

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  
SDG&E-03-R: Chapter 2-R

**SDG&E**  
**(RISK MANAGEMENT TESTIMONY VOLUME)**

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

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**REVISED**  
**PREPARED DIRECT TESTIMONY OF**  
**GREGORY S. FLORES AND R. SCOTT PEARSON**  
**(CHAPTER 2: RAMP TO GRC INTEGRATION)**

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



August 2022

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

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**May 2022**

## TABLE OF CONTENTS

I.	INTRODUCTION .....	1
A.	Summary of Testimony .....	1
B.	Support To/From Other Witnesses .....	4
C.	Organization of Testimony .....	4
II.	SDG&E MANAGEMENT OF RISKS.....	4
A.	SDG&E’s Risk Policies, Practices and Framework Mirrors the Commission’s Risk-Informed Approach.....	4
B.	Ownership of Risks.....	7
C.	Enterprise Risk Management.....	9
D.	Asset Management.....	10
E.	Integration of Risk, Asset, and Investment Management.....	10
F.	Wildfire Risk Management.....	11
G.	Safety Management System (SMS).....	12
H.	Emergency Management.....	15
III.	FULFILLING COMMITMENTS .....	16
IV.	FUTURE COMMITMENTS .....	20
V.	CONCLUSION.....	26
VI.	WITNESS QUALIFICATIONS.....	27

## APPENDICES

Appendix A – Glossary of Terms.....	MMS-A-1
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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)<sup>1</sup>, 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<sup>2</sup> and the TY 2019 Safety Policy rebuttal testimony of David L. Buczkowski and David L. Geier,<sup>3</sup> 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.

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

<sup>2</sup> A.17-10-007/008, SDG&E-02-R.

<sup>3</sup> 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.

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**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),<sup>4</sup> 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.<sup>5</sup>

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).<sup>6</sup>

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<sup>4</sup> D.18-12-014.

<sup>5</sup> Rulemaking (R.) 20-07-013.

<sup>6</sup> D.16-08-018 at 195 (Ordering Paragraph (OP) 4).

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



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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.<sup>7</sup>
- **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<sup>8</sup> 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.

<sup>7</sup> ISO 55001.

<sup>8</sup> D.18-12-014 at 2, 67-68.

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

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

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

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

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<sup>9</sup> See Direct Testimony of Kenneth J. Deremer (Ex. SDG&E-31) for identified SMS mitigations.

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

3 **B. Support To/From Other Witnesses**

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

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

17 **C. Organization of Testimony**

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

22 **II. SDG&E MANAGEMENT OF RISKS**

23 **A. SDG&E’s Risk Policies, Practices and Framework Mirrors the**  
24 **Commission’s Risk-Informed Approach**

25 SDG&E has long recognized the importance of having an ERM process that prioritizes  
26 safety and reliability. This is consistent with the Commission’s risk-informed approach to the  
27 GRC. In the Settlement Decision,<sup>10</sup> the CPUC established the minimum required elements for

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<sup>10</sup> D.18-12-014 at 2.

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

- 3 • Capture Risks in an Enterprise Risk Register,
- 4 • Build a Multi-Attribute Value Function (MAVF),
- 5 • Assess and Rank Risks in Preparation for RAMP,
- 6 • Select Enterprise Risks for RAMP, and
- 7 • Analyze Mitigations for Inclusion in RAMP.<sup>11</sup>

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

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

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<sup>11</sup> *Id.*

<sup>12</sup> A.21-05-011, SDG&E 2021 RAMP Report at SDG&E-RAMP-B, Enterprise Risk Management Framework.

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

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

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

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<sup>13</sup> D.18-12-014.

<sup>14</sup> 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.

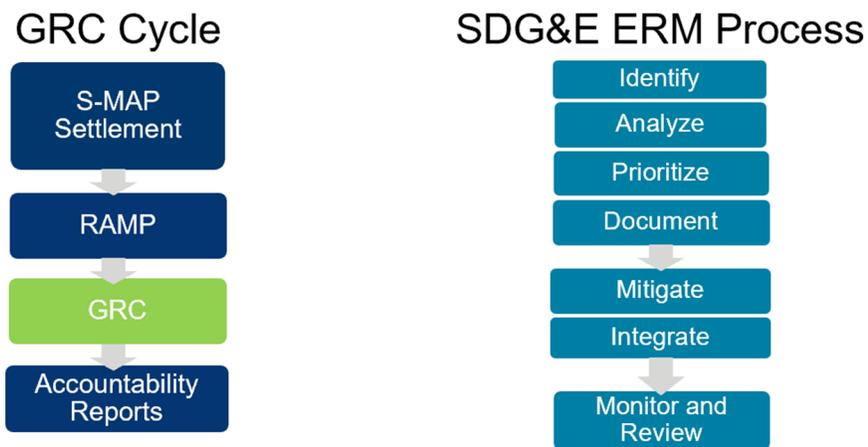
<sup>15</sup> See Ex. SDG&E-31 at Section III (Sustainability and Safety Culture).

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

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

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

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



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15 **B. Ownership of Risks**

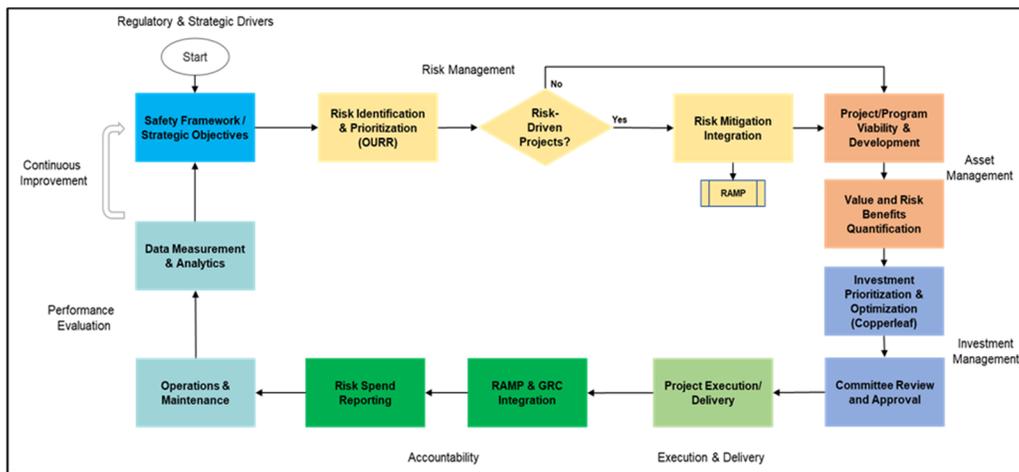
16 SDG&E believes, consistent with ISO 31000, to be effective, risk management must be  
17 integrated into the organization's culture. At SDG&E, the integration is accomplished in several  
18 ways. As noted above, the operating units are responsible for identifying, assessing, developing,  
19 and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

<sup>16</sup> 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).

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

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

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



13  
 14 On a regular basis operating units review their risks to reflect the most current  
 15 information regarding their risks. This best practice to managing risks is reflected in the GRC  
 16 testimony, where witnesses testify about their risks and the controls/mitigations adopted to  
 17 reduce SDG&E’s overall risks. In addition, and consistent with the approach of operating units  
 18 owning risks, SDG&E’s SMS (described below) has adopted a decentralized model where  
 19 leadership within each operating unit drive safety and retain risk ownership and accountability.  
 20 In this decentralized model, the operating units retain ownership and accountability over their  
 21 respective risks, mitigations, processes, and occupational safety measures.

### 1           **C.     Enterprise Risk Management**

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

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

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

21           The methodology SDG&E uses to create the OURRs includes meeting with the  
22 operating units to identify and develop drivers, triggers, and controls for operating unit level  
23 risks. These risks are scored using similar ERR scoring attributes. After identifying the  
24 applicable operating unit level risks, mitigations are identified and prioritized.

25           The participants, using quantitative and qualitative tools, estimate the risk reduction benefit and  
26 the cost associated with the mitigation, as well as potential metrics that could be used to monitor  
27 the effectiveness of the identified mitigations. ERM, with the input from the operating units,  
28 evaluates relationship links between each OURR to the applicable ERR risks to ensure the  
29 significant OURR risks are captured in the ERR. The OURRs are refreshed annually.

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

1           **D.     Asset Management**

2           Mr. Deremer’s testimony<sup>17</sup> captures the capital and operating costs required to support  
3 SDG&E’s implementation of asset management. SDG&E’s approach to asset management, as  
4 described in Mr. Deremer’s testimony,<sup>18</sup> is grounded in several principles including:

- 5           • Data science, data analytics, and quantitative analysis, which creates the foundation  
6           for asset management decisions.
- 7           • The asset management program is an integral part of SDG&E’s safety, wildfire,  
8           and risk management initiatives and to the Company’s Integrated Operating Model.
- 9           • SDG&E’s asset management program will continue to align to the tenets of ISO  
10          55000.
- 11          • The asset management program is an enterprise-wide effort.

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

15           **E.     Integration of Risk, Asset, and Investment Management**

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

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<sup>17</sup> Ex. SDG&E-31 at Section IV (Non-Shared O&M Costs).

<sup>18</sup> *Id.*

<sup>19</sup> TY 2019 GRC Ex. SDG&E-02-R at DD-ii; DD-21 (Figure DD-3).

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

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

#### 10 **F. Wildfire Risk Management**

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

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

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<sup>20</sup> 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 \(sdgenews.com\)](https://www.sdgenews.com/news/sdg-e-announces-wildfire-safety-and-resiliency-advancements-for-2021-wildfire-season).

<sup>21</sup> 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.”

<sup>22</sup> Ex. SDG&E-13.

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

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

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

14 In its TY 2019 GRC, SDG&E expressed its intent to implement an SMS for SDG&E’s  
15 gas and electric operations.<sup>25</sup> SDG&E witnesses testified that they “see the value in continuous  
16 improvement and are now seeking to more formally implement a safety framework that  
17 incorporates existing and new safety measures through a pipeline SMS and its related tenets (*i.e.*,  
18 API 1173) in the context of this GRC for their Gas operations.”<sup>26</sup> In approving SDG&E’s TY  
19 2019 GRC, the CPUC set forth its “support... for the improvement of Applicants’ safety  
20 management and safety performance.”<sup>27</sup> Therefore, in 2019, SDG&E began the strategic  
21 initiative to develop an SMS for both its gas and electric operations.<sup>28</sup>

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<sup>23</sup> 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>.

<sup>24</sup> Ex. SDG&E-13.

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

<sup>26</sup> *Id.* at DLB/DLG-5.

<sup>27</sup> D.19-09-051 at 23.

<sup>28</sup> Refer to Ex. SDG&E-31, Appendix KJD-C, Demonstration of SDG&E’s Safety Management System Development.

1 The leading guidance on safety management systems comes from the American  
2 Petroleum Institute (API) with the adoption of Recommended Practice API 1173 (API 1173).<sup>29</sup>  
3 SDG&E utilized and adapted the ten tenets of API 1173 to develop a SMS applicable to both  
4 electric and gas utilities. The SMS moves SDG&E forward in its journey towards “Target  
5 Zero.”<sup>30</sup>

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

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

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<sup>29</sup> API RP 1173, Pipeline Safety Management Systems (2015).

<sup>30</sup> “Target Zero” is SDG&E’s goal and mindset to achieve an incident-free work environment.

<sup>31</sup> A.21-05-011, SDG&E 2021 RAMP Report at SDG&E-RAMP-D (Section IV. Safety Culture).

<sup>32</sup> 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.

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

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

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

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

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

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

## 10 **H. Emergency Management**

11 In SDG&E’s risk management framework, the risk bowtie plays two critical roles.<sup>36</sup>  
12 Through its preparedness initiatives Emergency Management address the left-hand side of the  
13 risk bowtie by supporting the “prevention of an incident.” Emergency Management is also  
14 critical to the right-hand side in that an effective emergency management organization reduces  
15 the “consequence on an incident.” SDG&E’s investments in community outreach, first  
16 responder training, and emergency management systems are focused on meeting these roles.

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

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<sup>34</sup> 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>.

<sup>35</sup> *Id.*

<sup>36</sup> 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.

1 Crews to reduce the consequence of incidents. Mr. Woldemariam’s testimony describes the  
2 initiatives and on-going expenditures associated with Emergency Management.<sup>37</sup>

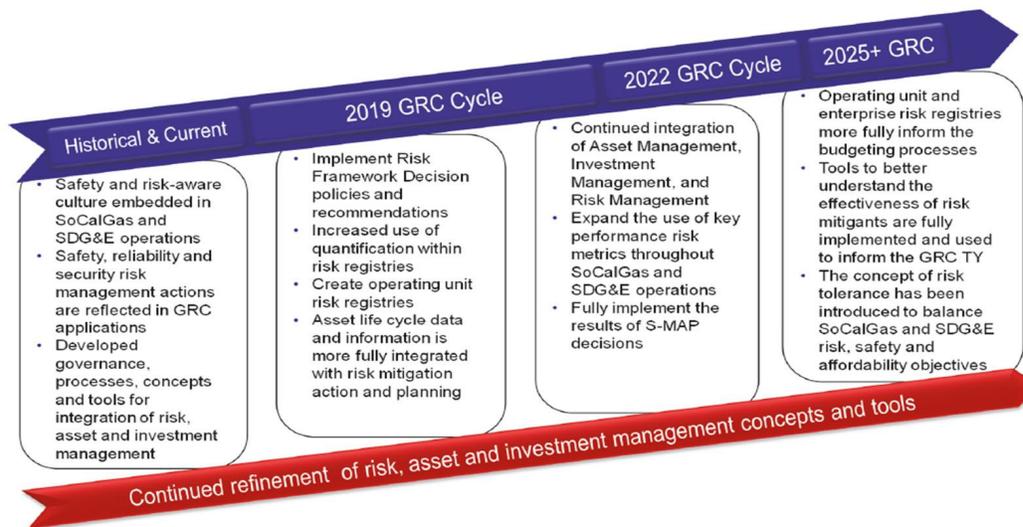
3 **III. FULFILLING COMMITMENTS**

4 In the TY 2019 GRC, SDG&E witnesses made certain commitments related to risk,  
5 safety, asset, and investment management. For instance, in her Risk Policy testimony, Ms. Day,  
6 made certain commitments, as did Messrs. Buczkowski and Geier in their Safety Policy  
7 testimony.<sup>38</sup>

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

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

**SoCalGas and SDG&E Strategic Planning Trajectory**  
(Integrating Risk, Asset and Investment Management)



11 Messrs. Geier and Buczkowski, also made the following commitments in their TY 2019  
12 GRC testimony.<sup>39</sup>

- 13
- 14 • Increase focus on “process safety” as compared to occupational health and safety.
  - 15 • Implement a Safety Management System (SMS) for SoCalGas Gas Operations,  
16 SoCalGas Underground Storage, and SDG&E Gas and Electric Operations.

<sup>37</sup> Ex. SDG&E-13.

<sup>38</sup> TY 2019 GRC Rebuttal Testimony of Messrs. Buczkowski and Geier (Ex. SDG&E-252).

<sup>39</sup> *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<sup>40</sup>  
PRIOR COMMITMENTS**

<b>Commitment</b>	<b>Completion Date</b>	<b>Status</b>	<b>Comment</b>
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

<sup>40</sup> 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.

<b>Commitment</b>	<b>Completion Date</b>	<b>Status</b>	<b>Comment</b>
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.

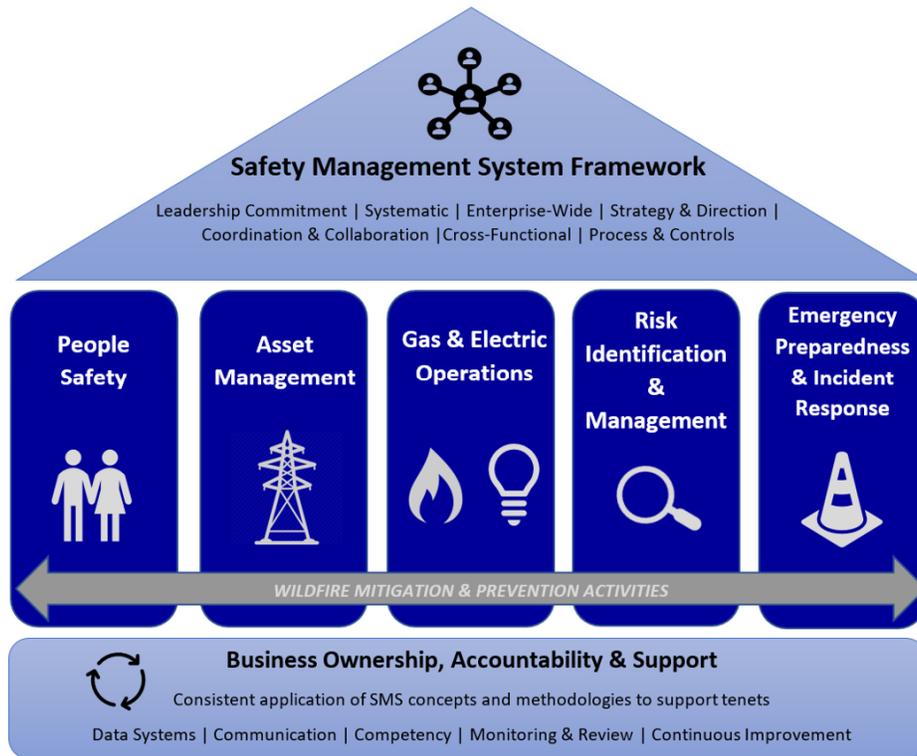
1 **IV. FUTURE COMMITMENTS**

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

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

1  
2

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



3

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,

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

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

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

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

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

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

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

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

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

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

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

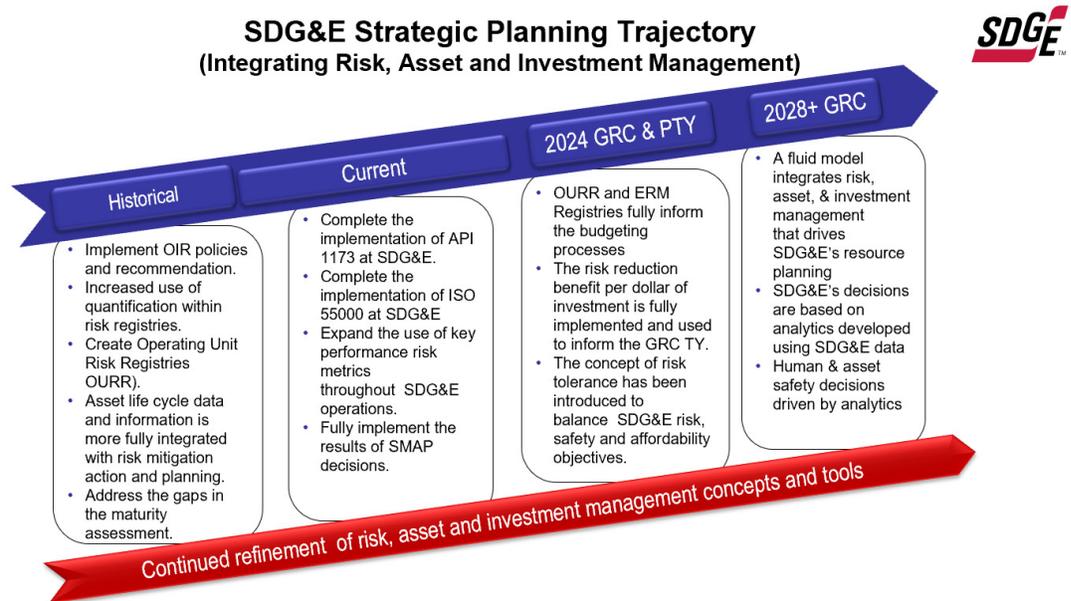
27 In partnership with future technology innovations, such as the use of unmanned aerial  
28 vehicles and IIP, SDG&E will begin using its risk models, asset health information, and data  
29 science capabilities to transition from a traditional scheduled-based method for inspections to an  
30 innovative, risk-informed approach that supports safety, reliability, and financial commitments.  
31 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+**



18

1 **V. CONCLUSION**

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

1 **VI. WITNESS QUALIFICATIONS**

2 My name is Michael M. Schneider, and my business address is 8330 Century Park Court,  
3 San Diego, California 92123. I am currently employed by SDG&E as the Vice President of Risk  
4 Management and Chief Compliance Officer. My current responsibilities include risk  
5 identification, mitigation, quantification, and financial frameworks, in addition to compliance  
6 and energy risk management plus overseeing asset management. I also co-lead the safety  
7 management system along with SDG&E's chief safety officer. I assumed my current position in  
8 2019. Prior to this, I served as Vice President—Clean Transportation and Asset Management  
9 where I was responsible for clean transportation, asset management, growth and technology  
10 integration, strategic planning and business optimization since 2018. Previously, I served as  
11 Vice President – Operations Support and Chief Environmental Officer for SoCalGas and  
12 SDG&E, since 2014. Prior to that, I was Vice President – Customer Operations since 2010,  
13 where my responsibilities included managing Customer Operations, including billing,  
14 collections, customer contact center, meter reading, remittance processing, and credit. Prior to  
15 2010, I served as the Director of Financial Strategy and Analysis for SDG&E and Southern  
16 California Gas Company. In that position, I was responsible for financial and economic  
17 assessment of the utilities' business functions and activities related to operations, capital  
18 investments, financing, and regulatory proceedings.

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

28 I received a Bachelor of Economics degree from the University of Arizona in 1987. In  
29 1990, I received a Master of Business Administration from George Mason University with an  
30 emphasis in finance and accounting.

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

**APPENDIX A**  
**GLOSSARY OF TERMS**

**APPENDIX A**  
**Glossary of Terms**

<b>Acronym</b>	<b>Definition</b>
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**

**REVISED**

**PREPARED DIRECT TESTIMONY OF  
GREGORY S. FLORES AND R. SCOTT PEARSON  
(CHAPTER 2-R: RAMP TO GRC INTEGRATION)**

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-R/SDG&E-03-R: Chapter 2-R

**REVISED**

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

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



August 2022

## TABLE OF CONTENTS

I.	INTRODUCTION .....	1
	A. Summary of Testimony.....	1
	B. Organization of Testimony .....	2
	C. Support To/From Other Witnesses .....	3
II.	SUMMARY OF THE COMPANIES’ 2021 RAMP REPORTS.....	4
	A. RAMP Risks and RAMP Cross-Functional Factors.....	4
	B. Quantitative Analysis.....	5
	C. Compliance with the Settlement Decision.....	7
III.	THE COMPANIES’ PROCESS FOR INCORPORATING RAMP INTO THE TEST YEAR 2024 GRC .....	8
	A. Develop a RAMP Based Mitigation Portfolio as Part of the TY 2024 GRC .....	8
	1. Revise the Multi-Attribute Value Framework as Part of the GRC Based Mitigation Analyses.....	8
	2. Identify the Mitigations in the RAMP Report that Should be Evaluated for Inclusion in the GRC, Including the Identification of Applicable Tranches .....	9
	3. Recalibrate Baseline Year and Historical Data.....	11
	4. Calculate RSE Values for Mitigations.....	12
	5. Consideration of RSE Values .....	14
	6. Identify Each RAMP Mitigation and Associated Funding Request as Part of the Applicable Witness Testimony and Workpaper .....	15
	7. Compliance with Commissioner Houck’s March 30, 2022 Ruling.....	16
	B. Incorporation of the RAMP Forecast into the GRC Request .....	18
	1. Example Presentations.....	18
	2. The Settlement Decision’s Number 28: Step 3 Supplemental Analysis...	22
	C. Develop a Roadmap of the 2021 RAMP TO TY 2024 GRC Integration.....	22
	1. Stakeholder Recommendations and the Companies’ Response .....	22
	2. Mapping and Comparison Tables.....	23
IV.	CONCLUSION.....	24
V.	WITNESS QUALIFICATIONS.....	25

**APPENDICES**

Appendix A – Glossary of Terms ..... RSP/GSF -A-1

Appendix B – Stakeholder Feedback and Companies Responses ..... RSP/GSF -B-1

Appendix C – Multi-Value Attribute Framework Used in the 2021 GRC .....RSP/GSF-C2-1

Appendix D1 – List of Risk Mitigations Sorted by RSE Value  
Excludes CFF Allocation..... RSP/GSF-D-1

Appendix D2 – List of Risk Mitigations Sorted By RSE Value  
Includes CFF Allocation..... RSP/GSF-D2-1

Appendix E1 – 2021 RAMP to TY 2024 Mapping .....RSP/GSF-E1-1

Appendix E2 – Mapping Of GRC Witnesses Sponsoring RAMP  
Costs In The TY 2024 GRC.....RSP/GSF -E2-1

Appendix F – Description of SoCalGas and SDG&E Risks and  
Cross-Functional Factors ..... RSP/GSF – F-1

Revision Log .....Log-1

## 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.



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

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

### 13 C. Organization of Testimony

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

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

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<sup>6</sup> SDG&E and SoCalGas 2021 RAMP Reports.

<sup>7</sup> 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.

<sup>8</sup> 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).

1           **D.     Support To/From Other Witnesses**

2           The testimonies of Ms. Ng<sup>9</sup> and Mr. Schneider,<sup>10</sup> provide the background regarding  
3 SoCalGas’s and SDG&E’s respective Risk Management Frameworks. For specific cost  
4 forecasts and funding requests, please refer to the following testimony and exhibits:

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

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<sup>9</sup> SoCalGas Risk Management Policy (Ex. SCG-03, Chapter 1).

<sup>10</sup> SDG&E Risk Management Policy (Ex. SDG&E-03, Chapter 1).

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

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

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

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

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

3  
 4

**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	

5 **B. Quantitative Analysis**

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

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<sup>11</sup> D.18-12-014.

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

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

12 The 2021 RAMP Reports used 2020 as the “baseline” year to calculate the RSE value  
13 using dollars and benefits forecast during the 2022-2024 GRC period for planned mitigations. A  
14 2020 baseline represents the last full year of historical data and aligns with the forecast period for  
15 the TY 2024 GRC.

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

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<sup>12</sup> *Id.* at 14, 33.

<sup>13</sup> 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.

<sup>14</sup> 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>.

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

### 9 C. Compliance with the Settlement Decision

10 In their 2021 RAMP Reports,<sup>16</sup> the Companies described how their 2021 RAMP Reports  
11 follow the required steps of the Settlement Decision, which are to:

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

17 The 2021 RAMP Reports describe how SDG&E and SoCalGas complied with each of  
18 these steps and other requirements.<sup>17</sup>

19 In November 2021, the SPD issued an Evaluation Report containing recommendations  
20 that could be made to the Companies' RAMP presentation prior to being integrated into the TY  
21 2024 GRC. Examples of SPD and party recommendations include eliminating the Stakeholder  
22 Satisfaction attribute from the MAVF, allocating cross functional foundational costs, increasing  
23 the number of tranches used, and adjusting the baseline for costs from 2020 to 2023. On March  
24 30, 2022, Commissioner Houck issued a ruling directing the Companies to incorporate certain

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<sup>15</sup> *Id.* at 14.

<sup>16</sup> 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.

<sup>17</sup> D.18-12-014 at 33-35.

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

### 5 **III. THE COMPANIES' PROCESS FOR INCORPORATING RAMP INTO THE** 6 **TEST YEAR 2024 GRC**

7 To integrate the RAMP process into this GRC, SoCalGas and SDG&E translated the risk  
8 mitigations and CFF initiatives, updated the activities as applicable, and performed quantitative  
9 analysis, and incorporated party feedback from the RAMP proceeding. In their respective TY  
10 2024 GRC applications, the Companies have included specific requests related to the activities  
11 presented in their respective 2021 RAMP Reports. To incorporate the RAMP mitigation  
12 activities into their GRCs, the Companies took the following steps:

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

16 Each step is discussed in further detail below.

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

##### 18 **1. Revise the Multi-Attribute Value Framework as Part of the GRC** 19 **Based Mitigation Analyses**

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

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<sup>18</sup> 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).

<sup>19</sup> The Acres Burned sub-attribute is specific to SDG&E's MAVF.

1 Counts, and Electric Outage Duration.<sup>20</sup> The MAVF attributes, weighing, units and ranges used  
2 in the 2021 RAMP were used in the TY 2024 GRC analyses except as follows:

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

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

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

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

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

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

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<sup>20</sup> The Electric Outage Count and Electric Outage Duration sub-attributes are specific to SDG&E’s MAVF.

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

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

- 9 • **SDG&E - Wildfire risk**: Five additional tranche levels were included for the  
10 PSPS Tier 3 HFTD and for Tier 2 HFTD analyses: Standby Power Program,  
11 Generator Grant Program, Generator Assistance Program, Resilience Program  
12 Microgrid, and PSPS Sectionalizing.
- 13 • **SDG&E & SoCalGas – High Pressure Incidents**: Two additional tranche levels  
14 were included: Transmission – Supply Line and Transmission – Facilities.
- 15 • **SDG&E & SoCalGas – Medium Pressure Incidents**: Ten additional tranche  
16 levels were included: Supply Line, Main: Steel, Main: Plastic, Service: Steel,  
17 Service: Plastic, Main: Steel & Plastic, Service: Steel & Plastic, Steel: Main &  
18 Service, Plastic: Main & Service, and Meter and Beyond.
- 19 • **SDG&E – Electric Infrastructure Integrity**: Four additional tranche levels  
20 were included: OH Distribution, UG Distribution, Substation, and  
21 Manhole/Handhole.
- 22 • **SoCalGas – Storage**: Three additional tranche levels were included:  
23 Aboveground Piping, Aboveground Facilities, and Underground Components.
- 24 • **SDG&E & SoCalGas – Employee Incident and Contractor Incident**: Two  
25 additional tranche levels were included: Vehicle Incident and Non-Vehicle  
26 Incident.

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

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

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

### 7 **3. Recalibrate Baseline Year and Historical Data**

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

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

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

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

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

1                                   **4.       Calculate RSE Values for Mitigations**

2                   The Companies reviewed all current and newly planned activities to evaluate the  
3 usefulness and ability to calculate an RSE value. The Companies calculated an RSE for each  
4 mitigation at the identified tranche level, where feasible. In addition, the Companies developed  
5 both pre- and post-mitigation LoRE and CoRE values for all tranches, as reflected in the  
6 Companies’ response to SPD’s recommendation.<sup>21</sup>

7                                   **a.       Changes in the Calculations of RSE Values**

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

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

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<sup>21</sup> 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.<sup>22</sup> 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

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<sup>22</sup> These numbers do not include CFF activities.

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

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

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

#### 15 **v. Cross-Functional Factors**

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

### 23 **5. Consideration of RSE Values**

24 The Companies reviewed the RSEs in preparing their TY 2024 GRCs. As stated in the  
25 2021 RAMP Reports, RSEs do have value, but should be considered as a single data point, rather  
26 than the sole source for risk-informed decision-making.<sup>23</sup> Conceptually, RSEs can be useful  
27 tools to assist in decision-making, and SoCalGas and SDG&E support their use and refinement.

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<sup>23</sup> 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.

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

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

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

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

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<sup>24</sup> 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](https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/safety-policy-division/reports/sed_ramp_evaluation_pge_033018a.pdf).

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

#### 16 **7. Compliance with Commissioner Houck’s March 30, 2022 Ruling**

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

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<sup>25</sup> The RSE workpapers will be available to parties upon request, in accordance with Commission procedures, via the Companies’ newly established GRC discovery portal.

<sup>26</sup> *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).



1 **B. Incorporation of the RAMP Forecast into the GRC Request**

2 **1. Example Presentations**

3 **a. RAMP by Risk and CFF**

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

11 **Sample Table RSP/GSF-1:**  
12 **RAMP O&M Dollars (\$2021) by RAMP Risk and CFF**  
13

<b>SoCalGas Distribution</b>	<b>BY 2021 Embedded Costs (\$000)</b>	<b>TY 2024 Total (\$000)</b>	<b>TY 2024 Estimated Incremental (\$000)</b>
<b>RAMP Report Chapter</b>			
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
<b>RAMP Report Cross-Functional Factor (CFF) Chapter</b>			
SCG-CFF-1 Asset and Records Management	0	250	250
Sub-Total	0	250	250
<b>Total RAMP O&amp;M Costs</b>	<b>79,101</b>	<b>72,047</b>	<b>-7,054</b>

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

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

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

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

<b>SDG&amp;E GAS DISTRIBUTION</b>	<b>2022 Estimated RAMP Total (000s)</b>	<b>2023 Estimated RAMP Total (000s)</b>	<b>2024 Estimated RAMP Total (000s)</b>	<b>2022-2024 Estimated RAMP Total (000s)</b>
<b>RAMP Risk Chapter</b>				
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
<b>Sub-total</b>	<b>49,337</b>	<b>53,460</b>	<b>52,127</b>	<b>154,924</b>
<b>RAMP Cross-Functional Factor (CFF) Chapter</b>				
SDG&E-CFF-6 Records Management	1,298	1,395	1,385	4,078
<b>Sub-total</b>	<b>1,298</b>	<b>1,395</b>	<b>1,385</b>	<b>4,078</b>
<b>Total RAMP Capital Costs</b>	<b>50,410</b>	<b>54,855</b>	<b>53,512</b>	<b>159,002</b>

8 Similar to the sample O&M RAMP table, the sample capital RAMP table illustrated  
9 above presents the witness's applicable RAMP dollars by risk and CFF. In this case, Mr.  
10 Kinsella is sponsoring costs related to the SDG&E RAMP risks of High Pressure, Excavation  
11 Damage, and Medium Pressure Incidents, and the Records Management CFF. The sample  
12 capital table includes the funding request for each of the GRC forecast years (2022-2024) and the  
13 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**

<b>RAMP ID</b>	<b>Activity</b>	<b>Description</b>
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<sup>29</sup>**

<b>ELECTRIC DISTRIBUTION RAMP Activity Capital Forecasts by Workpaper (In 2021 \$)</b>						
<b>Workpaper</b>	<b>RAMP ID</b>	<b>Description</b>	<b>2022 Estimated RAMP Total (000s)</b>	<b>2023 Estimated RAMP Total (000s)</b>	<b>2024 Estimated RAMP Total (000s)</b>	<b>GRC RSE*†</b>
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 “-”.

<sup>29</sup> 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.



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 include 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

1  
2                   **2. Mapping and Comparison Tables**

3                   Attached as appendices to this testimony are the following tables:

4                   **Appendix D: Mitigations by RSE value**

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

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

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

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

5 **IV. CONCLUSION**

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

12 This concludes our prepared direct testimony.  
13

1 **V. WITNESS QUALIFICATIONS**

2 **Scott Pearson**

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

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

11 I have previously testified before the Commission.

12 **Gregory Flores**

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

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

20 I have previously testified before the Commission.

21

**APPENDIX A**  
**GLOSSARY OF TERMS**

**APPENDIX A**  
**Glossary of Terms**

<b>Acronym</b>	<b>Definition</b>
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<sup>1</sup>**

<b>Abbreviated Citation:</b>	<b>Full Citation:</b>
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)

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<sup>1</sup> 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	<p>Urges SDG&amp;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.</p> <p>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.</p>	<p>SDG&amp;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.</p>
Cal Adv.	Opening Comments at 11	<p>Urges SDG&amp;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.</p>	<p>SDG&amp;E has identified several areas in its PSPS impacts to customer modeling for improvements and is continuing to evaluate and explore them.</p>
Cal Adv.	Opening Comments at 8	<p>SDG&amp;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.</p>	<p>SDG&amp;E is planning to update the referenced analysis by early 2023 using results of its upcoming climate change vulnerability assessment.</p>
Cal Adv.	Opening Comments at 9	<p>If updating the analysis in time for the TY 2024 GRC filing is not possible, then SDG&amp;E should seek permission to file supplemental testimony with the updated analysis as soon as it is ready for the same purpose</p>	<p>SDG&amp;E is planning to update the referenced analysis by early 2023 using results of its upcoming climate change vulnerability assessment.</p>

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.

<b>Party</b>	<b>Citation</b>	<b>SPD/Party Feedback</b>	<b>SoCalGas/SDG&amp;E Response</b>
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.

<b>Party</b>	<b>Citation</b>	<b>SPD/Party Feedback</b>	<b>SoCalGas/SDG&amp;E Response</b>
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.

<b>Party</b>	<b>Citation</b>	<b>SPD/Party Feedback</b>	<b>SoCalGas/SDG&amp;E Response</b>
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 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
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.	<p>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.</p> <p>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.</p>
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
			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
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
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
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
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. 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.

<b>Party</b>	<b>Citation</b>	<b>SPD/Party Feedback</b>	<b>SoCalGas/SDG&amp;E Response</b>
			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.

<b>Party</b>	<b>Citation</b>	<b>SPD/Party Feedback</b>	<b>SoCalGas/SDG&amp;E Response</b>
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
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: Scope 1 – Direct GHG emissions from sources SoCalGas controls, for example, Company vehicles, Company facilities’ combustion equipment, the natural gas transmission and distribution systems; Scope 2 – Indirect GHG emissions associated with the generation of purchased electricity consumed by SoCalGas; and, 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.

<b>Party</b>	<b>Citation</b>	<b>SPD/Party Feedback</b>	<b>SoCalGas/SDG&amp;E Response</b>
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
		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
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
		<p>a minimum, more granular tranches could include, for example, office-only employees and field employees. SDG&amp;E may then find it appropriate to provide additional granularity for field employees by tranching this group by specific duties performed.</p>	
SPD	Evaluation Report at 85	<p>SPD recommends SDG&amp;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.</p>	<p>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&amp;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&amp;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.</p>

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>i.e.</i> , 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
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
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
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.

<b>Party</b>	<b>Citation</b>	<b>SPD/Party Feedback</b>	<b>SoCalGas/SDG&amp;E Response</b>
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>i.e.</i> , 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
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
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
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.

<b>Party</b>	<b>Citation</b>	<b>SPD/Party Feedback</b>	<b>SoCalGas/SDG&amp;E Response</b>
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.	<p>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.</p> <p>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.</p>
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 TY2024 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 its 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.	<p>The CSF&amp;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.</p> <p>CSRs also receive annual training on several different subjects, such as Safety, Bill Investigations, Affiliate Compliance, and FACTA.</p>

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**

<b>Risk Chapter</b>	<b>Risk</b>	<b>ID</b>	<b>Control/Mitigation Name</b>	<b>2024 Total Cost (\$M)</b>	<b>RSE</b>	<b>Activity Impact</b>
SCG-RISK-3	MP	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	MP	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	MP	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	MP	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	C15-T1-T4	Public Awareness (MP)	\$ 0.1	115	Maintains
SCG-RISK-3	MP	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-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
SCG-RISK-3	MP	C22	DIMP: GIPP- Medium Pressure and High pressure	\$ 16.5	36	Reduces

Risk Chapter	Risk	ID	Control/Mitigation Name	2024 Total Cost (\$M)	RSE	Activity Impact
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	MP	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	C16-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-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
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

Risk Chapter	Risk	ID	Control/Mitigation Name	2024 Total Cost (\$M)	RSE	Activity Impact
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	MP	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
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

Risk Chapter	Risk	ID	Control/Mitigation Name	2024 Total Cost (\$M)	RSE	Activity Impact
SCG-RISK-4	STOR	C06	Compressor Overhauls	\$ 15.3	1	Maintains
SCG-RISK-3	MP	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	MP	C19_T1	Main Replacements- Leakage, Abnormal Op. Conditions, CP Related	\$ 2.2	0.5	Maintains
SCG-RISK-3	MP	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**

<b>Risk Chapter</b>	<b>Risk</b>	<b>ID</b>	<b>Control/Mitigation Name</b>	<b>2024 Total Cost (\$M)</b>	<b>RSE</b>	<b>Activity Impact</b>
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 (VIPPP)	\$ 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**

<b>Risk Chapter</b>	<b>Risk</b>	<b>ID</b>	<b>Control/Mitigation Name</b>	<b>2024 Total Cost w/CFF (\$M)</b>	<b>RSE w/CFF Included</b>	<b>Activity Impact</b>
SCG-RISK-3	MP	C09	Pipeline Monitoring (Bridge & Span)	\$ 0.1	697	Maintains
SCG-RISK-1	HP	C01-T1	Cathodic Protection - Capital - HCA	\$ 2.6	592	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	576	Maintains
SCG-RISK-3	MP	C04_T1	M&R Station and EPM Inspection and Maintenance	\$ 0.8	568	Maintains
SCG-RISK-1	HP	C02-T1	Cathodic Protection - Maintenance - HCA	\$ 0.5	479	Maintains
SCG-RISK-3	MP	C11	Pipeline Monitoring	\$ 0.01	393	Maintains
SCG-RISK-1	HP	C06-T1	Shallow/Exposed Pipe Remediations - HCA	\$ 1.3	350	Maintains
SCG-RISK-1	HP	C04-T1	Leak Survey & Patrol - HCA	\$ 0.8	343	Maintains
SCG-RISK-6	CYBER	C04	Operational Technology (OT) Cybersecurity	\$ 6.2	331	Maintains
SCG-RISK-1	HP	C01-T2	Cathodic Protection - Capital - Non-HCA	\$ 5.2	327	Maintains
SCG-RISK-1	HP	C07-T2	Pipeline Maintenance - Non-HCA	\$ 0.6	301	Maintains
SCG-RISK-1	HP	C13-T1	M&R Station - Maintenance - HCA	\$ 0.8	268	Maintains
SCG-RISK-1	HP	C02-T2	Cathodic Protection - Maintenance - Non-HCA	\$ 1.0	252	Maintains
SCG-RISK-3	MP	C10_T2	Pipeline Monitoring	\$ 0.1	236	Maintains
SCG-RISK-1	HP	C06-T2	Shallow/Exposed Pipe Remediations - Non-HCA	\$ 2.6	214	Maintains
SCG-RISK-3	MP	C07_T1	EPM Installations & Replacements	\$ 0.3	211	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	144	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	141	Maintains
SCG-RISK-6	CYBER	C01	Perimeter Defenses	\$ 14.3	120	Maintains
SCG-RISK-3	MP	C06	MSA Inspection and Maintenance	\$ 1.6	117	Maintains
SCG-RISK-6	CYBER	C05	Obsolete IT Infrastructure and Application Replacement	\$ 8.9	116	Maintains
SCG-RISK-2	Dig-in	M02	Automate Third Party Excavation Incident Reporting	\$ 0.02	114	Maintains
SCG-RISK-4	STOR	C05_T3	Storage Field Maintenance - Underground Components	\$ 5.4	105	Maintains
SCG-RISK-3	MP	C20	DIMP: Distribution Riser Inspection Project (DRIP)	\$ 26.7	104	Reduces
SCG-RISK-2	Dig-in	C15-T1-T4	Public Awareness (MP)	\$ 0.1	104	Maintains
SCG-RISK-3	MP	C05_T1	Regulator Station Installation & Replacement	\$ 0.3	103	Reduces
SCG-RISK-6	CYBER	C02	Internal Defenses	\$ 13.9	99	Maintains
SCG-RISK-1	HP	C04-T2	Leak Survey & Patrol - Non-HCA	\$ 1.7	97	Maintains
SCG-RISK-6	CYBER	C03	Sensitive Data Protection	\$ 7.4	93	Maintains
SCG-RISK-2	Dig-in	C04	Locate & Mark Activities (HP)	\$ 5.4	88	Maintains
SCG-RISK-1	HP	C22-T4.3	PSEP - Valve Enhancement (GRC base)	\$ 4.2	85	Reduces
SCG-RISK-2	Dig-in	M01	Automate Third Party Excavation Incident Reporting	\$ 0.1	79	Maintains
SCG-RISK-7	CONT	C01	Contractor Safety Oversight	\$ 0.3	70	Maintains
SCG-RISK-3	MP	C17	Main & Service Leak Repair	\$ 0.7	68	Maintains
SCG-RISK-2	Dig-in	C14	Locating Equipment (HP)	\$ 0.2	66	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	48	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	35	Maintains
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	33	Reduces

Risk Chapter	Risk	ID	Control/Mitigation Name	2024 Total Cost w/CFF (\$M)	RSE w/CFF Included	Activity Impact
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	MP	C01_T1	Cathodic Protection Base Activities	\$ 1.3	24	Maintains
SCG-RISK-2	Dig-in	C16-T1-T4	Public Awareness (HP)	\$ 0.6	23	Maintains
SCG-RISK-3	MP	C04_T2	M&R Station and EPM Inspection and Maintenance	\$ 3.9	21	Maintains
SCG-RISK-2	Dig-in	C05	L&M Annal Refresher Training Program (MP)	\$ 0.1	20	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	16	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	13	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
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

Risk Chapter	Risk	ID	Control/Mitigation Name	2024 Total Cost w/CFF (\$M)	RSE w/CFF Included	Activity Impact
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	MP	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	MP	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
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

Risk Chapter	Risk	ID	Control/Mitigation Name	2024 Total Cost w/CFF (\$M)	RSE w/CFF Included	Activity Impact
SCG-RISK-4	STOR	C06	Compressor Overhauls	\$ 17.0	1	Maintains
SCG-RISK-3	MP	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	MP	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	MP	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**

<b>Risk Chapter</b>	<b>Risk</b>	<b>ID</b>	<b>Control/Mitigation Name</b>	<b>2024 Total Cost w/CFF (\$M)</b>	<b>RSE w/CFF Included</b>	<b>Activity Impact</b>
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	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	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	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	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	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**

<b>RAMP Report Chapter Number</b>	<b>RAMP Risks and CFFs</b>	<b>GRC Witness</b>	<b>GRC Testimony Exhibit Number</b>
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**

<b>RAMP Report Chapter Number</b>	<b>RAMP CFF/ Risk</b>	<b>GRC Witness</b>	<b>GRC Testimony Exhibit Number</b>
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**

<b>RAMP Report Chapter Number</b>	<b>RAMP Risk</b>	<b>GRC Witness</b>	<b>GRC Testimony Exhibit Number</b>
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
SDG&E-Risk-09	Incident Related to the Medium Pressure System (Excluding Dig-in)	Alexandra Taylor	SDG&E-32
		L. Patrick Kinsella	SDG&E-04
		Amy Kitson, Travis Sera	SDG&E-09
		David H. Thai	SDG&E-17
SDG&E-CFF-1	Asset Management	Sandra F. Baule	SDG&E-19
		L. Patrick Kinsella	SDG&E-04
		Tyson Swetek	SDG&E-12
SDG&E-CFF-4	Foundational Technology Systems	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**

<b>RAMP Report Chapter Number</b>	<b>RAMP CFF/ Risk</b>	<b>GRC Witness</b>	<b>GRC Testimony Exhibit Number</b>
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**

<b>Witness Area</b>	<b>GRC Witness</b>	<b>GRC Testimony Exhibit Number</b>	<b>2022 Estimated RAMP (\$000s)</b>	<b>2023 Estimated RAMP (\$000s)</b>	<b>2024 Estimated RAMP (\$000s)</b>
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
<b>Total Capital - SDG&amp;E</b>			<b>\$ 938,076</b>	<b>\$1,175,963</b>	<b>\$1,111,758</b>

**SoCalGas Capital**

<b>Witness Area</b>	<b>GRC Witness</b>	<b>GRC Testimony Exhibit Number</b>	<b>2022 Estimated RAMP (\$000s)</b>	<b>2023 Estimated RAMP (\$000s)</b>	<b>2024 Estimated RAMP (\$000s)</b>
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
<b>Total Capital - SoCalGas</b>			<b>\$1,104,831</b>	<b>\$1,047,675</b>	<b>\$1,061,461</b>

### 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
<b>Total O&amp;M - SDG&amp;E</b>			<b>\$ 277,044</b>	<b>\$298,537</b>	<b>\$ 21,493</b>

**SoCalGas O&M**

<b>GRC Witness Area</b>	<b>GRC Witness</b>	<b>GRC Testimony Exhibit Number</b>	<b>2021 Embedded Costs (\$000)</b>	<b>TY 2024 Estimated Total (\$000)</b>	<b>TY 2024 Estimated Incremental (\$000)</b>
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
<b>Total O&amp;M - SoCalGas</b>			<b>\$ 513,909</b>	<b>\$ 642,498</b>	<b>\$ 128,589</b>

**Appendix F**

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

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

<b>SoCalGas and SDG&amp;E RAMP Risk Chapters</b>		
<b>Risk No.</b>	<b>Risk Name</b>	<b>Definition</b>
<b>SCG-Risk-1 SDG&amp;E-Risk-3</b>	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
<b>SCG-Risk-2 SDG&amp;E-Risk-7</b>	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
<b>SCG-Risk-3 SDG&amp;E-Risk-9</b>	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
<b>SCG-Risk-4</b>	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
<b>SCG-Risk-5 SDG&amp;E-Risk-8</b>	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
<b>SCG-Risk-6 / SDG&amp;E-Risk-6</b>	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
<b>SCG-Risk-7 SDG&amp;E-Risk-4</b>	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

<b>SDG&amp;E-Risk-1</b>	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.
<b>SDG&amp;E-Risk-2</b>	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 ( <i>e.g.</i> , 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.
<b>SDG&amp;E-Risk-5</b>	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**

<b>SoCalGas Cross-Functional Factors</b>		
<b>CFF No.</b>	<b>CFF Name</b>	<b>Definition</b>
<b>SCG-CFF-1</b>	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

<b>SDG&amp;E Cross-Functional Factors</b>		
<b>CFF No.</b>	<b>CFF Name</b>	<b>Definition</b>
		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.
<b>SDG&amp;E-CFF-4</b>	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
<b>SDG&amp;E-CFF-5</b>	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
<b>SDG&amp;E-CFF-6</b>	Records Management	Describes how inadequately maintained records can have impacts on employee and public safety as well as reliability.

**SDG&E Cross-Functional Factors**

<b>CFF No.</b>	<b>CFF Name</b>	<b>Definition</b>
<b>SDG&amp;E-CFF-7</b>	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.
<b>SDG&amp;E-CFF-8</b>	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 –August 2022**

<b>Exhibit</b>	<b>Witness</b>	<b>Page</b>	<b>Line or Table</b>	<b>Revision Detail</b>
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-20	Lines 20-22	Added reference to the testimony of Khai Nguyen (Ex. SCG-40)
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-24	Table RSP/GSF-4	Changed RSE value for SDG&E-Risk-2-C10-T1&T2 to 2082 from 2139
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-1	Table in Appendix D-1	Changed RSE value for SCG-Risk-6-C04 to 368 from 357
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-2	Table in Appendix D-1	Changed RSE value for SCG-Risk-6-C01 to 134 from 130
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-2	Table in Appendix D-1	Changed RSE value for SCG-Risk-6-C05 to 129 from 125
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-2	Table in Appendix D-1	Changed RSE value for SCG-Risk-6-C02 to 110 from 107
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-2	Table in Appendix D-1	Changed RSE value for SCG-Risk-6-C03 to 104 from 101
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-6	Table in Appendix D-1	Changed RSE value for SDG&E-Risk-9-C06-T4 to 1725 from 1732
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-6	Table in Appendix D-1	Changed RSE value for SDG&E-Risk-9-C07 to 1009 from 1023

<b>Exhibit</b>	<b>Witness</b>	<b>Page</b>	<b>Line or Table</b>	<b>Revision Detail</b>
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-6	Table in Appendix D-1	Changed RSE value for SDG&E-Risk-2-New 09 to 710 from 316
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-6	Table in Appendix D-1	Changed RSE value for SDG&E-Risk-6-C04 to 527 from 520
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-6	Table in Appendix D-1	Changed RSE value for SDG&E-Risk-6-C01 to 504 from 497
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-7	Table in Appendix D-1	Changed RSE value for SDG&E-Risk-6-C05 to 371 from 366
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-7	Table in Appendix D-1	Changed RSE value for SDG&E-Risk-6-C02 to 299 from 295
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-7	Table in Appendix D-1	Changed RSE value for SDG&E-Risk-1-C08-T1 to 226 from 352
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-7	Table in Appendix D-1	Changed RSE value for SDG&E-Risk-6-C03 to 202 from 199
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-9	Table in Appendix D-1	Changed RSE value for SDG&E-Risk-9-C06-T1 to 37 from 40
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-D1-10	Table in Appendix D-1	Added SDG&E-Risk-2-New 03 with an RSE value of 10
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-E2-1	Table in Appendix E2 – SDG&E Capital	Changed dollar values for SDG&E-11 New (2022-2024): \$109,188, \$152,247, \$114,730 Old (2022-2024): \$107,505, \$150,564, \$113,047

<b>Exhibit</b>	<b>Witness</b>	<b>Page</b>	<b>Line or Table</b>	<b>Revision Detail</b>
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-E2-1	Table in Appendix E2 – SDG&E Capital	Changed total dollar values New (2022-2024): \$938,076, \$1,175,963, \$1,111,758 Old (2022-2024): \$936,393, \$1,174,280, \$1,110,075
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-E2-3	Table in Appendix E2 – SDG&E O&M	Changed dollar values for SDG&E-13 New (2021, 2024, Change): \$167,500, \$174,003, \$6,503 Old (2021, 2024, Change): \$167,678, \$174,082, \$8,042
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-E2-3	Table in Appendix E2 – SDG&E O&M	Changed total dollar values New (2021, 2024, Change): \$277,044, \$298,537, \$21,493 Old (2021, 2024, Change): \$277,222, \$298,616, \$21,394
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-E2-4	Table in Appendix E2 – SoCalGas O&M	Changed dollar values for SCG-06 New (2024, Change): \$33,910, \$2,122 Old (2024, Change): \$33,534, \$1,746
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-E2-4	Table in Appendix E2 – SoCalGas O&M	Changed dollar values for SCG-14 New (2021, Change): \$124,017, \$18,506 Old (2021, Change): \$124,229, \$18,718
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-E2-4	Table in Appendix E2 – SoCalGas O&M	Changed dollar values for SCG-18 New (2024, Change): \$120, \$13,181 Old (2024, Change): \$0, \$13,301
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-E2-4	Table in Appendix E2 – SoCalGas O&M	Changed dollar values for SCG-21 New (2021, 2024, Change): \$17,482, \$20,140, \$2,658 Old (2021, 2024, Change): \$9,286, \$9,904, \$618
SCG-03 / SDG&E-03: Chapter 2	Gregory S. Flores; R. Scott Pearson	RSP/GSF-E2-4	Table in Appendix E2 – SoCalGas O&M	Changed total dollar values New (2021, 2024, Change): \$513,909, \$642,498, \$128,589 Old (2021, 2024, Change): \$505,593, \$632,098, \$126,505