



**Risk Assessment Mitigation Phase  
(Chapter SDG&E-5)  
Customer and Public Safety**

**November 27, 2019**

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## **Risk: Customer and Public Safety**

### **I. INTRODUCTION**

The purpose of this chapter is to present the risk mitigation plan of San Diego Gas & Electric Company's (SDG&E or Company) Customer and Public Safety risk. Each chapter in the Risk Assessment Mitigation Phase (RAMP) Report contains the information and analysis that meets the requirements adopted in Decision (D.)16-08-018 and D.18-12-014 (the SA Decision).<sup>1</sup>

SDG&E has identified and defined RAMP risks in accordance with the process described in further detail in Chapter RAMP-B of this RAMP Report. SDG&E's Enterprise Risk Management (ERM) organization facilitated the annual Enterprise Risk Registry (ERR) process, which influenced how risks were selected for inclusion in this 2019 RAMP Report, consistent with the SA Decision's directives.

The purpose of RAMP is not to request funding. Any funding requests will be made in SDG&E's General Rate Case (GRC). The costs presented in this 2019 RAMP Report are those costs for which SDG&E anticipates requesting recovery in its Test Year (TY) 2022 GRC. SDG&E's TY 2022 GRC presentation will integrate developed and updated funding requests from the 2019 RAMP Report, supported by witness testimony.<sup>2</sup> For this 2019 RAMP Report, the baseline costs are the costs incurred in 2018, as further discussed in Chapter RAMP-A. This 2019 RAMP Report presents capital costs as a sum of the years 2020, 2021 and 2022 as a three-year total; whereas, O&M costs are only presented for TY 2022.

Costs for each activity that directly addresses each risk are provided where those costs are available within the scope of the analysis required in this RAMP Report. Throughout this 2019 RAMP Report, activities are delineated between controls and mitigations, consistent with the

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<sup>1</sup> D.16-08-018 also adopted the requirements previously set forth in D.14-12-025. D.18-12-014 adopted the Safety Model Assessment Proceeding (S-MAP) Settlement Agreement with modifications and contains the minimum required elements to be used by the utilities for risk and mitigation analysis in the RAMP and GRC.

<sup>2</sup> See, D.18-12-014 at Attachment A, A-14 ("Mitigation Strategy Presentation in the RAMP and GRC").



definitions adopted in the 2018 S-MAP Revised Lexicon per D.18-12-014. A “Control” is defined as a “[c]urrently established measure that is modifying risk.”<sup>3</sup> A “Mitigation” is defined as a “[m]easure or activity proposed or in process designed to reduce the impact/consequences and/or likelihood/probability of an event.”<sup>4</sup> Activities presented in this chapter are representative of those that are primarily scoped to address SDG&E’s Customer and Public Safety risk; however, many of the activities presented herein also help mitigate other risk areas as outlined in Chapter RAMP-A.

As discussed in Chapter RAMP-D, Risk Spend Efficiency (RSE) Methodology, no RSE calculation is provided where costs are not available or not presented in this RAMP Report (including costs for activities that are outside of the GRC and certain internal labor costs). Additionally, SDG&E did not perform RSE calculations on mandated activities. Mandated activities are defined as activities conducted in order to meet a mandate or law, such as a Code of Federal Regulation (CFR), Public Utilities Code, or General Order. Activities with no RSE score presented in this 2019 RAMP Report are identified in Section VII below.

SDG&E has also included a qualitative narrative discussion of certain risk mitigation activities that would otherwise fall outside of the RAMP Report’s requirements, to aid the California Public Utilities Commission (CPUC or Commission) and stakeholders in developing a more complete understanding of the breadth and quality of SDG&E’s mitigation activities. These distinctions are discussed in the applicable control/mitigation narratives in Section V. Similarly, a narrative discussion of certain “mitigation” activities and their associated costs is provided for certain activities and programs that may indirectly address the risk at issue, even though the scope of the risk as defined in the RAMP Report may technically exclude the mitigation activity from the RAMP analysis. This additional qualitative information is provided in the interest of full transparency and understandability, consistent with guidance from Commission staff and stakeholder discussions.

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<sup>3</sup> *Id.* at 16.

<sup>4</sup> *Id.* at 17.

**A. Risk Definition**

For purposes of this 2019 RAMP report, SDG&E’s Customer and Public Safety Risk is defined as “the risk of customer safety incidents, which results in fatality, serious injury and/or facility damage.”

**B. Summary of Elements of the Risk Bow Tie**

Pursuant to the SA Decision,<sup>5</sup> for each control and mitigation presented herein, SDG&E has identified which element(s) of the Bow Tie the mitigation addresses. Below is a summary of these elements.

**Table 1: Summary of Risk Bow Tie Elements**

<b>ID</b>	<b>Description of Driver/Trigger and Potential Consequences</b>
DT.1	Deviation from Company policy or procedure
DT.2	Inexperience or lack of training
DT.3	Distracted driving
DT.4	Condition of customer premises or equipment
DT.5	Condition of Company facilities
PC.1	Serious injuries and/or fatalities
PC.2	Property Damage
PC.3	Penalties and fines
PC.4	Adverse litigation
PC.5	Erosion of public confidence

**C. Summary of Risk Mitigation Plan**

Pursuant to the SA Decision,<sup>6</sup> SDG&E has performed a detailed pre- and post-mitigation analysis of controls and mitigations for each risk selected for inclusion in RAMP, as further described below. SDG&E’s baseline controls for this risk consist of the following programs/activities:

<sup>5</sup> *Id.* at Attachment A, A-11 (“Bow Tie”).

<sup>6</sup> *Id.* at Attachment A, A-11 (“Definition of Risk Events and Tranches”).



**Table 2: Summary of Controls**

ID	Control Name
SDG&E-5-C1	Public Safety Communications
SDG&E-5-C2	Field and Public Safety
SDG&E-5-C3	First Responder Outreach and Training

SDG&E will continue the 2018 controls identified above and puts forth additional projects and/or programs (*i.e.*, mitigations) as follows:

**Table 3: Summary of Mitigations**

ID	Mitigation Name
SDG&E-5-M1	Expansion of Utility Incident Command
SDG&E-5-M2	Expanded Public Safety Communications

Finally, pursuant to the SA Decision,<sup>7</sup> SDG&E presents considered alternatives to the Risk Mitigation Plan for the Customer and Public Safety risk and summarizes the reasons that the alternatives were not included in the Risk Mitigation Plan in Section VIII.

**II. RISK OVERVIEW**

Customer and public safety is a core value at SDG&E. SDG&E’s safety-first culture focuses on its employees, customers, and the public and is embedded in every aspect of our work. The Customer and Public Safety risk was included as part of the combined Employee, Contractor and Public Safety Risk Chapter in SDG&E’s 2016 RAMP filing. SDG&E’s 2018 ERR separated these risks for standalone treatment as a “lessons learned” in order to provide for more granular focus of the risks and associated mitigation activities. As discussed in the Employee Safety chapter of this 2019 RAMP Report (SDG&E-3), SDG&E’s employee safety programs are founded on proven employee-based programs, safety training, and workforce education. Many, if not all, of these employee safety programs also promote the safety of the public and our customers. While the costs and activities are presented in the operational risk

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<sup>7</sup> *Id.* at 33.



chapters and Employee Safety chapter of this 2019 RAMP Report, the benefits received by SDG&E's customers and the public remain present.

The majority of risk mitigation activities presented in the various chapters of this 2019 RAMP Report provide customer and public safety risk reduction benefit. For example, the mitigation activities presented in SDG&E's Electric Infrastructure Integrity (EII) Chapter (SDG&E-4) that focus on reducing wire down risk are designed to protect the public but are more accurately captured in the EII Chapter since the activities focus on infrastructure protection. The same applies for SDG&E's other electric and pipeline infrastructure risk chapters. Therefore, the Customer and Public Safety risk definition is limited in scope.

The scope of the Customer and Public Safety Risk for purposes of this 2019 RAMP Report includes motor vehicle incidents and after-meter incidents, which may result in significant consequences including serious injuries, fatalities, and property damage. While the scope of this risk is limited, SDG&E performs many risk mitigation activities within its baseline controls to protect the safety of its customers and the public. As an example, safety-related customer communications are an integral part of after the meter incident prevention in a customer's home, whether an SDG&E employee visits the premise or not. These communications are a proactive approach to inform our customers and the public how to detect possible safety issues within their homes, how to identify potential hazards, and how to avoid hazards that may result from damage occurring during a risk event. Similarly, SDG&E's Emergency Management organization effectively and efficiently supports the Company's ability to prevent, prepare for, respond to, and recover from incidents regardless of cause, size, or complexity. The overall purpose of emergency preparedness, including planning activities, is to safeguard the public, employees, contractors, stakeholders, reputation, and the continuation of essential business functions.

As stated above, the Customer and Public Safety risk scope includes motor vehicle incidents. To mitigate this risk, SDG&E utilizes the Smith Driving System as part of safe driving training for employees. The Smith System® was founded on the principle that most vehicle crashes are preventable if the correct driving habits are learned, practiced, and applied consistently. The Smith System utilizes a series of interlocking techniques to prevent crashes.



The concepts help drivers see, think, and act their way through various driving environments, challenges and changes that may exist regardless of where a driver travels or the type of vehicles he or she operates. Adhering to Smith Driving principles enables our employees to be better drivers and therefore aims to reduce SDG&E’s employee safety risk; thereby also reducing SDG&E’s public safety risk (*see* Risk Bow Tie DT.3). While the costs and associated RSE analysis for this risk mitigation activity are represented in the Employee Safety Chapter of this 2019 RAMP Report (SDG&E-3), the public safety risk reduction benefits are still present.

### III. RISK ASSESSMENT

In accordance with the SA Decision,<sup>8</sup> this section describes the Risk Bow Tie, possible Drivers/Triggers, and Potential Consequences of the Customer and Public Safety risk.

#### A. Risk Bow Tie

The Risk Bow Tie shown in Figure 1 below is a commonly-used tool for risk analysis. The left side of the Risk Bow Tie illustrates drivers that lead to a Customer and Public Safety Risk event and the right side shows the potential consequences of a Customer and Public Safety Risk event. SDG&E applied this framework to identify and summarize the information provided above. A mapping of each Control/Mitigation to the element(s) of the Risk Bow Tie addressed is provided in Appendix A.

**Figure 1: Risk Bow Tie**



<sup>8</sup> *Id.* at 33 and Attachment A, A-11 (“Bow Tie”).

## **B. Asset Groups or Systems Subject to the Risk**

The SA Decision<sup>9</sup> directs the utilities to endeavor to identify all asset groups or systems subject to the risk. Customer and Public Safety is a “cross-cutting” risk associated with human systems, rather than particular asset groups.

## **C. Risk Event Associated with the Risk**

The SA Decision<sup>10</sup> instructs the utility to include a Risk Bow Tie illustration for each risk included in RAMP. As illustrated in the above Bow Tie, the Risk Event (*i.e.*, center of the Risk Bow Tie) is a customer and public safety event that results in any of the Potential Consequences listed on the right. The Drivers/Triggers that may contribute to this Risk Event are further described in the section below. The Risk Scenario (*i.e.*, a potential reasonable worst-case scenario used to assess the residual risk impacts and frequency), was assessed for SDG&E’s 2018 Enterprise Risk Registry. This scenario does not necessarily address all Drivers/Triggers and Potential Consequences, nor does it reflect actual or threatened conditions.

## **D. Potential Drivers/Triggers<sup>11</sup>**

The SA Decision<sup>12</sup> instructs the utility to identify which element(s) of the associated bow tie each mitigation addresses. When performing the risk assessment for Customer and Public Safety, SDG&E identified potential leading indicators, referred to as Drivers/Triggers. These include, but are not limited to:

- **DT.1 - Deviation from policy/procedure:** Failure of an employee to adhere to Company safety policies or procedures could result in a safety-related event.
- **DT.2 - Inexperience or lack of training:** Failure to use experienced employees or provide the proper training to perform the necessary work may lead to an increase in the occurrence of safety incidents.

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<sup>9</sup> *Id.* at Attachment A, A-11 (“Definition of Risk Events and Tranches”).

<sup>10</sup> *Id.* at Attachment A, A-11 (“Bow Tie”).

<sup>11</sup> An indication that a risk could occur. It does not reflect actual or threatened conditions.

<sup>12</sup> D.18-12-014 at Attachment A, A-11 (“Bow Tie”).

- **DT.3 - Distracted driving:** Use of cellphones or other types of distractions while driving can lead to serious injuries, fatalities and/or property damage.
- **DT.4 - Condition of premises/equipment:** Unsafe customer equipment or premises present situations that can increase the likelihood of a safety event.
- **DT.5 - Condition of company facilities:** Company facilities, if damaged or not properly maintained, could lead to a safety event.

#### **E. Potential Consequences**

If one of the Drivers/Triggers listed above were to result in an incident, the Potential Consequences, in a reasonable worst-case scenario, could include:

- Serious injuries<sup>13</sup> and/or fatalities;
- Property damage;
- Penalties and fines;
- Adverse litigation; and
- Erosion of public confidence.

These Potential Consequences were used in the scoring of the Customer and Public Safety risk that occurred during the development of SDG&E's 2018 ERR.

#### **IV. RISK QUANTIFICATION**

The SA Decision sets minimum requirements for risk and mitigation analysis in RAMP,<sup>14</sup> including enhancements to the Interim Decision 16-08-018.<sup>15</sup> SDG&E has used the guidelines in the SA Decision as a basis for analyzing and quantifying risks, as shown below. Chapter RAMP-C of this RAMP Report explains the Risk Quantitative Framework, which underlies this Chapter,

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<sup>13</sup> For purposes of this 2019 RAMP Report, SDG&E defines "serious injury" as an injury that requires an overnight hospital stay.

<sup>14</sup> D.18-12-014 at Attachment A.

<sup>15</sup> *Id.* at 2-3.

including how the Pre-Mitigation Risk Score, Likelihood of Risk Event (LoRE), and Consequence of Risk Event (CoRE) are calculated.

**Table 4: Pre-Mitigation Analysis Risk Quantification Scores<sup>16</sup>**

<b>Customer and Public Safety</b>	<b>Low Alternative</b>	<b>Single Point</b>	<b>High Alternative</b>
<b>Pre-Mitigation Risk Score</b>	39	<b>323</b>	796
<b>LoRE</b>	<b>0.2</b>		
<b>CoRE</b>	221	<b>1835</b>	4525

**A. Risk Scope & Methodology**

The SA Decision requires a pre- and post-mitigation risk calculation.<sup>17</sup> The below section provides an overview of the scope and methodologies applied for the purpose of risk quantification.

**Table 5: Risk Quantification Scope**

<b>In Scope for purposes of risk quantification:</b>	The risk of motor vehicle incidents or after-meter incidents, which results in significant consequences including serious injuries, fatalities and/or facility damage.
<b>Out of Scope for purposes of risk quantification:</b>	The risk of incidents that could affect customers and/or the public already captured in other RAMP risks, and other incidents not described as “In Scope.”

<sup>16</sup> The term “pre-mitigation analysis,” in the language of the SA Decision (Attachment A, A-12 (“Determination of Pre-Mitigation LoRE by Tranche,” “Determination of Pre-Mitigation CoRE,” “Measurement of Pre-Mitigation Risk Score”)), refers to required pre-activity analysis conducted prior to implementing control or mitigation activity.

<sup>17</sup> D.18-12-014 at Attachment A, A-11 (“Calculation of Risk”).



Pursuant to Step 2A of the SA Decision,<sup>18</sup> the utility is instructed to use actual results, available and appropriate data (*e.g.*, Pipeline and Hazardous Materials Safety Administration data). The SDG&E Customer and Public Safety risk assessment identified two main risks: SDG&E motor vehicle risk, and SDG&E after-meter risk. The motor vehicle risk assessment primarily utilized data from the Department of Transportation (DOT), National Highway Traffic Safety Administration (NHTSA), and Federal Highway Administration (FHA). Internal subject matter expert (SME) input was also provided to assess the SDG&E after-meter risk.

Historical data from the DOT's Fatality Analysis Reporting System (FARS) was used to determine the fatal accident rate per year by vehicle type. Historical data from General Estimates System (GES) of National Automotive Sampling System (NASS) was used to calculate nonfatal incident rates per year by vehicle type. To determine fatal and nonfatal incident rates per year for SDG&E, the national average incident rate per mile, per year was applied to the vehicle miles traveled (VMT) at the company. The safety and financial consequence distributions were generated based on both FARS and GES historical data. A Monte Carlo simulation was used to yield the probabilistic safety and financial consequences for SDG&E motor vehicle risk.

Internal Company subject matter expert (SME) input was provided to estimate the safety and financial consequences of an after-meter safety incident. Based on SME input, reliability is not directly impacted by after-meter safety related incidents.

## **B. Sources of Input**

The SA Decision<sup>19</sup> directs the utility to identify Potential Consequences of a Risk Event using available and appropriate data. The below provides a listing of the inputs utilized as part of this assessment.

- Fatality Analysis Reporting System (FARS)
  - Agency: U.S. Department of Transportation

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<sup>18</sup> *Id.* at Attachment A, A-8 (“Identification of Potential Consequences of Risk Event”).

<sup>19</sup> *Id.* at Attachment A, A-8 (“Identification of the Frequency of the Risk Event”).

- Link: <https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars>
- General Estimates System (GES) of National Automotive Sampling System (NASS):
  - Agency: U.S. Department of Transportation
  - Link: <https://www.nhtsa.gov/research-data/national-automotive-sampling-system-nass>
- The Economic and Societal Impact of Motor Vehicle Crashes, May 2015 (Revised)
  - Agency: U.S. Department of Transportation, National Highway Traffic Safety Administration
  - Link: <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812013>
- Shares of Highway Vehicle-Miles Traveled by Vehicle Type, 1970–2015
  - Agency: Oak Ridge National Laboratory
  - Link: [https://tedb.ornl.gov/wp-content/uploads/2019/03/Edition36\\_Full\\_Doc.pdf](https://tedb.ornl.gov/wp-content/uploads/2019/03/Edition36_Full_Doc.pdf)

## V. RISK MITIGATION PLAN

The SA Decision requires the utility to “clearly and transparently explain its rationale for selecting mitigations for each risk and for its selection of its overall portfolio of mitigations.”<sup>20</sup> This section describes SDG&E’s Risk Mitigation Plan by each selected control and mitigation for this risk, including the rationale supporting each selected control and mitigation.

As stated above, SDG&E’s Customer and Public Safety risk is defined as “the risk of customer safety incidents, which results in fatality, serious injury and/or facility damage.” SDG&E’s Customer and Public Safety Risk Mitigation Plan, discussed below, includes both Controls that are expected to continue and Mitigations for the period of SDG&E’s Test Year 2022 GRC cycle. The Controls are those activities that were in place as of 2018, most of which have been developed over many years, to address this risk and include work to comply with laws that were in effect at that time. As mentioned in the Introduction Section, many of the activities

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<sup>20</sup> *Id.* at Attachment A, A-14 (“Mitigation Strategy Presentation in the RAMP and GRC”).



presented herein also help mitigate other risk areas, and many of the activities presented in the other Chapters of this 2019 RAMP Report help mitigate SDG&E's Customer and Public Safety risk. *See* Appendix A-3 to Chapter RAMP-A. These risk mitigation overlaps are also identified in the applicable activity descriptions below.

SDG&E's Customer and Public Safety risk baseline Controls that will be discussed in greater detail below include:

- Public Safety Communications
- Field and Public Safety
- First Responder Outreach and Training

SDG&E's Customer and Public Safety risk Mitigations that will be discussed in greater detail below comprise the following:

- Expansion of Utility Incident Command and First Responder Training
- Expanded Public Safety Communications

#### **A. SDG&E-5-C1 – Public Safety Communications**

SDG&E conducts public awareness efforts to enhance the safety of its customers and general public. These efforts are designed to engage with the Company's customers and the public to inform them about our shared safety responsibilities. Communication with the public promotes safety through a wide array of topics including, but not limited to, safety around Company facilities, messaging related to the Public Safety Power Shut Off (PSPS) program, and information about gas line locations and downed power lines. Without adequate communication and education programs, the public may not know how to safely dig on their property or how to keep themselves safe around company facilities that may be damaged during an event. Communication with the public also allows customers to be able to detect possible safety issues with their homes. Without adequate communications and education programs, a customer or member of the general public may not know how to identify a hazardous situation or how to prevent one.

Customer outreach, communication, and education are a few of the methods SDG&E uses to mitigate customer and public safety risk. The activities to mitigate this risk include the following:



The Public Safety Power Shut Off (PSPS) program is an element of utility wildfire mitigation plans authorized by the CPUC to address the threat of wildfire and customer/public safety, as discussed in Chapter SDG&E-1.<sup>21</sup> On May 30, 2019, the Commission adopted new interim guidelines for electric investor-owned utilities (IOUs) with respect to the practice of de-energization of power lines for public safety purposes (also known as Public Safety Power Shutoffs) as part of its D.19-05-042 (Guidelines). The Guidelines adopt definitions, an advance notification framework, requirements for outreach and education, and reporting requirements. The PSPS Communication plan consists of a public outreach and education campaign, implemented June through November. The campaign includes:

- Print advertising in seven languages (newspaper and magazine);
- Paid social media;
- Paid search/digital campaign;
- Bill newsletter;
- High Fire Threat District newsletter; and
- 30-minute documentary (television/broadcast).

Communications will also include notifications for Public Safety Power Shutoff events. These communications target customers, first responders, public officials and government, public safety partners, as well as the Access and Functional Needs (AFN) community. Customer notifications are made in the form of email, voice message, and/or text message. Notifications are sent:

- 24-72 hours prior to a Public Safety Power Shutoff event;
- 1-4 hours prior to a Public Safety Power Shutoff event;
- Once power is shut off;
- When patrolling for re-energization begins; and
- Once power is back on.

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<sup>21</sup> See, RAMP Chapter SDG&E-1, Wildfires involving SDG&E Equipment (including Third Party Pole Attachments).





Public Safety campaigns focusing on informing and educating the public from the danger of downed power lines, vehicle contact with poles and the hazards associated with digging near gas lines. The campaign includes videos, TV and radio spots, newspaper ads, billboards and collateral geared toward a variety of scenarios and for use with different audiences.

Safety-related messages delivered through multiple communication channels. Communication channels include bill inserts, print media, radio, web and social media. Messages include, but are not limited to, Carbon Monoxide safety, fumigation and furnace safety.

Pipeline safety campaign, which is mandated by federal pipeline safety regulation 49 CFR, Part 192. SDG&E's campaign includes bill inserts, mailings to residential and business customers, mailings to excavators, businesses, land developers and farmers, and communications to schools and universities, public officials and emergency officials. SDG&E communications and other efforts related to third party dig-ins is further discussed in Chapters SDG&E-7 and SDG&E-8. Pipeline safety efforts provide customers with information about:

- Natural gas pipeline locations;
- What to do if you sense a leak/smell gas; and
- Messaging to direct the public to call 811 (*i.e.*, DigAlert) and other actions to take prior to digging.

#### **B. SDG&E-5-C2 – Field and Public Safety**

SDG&E Customer Services' primary goal is providing safe, reliable and efficient gas and electric service to customers, while complying with applicable federal, state, and local regulations. SDG&E has formal procedures, processes and standards it adheres to and makes accessible to field personnel so they can adequately and safely do their jobs. Until SDG&E field employees are fully trained to do their jobs adequately and safely, they cannot perform work orders on their own. SDG&E Customer Service Field representatives have access to the Company's procedures and standards through their mobile data terminal (MDT). These reference materials instruct the employee on how work should be performed, how to perform procedures safely and provide overall direction to employees. Below, are Call Center and Field activities managed by SDG&E related to safety:



Customer Care Center (CCC) Emergency Call Response – SDG&E responds to emergency calls 24 hours per day, 365 days per year from a myriad of residential, commercial, industrial and agriculture customers. Call types relative to public safety include:

- English/Spanish Emergency;
- English/Spanish Outage;
- English/Spanish Business Emergency; and
- Fire and Police Calls.

Customer Service Field (CSF) orders related to public safety include:

- Carbon Monoxide - CSF technicians respond to orders created for a customer experiencing carbon monoxide illness, a customer whose carbon monoxide alarm has sounded, or a “courtesy test” for a customer who is concerned about the possibility of their gas appliance producing carbon monoxide. Upon arrival, if carbon monoxide is detected the CSF technician will evacuate the premises, shut off the gas meter for safety and call for medical attention if necessary. A carbon monoxide investigation on all gas appliances is performed.
- High Gas Consumption Order – Smart meter technology captures daily gas consumption data. Using a newly developed algorithm we can detect a “spike” or unusual gas consumption based on historical or recent gas usage. When this occurs, a High Gas Consumption order is created for a CSF technician to investigate. Findings vary, as a customer that has simply added a new gas appliance, such as a gas pool heater, would cause a spike in gas usage; however, sometimes a gas leak on the customer’s houseline or appliance is discovered (*e.g.*, appliance burner left on, fireplace or BBQ gas valve left on, but not in use).
- Fumigation - Prior to the “tenting” of a home or business CSF technicians inspect the gas riser and properly shut off and secure the gas meter to avoid gas accumulating within the tent during fumigation. Upon

completion of fumigation, a CSF technician will return to turn gas service back on and perform appliance checks on gas appliances.

- Hazardous and non-hazardous gas leaks - CSF technicians will respond to all calls of gas leaks or gas odors and perform a gas leak investigation.
- Natural Gas Appliance Testing (NGAT) or Carbon Monoxide Testing – A safety-related program for Energy Savings Assistance (ESA) Program participants. The purpose is to test in-home equipment for carbon monoxide hazards. SDG&E conducts Carbon Monoxide testing on homes weatherized through the ESA Program in accordance with the Statewide Energy Savings Assistance Program Installation Standards and the Statewide Energy Savings Assistance Program Policy and Procedures Manual. CPUC directives order SDG&E to charge the costs for the NGAT program to base rates rather than to the public purpose funds.
- Energy Diversion Investigations – Energy Diversion investigations look for unauthorized attachments (also referred to as a “bypass”) that create unsafe conditions for our crews as well as public safety officers and first responders. Unauthorized attachments are not standard and violate electric code and local building ordinances. These connections present the potential for fire, electrical shock and a risk of electrocution to SDG&E service technicians, law enforcement, firefighters, city or county officials, occupants of the residence and/or community. Energy Diversion meter tampering and meter bypass investigation and remediation orders are initiated a few different ways. Reports are run regularly to identify meters that are considered “Off But Registering” (OBR), non-solar customers that are showing reverse flow, and gas meters that are registering when the associated electric meter is not. Additionally, SDG&E field employees may come across unsafe conditions created by meter tampering during the course of their regular work. Other orders are initiated through the CCC via customer notifications.

- CSF Quality Assurance (QA) Program - SDG&E field employees are trained to rectify safety hazards on customer premises. Public safety orders include carbon monoxide, fumigation, and hazardous and non-hazardous gas leaks. The QA Program is designed to verify the field employees are completing field orders according to established policy and procedures and to see that customers are receiving safe and reliable service. The program provides a snapshot of the quality of work being performed by the CSF Employees on customer premises. QA Specialists (Inspectors) take a random sampling of field orders completed by field employees and inspect the work performed on the customer premises. Inspectors record all findings of each individual order onto an inspection form. That information is then utilized to develop refresher training and to provide feedback to the CSF employees.

### **C. SDG&E-5-C3 – First Responder Outreach and Training**

SDG&E's Emergency Management organization provides planning and guidance for responding in anticipation of, response to, or following an incident. Emergency Management effectively and efficiently supports the Company's ability to prevent, prepare for, respond to, and recover from incidents regardless of cause, size, or complexity. The overall purpose of emergency preparedness, including planning, is to safeguard the public, employees, contractors, stakeholders, reputation, and the continuation of essential business functions. Additionally, Emergency Management oversees SDG&E's emergency preparedness and response plans, standards and other compliance requirements and oversight of the testing and updating of its plans. Emergency Management works closely with SDG&E's Meteorology, Fire Coordination and Prevention, as well as operational Departments throughout the Company to see that emergency preparedness and response are safe, efficient and coordinated.

The SDG&E First Responder Outreach Program (Outreach Program) is beginning its 7th year of service to all First Responder agencies in San Diego County. The Outreach Program has expanded significantly since its inception by increasing target audiences, establishing an Operational Field and Emergency Readiness (OFER) program, and strengthening relationships



with key stakeholders internally and externally. The OFER program objective is to provide targeted training and contingency planning activities for the local first responder agencies. Strategic partnerships with agency leadership allow for increased communication, awareness of gas and electric safety protocols and collaboration on mutual emergency preparedness to protect employee and public safety. Strategic planning is accomplished with the support and input of SDG&E leadership, the San Diego County Fire Chiefs' Association (SDCFCA) and the County Training Officers Section (T.O.s). The resulting Strategic Plan is continuously reviewed and revised throughout each calendar year. Since the Outreach Program's inception, nine training programs have been developed and completed. Completed training includes: First Responder (three programs), Chief Officer (two programs), Fire and SDG&E Dispatch (one program), and SDG&E Operations (three programs). The SDCFCA, their Training Officers, Dispatch leadership, and local Law Enforcement agencies continue to support the following target audiences for the First Responder Outreach Program:

- Operational First Responders including the ranks of Fire Captain, Fire Engineer, and Firefighter Paramedic;
- Chief Fire Officers including the ranks of Fire Chief, Assistant Chief, Deputy Chief, Division Chief and Battalion Chief;
- Fire and SDG&E Dispatch Personnel;
- SDG&E Natural Gas field personnel and supervisors; and
- Local Law Enforcement leadership, field and dispatch personnel.

Emergency Operations Center (EOC) First Responder Training includes incident response training and exercises. Activities include:

- Developing implementation strategies and curriculum;
- Develop exercise scenarios/materials and facilitate Incident Command exercises; and
- Manage web-based training and certifications.



First responder outreach and training addresses SDG&E's Customer and Public Safety and Wildfire risks. While it is discussed in both RAMP chapters, the costs are fully allocated in the Wildfire chapter.<sup>22</sup>

#### **D. SDG&E-5-M1 – Expansion of Utility Incident Command**

SDG&E's Emergency Management Department coordinates safe, effective and risk-based emergency preparedness to safely and efficiently prepare for, respond to, and recover from all threats and hazards. SDG&E responds to gas and electric emergencies as an important part of its normal business practices and has implemented and adapted a Utility Incident Command System (UICS) into those practices based on the National Incident Management System (NIMS). SDG&E utilizes a UICS structure as a framework to manage emergency incidents and events. UICS is the combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure and serves as the mechanism to direct those functions during an emergency response.

SDG&E's expansion of Utility Incident Command is designed to align all operational groups on a flexible, scalable, sustainable, and measurable scene management process that is UICS compatible, which is the standard incident management approach used nationwide by local, regional, state, and federal agencies (mandated through Presidential directive) and the utility industry. The adoption of a utility-compatible incident management approach and response structure benefits SDG&E's customers and the public through enhanced coordination with external agencies (including fire and rescue departments), use of common terminology across responding agencies, better communication, providing a manageable span of control (where no supervisor has more than approximately seven direct reports during an incident), reliance on clearly defined roles and responsibilities, and establishment of a clear chain of command. Each of these elements provides SDG&E with an opportunity to put forth an effective and efficient response – but also requires that the Company engage in significant internal and external training and collaboration.

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<sup>22</sup> *See id.*



The expansion of SDG&E’s incident response program and strengthening of overall readiness capabilities for all hazards requires a significant increase in the number of training courses and exercises. In addition to addressing all hazards, SDG&E continues to implement UICS principals. Accordingly, resources will be required for targeted position-specific training at all levels of the organization, larger and more numerous training audiences, and more instructor time. The UICS is built on the concepts of the National Response Framework (NRF) and is compatible with the NIMS. The NRF presents the guiding principles that enable all response partners to prepare for and provide a unified national response to disasters and emergencies. It establishes a comprehensive, national, all-hazards approach to domestic incident response. The NRF defines the principles, roles, and structures that organize how we respond as a nation. In addition, the NRF:

- Describes how communities, tribes, states, the Federal government, the private sector and nongovernmental partners work together to coordinate national response;
- Describes specific authorities and best practices for managing incidents;
- Builds on NIMS, which provides a consistent template for managing incidents.

As described below, there are two parts to the program expansion; 1) SDG&E’s Utility Incident Command, and 2) Operational Field and Emergency Readiness.

The Utility Incident Command serves as the primary conduit between SDG&E and the external stakeholders (*i.e.* local, county, state, and federal agencies) for coordination and communication during an emergency. To foster seamless integration with our external stakeholders, and provide mutual assistance, it is imperative that we all use the same system, which includes common terminology and position titles.

As mentioned above, the SDG&E First Responder Outreach Program is beginning its 7th year of service to all First Responder agencies in San Diego County. This Outreach Program has expanded significantly, internally and externally, since its inception, as described above, by increasing target audiences, strengthening relationships with key stakeholders, and establishing an Operational Field and Emergency Readiness (OFER) program. The OFER program objective



is to provide targeted training and contingency planning activities for the local first responder agencies, as well as improved scene management and the use of the UICS for SDG&E responders. OFER is designed to be incorporated into the Safety Culture of SDG&E and to be utilized on all worksites, incidents, emergencies, crisis, and disasters where SDG&E personnel, facilities, and infrastructure are impacted. The program includes a strong Quality Assurance/Quality Improvement (QA/QI) component that will confirm the sustainability of effective incident command, control, communications, and scene safety practices.

This mitigation activity provides risk reduction benefits to SDG&E's Customer and Public Safety and Wildfire Risk Chapters. While this program is discussed in both RAMP chapters, the costs are fully allocated in the Wildfire chapter (SDG&E-1).<sup>23</sup>

#### **E. SDG&E-5-M2 – Expanded Public Safety Communications**

SDG&E's expanded Public Safety Communications campaigns are intended to be all encompassing of gas and electric safety messaging. Campaign categories include:

Wire Down - A potential Risk Scenario as described in RAMP Chapter SDG&E-4 (Electric Infrastructure Integrity) is an energized wire down event caused by third-party contact, foreign object, or failure of an electric component (*e.g.*, a connector). A wire down event involves the downing of a piece of energized overhead equipment (*e.g.*, wires or conductors). If an employee, contractor or the public comes into contact with an energized wire or in close proximity to the energized wire on the ground, the results can be fatal. The key messages of this campaign will focus on awareness and precautions pertaining to downed power lines. The target audience is our customer base and the general public within our service territory. Planned campaign tactics include:

- English language: (TV, radio, print, outdoor and digital) advertising and paid social media;
- Spanish language: (TV, radio, print and digital) advertising and paid social media; and
- Asian language: Print and digital advertising.

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<sup>23</sup> *See id.*





Expanded 811 Call Before you Dig - In the past, SDG&E has partnered with 811/DigAlert to promote safety messages with contractors, city and municipal workers. However, there hasn't been a strong campaign aimed at customers or the public when it comes to the potential dangers associated with digging. This campaign would target the "weekend gardener" or landscaper who doesn't think that 811 is important to them because they may not be digging that deep. Mass media advertising will help us reach our target audience. Complementary activities include special promotions with home improvement retailers such as Home Depot, Lowes and local nurseries.

Pipeline Safety – SDG&E's annual Pipeline Safety campaign provides safety information to residential and business customers. We also target excavator industry businesses with information about calling 811 before starting any digging projects. Information is provided to schools and public officials about major pipelines near their facilities and include additional safety considerations. Tactics include emails, direct mail brochures, website updates and bill inserts.

Winter Prep Safety Campaign - This annual campaign includes messaging and safety tips related to carbon monoxide safety, holiday lighting considerations, extension cord safety and cautions about overloading circuits. Tactics include mass media (TV, radio, print, outdoor and digital) as well as emails and bill inserts.

Summer Prep Safety Campaign - This annual campaign consists of messaging around power line safety, generator safety and electric safety. Tactics include mass media (TV, radio, print, outdoor and digital) as well as email, and bill inserts.

These campaigns are designed to educate and provide a deeper level of understanding to the public with respect to safe practices around gas and electric infrastructure.

## **VI. POST-MITIGATION ANALYSIS OF RISK MITIGATION PLAN**

SDG&E has performed a Step 3 analysis where necessary pursuant to the terms of the Settlement Agreement. SDG&E has not calculated a RSE for activities beyond the requirements of the Settlement Agreement but provides a qualitative description of the risk reduction benefits for each of these activities in the section below.

## **A. Mitigation Tranches and Groupings**

The Step 3 analysis provided in the SA Decision<sup>24</sup> instructs the utility to subdivide the group of assets or the system associated with the risk into Tranches. Risk reduction from controls and mitigations and RSEs are determined at the Tranche level. For purposes of the risk analysis, each Tranche is considered to have homogeneous risk profiles (*i.e.*, the same LoRE and CoRE). SDG&E's rationale for the determination of Tranches is presented below.

SDG&E's Customer and Public Safety program consists of communication and outreach programs aimed to reduce risk of injury or fatality to customers or the public. SDG&E grouped like activities with like risk profiles into mitigation programs. Since each of SDG&E's Customer and Public Safety risk mitigation activities has the same goal of reducing the risk of injury or fatality to the Company's customers and the public, all controls and mitigations have the same risk profile and are not further trached.

## **B. Post-Mitigation/Control Analysis Results**

### **1. SDG&E-5-C1 – Public Safety Communications**

#### **a. Description of Risk Reduction Benefits**

Regular customer public safety communications reduce the risk of a Customer and Public Safety incident by raising awareness. SDG&E believes that the potential for an incident may be reduced if customers and the public are aware of how to avoid hazards. The Company provides customers with a variety of communication and educational programs so that customers can detect hazardous situations and learn how to keep themselves safe around company facilities. Communication when programs such as Public Safety Power Shut Off (PSPS) are initiated is key to determining which customers will be affected and how long. Since SDG&E is required to provide advanced notification prior to PSPS events, the Company has instituted a Communication Plan that aims to provide public outreach, educational materials and a media campaign all designed to see that the public is aware of the event.

Public safety campaigns such as the Pipeline Safety campaign provide bill inserts and mailings to customers and also the public that outline gas pipeline locations, gas leak safety and

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<sup>24</sup> D.18-12-014 at Attachment A, A-11 ("Definition of Risk Events and Tranches").



a number to call (811 DigAlert) prior to digging on properties. Other public safety campaigns undertaken by SDG&E focus on alerting the public about the danger of downed power lines, safety around company facilities, and carbon monoxide safety. The Company issues these campaigns through newspaper ads, social media, TV, radio and many other communication channels. SDG&E understands that communicating with customers is key to mitigating customer and public safety risk.

SDG&E has not performed a Risk Spend Efficiency Evaluation on SDG&E-5-C1 (Customer Communications) because the activity is not in the scope of the risk identified for Customer and Public Safety.<sup>25</sup> However, SDG&E raises the importance of Customer Communications here because it is important to consider the potential increase in Customer and Public safety risk if the Company stopped performing its customer communication activities to educate the public on potential safety risks.

**b. Elements of the Risk Bow Tie Addressed**

The Customer Communications control addresses the following elements of the risk Bow Tie: Serious injuries and/or fatalities (PC.1) and Property Damage (PC.2).

**2. SDG&E-5-C2 – Field and Public Safety**

**a. Description of Risk Reduction Benefits**

SDG&E Customer Service Field and Call Center employees are trained to perform a variety of customer related tasks utilizing formal procedures, processes and standards to adequately and safely do their jobs. SDG&E can potentially reduce the possibility of or severity of an event by responding to emergency calls 24 hours per day, 365 days per year. In 2018, 168,172 calls were attributable to emergency calls. SDG&E’s Customer Service’s primary goal is providing safe, reliable and efficient gas and electric service to customers, while complying with applicable federal, state and local regulations. To reduce the risk of a customer or public incident, SDG&E Field employees are trained to rectify safety hazards on customer premises. Some of these orders related to public safety include carbon monoxide, fumigation, hazardous and non-hazardous gas leaks and Natural Gas Appliance Testing (NGAT). In 2018, SDG&E

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<sup>25</sup> See Section IV.A., above, for definition of what is “in scope” for purposes of this risk assessment.



field employees worked 40,820 fumigation orders, 2,410 Carbon Monoxide orders and 34,047 orders related to hazardous and non-hazardous gas leaks. For purposes of the RSE analysis, SDG&E reviewed its Quality Assurance program and considered the average year over year reduction in safety incidents achieved as a result of performing this activity. 1,463 Quality Assurance inspections were completed in 2018. The goal of the program is to inspect 1% of all orders worked.

For purposes of an RSE analysis, Company SMEs looked at existing controls, considered the historical improvement achieved as a result of performing these activities, and used that in considering the potential increase in safety incidents if those activities ceased to be performed. As such, the Company expects to continue to achieve higher levels of accuracy as a result of the Quality Assurance program and therefore expects to receive an additional 12% risk reduction<sup>26</sup> by continuing to perform these activities. Further, without performing these activities, the Company could potentially see a decrease in other programs’ effectiveness, such as the ability to deploy focused employee training where needed as a result of findings from the Quality Assurance program.

**b. Elements of the Risk Bowtie Addressed**

The Field and Public Safety control addresses the following elements of the risk Bow Tie: Deviation from Company policy or procedure (DT.1), Inexperience or lack of training (DT.2), Serious injuries and/or fatalities (PC.1), Property Damage (PC.2) and Erosion of public confidence (PC.5).

**c. Summary of Results**

		Low Alternative	Single Point	High Alternative
Pre-Mitigation	LoRE	0.1759		
	CoRE	221	1835	4525
	Risk Score	39	323	796

<sup>26</sup> Please refer to the accompanying RSE workpapers for additional detail.

Post-Mitigation	<b>LoRE</b>	<b>0.1782</b>		
	<b>CoRE</b>	222	<b>1836</b>	4527
	<b>Risk Score</b>	40	<b>327</b>	807
	<b>RSE</b>	4.83	<b>28.24</b>	67.24

### 3. SDG&E-5-C3 – First Responder Outreach and Training

#### a. Description of Risk Reduction Benefits

First Responder Outreach and Training is intended to provide planning and guidance to first responders when preparing for, responding to, and following an incident. This initiative is performed through a variety of programs for first responders in their communities. The Operational Field and Emergency Readiness (OFER) program provides targeted training and planning activities for local first responders. This program allows the Company to develop strategic partnerships with local agency leadership that provide increased communication with first responders and awareness of gas and electric safety. In 2018, SDG&E trained approximately 3,600 first responders, with 44 agencies (including 18 cities within San Diego County and Tribal Fire Departments) through this outreach and training program.

SDG&E’s Emergency Operations Center (EOC) First Responder Training provides first responders with a curriculum of strategies and scenarios that familiarize squads with various ways to manage an incident. The program also provides responders with web-based training and certifications as well. This program has served local communities in San Diego County for seven years and has expanded significantly since inception. Since it began, nine training programs have been developed that target a variety of first responders from officers to dispatch personnel.

Emergency Management works closely with SDG&E’s First Responder Programs and other departments throughout the Company to confirm that emergency preparedness and response are safe, efficient and coordinated. Emergency Management oversees the Company’s emergency response and preparedness plans, standards and compliance requirements.

First Responder Outreach and Training, while not risk reducing on the front end, is important to potentially lessen the impact of an incident or event. SDG&E has not performed a



Risk Spend Efficiency Evaluation on SDG&E-5-C3 because the activity is not in the scope of this risk.<sup>27</sup> However, it is important to note that without this emergency event coordination and preparation, it is possible more safety incidents will occur during an incident or event.

**b. Elements of the Risk Bowtie Addressed**

The First Responder Outreach and Training control addresses the following elements of the risk Bow Tie: Serious injuries and/or fatalities (PC.1), Property Damage (PC.2) and Erosion of public confidence (PC.5).

**4. SDG&E-5-M1 – Expansion of Utility Incident Command and First Responder Training**

**a. Description of Risk Reduction Benefits**

The expansion of Utility Incident Command focuses on aligning all operational groups on an Incident Command System (ICS) compatible scene management process. ICS is the standard incident management approach used in the utility industry, as well as nationwide by local, regional, state, and federal government agencies. ICS is built on the concepts of the National Response Framework (NRF) and is compatible with the National Incident Management System (NIMS). NIMS provides a consistent template for managing incidents nationwide. The NRF defines principles, roles, and structures that organize how agencies unify their respond to incidents throughout the nation.

The expansion of an ICS-compatible incident management approach will see that there is a single response structure and process company-wide to manage all incidents. By utilizing ICS consistently across the organization, SDG&E’s approach to coordination and communication will align with external stakeholders during emergency situations. This includes the use of common terminology and position titles. Overall, this will enhance the interaction between SDG&E and responding agencies. It is imperative that SDG&E and external stakeholders utilize the same system for seamless integration and ease of mutual assistance during emergency situations.

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<sup>27</sup> See Section IV.A., above, for definition of what is “in scope” for purposes of this risk assessment.



The two key components of the Utility Incident Command expansion are SDG&E EOC Incident Command and OFER. Ensuring a standardized, effective, and efficient ICS-based response to incidents requires proper training to various levels of personnel via training courses and exercises targeted to position-specific personnel at all levels of the organization. The increase in training and exercises related to expand Utility Incident Command will require more instructors to both teach ICS courses, and to plan for and conduct exercises. As stated above, the Incident Command trainings and exercises administered by SDG&E are built on the concepts of the NRF and are compatible with the NIMS, both of which are recognized as nationwide response standards.

Field Integration/OFER is a program that supports strong Quality Assurance/Quality Improvement (QA/QI). It is used to confirm the sustainability of effective Incident Command practices and procedures. OFER is designed to be incorporated into the safety culture of SDG&E and will be utilized in all locations and situations where SDG&E personnel, facilities, or infrastructure are impacted.

The expansion of Utility Incident Command and First Responder Training mitigation addresses SDG&E's Customer and Public Safety, and Wildfire risks. While it is discussed in both RAMP chapters, the costs are fully allocated in the Wildfire chapter (SDG&E-1).

**a. Elements of the Risk Bowtie Addressed**

The Expansion of Utility Incident Command and First Responder Training mitigation address the following elements of the risk Bow Tie: Serious injuries and/or fatalities (PC.1), Property damage (PC.2) and Erosion of public confidence (PC.5).

**5. SDG&E-5-M2 – Expanded Public Safety Communications**

**a. Description of Risk Reduction Benefits**

Expanded Public Safety Communications campaigns are designed to educate the public about safety practices around gas and electric infrastructure. These campaigns aim to provide communities with a deeper understanding of appropriate safety practices to follow when encountering SDG&E's infrastructure.

SDG&E intends to expand several communication campaigns that target public safety practices around gas and electric infrastructure. The Wire Down safety campaign is focused on



awareness and precautions pertaining to downed power lines. The target audience is SDG&E's customer base and the general public within the service territory.

Expansion of the 811 Call before you Dig campaign will focus on strengthening and growing messaging to customers or the public on the dangers associated with digging without calling 811 and having underground assets marked. The expanded campaign will target the "weekend gardener" or the landscaper who does not think that 811 is important to them because they may not be digging deep enough to hit an underground pipe/line. The focus of this expansion is to strengthen and broaden the campaign to customers and the public.

Expansion of annual campaigns such as the Pipeline Safety, Winter Prep Safety and Summer Prep Safety will improve public understanding and safety awareness throughout the year. The annual Pipeline Safety campaign provides infrastructure safety information to residential and business customers as well as excavators in the community. The campaign includes information on calling 811 before initiating digging projects. This campaign also provides schools and public officials with information on major pipelines near their facilities and safety considerations associated with this type of infrastructure. Winter and Summer Prep Safety Campaigns are two annual communication campaigns that provide the public with safety tips related to power line safety, generator safety, carbon monoxide safety, holiday lighting considerations, extension cord safety, and cautions about overloading circuits

The messaging of the safety campaigns will be presented through a variety of mediums. The Company intends to employ the use of radio, TV, print, email, bill inserts, direct mail brochures, outdoor and digital advertising in English, Spanish, and Asian languages.

#### **b. Elements of the Risk Bowtie Addressed**

The Expanded Public Safety Communications mitigation addresses the following elements of the risk Bow Tie: Serious injuries and/or fatalities (PC.1), Property Damage (PC.2) and Erosion of public confidence (PC.5).

### **VII. SUMMARY OF RISK MITIGATION PLAN RESULTS**

SDG&E's Risk Mitigation Plan takes into account recent trends related to Customer and Public Safety, affordability impacts, possible labor constraints and the feasibility of mitigations. SDG&E has performed a RSE analysis, in compliance with the SA Decision, but ultimate





mitigation selection can be influenced by other factors including funding, labor resources, technology, planning, compliance requirements, and operational and execution considerations.

Table 6 below provides a summary of the Risk Mitigation Plan, including controls and mitigations activities, associated costs, and the RSE.

SDG&E does not account for and track costs by activity, but rather, by cost center and capital budget code. Thus, the costs shown in Table 6 below were estimated using assumptions provided by Company SMEs and available accounting data.



**Table 6: Risk Mitigation Plan Overview<sup>28</sup>**  
(Direct 2018 \$000)<sup>29</sup>

ID	Mitigation/Control	2018 Baseline Capital <sup>30</sup>	2018 Baseline O&M	2020-2022 Capital <sup>31</sup>	2022 O&M	Total <sup>32</sup>	RSE <sup>33</sup>
SDG&E-5-C1	Public Safety Communications	0	370	0	470 - 560	470 - 560	-
SDG&E-5-C2	Field and Public Safety	0	6,000	0	6,000 – 7,300	6,000 – 7,300	4.83 – 67.24
SDG&E-5-C3	First Responder Outreach and Training <sup>34</sup>	0	0	0	0	0	-

<sup>28</sup> Recorded costs and forecast ranges are rounded. Additional cost-related information is provided in workpapers. Costs presented in the workpapers may differ from this table due to rounding.

<sup>29</sup> The figures provided are direct charges and do not include company loaders, with the exception of vacation and sick time. The costs are also in 2018 dollars and have not been escalated to 2019 amounts.

<sup>30</sup> Pursuant to D.14-12-025 and D.16-08-018, the Company provides the 2018 “baseline” capital costs associated with Controls. The 2018 capital amounts are for illustrative purposes only. Because capital programs generally span several years, considering only one year of capital may not represent the entire activity.

<sup>31</sup> The capital presented is the sum of the years 2020, 2021, and 2022 or a three-year total. Years 2020, 2021 and 2022 are the forecast years for SDG&E’s Test Year 2022 GRC Application.

<sup>32</sup> Total = 2020, 2021 and 2022 Capital + 2022 O&M amounts.

<sup>33</sup> The RSE ranges are further discussed in Chapter RAMP-C and Section VI above.

<sup>34</sup> Costs for this activity are presented in the Wildfire Chapter of this RAMP Report (SDG&E-1).



SDG&E-5-M1	Expansion of Utility Incident Command and First Responder Training	0	320	0	590 - 720	590 - 720	-
SDG&E-5-M2	Expanded Public Safety Communications	0	0	0	1,800 – 2,200	1,800 – 2,200	-
<b>TOTAL COST</b>		<b>0</b>	<b>6,700</b>	<b>0</b>	<b>8,900 – 11,000</b>	<b>8,900 – 11,000</b>	



It is important to note that SDG&E is identifying potential ranges of costs in this Risk Mitigation Plan and is not requesting funding herein. SDG&E will integrate the results of this proceeding, including requesting approval of the activities and associated funding, in the next GRC.

There are activities that will be carried over to the GRC for which the costs are primarily internal labor (*e.g.*, various training). The costs associated with these internal labor activities are not captured in this chapter because SDG&E does not track labor in this manner. These activities related to the Customer and Public Safety Risk are: Employee time related to training, and employee time spent in the EOC during activation.

SDG&E is not calculating RSEs on the following activities/programs:

**Table 7: Summary of RSE Exclusions**

<b>Control/Mitigation ID</b>	<b>Control/Mitigation Name</b>	<b>Reason for No RSE Calculation</b>
SDG&E-5-C1	Public Safety Communications	Non-scoped safety activity/Mandated activity per 49 CFR § 192.616
SDG&E-5-C2	Field and Public Safety <sup>35</sup>	Non-scoped safety activity/Mandated activity <sup>36</sup>
SDG&E-5-C3	First Responder Outreach and Training	Non-scoped safety activity (costs captured in Wildfire Chapter, SDG&E-1)
SDG&E-5-M1	Expansion of Utility Incident Command and First Responder Training	Non-scoped safety activity (in Wildfire Chapter, SDG&E-1)
SDG&E-5-M2	Expanded Public Safety Communications	Non-scoped safety activity

## VIII. ALTERNATIVE ANALYSIS

Pursuant to D.14-12-025 and D.16-08-018, SDG&E considered alternatives to the Risk Mitigation Plan for the Customer and Public Safety Risk. Typically, analysis of alternatives occurs

<sup>35</sup> The Quality Assurance Program, part of the Field and Public Safety control, does have an RSE calculation detailed in Section VI above.

<sup>36</sup> *See*, Appendix B for listing of Field and Public Safety compliance mandates.



when implementing activities to obtain the best result or product for the cost. The alternatives analysis for this Risk Mitigation Plan also took into account modifications to the plan and constraints, such as budget and resources.

**A. SDG&E-5-A1 – Post-training Follow-up Field Evaluation**

SDG&E considered an alternative that would provide new field service technicians with a follow up field evaluation six months after being released from formal training. This evaluation would determine whether these new employees continue to follow the safety policies and procedures established during their formalized training. Any deficiencies in an employee’s performance would be addressed on an individual basis and follow up training would be scheduled to remediate any issues.

This alternative was not implemented because employees currently participate in annual reviews of safety- and risk-related policies and procedures (e.g., Gas Standards, monthly defensive driving training, ergonomic training, bi-weekly safety meetings, etc.). SDG&E employees attend week-long compliance/refresher training that covers pertinent policies, addresses Field QA findings and reviews recent incidents to help mitigate risk. At SDG&E, there is also no set time period to start QA inspections on new employees. When issues are found they are coached by the direct supervisor, which can lead to field rides by the Supervisor, Appliance Mechanic, Field Instructor, Instructor or QA Inspector. Expanding the scope of training or reducing the period between policy reviews across the board would require additional resources and increase costs yet were not expected to yield significant benefits.

**1. Summary of Results**

		Low Alternative	Single Point	High Alternative
Pre-Mitigation	LoRE	0.1759		
	CoRE	221	1835	4525
	Risk Score	39	323	796
Post-Mitigation	LoRE	0.1759		
	CoRE	221	1834.8	4525
	Risk Score	39	322.71	796
	RSE	0.13	1.42	3.27

## B. SDG&E-5-A2 – Modernization of CSF Training Materials

SDG&E considered modernizing CSF training materials to include development of additional online training modules, video production, Power Point presentations, Captivate (CBT) training modules and creation of modernized testing materials. Currently, SDG&E employs CSF policy manuals coupled with training workbooks designed to teach employees how to perform different jobs in accordance with the policy manuals. In general, CSF policies provide guidance on “what to do” in most situations, but the training materials explain “how to do” the job in those situations and provides process detail to effectuate compliance with the policy. This approach allows employees to do their jobs safely and maintain compliance. SDG&E considered updating its training materials to leverage newer technology to improve on training efficiency and effectiveness. Policy updates, process changes, new programs and training module improvements require continuous review, as these areas are dynamic.

Because policies and best practices change regularly, converting the training materials and updating on an ongoing basis is not a realistic option due to resource and cost constraints. For example, it would be necessary to pull existing trainers and instructors out of the classroom and field for re-training, and continuously employ instructional designers in addition to the ongoing expense for training module updates. After research and consideration, SDG&E has chosen to review and modernize its training materials and technology as changes are warranted.

### 1. Summary of Results

		Low Alternative	Single Point	High Alternative
Pre-Mitigation	LoRE	0.1759		
	CoRE	221	1835	4525
	Risk Score	39	323	796
Post-Mitigation	LoRE	0.1759		
	CoRE	221	1834.8	4525
	Risk Score	39	322.71	796
	RSE	0.03	0.30	0.68

**Table 8: Alternative Mitigation Summary**  
(Direct 2018 \$000)<sup>37</sup>

ID	Mitigation	2020-2022 Capital	2022 O&M	Total <sup>38</sup>	RSE <sup>39</sup>
SDG&E-5-A1	Post-training Follow-up Field Evaluation	0	24 – 30	24 – 30	0.13 – 3.27
SDG&E-5-A2	Modernization of CSF Training Materials	0	110 - 140	110 - 140	0.03– 0.68

<sup>37</sup> The figures provided are direct charges and do not include company loaders, with the exception of vacation and sick time. The costs are also in 2018 dollars and have not been escalated to 2019 amounts.

<sup>38</sup> Total = 2020, 2021 and 2022 Capital + 2022 O&M amounts.

<sup>39</sup> The RSE ranges are further discussed in Chapter RAMP-C and Section VI above.



**APPENDIX A: SUMMARY OF ELEMENTS OF THE RISK BOW TIE ADDRESSED**

<b>ID</b>	<b>Control Name</b>	<b>Element of the Risk Bow Tie Addressed</b>
SDG&E-5-C1	Public Safety Communications	PC.1, PC.2
SDG&E-5-C2	Field and Public Safety	DT.1, DT.2, PC.1, PC.2, PC.5
SDG&E-5-C3	First Responder Outreach and Training	PC.1, PC.2, PC.5
SDG&E-5-M1	Expansion of Utility Incident Command	PC.1, PC.2, PC.5
SDG&E-5-M2	Expanded Public Safety Communications	PC.1, PC.2, PC.5



## **APPENDIX B: FIELD AND PUBLIC SAFETY COMPLIANCE MANDATES**

### **Hazardous Gas Leaks:**

- California Public Utilities Code, Division 1, Part 1, Chapter 2.2, Section 328.1 A & C
- CPUC Plan, Code: 961 [2. Natural Gas Pipeline Safety Act of 2011], D6
- CPUC Plan, Code: 963 [2. Natural Gas Pipeline Safety Act of 2011] A-C
- CPUC, General Order 58-A, section 22 b & c
- CFR Title 49 Part 192.605(b)(11) Procedural manual for operations, maintenance, and emergencies [L]
- CFR Title 49, Part 192.615 section (a)(3, 5, and 7)

### **Non-Hazardous Gas Leaks:**

- CPUC Plan, Code: 961 [2. Natural Gas Pipeline Safety Act of 2011], D6
- CPUC Plan, Code: 963 [2. Natural Gas Pipeline Safety Act of 2011] A-C
- CPUC, General Order 58-A, section 22 b & c
- CFR Title 49 Part 192.605(b)(11) Procedural manual for operations, maintenance, and emergencies [L]
- CFR Title 49, Part 192.615 section (a)(3, 5, and 7)

### **Fumigation Orders:**

- CPUC Plan, Code: 963 [2. Natural Gas Pipeline Safety Act of 2011] A-C
- CPUC Tariff Rule 9, Section K
- Advice Letter 3210, Establishment of the Fumigation Turn-Off/Turn-On Service Memorandum Account
- CFR Title 49, Subpart N - Operator Qualifications, section 192.801

### **CO Testing:**

- CPUC Plan, Code: 963 [2. Natural Gas Pipeline Safety Act of 2011] A-C
- CPUC, General Order 58-A, section 22 b & c

### **NGAT:**

- CPUC Plan, Code: 963 [2. Natural Gas Pipeline Safety Act of 2011] A-C
- California Public Utilities Code, Division 1, Part 2, Chapter 6, Section 2790
- California Public Utilities Code, Division 1, Part 1, Chapter 4, Article 13, Section 922
- CEC Building Energy Efficiency Standards, Title 24, Part 6
- CEC Appliance Efficiency Standards, Title 20