2025 Risk Assessment Mitigation Phase

(Chapter RAMP-2)

Enterprise Risk Management Framework

(Joint SoCalGas/SDG&E)

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CHAPTER RAMP-2: ENTERPRISE RISK MANAGEMENT FRAMEWORK

I. INTRODUCTION

SoCalGas and SDG&E's risk-based decision-making is guided foremost by an unwavering commitment to delivering safe and reliable energy to customers at a reasonable cost.[1] This includes the prevention of catastrophic, loss-of-life events, protracted service interruptions, and the associated financial losses to customers and the public that may stem from such events. SoCalGas and SDG&E's ERM frameworks, including ERM governance, processes, data, and tools, are designed to advance those objectives. These objectives and practices are also consistent with the CPUC's requirements in the Risk-Based Decision-Making Framework (RDF) to prioritize safety, consistent with California Public Utility Code section 451 requirements. SoCalGas and SDG&E further recognize that the risk landscape is increasingly dynamic and evolving. This demands that risk assessments and mitigation strategies remain nimble and adaptable.

This chapter provides an overview of SoCalGas and SDG&E's approach to risk management, ERM frameworks, and ongoing advancements to align risk, asset, and investment management over this and future GRC cycles. Consistent with the requirements of the RDF,[2] this chapter also identifies changes to the Enterprise Risk Registry (ERR) from the previous 2021 RAMP Report and the Test Year (TY) 2024 GRC filing.

II. SOCALGAS AND SDG&E'S RISK MANAGEMENT PHILOSOPHY AND OBJECTIVES

SoCalGas and SDG&E's risk management decision-making incorporates the selection of cost-effective means of reducing: (i) the occurrence and/or consequences of risk events (including catastrophic events), (ii) prioritizing investments that address the highest relative risks,[3] (iii) maintaining compliance with applicable laws and regulations (such as PHMSA's gas pipeline Integrity Management Program requirements, as well as from the Occupational Safety and Health Administration (OSHA), the North American Electric Reliability Corporation's Critical Infrastructure Protection (NERC CIP), the Federal Energy Regulatory Commission

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1 *See* ISO 31000 at 2.

2 D.24-05-064, RDF Row 8.

3 D.24-05-064 at 29.

(FERC), the California Independent System Operator (CA-ISO), the Environmental Protection Agency (EPA), and the Department of Transportation (DOT)), and (iv) other factors.

The Commission's RDF has evolved significantly since the 2021 RAMP, as discussed in Chapter RAMP-1. This includes voluminous data analyses required to comply with new RDF guidelines, including numerous required permutations of Cost-Benefit Ratios (CBRs).[4] As described more fully in Chapter RAMP-3: Risk Quantification Framework, the Companies have included, for certain risks and mitigations, a supplemental analysis of the pre- and post-mitigation estimated tail risk to align with SoCalGas and SDG&E's continued pursuit to reduce the likelihood of catastrophic events. SoCalGas and SDG&E recognize the importance of using increasingly quantitative models to inform risk and mitigation analysis, but also believe it is important to place these analyses in the broader context of prudent utility management, which reviews and weighs a number of factors beyond the three quantified under the RDF—safety, reliability, and financial— when making determinations.[5]

III. ENTERPRISE RISK MANAGEMENT FRAMEWORK

SoCalGas's and SDG&E's ERM frameworks are modeled after ISO 31000 and designed to identify, assess, respond to, and report on key enterprise risks. These frameworks consist of an ERM governance structure to define the ERM-related roles and responsibilities of employees at various levels up to SoCalGas's and SDG&E's respective Boards of Directors, in addition to risk processes and tools. SoCalGas's and SDG&E's respective risk management teams work closely with senior leadership, management, and employees to proactively identify threats and opportunities, align risk exposure to organizational priorities, drive risk-informed business decisions and resource allocation, and monitor identified risks and mitigation plans to foster continuous improvement. This comprehensive approach to enterprise risk management supports and informs the Commission's RDF.

SoCalGas and SDG&E each follow a process, by which SoCalGas and SDG&E identify, manage, and mitigate enterprise risks while aiming to provide consistent, transparent, and

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[4] CBRs state the relative cost-effectiveness of mitigations on the basis of the Expected Value of risk reduction, however CBRs alone do not provide insight as to the reduction of catastrophic risk events, nor do they provide insight as to whether mitigations are substitutes of other mitigations addressing the same risk allowing them to be compared directly.

[5] Examples of additional factors taken into consideration include, but are not limited to, environmental, community, and operational impacts.

repeatable results.[6] This process aligns with the evaluation method adopted by the Commission in 2016 "as a common yardstick for evaluating maturity, robustness, and thoroughness of utility Risk Assessment and Mitigation models and risk management frameworks."[7] Given that risks are dynamic, SoCalGas and SDG&E perform their ERM processes annually, resulting in a refreshed ERR each year that evaluates the identified enterprise-level risks and considers evolving risk conditions and emerging risks.

IV. CONTINUOUS IMPROVEMENT OF RISK MANAGEMENT PRACTICES

As discussed in Chapter RAMP-4: Safety Culture, SoCalGas and SDG&E both implement comprehensive Safety Management Systems (SMS) to continually enhance the safety of their operations, strengthen safety culture, and improve overall safety performance. Continuous improvement is a foundational value of both the SMS and ERM frameworks. To continuously identify improvement opportunities, SoCalGas and SDG&E leadership, risk owners, risk managers, and the risk management teams monitor dynamic risk conditions and risk management developments in the industry, consider feedback and input from internal and external subject matter experts and stakeholders, and evaluate the effectiveness of the Companies' overall risk management frameworks and the effectiveness of risk management plans and activities.

SoCalGas and SDG&E both continue to expand the use of metrics to inform risk-based decision-making, including asset performance and other risk metrics that inform and demonstrate progress related to planned investments. The Commission in D.19-04-020 and D.21-11-009 approved and mandated annual reporting of safety performance metrics, which began in March 2020 and is ongoing.

Further, both SoCalGas and SDG&E utilize Copperleaf Portfolio, an enterprise-wide risk-informed investment decision-support system that integrates safety, risk, and asset management data to support strategic and risk-informed capital investment decisions. SoCalGas and SDG&E aim to enhance the Copperleaf system and expand it to include multi-year scenario analyses. This will support long-term sustainability and safety by aligning risks with asset and

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[6] The six-step process was discussed in SoCalGas's and SDG&E's Risk Policy testimonies served in the Companies' last GRC. *See* 2024 GRC, Direct Testimony of SoCalGas witness Deana M. Ng (Exhibit (Ex.) SCG-03: Chapter 1) and 2024 GRC, Direct Testimony of SDG&E witness Michael M. Schneider (Ex. SDG&E-03: Chapter 1).

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

capital investment management, and integrating SMS activities, wildfire risk (SDG&E), and emergency management mitigation actions.

For the 2025 RAMP, SoCalGas and SDG&E have also made significant advancements in their data science capabilities through the adoption of Python, MathWorks MATLAB, and Microsoft Structured Query Language (MS SQL) databases to perform detailed risk assessments. These tools enhance their modeling, simulation, and Quantitative Risk Assessment (QRA) capabilities enabling potentially greater accuracy. Python and MATLAB provide robust computational power and flexibility for complex analyses, while MS SQL databases promote efficient data management and retrieval. This integrated approach improves the reliability of risk models, streamlines workflows, and enhances scalability.

SoCalGas and SDG&E also communicate regularly with risk management representatives at Pacific Gas and Electric Company, Southern California Edison Company, and industry consortia groups such as the Edison Electric Institute and the American Gas Association to discuss and share best practices, address trends and emerging issues, and to improve risk management practices.

V. SELECTION OF RAMP RISKS

As discussed above, SoCalGas's and SDG&E's ERM processes result in an updated ERR each year. For this Report, using the updated Risk Quantification Framework described in Chapter RAMP-3: Risk Quantification Framework, SoCalGas and SDG&E scored each of the 2024 ERR risks utilizing the safety attribute only and sorted the risks in descending order by the monetized safety risk score. For the top 40% of ERR risks with a monetized safety risk score greater than zero, SoCalGas and SDG&E then calculated a risk score using all attributes in the RDF (*i.e.*, in addition to the safety attribute). The Companies reviewed the outputs of this process and developed a preliminary list of RAMP risks, based on the initial monetized safety risk scores and other discretionary enterprise risks that are determined to be top priorities. This list was presented at a pre-filing workshop[8] held on December 17, 2024, as discussed in Chapter RAMP-1: Overview. After careful consideration and based on the input received from the

[8] D.24-05-064, RDF Row 12.

Commission's Safety Policy Division (SPD) and other interested parties, the RAMP risk list was finalized as presented with the addition of Underground Gas Storage Risk (SoCalGas only).[9]

A. Evolution of Risks between the ERR and RAMP

The RDF OIR Phase 3 Decision requires that RAMP Reports highlight changes to the ERR from previous RAMP or GRC filings.[10] Pursuant to this requirement, Tables 1 and 2 provide comparisons of the risks in this 2025 RAMP Report with those that were presented in SoCalGas's and SDG&E's respective 2021 RAMP Reports and their 2024 ERRs and include changes made to the scope and naming conventions.

Table 1: Comparison of SoCalGas's 2025 RAMP Risks and 2024 ERR to the 2021 RAMP Risks

2025 RAMP Risks	2024 ERR	2021 RAMP Risks
Excavation Damage	Excavation Damage	Excavation Damage (Dig-In) on the Gas System
High Pressure Gas System	High Pressure Gas System	Incident Related to the High-Pressure System (Excluding Dig-In)
Medium Pressure Gas System	Medium Pressure Gas System	Incident Related to the Medium Pressure System (Excluding Dig-In)
Underground Gas Storage	Underground Gas Storage	Incident Related to the Storage System (Excluding Dig-in)
Employee Safety	Employee Safety	Incident Involving an Employee
Contractor Safety	Contractor Safety	Incident Involving a Contractor
Cybersecurity	Cybersecurity	Cybersecurity
	Asset Records Management	
	Beyond the Meter	
	Energy Resiliency – Climate Change	
	Energy Resiliency – Energy Transition	
	Energy Supply	
	Physical Security	
	Seismic Activity	
	Technology Recovery & Resiliency	

[9] SDG&E does not have any underground gas storage facilities within its service territory.

[10] D.24-05-064, RDF Row 8.

The following describes the changes, if any, in scope related to SoCalGas's 2025 RAMP risks as listed in Table 1 above. If not identified below, the risk definition has either remained unchanged, such as the Cybersecurity risk, or the risk has not had a material scope change, even where the name of the risk may have changed, such as the Contractor Safety risk.

- **High Pressure Gas System:** The name of this risk was changed in the 2024 ERR and 2025 RAMP. The risk scope was also refined in the 2025 RAMP to reflect the inclusion of aboveground storage assets and their respective controls.
- **Medium Pressure Gas System***:* The name and scope of this risk have changed from the 2021 RAMP to the 2024 ERR and 2025 RAMP. In the 2021 RAMP this risk included risks associated with medium pressure infrastructure both before the meter and after the meter. For the 2024 ERR and the 2025 RAMP, SoCalGas assessed these risks separately as Medium Pressure Gas System (defined as up to the meter) and Beyond the Meter (defined as after the meter), respectively. Beyond the Meter as a standalone risk, did not meet the 40% safety assessment threshold to merit being included in the 2025 RAMP.
- **Underground Gas Storage***:* The name of this risk has changed from the 2021 RAMP to the 2024 ERR and 2025 RAMP. The scope was also refined to reflect that this risk solely addresses underground storage assets and their respective controls.

Table 2: Comparison of SDG&E's 2021 RAMP Risks and 2024 ERR to the 2025 RAMP Risks

2025 RAMP Risks	2024 ERR	2021 RAMP Risks
Excavation Damage	Excavation Damage	Excavation Damage (Dig-In) on the Gas System
High-Pressure Gas System	Incident Related to the High-Pressure Gas System (Excluding Dig-In)	Incident Related to the High-Pressure System (Excluding Dig-In)
Medium-Pressure Gas System	Incident Related to the Medium-Pressure Gas System (Excluding Dig-In)	Incident Related to the Medium Pressure System (Excluding Dig-In)
Wildfires and Public Safety Power Shutoff (PSPS)	Wildfires involving SDG&E Equipment (including Third Party Pole Attachments)	Wildfires Involving SDG&E Equipment (including Third Party Pole Attachments)
Electric Infrastructure Integrity	Electric Infrastructure Integrity	Electric Infrastructure Integrity

2025 RAMP Risks	2024 ERR	2021 RAMP Risks
	Customer & Public Safety – Contact with Electric Equipment	Customer & Public Safety – Contact with Electric Equipment
Employee Safety	Employee Safety	Incident Involving an Employee
	Motor Vehicle Incident	
	Workplace Violence	
Contractor Safety	Contractor Safety	Incident Involving a Contractor
Cybersecurity	Cybersecurity	Cybersecurity
	Aviation Incident	
	Capacity Restrictions or Disruptions to the Natural Gas Transmission System	
	Consumer Privacy	
	Contracted Supplier Risk	
	Customer & Public Safety – After Meter Gas Incident	
	Electric Grid Failure and Restoration Blackout/Failure to Black Start)	
	Environmental Compliance	
	Inability to Recover Technology and Applications	
	Insufficient Supply to the Natural Gas Transmission System	
	Lack of IT Resiliency	
	Massive Smart Meter Outage	
	Physical Security of Critical Electric Infrastructure	

The following details the changes, if any, in scope related to SDG&E's 2025 RAMP risks as listed in Table 1 above. If not identified below, the risk has either remained unchanged, such as the Cybersecurity risk, or the risk has not had a scope change, even where the name of the risk may have changed, such as the Contractor Safety risk.

- **Medium-Pressure Gas System:** The name of this risk has changed in the 2025 RAMP. In the 2021 RAMP this risk was a consolidation of two ERR risks:

(a) Incident Related to the Gas Distribution System (Excluding Dig-In), and (b) Customer & Public Safety – After Meter Gas Incident. For the 2025 RAMP, SDG&E chose not to consolidate these risks. The Customer & Public Safety – After Meter Gas Incident is a standalone ERR risk, as noted in the above table, and it did not meet the 40% safety assessment threshold to merit being included in the 2025 RAMP.

- **Wildfire and Public Safety Power Shutoff (PSPS):** The name and scope of this risk have changed from the 2021 RAMP**.** The term "Public Safety Power Shutoff (PSPS)" has been added to reflect the identification and assessment of PSPS as a risk[11] in addition to being a wildfire mitigation implemented by SDG&E during fire weather conditions. The specific details regarding the scope of PSPS are included in the Wildfire and PSPS chapter.
- **Electric Infrastructure Integrity**: The scope of this risk has changed from the 2021 RAMP to the 2025 RAMP to include the Customer & Public Safety – Contact with Electric Equipment risk. In the 2021 RAMP, Customer & Public Safety – Contact with Electric Equipment was presented as a separate risk chapter.
- **Employee Safety:** The name of this risk has changed from the 2021 RAMP to the 2025 RAMP. In addition, the scope of this risk has been expanded to include the Motor Vehicle Incident ERR risk as well as the Workplace Violence ERR risk. The Motor Vehicle Incident risk is a new addition to the ERR since the 2021 ERR. It was considered a Driver/Trigger in the 2021 RAMP.

[11] D.21-11-009 at 142 (OP 1(h)).