Application No.: A.25-12-XXX
Exhibit No.: SDG&E-02
Witness: Sabrina Butler

PREPARED DIRECT TESTIMONY OF

SABRINA BUTLER

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

CHAPTER 2

(SMART METER 1.0 CHALLENGES)

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

December 18, 2025

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PREPARED DIRECT TESTIMONY OF
SABRINA BUTLER
CHAPTER 2
(SMART METER 1.0 CHALLENGES)

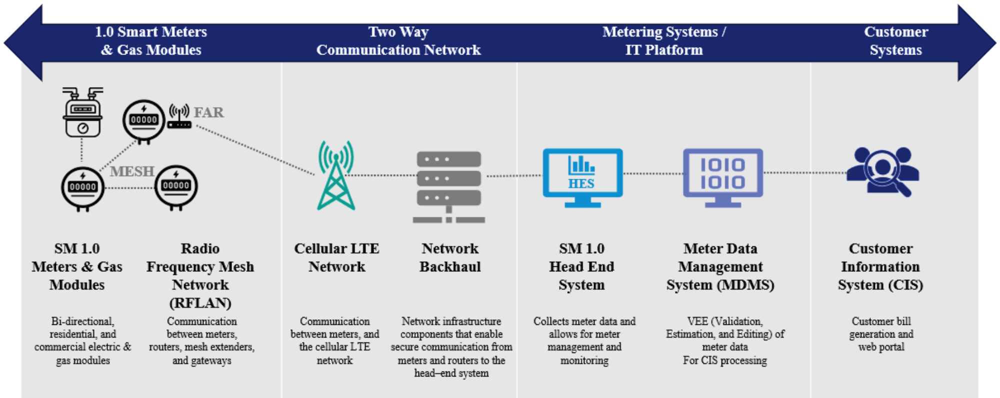
I. INTRODUCTION

The purpose of this chapter is to describe the architecture and functionality of the existing Smart Meter (SM) 1.0 infrastructure. In addition, this chapter details the challenges associated with the current SM 1.0 infrastructure resulting from the rapidly approaching end-of-life of its installed electric meters and gas modules, as well as the vendor and industry-wide shift away from supporting and manufacturing SM 1.0 devices and systems. Finally, this chapter describes the negative customer impacts and operational disruptions that result from increasing failure rates of SM 1.0 devices, and the significant IT and systems risks caused by the approaching obsolescence of the network and eventual loss of vendor support.

II. SMART METER 1.0 INFRASTRUCTURE

SDG&E's SM 1.0 infrastructure is made up of electric smart meters, gas modules, networking devices, communication systems, back-office metering systems, and customer systems. Figure 2-1 below shows the components of the SM 1.0 end-to-end infrastructure and how they are interconnected.

Figure 2-1[1]
SM 1.0 End-To-End Infrastructure



The field devices (meters, modules, network) use a Radio-Frequency Local Area Network (RFLAN) mesh network – a decentralized wireless system where devices communicate directly through radio signals. In this setup, electric meters and gas modules transmit data across a RFLAN,[2] which forwards the information to Field Area Routers (FARs) or designated takeout points. These FARs function as gateways, securely sending meter data to SDG&E's back-office systems via 4G cellular Long-Term Evolution (LTE) connections on major networks such as Verizon or AT&T.

The Head-End System (HES) enables two-way communication between smart meters, gas modules, and SDG&E's back-office systems. It manages data exchange and remote actions, such as connecting or disconnecting service to the meters. From there, the HES passes data to the Meter Data Management System (MDMS), which aggregates, validates, and prepares the information for the Customer Information System (CIS). The CIS uses this data for billing,

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[1] This illustration is also presented as Figure 3-4 in Chapter 3 and Figure 5-3 in Chapter 5.

[2] Gas modules do not connect directly to the mesh network but instead connect through nearby electric meters using Zigbee protocol communication technology.

credit and collections, and customer engagement. Beyond customer systems, the HES also supplies data to other critical functions, such as outage management.

III. SMART METER 1.0 IMPLEMENTATION

Implementation of the SM 1.0 system was a highly structured, multi-phase program that began long before the first meter was installed. The process began with implementing the back-office foundational technology that ultimately manages and processes the vast amount of data generated by the system. As referenced in Figure 2-1, the foundational technology consists of essential IT infrastructure components and integrations with downstream systems, such as SDG&E's CIS, which underwent significant upgrades to support the receipt of smart meter interval data to enable time-of-use (TOU) rates. Concurrently, the HES and MDMS were designed and deployed to collect, validate, and process meter data for integration with the CIS. Cybersecurity measures such as security appliances, encryption, and authentication were embedded into the design to protect systems and data.

Once the foundation was in place, attention shifted to the network design, which is the backbone of in-field AMI assets. This involved detailed engineering studies to determine the optimal topology for the RFLAN mesh network, including placement of routers and mesh extenders to ensure coverage across diverse geographic and urban environments. In parallel, SDG&E secured cellular backhaul for connectivity of field router devices and central systems.

With the network planning finalized, the next phase was deployment, which began with installing the RFLAN mesh network. This step was critical because the network must be fully functional before meters can communicate with the HES. Deployment of electric meters and gas modules were staged, starting from the core RFLAN mesh network and expanding outward like branches of a tree, ensuring that connectivity is established before adding endpoints - the electric meters were installed first, as they formed the primary communication nodes and subsequently gas modules followed, given their dependency on the electric meters.

Throughout this process, extensive field and back-office coordination were required, including workforce training, scheduling, inventory management, and customer outreach to minimize disruption.

IV. ROLE OF SM 1.0 TECHNOLOGY IN UTILITY OPERATIONS

The deployment of SM 1.0 fundamentally transformed SDG&E's metering operations and customer service by eliminating most manual meter reading and improving billing accuracy. Remote meter reading enabled SDG&E to collect consumption data without requiring field visits or access to customer property, which not only reduced operational costs but also minimized customer inconvenience. This shift ensured timely access to usage information while accurate measurements helped to prevent billing errors and disputes, creating a more seamless customer experience.

Additionally, SM 1.0 enabled interval data and two-way communication back to SDG&E to provide greater insights into the system. The two-way communication allowed for quicker troubleshooting of customer issues such as "no light" calls. Access to detailed consumption data has become a critical expectation, as customers increasingly demand accurate, and seamless online bill presentment. Currently, ~85% of SDG&E's customers have a My Energy Center account, with ~70% using their account to view usage data, understand and pay their bill.[3] Additionally, customers and third parties rely on accurate usage information, through the Green

[3] My Energy Center helps customers understand, manage, and pay for their energy service. The portal provides customers with timely, actionable insights into their energy use, track usage trends, and understand what's driving their bill through clear, easy-to-read breakdowns. My Energy Center also streamlines the bill pay process, allowing customers to view balances, set up AutoPay, choose payment options, and receive reminders all in one place.

Button application, which provides up to 13 months of consumption data to help make informed decisions on ways to save energy and lower bills.[4] In 2025, there have been ~1.9 million downloads of customer usage through Green Button. This same data also plays a pivotal role in supporting Community Choice Aggregators (CCAs), who provide retail commodity service to ~80% of SDG&E's distribution service customers, ensuring transparency and empowering customers with more control over their energy choices. Absent advanced metering infrastructure, core utility functions become inefficient and customer dissatisfaction more likely.

Beyond the customer-facing aspects of SM 1.0, the technology has delivered significant grid-side benefits for SDG&E. Interval data supports load visibility, improving forecasting and planning, while two-way communication improves situational awareness critical for outage management and restoration. These capabilities fortify modern grid operations, ensuring reliability and resiliency. Smart meter functionality has become the "new normal" and is regarded as indispensable by customers, utilities, and regulators alike. On a national scale, Advanced Metering Initiative (AMI) 1.0 meters now account for over 80% of U.S. energy consumption data collection, with nearly 146 million smart meters deployed.[5]

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4 Green Button data download gives customers secure access to their detailed energy usage information in a standardized, easy-to-use format. Customers can download their data at any time to better understand consumption patterns, track usage over time, or share information with third-party tools and energy management services of their choice. Green Button supports informed decision-making, encourages innovation, and helps customers more actively manage their energy use while maintaining strong privacy and security protections.

5 *See, e.g.,* Forbes, Are Smart Meters 2.0 Worth the Investment? What You Need To Know (April 7, 2025), *available at* https://www.forbes.com/councils/forbestechcouncil/2025/04/07/are-smart-meters-20-worth-the-investment-what-you-need-to-know/.

V. CHALLENGES RELATED TO SM 1.0

A. SM 1.0 Infrastructure End-of-Life

In its decision approving SDG&E's initial implementation of its AMI solution,[6] the Commission recognized that the SM 1.0 infrastructure would eventually require replacement. The decision assumes a 17-year useful life of the project,[7] and notes that " . . . the SDG&E AMI system will be substantially (if not wholly) replaced after 17 years."[8] The Commission acknowledged the likelihood that SDG&E would "install a second generation of AMI starting after 17 years," correctly predicting that "[b]y 2026 (the last year of the expected system lifetime of the current project), the AMI system as a whole would likely be overtaken by a faster, cheaper and higher functioning AMI system that uses a different communications system."[9]

Applying this 17-year timeline to SDG&E's initial SM 1.0 deployment offers a clear view of when installed SM 1.0 electric meters and gas modules are expected to reach end-of-life. SDG&E's SM 1.0 devices were mostly deployed during the 2009-2011 period, which means that end-of-life will occur between 2026-2028, as shown in Figure 2-2 below. Indeed, SDG&E has already started to experience failures with a significant portion of its meter population as they reach end-of-life.

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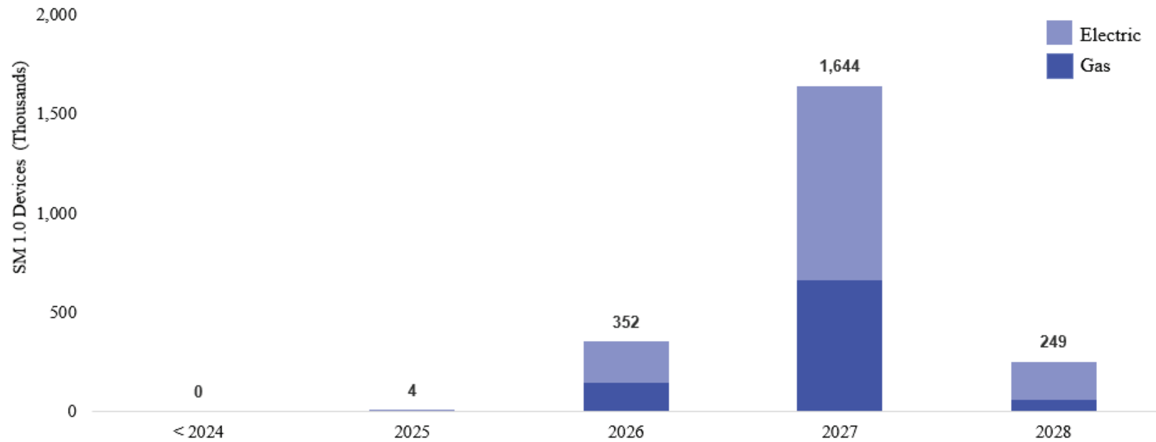
[6] Decision (D.) 07-04-043.

[7] *Id*. at Finding of Fact (FOF) 7 ("The analytical timeframe for evaluating the cost-effectiveness of SDG&E's AMI Project is 17 years, because the useful life of the project is 17 years").

[8] *Id*. at 29.

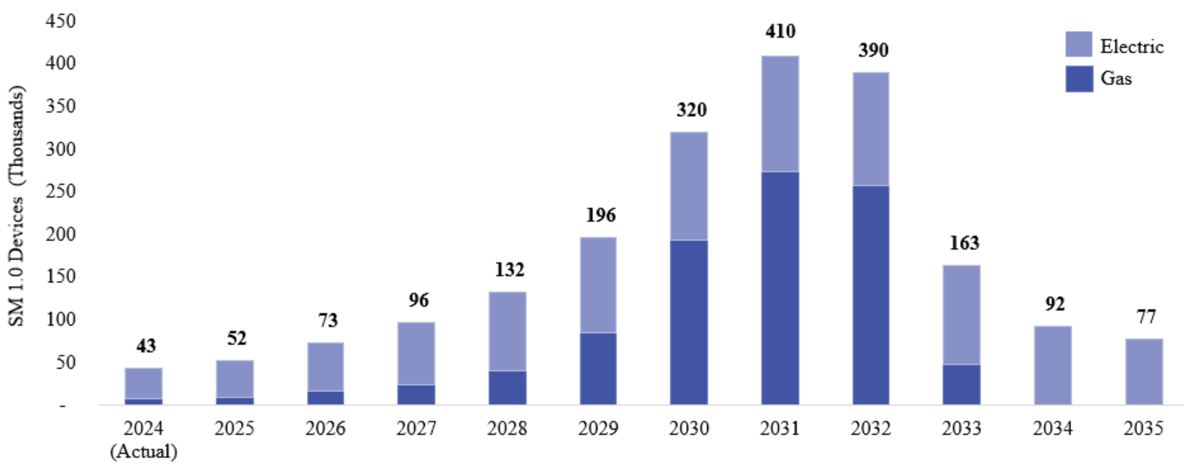
[9] *Id*. at 31.

Figure 2-2
SM 1.0 End-of-Life Planning



With this 17-year end-of-life horizon for SM 1.0 devices in mind, SDG&E developed a failure forecast methodology based on actual data in order to better understand how the infrastructure performance may degrade over time and to inform end-of-life planning for a timely and efficient replacement strategy. The failure forecast is just that – a forecast – it is not intended to prove that failures will occur and is not a perfect mechanism for predicting *when* failures will occur, but it offers a means of anticipating the pace and distribution of those failures in order to support operational readiness and minimize customer disruption.

Figure 2-3[10]
SM 1.0 Annual Failure Forecast

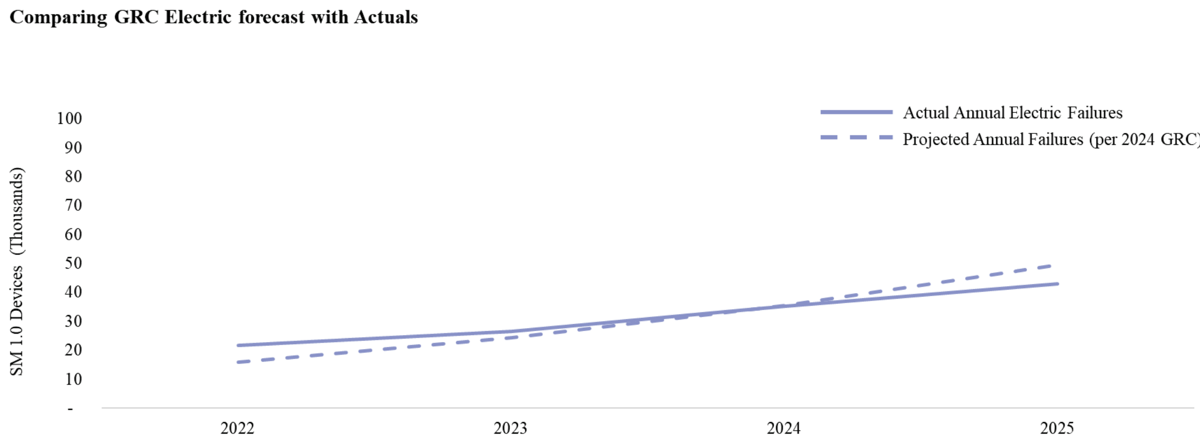


The SM 1.0 device forecast presented in Figure 2-3 involves two separate forecast methodologies, one focused on predicted electric meter failures over the study period and the second focused on predicted gas meter failures:

- **Electric Meter Failure Forecast Methodology**: SDG&E presented an electric meter failure forecast it its 2024 general rate case (GRC) proceeding that was based upon the technology's end-of-life and historical failure data. A comparison of the SM 1.0 electric meter failure forecast presented in the GRC proceeding against actual electric meter failures demonstrates that, while not a perfect predictor (as no forecast methodology can claim to be), the failure forecast methodology used in the GRC proved to be a highly accurate predictor of lifecycle performance for SM 1.0 meters.

[10] *See Chapter 2, Workpaper 1, Tab - WP 2.3.1(Failure Rate Analysis).*

Figure 2-4
Electric Meter Failure Forecast Presented in GRC[11]



SDG&E has further refined the methodology to incorporate additional variables such as geographic impacts across SDG&E's service territory and weather conditions, and has expanded the failure data set to provide a more granular and reliable projection of future electric meter failures.

Thus, while no forecast methodology can perfectly predict future outcomes, SDG&E's submits that its electric meter failure forecast presented in the instant application offers a high degree of accuracy, presenting a very clear (and concerning) picture of the trajectory and likely volume of near-term electric meter failures.

SDG&E notes further that given the direct dependency of gas modules on functioning electric meters, the electric meter failure rate is the key indicator of potential future catastrophic SM 1.0 system failure. Each electric meter failure can disrupt up to ten gas modules, creating cascading communication outages and

[11] Application (A.) 22-05-015/22-05-016 (cons.).

billing issues, irrespective of confirmed gas module failures. This interdependency means that even if gas modules themselves remain operational, their functionality is compromised by the deteriorating electric meter infrastructure.

- **Gas Module Failure Forecast Methodology**: The gas module failure forecast developed in the instant case and presented in Figure 2-3 differs from that presented in the GRC. The earlier methodology was based on assumptions including accelerated battery degradation and projected steep failure curves by 2029/2030 that did not align with actual field performance. The new gas module forecast methodology presented here integrates manufacturer-specific voltage thresholds and battery degradation data for improved accuracy.

The updated forecast[12] presented in Figure 2-3 reinforces the conclusion that SM 1.0 electric meters and gas modules failures are accelerating, and that the need for replacement is unavoidable. Cumulative SM 1.0 electric meter and gas module failures are anticipated to eclipse almost one million units in 2030 and well over half the population by year's end 2031.

B. Vendor Transition Away from SM 1.0

As an early adopter of smart meter technology, SDG&E procured the first generation of SM 1.0. Since then, the market has shifted to newer, better networking technologies, and is now looking ahead to SM 2.0. As discussed in more detail in Chapter 3, SDG&E issued a Request

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[12] SDG&E updated the electric meter and gas module failure forecast in November 2025. SDG&E has experienced over 30,000 failures through September 2025. The total number of failures for 2025 is likely to be materially higher since SDG&E has historically experienced a significant increase in failures during the 4th quarter.

for Quotation (RFQ) to its incumbent vendor to assess the feasibility of maintaining its SM 1.0 infrastructure going forward.

SDG&E's Master Services Agreement (MSA) with the incumbent vendor expires in 2028. The incumbent vendor has indicated that due to component obsolescence and technological advancements, the SM 1.0 platform specified in the current MSA is being transitioned to the supplier's next-generation solution. As a result, in the RFQ response, the incumbent vendor committed to working with SDG&E but did not guarantee sufficient supply of SM 1.0 devices between 2028-2035. Additionally, the incumbent vendor indicated that it could not secure guarantees from its suppliers (specific to RFLAN) to support SM 1.0 product availability or support beyond 2035. Based on these factors, the incumbent vendor advised SDG&E to develop a transition plan to ensure continuity and mitigate risk.

The question of equipment availability after 2028 is a key issue since the ability to maintain service continuity depends on access to replacement SM 1.0 devices. As production ceases and inventories shrink, the risks associated with SM 1.0 device failures expands to include the possibility that at some point, replacement devices would not be available *at all*. A related concern is the risk of continuing to deploy legacy SM 1.0 assets that will require replacement in the near term. Installing more SM 1.0 RFLAN-based devices would deepen SDG&E's dependence on technology that the meter manufacturer has indicated is becoming obsolete as it reaches end-of-life and nears end-of-service.

VI. IMPACT OF SM 1.0 CHALLENGES ON THE CUSTOMER EXPERIENCE, UTILITY OPERATIONS, AND TECHNOLOGY SYSTEMS

A. Customer Impacts

The customer impacts associated with the aging SM 1.0 system are significant and are becoming more immediate as SM 1.0 devices and their supporting systems reach the end of their expected service life. From the customer perspective, failing SM 1.0 devices lead to increased billing issues, including greater reliance on estimated bills, reduced access to timely usage information, and/or slower restoration during unplanned outages.

These negative customer impacts stem not only from the failure of individual SM 1.0 electric meters or gas modules, but also from the broader deterioration of the SM 1.0 infrastructure as a whole. As devices and network technology reach end-of-life, the ecosystem that supports SM 1.0 becomes increasingly fragile. Customers therefore experience compounding effects: failing meters and declining system performance that SDG&E cannot fully mitigate because SDG&E's SM 1.0 infrastructure is not a sustainable long-term technology platform. The most common issues rising from SM 1.0 device failures are described below:

- **Billing Accuracy and Timeliness**: As SM 1.0 device failures increase, more customers receive estimated bills, sometimes across multiple months, resulting in large and unexpected true-up adjustments that create financial stress and confusion. Although estimated bills have always been a last resort tool, the increasing rate of SM 1.0 device failures has made reliance on estimated bills significantly more common. Estimated bills are particularly problematic for customers on specific rates such as Time-of-Use (TOU), since these customers must have access to reliable meter data to understand how to shift their usage during peak hours of the day. Customers dealing with delayed or estimated bills, or who have limited access to usage data, often feel frustrated and underserved. These situations not only strain customer service resources but also undermine confidence in SDG&E's ability to deliver reliable, transparent, and responsive service. From January to November of this year, SDG&E issued ~400k estimated bills representing ~1.9% of all bills during this timeframe – a clear indication of the mounting impact of SM 1.0 device failures. While not all SDG&E billing-related escalated complaints are connected to estimated bills, billing concerns have often ranked among the higher categories. In 2025, approximately 20% of billing complaints were related to estimated bills. With the continued rise in SM 1.0 electric meter and gas module failures, the volume of customer complaints is only expected to increase.

- **Net Energy Metering**: Customers participating in net energy metering (NEM) and other distributed energy programs face heightened risks as the SM 1.0 infrastructure continues to deteriorate. NEM tariffs require precise measurement of both electricity consumption and export. When SM 1.0 devices fail, customers lose accurate measurement of exports, which impacts their NEM true-up. Over the past 12 months, NEM customers have received ~10-15% of the total estimated bills. Currently, SDG&E has ~350,000 customers on NEM tariffs – these customers have invested in solar and/or energy storage systems in reliance on the availability of accurate metering to ensure that they receive the value of their exported electricity. Additionally, prospective solar customers considering whether to make a significant financial investment require functioning and accurate meter data to guide their decision-making and to accurately size their solar system for their electricity needs.
- **Self-Service Capabilities**: Customers increasingly depend on My Energy Center to manage several aspects of their SDG&E service account, from monitoring energy usage and solar production to receiving outage updates, understanding

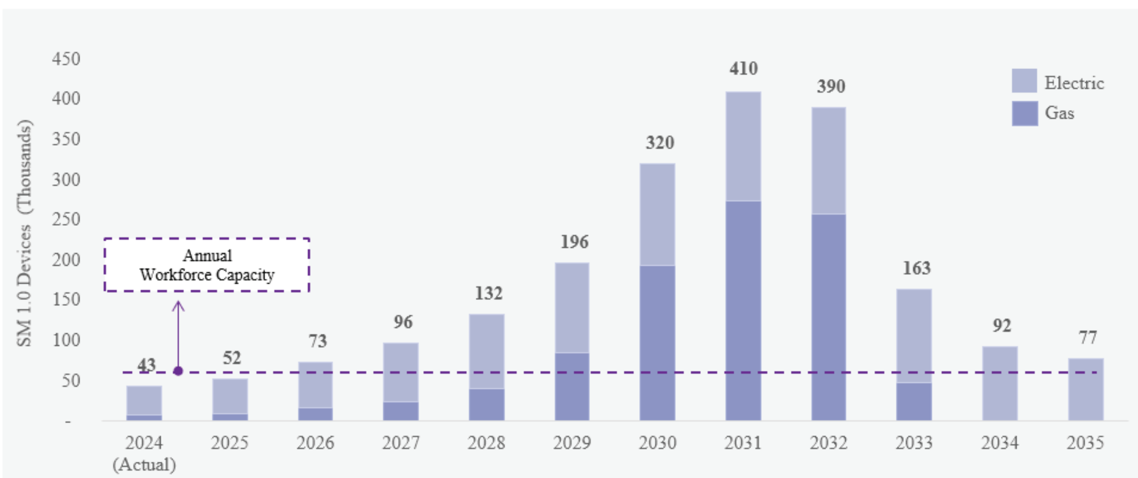
TOU rate impacts, and evaluating the effectiveness of energy-saving behaviors. While SM 1.0 originally enabled these capabilities, failing devices and network obsolescence have led to incomplete or estimated usage intervals, which can undermine customer trust, reduce engagement, and create confusion in digital presentation. Today, more than one million digital customers rely on accurate, timely data, making modernization essential to sustaining a high-quality on-line experience that they expect. Access to this timely data in My Energy Center and Green Button is critical not only to customers, but also to key stakeholders such as regulators, third-party providers of retail energy services (*e.g.*, community choice aggregators), and schools and institutions.

B. Operational Impacts

The operational impacts of SM 1.0 infrastructure end-of-life are significant, extensive, and accelerating. As the SM 1.0 system ages, failures no longer occur as isolated events. Instead, they propagate through SDG&E's RFLAN mesh-based network, creating compounding impacts that undermine essential operational functions. While one meter failure is disruptive, widespread and growing failures across the SM 1.0 system undermines SDG&E's ability to efficiently manage its grid and support customer service. The most problematic of these operational impacts are described below:

- **Workforce Capacity**: The accelerating rate of SM 1.0 failures is placing unprecedented pressure on SDG&E's Customer Field Operations workforce. SDG&E has undertaken proactive measures such as identifying process improvements, leveraging data and technology, and creating efficiencies to increase workforce capacity to address such challenges. However, failures are growing faster than SDG&E can feasibly address. For context, a single device failure triggers a complex process involving a truck roll, meter exchange, device testing, data synchronization, and verification that the meter is registering and communicating properly. When failures occur across thousands of devices, these demands scale exponentially, straining staffing, scheduling, inventory, and logistics. SDG&E's current estimated workforce capacity is 60,000 replacements annually. Thus, the SM 1.0 device failure forecast (see Figure 2-5 below), which projects a failure rate of 73,000 devices by the end of 2026, suggests a very real risk that SDG&E's field resource capacity will be eclipsed beginning in 2026, as shown in Figure 2-5.

Figure 2-5
SM 1.0 Failures vs. Workforce Capacity



Without corrective action such as significant workforce expansion, the projected high volumes of SM 1.0 device failures will result in replacement delays and create growing, unmanageable operational backlogs. Stop-gap measures such as deploying highly skilled (and costly) technicians for manual reads (when possible) may be used on a temporary basis but are not a sustainable solution.

- **Remote Connect/Disconnect (RCDC)**: Remote connect and disconnect of service is one of the most significant operational efficiencies provided by SM 1.0 technology, eliminating the need for field visits and reducing delays for customers. When SM 1.0 communication fails, this capability is lost, forcing SDG&E to dispatch field personnel to perform these actions manually. These manual visits increase operational costs, strain limited field resources, and delay task completion, negatively impacting the customer experience.

  Recent operations' data highlights the growing impact of losing RCDC functionality. Approximately 30% of fielded disconnections involve residential accounts, primarily due to failed remote disconnection attempts. While not all failures can be attributed solely to SM 1.0 infrastructure, this trend underscores the risk of mass failures leading to a surge in truck rolls. Each additional field visit diverts crews from higher-priority work and adds significant cost to operations.

- **Outage Management**: SM 1.0 electric meters transmit power loss and restoration notifications that give SDG&E visibility into outage boundaries and customer impacts. When a meter fails, the utility loses this visibility for that premise - when many meters fail or the network degrades, outage intelligence becomes increasingly incomplete. The result is that grid operators must utilize other systems or wait for customer reports of outages to achieve situational awareness, which may increase restoration times. Additionally, as failures spread across neighborhoods, this effect is amplified in a mesh-based system as data acquisition routing paths begin to collapse.

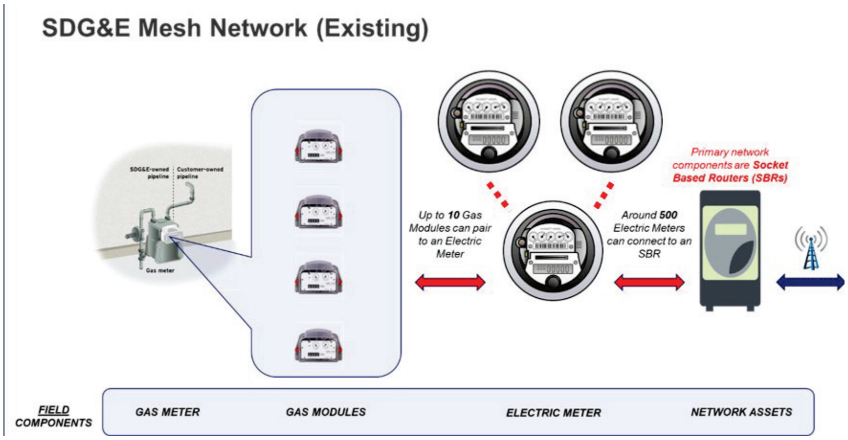
- **Unplanned Outage Restoration**: SDG&E uses SM 1.0 electric meters to help ensure customer restoration during an unplanned outage. This restoration verification process depends on the ability of the meter to transmit signals when power is lost and restored. As SM 1.0 devices fail or network challenges grow, SDG&E loses direct visibility into which customers have not been returned to service. This reduction in situational awareness affects customer service field operations and becomes more consequential as the number of failures increases and the network degrades.

C. Technology Impacts

The SM 1.0 system was designed nearly two decades ago, at a time when data expectations, cybersecurity standards, and customer engagement models were fundamentally different. As SM 1.0 devices fail in increasing numbers, the network approaches obsolescence, and the SM 1.0 supporting systems near vendor end-of-service, the technological foundation of the utility's metering solution is at risk. This is not simply a matter of outdated systems; it is a holistic and systemwide concern for the integrity of data quality, communication reliability, and cybersecurity. Primary concerns regarding technological impact include the following:

- **RFLAN Mesh Network**: The SM 1.0 RFLAN mesh network (discussed above and in more detail in Chapter 5) is showing clear signs of strain as devices fail and communication paths collapse. A RFLAN mesh network depends on a dense population of functioning meters to move data efficiently across interconnected electric meters. An illustrative example of SDG&E's RFLAN mesh is provided below in Figure 2-6.

Figure 2-6
SM 1.0 Mesh Network Configuration



As aging meters reach end-of-life, individual failures create immediate communication gaps. Eventually, these gaps compound into broader performance failures because the RFLAN mesh cannot reroute communications if too many electric meters are missing.

Further, when failures appear in clusters or when device density declines across an area, routing options diminish, latency increases, data quality may degrade, and the probability of missing or partial interval data rises. This degradation affects all downstream systems, from outage management to billing.

- **Field Area Router (FAR)**: SM 1.0 FARs were purchased in 2018, with the expectation of a 10-year lifespan, and are only warranted for 10 years from date of purchase. As noted above, these devices rely on 4G cellular connectivity. If and when cellular carriers migrate to a 5G platform, the device technology will be unsupported. SDG&E does not expect these devices (currently installed SM 1.0 FAR devices or replacement devices) to be upgraded to ensure compatibility with 5G cellular technology. Existing SM 1.0 FARs will reach the end of warranty in

2028 and are at increased risk of failure at that time. Given the lack of compatibility with evolving cellular technology, comprehensive replacement of failing devices with new SM 1.0 FARs is not recommended.

- **Zigbee Connectivity (Gas Module)**: The SM 1.0 system relies on Zigbee communication technology to enable gas modules to transmit usage data through a nearby electric meter. In the original architecture, as many as ten gas modules may connect to a single electric meter. While this design was functional during initial deployment,[13] it creates significant challenges today as SM 1.0 devices approach end-of-life and failure rates increase.

  When an electric meter fails or loses communication, the gas modules that depend on it immediately lose their communication pathway. This means that a single electric meter failure can disrupt data acquisition for multiple gas customers, multiplying the operational impact. As electric meter failures grow, the number of 'orphaned' gas modules rises, leading to larger pockets of missing gas data and extended periods of estimated billing. This design dependency also complicates troubleshooting. Field personnel and back-office analysts must determine whether data gaps stem from the electric meter, the gas module, the network, or the broader system.

- **Cybersecurity:** SM 1.0 relies on HES software, which must work with several core technologies like operating systems, databases, web browsers, and encryption hardware. These technologies are regularly updated by their vendors.

[13] The Commission has acknowledged that Zigbee is an outdated technology, finding in D.22-12-009 at 29 that "[g]iven the move towards Wi-Fi and lack of vendors supporting Zigbee, it is reasonable to end funding for Zigbee support as proposed by SDG&E."

Certain components, such as the HES and hardware security modules, are included in SDG&E's MSA with the incumbent vendor and will expire in 2028. Although the vendor is committed to working with SDG&E on a transition plan, currently SDG&E has no guarantee of support beyond the MSA expiration date. Without support, routine security patches and upgrades to these other core technologies could break the SM 1.0 system. SDG&E would be left using outdated technology, increasing the risk of system failures. In addition, SDG&E plans to adopt post-quantum cryptography (PQC)-resistant encryption, consistent with the transition to this technology currently being undertaken by the U.S. government and National Institute of Standards and Technology (NIST).[14] However, implementing PQC-resistant algorithms may not be feasible due to limited vendor support of the HES, leaving SDG&E's systems exposed to cybersecurity threats.

VII. CONCLUSION

The imminent obsolescence of SDG&E's SM 1.0 infrastructure, with SM 1.0 devices reaching end-of-life and vendor support shifting to SM 2.0 platforms, is negatively impacting the customer experience and creating significant operational challenges for SDG&E. In addition, the growing deficiencies of the SM 1.0 infrastructure introduces significant IT and systems risks, which are not sustainable in the long-term.

This concludes my prepared direct testimony.

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[14] *See* Quantum Computing Cybersecurity Preparedness Act, Public Law (PL) No. 117-260, 136 Stat. 2389 (December 21, 2022), *available at*: https://www.congress.gov/117/plaws/publ260/PLAW-117publ260.pdf.

VIII. WITNESS QUALIFICATIONS

My name is Sabrina Butler. I am the Director of Customer Services at San Diego Gas & Electric Company (SDG&E). In this capacity, I am responsible for overseeing the comprehensive planning and execution of all aspects of the Advanced Meter Infrastructure Replacement (AMIR) Project.

Additionally, I provide strategic leadership and oversight for customer operations, including billing, credit and collections, customer choice programs such as Community Choice Aggregation (CCA), Direct Access, and Gas Choice, as well as customer support initiatives. I have more than 30 years of experience in utility customer service operations, regulatory compliance, strategic planning, process optimization, digital engagement, and data analytics. I have been employed by SDG&E since 2015 and have held roles with increasing responsibility in project management and delivery, specifically Time-of-Use, Customer Privacy and Community Choice Aggregation.

I graduated from the Georgia Institute of Technology in 1991 with a Bachelor of Science degree in Management.

I have previously testified before the Commission.