Company: San Diego Gas & Electric Company (U 902 M)
Proceeding: 2024 General Rate Case
Application: A.22-05-016
Exhibit: SDG&E-03: Chapter 1
SCG-03-2R-E/SDG&E-03-2R-E: Chapter 2

**SDG&E**

**(RISK MANAGEMENT TESTIMONY VOLUME)**

***

**PREPARED DIRECT TESTIMONY OF **

**MICHAEL M. SCHNEIDER**

**(CHAPTER 1: RISK POLICY)**

***

**SECOND REVISED**

**PREPARED DIRECT TESTIMONY OF**

**GREGORY S. FLORES AND R. SCOTT PEARSON**

**(CHAPTER 2: RAMP TO GRC INTEGRATION)**

**ERRATA**

**BEFORE THE PUBLIC UTILITIES COMMISSION**
**OF THE STATE OF CALIFORNIA**


**June 2023**

# CHAPTER 1
# PREPARED DIRECT TESTIMONY OF
# MICHAEL M. SCHNEIDER
# (RISK POLICY)

Company: San Diego Gas & Electric Company (U 902 M)
Proceeding: 2024 General Rate Case
Application: A.22-05-____
Exhibit: SDG&E-03

# PREPARED DIRECT TESTIMONY OF

# MICHAEL M. SCHNEIDER

# (RISK POLICY)

**BEFORE THE PUBLIC UTILITIES COMMISSION**
**OF THE STATE OF CALIFORNIA**

**May 2022**

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## SUMMARY


- San Diego Gas & Electric Company (SDG&E) presents its first General Rate Case (GRC) that incorporates the requirements of Decision (D.) 18-12-014 (the Safety Model Assessment Proceeding [S-MAP] Decision)[1], and the Settlement Agreement adopted therein (collectively, the Settlement Decision), supported by testimony that demonstrates how the Company's key safety risks have been prioritized.
- My testimony articulates SDG&E's commitment to continue its development of a leading set of risk, safety, and asset management policies and practices. It discusses:
  - Risk, Asset, and Investment Management Integration,
  - Asset Management Implementation,
  - Safety Management System (SMS) Implementation,
  - Wildfire Risk Management, and
  - Emergency Management
- I indicate how SDG&E has met the commitments included in the Test Year (TY) 2019 GRC testimony of Diana Day in her Risk Management Policy testimony[2] and the TY 2019 Safety Policy rebuttal testimony of David L. Buczkowski and David L. Geier,[3] which are summarized below:
  - SDG&E manages risks across the enterprise through a structured, data-driven approach that continuously identifies threats, systemically measures risk, and assesses the effectiveness of risk mitigations.
  - SDG&E risk, asset, and investment management decisions are fully informed by qualitative and quantitative analysis.


[1] D.18-12-014 (the Safety Model Assessment Proceeding [S-MAP] Decision).

[2] A.17-10-007/008, SDG&E-02-R.

[3] A.17-10-007/008, SDG&E-252.

- SDG&E developed and is operating within an enterprise-wide SMS that closely integrates risk, asset, and investment management across SDG&E's gas and electric operations.
- SDG&E's SMS increases focus on process safety and expands beyond "traditional" occupational health and safety to include asset, public, cyber, and psychological safety.

- I also discuss SDG&E's Enterprise Risk Management's future commitments. SDG&E continues to focus on the advancement of risk management principles and practices consistent with direction from the California Public Utilities Commission (CPUC or Commission), federal compliance, international standards, and industry leading practices. SDG&E's future commitments include following:
  - SDG&E is prepared to use its Integrated Strategic Operating Model and Safety Management System to further interconnect Safety, Risk Management, and Asset Management to operationalize the SMS Framework.
  - SDG&E will continue to promote sufficient risk competencies and tools to facilitate the identification and analysis of risk at a broad enterprise level and within the Company's operating units.
  - SDG&E is working to improve the efficiency and effectiveness of its risk-informed decision-making in support of the Commission's desire for increased transparency, modeling, and reporting of its risk mitigation activities.
  - Data science and the associated risk analytics will be used to inform many different business areas to support decision-making, capital prioritization, and resource allocation.

# PREPARED DIRECT TESTIMONY OF MICHAEL M. SCHNEIDER (RISK POLICY)

## I. INTRODUCTION

### A. Summary of Testimony

My testimony describes SDG&E's risk management policies and practices in support of SDG&E's TY 2024 GRC Application. SDG&E has been committed to providing safe and reliable service to its customers for years. Over the last few years, the Commission, intervenors, and California electric and gas utilities have been engaged in developing policies and practices to incorporate risk-based information into the utilities' GRCs. More recently, the Commission adopted the Phase Two Decision Adopting Safety Model Assessment Proceeding (S-MAP) Settlement Agreement with Modifications (Settlement Decision),[4] an agreement reached between intervenors and the large California Investor-Owned Utilities (IOUs). SDG&E has been, and will continue, to be a leader and active participant in the Commission's safety risk proceedings, including in the open S-MAP proceeding.[5]

In the 1990s, SDG&E started the process of further enhancing its safety culture. SDG&E's commitment to safe service has continued and expanded further and today, the Company's safety culture incorporates customer, employee, contractor, and asset safety. The Company's safety culture is supported by investments it has made in asset management systems, safety management systems, wildfire management systems, and emergency management systems. Each of these systems and their outputs have been aligned through the implementation of an Integrated Operating Model (Figure MMS-3 below). SDG&E has invested in each of these systems to promote SDG&E's continued leadership in safety management, as identified below and discussed later in this testimony:

- **Risk Management**: SDG&E has continued to use its risk management framework which is consistent with the risk management model adopted by the Commission (Cycla Model).[6]

[4] D.18-12-014.

[5] Rulemaking (R.) 20-07-013.

[6] D.16-08-018 at 195 (Ordering Paragraph (OP) 4).

**Figure MMS-1**
**SDG&E Risk Management Framework**


At an enterprise level, SDG&E continues to capture its risks in an Enterprise Risk Register (ERR).

- **Asset Management System**: SDG&E has continued to implement its formalized asset management program in accordance with the tenets of International Standards Organization (ISO) 55001.[7]
- **Investment Management System**: SDG&E has begun the implementation of investment management processes and systems (Copperleaf Portfolio) that incorporates the same Multi-Attribute Value Function (MAVF) as required by the Settlement Decision[8] into SDG&E's capital and operations and maintenance budget, and investment decisions.
- **Wildfire Management System**: SDG&E has continued its decade long leadership in the management of wildfire risk. SDG&E has continued to invest in people, assets, models, and tools to manage the risks of wildfire ignitions.
- **Emergency Management**: SDG&E's Emergency Management unit has two critical roles in the management of risk: (1) be prepared to respond to an incident and (2) minimize the consequence of an incident.

[7] ISO 55001.

[8] D.18-12-014 at 2, 67-68.

**Integration of Safety, Risk, Asset, and Investment Management within an Enterprise-wide Safety Management System**: SDG&E recognizes that treating safety, risk, asset, and investment initiatives as separate silos or activities provides benefits but believes that benefits are increased by integrating the data and information from each of the programs. Therefore, in 2020, SDG&E began the development and implementation of an enterprise-wide safety management system (SMS) to further integrate and align all sides of the business. SDG&E's continued investment in an Integrated Operating Model (figure MMS-3, below), and the supporting data science and quantitative analytics, will help SDG&E capture the increased benefits from integration.

SDG&E has a strong safety culture and many established safety programs. The SMS affirms, aligns, integrates, and brings further awareness and engagement to such programs by providing:

1. Greater communication, broad sharing of information, and utilization of lessons learned;
2. Enhanced documentation in the form of standardized processes and widely accessible document and data repositories;
3. Strengthened employee feedback mechanisms and additional means/resources for consistent follow-up and communication;
4. Early identification of risks, integration of risk and asset management with operations with consistent risk scoring methodologies;
5. Strong change management, where employees and contractors have the knowledge and tools to anticipate, identify, and assess risk and are empowered to communicate risks to drive change; and
6. Continuous learning and improvement with greater reliance on data and analytics and increased use of leading indicators with strong review processes to continually measure effectiveness.[9]

The commitments made by witnesses Diana Day (Ex. SDG&E-02-R) and David L Geier/David L. Buczkowski (Ex. SDG&E-252) in their respective TY 2019 GRC testimonies supported the implementation of SDG&E's safety management, asset management, and wildfire

[9] *See* Direct Testimony of Kenneth J. Deremer (Ex. SDG&E-31) for identified SMS mitigations.

risk management. This testimony also addresses the status of the commitments made by these TY 2019 GRC witnesses and discusses SDG&E's future commitments.

### B. Support To/From Other Witnesses

Requested funding for the Enterprise Risk Management (ERM) organization is addressed in the testimony of witness Kenneth J. Deremer (Ex. SDG&E-31). In addition, Mr. Deremer provides testimony on the implementation of SDG&E's Safety Management System and Asset Management initiatives, and witness Jonathan T. Woldemariam (Ex. SDG&E-13) provides testimony on Wildfire Risk Management and Emergency Management programs. The testimony of R. Scott Pearson and Gregory S. Flores (Ex. SCG-03/SDG&E-03, Chapter 2) describes in detail how SDG&E integrates the 2021 RAMP Reports, the feedback on the RAMP Reports received from the Commission's Safety Policy Division (SPD) and intervenors, and changes made in the TY 2024 GRC. A list of these witnesses and their testimony are listed below:

- R. Scott Pearson and Gregory S. Flores (Ex. SCG-03/SDG&E-03, Chapter 2, RAMP to GRC Integration)
- Kenneth J. Deremer (Ex. SDG&E-31, Safety Management System)
- Jonathan T. Woldemariam (Ex. SDG&E-13, Wildfire Mitigation)

### C. Organization of Testimony

Section I of my testimony provides an introduction, Section II explains the policies and processes SDG&E uses to manage risks, Section III discusses past SDG&E risk management commitments, Section IV reviews SDG&E's future risk commitments, Section V is the conclusion, and Section VI presents my witness qualifications.

## II. SDG&E MANAGEMENT OF RISKS

### A. SDG&E's Risk Policies, Practices and Framework Mirrors the Commission's Risk-Informed Approach

SDG&E has long recognized the importance of having an ERM process that prioritizes safety and reliability. This is consistent with the Commission's risk-informed approach to the GRC. In the Settlement Decision,[10] the CPUC established the minimum required elements for

[10] D.18-12-014 at 2.

risk and mitigation analysis in the RAMP and the GRC. The minimum required elements include:

- Capture Risks in an Enterprise Risk Register,
- Build a Multi-Attribute Value Function (MAVF),
- Assess and Rank Risks in Preparation for RAMP,
- Select Enterprise Risks for RAMP, and
- Analyze Mitigations for Inclusion in RAMP.[11]

In developing its TY 2024 GRC, SDG&E has incorporated the Commission's risk-related decisions and orders and international standards such as ISO 31000 (Risk Management). SDG&E has continued to use the six-step framework in Figure MMS-1 above titled "SDG&E Risk Management Framework":

1. **Risk Identification**: SDG&E's risk framework begins with the identification of risks by the various operating units within SDG&E. This process, while facilitated by the ERM organization, is led by the risk owners and managers within each unit. The risks once identified are evaluated for inclusion in SDG&E's ERR. See SDG&E's 2021 RAMP Report for further details.[12]
2. **Risk Analysis**: Each of SDG&E's risk owners is responsible for analyzing each risk, the controls, and the mitigations. As part of the risk analysis, the risk owners capture data to make determinations as to whether risk frequency or consequence has changed from the prior year's analysis. Risk analysis is undertaken using varying methodologies, depending on the risk and the availability of data and resources. SDG&E uses a combination of qualitative and quantitative analyses to analyze its risks. The results of the analysis are used to finalize the risks in the ERR.
3. **Risk Evaluation, Scoring, and Prioritization**: SDG&E has used the Commission-adopted methodology for risk evaluation in its RAMP and GRC

[11] *Id.*

[12] A.21-05-011, SDG&E 2021 RAMP Report at SDG&E-RAMP-B, Enterprise Risk Management Framework.

proceedings.[13] See SDG&E's 2021 RAMP Report for further details.[14] Once risks have been scored, the risk owners begin an iterative process where risks, controls, and mitigations are reviewed within operating units, across operating units, and with SDG&E Executives. The risks are then prioritized for inclusion in the ERR.

4. **Risk Mitigation Plans Development and Documentation**: The risk owners develop their mitigation plans and present their respective risk mitigation plans for enterprise-level risks to the SDG&E Executives.

5. **Risk-Informed Investment Decisions and Risk Mitigation Implementation**: For purposes of the TY 2024 GRC, SDG&E has continued to make risk-informed decisions, including the selection of risk mitigations based on prioritizing safety and reliability and the Settlement Decision requirements. ERM worked with Asset Management, Safety, Wildfire and other risk owners within various operating units to prioritize safety and reliability mitigations. As noted in the testimony of Mr. Deremer (Ex. SDG&E-31),[15] SDG&E is deploying a risk-informed investment decision support system as part of its overall strategy to integrate safety, risk, and asset management. As reflected in the Integrated Operating Model (figure MMS-3, below), capital projects that comprise the risk mitigation plans will be evaluated against each other using the MAVF within a new investment prioritization system - Copperleaf. The Copperleaf output will be reviewed and evaluated, and final resource allocation decisions will be made by SDG&E leadership based on the results of the evaluation and consideration of Commission mandates. The development of the Copperleaf framework is nearing completion for electric transmission and substation investments regulated by the Federal Energy Regulatory Commission (FERC), while efforts to develop a similar framework for electric distribution and other CPUC-jurisdictional enterprise projects commenced in 2022.

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[13] D.18-12-014.

[14] A.21-05-011, SDG&E 2021 RAMP Report at SDG&E-RAMP-B, Enterprise Risk Management Framework; SDG&E RAMP-C, Risk Quantification Framework and Risk Spend Efficiency.

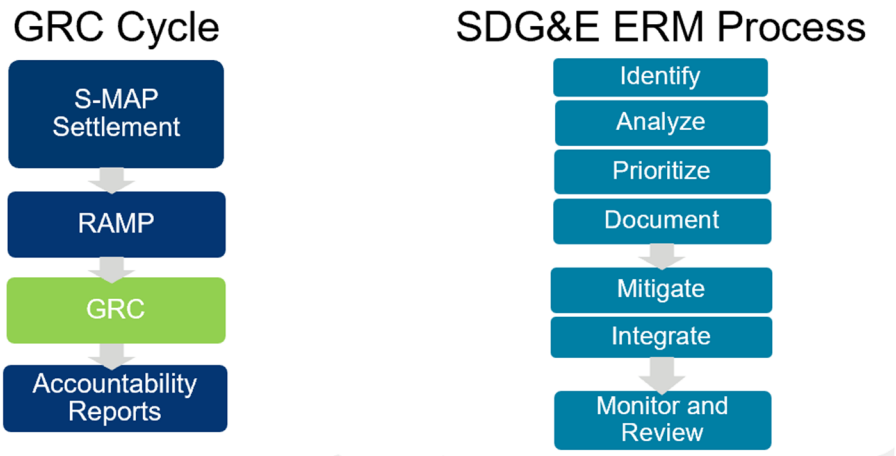
[15] *See* Ex. SDG&E-31 at Section III (Sustainability and Safety Culture).

6. **Monitoring and Review**: The risk owners, ERM, and SDG&E leadership review the implementation of the risk mitigations on a regular basis. The results of these reviews are taken into consideration in the annual ERR refresh. The refresh begins the risk management cycle again.

For the purposes of RAMP and other regulatory filings, the MAVF has been used to quantify risks. In SDG&E's 2021 RAMP Report, four attributes were used – safety, reliability, financial, and stakeholder satisfaction. For purposes of the GRC, the number of attributes has been reduced to three – safety, reliability, and financial. The reasons for this change and the implications are addressed in Messrs. Flores and Pearson's testimony.[16]

The six-step SDG&E risk management framework used for RAMP closely mirrors the Commission's risk-informed risk management processes as reflected in figure MMS-2 below:

**FIGURE MMS-2**
**GRC Cycle and SDG&E ERM Process**




## B. Ownership of Risks

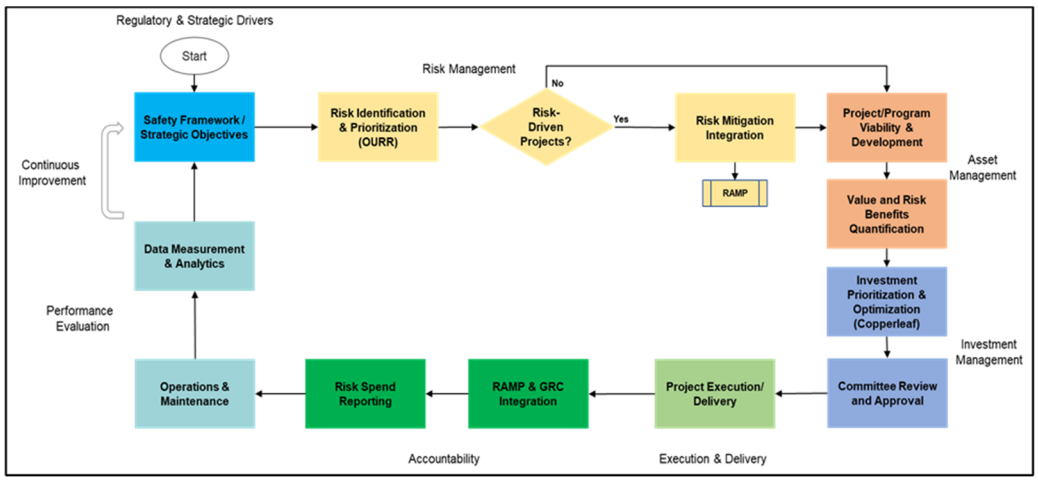
SDG&E believes, consistent with ISO 31000, to be effective, risk management must be integrated into the organization's culture. At SDG&E, the integration is accomplished in several ways. As noted above, the operating units are responsible for identifying, assessing, developing, and implementing mitigations to address their risks. ERM provides the tools, methodology, and facilitation to support the operating units' risk management efforts. The ERR is refreshed

[16] *See* RAMP to GRC Integration Testimony of Messrs. Pearson and Flores (Ex. SDG&E-03, Ch. 2) at Section IV (Develop a RAMP Based Mitigation Portfolio as Part of the TY 2024 GRC).

annually based on multiple work sessions held with risk managers owner, officers, and ERM to assess risks, prioritize risks, and develop risk mitigations. This process has been further expanded to SDG&E's operating units. Seventeen operating units within SDG&E have developed an Operating Unit Risk Register (OURR) to identify, assess, and mitigate risks at lower levels within SDG&E. The annual ERR refresh along with the development of the OURRs allows for both a "top down" and "bottom up" approach to risk identification and mitigation.

One component of the integration is the use of an Integrated Operating Model (Figure MMS-3 below) which brings together risk information and lessons learned from SDG&E safety, wildfire, OURRs, and emergency management to inform investment decisions.

**Figure MMS-3**
**Integrated Operating Model**




On a regular basis operating units review their risks to reflect the most current information regarding their risks. This best practice to managing risks is reflected in the GRC testimony, where witnesses testify about their risks and the controls/mitigations adopted to reduce SDG&E's overall risks. In addition, and consistent with the approach of operating units owning risks, SDG&E's SMS (described below) has adopted a decentralized model where leadership within each operating unit drive safety and retain risk ownership and accountability. In this decentralized model, the operating units retain ownership and accountability over their respective risks, mitigations, processes, and occupational safety measures.

### C. Enterprise Risk Management

As noted above, SDG&E leadership and ERM have used an iterative process to identify, assess, and manage risks. The process identifies risks which are captured within the ERR and the OURRs. The ERR is refreshed and reviewed, at least annually, with SDG&E leadership and the applicable operating units. The purpose of the review is to determine whether changes need to be made to the risks, controls, and/or mitigations. It also provides an opportunity to discuss emerging risks that may need to be included in the ERR.

In 2020, SDG&E expanded the organizational levels engaged in risk management by introducing OURRs. SDG&E believes that by engaging managers, supervisors, and staff in identifying and assessing risks within their operating units, SDG&E is:

- Enhancing the risk management knowledge across SDG&E,
- Strengthening SDG&E's risk management culture by formalizing risk management practices at the operating unit level,
- Providing additional means for employees to provide input on risk identification and management,
- Expanding SDG&E's use of data science, quantification, and analytics,
- Reinforcing that the operating units own their risks,
- Using OURR to identify risks to inform the ERR, and
- Promoting coordination and integration between Enterprise Risk Management, Asset Management, Safety Management, and the operating units.

The methodology SDG&E uses to create the OURRs includes meeting with the operating units to identify and develop drivers, triggers, and controls for operating unit level risks. These risks are scored using similar ERR scoring attributes. After identifying the applicable operating unit level risks, mitigations are identified and prioritized.
The participants, using quantitative and qualitative tools, estimate the risk reduction benefit and the cost associated with the mitigation, as well as potential metrics that could be used to monitor the effectiveness of the identified mitigations. ERM, with the input from the operating units, evaluates relationship links between each OURR to the applicable ERR risks to ensure the significant OURR risks are captured in the ERR. The OURRs are refreshed annually.

The combination of the ERR and OURR initiatives effectively informs asset and safety management decisions across the enterprise.

### D. Asset Management

Mr. Deremer's testimony[17] captures the capital and operating costs required to support SDG&E's implementation of asset management. SDG&E's approach to asset management, as described in Mr. Deremer's testimony,[18] is grounded in several principles including:

- Data science, data analytics, and quantitative analysis, which creates the foundation for asset management decisions.
- The asset management program is an integral part of SDG&E's safety, wildfire, and risk management initiatives and to the Company's Integrated Operating Model.
- SDG&E's asset management program will continue to align to the tenets of ISO 55000.
- The asset management program is an enterprise-wide effort.

Many efforts that are underway to implement SDG&E's data driven asset management program will continue until SDG&E has fully integrated risk, asset, and investment management into SDG&E's risk culture.

### E. Integration of Risk, Asset, and Investment Management

In her TY 2019 GRC testimony, Ms. Day stated that SDG&E's objective was to "[m]ore fully integrate asset life cycle and information with risk mitigation action."[19] My organization, since inception, has been focused on promoting the integration of risk, asset, and investment management. As noted above, the process begins with the identification and assessment of risks, and the development of proposed mitigations. In 2017, SDG&E created an asset management organization to establish the asset strategy, processes, practices, plans and tools to support the Company. Mr. Deremer's testimony describes the evolution and plans for SDG&E's asset management organization. Two critical elements of the evolution have been the implementation of a data lake, to capture asset health data, and an investment tool, Copperleaf Portfolio, to facilitate investment prioritization. These systems and process allow SDG&E to use the asset health data to identify risks and make determinations as to which projects, if implemented, will be most effective in reducing risks. This information is captured in the ERR and the OURRs. Copperleaf Portfolio will support SDG&E's investment processes by providing insights into the optimal allocation of capital and operating dollars. The insights provided through Copperleaf

[17] Ex. SDG&E-31 at Section IV (Non-Shared O&M Costs).

[18] *Id.*

[19] TY 2019 GRC Ex. SDG&E-02-R at DD-ii; DD-21 (Figure DD-3).

Portfolio will continue to be subject to review and final decision making by SDG&E leadership. Copperleaf Portfolio is a critical component of the Integrated Operating Model. SDG&E's goal is to utilize the Copperleaf Portfolio and the Integrated Operating Model when implemented to fully integrate risk, asset, and investment management programs. This approach is consistent with both SDG&E's risk framework and with the Cycla model adopted by the Commission.

As part of SDG&E's efforts to integrate risk, asset, and investment management, SDG&E has included in the integration initiative the implementation of SDG&E's SMS and its continued wildfire risk and emergency management mitigation actions. These are described in greater detail below and in other witnesses' testimony.

**F. Wildfire Risk Management**

As SDG&E's CEO, Ms. Caroline Winn, noted in the Company's August 2021 Announcement of Wildfire Mitigation Advancements: "Nothing is more important than the continued safety and well-being of the communities we serve, as well as the preservation of our environment. We are working tirelessly to integrate new, innovative technologies to significantly decrease the PSPS impacts experienced by our customers and reduce utility-related wildfire risk, while also forging a path towards a more sustainable future."[20]

The Commission has recognized SDG&E as a leader in addressing the wildfire risk.[21] As reflected in Mr. Woldemariam's testimony, SDG&E continues to invest in mitigating the wildfire risk.[22] SDG&E's Wildfire Science Unit has, and will continue to develop, innovative approaches to minimize the increasing risk of wildfires due to climate change. In addition to system improvements, SDG&E will continue to invest in development of models and tools to improve SDG&E's ability to predict the likelihood and consequence of both the wildfire risk and the risks associated with public safety power shut-off. Examples of SDG&E's commitment to improve models and tools include SDG&E's Wildfire Ignition Next Generation System

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[20] SDG&E Announces Wildfire Safety and Resiliency Advancements for 2021 Wildfire Season, *available at* SDG&E Announces Wildfire Safety And Resiliency Advancements For 2021 Wildfire Season | SDGE | San Diego Gas & Electric - News Center (sdgenews.com).

[21] CPUC Public Meeting on Utility Safety Practices held on August 25, 2021 (R.18-10-007). Commissioner Shiroma commended the "tremendous efforts" SDG&E has made as well as SDG&E's "deserved reputation for spearheading many of the safety efforts, particularly with wildfire mitigation, even some years before other utilities."

[22] Ex. SDG&E-13.

(WiNGS), Wildfire Risk Reduction Model (WRRM), WRRM-Ops., and artificial intelligence, as well as machine learning innovations. Each of these actions focus on enhancing how SDG&E targets the use of Public Safety Power Shut-off (PSPS) to minimize the risk associated with the use of PSPS. The Commission's Wildfire Safety Division recognized SDG&E's efforts in their July 15, 2021, Resolution.[23]

In addition to capturing the capital and operating expenses required to continue to support SDG&E's leadership in wildfire mitigation efforts, Mr. Woldemariam's testimony describes how equipment innovations, data science, artificial intelligence, and machine learning are being used to more cost-effectively provide insights into pole inspection and other asset replacement programs.[24] The wildfire risk reduction efforts are another demonstration of how SDG&E is aligning and integrating the management of risks, assets, and investments into its risk and safety culture.

**G. Safety Management System (SMS)**

In its TY 2019 GRC, SDG&E expressed its intent to implement an SMS for SDG&E's gas and electric operations.[25] SDG&E witnesses testified that they "see the value in continuous improvement and are now seeking to more formally implement a safety framework that incorporates existing and new safety measures through a pipeline SMS and its related tenets (*i.e.*, API 1173) in the context of this GRC for their Gas operations."[26] In approving SDG&E's TY 2019 GRC, the CPUC set forth its "support… for the improvement of Applicants' safety management and safety performance."[27] Therefore, in 2019, SDG&E began the strategic initiative to develop an SMS for both its gas and electric operations.[28]

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[23] CPUC WSD Resolution WSD-019 (July 15, 2021) at Appendix A-1, *available at:* https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M387/K694/387694636.PDF.

[24] Ex. SDG&E-13.

[25] TY 2019 GRC Rebuttal Testimony of Messrs. Buczkowski and Geier (Ex. SDG&E-252) at Section II.B.

[26] *Id*. at DLB/DLG-5.

[27] D.19-09-051 at 23.

[28] Refer to Ex. SDG&E-31, Appendix KJD-C, Demonstration of SDG&E's Safety Management System Development.

The leading guidance on safety management systems comes from the American Petroleum Institute (API) with the adoption of Recommended Practice API 1173 (API 1173).[29] SDG&E utilized and adapted the ten tenets of API 1173 to develop a SMS applicable to both electric and gas utilities. The SMS moves SDG&E forward in its journey towards "Target Zero."[30]

SDG&E's SMS is a systematic enterprise-wide framework to manage and reduce risk and promote continuous improvement in safety performance through deliberate, routine, and intentional processes. Using API 1173 as a general standard for operational safety for electric operations requires alignment of risk management, asset management, and emergency management, with traditional views of safety management to support development of a comprehensive and proactive safety program that produces ever-improving levels of employee, contractor, and public safety.

In its 2021 RAMP Report,[31] SDG&E articulated the historic and current importance of safety to its leadership, staff, contractors, and customers. Even though SDG&E has been a leader in the creation of a culture of safety for years,[32] SDG&E is continuing to make significant investments in safety. SDG&E was a leader in applying the tenets of API 1173 to its gas operations and leads the electric utility industry in adopting API 1173 to electric operations. API is one of the few standards that, consistent with SDG&E's objectives, integrates the International Standards Organization (ISO) 31000 (Risk Management), ISO 55000 (Asset Management), and ISO 45000 (Safety) and Emergency Management. In addition to SDG&E's innovative approach to implementing API 1173 for electric utilities, SDG&E has continued to adopt a forward-looking approach to implementing new safety technologies including telematics, wildfire predictive and decision support technologies, enhanced electric infrastructure equipment, and cyber and security tools, all with the goal of enhancing safety. These efforts support SDG&E's

[29] API RP 1173, Pipeline Safety Management Systems (2015).

[30] "Target Zero" is SDG&E's goal and mindset to achieve an incident-free work environment.

[31] A.21-05-011, SDG&E 2021 RAMP Report at SDG&E-RAMP-D (Section IV. Safety Culture).

[32] In SDG&E's most recent Safety Barometer Survey administered in October 2020 by the National Safety Council (NSC), SDG&E achieved an overall percentile score of 98.7% indicating that SDG&E scored higher than 98.7% of the 580 NSC Database companies. This is an increase of +8.1 percentile points from the 2018 overall score of 90.6 and SDG&E's highest overall score on record.

approach to integrating risk, asset, and investment management which is reflected in SDG&E's Integrated Operating Model above (See Figure MMS-3 Integrated Operating Model).

SDG&E adopted a five-step process and a decentralized model to fully implement the SMS. The five steps are:

1. **SMS Governance and Operating Model** – To support the goal of SMS operational ownership and accountability, SDG&E adopted a de-centralized SMS governance structure, that includes cross-functional operations leadership, and an operating model, which engages the operating units.
2. **SMS Process Design and Implementation** – The design and implementation of SDG&E's SMS follows the tenets of API 1173, with the engagement of operations leadership and staff. Processes are developed during cross-functional workshops to solicit input, feedback, and incorporate existing documentation and best practices across the operational units.
3. **SMS Quality Plan, Controls and Metrics** – In order to have an effective SMS, SDG&E's leadership and safety team believe it is critical to support the implementation with a quality plan, control measures, metrics, and regular reporting to the SMS Governance Committee and SDG&E's leadership including the Board.
4. **Continuous Improvement** – As noted in API 1173, the implementation of process safety requires continuous improvement. SDG&E's approach to its SMS includes identifying the root cause of defects or non-conformances, capturing lessons learned, and adjusting practices based on the findings and lessons learned.
5. **Change Management** – As noted in SDG&E's previous GRC testimony, SDG&E has an unwavering commitment to the safety of its employees, contractors, and customers.[33] Much of SDG&E's historic safety initiatives have focused on reducing the risk of occupational safety incidents. Implementing process safety, while maintaining occupational safety goals requires a change management that addresses the needs of both approaches to safety.

[33] TY 2019 GRC Rebuttal Testimony of Messrs. Buczkowski and Geier (Ex. SDG&E-252) at 3, line 12.

Although SDG&E's SMS is in the early stages of implementation, the California Office of Energy Infrastructure Safety (OEIS), in its annual assessment of SDG&E safety culture[34] has recognized the merits of SDG&E's initiative and stated: "The electrical corporation has a robust process for measuring and improving the safety culture, with ambitious near- and long-term safety objectives supported by field-based projects and initiatives for frontline supervisors, employees, and contractors. Workforce comments indicate that communication of information and issues flows freely up, down, and across the organization."[35]

Mr. Deremer's testimony further describes the safety initiatives and captures the expenditures required to support the continued implementation of SDG&E's SMS.

## H. Emergency Management

In SDG&E's risk management framework, the risk bowtie plays two critical roles.[36] Through its preparedness initiatives Emergency Management address the left-hand side of the risk bowtie by supporting the "prevention of an incident." Emergency Management is also critical to the right-hand side in that an effective emergency management organization reduces the "consequence on an incident." SDG&E's investments in community outreach, first responder training, and emergency management systems are focused on meeting these roles.

SDG&E has been a leader in emergency management going back to 2010 when SDG&E created one of the first stand-alone emergency operations centers (EOC) in the utility industry. SDG&E has continued its leadership through continued investments in emergency management. SDG&E has expanded its emergency preparedness efforts through the Operations Field Emergency Readiness, After Action Review, First Responder Outreach programs, and other training exercises. SDG&E's Emergency Management organization continues to use the EOC, new technologies (*e.g.*, Noggin), its Incident Command System, Aviation resources, and Standby

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[34] California Office of Energy Infrastructure Safety, *San Diego Gas & Electric Company's 2021 Safety Culture Assessment* (September 2021), *available at:* https://energysafety.ca.gov/wp-content/uploads/2021-sca-report-sdge.pdf.

[35] *Id.*

[36] The risk bowtie is a commonly used tool for risk analysis. The risk bow tie is a way to systematically and consistently evaluate the drivers/triggers, possible outcomes, and potential consequences of a risk event. The left side of the risk bow tie identifies potential drivers and/or triggers that may lead to a risk event, which is depicted in the center of the risk bow tie, and the right side shows the potential consequences of a risk event.

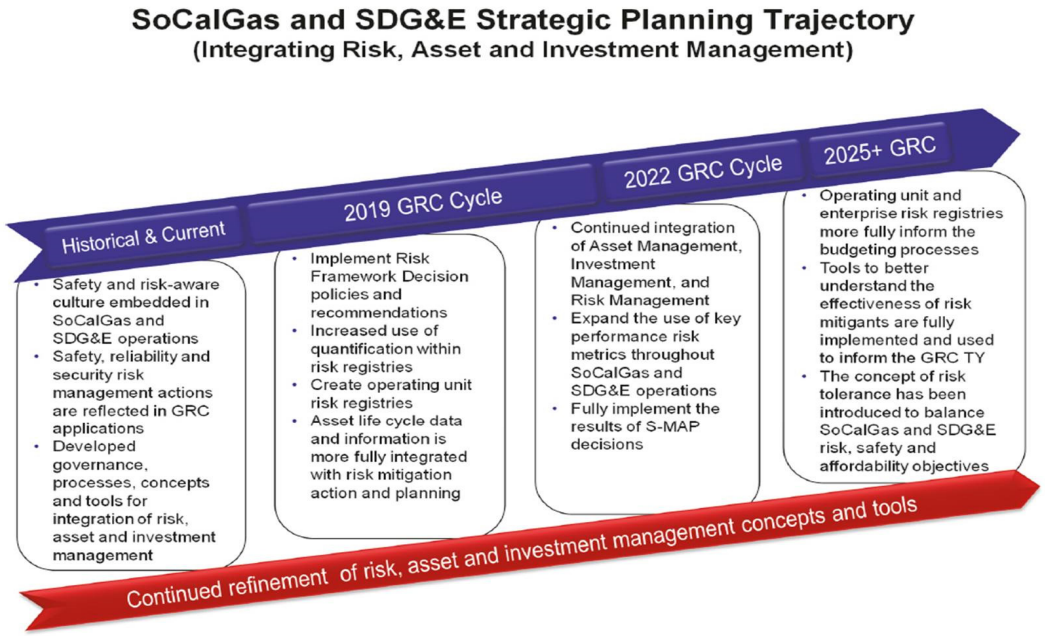
Crews to reduce the consequence of incidents. Mr. Woldemariam's testimony describes the initiatives and on-going expenditures associated with Emergency Management.[37]

## III. FULFILLING COMMITMENTS

In the TY 2019 GRC, SDG&E witnesses made certain commitments related to risk, safety, asset, and investment management. For instance, in her Risk Policy testimony, Ms. Day, made certain commitments, as did Messrs. Buczkowski and Geier in their Safety Policy testimony.[38]

The figure below captures the commitments Ms. Day made in her testimony.

**FIGURE MMS-4**
**STRATEGIC PLANNING TRAJECTORY 2025**




Messrs. Geier and Buczkowski, also made the following commitments in their TY 2019 GRC testimony.[39]

- Increase focus on "process safety" as compared to occupational health and safety.
- Implement a Safety Management System (SMS) for SoCalGas Gas Operations, SoCalGas Underground Storage, and SDG&E Gas and Electric Operations.

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[37] Ex. SDG&E-13.

[38] TY 2019 GRC Rebuttal Testimony of Messrs. Buczkowski and Geier (Ex. SDG&E-252).

[39] *Id*. at DLB/DLG–1-2.

- Establish leading indicators of process safety.
- Expand the role and capabilities of SoCalGas and SDG&E's leadership and Boards of Directors in assessing and monitoring process safety.
- Enhance the National Safety Council Foundation Safety Culture assessment by including expanding to contractors.

The table below provides the Commission with the progress on the commitments SDG&E made in its prior TY 2019 GRC:

**TABLE MMS-1[40]**
**PRIOR COMMITMENTS**

| Commitment | Completion Date | Status | Comment |
|---|---|---|---|
| Continued integration of Asset Management, Investment Management and Risk Management. | 2024 GRC Cycle | In process | As noted above SDG&E has implemented an integrated operating model that aligns and links risk, asset, and investment management. As Copperleaf Portfolio is implemented for SDG&E's asset classes full implementation will be completed. |
| Expand the use of key performance risk metrics throughout SoCalGas and SDG&E operations. | 2024 GRC Cycle | Complete | Consistent with the implementation of the SMS and Wildfire risk plans, in general, SDG&E has implemented a series of risk metrics consistent with D.19-04-020 of the S-MAP proceeding. D.19-04-020 adopts 26 Safety Performance Metrics to be used by the Commission to track the safety performance of the four IOUs |

[40] Although SDG&E's TY 2019 GRC testimony referenced a 2022 GRC cycle, the Commission then adopted D.20-01-002, which changed the GRC cycles for California's large Investor-Owned Utilities. Thus, this table reflects the updated GRC cycles.

| Commitment | Completion Date | Status | Comment |
|---|---|---|---|
| Fully implement the results of S-MAP Decisions. | 2024 GRC Cycle | Complete | SDG&E has implemented the results of the S-MAP. SDG&E is also an active participant in the Rulemaking to Further Develop a Risk-Based Decision-Making Framework for Electric and Gas Utilities, R.20-07-013. |
| Operating unit and enterprise risk registries fully inform the budgeting processes | 2028 GRC Cycle | In process | As reflected in the Integrated Operating Model both the OURRs and the ERR inform the budgeting processes. This commitment will be completed once all asset classes have been incorporated into Copperleaf Portfolio. |
| Tools to better understand the effectiveness of risk mitigants are fully implemented and used to inform the GRC TY | 2028 GRC Cycle | In Process | As part of SDG&E's Risk-informed Decision-making Process initiative (RDP), an RDP Information Systems Improvements Project is under way to improve the access and usability of financial data to inform decisions, and to leverage the data to improve budgeting, planning, monitoring and reporting processes. An objective of the project is to enhance capabilities to report financial data by risk mitigation activity for annual accountability reporting and to inform GRC proposals in future rate case cycles. |

| Commitment | Completion Date | Status | Comment |
|---|---|---|---|
| The concept of risk tolerance has been introduced to balance SoCalGas and SDG&E risk, safety, and affordability objectives | 2028 GRC Cycle | In process | SDG&E is an active participant in the second S-MAP proceeding where risk tolerance will be addressed. |
| The focus on process safety as compared to occupational health and safety has increased. | 2024 GRC Cycle | Complete | As noted above, SDG&E's SMS adapts and applies API 1173 with a process-based approach to safety. |
| A safety management system is being implemented for SDG&E's electric and gas operations. | 2024 GRC Cycle | Complete | As noted above the SMS is being implemented. |
| Leading indicators have been established for SDG&E. | 2024 GRC Cycle | Complete | SDG&E has established metrics for its SMS processes and as referenced in D.19-04-00 and D.21-11-009. |
| The role of SDG&E Executives and its Board of Directors in assessing and monitoring process safety has been expanded. | 2024 GRC Cycle | Complete | As noted in this testimony, SDG&E has expanded the regular reviews with Executives and the Board. |

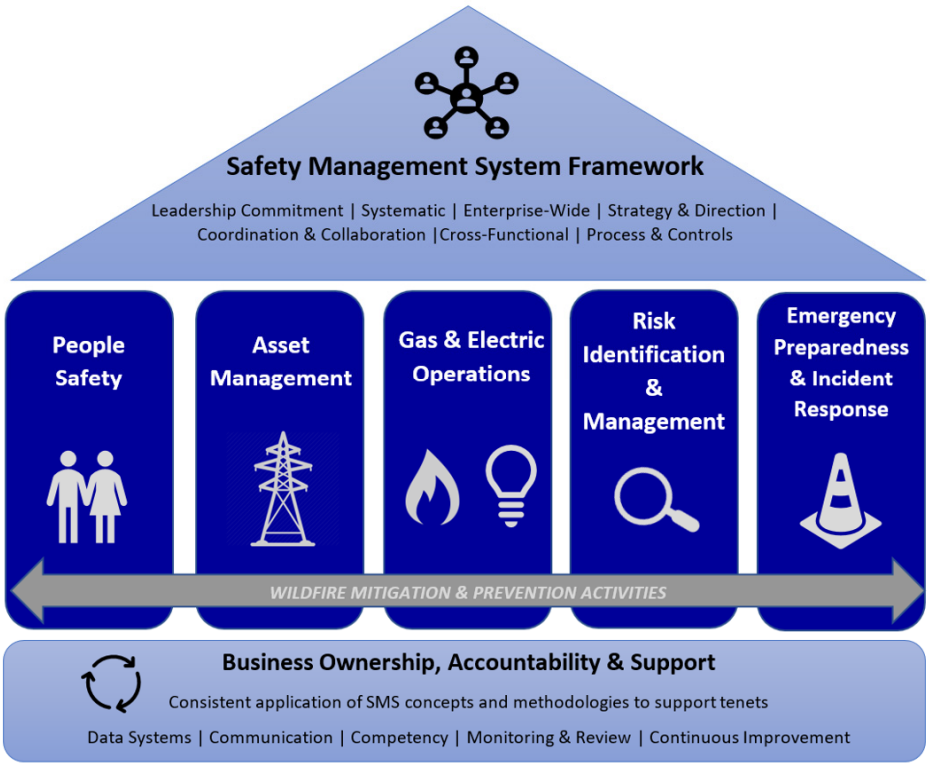
| Commitment | Completion Date | Status | Comment |
|---|---|---|---|
| Contractors have been included in the National Safety Council Foundational Assessment | 2024 GRC Cycle | In Process | SDG&E issued an independent, third party conducted Safety Culture Survey to its Class 1 contractors in 2021. This was a web-based confidential survey sent to ~1,400 Contractors. The objective of the survey was to solicit Contractor feedback to measure safety culture maturity, strengths, and opportunities for improvement. SDG&E will continue to engage its Contractors and look to further expand such safety culture assessments. |

## IV. FUTURE COMMITMENTS

Over the past decade, since the Commission introduced risk-based decision making to the GRC process in 2012, risk management methodologies, practices, and the technology empowering data science and analytics has evolved in varied ways. However, SDG&E's commitment to continuous improvement has not changed. The systems SDG&E has developed over the past 10 years represent the foundation for defining the Company's future risk-informed decision-making commitments.

SDG&E is prepared to use its Integrated Strategic Operating Model and Safety Management System to further interconnect Safety, Risk Management, and Asset Management to operationalize the SMS Framework depicted below. This framework will allow SDG&E to further transform data into information that supports decisions on safety, asset management, utility operations, risk identification, emergency preparedness, and incident response.

**FIGURE MMS-5**
**SAFETY MANAGEMENT SYSTEM FRAMEWORK**




In addition, this framework aides in further innovation and opportunities to improve and refine the decision-making process regarding how the Company invests its resources in a way that maximizes risk reduction. SDG&E knows its risk management practices will expand over the next GRC cycles and will continue to seek opportunities to enhance its risk management program, looking to risk leaders in the utility and other industries to help shape the future of risk management at SDG&E.

Foundational to making risk-informed decisions is having an ERM organization with the appropriate skills and capabilities to support the operating units' risk practices. The ERM organization will continue to promote sufficient risk competencies and tools to facilitate the identification and analysis of risk at a broad enterprise level and within the Company's operating units. Advancing SDG&E's risk analysis capabilities is essential to guide Company decision making, however, the responsibility for making the final decisions on where to allocate resources to best mitigate SDG&E's risks will continue to rest with those that manage the risks.

SDG&E is working to improve the efficiency and effectiveness of its risk-informed decision-making in support of the Commission's desire for increased transparency, modeling,

and reporting of its risk mitigation activities. The work includes process improvements, as well as system enhancements to automate the capture within the Company's enterprise financial system of costs and units of measure associated with SDG&E's primary risk activity drivers. Related technology investments in this GRC filing include Risk-informed Decision-making Information Systems Improvements. SDG&E is leveraging improved systems and process improvements to enhance its ongoing and future modeling of risk mitigation investments and programs, GRC forecasts, and real-time, results-based risk-informed decision making.

SDG&E is also implementing an ongoing, companywide MAVF risk assessment tool to help inform project selections and spending decisions in-between RAMP and GRC filings and to remain consistent with the criteria used to justify and fund various investments. This strategic Integrated Operating Model, referenced above, closes the loop, using validated historical information and consistent risk-based modeling techniques to enhance ongoing and future investment decisions that will continuously improve the effectiveness of SDG&E's risk mitigation efforts on behalf of its ratepayers.

SDG&E's approach to Asset Management utilizes data as the fulcrum to enable improved risk-informed decision making. It is critical to unify disparate data from across the enterprise into a consumable and curated fashion. Curated asset data is now embedded into risk models and business processes throughout the Company to improve decision making. For example, in the past, age was typically used as a proxy for asset health. Although age still plays a factor in asset health, a risk-based approach that considers robust asset data from inspections, failures, outages, and the surrounding environment needs to be considered. Through Asset Management's Asset 360 program, SDG&E will continue to create a per-asset health score for critical assets to better understand and assess an asset's performance, health, and the impact when assets fail.

SDG&E's Asset 360 program will ingest rich data from imagery, other risk models, and external data sources to improve model accuracy and performance. Integrating results of image-based analytics including Intelligent Image Processing (IIP) will help improve asset predictive models in the future. SDG&E has also started to measure data quality and has begun improvement efforts to remediate data in the source systems. Partnerships have been established between Asset Management, ERM, and the source system teams to continuously improve upon the data quality. Starting this year, SDG&E will evaluate and begin to adopt tools to further

automate the data quality issue identification and remediation process. The integration of the asset data and development of the asset health predictive models will formulate an assessment of asset risk, which can be utilized by SDG&E's operating and engineering teams to develop and analyze their projects, programs and/or initiatives, and ultimately, improve risk-based decision making.

Since its TY 2019 GRC, SDG&E has invested significant resources in building its data science capabilities, platforms, and a data driven culture. SDG&E believes that data is one of the most valuable assets and focusing on advanced data analytics, cloud technology, and adoption will fundamentally change the landscape of decision-making across the enterprise. Data science and the associated risk analytics will be used to inform many different business areas to support decision-making, capital prioritization, and resource allocation. In addition, investing in risk analytics will help identify non-optimal decisions and enable strategic adjustments to meet or exceed objectives while balancing resource requirements to address the risks.

To meet the Commission's expectations to perform more data driven, granular, and complex RSE calculations, SDG&E must grow its advanced analytics teams and accelerate its capabilities. For example, to estimate RSE expected values and confidence levels in portfolios with interdependencies between projects, SDG&E must understand each project's mean risk, tail risk, and causes for uncertainty in every project of the portfolio.

A culture of continuous improvement, innovation, and clear commitment to advance risk analytics is and will enable unprecedented opportunities to make better, faster, and more targeted decisions during Santa Ana weather events. In 2021, SDG&E created its Wildfire Ignition Next Generation System for Operations (WiNGS-Ops) model, which was first implemented and used during PSPS events that occurred during November 2021. WiNGS-Ops is a new iteratively improving, real-time risk assessment model built to evaluate and compare Wildfire and PSPS risks at the asset level (pole/span) and the sub-circuit/segment level at hourly intervals. The primary purpose of the model is to help inform decision makers in real-time about the Wildfire and PSPS risks. WiNGS-Ops, while not being used as a single decision factor during PSPS events, will provide guidance for risk-based de-energization decisions. SDG&E is and will continue to update the WiNGS-Ops methodology, assumptions, visualizations, and data inputs as part of its commitments.

In addition, SDG&E is migrating WiNGS-Ops into cloud environments to enable faster iterations, creating more complex and granular models, as well as real time "what-if" scenario analysis. SDG&E maintains its commitment to investing in PSPS analysis with increasing granularity and plans to share its experience in various proceedings (such as the Risk Modeling Working Group facilitated by the Office of Energy Infrastructure Safety), as more information and experience is gained.

SDG&E will also continue to invest in data science to support the development of risk practices, tools, and competencies over the next GRC cycles. Furthermore, SDG&E will continue to use data science to support the second S-MAP and the implementation of its recommendations.

As capital projects are developed using the data-driven and risk-informed analysis as described above, SDG&E will continue to implement a new risk-informed investment prioritization process and decision tool, utilizing a third-party software application, Copperleaf Portfolio. As part of this process, the application utilizes an MAVF, which evaluates and scores projects based on their measurement of risk reduction value compared to project cost. The MAVF leverages the risk framework utilized by RAMP and will be aligned with any future direction coming from the second S-MAP. The application will provide SDG&E with the flexibility to incorporate additional strategic value attributes, such as sustainability and customer/stakeholder experience. The risk-based information provided by the application will inform the investment prioritization decision making, creating a more transparent and risk-driven justification for projects within SDG&E's capital investment portfolio. SDG&E began the effort of developing the application and associated processes in 2020. Initially, SDG&E focused on electric transmission and substation investments within FERC jurisdiction. In 2022 and beyond, SDG&E will be expanding the MAVF to meet business and regulatory needs, including the results of the second S-MAP and implementing the application across the enterprise (*e.g.*, Gas Operations, Information Technology, Customer Care and Facilities).

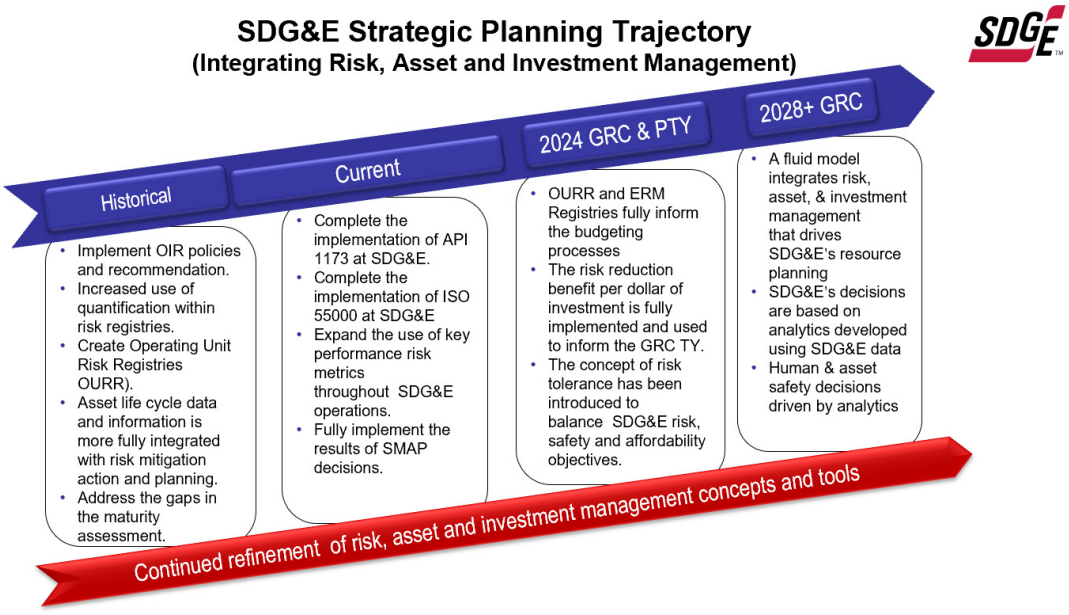
In partnership with future technology innovations, such as the use of unmanned aerial vehicles and IIP, SDG&E will begin using its risk models, asset health information, and data science capabilities to transition from a traditional scheduled-based method for inspections to an innovative, risk-informed approach that supports safety, reliability, and financial commitments. Risk models that aide in predicting equipment failures and the consequences of failure will allow

SDG&E to focus inspection and maintenance resources on higher risk assets resulting in a more efficient and proactive approach to mitigating safety and reliability impacts. Since data is the fuel for improved analytics and risk modeling, inspection methodologies are also evolving to collect and process data in more efficient ways that improve quality. This creates a cycle of improvement where data guides prioritization and allocation of resources needed to inspect and maintain assets and, in turn, the inspection and maintenance work provides quality data back to help improve SDG&E's understanding of risk.

Ultimately, SDG&E's goal is to make informed decisions that reduce risk and promote safety and reliability. The key is, therefore, having information based on quality data and integrated data science and analytics. The framework, tools, and processes described herein, such as the Safety Management System, are the mechanisms with which, over future GRC cycles, SDG&E can continue expanding its efforts to deliver integrated risk, asset management, and investment management information into the hands of decision-makers.

The figure below reflects the commitments SDG&E leadership is making to continue to develop and enhance our management of risk.

**FIGURE MMS-6**
**STRATEGIC PLANNING TRAJECTORY 2028+**



## V. CONCLUSION

As stated above in my testimony, SDG&E has been, and continues to be, committed to providing safe and reliable energy to its customers and stakeholders. Similarly, SDG&E has and will continue to create a safe work environment for its employees and contractors. My testimony reflects both the actions the Company has taken and the commitments it will be taking to identify and mitigate risks. The Commission has created an environment where further leading risk management innovations can be discussed and tested, and SDG&E, as my testimony states, will continue to be a leader in this field. The testimony of each of SDG&E's GRC witnesses reflects its alignment with risk management philosophies and the objectives of the Commission.

## VI. WITNESS QUALIFICATIONS

My name is Michael M. Schneider, and my business address is 8330 Century Park Court, San Diego, California 92123. I am currently employed by SDG&E as the Vice President of Risk Management and Chief Compliance Officer. My current responsibilities include risk identification, mitigation, quantification, and financial frameworks, in addition to compliance and energy risk management plus overseeing asset management. I also co-lead the safety management system along with SDG&E's chief safety officer. I assumed my current position in 2019. Prior to this, I served as Vice President—Clean Transportation and Asset Management where I was responsible for clean transportation, asset management, growth and technology integration, strategic planning and business optimization since 2018. Previously, I served as Vice President – Operations Support and Chief Environmental Officer for SoCalGas and SDG&E, since 2014. Prior to that, I was Vice President – Customer Operations since 2010, where my responsibilities included managing Customer Operations, including billing, collections, customer contact center, meter reading, remittance processing, and credit. Prior to 2010, I served as the Director of Financial Strategy and Analysis for SDG&E and Southern California Gas Company. In that position, I was responsible for financial and economic assessment of the utilities' business functions and activities related to operations, capital investments, financing, and regulatory proceedings.

I have been employed by SDG&E and Sempra Energy since 1992, where my first position was at SDG&E as a Pricing Analyst in the Pricing Department and held various positions of increasing responsibility within the department. In addition to my work experience described above, I have held roles of increasing responsibility in regulatory, rates, finance, business planning and strategic planning, customer service, operations, and environmental. From 1987 to 1991, I was employed by the FERC as a public utilities specialist in the Office of Electric Power Regulation. In that capacity, I was responsible for the review of wholesale electric service filings submitted to the FERC focusing on cost of service, service terms and conditions, cost allocation and rate design issues.

I received a Bachelor of Economics degree from the University of Arizona in 1987. In 1990, I received a Master of Business Administration from George Mason University with an emphasis in finance and accounting.

I have previously testified before this Commission, including providing testimony in several regulatory proceedings, including clean transportation, GRC, and cost of capital.

# APPENDIX A
# GLOSSARY OF TERMS

## APPENDIX A

## Glossary of Terms

| Acronym | Definition |
|---|---|
| API | American Petroleum Institute |
| CPUC or Commission | California Public Utilities Commission |
| Decision | Settlement Decision |
| EOC | Emergency Operations Center |
| ERR | Enterprise Risk Registry |
| FERC | Federal Energy Regulatory Commission |
| IIP | Intelligent Image Processing |
| IOUs | Investor-Owned Utilities |
| ISO | International Standards Organization |
| MAVF | Multi-Attribute Value Function |
| OEIS | Office of Energy Infrastructure Safety |
| OP | Ordering Paragraph |
| OURR | Operating Unit Risk Registry |
| PSPS | Public Safety Power Shutoff |
| RAMP | Risk Assessment Mitigation Phase |
| RSE | Risk Spend Efficiency |
| SDG&E | San Diego Gas and Electric |
| S-MAP | Safety Model Assessment Proceeding |
| SMS | Safety Management System |
| SPD | Safety Policy Division |
| TY | Test Year |
| WiNGS | Wildfire Ignition Next Generation System |
| WiNGS-Ops | Wildfire Ignition Next Generation System for Operations |
| WRRM | Wildfire Risk Reduction Model |

**CHAPTER 2**

**SECOND REVISED**

**PREPARED DIRECT TESTIMONY OF**

**GREGORY S. FLORES AND R. SCOTT PEARSON**

**(CHAPTER 2: RAMP TO GRC INTEGRATION)**

**ERRATA**

Company: Southern California Gas Company (U 904 G)/San Diego Gas & Electric Company (U 902 M)
Proceeding: 2024 General Rate Case
Application: A.22-05-015/A.22-05-016 (cons.)
Exhibit: SCG-03-2R-E/SDG&E-03-2R-E: Chapter 2

**SECOND REVISED**

**PREPARED DIRECT TESTIMONY OF**

**GREGORY S. FLORES AND R. SCOTT PEARSON**

**(RAMP TO GRC INTEGRATION)**

**ERRATA**

**BEFORE THE PUBLIC UTILITIES COMMISSION**
**OF THE STATE OF CALIFORNIA**

~~November~~ June 2023

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**APPENDICES**

## SUMMARY

- This testimony describes the process used to integrate the Risk Assessment Mitigation Phase (RAMP) process into Southern California Gas Company (SoCalGas) and San Diego Gas and Electric Company's (SDG&E) (collectively, the Companies) Test Year (TY) 2024 General Rate Case (GRC) applications.
- In addition, this testimony provides a summary of party feedback and recommended changes to the analysis performed in the 2021 RAMP Reports (RAMP Reports), as well as the Companies' responses to those feedback and recommendations. It also includes the Companies' process for incorporating implemented recommendations into the TY 2024 GRC.
- As part of integrating risk mitigations and cross-functional factor (CFF) activities from the 2021 RAMP Reports to the TY 2024 GRC, the Companies mapped RAMP risks, cross-functional factors, and mitigation activities to various witness testimony requesting funding for those activities. The Companies also determined the amount of RAMP expenses embedded in 2021 recorded expenses, forecasted the dollars and units related to the mitigation activities for the 2022-2024 GRC forecast period, and, for background purposes, included other information from the 2021 RAMP Reports to provide additional context.

# SECOND REVISED PREPARED DIRECT TESTIMONY OF GREGORY S. FLORES AND R. SCOTT PEARSON (RAMP TO GRC INTEGRATION)

## I. INTRODUCTION

### A. Summary of Testimony

This joint testimony describes the process used by the Companies to integrate the 2021 RAMP into the TY 2024 GRC applications. As established by the California Public Utilities Commission (CPUC or Commission), the RAMP proceeding is a component of the Commission's adopted risk-informed decision-making framework,[1] and the Companies filed their respective 2021 RAMP Applications and RAMP Reports on May 17, 2021, [2] as the first phase of the Companies' TY 2024 GRC process. The purpose of the RAMP Report is "to examine the utility's assessment of its key risks and its proposed programs for mitigating those risks."[3]

The RAMP is a subset of the Companies' respective GRC showing that is limited to safety-related activities that correspond to one or more of the Company's key safety risks. The respective Risk Management Policy testimonies of Ms. Deana M. Ng and Mr. Michael M. Schneider (Ex. SCG-03, Chapter 1; Ex. SDG&E-03, Chapter 1) describe the process used by each Company to identify the key safety risks subject to the RAMP process. Pursuant to Decision (D.) 18-12-014 (the Safety Model Assessment Proceeding [S-MAP] Decision)[4] and the Settlement Agreement adopted therein (collectively, the Settlement Decision), the Companies: (i) built a Multi-Attribute Value Function (MAVF) methodology; (ii) identified risks for their respective Enterprise Risk Registers; (iii) performed risk assessment and risk ranking in preparation for their respective RAMP Reports; (iv) selected enterprise risks for inclusion in their respective RAMP Reports; and (v) performed mitigation analysis for risks in RAMP, including the calculation of Risk Spend Efficiency (RSEs) values.[5]

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1 Decision (D.) 14-12-025.

2 *See* Application (A.) 21-05-011/-014 (cons.) (RAMP Proceeding).

3 D.14-12-025, at 31 (internal quotations and citation omitted).

4 D.18-12-014 (the Safety Model Assessment Proceeding [S-MAP] Decision).

5 D.18-12-014, Attachment A (Settlement Agreement), Appendix A, at A-4.

The review and comment period for the Companies' respective RAMP Reports occurred between October 2020 and December 2021.

As discussed in the 2021 RAMP Reports, RAMP applications are not a utility's request for funding. Rather, the RAMP Reports identify and describe programs and projects that a utility plans to implement to mitigate the identified risks.[6] As required by the Settlement Decision,[7] the RAMP Reports included estimates (in dollars and units) for each planned mitigation, and the Companies request for authorization of funding is through individual TY 2024 GRC witness testimonies. Pursuant to D.14-12-025 and Commissioner Darcie L. Houck's March 30, 2022, Ruling (Commissioner Ruling),[8] the Companies integrated the results from their consolidated RAMP proceeding into this GRC. The Companies are committed to continuing to provide safe and reliable service to their customers by investing in the development of risk practices, tools, and competencies.

### C. Organization of Testimony

Section I of this testimony provides an introduction, Section II provides a summary of the Companies' 2021 RAMP Reports, Section III explains the Companies' process for integrating the RAMP into the GRC, Section IV offers concluding remarks, and Section V presents our witness's respective qualifications.

The Appendices include additional details for reference. Appendix A provides a Glossary of Terms, Appendix B includes a table of stakeholder feedback and recommendations and the Companies' responses, Appendix C provides the MAVF components, Appendix D contains a list of mitigations sorted by RSE value, Appendix E contains RAMP to GRC mapping tables, and Appendix F contains a description of each Company's respective RAMP risks and cross-functional factors (CFFs).

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[6] SDG&E and SoCalGas 2021 RAMP Reports.

[7] D.18-12-014: Adopts a Risk-Informed Decision-Making Framework (RDF) providing the requirement for the utilities to use to assess and rank safety risks, assess and rank potential safety mitigations, and undertake other steps in order to prepare RAMP applications.

[8] RAMP Proceeding (A.21-05-011/-014 (cons.)), Assigned Commissioner's Ruling Directing Sempra Utilities to Incorporate Staff Recommendations on Their Risk Assessment and Mitigation Phase in the Upcoming 2024 General Rate Case Applications (March 30, 2022).

### D. Support To/From Other Witnesses

The testimonies of Ms. Ng[9] and Mr. Schneider,[10] provide the background regarding SoCalGas's and SDG&E's respective Risk Management Frameworks. For specific cost forecasts and funding requests, please refer to the following testimony and exhibits:

- Mario A. Aguirre (Ex. SCG-04, Gas Distribution)
- Wallace Rawls (Ex. SCG-05, Gas System Staff & Technology)
- Rick Chiapa, Aaron Bell, and Steve Hruby (Ex. SCG-06, Gas Transmission Operations and Constriction)
- Bill Kostelnik (Ex. SCG-08, Pipeline Safety Enhancement Plan (PSEP))
- Amy Kitson and Travis Sera (Ex. SCG-09, Gas Integrity Management Programs)
- Larry Bittleston and Steve Hruby (Ex. SCG-10, Gas Storage Operations and Construction)
- Daniel J. Rendler (Ex. SCG-14, Customer Services – Field and Advanced Meter Operations)
- Bernardita Sides (Ex. SCG-15, Customer Services - Office Operations)
- Brian C. Prusnek (Ex. SCG-16, Customer Services – Information)
- Michael Franco (Ex. SCG-18, Fleet Services)
- Brenton Guy (Ex. SCG-19, Real Estate & Facility Operations)
- Albert J. Garcia (Ex. SCG-20, Environmental Services)
- William J. Exon (Ex. SCG-21, Chapter 2, Information Technology)
- Lance Mueller (Ex. SCG-22, Cybersecurity)
- Neena N. Master (Ex. SCG-27, Safety & Risk Management Systems)
- Abigail Nishimoto (Ex. SCG-28, People and Culture Department)
- L. Patrick Kinsella (Ex. SDG&E-04, Gas Distribution)
- Wallace Rawls (Ex. SDG&E-05, Gas System Staff & Technology)
- Rick Chiapa and Steve Hruby (Ex. SDG&E-06, Gas Transmission Operations and Construction)

[9] SoCalGas Risk Management Policy (Ex. SCG-03, Chapter 1).

[10] SDG&E Risk Management Policy (Ex. SDG&E-03, Chapter 1).

- Amy Kitson and Travis Sera (Ex. SDG&E-09, Gas Integrity Management Programs)
- Oliva Reyes (Ex. SDG&E-11, Electric Distribution – Capital)
- Tyson Swetek (Ex. SDG&E-12, Electric Distribution – O&M)
- Johnathan T. Woldemariam (Ex. SDG&E-13, Wildfire Mitigation and Vegetation Management)
- David H. Thai (Ex. SDG&E-17, Customer Services – Field Operations)
- Sandra F. Baule (Ex. SDG&E-19, Customer Services – Information)
- Arthur Alvarez (Ex. SDG&E-22, Fleet Services)
- Dale Tattersall (Ex. SDG&E-23 Real Estate, Land Services & Facility Operations)
- William J. Exon (Ex. SDG&E-25, Chapter 2, Information Technology)
- Lance Mueller (Ex. SDG&E-26, Cybersecurity)
- Kenneth J. Deremer (Ex. SDG&E-31, Safety, Risk, and Asset Management Systems)
- Alexandra Taylor (Ex. SDG&E-32, People and Culture Department)

## II. SUMMARY OF THE COMPANIES' 2021 RAMP REPORTS

### A. RAMP Risks and RAMP Cross-Functional Factors

The 2021 RAMP Reports identified 15 of the Companies' key safety risks (six distinctly at SoCalGas, eight distinctly at SDG&E, and one shared between the Companies) as well as plans for mitigating those risks. These risks were chosen from the Companies' respective 2020 enterprise risk registries (ERRs) and are comprised of ERR risks with a top 40% safety risk score greater than zero augmented with additional risks each Company deemed to be top priorities. The preliminary list of RAMP risks was reviewed with stakeholders during a pre-RAMP filing workshop before being finalized. The Companies' respective 2021 RAMP Reports, for the first time, included CFF chapters to address some of the topics previously raised by the parties that would not be considered as standalone risk chapters. CFFs provide additional information regarding foundational, safety-related initiatives that are associated with more than one RAMP risk. Figure RSP/GSF-1 contains a list of SoCalGas's seven key safety risks and its seven CFFs

as well as SDG&E's nine key safety risks and its eight CFFs. A description of each risk and CFF is provided in Appendix F.

**Figure RSP/GSF-1**
**SoCalGas and SDG&E RAMP Risks and CFFs**

| Chapter Type | SoCalGas | SDG&E |
|---|---|---|
| Risks | Excavation Damage (Dig-In) on the Gas System | |
| | Incident Related to the Medium-Pressure System (Excluding Dig-in) | |
| | Incident Related to the High-Pressure System (Excluding Dig-in) | |
| | Incident Involving an Employee | |
| | Incident Involving a Contractor | |
| | Cybersecurity | |
| | Incident Related to the Storage System (Excluding Dig-in) | |
| | | Wildfire Involving SDG&E Equipment |
| | | Electric Infrastructure Integrity |
| | | Customer & Public Safety – Contact with Electric Equipment |
| Cross-Functional Factors (CFFs) | Safety Management System | |
| | Foundational Technology Systems | |
| | Emergency Preparedness and Response and Pandemic | |
| | Workforce Planning/Qualified Workforce | |
| | Physical Security | |
| | Energy Resilience | Climate Change Adaptation, Energy System Resilience, and GHG Emissions |
| | Asset & Records Management | Asset Management |
| | | Records Management |

## B. Quantitative Analysis

The safety risk scoring analysis, as well as the subsequent overall risk scoring analysis was performed for this GRC using a MAVF methodology – referred to by the Companies as a Risk Quantification Framework, which was developed by the Companies in compliance with the Settlement Decision.[11] The MAVF methodology was used to analyze risk by estimating current

[11] D.18-12-014.

risk scores (pre-mitigation risk scores) and forecasting future risk scores if new activities have started and/or current activities have ceased (post-mitigation risk scores).

Each of the Company's RAMP Report includes an activity-based risk showing, meaning risk plans were addressed by describing the activities intended to mitigate them. The 2021 RAMP Reports presented information in compliance with Commission requirements and in accordance with the Companies' respective risk frameworks and operations. The Commission required a RSE (or risk reduction benefits) showing to "[p]resent an early stage 'risk mitigated to cost ratio' or related 'risk reduction per dollar spent.'"[12] Pursuant to Commission direction, the Companies developed RSE calculations in their 2021 RAMP Reports. The RSEs provided in the RAMP Reports quantified the amount of risk reduction attributable to a mitigation in risk points rather than in hard dollar savings.

The 2021 RAMP Reports used 2020 as the "baseline" year to calculate the RSE value using dollars and benefits forecast during the 2022-2024 GRC period for planned mitigations. A 2020 baseline represents the last full year of historical data and aligns with the forecast period for the TY 2024 GRC.

The stakeholder review and comment phase of the Companies' respective 2021 RAMP Reports ran from October 1, 2020,[13] to December 15, 2021, with parties providing reply comments to the Safety Policy Division's (SPD) Evaluation Report.[14] During the intervening 14 months, the Companies: (i) filed their respective RAMP Reports; (ii) participated in 14 meetings, including workshops and a prehearing conference; (iii) ran scenario analyses at party requests; (iv) answered informal emails seeking further explanations and/or clarifications; and (v) responded to approximately 30 sets of data requests, often including multiple questions and subparts thereto.

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[12] *Id.* at 14, 33.

[13] Email sent to parties on the service lists to the following proceedings: I.19-11-010/011 (cons.), A.17-10-007/008 (cons.), and R.20-07-013 informing the parties that the Companies would be holding a pre-RAMP filing workshop on October 15, 2020.

[14] CPUC, Safety Policy Division, *Staff Evaluation Report on SDG&E's and SoCalGas's Risk Assessment and Mitigation Phase (RAMP) Application Reports (A.)21-05-011, (A.) 21-05-014*, (November 5, 2021), *available at* https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/safety-policy-division/reports/spd-evaluation-of-sdge-and-socalgas-2021-ramp-reports.pdf.

The Companies appreciate the active engagement by Commission staff and parties, including the thoughtful feedback provided during the workshops and via formal and informal comments. The Companies are committed to continuing to improve the effectiveness of their RAMP risk analyses, and the engagement of Commission staff and parties is an important factor in achieving that objective. Aligning with SPD's recommendation,[15] the Companies provide an overview within this testimony describing where and how the Companies have addressed SPD and party recommendations in the TY 2024 GRC. Please reference Appendix B for a comprehensive table of stakeholder recommendations and the Company's responses.

### C. Compliance with the Settlement Decision

In their 2021 RAMP Reports,[16] the Companies described how their 2021 RAMP Reports follow the required steps of the Settlement Decision, which are to:

1. Build a MAVF;
2. Identify risks for Investor-Owned Utilities' Enterprise Risk Register;
3. Assess and Rank risks for preparation of RAMP;
4. Select Enterprise Risks for RAMP; and
5. Analyze risk mitigations in RAMP.

The 2021 RAMP Reports describe how SDG&E and SoCalGas complied with each of these steps and other requirements. [17]

In November 2021, the SPD issued an Evaluation Report containing recommendations that could be made to the Companies' RAMP presentation prior to being integrated into the TY 2024 GRC. Examples of SPD and party recommendations include eliminating the Stakeholder Satisfaction attribute from the MAVF, allocating cross functional foundational costs, increasing the number of tranches used, and adjusting the baseline for costs from 2020 to 2023. On March 30, 2022, Commissioner Houck issued a ruling directing the Companies to incorporate certain

[15] *Id.* at 14.

[16] A.21-05-011 and A.21-05-014, Risk Assessment Mitigation Phase (SCG/SDG&E-RAMP-A) Overview and Approach (May 17, 2021) at SCG/SDG&E-RAMP-A-3 to A-6.

[17] D.18-12-014 at 33-35.

identified SPD recommendations into their TY 2024 GRC applications.[18] As discussed in detail below, the Companies believe the RAMP filing and the adjustments made to address SPD's recommendations result in a TY 2024 GRC that meets the requirements of the Settlement Decision as well as the Commissioner's Ruling.

## III. THE COMPANIES' PROCESS FOR INCORPORATING RAMP INTO THE TEST YEAR 2024 GRC

To integrate the RAMP process into this GRC, SoCalGas and SDG&E translated the risk mitigations and CFF initiatives, updated the activities as applicable, and performed quantitative analysis, and incorporated party feedback from the RAMP proceeding. In their respective TY 2024 GRC applications, the Companies have included specific requests related to the activities presented in their respective 2021 RAMP Reports. To incorporate the RAMP mitigation activities into their GRCs, the Companies took the following steps:

1. Developed a RAMP based mitigation portfolio as part of the TY 2024 GRC;
2. Incorporated the specific requests into the witnesses' GRC forecasts; and
3. Developed a roadmap for RAMP to GRC Integration.

Each step is discussed in further detail below.

### A. Develop a RAMP Based Mitigation Portfolio as Part of the TY 2024 GRC

#### 1. Revise the Multi-Attribute Value Framework as Part of the GRC Based Mitigation Analyses

As described in the 2021 RAMP Reports and as discussed during RAMP workshops, the MAVF used as part of the Companies' analyses in their respective 2021 RAMP Reports was comprised of four main attributes: Safety, Reliability, Financial, and Stakeholder Satisfaction; three Health and Safety Index sub-attributes: Fatality, Serious Injury, and Acres Burned;[19] and four Reliability Index sub-attributes: Gas Curtailment, Meters Loss of Service, Electric Outage

[18] RAMP Proceeding (A.21-05-011/-014 (cons.)), Assigned Commissioner's Ruling Directing Sempra Utilities to Incorporate Staff Recommendations on Their Risk Assessment and Mitigation Phase in the Upcoming 2024 General Rate Case Applications (March 30, 2022).

[19] The Acres Burned sub-attribute is specific to SDG&E's MAVF.

Counts, and Electric Outage Duration.[20] The MAVF attributes, weighing, units and ranges used in the 2021 RAMP were used in the TY 2024 GRC analyses except as follows:

Change from RAMP: Based on recommendations from stakeholders and SPD, the Companies removed the Stakeholder Satisfaction attribute and reallocated the two percent weighing factor to the Financial attribute. See (Appendix C).

Impact of this change: The impact of this change on a mitigation is non-linear and depends upon both the weighed contribution of the Stakeholder Satisfaction attribute – which has been removed – and the weighed contribution of the Financial attribute – which has been increased by two percent. All ranges for the other attributes remain the same.

Change from RAMP: Based on recommendations from stakeholders, and applicable only to SDG&E's Wildfire risk assessment, SDG&E evaluated the applicability of using a gamma distribution (as was used in the 2021 RAMP) and decided to use a Generalized Pareto Distribution (GPD) for analysis in the TY 2024 GRC. GPD is a type of Power Law distribution and was selected based on its fit for SDG&E's historical wildfire data. SDG&E will continue to refine the use of GPD for predictive modeling and periodically reevaluate this position when new data, additional guidance, and/or other recommendations are received.

Impact of this change: The adoption of the GPD only impacts the baseline risk score of the wildfire risk and the RSE values of the wildfire risk mitigations. Using the GPD model improves SDG&E's ability to capture catastrophic wildfire risks related to climate change and provides an improved fit for historical events. SDG&E will continue to refine its adoption for predictive modeling and consider recommendations.

### 2. Identify the Mitigations in the RAMP Report that Should be Evaluated for Inclusion in the GRC, Including the Identification of Applicable Tranches

Each Company's RAMP to GRC integration process included evaluating each of the planned mitigations discussed in the 2021 RAMP Reports for inclusion in their TY 2024 GRCs. This included evaluating if and how the scope and/or schedule of the planned project may have changed during the 12-18 months since its initial consideration and inclusion in the 2021 RAMP Reports, and if and how the mitigation could be evaluated at a different tranche level.

[20] The Electric Outage Count and Electric Outage Duration sub-attributes are specific to SDG&E's MAVF.

Change from RAMP: Based on recommendations from stakeholders, the Companies reviewed the level of tranching used in the 2021 RAMP Reports for each risk and each mitigation to identify which mitigations could be evaluated at a different, more granular, or combined tranche level. The mapping tables in Appendix E inform the GRC tranche for each risk mitigation.

With respect to incorporating additional tranche granularity as part of the risk analyses performed in the GRC, the Companies incorporated 31 additional levels of tranche granularity across 11 of the Companies' 15 key risks.

- **SDG&E - Wildfire risk:** Five additional tranche levels were included for the PSPS Tier 3 HFTD and for Tier 2 HFTD analyses: Standby Power Program, Generator Grant Program, Generator Assistance Program, Resilience Program Microgrid, and PSPS Sectionalizing.
- **SDG&E & SoCalGas – High Pressure Incidents:** Two additional tranche levels were included: Transmission – Supply Line and Transmission – Facilities.
- **SDG&E & SoCalGas – Medium Pressure Incidents:** Ten additional tranche levels were included: Supply Line, Main: Steel, Main: Plastic, Service: Steel, Service: Plastic, Main: Steel & Plastic, Service: Steel & Plastic, Steel: Main & Service, Plastic: Main & Service, and Meter and Beyond.
- **SDG&E – Electric Infrastructure Integrity:** Four additional tranche levels were included: OH Distribution, UG Distribution, Substation, and Manhole/Handhole.
- **SoCalGas – Storage:** Three additional tranche levels were included: Aboveground Piping, Aboveground Facilities, and Underground Components.
- **SDG&E & SoCalGas – Employee Incident and Contractor Incident:** Two additional tranche levels were included: Vehicle Incident and Non-Vehicle Incident.

SoCalGas and SDG&E respectively have approximately 120 and 150 mitigations with calculated RSE values, of which over half were calculated at one of the additional levels of tranche granularity.

Impact of this change: Providing more granular tranches gives both the Companies and the Commission insight as to which tranche offers greater potential for risk reduction and

captures the risk profiles related to mitigations employed to reduce risks. Also, aligning each mitigation with its appropriate risk profile or tranche allows for better RSE and risk reduction calculations. In their respective RAMP Reports, the Companies calculated RSEs and risk reductions based on an overall system risk profile. However, where applicable, the GRC shows RSE and risk reductions based on the tranche in which the mitigation is determined to reduce risks.

### 3. Recalibrate Baseline Year and Historical Data

At the recommendation of SPD and other parties, the Companies have recalibrated the baseline year for risk reduction and RSE calculations and have also updated the historical years from which data was used to reflect relative Likelihood of Risk Event (LoRE) and Consequence of Risk Event (CoRE) values.

Changes from RAMP: Based on stakeholder feedback, the pre-mitigated risk scores used to determine RSE and risk reduction values were calculated using an end of 2023 baseline versus using the 2020 baseline used in the 2021 RAMP. The 2023 baseline risk profiles were forecasted from the last known point of 2021 based on which specific activities permanently reduce risk versus counteract the ongoing increase in risk due to operation of the system and its components.

Impact of this change: Recalibrating the baseline impacts the pre-mitigated risk score for each risk and the RSE and risk reduction values for each mitigation. Additionally, this change provides a forecast as to what profile of risk is to be expected before mitigations take effect, and how much risk reduction is expected for the test year of 2024.

Change from RAMP: Where applicable, the Companies updated the historic data used to calculate the LoRE and CoRE values, *e.g.*, the GRC analysis could use a 2017-2021 five-year historic range of data compared to the RAMP analysis using a 2016-2020 five-year historic range of data.

Impact of this change: Recalibrating the historic data impacts the pre-mitigated risk score for each risk and the RSE and risk reduction values for each mitigation. Additionally, this change provides a forecast as to what profile of risk is to be expected before mitigations take effect, and how much risk reduction is expected for the test year of 2024.

### 4. Calculate RSE Values for Mitigations

The Companies reviewed all current and newly planned activities to evaluate the usefulness and ability to calculate an RSE value. The Companies calculated an RSE for each mitigation at the identified tranche level, where feasible. In addition, the Companies developed both pre- and post-mitigation LoRE and CoRE values for all tranches, as reflected in the Companies' response to SPD's recommendation.[21]

#### a. Changes in the Calculations of RSE Values

The Companies implemented the following RAMP to GRC changes regarding the calculation of RSE values:

- Based on stakeholder recommendations, the RSE values in the GRC were calculated using 2023 as the baseline year versus the Companies' initial plan of using 2021 as the baseline year.
- Based on stakeholder recommendations, the risk reduction and RSE of many mitigations were calculated relative to tranche level pre-mitigation CoRE and LoRE values and not, as was the method in the 2021 RAMP Reports, relative to the risk's system level pre-mitigation CoRE and LoRE values.
- Based on stakeholder recommendations, the Companies identified which RSE values represent an incremental decrease to the pre-mitigation risk score associated with performing the mitigation and which RSE values represent an incremental increase to the pre-mitigation risk score associated with not performing the mitigation. As discussed during the RAMP workshops, the Companies calculated and presented all RSE values as absolute values for readability purposes. Stakeholders communicated that this approach created the unintended interpretation that all mitigations result in incremental risk reductions when in fact some mitigations are implemented to maintain existing risk levels and a reduction of the activity would result in increased risk.

[21] California Public Utilities Commission, *Safety Policy Division Staff Evaluation Report on SDG&E's & SoCalGas' RAMP Application Reports (A.) 21-05-11, (A.) 21-05-014*, at 10, *available at* https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/safety-policy-division/reports/spd-evaluation-of-sdge-and-socalgas-2021-ramp-reports.pdf; *see also* Appendix B, Stakeholder Feedback and Companies Responses.

- Based on recommendations from stakeholders, the Companies reviewed and modified the "%,%,%" method of calculating an RSE value such that no effectiveness % value exceeds 100%.

### b. Results of RSE Risk Analysis Evaluations

The Companies' RAMP portfolios for the TY 2024 GRC contain approximately 380 total O&M and Capital risk mitigations: 150 for SoCalGas and 230 for SDG&E.[22] Below is a summary of the five possible outcomes of the RSE risk analysis evaluation presented in this GRC.

#### i. Risk Mitigations with an RSE Value

Approximately 120 risk mitigations for SoCalGas and approximately 150 risk mitigations for SDG&E have calculated RSE values reflecting the results of a quantitative analysis of forecast cost and incremental risk reduction occurring in 2024 relative to an end of 2023 baseline year. Note that in most cases a single RSE value was calculated for a mitigation that had both O&M and capital dollars, with the RSE calculation using the sum of those dollars.

#### ii. Risk mitigations with a "0" RSE Value: Foundational Activities

Similar to the process undertaken for the 2021 RAMP Reports, both Companies' RSE evaluations included the reasonableness of calculating an RSE value for activities that are considered foundational and/or meeting certain mandatory criteria. The majority of the mitigations in the 2021 RAMP Reports that met these criteria were similarly classified in the TY 2024 GRC, meaning that the Companies were unable to perform an RSE due to the activity being foundational or meeting certain mandatory criteria. Within the tables, a "0" is provided as the RSE value for these mitigations, with a note informing that an RSE value was not calculated for this activity.

#### iii. Risk Mitigation with "0" RSE Value: Capital Projects with No Dollars in 2024

Some RAMP risk mitigating activities may have forecasted capital dollars in 2022 and/or 2023 but not in 2024. Thus, the calculated RSE value using a 2023 baseline year is zero for

[22] These numbers do not include CFF activities.

these mitigations. Within the various tables, a "0" is provided as the RSE value for these mitigations, with a note informing that an RSE value was not calculated for this activity.

#### iv. Risk Mitigations with Multiple RSE Values

The Companies' witnesses present their forecasts by "workpaper," which is one or most cost centers for O&M and by budget code for capital. In many instances, the forecast dollars for a given workpaper are equivalent to the forecast dollars at the RAMP mitigation tranche level, *i.e.*, an RSE is calculated for the total dollars in the workpaper. However, there are instances, such as within the Companies' Gas Distribution witness area, when the risk analysis for the dollars within a single workpaper occurred at a more granular, tranche levels. In other words, there were multiple activities and/or tranches within one workpaper. In these instances, an RSE is calculated at each tranche level but not at the total workpaper level. The tranche level RSE values are available in the workpapers for each of these instances. Within the various tables, a dash "-" is provided as the RSE value for these mitigations, with a note that tranche level RSE values are available in the workpaper for these activities.

#### v. Cross-Functional Factors

As mentioned above, activities classified as CFFs do not directly address any one risk but rather provide direct or indirect benefits across multiple risks or multiple risk mitigations. The Companies did not calculate an RSE for any specific CFF activity and enter a "0" with a note informing that an RSE was not calculated for this activity. As discussed further below, the Companies allocated the forecast dollars for CFF classified RAMP activities across the RAMP mitigations benefiting risks. Appendix D contains a table with RSE values calculated including CFF dollars.

### 5. Consideration of RSE Values

The Companies reviewed the RSEs in preparing their TY 2024 GRCs. As stated in the 2021 RAMP Reports, RSEs do have value, but should be considered as a single data point, rather than the sole source for risk-informed decision-making.[23] Conceptually, RSEs can be useful tools to assist in decision-making, and SoCalGas and SDG&E support their use and refinement.

[23] *See* A.21-05-011 and A.21-05-014 (cons.), Risk Assessment Mitigation Phase (RAMP-C) Risk Quantification Framework and Risk Spend Efficiency (May 17, 2021) at RAMP-C-35 to RAMP-C-39.

The Companies believe, however, that no matter the quantification methodology employed, judgment and expertise must be utilized when making decisions. Interpretation of the results of a quantification model are just as, if not more, valuable than the model outputs themselves. In addition, a calculation or single value cannot replace prudent and reasonable risk policies and practices, but rather is an additional tool to be used in that process. Since first introduced by the Commission, RSEs have had and continue to have critical limitations. RSEs remain a data point for utilities to consider, but not the deciding factor for mitigation selection.[24]

### 6. Identify Each RAMP Mitigation and Associated Funding Request as Part of the Applicable Witness Testimony and Workpaper

The mitigations in the Companies' respective 2021 RAMP Reports are discussed relative to how they mitigate one or more key safety risks. In contrast, the Companies' TY 2024 GRCs were prepared, and the funding requests are set forth by the witnesses in various business units. A RAMP risk and the associated mitigations may have a direct relationship with a witness area. For example, funds for the mitigations in SoCalGas's Cybersecurity risk chapter are requested specifically in SoCalGas's Cybersecurity witness area testimony and workpapers. However, other RAMP risks may have mitigations corresponding with funding requested in one or more witness areas. For example, the funding requests for mitigations in SDG&E's Medium Pressure Incident risk are contained in the testimony and workpapers for four different witness areas: (i) SDG&E's Electric Distribution – Capital (Ex. SDG&E-11), (ii) SDG&E's Gas Integrity Management Programs (Ex. SDG&E-09), (iii) SDG&E's Customer Service – Office Operations (Ex. SDG&E-18), and (iv) SDG&E's Customer Service – Information (Ex. SDG&E-19).

The requested funding for RAMP activities in the TY 2024 GRC may differ from what was presented in the 2021 RAMP Reports, for several reasons. First, the 2021 RAMP Reports utilized a 2020 Base Year (BY), presented proposed activities in ranges of dollars, and did not request funding. In contrast, the TY 2024 GRCs utilize a 2021 BY and seeks Commission approval for a specific, more refined funding (rather than a range). Second, GRC witnesses

[24] *See* California Public Utilities Commission, *Risk and Safety Aspects of Risk Assessment Mitigation Phase Report of Pacific Gas & Electric Company [PG&E] Investigation 17-11-003* (March 30, 2018) at 35 (In their review of PG&E's RSE methodology, the Safety and Enforcement Division [SED] agreed that RSEs were not the only factor for consideration in selecting mitigations.), *available at* https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/safety-policy-division/reports/sed_ramp_evaluation_pge_033018a.pdf.

revisited the cost estimates developed in the 2021 RAMP Reports in light of the new, more recent, or additional information (since the RAMP Reports were filed in May 2021 and developed prior to that date, *i.e.*, 12-18 months prior to the TY 24 GRC filing). Either or both changes could have initiated a re-evaluation of incremental risk mitigation forecasts, either upward or downward, resulting in the GRC witnesses utilizing more recent cost estimates in their GRC forecasts. Third, in some cases, while developing the GRC forecast of activities and costs since the submission of the 2021 RAMP Reports, the Companies became aware of either new risk mitigation opportunities, or changes in scope or schedule of risk mitigation opportunities identified in the 2021 RAMP Reports. The GRC witnesses included those modified risk mitigation efforts into their GRC requests. Fourth, the 2021 RAMP Reports contained some distinctly identified activities that when reviewed with witnesses (during step 2 above) were rescoped to be a single funding request to better align with the GRC format. Lastly, as also mentioned above, the 2021 RAMP Reports presented mitigation activities which are outside the jurisdiction of the Commission, in order to show complete mitigation plans for the identified risks. Such items are not, however, included in GRCs.

### 7. Compliance with Commissioner Houck's March 30, 2022 Ruling

The above sections discuss how the Companies calculated RSE values using a 2023 baseline, the removal of the Stakeholder Satisfaction attribute for the GRC MAVF, how the Companies are calculating pre-mitigation risk scores at a tranche level, and the Companies' increase in the granularity of tranches where applicable. The Companies will also streamline access to RSE workpapers for parties to the proceeding.[25] In addition to the above commitments, which the Companies also stated in comments on SPD's Report,[26] the Companies have calculated additional RSE values consistent with the Commissioner Ruling, as set forth below.

[25] The RSE workpapers will be available to parties upon request, in accordance with Commission procedures, via the Companies' newly established GRC discovery portal.

[26] *See generally* A.21-05-011/-014; SoCalGas and SDG&E's Opening and Reply Comments on SPD's Evaluation of the Companies' RAMP Reports (filed on Dec. 6, 2021 and Dec. 15, 2021, respectively).

### c. Calculate RSE Values with an Allocation of the Requested Dollars for CFF Activities

The Commissioner Ruling required the Companies to incorporate certain SPD recommendations regarding RSE calculations on foundational activities, consistent with their comments on SPD's Report.[27] The Companies' comments referenced assessing the feasibility of calculating RSEs for the CFF activities identified in the Companies' 2021 RAMP Reports for the TY 2024 GRC.[28] In the 2021 RAMP Reports, the Companies identified risks that benefited the most from each CFF's activities. For example, where applicable, the CFF chapters noted supported risk chapters under *Section III: Associated Risk Event*s. The Companies used this "benefiting risks-to-CFF" relation as the starting point to allocate CFF dollars to supported risk activities. The Companies first allocated the CFF dollars to each benefiting risk based on the proportional total dollar forecast of each risk chapter, and then allocated those dollars across the risk's mitigating activities based on the proportional dollar forecast of each mitigation. This approach was used for all CFF O&M and capital dollars, *i.e.*, the RSEs that include an allocation of CFF requested dollars collectively include both O&M and capital dollars for all the CFF. Appendix D-2 contains a list of mitigations sorted by RSE value, with the RSE value containing an allocation of CFF dollars.

### d. Calculate RSEs for the 2025-2027 Post-Test Year Period

The Company will apply their proposed post-test year mechanism, addressed in the Post-Test Year Ratemaking testimony of Khai Nguyen (Ex. SCG-40) and Melanie E. Hancock (Ex. SDG&E-45), to calculate RSE values in the post-test year period. For programs which Mr. Nguyen and Ms. Hancock are proposing capital exceptions in the post-test years, the Companies will use those forecasts to calculate RSEs in the post-test years. These RSEs will be included in supplemental testimony the Companies submit within eight weeks of filing their GRC Applications as required by the Commissioner Ruling.

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[27] Commissioner Ruling at 2.

[28] A.21-05-011/-014; SoCalGas and SDG&E's Opening Comments on SPD's Evaluation of the Companies' RAMP Reports (Dec. 6, 2021) at 23.

## B. Incorporation of the RAMP Forecast into the GRC Request

### 1. Example Presentations

#### a. RAMP by Risk and CFF

The testimony for each witness sponsoring RAMP related activities includes a section titled "RAMP Integration." For most witnesses, but not all, this is typically in Section II of their testimony. Within this section, each GRC witness presents tables illustrating the request as it relates to RAMP. The above-described RAMP categories are included in these tables. A sample of an O&M RAMP table from the SoCalGas Gas Distribution testimony of Mario A. Aguirre (Ex. SCG-04) is provided below. This table contains the total RAMP related dollars by RAMP Risk and/or CFF.

**Sample Table RSP/GSF-1:**
**RAMP O&M Dollars ($2021) by RAMP Risk and CFF**

| SoCalGas Distribution | BY 2021 Embedded Costs ($000) | TY 2024 Total ($000) | TY 2024 Estimated Incremental ($000) |
|---|---|---|---|
| **RAMP Report Chapter** | | | |
| SCG-Risk-2 Excavation Damage (Dig-In) on the Gas System | 19,757 | 22,023 | 2,266 |
| SCG-Risk-3 Incident Related to the Medium Pressure System | 59,233 | 49,663 | -9,570 |
| SCG-Risk-5 Incident Involving an Employee | 111 | 111 | 0 |
| Sub-Total | 79,101 | 71,797 | -7,304 |
| **RAMP Report Cross-Functional Factor (CFF) Chapter** | | | |
| SCG-CFF-1 Asset and Records Management | 0 | 250 | 250 |
| Sub-Total | 0 | 250 | 250 |
| **Total RAMP O&M Costs** | **79,101** | **72,047** | **-7,054** |

The above table shows that Mr. Aguirre is sponsoring costs related to three SoCalGas risks (Excavation Damage, Medium Pressure, and Employee Incidents) and one CFF (Asset and Records Management) provided in SoCalGas's 2021 RAMP Report. For each applicable RAMP chapter, Mr. Aguirre presents the 2021 embedded historical costs, the TY 2024 incremental, and

the total forecasted costs requested in 2024 (*i.e.*, a summation of the 2021 embedded historical and the incremental 2024 costs).

The capital RAMP tables included in the GRC witnesses' testimony provide similar information. Below is a sample of a capital RAMP table from the SDG&E Gas Distribution testimony of L. Patrick Kinsella (Ex. SDG&E-04).

**Sample Table RSP/GSF-2:**
**RAMP Capital Dollars (In 2021 $) by RAMP Risk and CFF**

| **SDG&E GAS DISTRIBUTION** | **2022 Estimated RAMP Total (000s)** | **2023 Estimated RAMP Total (000s)** | **2024 Estimated RAMP Total (000s)** | **2022-2024 Estimated RAMP Total (000s)** |
|---|---|---|---|---|
| **RAMP Risk Chapter** | | | | |
| SDG&E-Risk-3 Incident Related to the High-Pressure System (Excluding Dig-in) | 2,192 | 1,891 | 0 | 4,083 |
| SDG&E-Risk-7 Excavation Damage (Dig-In) on the Gas System | 225 | 225 | 225 | 675 |
| SDG&E-Risk-9 Incident Related to the Medium Pressure System (Excluding Dig-in) | 46,695 | 51,344 | 51,902 | 150,166 |
| **Sub-total** | 49,337 | 53,460 | 52,127 | 154,924 |
| | | | | |
| **RAMP Cross-Functional Factor (CFF) Chapter** | | | | |
| SDG&E-CFF-6 Records Management | 1,298 | 1,395 | 1,385 | 4,078 |
| **Sub-total** | 1,298 | 1,395 | 1,385 | 4,078 |
| | | | | |
| **Total RAMP Capital Costs** | **50,410** | **54,855** | **53,512** | **159,002** |

Similar to the sample O&M RAMP table, the sample capital RAMP table illustrated above presents the witness's applicable RAMP dollars by risk and CFF. In this case, Mr. Kinsella is sponsoring costs related to the SDG&E RAMP risks of High Pressure, Excavation Damage, and Medium Pressure Incidents, and the Records Management CFF. The sample capital table includes the funding request for each of the GRC forecast years (2022-2024) and the total for that three-year period.

### b. RAMP by Activity

The testimony for each witness sponsoring RAMP related activities also includes a table with the RAMP ID, activity name, and description for each RAMP activity with a funding request and a table with the requested RAMP dollars sorted by workpaper, including GRC RSE values. Table RSP/GSF-3 is a sample of the former and Table RSP/GSF-4 is a sample of the latter, both from the Electric Distribution Capital testimony of Oliva Reyes (Ex. SDG&E-11). Each witness testimony sponsoring RAMP dollars contains a similar table.

**Sample Table RSP/GSF-3**
**Summary of RAMP and CFF Activities**

| RAMP ID | Activity | Description |
|---|---|---|
| SDG&E-Risk-2-C01 | Overhead Public Safety (OPS) Program | This program involves proactively replacing high-risk overhead (OH) conductors prone to wire down events measured as tracked by failure rates, historic wire down events, CMP records and lack of protection (fuse or advanced) that are in proximity to the public (schools, freeways, high profile areas) that could put the public at risk of energized contact. |
| SDG&E-Risk-2-C02 | GO165 Pole Replacement Reinforcement | This program involves pole replacements after identifying compromised poles from pole intrusive inspections complying to GO 165. |
| SDG&E-Risk-2-C03 | 4kV Modernization Program – Distribution | This program involves converting remaining OH 4kV infrastructure in SDG&E's service territory to 12kV infrastructure. These conversions will address both the safety and reliability issues associated with 4kV circuits being relatively more susceptible than 12kV circuits to wire down events |
| SDG&E-Risk-2-C04 | Distribution Overhead Switch Replacement Program | Install SCADA system, gang switches, and overhead hook switches. |

**Sample Table RSP/GSF-4:**
**Sponsored Capital RAMP Activities by Workpaper**[29]

| ELECTRIC DISTRIBUTION<br>RAMP Activity Capital Forecasts by Workpaper (In 2021 $) | | | | | | |
|---|---|---|---|---|---|---|
| **Workpaper** | **RAMP ID** | **Description** | **2022 Estimated RAMP Total (000s)** | **2023 Estimated RAMP Total (000s)** | **2024 Estimated RAMP Total (000s)** | **GRC RSE*†** |
| 002380.001 | SDG&E-Risk-2 - C10-T1&T2 | Underground Cable Replacement Program – Proactive | 4,260 | 3,485 | 3,431 | 2082 |
| 112490.001 | SDG&E-Risk-2 - C29 | SCADA Capacitors | 983 | 984 | 984 | - |
| 141430.001 | SDG&E-Risk-2 - New04 | Poway 69kV Substation Rebuild | 1,517 | 0 | 0 | 0 |
| 942410.003 | SDG&E-Risk-2 - C26 | Power Quality Monitor Deployment and Replacement | 1,500 | 1,500 | 1,500 | 0 |
| E09010.002 | SDG&E-CFF-1 - 3 | AIMDAT (Data Analytics) | 105 | 132 | 132 | 0 |

* An activity with a "0" RSE value did not have an RSE value calculated.

† Please refer to the workpapers for tranche level RSE values for activities with "-".

[29] The entries in the RSE field in Table RSP/GSF-4 reflect each of the five different situations:

A number: The risk analysis for this risk mitigation (Underground Cable Replacement Program – Proactive) was performed at a single tranche level.

A dash "-": The risk analysis for this mitigation (SCADA Capacitors) was performed at multiple tranche levels. The RSE at each tranche level is available in the workpaper.

A zero (0): A capital mitigation (Poway 69kV Substation Rebuild) with forecast dollars in 2022 and/or 2023 but not in 2024 has a calculated RSE value of "0" when using a 2023 baseline.

A zero (0): A mitigation (Power Quality Monitor deployment and Replacement) classified as foundational does not have a calculated RSE value.

A zero (0): An activity for a cross-functional factor does not have a calculated RSE value.

### 2. The Settlement Decision's Number 28: Step 3 Supplemental Analysis

In compliance with the Settlement Decision, the Companies reviewed non-RAMP funding requests to identify which, if any, met the criteria associated with qualifying for a Step 3 supplemental analysis, *i.e.*, met the criteria to perform an RSE-based quantitative analysis.[30] Each Company identified at least one funding request that met the criteria for a Step 3 supplemental analysis, however, during the data gathering phase of the analyses, the Companies determined that each request was foundational or supportive in nature, which is not conducive to quantitative analysis.

## E. Develop a Roadmap of the 2021 RAMP TO TY 2024 GRC Integration

### 1. Stakeholder Recommendations and the Companies' Response

Aligning with SPD's recommendation,[31] Appendix B to this testimony contains a list compiled by the Companies of each party's recommended change to the 2021 RAMP Reports for inclusion in the TY 2024 GRC, and the Companies' response to those recommendations.

Table RSP/GSF-5 below summarizes the recommendations from SPD and/or other stakeholders adopted by the Companies. The complete list of recommendations and the Companies' responses is provided in Appendix B.

**Table RSP/GSF-5:**
**Stakeholder Recommendations Incorporated in the TY 2024 GRC**

| Recommendation | SCG/SDG&E Response | RAMP Chapter | Witness Area |
|---|---|---|---|
| Calculate RSEs using a 2023 baseline | The Companies will calculate RSE values using a 2023 baseline | All risk chapters | All witnesses with risk mitigations |
| Include additional granularity of tranches | The Companies included additional granularity of tranches where applicable | All risk chapters | All witnesses with risk mitigations |

[30] D.18-12-014 (Settlement Decision), Attachment A (Settlement Agreement), Appendix A, at A-14 – A-17.

[31] California Public Utilities Commission, *Safety Policy Division Staff Evaluation Report on SDG&E's & SoCalGas' RAMP Application Reports (A.) 21-05-11, (A.) 21-05-014* at 14, *available at*: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/safety-policy-division/reports/spd-evaluation-of-sdge-and-socalgas-2021-ramp-reports.pdf.

| | | | |
|---|---|---|---|
| Use tranche level CoRE and LoRE values to calculate pre-mitigation risk scores | The Companies are calculating pre-mitigation risk scores at a tranche level | All risk chapters | All witnesses with risk mitigations |
| Remove the Stakeholder Satisfaction attribute from the MAVF | The Companies' GRC MAVF does not included a Stakeholder Satisfaction attribute | All risk chapters | All witness with risk mitigations |
| Provide improved transparency in and access to GRC workpapers for parties to the proceeding | The Companies have implemented a party accessible portal | All risk chapters | N/A |
| Perform wildfire risk analyses with a distribution other than Gamma | SDG&E's wildfire risk analysis in the TY 2024 GRC was performed using a Generalized Pareto Distribution | Wildfire risk chapter | Wildfire Mitigation and Vegetation Management |

### 2. Mapping and Comparison Tables

Attached as appendices to this testimony are the following tables:

**Appendix D: Mitigations by RSE value**

Similar to Appendix C1 in each of the Companies' RAMP Reports, which contains a list of mitigations sorted by RSE value, Table D.1 contains a list of RAMP risk mitigations sorted by RSE value. This table includes the total requested dollars used in each RSE calculation, *i.e.*, some RSE values include both O&M and Capital dollars. Table D.2 contains a list of RAMP risk mitigations sorted by RSE values calculated with an allocation of CFF dollars.

**Appendix E: RAMP to GRC Mapping Tables**

The Companies also include "roadmap" tables informing where and how RAMP activities discussed in the 2021 RAMP Reports are (or are not) included in the TY 2024 GRC. The Tables in Appendix E provide summaries, by Company of which witnesses have capital and O&M funding requests for which risk(s) and CFF(s). The tables also summarize the total RAMP capital and total RAMP O&M sponsored by each witness. Workpapers for this testimony include additional "roadmaps" of where, *i.e.*, within which witness(es) testimony and associated workpaper(s) each RAMP risk mitigation and CFF activity is located in the TY 2024 GRC. Workpapers are provided specific to capital and O&M dollars for each Company and on a risk by risk and CFF by CFF basis. These workpapers include the estimated range of dollars for the risk mitigations and CFF activities contained in the RAMP Report, and also the RAMP and GRC

based RSE values calculated for each mitigation. For reasons discussed above regarding the compounding impacts of incorporating the multiple RAMP to GRC integration changes, the Companies believe that in many instances comparing GRC based RSE values to the corresponding RAMP based values will provide results that may not be meaningful.

## IV. CONCLUSION

With the Companies' TY 2024 GRC applications, SDG&E and SoCalGas put forth a risk informed GRC. The 2021 RAMP Reports represent an initial phase of developing the GRC specific to risk informed analyses, and this prepared testimony provides an overview of the steps taken by each Company to integrate the results of and feedback on the 2021 RAMP Reports into the GRC. The Companies look forward to continuing to work collaboratively with Commission staff and other interested stakeholders.

This concludes our prepared direct testimony.

## V. WITNESS QUALIFICATIONS

**Scott Pearson**

My name is R. Scott Pearson. My business address is 8335 Century Park Ct., San Diego, California, 92123. My current position is Director of Risk and Compliance under the Risk Management and Compliance organization to SDG&E. I have held various positions with the Sempra companies since 2008, including Director of the Environmental Services organization to SDG&E. I have been in my current position at SDG&E since March 2020.

I hold a Bachelor of Science Degree in Business and Management from University of Redlands and a Juris Doctor degree from University of California at Los Angeles, School of Law.

I have previously testified before the Commission.

**Gregory Flores**

My name is Gregory S. Flores and my business address is 555 West 5th Street, Los Angeles, California 90013. My current position is Director of Risk and Compliance under the Risk Management and Compliance organization at SoCalGas. I have held various positions with the Sempra companies since 1989, including Director of Enterprise Risk Management and Compliance, Director of Audit Services, and Director of Financial Planning.

I received a Bachelor's Degree in Business Administration with an emphasis in Accounting from the University of Southern California.

I have previously testified before the Commission.

# APPENDIX A
# GLOSSARY OF TERMS

## APPENDIX A

## Glossary of Terms

| Acronym | Definition |
|---|---|
| API | American Petroleum Institute |
| CoRE | Consequence of Risk Event |
| CFF | Cross-Functional Factor |
| CPUC or Commission | California Public Utilities Commission |
| EAM | Enterprise Asset Management |
| EP&R | Emergency Preparedness and Response |
| ERR | Enterprise Risk Registry |
| GPD | Generalized Pareto Distribution |
| GRC | General Rate Case |
| HFTD | High Threat Fire District |
| ISO | International Standards Organization |
| LoRE | Likelihood of Risk Event |
| MAOP | Maximum Allowable Operating Pressure |
| MAVF | Multi Attribute Value Function |
| OE | Organizational Effectiveness |
| OH | Overhead |
| O&M | Operations and Management |
| OPS | Overhead Public Safety Program |
| OSHA | Occupational Safety and Health Administration |
| RAMP | Risk Assessment Mitigation Phase |
| RSE | Risk Spend Efficiency |
| SDG&E | San Diego Gas and Electric |
| S-MAP | Safety Model Assessment Proceeding |
| SME | Subject Matter Expert |
| SMS | Safety Management System |
| SoCalGas | Southern California Gas Company |
| SPD | Safety Policy Division |
| TY | Test Year |

# APPENDIX B

# STAKEHOLDER FEEDBACK AND COMPANIES RESPONSES

# APPENDIX B

## STAKEHOLDER FEEDBACK AND COMPANIES RESPONSES[1]

| Abbreviated Citation: | Full Citation: |
|---|---|
| SPD Evaluation Report: | Safety Policy Division Staff Evaluation Report on SDG&E's and SoCalGas's RAMP Reports (November 5, 2021) |
| Cal Adv. Opening Comments: | Cal Advocates/Public Advocates Opening Comments on SPD Report and SDG&E's and SoCalGas's RAMP Reports (December 6, 2021) |
| Cal Adv. Reply Comments: | Cal Advocates/Public Advocates Reply Comments on SPD Report and SDG&E's and SoCalGas's RAMP Reports (December 15, 2021) |
| MGRA Informal Comments: | Mussey Grade Alliance Informal Comments on SPD Report and SDG&E's and SoCalGas's RAMP Reports (October 22, 2021) |
| MGRA Opening Comments: | Mussey Grade Alliance Opening Comments on SPD Report and SDG&E's and SoCalGas's RAMP Reports (December 6, 2021) |
| MGRA Reply Comments: | Mussey Grade Alliance Reply Comments on SPD Report and SDG&E's and SoCalGas's RAMP Reports (December 15, 2021) |
| PCF Opening Comments: | Protect Our Communities Foundation Opening Comments on SPD Report and SDG&E's and SoCalGas's RAMP Reports (December 15, 2021) |
| SBUA Opening Comments: | Small Business Utility Advocates Opening Comments on SPD Report and SDG&E's and SoCalGas's RAMP Reports (December 6, 2021) |
| SBUA Reply Comments: | Small Business Utility Advocates Reply Comments on SPD Report and SDG&E's and SoCalGas's RAMP Reports (December 15, 2021) |
| TURN Informal Comments: | The Utility Reform Network Informal Comments on SPD Report and SDG&E's and SoCalGas's RAMP Reports (October 22, 2021) |
| TURN Opening Comments: | The Utility Reform Network Opening Comments on SPD Report and SDG&E's and SoCalGas's RAMP Reports (December 6, 2021) |
| TURN Reply Comments: | The Utility Reform Network Reply Comments on SPD Report and SDG&E's and SoCalGas's RAMP Reports (December 15, 2021 |
| UCAN Opening Comments: | Utility Consumers' Action Network Opening Comments on SPD Report and SDG&E and SoCalGas's RAMP Reports (October 29, 2021) |
| Utility Workers Opening Comments: | Utility Workers Union of America, Local 132 Opening Comments on SPD Report and SDG&E and SoCalGas's RAMP Reports (December 6, 2021) |

[1] The Companies have included feedback and recommendations that are relevant to the Companies' incorporation of its 2021 RAMP presentation into the Test Year (TY) 2024 GRC. The Companies did not include feedback and recommendations not directed at the Companies, *i.e.*, directed at the Commission or Commission staff. The Companies also did not include feedback and recommendations relevant to the Companies' next RAMP filing and not to the TY 2024 GRC filing.

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| Cal Adv. | Opening Comments at 12 | Recommends that the utilities and all other utilities should refrain from using a too "top down" approach in its risk analysis | Enterprise Risk Management is one facet of risk management within SoCalGas & SDG&E. The Companies use both a top down and a bottom up approach. As mentioned in previous post RAMP workshops, these two processes work in conjunction with each other to create an improved view of risk across the enterprise. |
| Cal Adv. | Opening Comments at 6 | Agrees with the SPD Report's recommendation that SDG&E should "re-evaluate the use of their Gamma distribution model prior to filing their GRC," and urges SDG&E to instead use a power law distribution | SDG&E reviewed the feedback and options regarding an applicable distribution to use in the wildfire analyses. Based on extensive data analyses and modeling multiple probability distributions of the extreme or tail risks, a Generalized Pareto (Power Law) Distribution was selected for use in the TY 2024 wildfire risk analyses. |
| Cal Adv. | Opening Comments at 9 | Urges SDG&E to expedite its stated planned analysis and, if feasible, update its wildfire risk assessment in time for its Test Year (TY) 2024 GRC filing, and to include full documentation in TY 2024 GRC | SDG&E is planning to update the referenced analysis by early 2023 using results of its upcoming climate change vulnerability assessment. |
| Cal Adv. | Opening Comments at 6 | SDG&E should model wildfire consequences utilizing a power law distribution to capture increasingly catastrophic wildfires caused by climate change and devise appropriate mitigations | SDG&E reviewed the feedback and options regarding an applicable distribution to use in the wildfire analyses. Based on extensive data analyses and modeling multiple probability distributions of the extreme or tail risks, a Generalized Pareto (Power Law) Distribution was selected for use in the TY 2024 wildfire risk analyses. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| Cal Adv. | Opening Comments at 11 | Urges SDG&E to expedite improvements to its PSPS quantification framework and implement as many of them as possible in time for its TY 2024 GRC filing. Quantifying the impacts to discrete types of customers is vital to a robust and granular analysis of customer impacts, as many customer types (such as the elderly and disabled) are especially vulnerable to PSPS impacts. Usage of PSPS claims data would also substantially improve its analysis of financial losses by providing real-world data from previous PSPS events, as would improvements to the WiNGS model to include historical duration of PSPS events. | SDG&E is currently evaluating and exploring how to include Access and Functional Needs customers with additional granularity in the WiNGS models. Additionally, WiNGS incorporates data on customers who have identified as medical baseline. |
| Cal Adv. | Opening Comments at 11 | Urges SDG&E to expedite improvements to its PSPS quantification framework and implement as many of them as possible in time for its TY 2024 GRC filing. | SDG&E has identified several areas in its PSPS impacts to customer modeling for improvements and is continuing to evaluate and explore them. |
| Cal Adv. | Opening Comments at 8 | SDG&E should expedite the update of its approach for estimating increased wildfire likelihood due to climate change for inclusion in its Test Year 2024 GRC filing. | SDG&E is planning to update the referenced analysis by early 2023 using results of its upcoming climate change vulnerability assessment. |
| Cal Adv. | Opening Comments at 9 | If updating the analysis in time for the TY 2024 GRC filing is not possible, then SDG&E should seek permission to file supplemental testimony with the updated analysis as soon as it is ready for the same purpose | SDG&E is planning to update the referenced analysis by early 2023 using results of its upcoming climate change vulnerability assessment. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| Cal Adv. | Reply Comments at 2 | Measuring concentrated air pollution from wildfires and comparing them with morbidity rates in nearby communities is one approach that SDG&E should consider in measuring the impacts of wildfire smoke on human health. SDG&E should work with other agencies and public health experts to develop appropriate modeling approaches to assess the illness causing impacts of wildfire smoke. | SDG&E's inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model any impacts of smoke from wildfires. |
| Cal Adv. | Reply Comments at 2 | SDG&E should work with other agencies to reassess its current modeling approach to measure the safety impacts of wildfire smoke on human health. | SDG&E's inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model any impacts of smoke from wildfires. |
| Cal Adv. | Reply Comments at 3 | Supports SPD's recommendation that the correct time-period for risk assessment in the Utilities 2024 RAMP is the 2024-2027 period, which is the General Rate Case (GRC) period under review in the forthcoming Test Year (TY) 2024 rate case due for filing on May 15, 2022. | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies will provide risk scores and RSE values for the 2025-2027 post-test years in a supplemental filing. |
| Cal Adv. | Reply Comments at 5 | It is critical to recalculate RAMP RSEs using the same baseline risk level year (i.e., 2023 in this example) as the GRC RSEs, because this is the only way to meaningfully compare the two sets of RSEs. | The Companies will calculate and provide RSE values in the TY 2024 using a 2023 baseline. The Companies believe the GRC based RSE values and the RAMP based RSE values have different purposes - as well as being calculated using different MAVF elements in addition to different base years, and as such a comparison between the two is both inappropriate and potentially misleading. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| Cal Adv. | Reply Comments at 2 | Supports SPD's recommendations that the Utilities should recalculate the RAMP RSEs using 2023 as the appropriate baseline risk level. | The Companies will calculate and provide RSE values in the TY 2024 using a 2023 baseline. The Companies believe the GRC based RSE values and the RAMP based RSE values have different purposes - as well as being calculated using different MAVF elements in addition to different base years, and as such a comparison between the two is both inappropriate and potentially misleading. |
| MGRA | Informal Comments at 2 | Urges SDG&E to examine the implications of a power law distribution. | SDG&E reviewed the feedback and options regarding an applicable distribution to use in the wildfire analyses. Based on extensive data analyses and modeling multiple probability distributions of the extreme or tail risks, a Generalized Pareto (Power Law) Distribution was selected for use in the TY 2024 wildfire risk analyses. |
| MGRA | Informal Comments at 5 | SDG&E should incorporate a power law distribution with an appropriate high end cutoff for its service area in both its financial loss and safety risk calculations. | SDG&E reviewed the feedback and options regarding an applicable distribution to use in the wildfire analyses. Based on extensive data analyses and modeling multiple probability distributions of the extreme or tail risks, a Generalized Pareto (Power Law) Distribution was selected for use in the TY 2024 wildfire risk analyses. |
| MGRA | Informal Comments at 42 | This risk driver/trigger should instead be defined: "In-service equipment failing with increased probability due to acute climates or environmental conditions" | The Companies do not limit the equipment failure driver to non-climate/environmental conditions or only climate/environmental conditions. The driver is potentially applicable to a wide range of scenarios to the degree risk can be quantified. Further, it should be noted that the Companies view the "Natural; Forces" driver as a driver that includes risk events stemming from climate or environmental conditions. |
| MGRA | Informal Comments at 43 | SDG&E provide more transparency into its RSE estimations and incorporate data | SDG&E believes its workpapers provide the required level of transparency; SDG&E does not support including data quality and uncertainties into risk estimates. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| | | quality and uncertainties into its risk estimates | |
| MGRA | Informal Comments at 10 | Significant work has been done in this field since SDG&E's reference were published, and more up-to-date results should be incorporated (impact of wildfire smoke on human health). | SDG&E's inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model any impacts of smoke from wildfires. |
| MGRA | Informal Comments at 12 | Instead of 1 fatality per 20,000 acres burned, SDG&E should have calculated 1 fatality per 400 acres burned. | SDG&E's inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model any impacts of smoke from wildfires. |
| MGRA | Informal Comments at 15 | Utilities, including SDG&E, should begin to consider the presence of wildfire smoke as an attribute that they factor into their determination of power shutoff thresholds. This should be considered a potential area of "coincident risks" that have the potential to increase the safety impact of power shutoff. | SDG&E's inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model any impacts of smoke from wildfires. |
| MGRA | Informal Comments at 17 | For the time being, estimates based on a "fatalities per acre burned" methodology using values from a range of recent studies will allow safety risk from wildfire smoke to be incorporated into MAVF calculations. Sensitivity analyses should use the full range of values currently considered plausible by the most recent academic work. | SDG&E's inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model any impacts of smoke from wildfires. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| MGRA | Informal Comments at 18 | As an interim measure, SDG&E should compute "Fatalities per Acre Burned", using measured and calculated public health effects from wildfire and wildfire sizes, using a range of values for fatalities and hospitalizations supported by recent studies | SDG&E's inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model any impacts of smoke from wildfires. |
| MGRA | Informal Comments at 18 | The correct long-term approach may be to include smoke plume effects along with fire spread simulations. SDG&E should inquire whether Technosylva or other vendors can incorporate plume spread along with population impacts | SDG&E's inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model any impacts of smoke from wildfires. |
| MGRA | Informal Comments at 5 | SDG&E should consult with public health experts and academics in order to choose more appropriate references for public health effects from wildfire smoke | SDG&E's inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model any impacts of smoke from wildfires. |
| MGRA | Informal Comments at 24 | MGRA has urged utilities to collect and to incorporate damage data obtained during post de-energization inspections. Even though the proper incorporation of damage data is a work in progress, SDG&E should still be using ignition and damage data to inform its risk estimations and circuit prioritization | WiNGS Ops is currently addressing this concern (SDG&E's 2022 Wildfire Mitigation Plan, Section 4.5.1.8) and WiNGS Planning is evaluating and exploring this input. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| MGRA | Informal Comments at 38 | All impacts from power shutoff should be investigated and incorporated into the MAVF | SDG&E's MAVF used in the 2021 RAMP and in the TY 2024 were developed in accordance with the Settlement Decision guidelines and include impacts of power shutoffs in a manner SDG&E believes complies with the Settlement Decision. In addition, this recommendation was included under a section header: Value of Statistical Life, and this topic is a scoped issue in the ongoing S-MAP proceeding, of which SDG&E is a participant. |
| MGRA | Informal Comments at 40 | SDG&E should list other potential PSPS risks and either quantify them or show why they are expected to be de minimis compared to the communication tower proxy that it has used | SDG&E's identification and discussion of risks and evaluation of those risks is consistent with the Settlement Decision and includes data SDG&E believes is most applicable. |
| MGRA | Informal Comments at 42 | SDG&E should incorporate wind as a cross-functional factor that affects both wildfire ignitions and wires down | While wind is a contributing factor to equipment failures and wire down events, which could result in ignitions, SDG&E does not believe that wind standing alone should be viewed as a cross-functional factor. SDG&E addresses wind impacts, and particularly high-speed winds through mitigation initiatives such as falling conductor protection. Additionally, SDG&E's WiNGS Ops model is currently exploring methods to incorporate wind impacts with respect to PSPS operations and ignition risk. (SDG&E's 2022 Wildfire Mitigation Plan, Section 4.5.1.8) |
| MGRA | Informal Comments at 36 | SDG&E should work with local fire agencies to identify single-egress communities that may be particularly vulnerable to ignitions blocking the egress. These considerations should be used for both hardening prioritization and shutoff threshold | A preliminary egress Model is anticipated to be ready by the end of 2022. See items regarding egress initiatives in Table 7-1: SDG&E's Near-Term Strategy and Goals by WMP Category in SDG&E's 2022 Wildfire Mitigation Plan Update. In addition, an Energy Safety workshop on egress is planned to be held in August of 2022. |
| MGRA | Informal Comments at 43 | Ranges of values should be incorporated into SDG&E risk estimations to represent uncertainties | The Company's RSE values are calculated based on a discrete set of data. Parties have the ability within the provided RSE workpapers to perform scenario analysis. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| MGRA | Informal Comments at 36 | SDG&E should provide analysis of future technologies such as "Falling Conductor Protection, Sensitive Ground Fault Protection, and Sensitive Profile Settings" in conjunction with covered conductor, as a potential alternative to undergrounding | SDG&E believes this request is outside the scope of the GRC. The purpose of the GRC is to request and justify funds for programs the Company believes are the most appropriate to implement. |
| MGRA | Informal Comments at 13 | Another consideration that needs to be considered by utilities is the effect of wildfire smoke on power shutoff (PSPS). | SDG&E's inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model any impacts of smoke from wildfires. |
| MGRA | Informal Comments at 12 | Since SDG&E has presented a method in its RAMP, however, it would be useful to compare this calculation on an apples-to-apples basis with more current results in order to determine whether the SDG&E calculation is providing useful risk information | SDG&E interprets this recommendation as a request for SDG&E to compare results of SDG&E's smoke risk analysis model with results of other smoke risk models proposed by MGRA. SDG&E's GRC risk analyses use models and data the Company believes is most appropriate. Comparing the Company's modeling results with results of models not used by the Company is outside the requirements of the Settlement Decision. |
| MGRA | Informal Comments at 13 | A more accurate method should be used for risk calculations. Ideally, smoke plume calculations and population health impacts could be incorporated into fire spread modeling since these models already incorporate meteorological data. | SDG&E inclusion of an acres burned sub-attribute was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to evaluate how to improve methods to model the impacts of wildfire smoke consequences for future applications. SDG&E continues to explore appropriate data inputs to understand and model the impacts of wildfire smoke. |
| MGRA | Informal Comments at 23 | OEIS will be facilitating coordination between utilities regarding covered conductor, and the utilities will be providing more detailed information about its cost and effectiveness. This additional | SDG&E is engaged with joint IOU testing in addition to independent testing to evaluate the effectiveness of CC. Depending on test results, SDG&E will incorporate. Data from those tests is not available in time to be used in SDG&E's TY 2024 GRC. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| | | information needs to be incorporated into SDG&E's GRC. | |
| MGRA | Informal Comments at 36 | Conclusions from this year's OEIS-facilitated workshops regarding covered conductor should be incorporated into SDG&E's GRC filing, including changes to cost and effectiveness estimates for covered conductor | The OEIS facilitated coordination between the utilities includes joint IOU testing to evaluate the effectiveness of covered conductor. Data from those tests was not available in time to be used in SDG&E's TY 2024 GRC. |
| MGRA | Informal Comments at 36 | SDG&E should, as it prioritizes, look for vulnerabilities that are not yet incorporated into its risk modeling algorithms, including potential for egress problems and historical vulnerability to PSPS damage | A preliminary egress Model is anticipated to be ready by the end of 2022. See items regarding egress initiatives in Table 71: SDG&E's Near-Term Strategy and Goals by WMP Category in SDG&E's 2022 Wildfire Mitigation Plan Update. In addition, an Energy Safety workshop on egress is planned to be held in August of 2022. |
| MGRA | Informal Comments at 36 | SDG&E should cross-check its circuit prioritization algorithm against other available data, specifically location-specific clusters of ignitions, PSPS damage, and wires down | WiNGS Planning is in process of evaluating the Probability of Ignition models developed for WiNGS Ops to replace its current ignition rate calculation. |
| MGRA | Opening Comments at 23 | MGRA appreciates SPD's adoption of MGRA's power law scenario for consequence modeling. RECOMMENDATION SDG&E should complete the scenario analysis requested by MGRA and re-evaluate the use of their gamma distribution model prior to filing their GRC | SDG&E reviewed the feedback and options regarding an applicable distribution to use in the wildfire analyses. Based on extensive data analyses and modeling multiple probability distributions of the extreme or tail risks, a Generalized Pareto (Power Law) Distribution was selected for use in the TY 2024 wildfire risk analyses. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| MGRA | Opening Comments at 9 | SDG&E should incorporate a power law distribution with an appropriate high-end cutoff for its service area in both its financial loss and safety risk calculations | SDG&E reviewed the feedback and options regarding an applicable distribution to use in the wildfire analyses. Based on extensive data analyses and modeling multiple probability distributions of the extreme or tail risks, a Generalized Pareto (Power Law) Distribution was selected for use in the TY 2024 wildfire risk analyses. |
| MGRA | Opening Comments at 18 | SDG&E should list other potential PSPS risks and either quantify them or show why they are expected to be de minimis compared to the communication tower proxy that it has used | SDG&E's identification and discussion of risks and evaluation of those risks is consistent with the Settlement Decision and includes data SDG&E believes is most applicable. |
| MGRA | Opening Comments at 28 | SDG&E should file all non-confidential data on its website so that it is available to all parties without additional data requests. SDG&E should also make available a listing of available data so that parties do not need to serve multiple data requests in order to identify and obtain relevant information | The Companies will post non-confidential responses to data requests to a website accessible to registering stakeholders. |
| MGRA | Opening Comments at 28 | MGRA expects that SDG&E will incorporate the SPD Report, party comments, and reply comments into its GRC filing due in May of 2022. SDG&E must also fully – not cursorily – at the least address and preferably incorporate and act on party comments in order to meet its obligations under the Settlement Agreement | The Companies' RAMP to GRC Integration testimony provides an overview in both narrative and table format describing how the Companies have addressed SPD and party feedback and recommendations. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| MGRA | Opening Comments at 11 | As an interim measure, SDG&E should compute “Fatalities per Acre Burned”, using measured and calculated public health effects from wildfire and wildfire sizes, using a range of values for fatalities and hospitalizations supported by recent studies | SDG&E’s inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the potential for injuries and fatalities. While computing "fatalities per acres burned" may or may not provide additional insight, SDG&E lacks available data for fatalities and hospitalizations at this time, but continues to explore this issue. |
| MGRA | Opening Comments at 11 | SDG&E should consult with public health experts and academics in order to choose more appropriate references for public health effects from wildfire smoke | SDG&E inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model the impacts of smoke from wildfires. SDG&E continues to explore appropriate data inputs to understand and model the impacts of wildfire smoke. |
| MGRA | Opening Comments at 11 | The correct long-term approach may be to include smoke plume effects along with fire spread simulations. SDG&E should inquire whether Technosylva or other vendors can incorporate plume spread along with population impacts | SDG&E inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model the impacts of smoke from wildfires. SDG&E continues to explore appropriate data inputs to understand and model the impacts of wildfire smoke. |
| MGRA | Opening Comments at 12 | SDG&E should consider air quality conditions due to wildfire smoke as a component of its PSPS decision-making process | SDG&E inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model the impacts of smoke from wildfires. SDG&E continues to explore appropriate data inputs to understand and model the impacts of wildfire smoke. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| MGRA | Opening Comments at 12 | SDG&E should consider wildfire smoke when estimating both mitigations and risk from PSPS | SDG&E inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model the impacts of smoke from wildfires. SDG&E continues to explore appropriate data inputs to understand and model the impacts of wildfire smoke. |
| MGRA | Opening Comments at 4 | SDG&E should recalculate wildfire smoke risks using more recent references and correct methodologies | SDG&E inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model the impacts of smoke from wildfires. SDG&E continues to explore appropriate data inputs to understand and model the impacts of wildfire smoke. |
| MGRA | Opening Comments at 24 | SDG&E's mitigations to protect its own staff from wildfire smoke should be analyzed with updated wildfire smoke risk values | SDG&E inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model the impacts of smoke from wildfires. SDG&E continues to explore appropriate data inputs to understand and model the impacts of wildfire smoke. |
| MGRA | Opening Comments at 26 | SDG&E needs to demonstrate more clearly how it determines its PSPS risks, especially now that it incorporates PSPS as a specific risk in its analysis | SDG&E continues to identify and implement updates and upgrades to its wildfire and PSPS models, and will endeavor to provide clear and understandable descriptions of its risk analysis processes and model results. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| MGRA | Opening Comments at 7 | MGRA anticipates that additional quantification and analysis will be provided by SDG&E with regard to power shutoff in its GRC filing | WiNGS Ops is currently addressing this concern. Reference SDG&E's 2022 Wildfire Mitigation Plan, Section 4.5.1.8. |
| MGRA | Opening Comments at 19 | SDG&E should incorporate wind as a cross-functional factor that affects both wildfire ignitions and wires down | While wind is a contributing factor to equipment failures and wire down events, which could result in ignitions, SDG&E does not believe that wind standing alone should be viewed as a cross-functional factor. SDG&E addresses wind impacts, and particularly high-speed winds through mitigation initiatives such as falling conductor protection. Additionally, SDG&E's WiNGS Ops model is currently exploring methods to incorporate wind impacts with respect to PSPS operations and ignition risk. (SDG&E's 2022 Wildfire Mitigation Plan, Section 4.5.1.8) |
| MGRA | Opening Comments at 14 | MGRA has urged utilities to collect and to incorporate damage data obtained during post de-energization inspections. SDG&E intends to incorporate this data but has not done so at the time of its RAMP filing. As an intermediate alternative, MGRA has suggested using ignition history and wind damage data to identify potential clusters of issues affecting specific areas | WiNGS Ops is currently addressing this concern and WiNGS Planning is evaluating and exploring this input. |
| MGRA | Opening Comments at 17 | SDG&E should work with local fire agencies to identify single-egress communities that may be particularly vulnerable to ignitions blocking the egress. These considerations should be used for both hardening prioritization and shutoff threshold | A preliminary egress Model is anticipated to be ready by the end of 2022. See items regarding egress initiatives in Table 71: SDG&E's Near-Term Strategy and Goals by WMP Category in SDG&E's 2022 Wildfire Mitigation Plan Update. In addition, an Energy Safety workshop on egress is planned to be held in August of 2022. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| MGRA | Opening Comments at 10 | SPD and TURN recommend that SDG&E adopt a VSL of $10 M, more in line with federal agencies, rather than the current value of $100 M used by SDG&E | The Companies consider the current MAVF iteration the best representation of operations at this time. The Companies note that this topic is a scoped issue within the SMAP proceeding and believe that is the appropriate place for continued discussions. |
| MGRA | Opening Comments at 22 | SDG&E should use an imputed VSL of $10 million as recommended by SPD and TURN and should include wildfire smoke in its safety analysis | The Companies consider the current MAVF iteration the best representation of operations at this time. The Companies note that this topic is a scoped issue within the SMAP proceeding and believe that is the appropriate place for continued discussions. |
| MGRA | Opening Comments at 27 | SDG&E should include tranches based on the risk due to extreme weather events in order to identify assets at particular risk from these events | SDG&E continues to update the use and capabilities of its WiNGS model and has plans to expand the use of the analytics to include additional wildfire mitigations. However, those updates are not complete for use in the TY 2024 analyses. |
| MGRA | Opening Comments at 13 | Conclusions from the current OEIS-facilitated workshops regarding covered conductor should be incorporated into SDG&E's GRC filing, including changes to cost and effectiveness estimates for covered conductor | The OEIS facilitated coordination between the utilities includes joint IOU testing to evaluate the effectiveness of covered conductor. Data from those tests was not available in time to be used in SDG&E's TY 2024 GRC. |
| MGRA | Opening Comments at 25 | Any results arising from the OEIS/utility working group on covered conductor regarding both effectiveness and mechanisms to reduce cost should be incorporated into SDG&E's GRC filing | SDG&E is engaged with joint IOU testing in addition to independent testing to evaluate the effectiveness of CC. Depending on test results SDG&E will incorporate. Data from those tests is not available in time to be used in SDG&E's TY 2024 GRC. |
| MGRA | Opening Comments at 27 | MGRA also concurs with TURN that SDG&E's WiNGS model should have been used to calculate the risks used for its RAMP analysis and not just for prioritization of hardening | SDG&E's analysis of risks for inclusion in the RAMP Report is consistent with the Settlement Decision. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| MGRA | Opening Comments at 26 | SDG&E should present "underground equivalent" portfolios of mitigations, including potential advanced technologies, that taken together would approach the effectiveness of undergrounding | SDG&E has developed a portfolio of underground and overhead hardening programs that it believes is the most appropriate for this GRC forecast period |
| MGRA | Opening Comments at 16 | SDG&E should cross-check its circuit prioritization algorithm against other available data, specifically location-specific clusters of ignitions, PSPS damage, and wires down | WiNGS Ops is currently addressing this concern and WiNGS Planning is evaluating and exploring this input. |
| MGRA | Opening Comments at 14 | SDG&E should identify any multiplicative effects of these technologies in conjunction with covered conductor (or other mitigation techniques) its GRC | The OEIS facilitated coordination between the utilities includes evaluating the effectiveness of covered conductor and alternatives to covered conductor. As part of this collaboration, SDG&E will work to identify multiplicative effects of additional mitigations in conjunction with covered conductor. However, data from this collaboration is not available in time to be used in SDG&E's TY 2024 GRC. |
| MGRA | Reply Comments at 3 | SDG&E should use a power law distribution, provide convincing evidence that the gamma distribution is a more accurate predictor of extreme wildfire losses, or alternatively provide the results of both | SDG&E reviewed the feedback and options regarding an applicable distribution to use in the wildfire analyses. Based on extensive data analyses and modeling multiple probability distributions of the extreme or tail risks, a Generalized Pareto (Power Law) Distribution was selected for use in the TY 2024 wildfire risk analyses. |
| MGRA | Reply Comments at 4 | Cal Advocates strongly supports the MGRA suggestion that a power law distribution be used to model extreme wildfire losses rather than a gamma distribution | SDG&E reviewed the feedback and options regarding an applicable distribution to use in the wildfire analyses. Based on extensive data analyses and modeling multiple probability distributions of the extreme or tail risks, a Generalized Pareto (Power Law) Distribution was selected for use in the TY 2024 wildfire risk analyses. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| MGRA | Reply Comments at 4 | MGRA's analysis in its informal comments also showed that SDG&E did not adequately describe or justify how its PSPS risk calculations are being derived, and that additional information should be provided in SDG&E's GRC filing | SDG&E continues to identify and implement updates and upgrades to its wildfire and PSPS models, and will endeavor to provide clear and understandable descriptions of its risk analysis processes and model results. Reference Section 4.5.1 - Additional Models for Ignition Probability, Wildfire and PSPS Risk in its Wildfire Mitigation Plan 2022 Update |
| MGRA | Reply Comments at 4 | Cal Advocates likewise urges SDG&E to "expedite the above improvements to its PSPS quantification framework and implement as many of them as possible in time for its TY 2024 GRC filing." | SDG&E has identified several areas in its PSPS impacts to customer modeling for improvements and is continuing to evaluate and explore them. |
| MGRA | Reply Comments at 4 | With several intervenors and SPD agreeing on proposed weightings and scales, SDG&E should present this analysis a as its primary risk estimate alongside any alternative using the original SDG&E weightings and scales | The Companies' choice and use of weights and scales is consistent with the Settlement Decision and includes weights and scales for risk analysis that the Companies believe is most appropriate. The Companies object to presenting an analysis utilizing others' scales and weights as their primary analysis. Any consideration of establishing figures for these values should be decided within the S-MAP proceeding. |
| PCF | Opening Comments at 15 | PCF commented that instead of focusing on irrelevant data based on other companies' equipment in other parts of the nation, SoCalGas should assess the risks of its own facilities and its own behavior as required by D.18-12-014, and demonstrated that using national data to the exclusion of utility specific data allows SDG&E and SoCalGas to make the case for expensive capital projects instead of minor repairs. | The Companies use a combination of internal and external data as well as Subject Matter Expertise to quantify enterprise risk. The Companies feel that a risk analysis that did not take into consideration similar risks and impacts to other utilities, which may have similar operating conditions or practices, would result in an underdeveloped risk analysis. SPD's consultant, Level4, hired to assess the IOUs' RAMP reports, agrees that the use of a central and expansive dataset is beneficial. Utilization of industry data creates well-rounded and confident risk quantification. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| PCF | Opening Comments at 19 | For each RAMP risk chapter the utilities should: 3. Estimate their expected risk reduction and RSE for 2024-2027. | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies will provide risk scores and RSE values for the 2025-2027 post-test years in a supplemental filing. |
| PCF | Opening Comments at 24 | PCF has repeatedly explained, D.18-12-014 requires that the utilities' risk assessments be understandable. | The Companies believe they are compliant with the Settlement Decision's requirements. |
| PCF | Opening Comments at 16 | While PCF of course agrees with the recommendation in the SPD Evaluation Report that "Sempra should review SPD and party comments regarding tranching and respond in the GRC filing," PCF points out that the SPD Evaluation Report echoes the comments PCF made in its comments on the 2019 RAMP Reports and that are already required by D.20-09-004 to have been addressed in the 2021 RAMPs. | The Companies are including additional tranche granularity as part of the GRC risk analyses. |
| PCF | Opening Comments at 26 | PCF agrees with the SPD Evaluation Report that "[f]or the TY 2024 GRC filings SPD recommends that Sempra should respond to the Risk Chapter evaluation findings and recommendations. The GRC filing should include a narrative overview describing the way and in what sections of the filing that the companies have addressed all SPD and party recommendations. | The Companies' RAMP to GRC Integration testimony provides an overview in both narrative and table format describing how the Companies have addressed SPD and party feedback and recommendations. |
| PCF | Opening Comments at 19 | For each RAMP risk chapter the utilities should: 4. Recalculate the 2021 RAMP RSEs for comparison and apply tranche-specific LoRE and CoRE values for the 2021 RSEs | The Companies are including additional granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| PCF | Opening Comments at 16 | PCF agrees with the SPD Evaluation Report that the 2021 RAMP Reports fail to contain sufficiently granular tranches, including the example provided in the SPD Evaluation Report regarding the need for more granularity in the pipeline context. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| PCF | Opening Comments at 19 | For each RAMP risk chapter the utilities should: 2. Estimate the Risk Score for those programs for the end of 2023 as the base year and apply tranche-specific LoRE and CoRE values to determine the Risk Score. | The Companies will calculate and provide RSE values in the TY 2024 using a 2023 baseline. The Companies believe the GRC based RSE values and the RAMP based RSE values have different purposes - as well as being calculated using different MAVF elements in addition to different base years, and as such a comparison between the two is both inappropriate and potentially misleading.<br><br>The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| PCF | Opening Comments at 19 | For each RAMP risk chapter the utilities should: 1. Identify the risk mitigation programs (or projects) proposed to continue in 2024-2027. | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies will provide risk scores and RSE values for the 2025-2027 post-test years in a supplemental filing. |
| PCF | Opening Comments at 24 | The transparency requirements in D.18-12-014 requires that the utilities' risk assessments be understandable; and it requires the utilities to clearly state and define inputs and computations, and to clearly specify sources of inputs and "all information and assumptions that are used to determine both pre- and post-mitigation risk scores." | The Companies believe they have presented their most transparent risk assessment filed to date. Where feasible, all quantification is presented in formulaic form to allow for tracking of where all data is coming and going within the workpapers as well as allowing for changes to be made by parties to understand how RSEs and risk scores can change via changing inputs. Additionally, all data provided has written explanation of the source and, where appropriate, an explanation of rationale. The Companies recognize this as a process subject to continuous improvement and will continue to |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| | | | change and improve in both processes and increased transparency. |
| PCF | Opening Comments at 22 | PCF agrees with SPD that "[t]he weighting and scaling factors in the MAVF imply an unrealistic valuation of consequences," and that "[t]he new Stakeholder Satisfaction attribute should be removed from the MAVF until the identified shortcomings have been addressed. | The Companies have removed the Stakeholder Satisfaction attribute from the value framework for purposes of their TY 2024 GRC. |
| PCF | Opening Comments at 22 | PCF agrees with the recommendation in the SPD Evaluation Report that "[f]or the TY 2024 GRC filings, SPD Staff recommends that Stakeholder Satisfaction should not be used, as currently established, to calculate risk scores. | The Companies have removed the Stakeholder Satisfaction attribute from the value framework for purposes of their TY 2024 GRC. |
| PCF | Opening Comments at 13 | SoCalGas and SDG&E should not be relying on PHMSA data to ascertain the consequences or frequency of incidents on its own assets. | The Companies recognize the invaluable information and data that can be garnered from a national level database such as PHMSA. Further, national or industry data allows for a more accurate representation of risk to be quantified not only when internal data is lacking, but also because the national level database provides an increased set of data points. SPD's consultant, Level4, hired to assess the IOUs' RAMP reports, agrees that the use of a central and expansive dataset is beneficial. Lastly, the Companies first utilize internal data and SME input to which external data is then leveraged if internal data is not available or sparse. |
| PCF | Opening Comments at 13 | PCF supports the conclusions and recommendations in the SPD Evaluation Report; and highlights that discussions about reducing risks should focus on solutions that reduce greenhouse gas emissions. | The Companies are actively pursuing the reduction of greenhouse gas emissions and note that any further discussions regarding environmental impacts within the confines of the MAVF are being discussed in the S-MAP Proceeding. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| PCF | Opening Comments at 25 | The utilities have also failed to address specific transparency failures identified by PCF. For example, PCF explained that that the utilities should avoid counting manufacturing anomalies as contributing to pipeline risk twice, particularly when asset-specific reports confirm the pipeline can be used safely for the foreseeable future. | The Companies are not aware of a double counting of manufacturing anomalies in their risk quantification. The Companies assess and analyze risk at various levels of the organization to which all levels recognize the fluid nature of risk as it relates to operating a mechanical system. The Companies do not ignore risk or the potential for risk to develop on assets as they age. There is benefit in continuously assessing assets to make sure new risks or anomalies do not surface and, if they do, are addressed before catastrophic conditions occur. To that end, the Companies consider the probability of risk events occurring on assets even if the asset is safe to operate. This is prudent quantification and consideration of changing risks on an aging system. |
| SBUA | Opening Comments at 5 | SBUA requests that the IOUs present (hypothetical) information in the following manner: "for W dollars spent on X asset, up until Y total dollars, associated spending is expected to result in a risk reduction of Z percent." | The Companies' analysis and presentation of risks for inclusion in the RAMP Report is consistent with the Settlement Decision. |
| SBUA | Opening Comments at 4 | As required by the S-MAP settlement, the appropriate "likelihood of risk event" ("LoRE") and "consequence of risk event" ("CoRE") should be assigned to tranche-specific values; in this regard, the current RAMP Application is deficient. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SBUA | Opening Comments at 3 | Adjust the "value of statistical life" downward, as recommended in the SPD report, from approximately $100 million to $15 million. | The Companies consider the current MAVF iteration the best representation of operations at this time. The Companies note that this topic is a scoped issue within the S-MAP proceeding and believe that is the appropriate place for continued discussions. |
| SBUA | Opening Comments at 4 | Proposed improvements should be easily identified as relating to a discrete and measurable improvement to risk. | The RSE workpapers identify a discretely calculated impact to the pre-mitigation LoRE and/or CoRE associated with the mitigation. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| SBUA | Opening Comments at 2 | Prepare a "plain-English" summary of the breakdown of the most impactful and relevant tranches, explaining how critical CoRE and LoRE values translate to real-world applications. | Risk Quantification is a best approximation to real world events - the digital representation of an analog world. The Companies do not see the outputs of the risk framework as a perfect representation of the real world, but the best representation as the data allows. The Companies believe they have provided a transparent set of data to allow parties to see how this representation was developed. The Companies are reviewing and implementing, where feasible, recommendations for improvement of transparency and explanations as it relates to tranches and data. For example, the Companies have increased the granularity of tranches in some risk areas as a means to improve the view of risk at the Utilities. |
| SBUA | Opening Comments at 3 | Consult with small business communities when determining "stakeholder satisfaction," if that criteria is utilized. | The Companies have removed the Stakeholder Satisfaction attribute from the value framework for purposes of their TY 2024 GRC, however, the Companies will consider this feedback for any future iterations. |
| SBUA | Opening Comments at 2 | Update and separate risks into "tranches" with LoRE and CoRE values for each tranche. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SBUA | Opening Comments at 4 | SBUA also requests that the data used in the risk analysis be IOU specific, to the extent practicable. | The Companies utilize an amalgam of internal and external data. Internal data is leveraged first with external data and subject matter expertise bridging any gaps or lack of data within the internal set. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| SBUA | Opening Comments at 6 | The IOUs current "%%%" calculation is sub-optimal, for no other reason than that it obscures full transparency. | Based on recommendations from stakeholders, the Companies reviewed and modified the "%,%,%" method of calculating an RSE value such that no effectiveness % value exceeds 100%. In order to calculate an RSE, the risk reduction must be determined. One way to do this is by determining a percentage of the LoRE or CoRE that a mitigation is reducing. The %,%,% method determines this percentage by a composite of effectiveness, scope, and risk addressed. In essence, a percentage of the total risk is identified and that risk addressed is realized across a scope of work and how effective the work is at reducing the risk. The benefit of the work is factored in along with cost to arrive at an RSE value. The Companies will continue to work with various stakeholders to identify and explore appropriate methods for quantifying risk reduction. |
| SBUA | Opening Comments at 3 | Clarify why risk mitigation scores of 100% are allowable in this proceeding (or even mathematically logical) | Based on recommendations from stakeholders, the Companies reviewed and modified the "%,%,%" method of calculating an RSE value such that no effectiveness % value exceeds 100%. |
| SBUA | Reply Comments at 3 | If the tranche-specific RSEs did not influence these choices, the Utilities should explain why not." Ultimately, if the purpose of developing segmented tranches is to inform the utility and intervenors of relative risk, then (as a matter of transparency) the IOUs should relay how that information informs their mitigation strategies. | As discussed, in the Companies' RAMP to GRC Integration Testimony, RSE values are one of many data points the Companies use when developing the portfolio of mitigations. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| SBUA | Reply Comments at 3 | SBUA supports TURN's additional recommendation that the IOUs provide "for each mitigation proposal and for each control... an explanation of how the tranche-specific RSEs calculated by the Utilities influenced the choice of activities and the scope of the chosen activities. | As discussed in the Companies' RAMP to GRC Integration Testimony, RSE values are one of many data points the Companies use when developing the portfolio of mitigations. |
| SBUA | Reply Comments at 4 | SBUA generally supports SPD's recommendation that the IOUs engage in post test-year monitoring. | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies will provide risk scores and RSE values for the 2025-2027 post-test years in a supplemental filing. |
| SBUA | Reply Comments at 5 | SBUA commends the IOUs in their attestation to: change the baseline assessment year to 2023 as opposed to 2020; update LoRE and CoRE values and; improve tranche granularity. | The Companies will calculate and provide RSE values in the TY 2024 using a 2023 baseline.<br>The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level |
| SBUA | Reply Comments at 5 | SBUA requests that the IOUs substantiate reasons to support their "%%%" methodology, and likewise supports the recommendations that the IOUs engage in post test-year mitigation programs, and submit a corrective action plan in response to these comments. | Based on recommendations from stakeholders, the Companies reviewed and modified the "%,%,%" method of calculating an RSE value such that no effectiveness % value exceeds 100%. In order to calculate an RSE, the risk reduction must be determined. One way to do this is by determining a percentage of the LoRE or CoRE that a mitigation is reducing. The %,%,% method determines this percentage by a composite of effectiveness, scope, and risk addressed. In essence, a percentage of the total risk is identified and that risk addressed is realized across a scope of work and how effective the work is at reducing the risk. The benefit of the work is factored in along with cost to arrive at an RSE value. The Companies will continue to work with various stakeholders to identify and explore appropriate methods for quantifying risk reduction. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| | | | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies will provide risk scores and RSE values for the 2025-2027 post-test years in a supplemental filing. |
| SPD | Evaluation Report at 7 | The Utilities should calculate the expected risk reduction for the 2024-2027 period and provide a revised RSE. | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies will provide risk scores and RSE values for the 2025-2027 post-test years in a supplemental filing. |
| SPD | Evaluation Report at 7 | The Utilities should justify the cost of additional funds in their upcoming GRC using an updated risk assessment with 2023 as the base year for risk. | The Companies will calculate and provide RSE values in the TY 2024 using a 2023 baseline. |
| SPD | Evaluation Report at 9 | SPD recommends that Sempra reevaluate the weighting and range factors in their MAVF. | The Companies have removed the Stakeholder Satisfaction attribute from the value framework for purposes of their TY 2024 GRC. The Companies updated the MAVF weights to reflect adding the 2% from the removed Stakeholder Satisfaction attribute to the Financial attribute (becoming 17% for the GRC MAVF). The Companies made no other changes, and note that the topic of how weights and range values in the MAVF impact calculating an implied value of statistical life (VSL) and the relevance of that VSL is a scoped issue in the S-MAP proceeding. |
| SPD | Evaluation Report at 10 | SPD recommends Sempra review SPD and party comments regarding tranching to further divide tranches by risk factors that occur within the tranche. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SPD | Evaluation Report at 11 | SPD recommends Sempra review SPD and party comments regarding tranching to further divide tranches by risk factors that occur within the tranche. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| SPD | Evaluation Report at 12 | SPD recommends Sempra review SPD and party comments regarding tranching to further divide tranches by risk factors that occur within the tranche. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SPD | Evaluation Report at 12 | MGRA recommends the utilities re-analyze the wildfire smoke risk. | SDG&E inclusion of an acres burned sub-attribute in the 2021 RAMP Report was a first attempt to model the impacts of smoke risks. SDG&E used this same sub-attribute as part of its TY 2024 GRC MAVF and continues to work with various stakeholders to identify and utilize appropriate methods to model the impacts of smoke from wildfires. SDG&E continues to explore appropriate data inputs to understand and model the impacts of wildfire smoke. |
| SPD | Evaluation Report at 12 | SPD recommends Sempra submit sufficient and timely workpapers associated with their RAMP filings. | The Companies will post non-confidential responses to data requests to a website accessible to registering stakeholders. |
| SPD | Evaluation Report at 13 | SPD recommends Sempra review SPD and party comments regarding tranching to further divide tranches by risk factors that occur within the tranche. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SPD | Evaluation Report at 13 | SPD recommends that Stakeholder Satisfaction should not be used to calculate risk scores due to the metric being highly subjective. | The Companies have removed the Stakeholder Satisfaction attribute from the value framework for purposes of their TY2024 GRC. |
| SPD | Evaluation Report at 14 | SPD recommends Sempra incorporate foundational activities costs into the calculation of RSE scores as related to Cross-Functional Factors. | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies have calculated RSEs in TY 2024 GRC workpapers that include cross functional factor dollars as allocated by the methodology described in the Companies' RAMP to GRC Integration testimony. |
| SPD | Evaluation Report at 17 | SPD recommends Sempra's cost estimates of mitigation programs for RSE calculations be substantiated in the GRC. | The Companies include a justification for all funding requests in the GRC. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| SPD | Evaluation Report at 19 | SPD recommends SoCalGas discuss natural gas emissions as a climate change topic. | Please see the testimony of Naim Jonathan Peress and Michelle Sim (Ex. SCG-02, Sustainability and Climate Policy). For example, SoCalGas defines these scope emissions as follows:<br>Scope 1 – Direct GHG emissions from sources SoCalGas controls, for example, Company vehicles, Company facilities' combustion equipment, the natural gas transmission and distribution systems;<br>Scope 2 – Indirect GHG emissions associated with the generation of purchased electricity consumed by SoCalGas; and,<br>Scope 3 – Indirect GHG emissions from others that are the result of SoCalGas's business activities, primarily from gas utility customers' decisions to acquire and combust natural gas, which as a common carrier, SoCalGas delivers. |
| SPD | Evaluation Report at 23 | SPD recommends Sempra provide different risk scores for high consequence areas. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SPD | Evaluation Report at 30 | SPD recommends Sempra provide distinct pre-mitigation LoRE and CoRE values for all tranches. | The Companies are including additional granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SPD | Evaluation Report at 30 | SPD recommends Sempra calculate each control and mitigation's post-Mitigation CoRE using the same method used to calculate the pre-Mitigation CoRE, including changes in the LoRE when it is used to weight the consequences from different event categories. | The Companies are including additional granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SPD | Evaluation Report at 30 | SPD recommends further tranching of sections of the high-pressure system to allow for improved targeting of assets with the highest risk scores. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| SPD | Evaluation Report at 30 | SPD recommends that Sempra re-evaluates all controls presented in the chapters according to the methodology presented in RAMP-C by both utilities, and in each case where they do deviate from the methodology, provide an explanation of why that decision was made. | The Companies identify which mitigations provide incremental decreases to the existing risk level and which mitigations if not performed would result in an increased risk level. See Appendix D in Ex. SCG-03/SDG&E-03 Chapter 2. |
| SPD | Evaluation Report at 30 | SPD recommends Sempra perform an accurate calculation of each control and mitigation's post-Mitigation Risk Score using the newly calculated post-Mitigation CoRE. | The Companies are including additional granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SPD | Evaluation Report at 43 | SPD recommends further tranching to allow for improved targeting of assets with the highest risk scores. | The Companies are including additional granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SPD | Evaluation Report at 43 | SPD recommends Sempra accurately calculate each control and mitigation's post-Mitigation CoRE using the same method used to calculate the pre-Mitigation CoRE. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SPD | Evaluation Report at 56 | SPD recommends Sempra confirm that shareholder costs, such as adverse litigation and fines, are not included in the risks to be mitigated by ratepayers. | The Companies confirm that shareholder costs, such as adverse litigation and fines, are not included in the risks to be mitigated by ratepayers. |
| SPD | Evaluation Report at 56 | SPD recommends SoCalGas and SDG&E determine distinct LoRE and CoRE values for each tranche and present the pre-mitigation and post-mitigation LoRE and CoRE. If a mitigation is expected to reduce | The Companies are including additional granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| | | consequences, the change should be presented in the post-mitigation CoRE. | |
| SPD | Evaluation Report at 56 | SPD recommends SoCalGas and SDG&E create tranches that provide more granular levels of risk, so that mitigations can be applied to address the highest risks more directly. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SPD | Evaluation Report at 56 | SPD recommends SoCalGas and SDG&E study the consequences of Aldyl A incidents compared to nonvintage pipe and adjust CoRE and RSE accordingly. | SoCalGas & SDG&E have identified a separate Aldyl-A tranche in the TY 2024 GRC. |
| SPD | Evaluation Report at 65 | SPD recommends SoCalGas recalculate control RSEs to allow for the higher level of risk that would have been present before the control is applied. | The risk reduction of controls is represented as a decrease for ease of presentation. The Utilities presume that in foregoing execution of a control, the risk reduction shown in the RAMP filing would be an appropriate increase in risk score. It is understood that this value may be different or increase differently over time. |
| SPD | Evaluation Report at 65 | SPD recommends SoCalGas should adopt more granular tranching of storage well assets, possibly based on each of the four facilities or well-by-well risk assessments or population density in the vicinity. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| SPD | Evaluation Report at 65 | SPD recommends utilities include discussion of secondary impacts of special interest to the public and policymakers, even if not quantifiable, to indicate that consideration was given to them, and describe difficulties encountered with quantification. Proxies for secondary health impacts, such as the Acres Burned sub-attribute for wildfires, should be considered. | The Companies do consider secondary impacts when deriving risk scores. However, they are not able to quantify them. This is mostly due to a lack of data or a lack of data that can be accurately and directly mapped to reducing the risk. The Companies will consider the recommendation of including a discussion surrounding secondary impacts in the 2025 RAMP. |
| SPD | Evaluation Report at 66 | SPD recommends SoCalGas clarify the criteria used to define high-consequence vs. medium-consequence events. | SoCalGas believes the additional granularity of tranches used in the TY 2024 GRC for the Storage risk mitigations addresses and makes moot the requested clarity. |
| SPD | Evaluation Report at 66 | SPD recommends SoCalGas clarify whether Aliso Canyon was included in the SME judgement of high-consequence incident likelihood. | The Aliso Canyon Incident was considered in the determination of the Storage Incident High Consequence event as well as in the likelihood of a storage well incident. |
| SPD | Evaluation Report at 66 | SPD recommends SoCalGas present alternative mitigations that are feasible at the time of the GRC filing. | SoCalGas believes this request is outside the scope of the GRC. The purpose of the GRC is to request and justify funds for programs the Company believes are the most appropriate to implement. |
| SPD | Evaluation Report at 85 | SPD recommends SDG&E and SoCalGas explicitly state its exposure to the risk (i.e. number of employees). In any description of risk, verifiable measurement units are essential to the assessment. | When used as the tracked unit, the forecast number of employees associated with the mitigation is included in the GRC RAMP workpaper. The forecast and recorded units associated with authorized funding are included as part of the annual Risk Spend Accountability Report, and an explanation is provided when the recorded and forecast values differ by an established threshold. |
| SPD | Evaluation Report at 85 | SPD recommends SDG&E and SoCalGas create additional granular tranches for the IIE Risk. Staff does not agree that all employees share the same risk profile. At | The Companies have expanded the Employee risk tranching to include vehicle and non-vehicle incidents to capture specific risk to Employees and aligned each mitigation with the appropriate its tranche. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| | | a minimum, more granular tranches could include, for example, office-only employees and field employees. SDG&E may then find it appropriate to provide additional granularity for field employees by tranching this group by specific duties performed. | |
| SPD | Evaluation Report at 85 | SPD recommends SDG&E and SoCalGas provide a written explanation in their upcoming rate case filing as to why the Companies vary significantly in their determination of LoRE. | The Companies' operational employees (i.e., Electric Linemen, Gas Customer Service Field Technicians, etc.) operate in differing risk environments. SoCalGas's employees operate within a single energy commodity environment while SDG&E's employees are divided into two different energy commodity environments. Those two environments, not to mention the differing levels of exposure (i.e., greater number of operational employees at SoCalGas vs. SDG&E, larger service territory, etc.) pose differing levels of risks and hazards to the employees of each company which lead to differing consequences of risk events occurring. The maintenance and operation of multiple types of energy systems such as Natural Gas, Electrical (Overhead and Buried) and renewables increases the potential impact (CoRE) of an incident. However, the number of miles of infrastructure, number of customer and equipment affect the likelihood (LoRE) of an incident. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| SPD | Evaluation Report at 85 | SPD recommends SDG&E and SoCalGas provide a written explanation in their upcoming rate case filing as to why the Companies vary significantly in their determination of CoRE. | The Companies' operational employees (i.e., Electric Linemen, Gas Customer Service Field Technicians, etc.) operate in differing risk environments. SoCalGas's employees operate within a single energy commodity environment while SDG&E's employees are divided into two different energy commodity environments. Those two environments, not to mention the differing levels of exposure (i.e., greater number of operational employees at SoCalGas vs. SDG&E, larger service territory, etc.) pose differing levels of risks and hazards to the employees of each company which lead to differing consequences of risk events occurring. The maintenance and operation of multiple types of energy systems such as Natural Gas, Electrical (Overhead and Buried) and renewables increases the potential impact (CoRE) of an incident. However, the number of miles of infrastructure, number of customer and equipment affect the likelihood (LoRE) of an incident. |
| SPD | Evaluation Report at 85 | SPD recommends SDG&E provide a written explanation in their upcoming rate case filing as to why it does not include "C16-Energized Skills Training and Testing Yard" for the 2022-2024 time period. | This mitigation was included in the 2021 RAMP Report to inform stakeholders that capital dollars had been spent through December 30, 2020. The project was planned to be completed by the end of 2021, *i.e.*, prior to the 2022-2024 forecast period for mitigations to be included in the planned mitigation portfolio. The scheduled completion date has been delayed, and SDG&E is forecasting dollars in the GRC to be spent during the 2022-2024 period. |
| SPD | Evaluation Report at 85 | SPD recommends SDG&E and SoCalGas consider developing an approach for selecting a set of control and mitigation programs in 2022-2024 that they consider to be both "effective" and "efficient." | As discussed, in the Companies' RAMP to GRC Integration Testimony, RSE values are one of many data points the Companies use when developing the portfolio of mitigations. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| SPD | Evaluation Report at 98 | For their controls, Sempra forecasts a range of cost increases from relatively modest to potentially substantial. However, they do not explain the cost increases or indicate if additional risk will be reduced as the costs rise. Staff finds that Sempra provided insufficient detail within this RAMP risk chapter to support the forecasted expenditure. | Capital investments in the mitigation control categories will fluctuate year over year based on the threat landscape. In addition, as systems reach obsolescence, replacements are evaluated and new capital assets are funded to replace legacy systems that no longer meet increasing threat defense requirements. For further information on forecasted costs please see the testimony and workpapers of Lance Mueller (Exhibit SDG&E-26/SCG-22). |
| SPD | Evaluation Report at 98-99 | There is an unexplained increase in "controls." While the utilities indicate they do not plan any new mitigations, costs for existing programs are forecast to increase substantially without explanation. In the clearest example, "sensitive data protection", which is portrayed as an existing control increase from zero dollars to millions of dollars. Yet, it is not clear from the utilities' report why this would occur or how much risk will be reduced as a result of additional spending. SPD recommends the utilities explain the increase in "controls." | Capital investments in the mitigation control categories will fluctuate year over year based on the threat landscape. In addition, as systems reach obsolescence, replacements are evaluated and new capital assets are funded to replace legacy systems that no longer meet increasing threat defense requirements. For further information on forecasted costs please see the testimony and workpapers of Lance Mueller (Exhibit SDG&E-26/SCG-22). |
| SPD | Evaluation Report at 106 | SPD recommends SDG&E and SoCalGas quantify the risk reduction benefits for all controls and proposed mitigations. SDG&E and SoCalGas should tranche contractor risks to reflect the variable risk of different tasks ranging from pipeline maintenance to vegetation management to office-related work. | The Companies have expanded the tranching to capture specific risk to contractors and aligned each mitigation with its specific tranche. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| SPD | Evaluation Report at 122 | SPD recommends SDG&E consider apportioning the costs of foundational programs to risks to improve transparency. | In compliance with Commissioner Houck's March 30, 2022 Ruling, the Companies have calculated RSEs in TY2024 GRC workpapers that include Cross functional factor dollars as allocated by the methodology described in "The Companies' Process for Incorporating RAMP into the TY 2024 GRC" section of the RAMP to GRC Integration Testimony. |
| SPD | Evaluation Report at 129 | SPD recommends SDG&E present the units of work in the control and mitigation programs according to circuit miles or circuit segments. | SDG&E provides units of work for the programs consistent with the units used in the Wildfire Mitigation Plan. The units selected are those that are most applicable to understanding the program's progress and risk reduction provided. |
| SPD | Evaluation Report at 129 | SPD recommends SDG&E analyze PSPS impact risk separately from Wildfire Risk assets by creating tranches to reflect impacts to different types of customers from PSPS events. SDG&E should consider additional residential customer demographics, as tranches or as a measure of consequence, including Access and Functional Needs and those enrolled and eligible for Medical Baseline, business customers, public utility customers, first responders, and local governments. | SDG&E continues to identify and implement updates and upgrades to its wildfire and PSPS models, including pertaining to the data points mentioned in SPD's recommendation. |
| SPD | Evaluation Report at 129 | SPD recommends SDG&E provide written explanation as to why "C7/M1 – Overhead Distribution Fire Hardening – Covered Conductor" has an effect on PSPS impact risk reduction in Tier 3 but not in Tier 2. | Please reference 7.3.3.3 Covered Conductor Installation in SDG&E's Wildfire Mitigation Plan 2022 Update. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| SPD | Evaluation Report at 129 | SPD recommends SDG&E provide written justification or explanation of the reasoning for any application of SME judgment for an assumed effectiveness of mitigation. | SME judgement is used when internal or external data is limited or nonexistent for purposes of risk quantification. The Companies do not possess data to cover every possible outcome of a risk event and neither do industry partners. Therefore, one of the tools used to supplement when there is a lack of data is the combined expertise of individuals within the Companies. |
| SPD | Evaluation Report at 129 | SPD recommends SDG&E treat foundational programs in a manner consistent with Ordering Paragraphs 1(e) and 1(g) in the Final Decision in Phase 1 of R.20-07-013 approved on November 4, 2021. | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies have calculated RSEs in TY 2024 GRC workpapers that include cross functional factor dollars as allocated by the methodology described in the Companies' RAMP to GRC Integration testimony. |
| SPD | Evaluation Report at 129 | SPD recommends SDG&E provide the Wildfire Risk CoRE and the PSPS impact CoRE broken down by tier. | Please reference 4.2 in SDG&E's Wildfire Mitigation Plan Table 4 2: Pre-Mitigation Analysis Risk Quantification Scores and Table 4 3: Pre-Mitigation Analysis Risk Quantification Scores by Non-HFTD and HFTD Tiers |
| SPD | Evaluation Report at 129 | SPD recommends SDG&E present the full risk profile for all 627 overhead circuit segments in the HFTD, allowing Staff and interested parties to evaluate risk and risk reduction in a targeted way. | SDG&E's wildfire risk scores of all overhead circuit segments in the HFTD are available at the request of parties or staff. This has been provided previously in data requests to the California Public Advocates Office through the 2022 Wildfire Mitigation Plan. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| SPD | Evaluation Report at 129 | SPD recommends SDG&E provide additional granularity of tranches by establishing distinct risk profiles within each tier or location tranche based on any number of characteristics, including distribution lines versus transmission lines, geography, environment, weather variables (i.e., wind speeds, elevation, microclimate, etc.). | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SPD | Evaluation Report at 130 | SPD recommends SDG&E provide supplemental data in the GRC filing to show which of the control and mitigation programs have a risk reduction score above the median and an RSE above the median, to indicate which programs are more effective and efficient for risk reduction. | As discussed, in the Companies' RAMP to GRC Integration Testimony, RSE values are one of many data points the Companies use when developing the portfolio of mitigations. The Companies agree with SPD that on a stand-alone basis the RSE values may not be meaningful. However, the Companies also believe that delineating mitigations via a above and below median value would likewise not be meaningful. |
| SPD | Evaluation Report at 130 | SPD recommends SDG&E provide a different alternative by which to evaluate the selected Proposal than Alternative 1. | SDG&E believes this request is outside the scope of the GRC. The purpose of the GRC is to request and justify funds for programs the Company believes are the most appropriate to implement. |
| SPD | Evaluation Report at 139 | SDG&E should clarify that the Risk Scope includes underground assets in HFTDs in any future filings about the EII risk. | SDG&E has provided this requested clarity in the definition of the EII risk contained in Appendix F of this testimony (Ex. SCG-03/SDG&E-03, Chapter 2). |
| SPD | Evaluation Report at 14 | SPD recommends Sempra review SPD and party comments regarding tranching to further divide tranches by risk factors that occur within the tranche. | The Companies are including additional granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SPD | Evaluation Report at 14 | SPD recommends Sempra include a narrative overview describing the way and in what sections of the filings that the companies have addressed all SPD and party recommendations. | The Companies' RAMP to GRC Integration testimony provides an overview in both narrative and table format describing how the Companies have addressed SPD and party feedback and recommendations. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| SPD | Evaluation Report at 140 | SPD recommends SDG&E comply with the Settlement Agreement requirements for tranche risk scores. | The Companies are including additional granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| SPD | Evaluation Report at 140 | SPD recommends SDG&E confirm that shareholder costs are not included in the consequences and revise risk scores accordingly. | SDG&E confirms that shareholder costs are not included in the consequences of any risk analyses performed in the RAMP or GRC. |
| SPD | Evaluation Report at 155 | SPD recommends SDG&E provide additional information on their assessment of how ARM addresses risks. | SDG&E incorporated cross-functional factors (CFF) for the first time into the 2021 RAMP Report, and discussed the Asset Integrity Management (AIM) program within the Asset Management CFF chapter. Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies have calculated RSEs in TY 2024 GRC workpapers that include cross functional factor dollars as allocated by the methodology described in the Companies' RAMP to GRC Integration testimony. Requested funding for SDG&E's AIM is in the following witness testimony: Kenneth J. Deremer (Exhibit SDG&E-31, Safety and Asset Management Systems). |
| SPD | Evaluation Report at 168 | SPD recommends SDG&E and SoCal Gas identify categories of risks likely mitigated by EP&R and Pandemic. | Within the EP&R and Pandemic CFF chapters in their respective 2021 RAMP Reports, the Companies informed that the EP&R and Pandemic CFFs affected each of the risks, *i.e.*, all seven RAMP risks for SCG and all nine RAMP risks for SDG&E. See SDG&E -CFF-3-2; SCG-CFF-3-5. |
| SPD | Evaluation Report at 168 | SPD recommends Sempra incorporate Emergency Preparedness and Response into the calculation of RSE scores for the GRC filing. | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies have calculated RSEs in TY 2024 GRC workpapers that include cross functional factor dollars as allocated by the methodology described in the Companies' RAMP to GRC Integration testimony. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| SPD | Evaluation Report, pg. 168 | SPD recommends Sempra provide a detailed explanation of how the proposed projects reduce likelihood and mitigate consequences before and after the implementation of EP&R and Pandemic response. | As mentioned in the Companies' CFF chapters, activities associated with the EP&R and other CFFs provide benefits to multiple risks and/or risk mitigations. Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies have calculated RSEs in TY 2024 GRC workpapers that include cross functional factor dollars as allocated by the methodology described in the Companies' RAMP to GRC Integration testimony. |
| SPD | Evaluation Report at 174 | SPD Staff recommends that Sempra incorporate foundational activities costs into the calculation of RSE scores for the GRC filing in a manner consistent with Ordering Paragraphs 1(e) and 1(g) in the Proposed Decision in Phase 1 of R.20-07-013. | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies have calculated RSEs in TY 2024 GRC workpapers that include cross functional factor dollars as allocated by the methodology described in the Companies' RAMP to GRC Integration testimony. |
| SPD | Evaluation Report at 174 | SPD recommends Sempra provide more detail describing [CFF] programs and activities and the constituent elements in each of the programs and activities. | The Companies included CFFs for the first time in the 2021 RAMP Reports, and continue to evaluate how best to qualitatively and quantitatively identify and discuss the costs and benefits of CFF activities and programs. Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies have calculated RSEs in TY 2024 GRC workpapers that include cross functional factor dollars as allocated by the methodology described in the Companies' RAMP to GRC Integration testimony. |
| SPD | Evaluation Report at 174 | SPD recommends Sempra provide alternative analysis to the programs and activities. | The Companies believe this request is outside the scope of the GRC. The purpose of the GRC is to request and justify funds for programs the Company believes are the most appropriate to implement. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| SPD | Evaluation Report at 181 | SPD recommends SDG&E improve their analysis of Physical Security risks by expanding the writeup to either thoroughly explain why Physical security is not a primary risk or to treat this risk as a primary risk chapter with full Risk-Based Decision-Making treatment consistent with the S-MAP settlement agreement. Sempra's 2016 RAMP analysis of Physical Security for SoCalGas as a primary risk provides a model for this. | Physical Security is a risk to both Companies. Per the Settlement Decision the Companies are required to include the top 40% of safety risks in the RAMP to which Physical Security did not meet this threshold for the 2021 RAMP Reports. The Companies understand the importance of Physical Security and included Physical Security in their 2021 RAMP Reports as a Cross Functional Factor. |
| SPD | Evaluation Report at 189 | SPD recommends SoCalGas improve the analysis of Physical Security risks by expanding the writeup to thoroughly explain why Physical Security is no longer a primary risk or treat this risk as a primary risk chapter with full Risk-Based Decision-Making treatment consistent with the S-MAP settlement agreement. | Physical Security is a risk to both Companies. Per the Settlement Decision the Companies are required to include the top 40% of safety risks in the RAMP to which Physical Security did not meet this threshold for the 2021 RAMP Reports. The Companies understand the importance of Physical Security and included Physical Security in their 2021 RAMP Reports as a Cross Functional Factor. |
| TURN | Informal Comments at 2 | RSE analysis should not include covered conductor work and attendant risk reduction benefits that will have already been achieved before 2024. | The Companies will calculate and provide RSE values in the TY 2024 using a 2023 baseline. |
| TURN | Informal Comments at 29 | Sempra Utilities should be required to post any workpapers they provide to any party on their CPUC proceeding website | The Companies will post non-confidential responses to data requests to a website accessible to registered stakeholders. |
| TURN | Informal Comments at 3 | All of the assets in each tranche should be grouped so that there are no significant differences in either the LoRE or the CoRE of those assets. If there is a meaningful difference, the asset group needs to be broken out into more granular tranches. | The Companies are including additional granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
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| TURN | Informal Comments at 17 | Sempra has detailed information about its MP assets in the DREAMS database that it uses to prioritize its work. That information should be used, with other information that may be available to Sempra, to create the tranches that are required by the Settlement. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| TURN | Informal Comments at 3 | Sempra Utilities needs to comply with the Settlement's tranche granularity requirements | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. The Companies believe they have and are compliant with the Settlement Decision's tranche granularity requirements |
| TURN | Informal Comments at 12 | TURN recommends SDG&E's GRC filing include tranches with RSEs calculated at the more granular level presented in the utility's WINGS model. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| TURN | Informal Comments at 26 | To comport with accepted values for the SVL, the upper limit of the range of the Safety attribute should be increased to 200, keeping the weight at 0.60 | The Companies consider the current MAVF iteration the best representation of operations at this time. The Companies note that this topic is a scoped issue within the S-MAP proceeding and believe that is the appropriate place for continued discussions. |
| TURN | Informal Comments at 3 | SDG&E should already have addressed the highest risk tranches in work performed through 2023 and therefore fails to show how the tranche specific RSEs are reduced when 2023 is used as the baseline, instead of 2020. | The Companies will calculate and provide RSE values in the TY 2024 using a 2023 baseline. |
| TURN | Informal Comments at 3 | Sempra Utilities needs to provide RSEs calculated with the 2023 baseline in their GRC submission | The Companies will calculate and provide RSE values in the TY 2024 using a 2023 baseline. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| TURN | Informal Comments at 27 | All information and assumptions that are used to determine both pre- and post-mitigation risk scores must be specified. | The Company's RSE workpapers are available upon request and will include data and equations used to calculate the RSE values, including pre- and post-LoRE and CoRE values at each tranche level. |
| TURN | Informal Comments at 27 | The sources of inputs should be clearly specified. | The sources of data and equations used to calculate RSE values are included in the RSE workpapers, which are available upon request. |
| TURN | Informal Comments at 17 | SoCalGas evaluated every mitigation as if all the assets subject to the mitigation were in a single tranche. TURN points this out to show that, contrary to Sempra's misleading claims, SCG's calculation of separate RSEs for VIPP and BSRP should not be confused with separate tranches for plastic and steel pipe. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| TURN | Informal Comments at 27 | Inputs and computations should be clearly stated and defined. | The Company's RSE workpapers are available upon request and will include data and equations used to calculate the RSE values, including pre- and post-LoRE and CoRE values at each tranche level. |
| TURN | Informal Comments at 3 | Sempra Utilities needs to do a better job of explaining their data inputs and assumptions when they provide RSEs | The Company's RSE workpapers are available upon request and will include data and equations used to calculate the RSE values, including pre- and post-LoRE and CoRE values at each tranche level. |
| TURN | Informal Comments at 12 | Because SDG&E uses the WiNGS model for managing the assets affected by the wildfire risk, the output of that model should have been used to determine the tranches of assets with homogenous risk required by Row 14 of the Settlement. | SDG&E is currently evaluating the integration of WiNGS Ops into the WiNGS Planning |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| TURN | Informal Comments at 30 | SDG&E should provide its full WINGS model results for its HFTD (and non-HFTD, if applicable) when it files its GRC, as well as in subsequent RAMP filings. | WF Risk Scores are available at the request of parties or staff. This data has been provided previously in data requests to the California Public Advocates Office. |
| TURN | Informal Comments at 30 | SDG&E should also provide materials such as explanations and data sources, as well as underlying calculations, that demonstrate how key WINGS model outputs are derived, including but not limited to wildfire risk, PSPS risk, and mitigation effectiveness values | WiNGS model components are detailed in Section 4.5.1.7 Wildfire Next Generation System-Planning of SDG&E's Wildfire Mitigation Plan 2022. |
| TURN | Informal Comments at 21 | The Sempra Utilities should not use the so-called "% % %" method for calculating risk reduction for their gas risks (or any risks). The use of such a method would not be necessary if the Sempra Utilities used tranches with the granularity required by the Settlement. | Based on recommendations from stakeholders, the Companies reviewed and modified the "%,%,%" method of calculating an RSE value such that no effectiveness % value exceeds 100%. In order to calculate an RSE, the risk reduction must be determined. One way to do this is by determining a percentage of the LoRE or CoRE that a mitigation is reducing. The %,%,% method determines this percentage by a composite of effectiveness, scope, and risk addressed. In essence, a percentage of the total risk is identified and that risk addressed is realized across a scope of work and how effective the work is at reducing the risk. The benefit of the work is factored in along with cost to arrive at an RSE value. The Companies will continue to work with various stakeholders to identify and explore appropriate methods for quantifying risk reduction. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| TURN | Informal Comments at 26 | For all risks, the Sempra Utilities should calculate individual RSEs for programs with distinct risk mitigation and cost characteristics, including but not limited to bare conductor and pole replacement programs | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| TURN | Informal Comments at 27 | When SME judgment is used, the process that the SMEs undertook to provide their judgment should be described. | Where data is being leveraged, including SME judgement, sources and explanations were provided in the 2021 RAMP Reports and will be provided in the GRC RSE workpapers, which are available upon request. In instances where only SME judgement may be listed for the explanation of data used, the Companies recognize that said data may solely be based on the SMEs own historical experiences, knowledge, education, etc. to determine these values.<br><br>SME judgement is used when internal or external data is limited or nonexistent for purposes of risk quantification. The Companies do not possess data to cover every possible outcome of a risk event and neither do industry partners. Therefore, one of the tools used to supplement when there is a lack of data is the combined expertise of individuals within the Companies. |
| TURN | Opening Comments at 9 | High safety weight results in high Implied Value of Statistical Life (VSL). | The Companies consider the current MAVF iteration the best representation of operations at this time. The Companies note that this topic is a scoped issue within the S-MAP proceeding and believe that is the appropriate place for continued discussions. |
| TURN | Opening Comments at 26 | For all risks, the Sempra Utilities should calculate individual RSEs for programs with distinct risk mitigation and cost characteristics, including but not limited to | SoCalGas & SDG&E have increased the granularity of tranches where appropriate for the TY 2024 GRC. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| | | bare conductor and pole replacement programs. | |
| TURN | Opening Comments at 5 | Sempra Utilities should use the detailed operational information in their various databases (DREAMS, Integrity Management, etc.) to create tranches based on groups of assets with homogenous risk profiles. The creation of tranches with the required granularity should avoid the RSE calculation error described in section 4.1.2 of these comments. | The Companies are including additional granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| TURN | Opening Comments at 14 | The absence of cost tracking systems should not be allowed to serve as a justification for failing to satisfy the Tranche requirements of the Settlement. The Sempra Utilities should accelerate their efforts to enable reliable estimation of tranche-level cost | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| TURN | Opening Comments at 20 | Sempra Utilities must provide the rationale for their determination of tranches, including the judgment that no tranches are appropriate for a risk event. The Sempra Utilities should provide this explanation in their upcoming GRC submission. | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| TURN | Opening Comments at 26 | The structure of the Sempra Utilities' MAVF reflects a statistical value of life (SVL) that is an order of magnitude higher than the SVL used by federal agencies for risk analysis, which biases the risk scores and RSE values upwards. To comport with accepted values for the SVL, the upper limit of the range of the Safety attribute should be increased to 200, keeping the weight at 0.60. | The Companies consider the current MAVF iteration the best representation of operations at this time. The Companies note that this topic is a scoped issue within the S-MAP proceeding and believe that is the appropriate place for continued discussions. |
| TURN | Opening Comments at 32 | To comply with the Settlement, the Sempra Utilities should bring their RSE analysis for their upcoming GRC request into conformity with this [baseline] requirement. | The Companies will calculate and provide RSE values in the TY 2024 using a 2023 baseline. |
| TURN | Opening Comments at 16 | Sempra Utilities should use the granular information from the WiNGS model to create tranches based on circuit segments with homogenous risk profiles that are used to calculate tranche-specific RSEs for all Wildfire mitigation activities. | SDG&E continues to update the use and capabilities of its WiNGS model, and has plans to expand the use of the analytics to include additional wildfire mitigations. However, those updates are not complete for use in the TY 2024 analyses. |
| TURN | Opening Comments at 30 | SDG&E should provide its full WINGS model results for its HFTD (and non-HFTD, if applicable) when it files its GRC, as well as in subsequent RAMP filings. | WF Risk Scores are available at the request of parties or staff. This data has been provided previously in data requests to the California Public Advocates. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| TURN | Opening Comments at 30 | SDG&E should provide materials such as explanations and data sources, as well as underlying calculations, that demonstrate how key WINGS model outputs are derived, including but not limited to wildfire risk, PSPS risk, and mitigation effectiveness values. | WiNGS model components are detailed in Section 4.5.1.7 Wildfire Next Generation System-Planning of SDG&E's Wildfire Mitigation Plan 2022. |
| TURN | Opening Comments at 21 | The Sempra Utilities should not use the so-called "% % %" method for calculating risk reduction for their gas risks (or any risks). The use of such a method would not be necessary if the Sempra Utilities used tranches with the granularity required by the Settlement. | Based on recommendations from stakeholders, the Companies reviewed and modified the "%,%,%" method of calculating an RSE value such that no effectiveness % value exceeds 100%. In order to calculate an RSE, the risk reduction must be determined. One way to do this is by determining a percentage of the LoRE or CoRE that a mitigation is reducing. The %,%,% method determines this percentage by a composite of effectiveness, scope, and risk addressed. In essence, a percentage of the total risk is identified and that risk addressed is realized across a scope of work and how effective the work is at reducing the risk. The benefit of the work is factored in along with cost to arrive at an RSE value. The Companies will continue to work with various stakeholders to identify and explore appropriate methods for quantifying risk reduction. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| TURN | Reply Comments at 9 | SPD recommendations 1, 3, and 5 would have the RSE analysis cover the full GRC period under review, which TURN fully supports. Given the declining risk reduction benefits of many programs as they extend into less risky tranches in the utility system, the Commission and parties should see how the RSEs for such program decline in the attrition years, which could affect the CPUC's decision about the scope of the program to authorize in the test year. | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies will provide risk scores and RSE values for the 2025-2027 post-test years in a supplemental filing. |
| TURN | Reply Comments at 4 | TURN fully supports all of SPD's recommendations on page 8 of the SPD report and urges the Utilities to re-visit their position that they will not implement recommendations 1, 3 and 5 in their GRC submission | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies will provide risk scores and RSE values for the 2025-2027 post-test years in a supplemental filing. |
| TURN | Reply Comments at 4 | RSE analysis, the utility does not need to have program- or project specific forecasts for mitigations for each of the attrition years, but only needs to use imputed values for attrition year costs and scope that can be derived from the utility's attrition year proposal. | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies will provide risk scores and RSE values for the 2025-2027 post-test years in a supplemental filing. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| TURN | Reply Comments at 5 | Comparing a utilities' implied VSL with commonly accepted VSLs used for similar purposes is a way to assess one important trade-off in an MAVF and thus a comparison the utilities should be making. Similarly, they should be evaluating whether the other attribute trade-offs are reasonable. | The Companies consider the current MAVF iteration the best representation of operations at this time. The Companies note that this topic is a scoped issue within the S-MAP proceeding and believe that is the appropriate place for continued discussions. |
| TURN | Reply Comments at 2 | TURN continues to join in SPD's recommendations 1, 3, and 5 and believes that the Utilities are overstating the challenges in calculating RSEs for the full rate case period. | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies will provide risk scores and RSE values for the 2025-2027 post-test years in a supplemental filing. |
| TURN | Reply Comments at 5 | Sempra Utilities should re-evaluate and restructure their MAVF to achieve reasonable trade-offs among attributes, as required by Row 7 of the SA. | The Companies consider the current MAVF iteration the best representation of operations at this time. They also believe the current MAVF is consistent with the Settlement Decision. |
| TURN | Reply Comments at 6 | As the Sempra Utilities hopefully transition to a correct approach for their GRC filing, they should turn the corner and drop their convoluted defense of their non-compliant RAMP methodology. | The Companies believe their 2021 RAMP Reports are compliant with the Settlement Decision. Please refer to the Companies RAMP to GRC Integration testimony for discussion of changes the Companies have made to their RAMP presentations for purposes of the TY 2024 GRC. The Companies will continue to work with various stakeholders to identify and explore appropriate methods for quantifying risk reduction. |
| TURN | Reply Comments at 8 | TURN urges the Sempra Utilities to implement each of the recommendations summarized in bold italic font in Sections II, III, and IV of TURN's opening comments. | The Companies' RAMP to GRC Integration testimony provides an overview in both narrative and table format describing how the Companies have addressed SPD and party feedback and recommendations. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| UCAN | Opening Comments at 4 | UCAN agrees with SPD's recommendation to develop a metric to address events like the massive Aliso Canyon leak | SPD's feedback regarding developing a metric to address events such as the Aliso Canyon leak pertained to if/how to develop and use a Stakeholder Satisfaction attribute in the MAVF. In full context, SPD's recommendation was for the TY 2024 GRC based MAVF to not use the Stakeholder Satisfaction attribute as used in the 2021 RAMP MAVF. The Companies have removed the Stakeholder Satisfaction attribute from the value framework for purposes of their TY 2024 GRC. |
| UCAN | Opening Comments at 5 | SoCalGas and SDG&E do not present tranche-specific LoRE and CoRE values for tranches in the RAMP report, in violation of Rows 16, 19, and 22 | The Companies are including additional granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| UCAN | Opening Comments at 1 | We further agree with the SPD and TURN recommendations to comply with the settlement terms, specifically to ensure that appropriate detail in risk analysis is accompanied by recommendations about the ranking of investment priorities, extended from the RAMP report | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| UCAN | Opening Comments at 3 | UCAN supports the SPD conclusions that "a more granular approach identifying sub-groups with different risk scores within these tranches, such as pipeline segments with older vintage welds, having a history of internal corrosion, or an inability to be inspected with in-line devices ("pigs"), would facilitate a better articulation of risks | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| UCAN | Opening Comments at 5 | Granularity of Tranching; Staff finds division of the high pressure systems into two tranches, High Consequence Areas and non-High Consequence Areas, to be insufficiently granular for the purposes of properly targeting controls and mitigations. Tranche Risk Scores; Sempra does not provide distinct LoRE and/or CoRE values for the tranches | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| UCAN | Opening Comments at 4 | UCAN agrees Sempra should include the costs of foundational activities in its calculation of RSE scores, but do so "consistent with Ordering Paragraphs 1(e) and 1(g) in the Final Decision in Phase 1 of R.20-07-013" or do so with use of TURN's "multi-portfolio" | Consistent with Commissioner Houck's March 30, 2022 Ruling, the Companies have calculated RSEs in TY 2024 GRC workpapers that include cross functional factor dollars as allocated by the methodology described in the Companies' RAMP to GRC Integration testimony. |
| UCAN | Opening Comments at 3 | UCAN suggests that if risk is connected to a much broader class or group of assets, while it resides in a far smaller grouping, the justification for capital spend to replace a broad group of assets is lacking | The Companies are including additional tranche granularity as part of the GRC risk analyses, are calculating pre-mitigation risk scores at a tranche level, and will show post-mitigation CoRE and LoRE at the tranche level. |
| UCAN | Opening Comments at 4 | Sempra and parties can be more productive with measures that quantify impacts related to risks with utility operations | The Companies have removed the Stakeholder Satisfaction attribute from the value framework for purposes of their TY2 024 GRC. |
| Utility Workers | Opening Comments at 9 | SCG needs a plan to address the increase in workload for the Call Center once the utility shutoff moratorium ends and increase staffing to enable timely response to customer reports of leaks and other hazardous conditions, including disconnection, reconnection, and pilot | SoCalGas's Customer Contact Center's 2022, 2023, and 2024 forecasts include an anticipated increase of calls because of the expiration of the COVID-19 Emergency Disaster Relief disconnection moratorium. As a result, the CCC is planning to hire additional CSRs to meet the projected increase in call volumes and increased level of service. (Ex. SCG-15) |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| | | lighting procedures as required by Pub. Util. Code Sec. 961(d)(6). | |
| Utility Workers | Opening Comments at 8 | SCG needs a plan to address the increase in workload and potential safety concerns for Call Center and Customer Service employees once the utility shutoff moratorium ends. To enable timely response to customer reports of leaks and other hazardous conditions, including disconnection, reconnection, and pilot-lighting procedures, these departments need significant reinforcements. | The Customer Service Field operations (CSF) & Advanced Meter Operations (AMO) forecasts presented in the testimony of Dan Rendler (Ex. SCG-14) include anticipated increases in demand for disconnection and reconnection services as a result of the end of the COVID-19 Emergency Disaster Relief disconnection moratorium. Emergency calls are top priority and addressed immediately. To continue providing timely responses for its emergency calls, the CCC is planning to increase its workforce during 2022, 2023, and 2024. (Ex. SCG-15) |
| Utility Workers | Opening Comments at 11 | In addition to analyzing how to adequately staff Customer Service at the current level of demand for services, the Company must plan for increased demand for disconnection and reconnection services that will result from the end of the utility shutoff moratorium and incorporate that change into their workforce planning. | The CSF&AMO forecasts presented in the testimony of Dan Rendler (Ex. SCG-14) include anticipated increases in demand for disconnection and reconnection services that will result from the end of the COVID-19 Emergency Disaster Relief disconnection moratorium. The Customer Contact Center's 2022, 2023, and 2024 GRC forecasts include an anticipated increase of calls, because of the expiration of the moratorium. As a result, the CCC is planning to hire additional CSRs to meet the projected increase in call volumes and increased level of service. (Ex. SCG-15) |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| Utility Workers | Opening Comments at 13 | SCG needs to get serious about evaluating the costs associated with increasing it capacity to train new employees on the hard skills they need to keep customers safe. SCG should expand upon and scale joint union-management training programs based on a systemic analysis of the number of qualified employees it will need to safely operate each of its workflows in the coming GRC cycle. | The CSF&AMO forecasts presented in the testimony of Dan Rendler (Ex. SCG-14) include funding requests to support centralized training and field instruction to execute formal training and Quality Assurance staff to verify field employees are completing field orders adhering to applicable rules, regulations, and safety standards to keep up with SoCalGas's increasing demand for trained and qualified field technicians. The CCC has performed a workforce analysis to meet anticipated increase in call volumes and increased level of service As a result, the CCC is planning to increase its workforce in 2022, 2023, and 2024. (Ex. SCG-15) |
| Utility Workers | Opening Comments at 13 | SCG should analyze to make quantitative estimates of an adequate workforce, including a staffing baseline with which their employees can perform the critical functions of the company in a safe manner: | The CSF&AMO forecasts presented in the testimony of Dan Rendler (Ex. SCG-14) include anticipated increases in demand for trained and qualified field technicians following the successful completion of SoCalGas's Field Employees Skills training program. |
| Utility Workers | Opening Comments at 7 | To ensure an adequately sized, qualified, and properly trained gas corporation workforce, SCG must plan concrete solutions guided by workers with subject matter expertise. | The CSF&AMO forecasts presented in the testimony of Dan Rendler (Ex. SCG-14) include anticipated increases in demand for trained and qualified field technicians following the successful completion of SoCalGas's Field Employees Skills training program. CCC training for CSRs is conducted in two phases. The first phase covers training for issuing Residential Close orders, Turn-On orders, Transfer of Service orders, and Customer Service Orders (CSOs). The second phase covers training in Billing, Collections, Customer Account Inquiries (CAIs), Bill Inquiry Procedures, Level Pay Start-Up, Miscellaneous CSOs, Back-On Turn-On, and Emergency Orders.<br><br>CSRs also receive annual training on several different subjects, such as Safety, Bill Investigations, Affiliate Compliance, and FACTA. |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| | | | CCC training staff are all former CSRs and are considered SMEs on CCC processes. |
| Utility Workers | Opening Comments at 12 | Fatigue, overwork, and lack of time devoted to training constitute risk factors which increase the likelihood of a dangerous event occurring. This in turn degrades job conditions and contributes to even faster turnover and attrition. SCG needs to reverse this dangerous cycle through an expedited workforce planning, hiring and training process that involves the rank-and-file employees closest to the issue. | The CSF&AMO forecasts presented in the testimony of Dan Rendler (Ex. SCG-14) include anticipated increases in demand for trained and qualified field technicians following the successful completion of SoCalGas's Field Employees Skills training program. The CCC is planning to hire additional CSRs to properly address staffing needs for anticipated increase in call volumes and increased level of service. (Ex. SCG-15) CSRs are adequately trained to perform their essential functions. |
| Utility Workers | Opening Comments at 12 | SCG should rethink its priorities given it has identified that "[b]ecause of the high number of retirement-eligible employees, the need to accelerate skill building through knowledge transfer and employee development is key to the success of SoCalGas's focus on safety." | The CSF&AMO forecasts presented in the testimony of Dan Rendler (Ex. SCG-14) include anticipated increases in demand for trained and qualified field technicians following the successful completion of SoCalGas's Field Employees Skills training program. The CCC is planning to hire additional CSRs to properly address staffing needs for anticipated increase in call volumes, increased level of service, and retirement-eligible employees. (Ex. SCG-15) |
| Utility Workers | Opening Comments at 8 | To enable effective workforce planning and address the expenses required to reach the goal of an adequate workforce, SCG's RAMP Report and upcoming General Rate Case must get much more specific in its quantitative estimates of the training, hiring, and staffing levels required in each of its 52 operational bases. | The CSF&AMO forecasts presented in the testimony of Dan Rendler (Ex. SCG-14) include anticipated increases in demand for trained and qualified field technicians following the successful completion of SoCalGas's Field Employees Skills training program. The CCC's 2022, 2023, and 2024 GRC forecasts include an anticipated increase of calls because of the expirations of the moratorium. As a result, the CCC is planning to hire additional CSRs to meet the projected increase in call volumes and increased level of service. (Ex. SCG-15) |

| Party | Citation | SPD/Party Feedback | SoCalGas/SDG&E Response |
|---|---|---|---|
| Utility Workers | Reply Comments at 2 | UWUA Local 132 agrees with Comments of SPD, SBUA, TURN and UCAN that the baseline (starting point) for assessment of risks and mitigations should be 2023, not 2020. | The Companies will calculate and provide RSE values in the TY 2024 using a 2023 baseline. |

# APPENDIX C:

# MULTI-VALUE ATTRIBUTE FRAMEWORK USED IN THE TY 2024 GRC

# TY 2024 GRC RISK QUANTIFICATION FRAMEWORK

| Attribute | Unit | Range | Weight |
|---|---|---|---|
| Health & Safety | Index | 0 - 20 | 60% |
| Reliability | Index | 0 - 1 | 23% |
| Financial | $M | $0 - 500M | 17% |

## Health & Safety Index

| Sub Attribute | Value |
|---|---|
| Fatality | 1 |
| Serious Injury | 0.25 |
| Acres Burned* | 0.00005 |

*Applies to Wildfire risk only

## Reliability Index (SDG&E / SoCalGas)

| Sub Attribute | Unit | Range | Weight |
|---|---|---|---|
| Gas Curtailment (80 / 250) | # MMcf | 0 – 333 / 666 | 25% / 50% |
| Meters Loss of Service | # of meters | 0 - 50,000 / 100,000 | 25% / 50% |
| Electric Outage Count | SAIFI Outages | 0 – 1 | 25% / 0% |
| Electric Outage Duration | SAIDI Minutes | 0 – 100 | 25% / 0% |

# APPENDIX D-1

## LIST OF RISK MITIGATIONS SORTED BY RSE VALUE
## EXCLUDES CFF ALLOCATION

**APPENDIX D-1**

**LIST OF RISK MITIGATIONS SORTED BY RSE VALUE**
**– EXCLUDES CFF ALLOCATION –**

# SoCalGas

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost ($M) | RSE | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SCG-RISK-3 | HMP | C09 | Pipeline Monitoring (Bridge & Span) | $ 0.1 | 774 | | Maintains |
| SCG-RISK-1 | HP | C01-T1 | Cathodic Protection - Capital - HCA | $ 2.3 | 657 | | Maintains |
| SCG-RISK-1 | HP | C07-T1 | Pipeline Maintenance - HCA | $ 0.3 | 639 | | Maintains |
| SCG-RISK-3 | MHP | C04_T1 | M&R Station and EPM Inspection and Maintenance | $ 0.7 | 630 | | Maintains |
| SCG-RISK-5 | EMPL | C10 | Workplace Violence Prevention Programs | $ 6.2 | 591 | | Maintains |
| SCG-RISK-1 | HP | C02-T1 | Cathodic Protection - Maintenance - HCA | $ 0.4 | 532 | | Maintains |
| SCG-RISK-3 | MP | C11 | Pipeline Monitoring | $ 0.01 | 436 | | Maintains |
| SCG-RISK-1 | HP | C06-T1 | Shallow/Exposed Pipe Remediations - HCA | $ 1.2 | 388 | | Maintains |
| SCG-RISK-1 | HP | C04-T1 | Leak Survey & Patrol - HCA | $ 0.8 | 381 | | Maintains |
| SCG-RISK-6 | CYBER | C04 | Operational Technology (OT) Cybersecurity | $ 5.8 | 368 | | Maintains |
| SCG-RISK-1 | HP | C01-T2 | Cathodic Protection - Capital - Non-HCA | $ 4.7 | 363 | | Maintains |
| SCG-RISK-1 | HP | C07-T2 | Pipeline Maintenance - Non-HCA | $ 0.6 | 334 | | Maintains |
| SCG-RISK-1 | HP | C13-T1 | Measurement & Regulation Station - Maintenance - HCA | $ 0.7 | 297 | | Maintains |
| SCG-RISK-1 | HP | C02-T2 | Cathodic Protection - Maintenance - Non-HCA | $ 0.9 | 279 | | Maintains |
| SCG-RISK-3 | HMP | C10_T2 | Pipeline Monitoring | $ 0.1 | 262 | | Maintains |
| SCG-RISK-1 | HP | C06-T2 | Shallow/Exposed Pipe Remediations - Non-HCA | $ 2.3 | 237 | | Maintains |
| SCG-RISK-3 | HMP | C07_T1 | EPM Installations & Replacements | $ 0.3 | 234 | | Maintains |
| SCG-RISK-5 | EMPL | M07 | Workplace Violence Prevention Program Enhancements | $ 0.1 | 161 | | Reduces |
| SCG-RISK-2 | Dig-in | C06 | L&M Annual Refresher Training Program (HP) | $ 0.01 | 158 | | Maintains |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost ($M) | RSE | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SCG-RISK-1 | HP | C13-T2 | Measurement & Regulation Station - Maintenance - Non-HCA | $ 1.4 | 156 | | Maintains |
| SCG-RISK-6 | CYBER | C01 | Perimeter Defenses | $ 13.2 | 134 | | Maintains |
| SCG-RISK-3 | MP | C06 | MSA Inspection and Maintenance | $ 1.4 | 130 | | Maintains |
| SCG-RISK-6 | CYBER | C05 | Obsolete IT Infrastructure and Application Replacement | $ 8.2 | 129 | | Maintains |
| SCG-RISK-2 | Dig-in | M02 | Automate Third Party Excavation Incident Reporting | $ 0.02 | 127 | | Maintains |
| SCG-RISK-4 | STOR | C05_T3 | Storage Field Maintenance - Underground Components | $ 4.9 | 116 | | Maintains |
| SCG-RISK-3 | MP | C20 | DIMP: Distribution Riser Inspection Project (DRIP) | $ 24.0 | 115 | | Reduces |
| SCG-RISK-2 | Dig-in | C165-T1-T4 | Public Awareness (MP) | $ 0.1 | 115 | | Maintains |
| SCG-RISK-3 | ~~M~~HP | C05_T1 | Regulator Station Installation & Replacement | $ 0.3 | 114 | | Reduces |
| SCG-RISK-6 | CYBER | C02 | Internal Defenses | $ 12.9 | 110 | | Maintains |
| SCG-RISK-1 | HP | C04-T2 | Leak Survey & Patrol - Non-HCA | $ 1.5 | 108 | | Maintains |
| SCG-RISK-6 | CYBER | C03 | Sensitive Data Protection | $ 6.8 | 104 | | Maintains |
| SCG-RISK-2 | Dig-in | C04 | Locate & Mark Activities (HP) | $ 4.9 | 98 | | Maintains |
| SCG-RISK-1 | HP | C22-T4.3 | PSEP - Valve Enhancement (GRC base) | $ 3.8 | 95 | | Reduces |
| SCG-RISK-2 | Dig-in | M01 | Automate Third Party Excavation Incident Reporting | $ 0.1 | 87 | | Maintains |
| ~~SCG-RISK-3~~ | ~~MP~~ | ~~C17~~ | ~~Main & Service Leak Repair~~ | ~~$ 0.6~~ | ~~75~~ | | ~~Maintains~~ |
| SCG-RISK-2 | Dig-in | C14 | Locating Equipment (HP) | $ 0.2 | 73 | | Maintains |
| ~~SCG-RISK-7~~ | ~~CONT~~ | ~~C01~~ | ~~Contractor Safety Oversight~~ | ~~$ 0.3~~ | ~~71~~ | | ~~Maintains~~ |
| SCG-RISK-1 | HP | C22-T3.2 | PSEP - Pipeline Replacement (Phase 2A) | $ 23.0 | 62 | | Reduces |
| SCG-RISK-7 | CONT | C01 | Contractor Safety Oversight | $ 0.3 | 59 | | Maintains |
| SCG-RISK-2 | Dig-in | C11 | Damage Prevention Analyst Program | $ 1.2 | 53 | | Maintains |
| SCG-RISK-5 | EMPL | C07 | Near Miss, Stop the Job and Jobsite Safety Programs | $ 0.3 | 47 | | Maintains |
| SCG-RISK-2 | Dig-in | C26 | Pipeline Patrol and Pipeline Markers | $ 0.5 | 46 | | Maintains |
| SCG-RISK-5 | EMPL | M06 | Industrial Hygiene Program Expansion | $ 0.2 | 45 | | Reduces |
| SCG-RISK-3 | MP | C12 | Valve Inspections and Maintenance | $ 0.5 | 40 | | Maintains |
| SCG-RISK-1 | HP | C09-T1 | Class Location (Hydrotest) - Maintenance - HCA | $ 0.2 | 39 | | Maintains |
| SCG-RISK-2 | Dig-in | C12 | Damage Prevention Analyst Program | $ 0.3 | 37 | | Maintains |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost ($M) | RSE | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SCG-RISK-3 | MP | C22 | DIMP: GIPP- Medium Pressure and High pressure | $ 16.5 | 36 | | Reduces |
| SCG-RISK-5 | EMPL | C02 | Drug and Alcohol Testing Programs | $ 0.3 | 30 | | Maintains |
| SCG-RISK-3 | MP | C18 | Residential Meter Protection | $ 11.6 | 30 | | Reduces |
| SCG-RISK-5 | EMPL | C04 | Employee Safety Training and Awareness Programs | $ 0.7 | 29 | | Maintains |
| SCG-RISK-3 | MP | C03 | Cathodic Protection- 100mV Requalification | $ 1.2 | 29 | | Maintains |
| SCG-RISK-3 | HMP | C01_T1 | Cathodic Protection Base Activities | $ 1.2 | 27 | | Maintains |
| ~~SCG-RISK-7~~ | ~~CONT~~ | ~~C03~~ | ~~Contractor Engagement~~ | ~~$ 0.1~~ | ~~25~~ | | ~~Maintains~~ |
| SCG-RISK-2 | Dig-in | C156-T1-T4 | Public Awareness (HP) | $ 0.5 | 25 | | Maintains |
| SCG-RISK-5 | EMPL | M04 | Creation of a Safety Video Library | $ 0.1 | 25 | | Reduces |
| SCG-RISK-3 | MP | C04_T2 | M&R Station and EPM Inspection and Maintenance | $ 3.5 | 24 | | Maintains |
| SCG-RISK-2 | Dig-in | C05 | L&M Annal Refresher Training Program (MP) | $ 0.05 | 22 | | Maintains |
| SCG-RISK-7 | CONT | C03 | Contractor Engagement | $ 0.1 | 21 | | Maintains |
| SCG-RISK-1 | HP | C09-T2 | Class Location (Hydrotest) - Maintenance - Non-HCA | $ 0.5 | 20 | | Maintains |
| SCG-RISK-5 | EMPL | C05 | Safe Driving Programs | $ 1.0 | 18 | | Maintains |
| SCG-RISK-1 | HP | C22-T4.4 | PSEP - Valve Enhancement (GRC base) | $ 4.9 | 17 | | Reduces |
| SCG-RISK-1 | HP | C03-T1 | Leak Repair - HCA | $ 3.5 | 17 | | Maintains |
| SCG-RISK-3 | MP | C07_T2 | EPM Replacements & Installs | $ 0.4 | 16 | | Maintains |
| SCG-RISK-1 | MP | New | FIMP - Distribution | $ 1.5 | 16 | | Reduces |
| SCG-RISK-7 | CONT | C02 | Third-Party Administration Tools | $ 0.3 | 15 | | Maintains |
| SCG-RISK-3 | MP | C10_T1 | Pipeline Monitoring (Bridge & Span) | $ 0.1 | 14 | | Maintains |
| SCG-RISK-2 | Dig-in | C03 | Locate and Mark Activities (MP) | $ 20.9 | 14 | | Maintains |
| SCG-RISK-3 | MP | C30 | MSA Inspection Program | $ 25.7 | 13 | | Maintains |
| SCG-RISK-1 | HP | M01-T2 | GTSR - MAOP Reconfirmation - Non-HCA | $ 22.8 | 11 | | Reduces |
| SCG-RISK-5 | EMPL | C08 | Safety Culture Programs | $ 0.7 | 11 | | Reduces |
| SCG-RISK-5 | EMPL | M03 | Proactive Monitoring and Indoor Air Quality | $ 0.1 | 10 | | Reduces |
| SCG-RISK-1 | HP | C03-T2 | Leak Repair - Non-HCA | $ 7.0 | 10 | | Maintains |
| SCG-RISK-4 | STOR | C05_T2 | Storage Field Maintenance - Aboveground Piping | $ 3.8 | 10 | | Maintains |
| SCG-RISK-1 | HP | C15 | Security and Auxiliary Equipment | $ 0.7 | 7 | | Maintains |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost ($M) | RSE | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SCG-RISK-3 | MP | C08/C17_T2 | Leak Survey and Main & Service Leak Repair | $ 20.7 | 6 | | Maintains |
| SCG-RISK-3 | MP | C02 | Cathodic Protection- CP10 Activities | $ 2.2 | 6 | | Maintains |
| SCG-RISK-2 | Dig-in | C32 | Ticket Risk Assessment, and evaluating permit data | $ 0.1 | 6 | | Maintains |
| SCG-RISK-5 | EMPL | C03 | Employee Wellness Programs | $ 1.2 | 5 | | Maintains |
| SCG-RISK-1 | HP | C21-T1 | Integrity Assessments & Remediation - HCA | $ 164.6 | 5 | | Maintains |
| SCG-RISK-1 | HP | C22-T2.4 | PSEP - Pipeline Replacement (Phase 1B) - Non-HCA | $ 19.9 | 4 | | Reduces |
| SCG-RISK-4 | STOR | C01 | Integrity Demo, Verification, and Monitoring Practices | $ 49.2 | 4 | | Maintains |
| SCG-RISK-1 | HP | C08-T1 | Right of Way - HCA | $ 0.7 | 4 | | Maintains |
| SCG-RISK-5 | EMPL | C09 | Utilizing Industry Best Practices and Benchmarking | $ 1.1 | 4 | | Maintains |
| SCG-RISK-3 | MP | C05_T2 | Regulator Station Replacements/Installs | $ 2.8 | 4 | | Reduces |
| SCG-RISK-1 | HP | C11 | Compressor Station - Maintenance | $ 12.0 | 3 | | Maintains |
| SCG-RISK-1 | HP | M01-T1 | GTSR - MAOP Reconfirmation - HCA | $ 74.3 | 3 | | Reduces |
| SCG-RISK-1 | HP | C20 | FIMP - Transmission | $ 3.5 | 3 | | Reduces |
| SCG-RISK-3 | MP | C13_T1 | Valve Installs and Replacements | $ 0.9 | 3 | | Maintains |
| SCG-RISK-4 | STOR | C02 | Well Abandonment and Replacement | $ 51.5 | 3 | | Reduces |
| SCG-RISK-1 | HP | C21-T2 | Integrity Assessments & Remediation - Non-HCA | $ 136.5 | 3 | | Maintains |
| SCG-RISK-3 | MP | C13_T2 | Valve Installs and Replacements | $ 0.6 | 2 | | Maintains |
| SCG-RISK-1 | HP | C10 | Compressor Stations - Capital | $ 10.0 | 2 | | Maintains |
| SCG-RISK-3 | MP | C01_T2 | Cathodic Protection Base Activities | $ 13.9 | 2 | | Maintains |
| SCG-RISK-3 | MP | C14_T2 | CP – Install/Replace Impressed Current Systems | $ 0.5 | 2 | | Maintains |
| SCG-RISK-1 | HP | C12-T1 | Measurement & Regulation - Capital - HCA | $ 11.5 | 2 | | Maintains |
| SCG-RISK-1 | HP | C08-T2 | Right of Way - Non-HCA | $ 1.4 | 2 | | Maintains |
| SCG-RISK-1 | HP | C22-T3.4 | PSEP - Hydrotesting (Phase 2A) | $ 70.8 | 2 | | Reduces |
| SCG-RISK-1 | HP | C05-T1 | Pipeline Relocation/Replacement - Capital - HCA | $ 6.9 | 2 | | Maintains |
| SCG-RISK-3 | HM~~M~~P | C14_T1 | CP – Install/Replace Impressed Current Systems | $ 6.0 | 2 | | Maintains |
| SCG-RISK-1 | HP | C12-T2 | Measurement & Regulation - Capital - Non-HCA | $ 23.5 | 1 | | Maintains |
| SCG-RISK-1 | HP | C05-T2 | Pipeline Relocation/Replacement - Capital - Non-HCA | $ 14.1 | 1 | | Maintains |
| SCG-RISK-3 | MP | C23 | DIMP: Sewer Lateral Inspection Project (SLIP) | $ 20.3 | 1 | | Maintains |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost ($M) | RSE | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SCG-RISK-4 | STOR | M01 | Facility Integrity Management Program (FIMP) | $ 12.3 | 1 | | Reduces |
| SCG-RISK-3 | MP | C32 | Safety Related Field Orders | $ 88.8 | 1 | | Maintains |
| SCG-RISK-4 | STOR | C06 | Compressor Overhauls | $ 15.3 | 1 | | Maintains |
| SCG-RISK-3 | HMP | C16_T1 | Service Replacements- Leakage, Abnormal Op. Conditions, CP Related | $ 23.5 | 1 | | Maintains |
| SCG-RISK-3 | MP | C28 | Quality Assurance Program | $ 1.1 | 1 | | Maintains |
| SCG-RISK-4 | STOR | C05_T1 | Storage Field Maintenance - Aboveground Facilities | $ 38.6 | 1 | | Maintains |
| SCG-RISK-3 | HMP | C19_T1 | Main Replacements- Leakage, Abnormal Op. Conditions, CP Related | $ 2.2 | 0.5 | | Maintains |
| SCG-RISK-3 | HMP | C08/C17_T1 | Leak Survey and Main & Service Leak Repair | $ 3.1 | 0.4 | | Maintains |
| SCG-RISK-5 | EMPL | M02 | Industrial Hygiene Program Refresh | $ 1.0 | 0.3 | | Reduces |
| SCG-RISK-3 | MP | C16_T2 | Service Replacements- Leakage, Abnormal Op. Conditions, CP Related | $ 0.2 | 0.3 | | Maintains |
| SCG-RISK-3 | MP | C21-T1 | DIMP: DREAMS- Vintage Integrity Plastic Plan (VIPP) | $ 196.5 | 0.3 | | Reduces |
| SCG-RISK-2 | Dig-in | C13 | Locating Equipment (MP) | $ 0.6 | 0.2 | | Maintains |
| SCG-RISK-3 | MP | C19_T2 | Main Replacements- Leakage, Abnormal Op. Conditions, CP Related | $ 14.9 | 0.2 | | Maintains |
| SCG-RISK-3 | MP | C19_T3 | Main Replacements- Leakage, Abnormal Op. Conditions, CP Related | $ 0.5 | 0.1 | | Maintains |
| SCG-RISK-3 | MP | C21-T2 | DIMP: DREAMS- Bare Steel Replacement Program (BSRP) | $ 28.8 | 0.1 | | Reduces |
| SCG-RISK-3 | MP | C33 | Natural Gas Appliance Testing | $ 3.6 | 0.1 | | Maintains |
| SCG-RISK-1 | HP | C14 | Odorization | $ 0.7 | 0.1 | | Maintains |
| SCG-RISK-3 | MP | C25 | Field Employee Skills Training | $ 7.3 | 0.1 | | Maintains |
| SCG-RISK-4 | STOR | C07 | Upgrade to Purification Equipment | $ 11.3 | 0.1 | | Maintains |

**APPENDIX D-1**

**LIST OF RISK MITIGATIONS SORTED BY RSE VALUE**
**– EXCLUDES CFF ALLOCATION –**

# SDG&E

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost ($M) | RSE | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SDGE - Risk 3 | HP | C05-T1 | Shallow/Exposed Pipe Remediations - HCA | $ 0.4 | 5307 | | Maintains |
| SDGE - Risk 3 | HP | C02-T1 | Cathodic Protection - Maintenance - HCA | $ 0.1 | 3849 | | Maintains |
| SDGE - Risk 1 | Wildfire | C06/M1-T2 | SCADA Capacitors - (HFTD Tier 2 ) | $ 1 | 2623 | | Reduces |
| SDGE - Risk 2 | EII | C10-T1-T2 | Underground Cable Replacement Program (Proactive) | $ 3 | 2082 | | Reduces |
| SDGE - Risk 8 | EMPL | C13 | Enhanced Mandatory Employee Training | $ 0.01 | 1997 | | Maintains |
| SDGE - Risk 9 | MP | C06 T4 | Leak Repair | $ 1 | 1725 | | Maintains |
| SDGE - Risk 3 | HP | C02-T2 | Cathodic Protection - Maintenance - Non-HCA | $ 0.01 | 1639 | | Maintains |
| SDGE - Risk 2 | EII | C11 | Tee Modernization Program | $ 4 | 1406 | | Reduces |
| SDGE - Risk 9 | MP | C06 T3 | Leak Repair | $ 1 | 1209 | | Maintains |
| SDGE - Risk 2 | EII | C28 | Field SCADA RTU Replacement | $ 1 | 1137 | | Reduces |
| SDGE - Risk 9 | MP | C07 | Pipeline Monitoring | $ 2 | 1009 | | Maintains |
| SDGE - Risk 1 | Wildfire | C30-T1 | Dist. System Inspection – CMP – Annual Patrol (HFTD Tier 3) | $ 0.4 | 994 | | Reduces |
| SDGE - Risk 1 | Wildfire | C11/M6-T1 | Advanced Protection (HFTD Tier 3) | $ 6 | 832 | | Reduces |
| SDGE - Risk 3 | HP | C11-T1 | Measurement & Regulation Station – Maintenance - HCA | $ 0.3 | 742 | | Maintains |
| SDGE - Risk 2 | EII | New 09 | Strategic Pole Replacement Program (Non-HFTD) | $ 6 | 710 | | Reduces |
| SDGE - Risk 1 | Wildfire | C25-T1 | Dist. Syst Inspection – CMP – 10 Year Intrusive (HFTD Tier 3) | $ 0.1 | 534 | | Reduces |
| SDGE - Risk 1 | Wildfire | C30-T2 | Dist. Syst Inspection – CMP – Annual Patrol (HFTD Tier 2) | $ 1 | 533 | | Reduces |
| SDGE - Risk 6 | Cyber | C04 | Operational Technology (OT) Cybersecurity | $ 5 | 527 | | Maintains |
| SDGE - Risk 2 | EII | C18-T2 | Distribution Circuit Reliability - Overhead | $ 2 | 506 | | Reduces |
| SDGE - Risk 6 | Cyber | C01 | Perimeter Defenses | $ 5 | 504 | | Maintains |
| SDGE - Risk 2 | EII | C18-T1 | Distribution Circuit Reliability - Underground | $ 2 | 500 | | Reduces |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost ($M) | RSE | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SDGE - Risk 7 | HPDG | C04 | Locate & Mark Activities (HP) | $ 0.3 | 482 | | Maintains |
| SDGE - Risk 1 | Wildfire | C13/M8-T2 | Resiliency Grant Programs (HFTD Tier 2) | $ 1 | 466 | | Reduces |
| SDGE - Risk 1 | Wildfire | C35-T2 | Aviation Firefighting Program (HFTD Tier 2) | $ 4 | 453 | | Reduces |
| SDGE - Risk 1 | Wildfire | C13/M8-T1 | Resiliency Grant Programs (HFTD Tier 3) | $ 1 | 418 | | Reduces |
| SDGE - Risk 1 | Wildfire | C15/M10-T1 | Resiliency Assistance Programs (HFTD Tier 3) | $ 1 | 380 | | Reduces |
| SDGE - Risk 8 | EMPL | C3 | Strong Safety Culture | $ 0.2 | 379 | | Maintains |
| SDGE - Risk 1 | Wildfire | C24-T2 | Dist. Syst Inspection – IR/Corona (HFTD Tier 2) | $ 0.2 | 372 | | Reduces |
| SDGE - Risk 6 | Cyber | C05 | Obsolete IT Infrastructure and Application Replacement | $ 4 | 371 | | Maintains |
| SDGE - Risk 3 | HP | C06-T1 | Pipeline Maintenance - HCA | $ 1 | 363 | | Maintains |
| SDGE - Risk 3 | HP | C04 | Regulator Station, Valve, and Large Meter Set Inspection | $ 0.1 | 361 | | Maintains |
| SDGE - Risk 9 | MP | C11-T2 | Gas Distribution Emergency Department - Service | $ 1 | 344 | | Maintains |
| SDGE - Risk 3 | HP | C11-T2 | Measurement & Regulation Station – Maintenance Non-HCA | $ 0.1 | 317 | | Maintains |
| SDGE - Risk 6 | Cyber | C02 | Internal Defenses | $ 4 | 299 | | Maintains |
| ~~SDGE - Risk 2~~ | ~~EII~~ | ~~New 03~~ | ~~La Jolla 69/12kV Transformer Replacement~~ | ~~$ 0.1~~ | ~~295~~ | - | ~~Reduces~~ |
| SDGE - Risk 4 | Contractor | C1 | Contractor Oversight Program | $ 1 | 283 | | Maintains |
| SDGE - Risk 1 | Wildfire | C9/M4-T2 | PSPS Sectionalizing (HFTD Tier 2) | $ 2 | 280 | | Reduces |
| SDGE - Risk 2 | EII | C4 | Distribution Overhead Switch Replacement Program | $ 1 | 276 | | Reduces |
| SDGE - Risk 1 | Wildfire | C03-T1 | Wireless Fault Indicators -(HFTD Tier 3) | $ 1 | 270 | | Reduces |
| SDGE - Risk 1 | Wildfire | C12/M7-T1 | Hotline Clamps (HFTD Tier 3) | $ 0.2 | 264 | | Reduces |
| SDGE - Risk 1 | Wildfire | C21/M14-T1 | Lightning Arrestor Removal/Replace Program (HFTD Tier 3) | $ 2 | 245 | | Reduces |
| SDGE - Risk 1 | Wildfire | C03-T2 | Wireless Fault Indicators- (HFTD Tier 2) | $ 1 | 244 | | Reduces |
| SDGE - Risk 1 | Wildfire | C33/M16-T1 | Enhanced Vegetation Management (HFTD Tier 3) | $ 4 | 230 | | Reduces |
| SDGE - Risk 1 | Wildfire | C08-T1 | Avian Protection (HFTD Tier 3) | $ 1 | 226 | | Reduces |
| SDGE - Risk 1 | Wildfire | C31-T1 | Detailed Inspection of Vegetation (HFTD Tier 3) | $ 12 | 222 | | Reduces |
| SDGE - Risk 1 | Wildfire | C35-T1 | Aviation Firefighting Program (HFTD Tier 3) | $ 15 | 218 | | Reduces |
| SDGE - Risk 3 | HP | C05-T2 | Shallow/Exposed Pipe Remediations - Non-HCA | $ 0.1 | 207 | | Maintains |
| SDGE - Risk 6 | Cyber | C03 | Sensitive Data Protection | $ 5 | 202 | | Maintains |
| SDGE - Risk 1 | Wildfire | C31-T2 | Detailed Inspection of Vegetation (HFTD Tier 2) | $ 15 | 200 | | Reduces |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost ($M) | RSE | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SDGE - Risk 8 | EMPL | C8 | OSHA Voluntary Protection Program | $ 0.2 | 196 | | Maintains |
| SDGE - Risk 1 | Wildfire | C15/M10-T2 | Resiliency Assistance Programs (HFTD Tier 2) | $ 1 | 190 | | Reduces |
| SDGE - Risk 1 | Wildfire | C27 | Dist. System Inspection – HFTD Tier 3 Inspections (HFTD Tier 3) | $ 2 | 187 | | Reduces |
| SDGE - Risk 7 | MPDG | C13 | Locating Equipment | $ 0.2 | 181 | | Maintains |
| SDGE - Risk 1 | Wildfire | C33/M16-T2 | Enhanced Vegetation Management (HFTD Tier 2) | $ 6 | 174 | | Reduces |
| SDGE - Risk 1 | Wildfire | C16/M11-T1 | Strategic Undergrounding (HFTD Tier 3) | $ 262 | 173 | | Reduces |
| SDGE - Risk 1 | Wildfire | C22-T1 | Dist. Syst Inspection – CMP – 5-yr Detailed (HFTD Tier 3) | $ 3 | 170 | | Reduces |
| SDGE - Risk 3 | HP | C01-T1 | Cathodic Protection - Capital - HCA | $ 1 | 166 | | Maintains |
| SDGE - Risk 8 | EMPL | C9 | Safe Driving Programs | $ 0.1 | 165 | | Maintains |
| SDGE - Risk 2 | EII | C14 | DOE Switch Replacement – Underground | $ 6 | 162 | | Reduces |
| SDGE - Risk 3 | HP | C06-T2 | Pipeline Maintenance - Non-HCA | $ 0.1 | 156 | | Maintains |
| SDGE - Risk 9 | MP | C04 | Regulator Station, Valve, and Large Meter Set Inspection | $ 4 | 140 | | Maintains |
| SDGE - Risk 1 | Wildfire | C14/M9-T1 | Standby Power Programs (HFTD Tier 3) | $ 10 | 133 | | Reduces |
| SDGE - Risk 8 | EMPL | C4 | Employee Behavioral Accident Prevention Process Program | $ 0.5 | 123 | | Maintains |
| SDGE - Risk 7 | MPDG | C11 | Damage Prevention Analyst Program | $ 0.1 | 120 | | Maintains |
| SDGE - Risk 7 | HPDG | C16-T1-T4 | Public Awareness | $ 0.03 | 117 | | Maintains |
| SDGE - Risk 4 | Contractor | M2 | Enhanced Verification of Class 1 Specific Training | $ 0.3 | 110 | | Maintains |
| SDGE - Risk 1 | Wildfire | C34-T1 | Pole Brushing (HFTD Tier 3) | $ 3 | 107 | | Reduces |
| SDGE - Risk 3 | HP | C04-T2 | Pipeline Relocation/Replacement - Non-HCA | $ 0.1 | 96 | | Maintains |
| SDGE - Risk 3 | HP | C05 | Reg Station Replacement Program | $ 1 | 92 | | Reduces |
| SDGE - Risk 2 | EII | C29_T1 | SCADA Capacitors - Overhead | $ 1 | 92 | | Reduces |
| SDGE - Risk 1 | Wildfire | C34-T2 | Pole Brushing (HFTD Tier 2) | $ 3 | 90 | | Reduces |
| SDGE - Risk 1 | Wildfire | C16/M11-T2 | Strategic Undergrounding (HFTD Tier 2) | $ 154 | 84 | | Reduces |
| SDGE - Risk 1 | Wildfire | C12/M7-T2 | Hotline Clamps (HFTD Tier 2) | $ 0.2 | 80 | | Reduces |
| SDGE - Risk 2 | EII | C29_T2 | SCADA Capacitors - Underground | $ 0.3 | 68 | | Reduces |
| SDGE - Risk 1 | Wildfire | C36-T2 | Wildfire Infrastructure Protection Teams (HFTD Tier 2) | $ 1 | 67 | | Reduces |
| SDGE - Risk 1 | Wildfire | C18/M13-T1 | OH Trans. Fire Hardening – Dist. Underbuilt (HFTD Tier 3) | $ 1 | 67 | | Reduces |
| SDGE - Risk 9 | MP | C06 T2 | Leak Repair | $ 6 | 66 | | Maintains |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost ($M) | RSE | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SDGE - Risk 1 | Wildfire | C36-T1 | Wildfire Infrastructure Protection Teams (HFTD Tier 3) | $ 2 | 63 | | Reduces |
| SDGE - Risk 7 | MPDG | C15-T1-T4 | Public Awareness | $ 0.2 | 61 | | Maintains |
| SDGE - Risk 4 | Contractor | C02 | Field Safety Oversight | $ 6 | 60 | | Maintains |
| SDGE - Risk 8 | EMPL | M1 | Purchasing/testing respiratory protection | $ 0.1 | 59 | | Maintains |
| SDGE - Risk 9 | MP | C11-T1 | Gas Distribution Emergency Department - Mains | $ 2 | 58 | | Maintains |
| SDGE - Risk 7 | HPDG | C12 | Damage Prevention Analyst Program | $ 0.01 | 57 | | Maintains |
| SDGE - Risk 3 | HP | C01-T2 | Cathodic Protection - Capital - Non-HCA | $ 0.2 | 54 | | Maintains |
| SDGE - Risk 1 | Wildfire | C21/M14-T2 | Lightning Arrestor Removal/Replace Program (HFTD Tier 2) | $ 0.2 | 52 | | Reduces |
| SDGE - Risk 7 | HPDG | M2 | Automate Third Party Excavation Incident Reporting | $ 0.002 | 47 | | Maintains |
| SDGE - Risk 3 | HP | C04-T1 | Pipeline Relocation/Replacement - HCA | $ 0.4 | 46 | | Maintains |
| SDGE - Risk 3 | HP | C02 | Cathodic Protection Program - Capital | $ 0.2 | 46 | | Maintains |
| SDGE - Risk 2 | EII | C6 | Tree Trimming (non-HFTD) | $ 18 | 43 | | Reduces |
| SDGE - Risk 1 | Wildfire | C22-T2 | Dist. Syst Inspection – CMP – 5-yr Detailed (HFTD Tier 2) | $ 4 | 43 | | Reduces |
| SDGE - Risk 1 | Wildfire | C18/M13-T2 | OH Trans. Fire Hardening – Dist. Underbuilt (HFTD Tier 2) | $ 13 | 42 | | Reduces |
| SDGE - Risk 1 | Wildfire | C17/M12-T1 | OH Dist. Fire Hardening – Bare Conductor (HFTD Tier 3) | $ 6 | 41 | | Reduces |
| SDGE - Risk 2 | EII | C20-T5 | Miramar 12kV Replacements | $ 0.1 | 40 | | Reduces |
| SDGE - Risk 1 | Wildfire | C7/M2-T1 | OH Dist. Fire Hardening – Covered Conductor (HFTD Tier 3) | $ 132 | 40 | | Reduces |
| SDGE - Risk 2 | EII | C8 | Aviation Protection Program | $ 2 | 39 | | Reduces |
| SDGE - Risk 9 | MP | C06 T1 | Leak Repair | $ 9 | 37 | | Maintains |
| SDGE - Risk 3 | HP | New- | FIMP - Transmission | $ 0.1 | 37 | | Reduces |
| SDGE - Risk 8 | EMPL | C15 | Enhanced Employee Safe Driving Training | $ 1 | 35 | | Maintains |
| SDGE - Risk 7 | MPDG | M1 | Automate Third Party Excavation Incident Reporting | $ 0.01 | 35 | | Maintains |
| SDGE - Risk 2 | EII | C16 | GO 165 Manhole, Vault Restoration Program | $ 4 | 34 | | Reduces |
| SDGE - Risk 3 | HP | C03-T2 | Leak Repair - Non-HCA | $ 0.2 | 34 | | Maintains |
| SDGE - Risk 2 | EII | C1 | OH Public Safety (OPS) Program | $ 7 | 30 | | Reduces |
| SDGE - Risk 1 | Wildfire | C10/M5-T2 | Microgrids (HFTD Tier 2) | $ 4 | 28 | | Reduces |
| SDGE - Risk 2 | EII | C3 | 4kV Modernization Program – Distribution | $ 7 | 27 | | Reduces |
| SDGE - Risk 1 | Wildfire | C7/M2-T2 | OH Dist. Fire Hardening – Covered Conductor (HFTD Tier 2) | $ 29 | 27 | | Reduces |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost ($M) | RSE | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SDGE - Risk 3 | HP | C03-T1 | Leak Repair - HCA | $ 1 | 23 | | Maintains |
| SDGE - Risk 1 | Wildfire | C28-T1 | Dist. System Inspection – Drone Inspections (HFTD Tier 3) | $ 13 | 22 | | Reduces |
| SDGE - Risk 8 | EMPL | M2 | Purchasing break/rest trailers with filtered air systems | $ 0.2 | 20 | | Maintains |
| SDGE - Risk 3 | HP | New- | FIMP - Distribution | $ 0.3 | 20 | | Reduces |
| SDGE - Risk 3 | HP | C15-T1 | Integrity Assessments & Remediation - HCA | $ 18 | 20 | | Maintains |
| SDGE - Risk 8 | EMPL | New 01 | Industrial Athletic Trainer | $ 0.5 | 19 | | Maintains |
| SDGE - Risk 2 | EII | C13 | Replacement of Live Front Equipment - Proactive | $ 1 | 19 | | Reduces |
| SDGE - Risk 1 | Wildfire | C32/M15-T1 | Fuel management and vegetation mgt activities (HFTD Tier 3) | $ 5 | 19 | | Reduces |
| SDGE - Risk 3 | HP | C01 | Cathodic Protection - O&M | $ 0.1 | 16 | | Maintains |
| SDGE - Risk 9 | MP | M03 | Replace Curb Valves with EFVs | $ 2 | 11 | | Reduces |
| SDGE - Risk 1 | Wildfire | C25-T2 | Dist. Syst Inspection – CMP – 10 Year Intrusive (HFTD Tier 2) | $ 1 | 10 | | Reduces |
| SDGE - Risk 3 | HP | C10-T01 | Measurement & Regulation Station – Capital - HCA | $ 1 | 10 | | Maintains |
| SDGE - Risk 9 | MP | C09-T1 | Early Vintage Program - Oil Drip Piping Removal | $ 2 | 10 | | Reduces |
| SDGE - Risk 2 | EII | New 03 | La Jolla 69/12kV Transformer Replacement | $ 0.1 | 10 | | Reduces |
| SDGE - Risk 1 | Wildfire | C32/M15-T2 | Fuel management and vegetation mgt activities (HFTD Tier 2) | $ 1 | 9 | | Reduces |
| SDGE - Risk 3 | HP | C15-T2 | Integrity Assessments & Remediation - Non-HCA | $ 1 | 9 | | Maintains |
| SDGE - Risk 1 | Wildfire | C28-T2 | Dist. System Inspection – Drone Inspections (HFTD Tier 2) | $ 7 | 9 | | Reduces |
| SDGE - Risk 3 | HP | M02-T2 | GTSR - MAOP Reconfirmation - Non-HCA | $ 2 | 8 | | Reduces |
| SDGE - Risk 7 | MPDG | C03 | Locate and Mark Activities | $ 9 | 7 | | Maintains |
| SDGE - Risk 3 | HP | C09 | Compressor Station - Maintenance | $ 3 | 7 | | Maintains |
| SDGE - Risk 2 | EII | New 05 | San Marcos Substation 69kV Rebuild & 12kV Switchgear | $ 0.1 | 5 | | Reduces |
| SDGE - Risk 3 | HP | M02-T1 | GTSR - MAOP Reconfirmation - HCA | $ 25 | 5 | | Reduces |
| SDGE - Risk 9 | MP | C08-T3 | Underperforming Steel Replacement Program – Other Steel | $ 3 | 5 | | Reduces |
| SDGE - Risk 2 | EII | C20-T2 | Bernardo 12kV Breakers Replacements | $ 1 | 4 | | Reduces |
| SDGE - Risk 3 | HP | C13 | Security and Auxiliary Equipment | $ 0.2 | 4 | | Maintains |
| SDGE - Risk 3 | HP | C08 | Compressor Stations - Capital | $ 7 | 4 | | Maintains |
| SDGE - Risk 2 | EII | C15 | GO165 Corrective Maintenance Program – Underground | $ 11 | 3 | | Reduces |
| SDGE - Risk 9 | MP | C03 | Piping in Vaults Replacement Program | $ 2 | 3 | | Reduces |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost ($M) | RSE | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SDGE - Risk 2 | EII | C20-T8 | Coronado 69/12kV Transformer Replacements | $ 1 | 3 | | Reduces |
| SDGE - Risk 3 | HP | C12 | Odorization | $ 0.01 | 2 | | Maintains |
| SDGE - Risk 7 | MPDG | C09 | Locate and Mark Quality Assurance | $ 0.4 | 2 | | Maintains |
| SDGE - Risk 9 | MP | C02 | Cathodic Protection Program - Capital | $ 4 | 1 | | Maintains |
| SDGE - Risk 3 | HP | C10-T02 | Measurement & Regulation Station – Capital - Non-HCA | $ 0.1 | 1 | | Maintains |
| SDGE - Risk 9 | MP | C08-T2 | Underperforming Steel Replacement Program | $ 3 | 1 | | Reduces |
| SDGE - Risk 9 | MP | C09-T3 | Early Vintage Program - Removal of Closed Valves | $ 2 | 1 | | Reduces |
| SDGE - Risk 2 | EII | New 02 | Stuart 12kV Transformer Replacement | $ 1 | 1 | | Reduces |
| SDGE - Risk 9 | MP | C10 | Code Compliance Mitigation | $ 3 | 1 | | Maintains |
| SDGE - Risk 2 | EII | C10-T3 | UG Cable Replace Program (Proactive) – North Harbor Project | $ 8 | 1 | | Reduces |
| SDGE - Risk 2 | EII | C21 | Distribution Substation Obsolete Equipment | $ 2 | 1 | | Reduces |
| SDGE - Risk 9 | MP | C05 | Regulator Station Replacement | $ 1 | 1 | | Reduces |
| SDGE - Risk 9 | MP | C09-T2 | Early Vintage Program - Dresser Mechanical Coupling Removal | $ 2 | 1 | | Reduces |
| SDGE - Risk 9 | MP | C01 | Cathodic Protection Program - O&M | $ 2 | 1 | | Maintains |
| SDGE - Risk 9 | MP | C14 | Human Factors Mitigations - Op. Qual. Training | $ 2 | 0.5 | | Maintains |
| SDGE - Risk 3 | HP | C12 | Cathodic Protection System Enhancements | $ 0.1 | 0.4 | | Maintains |
| SDGE - Risk 9 | MP | C08-T1 | Underperforming Steel Replacement Program | $ 7 | 0.4 | | Reduces |
| SDGE - Risk 9 | MP | C16-T01 | DIMP – DREAMS – Vintage Integrity Plastic Plan (VIPP) | $ 73 | 0.2 | | Reduces |
| SDGE - Risk 9 | MP | C21 | CSF Quality Assurance (QA) Program | $ 0.3 | 0.2 | | Maintains |
| SDGE - Risk 9 | MP | C19 | Field and Public Safety | $ 11 | 0.03 | | Maintains |
| SDGE - Risk 9 | MP | C20 | Natural Gas Appliance Testing (NGAT) | $ 1 | 0.02 | | Maintains |
| SDGE - Risk 9 | MP | C12 | Cathodic Protection System Enhancements - Base | $ 2 | 0.02 | | Maintains |

# APPENDIX D-2

## LIST OF RISK MITIGATIONS SORTED BY RSE VALUE
## INCLUDES CFF ALLOCATION

**APPENDIX D-2**

**LIST OF RISK MITIGATIONS SORTED BY RSE VALUE**
**INCLUDES CFF ALLOCATION**

# SoCalGas

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost w/CFF ($M) | RSE w/CFF Included | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SCG-RISK-3 | HP~~MP~~ | C09 | Pipeline Monitoring (Bridge & Span) | $ 0.1 | 692 | | Maintains |
| SCG-RISK-1 | HP | C01-T1 | Cathodic Protection - Capital - HCA | $ 2.6 | 587 | | Maintains |
| SCG-RISK-5 | EMPL | C10 | Workplace Violence Prevention Programs | $ 6.3 | 584 | | Maintains |
| SCG-RISK-1 | HP | C07-T1 | Pipeline Maintenance - HCA | $ 0.3 | 571 | | Maintains |
| SCG-RISK-3 | H~~M~~P | C04_T1 | M&R Station and EPM Inspection and Maintenance | $ 0.8 | 563 | | Maintains |
| SCG-RISK-1 | HP | C02-T1 | Cathodic Protection - Maintenance - HCA | $ 0.5 | 476 | | Maintains |
| SCG-RISK-3 | MP | C11 | Pipeline Monitoring | $ 0.01 | 390 | | Maintains |
| SCG-RISK-1 | HP | C06-T1 | Shallow/Exposed Pipe Remediations - HCA | $ 1.3 | 347 | | Maintains |
| SCG-RISK-1 | HP | C04-T1 | Leak Survey & Patrol - HCA | $ 0.8 | 341 | | Maintains |
| SCG-RISK-6 | CYBER | C04 | Operational Technology (OT) Cybersecurity | $ 6.2 | 338 | | Maintains |
| SCG-RISK-1 | HP | C01-T2 | Cathodic Protection - Capital - Non-HCA | $ 5.2 | 325 | | Maintains |
| SCG-RISK-1 | HP | C07-T2 | Pipeline Maintenance - Non-HCA | $ 0.6 | 299 | | Maintains |
| SCG-RISK-1 | HP | C13-T1 | M&R Station - Maintenance - HCA | $ 0.8 | 266 | | Maintains |
| SCG-RISK-1 | HP | C02-T2 | Cathodic Protection - Maintenance - Non-HCA | $ 1.0 | 250 | | Maintains |
| SCG-RISK-3 | H~~M~~P | C10_T2 | Pipeline Monitoring | $ 0.1 | 234 | | Maintains |
| SCG-RISK-1 | HP | C06-T2 | Shallow/Exposed Pipe Remediations - Non-HCA | $ 2.6 | 212 | | Maintains |
| SCG-RISK-3 | H~~M~~P | C07_T1 | EPM Installations & Replacements | $ 0.3 | 209 | | Maintains |
| SCG-RISK-5 | EMPL | M07 | Workplace Violence Prevention Program Enhancements | $ 0.1 | 160 | | Reduces |
| SCG-RISK-2 | Dig-in | C06 | L&M Annual Refresher Training Program (HP) | $ 0.01 | 143 | | Maintains |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost w/CFF ($M) | RSE w/CFF Included | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SCG-RISK-1 | HP | C13-T2 | M&R Station - Maintenance - Non-HCA | $ 1.6 | 140 | | Maintains |
| SCG-RISK-6 | CYBER | C01 | Perimeter Defenses | $ 14.3 | 123 | | Maintains |
| SCG-RISK-3 | MP | C06 | MSA Inspection and Maintenance | $ 1.6 | 116 | | Maintains |
| SCG-RISK-6 | CYBER | C05 | Obsolete IT Infrastructure and Application Replacement | $ 8.9 | 119 | | Maintains |
| SCG-RISK-2 | Dig-in | M02 | Automate Third Party Excavation Incident Reporting | $ 0.02 | 113 | | Maintains |
| SCG-RISK-4 | STOR | C05_T3 | Storage Field Maintenance - Underground Components | $ 5.4 | 104 | | Maintains |
| SCG-RISK-3 | MP | C20 | DIMP: Distribution Riser Inspection Project (DRIP) | $ 26.7 | 103 | | Reduces |
| SCG-RISK-2 | Dig-in | C16-T1-T4 | Public Awareness (HP) | $ 0.1 | 103 | | Maintains |
| SCG-RISK-3 | HMP | C05_T1 | Regulator Station Installation & Replacement | $ 0.3 | 102 | | Reduces |
| SCG-RISK-6 | CYBER | C02 | Internal Defenses | $ 13.9 | 101 | | Maintains |
| SCG-RISK-1 | HP | C04-T2 | Leak Survey & Patrol - Non-HCA | $ 1.7 | 96 | | Maintains |
| SCG-RISK-6 | CYBER | C03 | Sensitive Data Protection | $ 7.4 | 95 | | Maintains |
| SCG-RISK-2 | Dig-in | C04 | Locate & Mark Activities (HP) | $ 5.4 | 87 | | Maintains |
| SCG-RISK-1 | HP | C22-T4.3 | PSEP - Valve Enhancement (GRC base) | $ 4.2 | 84 | | Reduces |
| SCG-RISK-2 | Dig-in | M01 | Automate Third Party Excavation Incident Reporting (MP) | $ 0.1 | 78 | | Maintains |
| ~~SCG-RISK-7~~ | ~~CONT~~ | ~~C01~~ | ~~Contractor Safety Oversight~~ | ~~$ 0.3~~ | ~~70~~ | - | ~~Maintains~~ |
| SCG-RISK-2 | Dig-in | C14 | Locating Equipment (HP) | $ 0.2 | 65 | | Maintains |
| SCG-RISK-7 | CONT | C01 | Contractor Safety Oversight | $ 0.3 | 58 | | Maintains |
| SCG-RISK-1 | HP | C22-T3.2 | PSEP - Pipeline Replacement (Phase 2A) | $ 25.5 | 55 | | Reduces |
| SCG-RISK-2 | Dig-in | C11 | Damage Prevention Analyst Program | $ 1.3 | 47 | | Maintains |
| SCG-RISK-5 | EMPL | C07 | Near Miss, Stop the Job and Jobsite Safety Programs | $ 0.3 | 46 | | Maintains |
| SCG-RISK-5 | EMPL | M06 | Industrial Hygiene Program Expansion | $ 0.2 | 44 | | Reduces |
| SCG-RISK-2 | Dig-in | C26 | Pipeline Patrol and Pipeline Markers | $ 0.5 | 41 | | Maintains |
| SCG-RISK-3 | MP | C12 | Valve Inspections and Maintenance | $ 0.5 | 36 | | Maintains |
| SCG-RISK-1 | HP | C09-T1 | Class Location (Hydrotest) - Maintenance - HCA | $ 0.3 | 34 | | Maintains |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost w/CFF ($M) | RSE w/CFF Included | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SCG-RISK-2 | Dig-in | C12 | Damage Prevention Analyst Program | $ 0.3 | 33 | | Maintains |
| SCG-RISK-3 | MP | C22 | DIMP: GIPP- Medium Pressure and High pressure | $ 18.3 | 32 | | Reduces |
| SCG-RISK-5 | EMPL | C02 | Drug and Alcohol Testing Programs | $ 0.3 | 30 | | Maintains |
| SCG-RISK-5 | EMPL | C04 | Employee Safety Training and Awareness Programs | $ 0.7 | 29 | | Maintains |
| SCG-RISK-3 | MP | C18 | Residential Meter Protection | $ 12.8 | 27 | | Reduces |
| SCG-RISK-3 | MP | C03 | Cathodic Protection- 100mV Requalification | $ 1.3 | 26 | | Maintains |
| ~~SCG-RISK-7~~ | ~~CONT~~ | ~~C03~~ | ~~Contractor Engagement~~ | ~~$ 0.1~~ | ~~25~~ | - | ~~Maintains~~ |
| SCG-RISK-5 | EMPL | M04 | Creation of a Safety Video Library | $ 0.1 | 25 | | Reduces |
| SCG-RISK-3 | H~~M~~P | C01_T1 | Cathodic Protection Base Activities | $ 1.3 | 24 | | Maintains |
| SCG-RISK-2 | Dig-in | C15-T1-T4 | Public Awareness (MP) | $ 0.6 | 22 | | Maintains |
| SCG-RISK-3 | MP | C04_T2 | M&R Station and EPM Inspection and Maintenance | $ 3.9 | 21 | | Maintains |
| SCG-RISK-7 | CONT | C03 | Contractor Engagement | $ 0.1 | 21 | - | Maintains |
| SCG-RISK-2 | Dig-in | C05 | L&M Annal Refresher Training Program (MP) | $ 0.1 | 19 | | Maintains |
| SCG-RISK-5 | EMPL | C05 | Safe Driving Programs | $ 1.0 | 18 | | Maintains |
| SCG-RISK-1 | HP | C09-T2 | Class Location (Hydrotest) - Maintenance - Non-HCA | $ 0.5 | 18 | | Maintains |
| SCG-RISK-1 | HP | C22-T4.4 | PSEP - Valve Enhancement (GRC base) | $ 5.4 | 15 | | Reduces |
| SCG-RISK-1 | HP | C03-T1 | Leak Repair - HCA | $ 3.8 | 15 | | Maintains |
| SCG-RISK-7 | CONT | C02 | Third-Party Administration Tools | $ 0.3 | 15 | | Maintains |
| SCG-RISK-3 | MP | C07_T2 | EPM Replacements & Installs | $ 0.5 | 14 | | Maintains |
| SCG-RISK-1 | MP | New | FIMP - Distribution | $ 1.7 | 14 | | Reduces |
| SCG-RISK-3 | MP | C10_T1 | Pipeline Monitoring (Bridge & Span) | $ 0.1 | 13 | | Maintains |
| SCG-RISK-2 | Dig-in | C03 | Locate and Mark Activities (MP) | $ 23.2 | 12 | | Maintains |
| SCG-RISK-3 | MP | C30 | MSA Inspection Program | $ 28.5 | 12 | | Maintains |
| SCG-RISK-5 | EMPL | C08 | Safety Culture Programs | $ 0.7 | 11 | | Reduces |
| SCG-RISK-1 | HP | M01-T2 | GTSR - MAOP Reconfirmation - Non-HCA | $ 25.3 | 10 | | Reduces |
| SCG-RISK-5 | EMPL | M03 | Proactive Monitoring and Indoor Air Quality | $ 0.1 | 10 | | Reduces |
| SCG-RISK-1 | HP | C03-T2 | Leak Repair - Non-HCA | $ 7.8 | 9 | | Maintains |
| SCG-RISK-4 | STOR | C05_T2 | Storage Field Maintenance - Aboveground Piping | $ 4.3 | 9 | | Maintains |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost w/CFF ($M) | RSE w/CFF Included | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SCG-RISK-1 | HP | C15 | Security and Auxiliary Equipment | $ 0.8 | 6 | | Maintains |
| SCG-RISK-3 | MP | C08/C17_T2 | Leak Survey and Main & Service Leak Repair | $ 23.0 | 6 | | Maintains |
| SCG-RISK-3 | MP | C02 | Cathodic Protection- CP10 Activities | $ 2.4 | 6 | | Maintains |
| SCG-RISK-2 | Dig-in | C32 | Ticket Risk Assessment, and evaluating permit data | $ 0.1 | 6 | | Maintains |
| SCG-RISK-5 | EMPL | C03 | Employee Wellness Programs | $ 1.2 | 5 | | Maintains |
| SCG-RISK-1 | HP | C21-T1 | Integrity Assessments & Remediation - HCA | $ 182.6 | 4 | | Maintains |
| SCG-RISK-1 | HP | C22-T2.4 | PSEP - Pipeline Replacement (Phase 1B) - Non-HCA | $ 22.1 | 4 | | Reduces |
| SCG-RISK-4 | STOR | C01 | Integrity Demo, Verification, and Monitoring Practices | $ 54.6 | 4 | | Maintains |
| SCG-RISK-5 | EMPL | C09 | Utilizing Industry Best Practices and Benchmarking | $ 1.1 | 4 | | Maintains |
| SCG-RISK-1 | HP | C08-T1 | Right of Way - HCA | $ 0.8 | 4 | | Maintains |
| SCG-RISK-3 | MP | C05_T2 | Regulator Station Replacements/Installs | $ 3.1 | 3 | | Reduces |
| SCG-RISK-1 | HP | C11 | Compressor Station - Maintenance | $ 13.3 | 3 | | Maintains |
| SCG-RISK-1 | HP | M01-T1 | GTSR - MAOP Reconfirmation - HCA | $ 82.5 | 3 | | Reduces |
| SCG-RISK-1 | HP | C20 | FIMP - Transmission | $ 3.9 | 3 | | Reduces |
| SCG-RISK-3 | H~~M~~P | C13_T1 | Valve Installs and Replacements | $ 1.0 | 2 | | Maintains |
| SCG-RISK-4 | STOR | C02 | Well Abandonment and Replacement | $ 57.1 | 2 | | Reduces |
| SCG-RISK-1 | HP | C21-T2 | Integrity Assessments & Remediation - Non-HCA | $ 151.5 | 2 | | Maintains |
| SCG-RISK-3 | MP | C13_T2 | Valve Installs and Replacements | $ 0.7 | 2 | | Maintains |
| SCG-RISK-1 | HP | C10 | Compressor Stations - Capital | $ 11.1 | 2 | | Maintains |
| SCG-RISK-3 | MP | C01_T2 | Cathodic Protection Base Activities | $ 15.4 | 2 | | Maintains |
| SCG-RISK-3 | MP | C14_T2 | CP – Install/Replace Impressed Current Systems | $ 0.6 | 2 | | Maintains |
| SCG-RISK-1 | HP | C12-T1 | Measurement & Regulation - Capital - HCA | $ 12.8 | 2 | | Maintains |
| SCG-RISK-1 | HP | C08-T2 | Right of Way - Non-HCA | $ 1.6 | 2 | | Maintains |
| SCG-RISK-1 | HP | C22-T3.4 | PSEP - Hydrotesting (Phase 2A) | $ 78.6 | 2 | | Reduces |
| SCG-RISK-1 | HP | C05-T1 | Pipeline Relocation/Replacement - Capital - HCA | $ 7.7 | 2 | | Maintains |
| SCG-RISK-3 | H~~M~~P | C14_T1 | CP – Install/Replace Impressed Current Systems | $ 6.7 | 2 | | Maintains |
| SCG-RISK-1 | HP | C12-T2 | Measurement & Regulation - Capital - Non-HCA | $ 26.0 | 1 | | Maintains |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost w/CFF ($M) | RSE w/CFF Included | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SCG-RISK-1 | HP | C05-T2 | Pipeline Relocation/Replacement - Capital - Non-HCA | $ 15.6 | 1 | | Maintains |
| SCG-RISK-3 | MP | C23 | DIMP: Sewer Lateral Inspection Project (SLIP) | $ 22.5 | 1 | | Maintains |
| SCG-RISK-4 | STOR | M01 | Facility Integrity Management Program (FIMP) | $ 13.7 | 1 | | Reduces |
| SCG-RISK-3 | MP | C32 | Safety Related Field Orders | $ 98.6 | 1 | | Maintains |
| SCG-RISK-4 | STOR | C06 | Compressor Overhauls | $ 17.0 | 1 | | Maintains |
| SCG-RISK-3 | HMP | C16_T1 | Service Replacements- Leakage, Abnormal Op. Conditions, CP Related | $ 26.1 | 1 | | Maintains |
| SCG-RISK-3 | MP | C28 | Quality Assurance Program | $ 1.3 | 1 | | Maintains |
| SCG-RISK-4 | STOR | C05_T1 | Storage Field Maintenance - Aboveground Facilities | $ 42.9 | 0.5 | | Maintains |
| SCG-RISK-3 | HMP | C19_T1 | Main Replacements- Leakage, Abnormal Op. Conditions, CP Related | $ 2.5 | 0.4 | | Maintains |
| SCG-RISK-5 | EMPL | M02 | Industrial Hygiene Program Refresh | $ 1.0 | 0.3 | | Reduces |
| SCG-RISK-3 | HMP | C08/C17_T1 | Leak Survey and Main & Service Leak Repair | $ 3.5 | 0.3 | | Maintains |
| SCG-RISK-3 | MP | C16_T2 | Service Replacements- Leakage, Abnormal Op. Conditions, CP Related | $ 0.2 | 0.3 | | Maintains |
| SCG-RISK-3 | MP | C21-T1 | DIMP: DREAMS- Vintage Integrity Plastic Plan (VIPP) | $ 218.0 | 0.3 | | Reduces |
| SCG-RISK-2 | Dig-in | C13 | Locating Equipment (MP) | $ 0.7 | 0.2 | | Maintains |
| SCG-RISK-3 | MP | C19_T2 | Main Replacements- Leakage, Abnormal Op. Conditions, CP Related | $ 16.5 | 0.2 | | Maintains |
| SCG-RISK-3 | MP | C19_T3 | Main Replacements- Leakage, Abnormal Op. Conditions, CP Related | $ 0.6 | 0.1 | | Maintains |
| SCG-RISK-3 | MP | C21-T2 | DIMP: DREAMS- Bare Steel Replacement Program (BSRP) | $ 32.0 | 0.1 | | Reduces |
| SCG-RISK-3 | MP | C33 | Natural Gas Appliance Testing | $ 4.0 | 0.1 | | Maintains |
| SCG-RISK-1 | HP | C14 | Odorization | $ 0.8 | 0.1 | | Maintains |
| SCG-RISK-3 | MP | C25 | Field Employee Skills Training | $ 8.1 | 0.1 | | Maintains |
| SCG-RISK-4 | STOR | C07 | Upgrade to Purification Equipment | $ 12.5 | 0.05 | | Maintains |

**APPENDIX D-2**

**LIST OF RISK MITIGATIONS SORTED BY RSE VALUE**
**INCLUDES CFF ALLOCATION**

# SDG&E

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost w/CFF ($M) | RSE w/CFF Included | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SDGE - Risk 3 | HP | C05-T1 | Shallow/Exposed Pipe Remediations - HCA | $ 0.4 | 4897 | | Maintains |
| SDGE - Risk 3 | HP | C02-T1 | Cathodic Protection - Maintenance - HCA | $ 0.1 | 3552 | | Maintains |
| SDGE - Risk 1 | Wildfire | C13/M8-T2 | Resiliency Grant Programs (HFTD Tier 2) | $ 1.2 | 2679 | | Reduces |
| SDGE - Risk 1 | Wildfire | C06/M1-T2 | SCADA Capacitors - (HFTD Tier 2 ) | $ 2 | 2386 | | Reduces |
| SDGE - Risk 8 | EMPL | C13 | Enhanced Mandatory Employee Training | $ 0.01 | 1982 | | Maintains |
| SDGE - Risk 2 | EII | C10-T1-T2 | Underground Cable Replacement Program (Proactive) | $ 4 | 1898 | | Reduces |
| SDGE - Risk 1 | Wildfire | C13/M8-T1 | Resiliency Grant Programs (HFTD Tier 3) | $ 1 | 1798 | | Reduces |
| SDGE - Risk 9 | MP | C06 T4 | Leak Repair | $ 1 | 1598 | | Maintains |
| SDGE - Risk 3 | HP | C02-T2 | Cathodic Protection - Maintenance - Non-HCA | $ 0.02 | 1512 | | Maintains |
| SDGE - Risk 2 | EII | C11 | Tee Modernization Program | $ 4 | 1282 | | Reduces |
| SDGE - Risk 9 | MP | C06 T3 | Leak Repair | $ 1 | 1116 | | Maintains |
| SDGE - Risk 2 | EII | C28 | Field SCADA RTU Replacement | $ 1 | 1037 | | Reduces |
| SDGE - Risk 9 | MP | C07 | Pipeline Monitoring | $ 2 | 944 | | Maintains |
| SDGE - Risk 1 | Wildfire | C30-T1 | Dist. System Inspection – CMP – Annual Patrol (HFTD Tier 3) | $ 1 | 904 | | Reduces |
| SDGE - Risk 1 | Wildfire | C11/M6-T1 | Advanced Protection (HFTD Tier 3) | $ 6 | 757 | | Reduces |
| SDGE - Risk 3 | HP | C11-T1 | Measurement & Regulation Station – Maintenance - HCA | $ 0.3 | 685 | | Maintains |
| SDGE - Risk 1 | Wildfire | C25-T1 | Dist. Syst Inspection – CMP – 10 Year Intrusive (HFTD Tier 3) | $ 0.1 | 486 | | Reduces |
| SDGE - Risk 1 | Wildfire | C30-T2 | Dist. System Inspection – CMP – Annual Patrol (HFTD Tier 2) | $ 1 | 485 | | Reduces |
| SDGE - Risk 2 | EII | C18-T2 | Distribution Circuit Reliability - Overhead | $ 2 | 461 | | Reduces |
| SDGE - Risk 6 | Cyber | C01 | Perimeter Defenses | $ 5 | 459 | | Maintains |
| SDGE - Risk 2 | EII | C18-T1 | Distribution Circuit Reliability - Underground | $ 3 | 456 | | Reduces |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost w/CFF ($M) | RSE w/CFF Included | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SDGE - Risk 7 | HPDG | C04 | Locate & Mark Activities (HP) | $ 0.3 | 444 | | Maintains |
| SDGE - Risk 1 | Wildfire | C35-T2 | Aviation Firefighting Program (HFTD Tier 2) | $ 5 | 412 | | Reduces |
| SDGE - Risk 6 | Cyber | C04 | Operational Technology (OT) Cybersecurity | $ 7 | ~~381~~480 | | Maintains |
| SDGE - Risk 8 | EMPL | C3 | Strong Safety Culture | $ 0.2 | 376 | | Maintains |
| SDGE - Risk 1 | Wildfire | C15/M10-T1 | Resiliency Assistance Programs (HFTD Tier 3) | $ 1 | 346 | | Reduces |
| SDGE - Risk 1 | Wildfire | C08-T1 | Avian Protection (HFTD Tier 3) | $ 1 | 344 | | Reduces |
| SDGE - Risk 1 | Wildfire | C24-T2 | Dist. System Inspection – IR/Corona (HFTD Tier 2) | $ 0.2 | 338 | | Reduces |
| SDGE - Risk 6 | Cyber | C05 | Obsolete IT Infrastructure and Application Replacement | $ 4 | 338 | | Maintains |
| SDGE - Risk 3 | HP | C06-T1 | Pipeline Maintenance - HCA | $ 1 | 335 | | Maintains |
| SDGE - Risk 3 | HP | C04 | Regulator Station, Valve, and Large Meter Set Inspection | $ 0.1 | ~~333~~340 | | Maintains |
| SDGE - Risk 9 | MP | C11-T2 | Gas Distribution Emergency Department - Service | $ 1 | 317 | | Maintains |
| SDGE - Risk 3 | HP | C11-T2 | Measurement & Regulation Station – Maintenance Non-HCA | $ 0.1 | 293 | | Maintains |
| SDGE - Risk 2 | EII | New 09 | Strategic Pole Replacement Program (Non-HFTD) | $ 7 | 288 | | Reduces |
| SDGE - Risk 4 | Contractor | C1 | Contractor Oversight Program | $ 1 | 281 | | Maintains |
| SDGE - Risk 6 | Cyber | C02 | Internal Defenses | $ 7 | 272 | | Maintains |
| SDGE - Risk 1 | Wildfire | C9/M4-T2 | PSPS Sectionalizing (HFTD Tier 2) | $ 2 | 255 | | Reduces |
| SDGE - Risk 2 | EII | C4 | Distribution Overhead Switch Replacement Program | $ 1 | 252 | | Reduces |
| SDGE - Risk 1 | Wildfire | C03-T1 | Wireless Fault Indicators -(HFTD Tier 3) | $ 1 | 246 | | Reduces |
| SDGE - Risk 1 | Wildfire | C12/M7-T1 | Hotline Clamps (HFTD Tier 3) | $ 0.2 | 240 | | Reduces |
| SDGE - Risk 1 | Wildfire | C21/M14-T1 | Lightning Arrestor Removal/Replace Program (HFTD Tier 3) | $ 2 | 223 | | Reduces |
| SDGE - Risk 1 | Wildfire | C03-T2 | Wireless Fault Indicators- (HFTD Tier 2) | $ 1 | 222 | | Reduces |
| SDGE - Risk 1 | Wildfire | C33/M16-T1 | Enhanced Vegetation Management (HFTD Tier 3) | $ 5 | 209 | | Reduces |
| SDGE - Risk 1 | Wildfire | C31-T1 | Detailed Inspection of Vegetation (HFTD Tier 3) | $ 14 | 202 | | Reduces |
| SDGE - Risk 1 | Wildfire | C35-T1 | Aviation Firefighting Program (HFTD Tier 3) | $ 17 | 198 | | Reduces |
| SDGE - Risk 8 | EMPL | C8 | OSHA Voluntary Protection Program | $ 0.2 | 194 | | Maintains |
| SDGE - Risk 3 | HP | C05-T2 | Shallow/Exposed Pipe Remediations - Non-HCA | $ 0.1 | 191 | | Maintains |
| SDGE - Risk 6 | Cyber | C03 | Sensitive Data Protection | $ 5 | 183 | | Maintains |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost w/CFF ($M) | RSE w/CFF Included | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SDGE - Risk 1 | Wildfire | C31-T2 | Detailed Inspection of Vegetation (HFTD Tier 2) | $ 16 | 182 | | Reduces |
| SDGE - Risk 1 | Wildfire | C15/M10-T2 | Resiliency Assistance Programs (HFTD Tier 2) | $ 1 | 173 | | Reduces |
| SDGE - Risk 1 | Wildfire | C27 | Dist. Syst Inspection – HFTD Tier 3 Inspections (HFTD Tier 3) | $ 3 | 170 | | Reduces |
| SDGE - Risk 7 | MPDG | C13 | Locating Equipment | $ 0.2 | 167 | | Maintains |
| SDGE - Risk 8 | EMPL | C9 | Safe Driving Programs | $ 0.1 | 163 | | Maintains |
| SDGE - Risk 1 | Wildfire | C33/M16-T2 | Enhanced Vegetation Management (HFTD Tier 2) | $ 6 | 159 | | Reduces |
| SDGE - Risk 1 | Wildfire | C16/M11-T1 | Strategic Undergrounding (HFTD Tier 3) | $ 288 | 157 | | Reduces |
| SDGE - Risk 1 | Wildfire | C22-T1 | Dist. Syst Inspection – CMP – 5-yr Detailed (HFTD Tier 3) | $ 3 | 155 | | Reduces |
| SDGE - Risk 3 | HP | C01-T1 | Cathodic Protection - Capital - HCA | $ 1 | 153 | | Maintains |
| SDGE - Risk 2 | EII | C14 | DOE Switch Replacement – Underground | $ 6 | 148 | | Reduces |
| SDGE - Risk 3 | HP | C06-T2 | Pipeline Maintenance - Non-HCA | $ 0.1 | 144 | | Maintains |
| SDGE - Risk 9 | MP | C04 | Regulator Station, Valve, and Large Meter Set Inspection | $ 4 | 129 | | Maintains |
| SDGE - Risk 8 | EMPL | C4 | Employee Behavioral Accident Prevention Process Program | $ 0.5 | 122 | | Maintains |
| SDGE - Risk 1 | Wildfire | C14/M9-T1 | Standby Power Programs (HFTD Tier 3) | $ 11 | 121 | | Reduces |
| SDGE - Risk 7 | MPDG | C11 | Damage Prevention Analyst Program | $ 0.1 | 111 | | Maintains |
| SDGE - Risk 4 | Contractor | M2 | Enhanced Verification of Class 1 Specific Training | $ 0.3 | 109 | | Maintains |
| SDGE - Risk 7 | HPDG | C16-T1-T4 | Public Awareness | $ 0.03 | 108 | | Maintains |
| SDGE - Risk 1 | Wildfire | C34-T1 | Pole Brushing (HFTD Tier 3) | $ 3 | 98 | | Reduces |
| SDGE - Risk 3 | HP | C04-T2 | Pipeline Relocation/Replacement - Non-HCA | $ 0.1 | 89 | | Maintains |
| SDGE - Risk 3 | HP | C05 | Reg Station Replacement Program | $ 1 | ~~85~~87 | | Reduces |
| SDGE - Risk 2 | EII | C29_T1 | SCADA Capacitors - Overhead | $ 1 | 84 | | Reduces |
| SDGE - Risk 1 | Wildfire | C34-T2 | Pole Brushing (HFTD Tier 2) | $ 4 | 82 | | Reduces |
| SDGE - Risk 1 | Wildfire | C16/M11-T2 | Strategic Undergrounding (HFTD Tier 2) | $ 169 | 77 | | Reduces |
| SDGE - Risk 1 | Wildfire | C12/M7-T2 | Hotline Clamps (HFTD Tier 2) | $ 0.2 | 73 | | Reduces |
| SDGE - Risk 2 | EII | C29_T2 | SCADA Capacitors - Underground | $ 0.3 | 62 | | Reduces |
| SDGE - Risk 1 | Wildfire | C36-T2 | Wildfire Infrastructure Protection Teams (HFTD Tier 2) | $ 1 | 61 | | Reduces |
| SDGE - Risk 1 | Wildfire | C18/M13-T1 | OH Trans. Fire Hardening – Dist. Underbuilt (HFTD Tier 3) | $ 1 | 61 | | Reduces |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost w/CFF ($M) | RSE w/CFF Included | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SDGE - Risk 9 | MP | C06 T2 | Leak Repair | $ 6 | 60 | | Maintains |
| SDGE - Risk 4 | Contractor | C02 | Field Safety Oversight | $ 6 | 60 | | Maintains |
| SDGE - Risk 8 | EMPL | M1 | Purchasing/testing respiratory protection | $ 0.1 | 58 | | Maintains |
| SDGE - Risk 1 | Wildfire | C36-T1 | Wildfire Infrastructure Protection Teams (HFTD Tier 3) | $ 3 | 58 | | Reduces |
| SDGE - Risk 7 | MPDG | C15-T1-T4 | Public Awareness | $ 0.2 | 56 | | Maintains |
| SDGE - Risk 9 | MP | C11-T1 | Gas Distribution Emergency Department - Mains | $ 2 | 54 | | Maintains |
| SDGE - Risk 7 | HPDG | C12 | Damage Prevention Analyst Program | $ 0.02 | 53 | | Maintains |
| SDGE - Risk 3 | HP | C01-T2 | Cathodic Protection - Capital - Non-HCA | $ 0.2 | 49 | | Maintains |
| SDGE - Risk 1 | Wildfire | C21/M14-T2 | Lightning Arrestor Removal/Replace Program (HFTD Tier 2) | $ 0.2 | 48 | | Reduces |
| SDGE - Risk 7 | HPDG | M2 | Automate Third Party Excavation Incident Reporting | $ 0.002 | 44 | | Maintains |
| SDGE - Risk 3 | HP | C04-T1 | Pipeline Relocation/Replacement - HCA | $ 0.4 | 43 | | Maintains |
| SDGE - Risk 3 | HP | C02 | Cathodic Protection Program - Capital | $ 0.3 | ~~42~~43 | | Maintains |
| SDGE - Risk 2 | EII | C6 | Tree Trimming (non-HFTD) | $ 20 | 39 | | Reduces |
| SDGE - Risk 1 | Wildfire | C22-T2 | Dist. Syst Inspection – CMP – 5-yr Detailed (HFTD Tier 2) | $ 4 | 39 | | Reduces |
| SDGE - Risk 1 | Wildfire | C18/M13-T2 | OH Trans. Fire Hardening – Dist. Underbuilt (HFTD Tier 2) | $ 15 | 38 | | Reduces |
| SDGE - Risk 1 | Wildfire | C17/M12-T1 | OH Dist. Fire Hardening – Bare Conductor (HFTD Tier 3) | $ 6 | 37 | | Reduces |
| SDGE - Risk 9 | MP | C06 T1 | Leak Repair | $ 10 | 37 | | Maintains |
| SDGE - Risk 2 | EII | C20-T5 | Miramar 12kV Replacements | $ 0.1 | 37 | | Reduces |
| SDGE - Risk 1 | Wildfire | C7/M2-T1 | OH Dist. Fire Hardening – Covered Conductor (HFTD Tier 3) | $ 145 | 37 | | Reduces |
| SDGE - Risk 2 | EII | C8 | Aviation Protection Program | $ 2 | 36 | | Reduces |
| SDGE - Risk 8 | EMPL | C15 | Enhanced Employee Safe Driving Training | $ 1 | 35 | | Maintains |
| SDGE - Risk 3 | HP | New- | FIMP - Transmission | $ 0.1 | 34 | | Reduces |
| SDGE - Risk 7 | MPDG | M1 | Automate Third Party Excavation Incident Reporting | $ 0.02 | 32 | | Maintains |
| SDGE - Risk 3 | HP | C03-T2 | Leak Repair - Non-HCA | $ 0.2 | 31 | | Maintains |
| SDGE - Risk 2 | EII | C16 | GO 165 Manhole, Vault Restoration Program | $ 5 | 31 | | Reduces |
| SDGE - Risk 2 | EII | C1 | OH Public Safety (OPS) Program | $ 7 | 28 | | Reduces |
| SDGE - Risk 1 | Wildfire | C10/M5-T2 | Microgrids (HFTD Tier 2) | $ 4 | 26 | | Reduces |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost w/CFF ($M) | RSE w/CFF Included | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SDGE - Risk 2 | EII | C3 | 4kV Modernization Program – Distribution | $ 7 | 25 | | Reduces |
| SDGE - Risk 1 | Wildfire | C7/M2-T2 | OH Dist. Fire Hardening – Covered Conductor (HFTD Tier 2) | $ 32 | 24 | | Reduces |
| SDGE - Risk 3 | HP | C03-T1 | Leak Repair - HCA | $ 1 | 21 | | Maintains |
| SDGE - Risk 1 | Wildfire | C28-T1 | Dist. System Inspection – Drone Inspections (HFTD Tier 3) | $ 14 | 20 | | Reduces |
| SDGE - Risk 8 | EMPL | M2 | Purchasing break/rest trailers with filtered air systems | $ 0.2 | 20 | | Maintains |
| SDGE - Risk 8 | EMPL | New 01 | Industrial Athletic Trainer | $ 0.5 | 19 | | Maintains |
| SDGE - Risk 3 | HP | New- | FIMP - Distribution | $ 0.3 | ~~18~~19 | | Reduces |
| SDGE - Risk 3 | HP | C15-T1 | Integrity Assessments & Remediation - HCA | $ 19 | 18 | | Maintains |
| SDGE - Risk 2 | EII | C13 | Replacement of Live Front Equipment - Proactive | $ 1 | 17 | | Reduces |
| SDGE - Risk 1 | Wildfire | C32/M15-T1 | Fuel management and vegetation mgt activities (HFTD Tier 3) | $ 6 | 17 | | Reduces |
| SDGE - Risk 3 | HP | C01 | Cathodic Protection - O&M | $ 0.1 | 15 | | Maintains |
| SDGE - Risk 9 | MP | M03 | Replace Curb Valves with EFVs | $ 2 | 10 | | Reduces |
| SDGE - Risk 1 | Wildfire | C25-T2 | Dist. Syst Inspection – CMP – 10 Year Intrusive (HFTD Tier 2) | $ 1 | 9 | | Reduces |
| SDGE - Risk 3 | HP | C10-T01 | Measurement & Regulation Station – Capital - HCA | $ 1 | 9 | | Maintains |
| SDGE - Risk 2 | EII | New 03 | La Jolla 69/12kV Transformer Replacement | $ 0.1 | 9 | | Reduces |
| SDGE - Risk 9 | MP | C09-T1 | Early Vintage Program - Oil Drip Piping Removal | $ 2 | 9 | | Reduces |
| SDGE - Risk 1 | Wildfire | C32/M15-T2 | Fuel management and vegetation mgt activities (HFTD Tier 2) | $ 1 | 9 | | Reduces |
| SDGE - Risk 3 | HP | C15-T2 | Integrity Assessments & Remediation - Non-HCA | $ 1 | 8 | | Maintains |
| SDGE - Risk 1 | Wildfire | C28-T2 | Dist. System Inspection – Drone Inspections (HFTD Tier 2) | $ 8 | 8 | | Reduces |
| SDGE - Risk 3 | HP | M02-T2 | GTSR - MAOP Reconfirmation - Non-HCA | $ 2 | 7 | | Reduces |
| SDGE - Risk 7 | MPDG | C03 | Locate and Mark Activities | $ 10 | 7 | | Maintains |
| SDGE - Risk 3 | HP | C09 | Compressor Station - Maintenance | $ 3 | 6 | | Maintains |
| SDGE - Risk 2 | EII | New 05 | San Marcos Substation 69kV Rebuild & 12kV Switchgear | $ 0.1 | 5 | | Reduces |
| SDGE - Risk 3 | HP | M02-T1 | GTSR - MAOP Reconfirmation - HCA | $ 27 | 5 | | Reduces |
| SDGE - Risk 9 | MP | C08-T3 | Underperforming Steel Replacement Program – Other Steel | $ 3 | 5 | | Reduces |
| SDGE - Risk 2 | EII | C20-T2 | Bernardo 12kV Breakers Replacements | $ 1 | 4 | | Reduces |
| SDGE - Risk 3 | HP | C13 | Security and Auxiliary Equipment | $ 0.2 | 3 | | Maintains |

| Risk Chapter | Risk | ID | Control/Mitigation Name | 2024 Total Cost w/CFF ($M) | RSE w/CFF Included | | Activity Impact |
|---|---|---|---|---|---|---|---|
| SDGE - Risk 3 | HP | C08 | Compressor Stations - Capital | $ 7 | 3 | | Maintains |
| SDGE - Risk 2 | EII | C15 | GO165 Corrective Maintenance Program – Underground | $ 12 | 3 | | Reduces |
| SDGE - Risk 9 | MP | C03 | Piping in Vaults Replacement Program | $ 2 | 3 | | Reduces |
| SDGE - Risk 2 | EII | C20-T8 | Coronado 69/12kV Transformer Replacements | $ 1 | 3 | | Reduces |
| SDGE - Risk 3 | HP | C12 | Odorization | $ 0.01 | 2 | | Maintains |
| SDGE - Risk 7 | MPDG | C09 | Locate and Mark Quality Assurance | $ 0.4 | 1 | | Maintains |
| SDGE - Risk 9 | MP | C02 | Cathodic Protection Program - Capital | $ 5 | 1 | | Maintains |
| SDGE - Risk 3 | HP | C10-T02 | Measurement & Regulation Station – Capital - Non-HCA | $ 0.2 | 1 | | Maintains |
| SDGE - Risk 9 | MP | C08-T2 | Underperforming Steel Replacement Program | $ 3 | 1 | | Reduces |
| SDGE - Risk 9 | MP | C09-T3 | Early Vintage Program - Removal of Closed Valves | $ 2 | 1 | | Reduces |
| SDGE - Risk 2 | EII | New 02 | Stuart 12kV Transformer Replacement | $ 1 | 1 | | Reduces |
| SDGE - Risk 9 | MP | C10 | Code Compliance Mitigation | $ 3 | 1 | | Maintains |
| SDGE - Risk 2 | EII | C10-T3 | UG Cable Replace Program (Proactive) – North Harbor Project | $ 9 | 1 | | Reduces |
| SDGE - Risk 2 | EII | C21 | Distribution Substation Obsolete Equipment | $ 2 | 1 | | Reduces |
| SDGE - Risk 9 | MP | C05 | Regulator Station Replacement | $ 1 | 1 | | Reduces |
| SDGE - Risk 9 | MP | C09-T2 | Early Vintage Program - Dresser Mechanical Coupling Removal | $ 2 | 1 | | Reduces |
| SDGE - Risk 9 | MP | C01 | Cathodic Protection Program - O&M | $ 2 | 1 | | Maintains |
| SDGE - Risk 9 | MP | C14 | Human Factors Mitigations - Op. Qual. Training | $ 2 | 0 | | Maintains |
| SDGE - Risk 3 | HP | C12 | Cathodic Protection System Enhancements | $ 0.1 | 0 | | Maintains |
| SDGE - Risk 9 | MP | C08-T1 | Underperforming Steel Replacement Program | $ 8 | 0 | | Reduces |
| SDGE - Risk 9 | MP | C16-T01 | DIMP – DREAMS – Vintage Integrity Plastic Plan (VIPP) | $ 0.1 | 0 | | Reduces |
| SDGE - Risk 9 | MP | C21 | CSF Quality Assurance (QA) Program | $ 0.3 | 0 | | Maintains |
| SDGE - Risk 9 | MP | C19 | Field and Public Safety | $ 12 | 0 | | Maintains |
| SDGE - Risk 9 | MP | C20 | Natural Gas Appliance Testing (NGAT) | $ 1 | 0 | | Maintains |
| SDGE - Risk 9 | MP | C12 | Cathodic Protection System Enhancements - Base | $ 2 | 0 | | Maintains |

# APPENDIX E1

# MAPPING OF RAMP RISKS AND CFFS IN THE TY 2024 GRC

**Appendix E1**
**Mapping of RAMP Risks and CFFs in the TY 2024 GRC**

**SDG&E Capital**

| RAMP Report Chapter Number | RAMP Risks and CFFs | GRC Witness | GRC Testimony Exhibit Number |
|---|---|---|---|
| SDG&E-Risk-01 | Wildfire Involving SDG&E Equipment | Jonathan T. Woldemariam | SDG&E-13 |
| SDG&E-Risk-02 | Electric Infrastructure Integrity | Olive Reyes | SDG&E-11 |
| | | Jonathan T. Woldemariam | SDG&E-13 |
| SDG&E-Risk-03 | Incident Related to the High Pressure System (Excluding Dig-in) | L. Patrick Kinsella | SDG&E-04 |
| | | Rick Chiapa, Steve Hruby | SDG&E-06 |
| | | Amy Kitson, Travis Sera | SDG&E-09 |
| SDG&E-Risk-04 | Incident Involving a Contractor | Kenneth J. Deremer | SDG&E-31 |
| SDG&E-Risk-06 | Cybersecurity | Lance Mueller | SDG&E-26 |
| SDG&E-Risk-07 | Excavation Damage (Dig-in) on the Gas System | L. Patrick Kinsella | SDG&E-04 |
| SDG&E-Risk-08 | Incident Involving an Employee | Olive Reyes | SDG&E-11 |
| SDG&E-Risk-09 | Incident Related to the Medium Pressure System (Excluding Dig-in) | L. Patrick Kinsella | SDG&E-04 |
| | | Amy Kitson, Travis Sera | SDG&E-09 |
| SDG&E-CFF-1 | Asset Management | Olive Reyes | SDG&E-11 |
| | | Jonathan T. Woldemariam | SDG&E-13 |
| | | William J. Exon | SDG&E-25 |
| SDG&E-CFF-4 | Foundational Technology Systems | William J. Exon | SDG&E-25 |
| SDG&E-CFF-6 | Records Management | L. Patrick Kinsella | SDG&E-04 |

## SoCalGas Capital

| RAMP Report Chapter Number | RAMP CFF/ Risk | GRC Witness | GRC Testimony Exhibit Number |
|---|---|---|---|
| SCG-Risk-1 | Incident Related to the High Pressure System (Excluding Dig-in) | Rick Chiapa, Aaron Bell, Steve Hruby | SCG-06 |
| | | Bill Kostelnik | SCG-08 |
| | | Amy Kitson, Travis Sera | SCG-09 |
| SCG-Risk-2 | Excavation Damage (Din-in) on the Gas System | Mario A. Aguirre | SCG-04 |
| | | Rick Chiapa, Aaron Bell, Steve Hruby | SCG-06 |
| SCG-Risk-3 | Incident Related to the Medium Pressure System (Excluding Dig-in) | Mario A. Aguirre | SCG-04 |
| | | Amy Kitson, Travis Sera | SCG-09 |
| SCG-Risk-4 | Incident related to the Storage System (Excluding Dig-in) | Amy Kitson, Travis Sera | SCG-09 |
| | | Larry T. Bittleston, Steve Hruby | SCG-10 |
| SCG-Risk-5 | Incident Involving an Employee | Rick Chiapa, Aaron Bell, Steve Hruby | SCG-06 |
| | | Brenton Guy | SCG-19 |
| SCG-Risk-6 | Cybersecurity | Lance Mueller | SCG-22 |
| SCG-CFF-1 | Asset and Records Management | Amy Kitson, Travis Sera | SCG-09 |
| | | William J. Exon | SCG-21 |
| SCG-CFF-2 | Energy Resilience | Brenton Guy | SCG-19 |
| SCG-CFF-4 | Foundational Technology Systems | William J. Exon | SCG-21 |
| SCG-CFF-5 | Physical Security | Rick Chiapa, Aaron Bell, Steve Hruby | SCG-06 |

## SDG&E O&M

| RAMP Report Chapter Number | RAMP Risk | GRC Witness | GRC Testimony Exhibit Number |
|---|---|---|---|
| SDG&E-Risk-01 | Wildfire Involving SDG&E Equipment | Jonathan T. Woldemariam | SDG&E-13 |
| SDG&E-Risk-02 | Electric Infrastructure Integrity | Tyson Swetek | SDG&E-12 |
| | | Jonathan T. Woldemariam | SDG&E-13 |
| SDG&E-Risk-03 | Incident Related to the High Pressure System (Excluding Dig-in) | Rick Chiapa, Steve Hruby | SDG&E-06 |
| | | Amy Kitson, Travis Sera | SDG&E-09 |
| SDG&E-Risk-04 | Incident Involving a Contractor | Kenneth J. Deremer | SDG&E-31 |
| SDG&E-Risk-05 | Customer and Public Safety - Contact with Electric Equipment | Sandra F. Baule | SDG&E-19 |
| SDG&E-Risk-06 | Cybersecurity | Lance Mueller | SDG&E-26 |
| SDG&E-Risk-07 | Excavation Damage (Dig-in) on the Gas System | L. Patrick Kinsella | SDG&E-04 |
| | | Wallace Rawls | SDG&E-05 |
| SDG&E-Risk-08 | Incident Involving an Employee | L. Patrick Kinsella | SDG&E-04 |
| | | Tyson Swetek | SDG&E-12 |
| | | Jonathan T. Woldemariam | SDG&E-13 |
| | | David H. Thai | SDG&E-17 |
| | | Arthur Alvarez | SDG&E-22 |
| | | Ken Deremer | SDG&E-31 |
| | | Alexandra Taylor | SDG&E-32 |
| SDG&E-Risk-09 | Incident Related to the Medium Pressure System (Excluding Dig-in) | L. Patrick Kinsella | SDG&E-04 |
| | | Amy Kitson, Travis Sera | SDG&E-09 |
| | | David H. Thai | SDG&E-17 |
| | | Sandra F. Baule | SDG&E-19 |
| SDG&E-CFF-1 | Asset Management | L. Patrick Kinsella | SDG&E-04 |
| | | Tyson Swetek | SDG&E-12 |
| | | Kenneth J. Deremer | SDG&E-31 |
| SDG&E-CFF-4 | Foundational Technology Systems | William J. Exon | SDG&E-25 |
| SDG&E-CFF-5 | Physical Security | Dale Tattersall | SDG&E-23 |
| | | Derick R. Cooper | SDG&E-27 |
| SDG&E-CFF-6 | Records Management | L. Patrick Kinsella | SDG&E-04 |
| | | Tyson Swetek | SDG&E-12 |
| SDG&E-CFF-7 | Safety Management System | Kenneth J. Deremer | SDG&E-31 |
| SDG&E-CFF-8 | Workforce Planning / Quality Workforce | Alexandra Taylor | SDG&E-32 |

## SoCalGas O&M

| RAMP Report Chapter Number | RAMP CFF/ Risk | GRC Witness | GRC Testimony Exhibit Number |
|---|---|---|---|
| SCG-Risk-1 | Incident Related to the High Pressure System (Excluding Dig-in) | Rick Chiapa, Aaron Bell, Steve Hruby | SCG-06 |
| | | Bill Kostelnik | SCG-08 |
| | | Amy Kitson, Travis Sera | SCG-09 |
| SCG-Risk-2 | Excavation Damage (Din-in) on the Gas System | Mario A. Aguirre | SCG-04 |
| | | Wallace Rawls | SCG-05 |
| | | Rick Chiapa, Aaron Bell, Steve Hruby | SCG-06 |
| | | William J. Exon | SCG-21 |
| SCG-Risk-3 | Incident Related to the Medium Pressure System (Excluding Dig-in) | Mario A. Aguirre | SCG-04 |
| | | Amy Kitson, Travis Sera | SCG-09 |
| | | Daniel J. Rendler | SCG-14 |
| | | Bernardita Sides | SCG-15 |
| | | Brian C. Prusnek | SCG-16 |
| SCG-Risk-4 | Incident related to the Storage System (Excluding Dig-in) | Amy Kitson, Travis Sera | SCG-09 |
| | | Larry T. Bittleston, Steve Hruby | SCG-10 |
| | | Albert J. Garcia | SCG-20 |
| SCG-Risk-5 | Incident Involving an Employee | Mario A. Aguirre | SCG-04 |
| | | Larry T. Bittleston, Steve Hruby | SCG-10 |
| | | Bernardita Sides | SCG-15 |
| | | Brenton Guy | SCG-19 |
| | | Neena N. Master | SCG-27 |
| | | Abigail Nishimoto | SCG-28 |
| SCG-Risk-6 | Cybersecurity | Lance Mueller | SCG-22 |
| SCG-Risk-7 | Incident Involving a Contractor | Neena N. Master | SCG-27 |
| SCG-CFF-1 | Asset and Records Management | Mario A. Aguirre | SCG-04 |
| | | Wallace Rawls | SCG-05 |
| | | Rick Chiapa, Aaron Bell, Steve Hruby | SCG-06 |
| SCG-CFF-2 | Energy Resilience | Armando Infanzon | SCG-12 |
| | | Michael Franco | SCG-18 |
| SCG-CFF-3 | Emergency Preparedness and Response and Pandemic | Neena N. Master | SCG-27 |
| SCG-CFF-4 | Foundational Technology Systems | William J. Exon | SCG-21 |
| SCG-CFF-5 | Physical Security | Bernardita Sides | SCG-15 |
| | | Brenton Guy | SCG-19 |
| | | Derick R. Cooper | SCG-23 |
| SCG-CFF-6 | Safety Management Systems | Neena N. Master | SCG-27 |
| SCG-CFF-7 | Workforce Planning / Qualified Workforce | Abigail Nishimoto | SCG-28 |

**Appendix E2**
**MAPPING OF GRC WITNESSES SPONSORING RAMP COSTS IN THE TY 2024 GRC**

**Appendix E2**
**Mapping of GRC Witnesses Sponsoring RAMP Costs in the TY 2024 GRC**

**SDG&E Capital**

| Witness Area | GRC Witness | GRC Testimony Exhibit Number | 2022 Estimated RAMP ($000s) | 2023 Estimated RAMP ($000s) | 2024 Estimated RAMP ($000s) |
|---|---|---|---|---|---|
| Gas Distribution | L. Patrick Kinsella | SDG&E-04 | $ 50,410 | $ 54,855 | $ 53,512 |
| Gas Transmission Operations and Construction | Rick Chiapa, Steve Hruby | SDG&E-06 | $ 28,678 | $ 11,384 | $ 11,384 |
| Gas Integrity Management Programs | Amy Kitson, Travis Sera | SDG&E-09 | $ 81,707 | $ 86,875 | $ 107,125 |
| Electric Distribution | Olive Reyes | SDG&E-11 | $ 109,188 | $ 152,247 | $ 114,730 |
| Wildfire Mitigation and Vegetation Management | Jonathan T. Woldemariam | SDG&E-13 | $ 560,868 | $ 773,247 | $ 738,348 |
| Information Technology | William J. Exon | SDG&E-25 | $ 92,501 | $ 80,877 | $ 70,182 |
| Cybersecurity | Lance Mueller | SDG&E-26 | $ 8,424 | $ 9,660 | $ 9,660 |
| Safety & Risk Management | Kenneth J. Deremer | SDG&E-31 | $ 6,300 | $ 6,818 | $ 6,817 |
| **Total Capital - SDG&E** | | | **$ 938,076** | **$1,175,963** | **$1,111,758** |

## SoCalGas Capital

| Witness Area | GRC Witness | GRC Testimony Exhibit Number | 2022 Estimated RAMP ($000s) | 2023 Estimated RAMP ($000s) | 2024 Estimated RAMP ($000s) |
|---|---|---|---|---|---|
| Gas Distribution | Mario A. Aguirre | SCG-04 | $ 97,422 | $ 96,877 | $ 93,908 |
| Gas Transmission Operations and Construction | Rick Chiapa, Aaron Bell, Steve Hruby | SCG-06 | $ 155,865 | $ 113,858 | $ 103,503 |
| Pipeline Safety Enhancement Plan | Bill Kostelnik | SCG-08 | $ 141,509 | $ 101,920 | $ 71,698 |
| Gas Integrity Management Program | Amy Kitson, Travis Sera | SCG-09 | $ 426,534 | $ 461,853 | $ 537,893 |
| Gas Storage Operations and Construction | Larry T. Bittleston, Steve Hruby | SCG-10 | $ 111,298 | $ 82,114 | $ 83,647 |
| Real Estate & Facility Operations | Brenton Guy | SCG-19 | $ 10,821 | $ 30,939 | $ 18,615 |
| Information Technology | William J. Exon | SCG-21 | $ 132,540 | $ 123,326 | $ 109,282 |
| Cybersecurity | Lance Mueller | SCG-22 | $ 28,842 | $ 36,788 | $ 42,915 |
| **Total Capital - SoCalGas** | | | **$1,104,831** | **$1,047,675** | **$1,061,461** |

**SDG&E O&M**

| GRC Witness Area | GRC Witness | GRC Testimony Exhibit Number | 2021 Embedded Costs ($000) | TY 2024 Estimated Total ($000) | TY 2024 Estimated Incremental ($000) |
|---|---|---|---|---|---|
| Gas Distribution | L. Patrick Kinsella | SDG&E-04 | $ 23,566 | $ 28,041 | $ 4,475 |
| Gas System Staff & Technology | Wallace Rawls | SDG&E-05 | $ 91 | $ 396 | $ 305 |
| Gas Transmission Operations and Construction | Rick Chiapa, Steve Hruby | SDG&E-06 | $ 4,434 | $ 4,373 | $ (61) |
| Gas Integrity Management Programs | Amy Kitson, Travis Sera | SDG&E-09 | $ 11,026 | $ 12,768 | $ 1,742 |
| Electric Distribution O&M | Tyson Swetek | SDG&E-12 | $ 4,658 | $ 4,812 | $ 154 |
| Wildfire Mitigation and Vegetation Management | Jonathan T. Woldemariam | SDG&E-13 | $ 167,500 | $ 174,003 | $ 6,503 |
| Customer Service - Field Operations | David H. Thai | SDG&E-17 | $ 11,031 | $ 11,387 | $ 356 |
| Customer Service - Information | Sandra F. Baule | SDG&E-19 | $ 4,859 | $ 4,625 | $ (234) |
| Fleet Services | Arthur Alvarez | SDG&E-22 | $ 548 | $ 848 | $ 300 |
| Real Estate, Land Service & Facility Operations | Dale Tattersall | SDG&E-23 | $ 1,342 | $ 1,798 | $ 456 |
| Information Technology | William J. Exon | SDG&E-25 | $ 29,118 | $ 30,309 | $ 1,191 |
| Cybersecurity | Lance Mueller | SDG&E-26 | $ 13,792 | $ 16,377 | $ 2,585 |
| Corporate Center - General Administration | Derick R. Cooper | SDG&E-27 | $ 568 | $ 570 | $ 2 |
| Safety & Risk Management Systems | Kenneth J. Deremer | SDG&E-31 | $ 3,410 | $ 6,548 | $ 3,138 |
| People and Culture Department | Alexandra Taylor | SDG&E-32 | $ 1,101 | $ 1,682 | $ 581 |
| **Total O&M - SDG&E** | | | **$ 277,044** | **$298,537** | **$ 21,493** |

**SoCalGas O&M**

| GRC Witness Area | GRC Witness | GRC Testimony Exhibit Number | 2021 Embedded Costs ($000) | TY 2024 Estimated Total ($000) | TY 2024 Estimated Incremental ($000) |
|---|---|---|---|---|---|
| Gas Distribution | Mario A. Aguirre | SCG-04 | $ 79,101 | $ 72,047 | $ (7,054) |
| Gas System Staff & Technology | Wallace Rawls | SCG-05 | $ 2,738 | $ 5,009 | $ 2,271 |
| Gas Transmission Operations and Construction | Rick Chiapa, Aaron Bell, Steve Hruby | SCG-06 | $ 31,788 | $ 33,910 | $ 2,122 |
| Pipeline Safety Enhancement Plan | Bill Kostelnik | SCG-08 | $ 63,412 | $ 50,682 | $ (12,730) |
| Gas Integrity Management Programs | Amy Kitson, Travis Sera | SCG-09 | $ 167,897 | $ 224,375 | $ 56,478 |
| Gas Storage Operations and Construction | Larry T. Bittleston, Steve Hruby | SCG-10 | $ 11,622 | $ 47,443 | $ 35,821 |
| Clean Energy Innovations | Armando Infanzon | SCG-12 | $ - | $ 9,155 | $ 9,155 |
| Customer Service - Field Operations | Daniel J. Rendler | SCG-14 | $ 105,511 | $ 124,017 | $ 18,506 |
| Customer Service - Office Operations | Bernardita Sides | SCG-15 | $ 3,118 | $ 3,235 | $ 117 |
| Customer Service - Information | Brian C. Prusnek | SCG-16 | $ 1,672 | $ 3,596 | $ 1,924 |
| Fleet Services | Michael Franco | SCG-18 | $ 120 | $ 13,301 | $ 13,181 |
| Real Estate & Facility Operations | Brenton Guy | SCG-19 | $ 2,033 | $ 1,879 | $ (154) |
| Environmental Services | Albert J. Garcia | SCG-20 | $ 7,196 | $ 5,800 | $ (1,396) |
| Information Technology | William J. Exon | SCG-21 | $ 17,482 | $ 20,140 | $ 2,658 |
| Cybersecurity | Lance Mueller | SCG-22 | $ 3,850 | $ 3,935 | $ 85 |
| Corporate Center - General Administration | Derick R. Cooper | SCG-23 | $ 940 | $ 944 | $ 4 |
| Safety & Risk Management Systems | Neena N. Master | SCG-27 | $ 11,545 | $ 18,730 | $ 7,185 |
| People and Culture Department | Abigail Nishimoto | SCG-28 | $ 3,884 | $ 4,300 | $ 416 |
| **Total O&M - SoCalGas** | | | **$ 513,909** | **$ 642,498** | **$ 128,589** |

# Appendix F

# DESCRIPTION OF SOCALGAS AND SDG&E RISKS AND CROSS-FUNCTIONAL FACTORS

**Appendix F**
**Definitions of SoCalGas and SDG&E Risks**

| SoCalGas and SDG&E RAMP Risk Chapters | | |
|---|---|---|
| **Risk No.** | **Risk Name** | **Definition** |
| **SCG-Risk-1**<br>**SDG&E-Risk-3** | Incident Related to the High Pressure System (Excluding Dig-in) | The risk of failure of a high pressure pipeline which results in serious injuries, fatalities, and/or damages to the infrastructure |
| **SCG-Risk-2**<br>**SDG&E-Risk-7** | Excavation Damage (Dig-in) on the Gas System | The risk of a medium & high pressure line pipe dig-in, which results in serious injuries, fatalities and/or damages to the infrastructure |
| **SCG-Risk-3**<br>**SDG&E-Risk-9** | Incident Related to the Medium Pressure System (Excluding Dig-in) | The risk of failure of a medium pressure pipeline, which results in serious injuries, fatalities, and/or damages to the infrastructure |
| **SCG-Risk-4** | Incident Related to the Storage System (Excluding Dig-in) | The risk of damage caused to the storage system, including wells, reservoirs, and surface equipment, which results in serious injuries, fatalities and/or damages to the infrastructure |
| **SCG-Risk-5**<br>**SDG&E-Risk-8** | Incident Involving an Employee | The risk of conditions and practices of employees that may lead to an incident threatening health and safety caused by non-adherence to Company policies, procedures, and programs or by external factors |
| **SCG-Risk-6 /**<br>**SDG&E-Risk-6** | Cybersecurity | The risk of a major cybersecurity incident, which results in disruptions to energy operations (Supervisory Control And Data Acquisition (SCADA) system, supply, transmission, distribution) and/or damage or disruption to Company operations (HR, payroll, billing, customer services), reputation, or disclosure of sensitive customer or Company data |
| **SCG-Risk-7**<br>SDG&E-Risk-4 | Incident Involving a Contractor | The risk of conditions and practices of contractors that may lead to an incident threatening health and safety caused by non-adherence to Company's and/or contractor's policies, procedures and programs or by external factors |

| | | |
|---|---|---|
| **SDG&E-Risk-1** | Wildfire Involving SDG&E Equipment | The risk of catastrophic wildfire, especially those initiated by SDG&E equipment, resulting in fatalities, widespread property destruction, and multi-billion-dollar liability. Because PSPS as a mitigation has an impact on customers, the overall risk assessment is comprised of two components: the risk of a catastrophic wildfire and the PSPS impacts to customers. |
| **SDG&E-Risk-2** | Electric Infrastructure Integrity | The risk of an asset failure, caused by degradation, age, operation outside of design criteria due to unexpected events or field conditions (*e.g.*, force of nature) or an asset no longer complying with the latest engineering standards, which results in a safety or reliability incident. This risk includes underground assets in the High Fire-Threat District. |
| **SDG&E-Risk-5** | Customer and Public Safety – Contact with Electric Equipment | The threat of harm to a customer, third-party, or member of the public from making contact with in-service electrical equipment that is operating in a normal configuration. |

## Appendix F
## Definitions of SoCalGas Cross-Functional Factors

| **SoCalGas Cross-Functional Factors** | | |
|---|---|---|
| **CFF No.** | **CFF Name** | **Definition** |
| **SCG-CFF-1** | Asset and Records Management | Enterprise Asset Management (EAM) is integrated with our adoption of the national International Standards Organization (ISO) 55000 standard as a guide, and is a core component of our Safety Management Systems (SMS) organization, aligned with the American Petroleum Institute (API) 1173 recommended practice for pipeline safety |

| SoCalGas Cross-Functional Factors | | |
|---|---|---|
| **CFF No.** | **CFF Name** | **Definition** |
| **SCG-CFF-2** | Energy Resilience | The adaptation assessment and mitigation plan for the safety-related threats to gas infrastructure posed by global climate change and the resulting natural forces stemming therefrom. The importance of maintaining and investing in the gas grid to support reliability and resiliency of the energy infrastructure as well as the clean transportation, hydrogen energy storage, and other clean energy efforts and plans for SoCalGas |
| **SCG-CFF-3** | Emergency Preparedness and Response and Pandemic | The preparation to respond to potential hazard events which may impact the safe, reliable, and clean storage, transmission, and distribution of natural gas |
| **SCG-CFF-4** | Foundational Technology Systems | The criticality and necessity of providing SoCalGas a means to communicate with the public, first responders and employees. These systems are used in every aspect of operations, customer engagement, and emergency response. Included are a significant portion of the Companies' software application systems, communication networks, monitoring systems, end-user systems, and hardware and software platforms |
| **SCG-CFF-5** | Physical Security | Encompasses the systems and activities that maintain the safety of employees, contractors, vendors, the public, SoCalGas facilities, and infrastructure, through people, processes, and technology |
| **SCG-CFF-6** | Safety Management System | The implementation of its SMS is anchored in SoCalGas's Safety Values. The design of the SMS framework covers every aspect of SoCalGas's business when it comes to safety |

| SoCalGas Cross-Functional Factors | | |
|---|---|---|
| **CFF No.** | **CFF Name** | **Definition** |
| **SCG-CFF-7** | Workforce Planning / Qualified Workforce | Addresses having an appropriate number of employees with the right skills to meet business needs |

## Appendix F
## Definitions of SDG&E Cross-Functional Factors

| SDG&E Cross-Functional Factors | | |
|---|---|---|
| **CFF No.** | **CFF Name** | **Definition** |
| **SDG&E-CFF-1** | Asset Management | An enterprise-wide framework that provides a standardized approach for managing risk and safety across assets and activities. The framework integrates people, processes, data, and technology to enable data-driven decision making through governance, strategy, data consolidation and analytics, and continuous improvement. |
| **SDG&E-CFF-2** | Climate Change Adaptation, Energy System Resilience and GHG Emissions | Introduced as CFFs due to the influence they may have on certain RAMP risks. These factors are discussed by SDG&E because of their significance and to share SDG&E's policies and activities in looking at ways to mitigate certain RAMP risks. |
| **SDG&E-CFF-3** | Emergency Preparedness and Response (EP&R) and Pandemic | Describes how SDG&E's Emergency Management Department coordinates the emergency preparation and emergency operations of several internal departments and external agencies, and describes the |

| SDG&E Cross-Functional Factors | | |
|---|---|---|
| **CFF No.** | **CFF Name** | **Definition** |
| | | many activities initiated by different groups responded to the COVID-19 Pandemic. EP&R activities include planning, training, exercising, and supporting responses and recovery efforts related to incidents, emergencies, disasters, and catastrophes. |
| **SDG&E-CFF-4** | Foundational Technology Systems | The criticality and necessity of providing SoCalGas a means to communicate with the public, first responders and employees. These systems are used in every aspect of operations, customer engagement, and emergency response. Included are a significant portion of the Companies' software application systems, communication networks, monitoring systems, end-user systems, and hardware and software platforms |
| **SDG&E-CFF-5** | Physical Security | Encompasses the systems and activities that maintain the safety of employees, contractors, vendors, the public, SoCalGas facilities, and infrastructure, through people, processes, and technology |
| **SDG&E-CFF-6** | Records Management | Describes how inadequately maintained records can have impacts on employee and public safety as well as reliability. |

| SDG&E Cross-Functional Factors | | |
|---|---|---|
| **CFF No.** | **CFF Name** | **Definition** |
| **SDG&E-CFF-7** | Safety Management System | A systematic, enterprise-wide framework to manage and reduce risk and promote continuous improvement in safety performance through deliberate, routine, and intentional processes. The SMS implements Five Pillars of Safety to focus on both individual safety behaviors and process safety management, with those pillars being: (1) People Safety, (2) Asset Management, (3) Gas and Electric Operations, (4) Risk Identification and Management, and (5) Emergency Preparedness and Incident Response. |
| **SDG&E-CFF-8** | Workforce Planning / Qualified Workforce | Describes how SDG&E endeavors to maintain a workforce with the proper skills and experience in order to execute work in a manner that's safe to both employees and the public. SDG&E utilizes a decentralized workforce planning model whereby each department plans for its current and future resource needs and also identifies the necessary training that goes with those needs. |

## SoCalGas/SDG&E 2024 GRC Testimony Revision Log – November 2022

| Exhibit | Witness | Page | Line or Table | Revision Detail |
|---|---|---|---|---|
| SCG-03-R / SDG&E-03-R: Chapter 2 | Gregory S. Flores; R. Scott Pearson | RSP/GSF-D2-1 – D2-9 | SoCalGas Table in Appendix D-2 | Revised RSE w/CFF Included column |
| SCG-03-R / SDG&E-03-R: Chapter 2 | Gregory S. Flores; R. Scott Pearson | RSP/GSF-D2-2 | SoCalGas Table in Appendix D-2 | Revised "C15-T1-T4" to "C16-T1-T4" and revised "Public Awareness (MP)" to "Public Awareness (HP);"<br>Added "MP" to the Control/Mitigation Name of "Automate Third Party Excavation Incident Reporting;"<br>Removed C17 Main & Service Leak Repair |
| SCG-03-R / SDG&E-03-R: Chapter 2 | Gregory S. Flores; R. Scott Pearson | RSP/GSF-D2-3 | SoCalGas Table in Appendix D-2 | Revised "C16-T1-T4" to "C15-T1-T4" and revised "Public Awareness (HP)" to "Public Awareness (MP)" |