI supplier agreed that PG&E could elect to have its supplier replace all the remaining legacy extended range Gas Modules at the supplier's cost. In addition, PG&E's supplier agreed that it would provide warranty credits to cover PG&E's replacement of any extended range Gas Modules that failed before they could be replaced by the supplier. PG&E largely completed replacing the legacy extended range Gas Modules in 2023 at the supplier's cost, significantly lowering the overall costs of Gas Module Replacement for customers. PG&E plans to replace the remaining approximately 18,000 extended range Gas Modules at the supplier's cost as part of this program.[12] The second-generation extended range Gas Modules will follow the enhanced electronic return process described above.

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[11] See Chapter 2, Section D, "Updated End-of-Life Study and Projections for Gas Modules," for more information on the failure forecast modeling.

[12] As of December 31, 2023, approximately 18,000 extended range Gas Modules remain. See WP 2-9, "Extended Range Warranty Replacements."

b. Standard Gas Module Returns

PG&E actively pursued and resolved claims with its Gas Module supplier on customers' behalf. In 2022, PG&E and its supplier settled warranty claims for legacy standard range Gas Modules. Additionally, PG&E and its supplier agreed to an enhanced electronic warranty return process for the second-generation Gas Modules to streamline the return and evaluation process and reduce operational costs.[13] PG&E's current forecast incorporates the amount of the supplier warranty compensation for both legacy and second-generation standard range Gas Modules.[14]

c. Warranty Credits Offset in This Application

PG&E has received a substantial benefit from the Gas Module supplier for legacy Gas Modules, significantly reducing PG&E's forecast in this Application.[15]

4. AMI Vendors Reselected for Next-Generation Products

As discussed in Chapter 3, PG&E selected its Gas AMI 1.0 vendor to continue supplying Gas AMI products and services. In addition, PG&E selected its current Electric AMI vendor to mitigate risk by providing a secondary supplier that has demonstrated to be equally capable of delivering Gas AMI products and services on a cost-effective basis.[16]

PG&E plans to upgrade to a next-generation Gas AMI System (Gas AMI 2.0) that will leverage currently available and emerging AMI metering technologies with additional safety, operational, and customer

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13 PG&E and its supplier have improved the original supplier warranty return process, reducing manual processes and leveraging data analytics.

14 See confidential WP 4-4, "Supplier Warranty Valuation in Application."

15 Total warranty benefits are detailed in confidential WP 4-5, "Supplier Warranty and Settlement Valuation." A summary description of the settlement can be referenced in confidential WP 4-6, "Supplier Settlement Summary."

16 PG&E has separate AMI Systems for providing Gas and Electric services. While its current one-way Gas AMI system will need to be replaced to prevent obsolescence, the Company does not currently expect its Electric AMI system will require any substantial systemwide lifecycle replacement in the foreseeable future. PG&E's Electric AMI is a two-way communicating system. The Electric SmartMeter™ devices are not battery-operated and have built-in network interface cards that facilitate communication capabilities from the meter.

service capabilities. For instance, the Gas AMI 2.0 system has the potential to provide alerts associated with pressure, temperature, flow and seismic events with automatic shutoff capabilities. This next-generation Gas AMI system also can enable methane detection devices. Furthermore, the Gas AMI system can provide on-demand reads of customer energy consumption as well as over-the-air firmware updates.[17]

D. Conclusion

PG&E has acted prudently in deploying and managing its Gas AMI 1.0 System. Smart metering was a new technology that has laid the foundation for significant utility advances and PG&E successfully managed its comprehensive deployment. Since discovering that some Gas Modules fail earlier than expected, PG&E has proactively analyzed the issue, managed its response to protect customers, and has held its supplier accountable, significantly reducing customers' costs.

[17] See Chapter 3 for further discussion of the capabilities and benefits of the Gas AMI 2.0 two-way communication system.

EXHIBIT B

REPORT ON THE RESULTS OF OPERATIONS
FOR
PACIFIC GAS AND ELECTRIC COMPANY
COMPREHENSIVE GAS ADVANCED METERING INFRASTRUCTURE
REPLACEMENT PROGRAM

Docket	:	A.24-03-011
Exhibit Number	:	CA-02
Commissioner	:	M. Baker
Admin Law Judge	:	J. Lee
Witness	:	G. Wilson

PUBLIC ADVOCATES OFFICE
CALIFORNIA PUBLIC UTILITIES COMMISSION

Report on the Results of Operations for Pacific Gas and Electric Company Comprehensive Gas Advanced Metering Infrastructure Replacement Program

Capital Expenditures Recorded in Major Work Category Account 74

San Francisco, California
December 9, 2024

D. Mitigation of Stranded Assets

1. History of Stranded Asset Decisions

When capital programs experience unexpected early failures, unanticipated abandonment, or are prematurely retired because of obsolescence, the Commission has to deal with the problem of how to treat the ratemaking issues associated with a utility's inability to fully recover the original costs of the project prior to the end of its useful life. These types of stranded asset issues occur on a regular basis and have been resolved in various ways by the Commission. In D.11-05-018, PG&E's Test Year 2011 GRC Settlement decision, there is a long discussion that summarizes how previous Commission decisions have handled prior cases in which premature retirements have occurred.[23] These decision summaries extend back more than 40 years, all the way back to D.92497.

On page 2 of D.11-05-018, the Commission provided the following discussion pertaining to electric meters:

> With respect to the lone remaining issue that relates to the ratemaking treatment for the undepreciated plant balance associated with electric meters that are replaced by SmartMeters, that plant balance will be amortized over a six-year period with the associated rate of return on the unamortized balance reduced to 6.3% to reflect the reduced regulatory risk for that plant.

While the above D.11-05-018 summary discussion specifically relates to electric meters, the same necessity to analyze stranded costs would logically apply to the prematurely retired Gas AMI 1.0 modules that are the subject of this current PG&E proceeding. As indicated in the above excerpt from D.11-05-018, the Commission recommended that adjustments be made to the period over which the undepreciated plant balance could be recovered, and additionally reduced the rate of return on the unamortized balance. The above excerpt is not meant to be a template for how the Commission should explicitly treat the costs associated with the undepreciated Gas AMI

[23] D.11-05-018, *Decision on Pacific Gas and Electric Company Test Year 2011 General Rate Increase Request*, May 5, 2011; A.09-12-020, Investigation (I.) 10-07-027.

1.0 modules in this current PG&E proceeding, but it is meant to show how seriously the Commission takes its role in addressing these stranded costs.

In addition to the page 2 summary provided above, D. 11-05-018 also includes summaries of 13 additional decisions in which the Commission addressed various ratemaking options for capital projects that failed to achieve their expected life.[24] Listed below are a selection of five of the 13 decisions, all of which are excerpted from D.11-05-018, in which the Commission adopted various ways to handle the stranded asset issue.

> D.92497 – The Commission stated, "We are concerned with the increasing magnitude of abandoned project costs and the frequency of abandonments, the cost of which we are routinely being asked to place on the ratepayers' shoulders. We are also concerned with the increasing burden being placed on the stockholders who in the past have invested in utility stocks as a reliable income stock with some growth possibilities and with very little risk. Although the costs in this case are small in comparison to some abandonment costs, such as those of Sundesert, this in itself is not sufficient justification for placing the entire burden either on the stockholder or the ratepayer . . . We cannot emphasize too strongly the necessity of examining each case on an individual basis to arrive at an equitable decision."

> D.84-09-089 -- In the context of the liquefied natural gas (LNG) project abandonment the Commission stated, "As set forth in D.83-12-068 as modified by D.84-05-100, our policy of rate recovery for abandoned plants provides for a sharing of costs between ratepayers and shareholders during periods of great uncertainty. Under this policy, if the applicants declared the LNG project abandoned, we would allow them to recover their direct expenditures, but not their AFUDC." However, the Commission noted that, even for project abandonments, the Commission had recognized an exception where benefits could be shown to customers, indicating, "A review of the exceptional cases is presented in D.92497 dated December 5, 1980. In these abandoned project cases we allocated the direct feasibility costs to ratepayers and AFUDC costs to shareholders. The costs borne by ratepayers were then amortized over a period of years. We have allowed the utility to rate-base a portion of the unamortized costs only when the residual value or potential benefits were likely to accrue to ratepayers. Otherwise, we considered such treatment as an inappropriate shifting of risk to the ratepayers." Additionally, this decision addresses PHFU, an exception to the used and useful principle, stating, "One exception [to "used and useful"] is PHFU. This is primarily land which has been purchased by a utility for

[24] Section 5.3 of D.11-05-018, which runs from page 42 through page 48, is titled "Commission Precedents." That Section contains discussion excerpts from 13 previous decisions, and is the source for the five stranded asset decision excerpts that are presented here.

use at a later date. We have allowed such property to be included in ratebase only when there is a definite and reasonably imminent plan for its development. Property which fails to meet this test is excluded under the used and useful principle."

D.85-08-046 – The Commission focused on who should bear the burden of unrecovered costs in the Humboldt Bay plant retirement and, in rejecting PG&E's attempt to bring other power plants that may have operated for longer than intended into consideration, the Commission stated, "With respect to PG&E's equity argument, we observe that plants which have exceeded their estimated useful lives have been fully depreciated. Thus, the shareholder already has recovered his entire investment and a fair return on that investment from the ratepayer. The ratepayer who has paid for the entire plant is entitled to receive any additional benefit from the plant's continued operation. In the case of a premature retirement, the ratepayer typically still pays for all of the plant's direct cost even though the plant did not operate as long as was expected. The shareholder recovers his investment but should not receive any return on the undepreciated plant. This is a fair division of risks and benefits."

D.92-08-036 – The Commission adopted a settlement between SCE, SDG&E and DRA which allowed a 48 month amortization of remaining investment in San Onofre Nuclear Generating Station Unit 1 (SONGS 1). After shutdown of SONGS 1, the remaining unamortized investment was allowed to earn a rate of return, which, after taxes, was fixed at the then current authorized embedded cost of debt.

D.92-12-057 – In the case of the Geysers Unit 15 premature retirement, the Commission relied on the Humboldt Bay plant retirement as a precedent in ruling that PG&E could not offset the shorter life of Unit 15 against other plants having a longer life, using rules of group accounting. The Commission did offer that PG&E could raise the group accounting argument later, if it could make a stronger showing. The Commission also stated, ". . . We once again endorse our longstanding regulatory principle that shareholders should earn a return only on used and useful plant . . . " PG&E was thus authorized a four-year amortization for the remaining net plant cost, with no return on the unamortized balance.

In the five summary decision excerpts presented above, the one commonality present in each is the fact that the Commission analyzed, and subsequently ruled, how best to treat the issues associated with stranded assets and their associated costs. Cal Advocates did not find any discussions or analyses in PG&E's testimony in this current Gas AMI proceeding addressing the issue of stranded asset costs. In Cal Advocates' judgment, an analysis of those stranded costs is required; the mere fact that stranded asset costs were omitted from PG&E's testimony is not sufficient reason to ignore their impact on ratepayers.

2. Quality Control Issues

As discussed previously, one driver for the early replacement of the original Gas AMI 1.0 modules is that the batteries in these modules have largely failed to last as long as expected. These early module failures were exacerbated by PG&E's discovery that extreme temperature ranges can cause the expansion and contraction of the Gas Modules' casings, which leads to cracking of the casings that can allow entry of water into the Gas Module, thereby hastening their failure.

In Cal Advocates' judgment, manufacturers should strive to have robust Quality Assurance (QA) and Quality Control (QC) mechanisms in place in order to ensure that their products meet their required standards. QA represents the processes that are used by a manufacturer to manage the quality of its products, while QC represents the processes that are used by the manufacturer to actually inspect and verify the quality of its products. In the context of quality management, QA comes first in the manufacturing process, as it involves establishing processes and systems to prevent defects from occurring, while QC comes after, to detect and correct any defects that may have occurred despite the QA efforts. Given the fact that two types of major failure modes (e.g. premature battery failures and case cracking) were found in the original Gas AMI 1.0 modules, it is clear that the QA and QC processes put in place by the Gas Module manufacturer were not adequate.

In Cal Advocates' judgment, PG&E also bears responsibility for these quality issues. When PG&E contracts with a manufacturer to provide a given product, PG&E has the responsibility to ensure that the manufacturer has the capability to produce the product in a manner that meets PG&E's standards. Stated another way, PG&E has the obligation to conduct sufficient "due diligence" to ensure that the manufacturer will produce a quality product that is reliable. Clearly, the tests and inspections used by PG&E to verify the quality, durability, and functionality of the original Gas AMI 1.0 modules were not sufficient to detect the major flaws that were inherent in the modules from the beginning.

In Chapter 4 of its Testimony, PG&E provides a 9-page discussion regarding the prudency of its management of its initial AMI system. Of special interest to Cal Advocates is PG&E's discussion (beginning on line 4 of page 4-5) of the oversight and

management changes that PG&E instituted following its AMI 1.0 deployment. As discussed by PG&E:

> Since the completion of PG&E's AMI deployment in 2013, PG&E has instituted significant, effective asset management practices to mitigate Supplier Quality Assurance (SQA) risks. PG&E has sought to reduce costs to customers associated with these risks, including continuously monitoring Gas Module performance and regularly coordinating with suppliers to review performance trends, conduct root cause failure analyses, and implement effective solutions to identified challenges. [Emphasis added.]

Upon reading the above Chapter 4 quotation, Cal Advocates was pleased to learn that PG&E had revised its asset management practices. While these management upgrades may improve quality control issues in the future, they do not turn back time and abrogate PG&E of its original responsibility – namely, to catch and correct these major Gas AMI 1.0 module flaws when they originally occurred. Given these failures on the part of both the Gas Module manufacturer and PG&E, PG&E's customers constitute the only impacted group that had no involvement in the process of procuring and evaluating the original defective modules.

3. Stranded Asset Testimony Recommendations

As discussed on page 663 of the October 18, 2024, Proposed Decision (PD) for Sempra's Test Year 2024 GRC application (A.22-05-016), the PD notes that SDG&E provided no supporting evidence regarding how it planned to mitigate stranded assets and resulting costs associated with SmartMeters that are prematurely failing. Using the same logic that the Commission has applied to SDG&E in its PD, before PG&E is allowed to recover revenue requirement amounts associated with the GAMI Replacement Program, Cal Advocates recommends that PG&E be required to present testimony that discusses how (or if) it plans to handle the stranded assets and resulting costs associated with the premature retirement of its original Gas AMI 1.0 modules. Such testimony will allow the Commission to maintain its ongoing practice of analyzing stranded assets and their associated costs. At a minimum, Cal Advocates recommends that this future stranded asset testimony discuss and quantify the magnitude of the undepreciated portions of those original Gas AMI 1.0 modules that have prematurely failed (and been replaced), as well as the magnitude of the returns associated with those remaining undepreciated modules.

To gain better insight regarding the overall magnitude of the remaining undepreciated plant associated with the prematurely retired Gas AMI 1.0 modules, Cal Advocates issued data request # PubAdv-PG&E-008-GAW, Question 003.[25] The relevant portion of Cal Advocates' question, along with PG&E's response, are shown as follows:

QUESTION 003

For each of the years 2023 through 2030, please provide the total yearly undepreciated plant balances for those original Gas AMI 1.0 modules that have been prematurely retired.

ANSWER 003

PG&E interprets "prematurely retired" to refer to modules replaced before they have been in service 15 years, which is the 2023 GRC adopted average service life of the gas modules.

PG&E is providing the undepreciated plant balances for the "prematurely retired" original Gas AMI 1.0 modules that were installed in years 2006 to 2013 for those modules replaced in years 2023, 2024, 2025, and 2026.

Year Replaced:

2023 $5.0M

2024 $4.2M

2025 $0.6M

2026 $0.03M

In PG&E's response, the total of the undepreciated plant balances listed above equals $9.83 million. Cal Advocates suspects that the undepreciated plant balance is actually larger than that amount, as PG&E's response appears to exclude undepreciated balances for those Gas Modules that were installed and prematurely replaced prior to 2023, as well Gas Modules that were installed after 2013 and were subsequently prematurely retired. Regardless of the actual unrecovered plant balance

[25] For a complete copy of PG&E's response to this data request, please see Appendix C.

(which Cal Advocates' recommendation for additional stranded asset testimony will help determine), large levels of stranded assets are clearly present in this proceeding.

Cal Advocates has concluded that it is important to keep in mind the root causes of the early Gas AMI 1.0 module failures. Unlike other instances where early capital retirements were caused by the shutdown of a capital project that was abandoned,[26] or where the Commission authorized a premature retirement,[27] the early retirements in this current Gas AMI proceeding were NOT caused by external factors, but were instead necessitated by manufacturing flaws, and the resulting subsequent premature failures, that were inherent in the modules themselves. Given the fact that the Commission has often previously made ratemaking adjustments for stranded assets that were the result of external factors, Cal Advocates has concluded that ratemaking adjustments should certainly be reflected here, where the premature retirements have been caused by the utility and the manufacturer of the Gas AMI 1.0 modules.

While previous decisions involving stranded assets have reached various conclusions regarding the most appropriate manner in which to allocate the stranded costs, Cal Advocates recommends that for this specific Gas AMI 1.0 case, revenue requirement adjustments be used to offset: (1) PG&E's return on the unamortized portion of the prematurely retired Gas AMI 1.0 modules, and (2) PG&E's recovery of the undepreciated plant balances associated with the prematurely retired Gas AMI 1.0 modules. As subsequently discussed, it is Cal Advocates' judgment that the particular circumstances in this case support that recommendation.

4. Recommendation on Rate of Return

On page 49 of D.11-05-018, the Commission includes the following language, which was originally from D.84-09-089:

> Over the years, this Commission has closely adhered to the "used and useful" principle, which requires that utility property be actually in use and providing service in order to be included in the utility's ratebase. We have regularly applied

[26] See, for example, the previous summary of D.84-09-089, where construction on a Liquefied Natural Gas (LNG) facility was abandoned due to changing economic conditions.

[27] See, for example, the discussion on page 2 of D.11-05-018, where the Commission discusses the ratemaking associated with the Commission's authorized early retirement of electric meters in order to install SmartMeters.

this principle to exclude from ratebase any construction work in progress, and have removed from ratebase plant which has ceased to be used and useful.

A removal from ratebase, as discussed in the above decision excerpt, will cause the excluded plant – in this instance, the Gas Modules which have ceased to be used and useful -- to no longer earn a rate of return. Most of the decision summaries concerning stranded plant (that were listed previously in Section IV. D. 1 of this current volume of Cal Advocates' testimony) contain language that either eliminates or reduces the return that a utility is allowed to earn on prematurely retired capital assets. The following four decision excerpts provide examples of that language:

- In the D.84-09-089 summary, the Commission stated: *"This is primarily land which has been purchased by a utility for use at a later date. We have allowed such property to be included in ratebase only when there is a definite and reasonably imminent plan for its development. Property which fails to meet this test is excluded under the used and useful principle."*

- In the D.85-08-046 summary, the Commission stated: *"The shareholder recovers his investment but should not receive any return on the undepreciated plant."*

- In the D.92-08-036 summary, the Commission stated: *"After shutdown of SONGS 1, the remaining unamortized investment was allowed to earn a rate of return, which, after taxes, was fixed at the then current authorized embedded cost of debt."*

- In the D.92-12-057 summary, the Commission stated: *"The Commission also stated, ". . . We once again endorse our longstanding regulatory principle that shareholders should earn a return only on used and useful plant . . . " PG&E was thus authorized a four-year amortization for the remaining net plant cost, with no return on the unamortized balance."*

Clearly, the Commission has a long history of either disallowing or reducing the rate of return a utility is allowed to earn on the undepreciated portion of plant that is no longer used and useful. This type of disallowance has occurred even when the utility was not entirely to blame for the early retirement. As discussed previously in Section IV. D. 2 of this testimony, Cal Advocates has concluded that PG&E and the manufacturer are responsible for the premature failure of Gas AMI 1.0 modules, which makes the denial of a return even more essential.

As currently proposed by PG&E, as of the March 14, 2024 effective date of the GAMIMA, PG&E's gas customers will (absent any adjustments) continue to fund the rate of return associated with the undepreciated portions of those original Gas AMI 1.0 modules that have prematurely failed (and been replaced), and will also begin the simultaneous funding of the rate of return on the new replacement modules. Cal Advocates does not believe that this "dual return" ratemaking methodology is reasonable.

Based on Cal Advocates' concern regarding this unreasonable methodology, and based on the Commission's historical treatment of previous instances in which capital projects were prematurely retired, Cal Advocates recommends that for this current PG&E Gas AMI proceeding, PG&E's return on the undepreciated portions of those Gas Modules that have prematurely failed (and are therefore no longer used and useful) be offset. Stated more specifically, once stranded asset testimony is provided, quantified, and analyzed, Cal Advocates recommends that any eventual revenue requirement calculations (covering the period beginning on March 14, 2024) be subject to adjustment. The recommended adjustments should be designed so as to offset the costs that gas customers would otherwise be simultaneously funding for the returns associated with the remaining undepreciated portion of those original Gas AMI 1.0 modules that have prematurely failed and been replaced (and are therefore no longer used and useful).

5. Recommendation on Undepreciated Plant

In the previous section of this volume of testimony, Cal Advocates found that in many of the earlier decisions regarding ratemaking treatment for capital investments that have been prematurely retired, the Commission has found that no return should be earned on the undepreciated portion of plant that is no longer used and useful. Similarly, Cal Advocates searched for, but did not find, any previous decisions where the Commission denied a utility the ability to recover all of its stranded capital costs. However, there were instances in which the Commission issued decisions that disallowed recovery of a portion of the stranded investment, or reduced the time over which a utility could recover its stranded investment. In the decision summaries that

were previously provided in Section IV. D. 1 of this current volume of Cal Advocates' testimony, Cal Advocates found the following relevant decision discussions:

- In the D.84-09-089 summary, the Commission stated: *"Under this policy, if the applicants declared the LNG project abandoned, we would allow them to recover their direct expenditures, but not their AFUDC."*

- In the D.92-08-036 summary, the Commission stated: *"The Commission adopted a settlement between SCE, SDG&E and DRA which allowed a 48 month amortization of remaining investment in San Onofre Nuclear Generating Station Unit 1."*

- In the D.92-12-057 summary, the Commission stated: "*PG&E was thus authorized a four-year amortization for the remaining net plant cost, with no return on the unamortized balance."*

While none of these decisions disallowed the recovery of all of the undepreciated plant balance, the above decision excerpts clearly indicate that historically, the Commission has found it appropriate to adjust the timing of, as well as the level of, recovery for undepreciated capital projects. As noted on the list of Issues contained on page 5 of the Scoping Memo for this current PG&E proceeding, Issue 9 clearly indicates that the Commission continues to have an interest in analyzing how best to handle the undepreciated portion of the original Gas Modules that are no longer used and useful:

> 9. What is the appropriate ratemaking and cost recovery treatment for any remaining investment in PG&E's removed Gas AMI 1.0 modules;

In Cal Advocates' judgment, the circumstances of this current PG&E proceeding warrant a complete disallowance of the recovery of the undepreciated plant balance.

As discussed previously in Section IV. D. 2, Cal Advocates has concluded that PG&E and the manufacturer are solely responsible for the premature failures of the Gas AMI 1.0 modules. Had these failures NOT occurred, the original Gas Modules would have continued working and presumably would have eventually reached their anticipated life expectancy. If the Gas Modules had continued working and reached their anticipated life expectancy, PG&E would have recovered its original costs for these Gas Modules, and there would be no need for PG&E's gas customers to continue to pay for modules that are no longer used and useful. In Cal Advocates' judgment, it was

within PG&E's power (and an essential part of its responsibility) to ensure that this type of "reasonable life expectancy" scenario was able to occur. Because that expected scenario did not occur, and because Cal Advocates has concluded that PG&E bears the responsibility for that non-occurrence, Cal Advocates recommends that for this current PG&E Gas AMI proceeding, PG&E not be allowed to recover the undepreciated portions of those Gas Modules that have prematurely failed and are therefore no longer used and useful.

As currently proposed, as of the March 14, 2024 effective date of the GAMIMA, PG&E's gas customers will (absent any adjustments) continue to fund the recovery of the undepreciated portions of those original Gas AMI 1.0 modules that have prematurely failed (and been replaced), and will also begin the simultaneous funding of the new replacement modules. This "dual recovery" ratemaking methodology is not reasonable, especially given that no external factors (i.e., factors beyond the control of the utility and the manufacturer) caused these premature failures.

Cal Advocates recommends that for this current PG&E Gas AMI proceeding, PG&E's recovery of the undepreciated portions of those Gas Modules that have prematurely failed (and are therefore no longer used and useful) be offset. Stated more specifically, once stranded asset testimony is provided, quantified, and analyzed, Cal Advocates recommends that any eventual revenue requirement calculations (covering the period beginning on March 14, 2024) be subject to adjustment. The recommended adjustments should be designed so as to offset the costs that gas customers would otherwise be simultaneously funding for the recovery of the remaining undepreciated portion of those original Gas AMI 1.0 modules that have prematurely failed and been replaced (and are therefore no longer used and useful).

6. Discussion of PG&E's RO Model

Results of Operations (RO) computer models are typically used to calculate the revenue requirements for large rate case proceedings. In Chapter 5 of its Prepared Testimony, PG&E discusses the use of its so-called "mini-RO" computer model. In this proceeding, PG&E has developed a mini-RO model that is not as detailed or robust as the models usually included in GRCs.

EXHIBIT C

PREPARED TESTIMONY OF
JALAL AWAN
ADDRESSING PG&E'S PROPOSAL FOR COMPREHENSIVE GAS ADVANCED METERING INFRASTRUCTURE (GAMI) REPLACEMENT PROGRAM

CPUC Docket: A.24-03-011
Exhibit Number: TURN-01
Witness: Jalal Awan

PREPARED TESTIMONY OF JALAL AWAN

ADDRESSING PG&E'S PROPOSAL FOR COMPREHENSIVE GAS ADVANCED METERING INFRASTRUCTURE (GAMI) REPLACEMENT PROGRAM

Submitted on behalf of

THE UTILITY REFORM NETWORK

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December 9, 2024

Summary of Recommendations:

TURN's **primary recommendation** is as follows:

TURN recommends that the Commission deny this application and instruct PG&E to perform a comprehensive root cause analysis to establish the cause(s) of each type of early failure to avoid recurring failures and conclusively attribute responsibility for early failures.

Alternative Recommendations:

If the Commission approves this application, in whole or in part, it should:

- **Recommendation 1 (Return on Rate Base and Cost Sharing):** Authorize zero return on any stranded assets in rate base, and replacement costs for premature failures should be shared equally between ratepayers and shareholders.
- **Recommendation 2 (Like-for-Like Replacements):** Approve only the minimum necessary required maintenance using the original, legacy modules and disallow lifecycle replacements and/or upgrades to legacy modules.
- **Recommendation 3 (Module-Only Costs):** Remove meter-and-module exchanges and warranty-covered replacements from the cost forecast to achieve a more realistic figure of $315.6 million for like-for-like required maintenance. This ensures transparency, avoids unnecessary equipment replacements, and accurately reflects module-only failures.
- **Recommendation 4 (Refined Forecast Methodology):** Adopt TURN's simple four-year average of historical failures for forecasting instead of Exponent's Kaplan–Meier estimator-based failure rates. KM estimator over-estimates 2023 and 2024 failures by 20% and 200% respectively across PG&E's 17 divisions.
- **Recommendation 5(Adjusted Unit Costs):** Limit cost recovery to only baseline module replacements and adopt a recalibrated unit cost of $65.50 per module, reducing total costs to $202.284 million.

TURN's Primary Recommendations in View of Current Evidence:

TURN is concerned that the allocation of responsibility, and therefore costs, for premature equipment failures is placed solely on ratepayers, rather than shared by PG&E's shareholders who are still profiting from the initial deployment, despite early failures. TURN does not possess the time or resources to conduct an independent engineering review, including a Failure Mode and Effects Analysis (FMEA) or Root Cause Analysis (RCA), nor to evaluate cost-effective fixes such as battery replacements that have proven viable in certain other cases.[18] Yet, PG&E's proposal includes enhancements over the baseline Gas AMI 1.0 system, prioritizes replacements to the exclusion of potential cost-effective alternatives, and proposes upgrading failing modules with advanced alternatives. This allocation of costs introduces a moral hazard: if PG&E and its shareholders face no financial repercussions for these early failures and in fact benefit from them, PG&E—and by extension other utilities—will have diminished incentives to prevent them. In other words, protecting utilities from the consequences of early failures effectively encourages imprudent behavior, since they can rely on customers to absorb the losses. Moreover, standard ratemaking principles dictate that long-lived assets be depreciated over their expected useful life, ensuring that ratepayers are not burdened with excessive costs beyond the asset's useful life. Ratepayers should only be charged for the used and useful service life of assets, not for premature replacements. Furthermore, TURN notes that PG&E is currently enjoying a full rate of return on failed or removed modules that no longer meet the "used and useful" standard.

Consequently, TURN recommends that it is prudent for the Commission to deny this application in its current form, investigate the early failures more thoroughly, and instruct PG&E to perform a comprehensive root cause analysis to establish the cause(s) of the early failures. This would both ensure non-recurrence of similar module failures, and conclusively attribute responsibility for failures. TURN is willing, to the extent practicable, to participate in such a review. Additionally, it would be more economically sensible for PG&E to explore alternatives, on a

[18] See Itron Gas Module Battery Replacement Procedure here: https://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A2205015;A2205016/6359/512538927.pdf

benefit-cost basis, such as reutilizing removed modules, replacing failed batteries, or addressing network communication issues, rather than pursuing a comprehensive system upgrade.

If the Commission does not reject the application, TURN offers the following alternative recommendations, along with their rationale.

Recommendation 1: Return on Rate Base and Cost Sharing

In the Commission does not demand a demonstrable root cause and cost-efficient replacement analysis, it should still not reward PG&E and its shareholders at ratepayer expense. Therefore, TURN recommends that any funding approved be limited solely to the minimum baseline replacements for Gas AMI 1.0, with zero return on any stranded assets in rate base (such as the meters or modules that failed prematurely) and the replacement costs for premature failures be shared equally between ratepayers and shareholders. This approach would ensure that all costs are shared equally—on a 50-50 basis—between ratepayers and shareholders. This unique situation of early failures, and the precedent it could set, warrants a unique regulatory response to avoid the moral hazard that would arise if PG&E or other investor-owned utilities were allowed to profit from premature equipment failures.

PG&E's 2023-2026 Gas Module Probability of Failure and Cost Forecasts Are Unreasonable Without Incorporating TURN's Recommendations

The rationale for replacements centers on early failures attributed to "study events" (e.g., battery depletion, communication failures, and non-communication failures) and "removals due to non-study events" (e.g., opt-outs, Meter/MTU Combo issues, and other removals unrelated to module failures). While battery-related issues in hot divisions like Sacramento and Kern are emphasized, the data shows that most failures are in fact tied to Meter/MTU Combo issues, where malfunctioning meters led to module removals without sufficient justification, context, or explanation.

EXHIBIT D

PUBLIC DIRECT TESTIMONY OF
MICHAEL BROWN
ON BEHALF OF SMALL BUSINESS UTILITY ADVOCATES

CPUC Docket: A.24-03-011
Exhibit: SBUA-01
Witness: M. Brown

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Pacific Gas and Electric Company or Comprehensive Gas Advanced Metering Infrastructure Replacement Program (U 39 M)	Application 24-03-011 (filed May 16, 2024)

PUBLIC DIRECT TESTIMONY OF MICHAEL BROWN ON BEHALF OF SMALL BUSINESS UTILITY ADVOCATES

Jennifer L. Weberski
Litigation Supervisor

Small Business Utility Advocates

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December 9, 2024

Q: Should the Commission authorize PG&E to reflect the proposed 2023-2026 revenue requirement for PG&E's GAMI Replacement Program in rates?

A: While the PG&E ratepayers should share in some of the cost of GAMI Replacement Program, PG&E testified that the current AMI 500 modules would have a 20-year service life. This representation was inaccurate. There must be some consequences to the shareholders of PG&E for this failure. To ensure fairness and accountability, I recommend that the Commission require PG&E shareholders to shoulder a portion of these costs. Such an arrangement would both protect customers from undue financial responsibility and incentivize PG&E's management to ensure that any new AMI installations truly deliver on their expected service life and benefits. By holding PG&E accountable for a share of the costs, the Commission can help prevent a repeat of the current situation and promote more accurate performance projections in the future.

A recent news investigation revealed that PG&E customers were receiving large bills because the meters are reaching the end of their battery life.[9] This battery issue is a huge problem because the entire AMI module is having to be replaced rather than just the battery. I believe this battery issue is likely the main cause of the recent failures, however there are numerous other issues involving malfunctioning meters as they age. Much of the available SmartMeter data was recently erased from utility websites. SCE stated that Advanced Meters are powered by two special AA batteries, similar in technology to those used in pacemakers, although they recently removed that website. Pacemaker batteries

[9] https://www.abc10.com/article/money/consumer/on-your-side/pge-bills-3-million-meters/103-fbf33ba5-fdc3-4e60-bb0e-2d0830deeb3e; https://ibew1245.com/pge-smartmeters-problems-and-how-to-fix-them/

typically last 5 to 7 years.[10] I asked PG&E in data requests if the Company could simply change the battery on the series 500 gas modules. PG&E responded that they could not change the battery.[11]

PG&E Gas Modules (a battery-operated device) are separately and externally attached to each of its Gas Meters. PG&E cannot replace the battery in the Gas Module as it was not designed to be replaced. The plastic Gas Module case has a welded seal. The casing would need to be cut or destroyed to access the battery. However, PG&E can replace an old Gas Module with a new one. This is done by unscrewing and removing the old gas module device from the existing gas meter and screwing and installing a new gas module device onto the existing gas meter (this is what PG&E proposes in its application).

The main scope of PG&E's application is to replace its remaining legacy first generation Series 500 gas modules (a device that currently provides PG&E with automated gas meter reading capabilities) that are failing and reaching its end-of-life with newer second generation series 3000 gas modules and to begin certain system upgrades. All of the installed Gas AMI Modules from the supplier, both legacy Series 500 gas modules and the newer second generation Series 3000 gas modules, were purchased with a 20-year warranty. PG&E confirms that the legacy Series 500 gas modules are no longer manufactured or available from the supplier.

[10] https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/frequently-asked-questions-about-pacemakers-and-implantable-cardioverter-defibrillators-icds#:~:text=Most%20device%20batteries%20will%20last,overnight%20stay%20in%20the%20hospital.

[11] PG&E response to SBUA data request, Question 10.

However, in addition to fixing this battery problem and the otherwise early failure of the natural gas modules, PG&E is requesting an entire programmatic approach to replacing gas meters. PG&E wants to hire additional employees for program management, call center operations, IT infrastructure, and AMI Devices and infrastructure. PG&E also plans to pilot newer gas meters (gas ultra-sonic meters) that have built-in communication devices and may use this technology in the future. The request is broken down into expense and capital requests below:

a. Expense Request:

For the next four years, PG&E proposes to spend: a million per year on project management, half a million to a million a year on billing and call center operations, and half a million to a million per year on maintaining information technology applications and infrastructure.

TABLE 1-1
SUMMARY OF EXPENSE FORECAST BY MWC (THOUSANDS OF NOMINAL DOLLARS)

Line No.	MWC	Nature of Work	2023 Recorded	2024 Forecast	2025 Forecast	2026 Forecast	Total
1	EZ	Program Management	$1,081	$1,205	$1,218	$1,232	$4,736
2	IS	Billing and Call Center Operations	$577	$1,025	$967	$839	$3,408
3	JV	Maintain Information Technology (IT) Applications and Infrastructure	$0	$537	$840	$1,652	$3,029
4	Total		**$1,658**	**$2,767**	**$3,025**	**$3,723**	**$11,173**

b. Capital Request

For the next four years, PG&E proposes to spend between $95M and $120M per year to install gas AMI Devices and Infrastructure. PG&E also intends to capitalize about $32M in new IT infrastructure.

TABLE 1-2
SUMMARY OF CAPITAL EXPENDITURE FORECAST BY MWC
(THOUSANDS OF NOMINAL DOLLARS)

Line No.	MWC	Nature of Work	2023 Recorded	2024 Forecast	2025 Forecast	2026 Forecast	Total
1	74	Install Gas AMI Devices and Infrastructure	$95,873	$112,089	$122,702	$121,939	$452,603
2	2F	Build IT Applications and Infrastructure	1,095	11,048	11,838	8,474	32,455
3	Total		$96,968	$123,137	$134,540	$130,413	$485,058

c. Gas Data Collection Units

PG&E also plans to replace the Data Collection Units as part of the overall system upgrade. PG&E's current Gas Data Collection Units (DCU's) are not failing, are meeting manufacturer's lifecycle expectations and expected to last 20 years on average.

d. Software and IT upgrades

PG&E plans to upgrade its software to make use of the new capabilities of the replacement gas modules. PG&E states that it cannot use its current software for Gas AMI 2.0 meters (Gas USMs) for customer billing (subject to confirmation through PG&E's Gas USM pilot).

The Commission should not approve PG&E's new half billion dollar capital project where it failed the first time. I instead recommend that the Commission only authorize

enough money to replace the failing modules. I also recommend that PG&E be required to spend at least $10M in shareholder money to pay for the cost of this replacement.

Q: Should PG&E's cost recovery proposal to recover the costs of its GAMI Replacement Program be adopted?

A: No. SBUA does not support adoption of PG&E's cost recovery proposal. PG&E proposes to recover costs through PG&E's general 2023 GRC decision. While PG&E's application seeking a comprehensive gas advanced metering infrastructure replacement program contains over 100 pages of testimony and cost projections, it still does not provide detailed information regarding the full impact on customers.

PG&E Application states that the costs covered by the supplier are not included in its application. More specifically, PG&E states that it has completed; 1) a supplier warranty replacement project for certain vintages of Gas Modules; and 2) secured a settlement with the legacy supplier. SBUA did request information from PG&E to ascertain the accuracy of these statements. **BEGIN CONFIDENTIAL**

[12]

END CONFIDENTIAL

As to the supplier warranty payments, it is unclear how PG&E used this money. As to the settlement proceeds, PG&E did not give details about the settlement proceeds. The Commission should order any settlement proceeds or supplier warranty payments to be used to offset GAMI replacement expenses.

PG&E proposes to recover costs through adjustments to both electric and natural gas rates. However, the GAMI Replacement Program is clearly associated with PG&E's natural gas infrastructure, and its costs should be allocated accordingly. Consistent with the principle that rates should reflect cost causation, I recommend that the Commission require that only natural gas delivery rates be increased to cover the cost of this natural gas AMI replacement. For example, PG&E should increase rates for: Gas Distribution, GT&S, and Local Transmission to cover the costs for this project, rather than spreading the burden

[12] PG&E response to SBUA data request, Question 2 [Confidential].

across electric customers. This approach would ensure that customers only pay for costs that directly support the services they receive, in line with the Commission's long-standing goal of maintaining cost neutrality. These new AMI costs are significant and should be solely allocated to the natural gas customers.

Q: Is PG&E's proposed GAMI System Upgrade cost-effective such that the costs are reasonable and should be recovered in rates?

A: I am not convinced that PG&E has resolved the root cause of the failures of the Gas AMI Modules. In its confidential settlement summary, PG&E states **BEGIN CONFIDENTIAL**

[13] **END CONFIDENTIAL** That being the case, the Commission would be wasting ratepayer money in replacing the prematurely failing modules only to discover the new modules suffer from the same defect.

The proposed GAMI System Upgrade is not cost-effective or reasonable and should be modified. In support of its AMI replacement proposal, PG&E states that over a 15-year period (2023-2037), that PG&E would spend $889.3 million on lifecycle replacement rather than $910.4 million for replacing Gas AMI Modules individually after failure. PG&E further states that it would spend $134.6 million on incremental costs with the

[13] PG&E response to SBUA data request, Question 2 [Confidential].

comprehensive gas AMI replacement as opposed to $155.7 million with the required maintenance only scenario.

PG&E also states that the customer experience would improve because when an AMI natural gas module fails, customers receive billing discrepancies. I agree with PG&E regarding the impact of AMI failure on accurate billing. However, the most cost-effective approach would be to replace the AMI equipment as it fails and replace it with AMI equipment which can be more easily maintained and allows battery replacement. PG&E is adding additional unnecessary expenses to the AMI equipment replacement.

The proposed project is not cost-effective in that it will not save money for customers. The customers would probably be better off if PG&E were to spend $2M per year on meter readers to read failing AMI modules and replace the failing natural gas modules on an as-needed basis.

Q: Is the installation and/or maintenance of PG&E's first--generation Gas AMI 1.0 system tied to any failure, error, or noncompliance on PG&E's part?

A: As discussed above, PG&E did not prepare for the replacement of the batteries and overpromised in "selling" the 2005-2006 AMI business plan. The Commission approved PG&E's funding request to install AMI with this 20-year assumption. The Commission approved the AMI business plans and allowed PG&E to increase rates on ratepayers to support this installation. PG&E installed AMI modules on gas meters to enable PG&E to automatically obtain meter readings from approximately 4.6 million gas meters between 2006 and 2012.

PG&E states that the Gas AMI Modules it installed between 2006-2012 have begun to prematurely fail and require replacement. Two percent of the modules were installed in 2006 and 2007, and approximately 67% were installed in 2010 or later. PG&E states that the Gas AMI Modules it installed between 2006-2012 have begun to prematurely fail and require replacement. Therefore, the business case proposed to the Commission was incorrect as the service life of the AMI Modules is closer to 10 or 15 years.

The main problem with the natural gas AMI meters is that PG&E and its suppliers welded the AMI module shut to prevent customers from tampering with the meters. However, this welding was a bad idea because natural gas AMI 1.0 meters contain batteries to provide power (unlike the electric AMI). Batteries do not last forever and need to be replaced. The problem now is that the entire module needs to be replaced because the battery is failing. In retrospect, the AMI modules[14] should have contained an opening/unlocking mechanism so that PG&E or a customer could replace a single battery, rather than replace an entire welded AMI module.

Unfortunately, PG&E appears to propose installing new AMI meters with the same problems as the AMI 1.0 meters. I do not see any assurances in PG&E's proposal that this problem has been corrected. I recommend that any approved proposal address the inherent battery replacement flaw prior to the rollout.

[14] Aclara (Aclara Technologies LLC), PG&E's original AMI vendor, was bought out by Hubell Incorporated in 2018. PG&E proposes to continue using "Aclara" as a vendor. PG&E should only be using Aclara to the extent necessary to replace existing products.

I must also discuss PG&E's proposal to replace diaphragm meters with ultrasonic gas meters. PG&E should continue using diaphragm gas meters unless there is a good reason to change, such as new materials moving through the natural gas system. Diaphragm gas meters have been in use since 1808.[15] They are cheap, they work, and they are relatively accurate. By contrast, USM meters are more accurate and smaller than diaphragm gas meters. However, USM meters are less reliable and durable because they rely on battery power.

The battery powered aspect of these meters is of potential concern. An AMI meter has similar advantages and drawbacks as the gas module (meter allowing transmission of data). An AMI meter is highly accurate, small, and has no moving parts. However, a USM relies on a battery to power it and typically the battery cannot be easily replaced by a customer.[16] Reliance on battery powered devices did not work out well for the first round of AMI 1.0 and will not likely work out well for AMI 2.0.

Q: Should PG&E's GAMI Replacement Program costs be allocated between ratepayers and shareholders?

A: The PG&E ratepayers should share in some of the cost of GAMI Replacement Program. The Commission should require PG&E to include at least $10M in shareholder funds into the GAMI Replacement Program. I propose that the replacement costs be split due to the above discussion regarding PG&E's failure to adequately plan for battery replacement and

[15] chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://asgmt.com/wp-content/uploads/2018/05/012.pdf

[16] https://forum.ovoenergy.com/smart-meters-136/smart-gas-meter-battery-failure-why-can-t-it-be-replaced-1418#:~:text=Unfortunately%20meter%20batteries%20aren't,in%20a%20free%20meter%20replacement.

the benefits proposed by the GAMI Replacement Program favor the Company rather than customer benefits.

PG&E states the global Gas AMI 2.0 market identified several key trends in the gas industry focused on improving safety and customer benefits. These include; 1) an increasing focus on ultrasonic meters (USMs) that offer remote and automatic shut-off capabilities; 2) providing customers with real-time gas usage data; and (3) deploying a two-way communication infrastructure to support these devices and functions. PG&E argues that Gas AMI 2.0 installation is necessary to prevent obsolescence and take advantage of next-generation metering technologies that can provide PG&E and its customers with additional safety and operational functions and capabilities in the future.

The benefit of natural gas AMI is that PG&E saves money on meter readers and associated costs. There is little benefit for customer specific shut-off capabilities and real-time gas usage data.

In the most recent PG&E General Rate Case, the Commission in D.23-11-069, denied PG&E recovery for AMI replacement. The Commission adopted a forecast of $0 for replacing AMI modules for 2023-2026 in MWC EZ, MWC HY, MWC IS and MWC JV (expense); MWC 2F and MWC 74 (capital).[17] The Commission stated that, "… no revenue requirement is authorized in this proceeding due to the unsubstantiated nature of the forecast and PG&E's failure to propose a reasonable allocation of costs for replacement

[17] See D.2311069; pg. 829

between ratepayers and shareholders that fairly reflects PG&E's errors in its AMI module business plan."

When PG&E was asked whether shareholders should help with the replacement, PG&E states, "PG&E's Gas AMI Modules did not fail any earlier than expected due to error or non-compliance on PG&E's part, and therefore no shareholder funding is warranted."[18] I disagree. The Commission should create some economic consequence to PG&E for its GAMI program failure.

Q: What is the appropriate ratemaking and cost recovery treatment for any remaining investment in PG&E's removed Gas AMI 1.0 modules?

A: The Commission should revise D.06-07-027 to allow PG&E to treat its failing AMI gas modules as a "disposition" for tax purposes so that PG&E may fully depreciate the failing AMI gas modules. In D. 06-07-027, the Commission required PG&E to depreciate all the AMI equipment over 20 years, and rates were set using a 20-year life depreciation schedule. The problem with D. 06-07-027 is that the old meters did not last 20 years, and PG&E must retire these AMI gas modules before the 20-year period. PG&E's application does not contain a forecast cost of removal or gross salvage associated with the forecast capital expenditures or retired plant.

The first issue is whether the AMI meters provide any scrap value. In this case, it is unlikely that the AMI meters can be sold for scrap value. The natural gas AMI meter is a plastic device, with a worn-out battery. If anything, PG&E will be paying disposal fees

[18] See SBUA data request; Set 1; Question 1; and answer thereto.

for the AMI device. My opinion is that there is probably no scrap value for the AMI devices.

Since there is limited or no scrap value of the natural gas AMI modules, the next question is how to treat the failed modules. 26 U.S. Code § 165(a) of the federal tax code provides that a taxpayer is allowed a deduction for any loss the taxpayer sustained during the tax year if the loss is not compensated for by insurance or otherwise. There are various cases and nuances to this rule. However, PG&E is proposing to change out the entire AMI natural gas metering device. In this case where the depreciation is 20 years and the device lasts less than 20 years, the AMI device is considered abandoned. PG&E will probably be allowed to take a tax deduct the full amount of the AMI devices, less any rebates or settlements that PG&E received from its suppliers due to the failure. Therefore, the Commission should change its previous order and allow PG&E to take a tax benefit for disposition of the AMI devices.

Q: Do there exist any other public health or safety issues related to this proceeding that must be addressed in this proceeding?

A: Some customers have raised concerns that the radio frequency ("RF") emissions associated with AMI installations pose potential health risks, including an increased likelihood of certain cancers. During the initial AMI rollout, these concerns were often met with skepticism or dismissal. Given that this proceeding may authorize a new generation of AMI technology, it is both prudent and respectful to acknowledge and address these public health concerns, rather than disregarding them.

EXHIBIT E

PACIFIC GAS AND ELECTRIC COMPANY
COMPREHENSIVE GAS ADVANCED METERING INFRASTRUCTURE
REPLACEMENT PROGRAM
ERRATA TO REBUTTAL TESTIMONY
(CONTAINS ERRATA FROM JANUARY 21, 2025)
(PUBLIC VERSION)

Application: 24-03-011
(U 39 M)
Exhibit No.:
Date: February 19, 2025
Witness(es): Various

PACIFIC GAS AND ELECTRIC COMPANY

COMPREHENSIVE GAS ADVANCED METERING INFRASTRUCTURE REPLACEMENT PROGRAM

ERRATA TO REBUTTAL TESTIMONY

(CONTAINS ERRATA FROM JANUARY 21, 2025)

(PUBLIC VERSION)

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 1

REBUTTAL TESTIMONY ON

INTRODUCTION AND OVERVIEW

installation, maintenance and operation. PG&E's evidence demonstrating that it is not at fault remains unrebutted.

Q 14 What is your response to Cal Advocates' recommendation that PG&E submit testimony concerning how it proposes to treat costs attributable to stranded assets?

A 14 PG&E maintains that it does not bear responsibility for early Gas Module failures, and that no ratemaking adjustment is warranted. Nevertheless, PG&E submits Rebuttal Testimony in Chapter 4 that explains its position, and demonstrates that there are no stranded assets that must be mitigated.

Q 15 How do you respond to Cal Advocates' request that PG&E:

> …quantify the magnitude of the undepreciated portions of those original Gas AMI 1.0 modules that have prematurely failed (and been replaced), as well as the magnitude of the returns associated with those remaining modules?[23]

A 15 For the reasons explained in Chapter 4 Rebuttal Testimony, PG&E does not agree that there are stranded costs associated with Gas AMI 1.0 Modules. Nevertheless, to be responsive to Cal Advocates' request, PG&E submits that it previously calculated $9.83 million of undepreciated plant balances for Gas AMI 1.0 Modules that were replaced between 2023-2026 before they had reached 15 years of age,[24] provided in a data request response to Cal Advocates.[25] The resulting revenue requirement return on equity totals approximately $1.049 million for 2023-2026 for the undepreciated portions of the Gas Modules that failed and were replaced prior to reaching 15 years of age, as explained further in Chapter 5 Rebuttal Testimony.

E. Organization of Rebuttal Testimony

Q 16 Please summarize how the remainder of PG&E's Rebuttal Testimony is organized.

A 16 In this Rebuttal Testimony, PG&E addresses the parties' recommendations for the Comprehensive Gas AMI Replacement Program, as follows:

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23 CA-02, p. 24.

24 See Chapter 4 Rebuttal Testimony that describes group accounting for all the Gas AMI 1.0 Modules.

25 See PG&E's data request response to Cal Advocates_010-Q003, which includes yearly amounts for 2023-2026.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 4

REBUTTAL TESTIMONY ON

TREATMENT OF REMAINING INVESTMENT IN

GAS AMI 1.0 RETIRED ASSETS

1) Cal Advocates' proposal that PG&E quantify the magnitude of the undepreciated portions of Gas AMI 1.0 Modules that failed early, which it terms "stranded assets;"
2) Cal Advocates' request that PG&E explain how it intends to recover the costs of these assets;
3) Cal Advocates' proposal to disallow a return of these costs; and
4) Cal Advocates' and TURN's proposals to disallow a return on these costs.

Q 5 How do you respond to these proposals?

A 5 Based on the analysis PG&E has performed, as well as my experience performing PG&E's depreciation studies and involvement with the process of establishing the California Public Utilities Commission (CPUC or Commission)–authorized depreciation rates, there are no "stranded costs" to address in this proceeding. Instead, the normal depreciation process already recovers the costs of these assets over their service lives, addresses the issue of any early retirements, and, therefore, alleviates Cal Advocates' and TURN's concerns. More specifically, this rebuttal testimony explains that:

1) PG&E uses group depreciation for its electric, gas and common assets, in which depreciation rates for each property account are based on average service lives. PG&E does not depreciate assets individually and, therefore, cannot and should not quantify stranded costs at the individual asset level. Instead, these assets should be considered at the property group level.[3] PG&E's depreciation rates for Gas AMI 1.0 Modules have been established to recover the costs of the related property account over its average remaining life, which will mean no "undepreciated" or "stranded" costs by the time Gas AMI 1.0 Modules are replaced.
2) PG&E's depreciation rates are updated periodically (historically every three to four years) for all assets, including Gas AMI 1.0 Modules. Depreciation rates are based on forecasts of service lives that span

[3] This is similar to the approach the Commission used in Decision (D.) 11-05-018, in which legacy electric meters were assessed as a property group.

several decades and are adjusted in each study for available information, which may result in shortening or lengthening service lives. For PG&E, Gas AMI assets initially had a 20-year Average Service Life (ASL). Based on depreciation studies in the 2023 GRC, this ASL was shortened to the 15-year life currently in use.

3) PG&E's depreciation rates use the remaining life technique set forth in the CPUC's Standard Practice U-4, which recovers remaining costs over the Average Remaining Life (ARL) of the property group.

4) In the most recent depreciation study done for PG&E's 2023 GRC, the ARL for AMI assets (including Gas AMI 1.0 Modules, but also including other AMI assets) was estimated to be 4.08 years as of December 31, 2020. Using the remaining life technique, depreciation rates were calculated with this ARL, which would recover the costs of Gas AMI 1.0 Modules by the mid-2020s.[4] The ASL and ARL used for the depreciation rates approximate the average lives that Gas AMI modules will experience, and the remaining life used for the calculation will recover these costs by the time Gas AMI 1.0 Modules are replaced.[5]

Q 6 Please explain PG&E's depreciation practices more generally.

A 6 To help explain these concepts further, I will provide an overview in Section C of PG&E's depreciation practices and explain how service lives are estimates of the future. I have performed depreciation studies for PG&E since the AMI program was implemented and, therefore, have a strong understanding of how the costs of AMI assets have been recovered over their service lives. Of the several concepts I will discuss, one of the more important is that individual assets retired before the ASL of a group are not "premature" retirements or "stranded assets." The use of average service

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4 The calculations would recover these costs by 2024; however, due to the lag in implementing depreciation rates the actual date of recovery would be somewhat later, but still within the next few years.

5 It is important to recognize that, because depreciation is a forward looking exercise and incorporates millions of individual assets, there is only a certain level of precision that can be reasonably expected. Average service life estimates, for example, are often made in increments of 5 years. Generally, if the estimated ASL is within +/- 3 to 5 years of the actual experienced ASL for a full property group, the estimate should be considered to be reasonably precise. The 3 to 5 year period corresponds to the typical period of time between depreciation studies.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 5

REBUTTAL TESTIMONY ON

RESULTS OF OPERATIONS

mini-RO model may be tailored to fully and accurately accommodate Cal Advocates' adjustments.

Q 8 Please quantify the potential magnitude of revenue requirement associated with the ROE on the undepreciated portions of those original Gas AMI 1.0 modules that have previously failed and been replaced before they reached 15 years of age, in response to Cal Advocates' request.[6]

A 8 To calculate the revenue requirement of the ROE for those Gas AMI 1.0 modules, PG&E utilized the previously calculated $9.83 million of undepreciated plant balances between the years 2023-2026 discussed in Chapter 1 (Q&A 15), provided to Cal Advocates in a prior discovery response. For each year 2023-2026, PG&E used an average of the annual net plant[7] balances as its proxy rate base. To calculate the ROE, PG&E multiplied the annual rate base with its authorized ROE percentage for the respective year, the authorized percentage of common equity from its Cost of Capital structure (52 percent), and a revenue gross-up factor (1.4253) to account for Federal and State income taxes. The resulting revenue requirement totals approximately $1.049 million for 2023-2026 for the undepreciated portions of the Gas AMI modules that failed and were replaced prior to reaching 15 years of age.

D. PG&E's Response to SBUA's Testimony

Q 9 Please summarize SBUA's testimony concerning cost allocation.

A 9 SBUA notes that PG&E proposes to recover the revenue requirements associated with the Comprehensive Gas AMI Replacement Application through both gas and electric rates. SBUA proposes that the costs be instead solely allocated to natural gas customers.[8]

Q 10 What is your response to SBUA's recommendation?

A 10 As explained in my Prepared Testimony, Gas Modules and the Gas AMI System Upgrade capital costs are considered Common, General, and Intangible (CGI) costs subject to common cost allocation. Consistent with PG&E's GRC, these costs are allocated to different functional areas (Electric

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6 CA-02, p. 24.

7 Plant Balance less AD.

8 SBUA-01, pp. 15-16.

EXHIBIT F

PACIFIC GAS AND ELECTRIC COMPANY
COMPREHENSIVE GAS ADVANCED METERING INFRASTRUCTURE REPLACEMENT PROGRAM
ERRATA TO REBUTTAL TESTIMONY
(CONTAINS ERRATA FROM JANUARY 21, 2025)
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Application: 24-03-011
(U 39 M)
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Date: February 19, 2025
Witness(es): Various

PACIFIC GAS AND ELECTRIC COMPANY

COMPREHENSIVE GAS ADVANCED METERING INFRASTRUCTURE REPLACEMENT PROGRAM

ERRATA TO REBUTTAL TESTIMONY

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(PUBLIC VERSION)

PACIFIC GAS AND ELECTRIC COMPANY

APPENDIX B

RESPONSES TO DATA REQUESTS

(PUBLIC)

PACIFIC GAS AND ELECTRIC COMPANY
Gas AMI Replacement
Application 24-03-011
Data Response

PG&E Data Request No.:	CalAdvocates_010-Q003
PG&E File Name:	GasAMIReplacement_DR_CalAdvocates_010-Q003
Request Date:	September 17, 2024
Requester DR No.:	PubAdv-PG&E-008-GAW
Requesting Party:	Public Advocates Office
Requester:	Mariana Campbell/Tamera Godfrey
Date Sent:	October 11, 2024
PG&E Witness(es):	Sean Su

SUBJECT: RETURN ON, AND DEPRECIATION OF, UNAMORTIZED PORTIONS OF AMI 1.0 MODULES

In various prior CPUC decisions, the Commission has discussed how best to treat the undepreciated plant balance and the rate of return associated with capital projects that experience premature retirements. In these prior decisions, the Commission has often determined that adjustments are appropriate. For example, on page 1 of D.11-05-018 (the Settlement Decision for PG&E's test year 2011 general rate case increase request), the Commission provided the following Summary discussion:

> With respect to the lone remaining issue that relates to the ratemaking treatment for the undepreciated plant balance associated with electric meters that are replaced by SmartMeters, that plant balance will be amortized over a six-year period with the associated rate of return on the unamortized balance reduced to 6.3% to reflect the reduced regulatory risk for that plant.

While the D.11-05-018 Summary discussion specifically relates to electric meters, the same principles would seem to apply to the prematurely retired Gas AMI 1.0 modules. In addition, beginning on page 36 of D.11-05-018, the following discussion is also provided:

> As the AMI meters are deployed, replaced existing meters will be retired at their original cost. The retirement of these non-AMI meters is accomplished through a simple reduction to plant of the original cost installed with an equal and offsetting entry to accumulated depreciation. Therefore, there is no impact to the net book value (plant less accumulated depreciation). Because of the group depreciation accounting used by PG&E, any unrecovered book investment will be recovered over the average life of the depreciation group.

Cal Advocates has the following questions regarding PG&E's proposals for calculating costs associated with the replacement of the original Gas AMI 1.0 modules.

QUESTION 003

For each of the years 2023 through 2030, please provide the total yearly undepreciated plant balances for those original Gas AMI 1.0 modules that have been prematurely retired.

ANSWER 003

PG&E interprets “prematurely retired” to refer to modules replaced before they have been in service 15 years, which is the 2023 GRC adopted average service life of the gas modules.

PG&E is providing the undepreciated plant balances for the “prematurely retired” original Gas AMI 1.0 modules that were installed in years 2006 to 2013 for those modules replaced in years 2023, 2024, 2025, and 2026.

Year Replaced:

2023 $5.0M

2024 $4.2M

2025 $0.6M

2026 $0.03M