Risk Assessment Mitigation Phase
Risk Mitigation Plan
Lessons Learned
(RAMP – F)

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Lessons Learned

1. Background

In accordance with Decision (D.) 16-08-018,[1] San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas) (collectively referred to as the utilities) put forth these lessons learned that can be applied to future utilities' Risk Assessment Mitigation Phase (RAMP) reports. The process of developing this Report enhanced SoCalGas and SDG&E's Enterprise Risk Management (ERM) practices and heightened awareness company-wide with respect to identifying, evaluating, managing, and mitigating risk. The lessons presented below are specific to SoCalGas and SDG&E processes but are intended to assist other utilities as they embark on their future RAMP filings.

2. Lessons Specific to SDG&E and SoCalGas' Processes

The utilities have made significant progress in the evolution of their risk management practices by going through the RAMP process. Some of the identified lessons were incorporated into the annual risk evaluation process and others are longer-term goals. The areas identified are enhancements to the risk evaluation process, data collection, accounting systems and risk reduction benefits. For purposes of this Report, these lessons learned are specific to the utilities' risk management framework for General Rate Case (GRC) purposes.

Risk Evaluation

The risk evaluation and registry process, facilitated by the ERM organization, continues to evolve and has new value-added aspects. Identifying and documenting the risk scenario used to score risks is one such area. The utilities' Subject Matter Experts (SMEs) select a reasonable worst case scenario as the basis of the risk score. The reasonable worst case scenario is not limited to direct experiences from the utilities; rather, it is based on events that have occurred or could reasonably occur at any utility. The scenario clarifies why the risk was scored as it was. This is particularly important because many of the risks have elements that are low consequence/high frequency as well as the opposite, high consequence/low frequency.

Take, for example, the risk of Catastrophic Damage Involving Gas Infrastructure (Dig-Ins). Third-party contacts with underground utility equipment or Dig-ins are rather frequent across the country, but most have little to no serious safety implications (i.e., high frequency/low consequence). A subset of Dig-ins, however, have the potential for significant safety consequences, but the occurrence of those events are less frequent (i.e., high consequence/low frequency). The risk scenario identifies which situation was considered when scoring the risk, which provides context for the score itself and how the proposed mitigations can be effective. In the future, examining and planning for the probability distribution of all Dig-Ins would be an

[1] D.16-08-018 at page 152 requires the utilities to "[i]dentify lessons learned in the current round to apply in future rounds," such that "[l]essons learned by one company will also inform the RAMP filings of the other companies."

improvement over examining one end or the other of the spectrum, low consequence to high consequence.

The utilities also made revisions to their risks and the accompanying scores in 2016. Generally, each company's identified risks are revisited annually to reflect any new facts and information, including events occurring since the last risk registry refresh. This process also includes revising the scope of existing risks and considering the addition of new risks. Broadly scoped risks in 2015 were revised to be more narrowly focused. For instance, a risk may have originally been very general; however overtime, it was realized that the risk was more specific in nature. Then, the risk may be updated to provide for a narrower scope.

Another enhancement in the upgraded risk evaluation process is the SMEs were asked to provide data to explicitly support their risk score, to the extent feasible. This will allow the utilities to identify areas where data collection can be improved as well as provide a data-driven basis for the risk score. This is largely a long-term goal of SDG&E and SoCalGas.

Data Collection

The utilities are currently evaluating increasing the amount of data collected and tracked. The utilities recognize that data collection is related to reporting, benchmarking and metrics as well. In accordance with D.16-08-018, the Safety and Enforcement Division (SED) has convened a technical working group to, in part, develop a plan to enhance data collection efforts.[2] The utilities are active participants in this working group and will adhere to future California Public Utilities Commission (CPUC or Commission) directives on this issue. For more details on data collective, please refer to the chapter within this RAMP Report on Data Collection.

Accounting Systems

The utilities currently present and analyze information in the GRC by cost centers, which tend to follow the organizational structure of the company, and capital budget codes. In the RAMP, rather than the typical cost center and budget code look, the utilities are presenting information based on the identified key safety risks and the mitigations for those risks. These safety risks are generally not limited to a specific organization and can span company-wide. Because the utilities' accounting systems are not configured on a risk or activity basis, gathering historical cost information to establish the baseline costs posed a challenge.

To compile costs according to risk or activity, the utilities considered taking a similar approach to that of the GRC with respect to costs. This consists of pulling accounting information, making adjustments to historical data where applicable, analyzing the data, and estimating costs using a forecasting methodology. The first step of pulling historical accounting information, however, was a challenge because the utilities do not have accounting data available in that manner. Consequently, the utilities first needed to identify all the projects and programs in place to mitigate the RAMP safety risks, determine where the activity was booked and then pull the applicable accounting data.

[2] D.16-08-018 at Ordering Paragraph (OP) 11.

For this Report, the utilities applied a hybrid method for developing costs. That is, when available, accounting information was used, sometimes referred to as a bottoms-up approach. Conversely, when no accounting information could be discerned, high-level assumptions based on SME judgement, also known as a top-down approach, were used.

Given the limitations with the existing accounting systems, as well as accountability reporting requirements[3] following the GRC, the utilities are currently evaluating their accounting systems and/or processes to determine if modifications are needed to incorporate risk-related attributes for tracking purposes. In their next RAMP Report, the utilities hope to employ a cost gathering and evaluation process in line with the one used to prepare their GRC.

Quantification of Risk Reduction

For this Report, the utilities are quantifying risk reduction for the first time and are providing early stage risk reduction calculations for proposed mitigation plans. Because the quantification of risk reduction is new territory for SDG&E and SoCalGas, many assumptions were used in the benefit calculations that the utilities may be able to improve upon in the future. Experience and a history of quantifying benefits are expected to improve the utilities' ability to analyze risk spend efficiency and to align investment decisions with risk benefits in future years.

3. Advice for Other Utilities

The discussion below highlights areas where utilities may wish to explore process and timing improvements in their future RAMP filings.

Scope of Risks

In determining mitigations,[4] SDG&E and SoCalGas considered two alternative approaches: (1) include mitigations that address all impact areas associated with the risk (e.g., reliability); or (2) include only safety-related mitigations. Initially, the utilities considered taking the first approach, presenting all applicable mitigations associated with each risk rather than primarily those that are safety-related. In essence, the mitigations would have been all-inclusive (i.e., the mitigations would represent all impact areas). In other words, the key risks would be selected

[3] D.14-12-025 at OP 1 requires an Accountability Spending Report.

[4] The utilities present this Report at the mitigation level consistent with the Commission's directives. *See* D.14-12-025 at 32. There are three levels of detail with respect to the risk mitigation plans:

1. Risk –the least granular, highest level that provides information for a particular risk at a portfolio level.
2. Mitigation – projects and programs that have been grouped into higher level categories (i.e., mitigations) based on similarity, dependency or because they address the same drivers or consequences.
3. Project/Program – the most granular, details review of the specific projects and programs the utility is or proposes to perform.

The mitigation level provides details about the intent of the mitigation activities without presenting overwhelming amounts of information on each project or program.

based on a safety-related threshold;[5] however, once the risk was included in the RAMP, all the activities that mitigate the risk would be presented.

However, the RAMP is based on Senate Bill 705 which stated that "the commission and each gas corporate place safety of the public and gas corporation employees as the top priority."[6] This safety focus was echoed in D.16-08-018: "Overall, the utility should show how it will use its expertise and budget to improve its safety record."[7] Further, the utilities chose to go with the second approach based on feedback from SED, that safety mitigations and those reliability activities that also have a safety impact should be included, and because addressing all mitigations could render the RAMP report unnecessarily long. Moreover, the additional length would not provide much benefit, because safety and reliability benefits are often challenging to separate. Consequently, SoCalGas and SDG&E selected for inclusion in the RAMP risks that received a score of four (4) or more in the Health, Safety, and Environment category, as described in more detail in the Overview and Approach section of this Report. While SDG&E and SoCalGas recommend this approach, the other utilities should decide early in the process as to which mitigations should be included in their respective RAMP submittals.

SDG&E and SoCalGas also recommend that other utilities going through the RAMP process should, at the beginning, group projects/programs into mitigations that address the same drivers or consequences, go together and/or have dependencies. For example, one mitigation trains personnel for an activity. Another mitigation performs the work after personnel is trained. Those two items are dependent on each other and, therefore, should be grouped into one mitigation at the beginning of the RAMP process. However, if you are not thinking of mitigations in terms of their risk reduction, you will likely keep them separate. This was the case for SDG&E and SoCalGas, where the utilities determined mitigations toward the beginning of the RAMP process. However, when the risk spend efficiency efforts began, not all the mitigations were grouped in a way that was optimal for risk reduction purposes. Identifying dependencies at the beginning of the process could help to improve the resulting analysis.

Lastly, some of the activities presented in the risk chapters help to mitigate multiple risks. With regard to these overlapping activities, SDG&E and SoCalGas recommend that the other utilities either allocate on a percentage basis the costs associated with the overlapping mitigations or make a determination of the most fitted risk to include the costs. The RAMP is not a venue to

[5] Pursuant to D.14-12-025 at 31, "the purpose of the RAMP is to examine the utilities' assessment of key risks and proposed programs for mitigating those risks." Consistent with this purpose, the utilities first determined the "key" safety risks to include in this Report. The threshold to determine which risks to include was agreed upon by stakeholders during the workshop process in the context of the Safety Model Assessment Proceeding (S-MAP) Application (A.) 15-05-002 and subsequently adopted in D.16-08-018 (Interim S-MAP Decision). D.16-08-018 at p. 151. It should be noted that this RAMP Report was developed concurrently while A.15-05-002 was pending before the Commission. Shortly thereafter, mitigations for those "key" risks were identified for 2015 (baseline) and the proposed plan.
[6] D.14-12-025 at p. 16.
[7] D.16-08-018 at p. 151.

request funding, but rather to present the risk assessment approach utilized by the utility into the GRC process; therefore, SDG&E and SoCalGas determined that presenting mitigations and their costs in all applicable chapters would be the most accurate and complete way to demonstrate the entirety of the costs and risk reduction benefits associated with the mitigations. SDG&E and SoCalGas have discussions in the risk chapters to explain these overlapping mitigations. For example, security guards help to mitigate the risk of Workplace Violence as well as any physical security concerns, and where an activity mitigates more than one risk, in order to show a complete mitigation plan, the utilities included that activity in all the applicable risks. However, this process presented challenges because the mitigations were determined rather early on in the process, while the risk reduction was completed toward the later part of the RAMP process. In essence, because 100% of the risk reduction for an overlapping mitigation was included, 100% of the costs needed to be included in each risk. SDG&E and SoCalGas may explore alternative methodologies of demonstrating these overlaps in their next RAMP filing.

Process Improvements

Generally, the utilities have been doing GRCs in the same way for decades. The RAMP process is new and requires significant efforts to socialize the intent and requirements throughout each company. Many of the RAMP teams were comfortable with SDG&E's and SoCalGas' risk evaluation methodology (i.e., the 7X7 matrix) as it has been used for several years, specifically with discussing why the risk scores were assigned. However, the process of developing the RAMP Report was uncharted territory. As mentioned above, gathering cost information by mitigation was challenging, as was attempting to quantify risk reductions for the mitigations. The change management efforts were notable and should not be overlooked.

For other utilities developing a RAMP Report, SDG&E and SoCalGas recommend the following:

- Provide frequent communication with teams and management – SDG&E and SoCalGas had frequent touch points with the RAMP teams through standing weekly meetings, All Hands Meetings, etc.
- Give guidance to teams as early as practical – although items come up throughout the process, the more guidance provided at the beginning the better.
- Hold planning sessions early in process to provide an opportunity to:
    - Understand the risks and related mitigations;
    - Ask why mitigations have been included in the risk mitigation plans;
    - Gain insights as to how SDG&E and SoCalGas can strengthen the RAMP Report; and
    - Understand the next steps regarding the development of the RAMP Report.
- Feedback and participation is critical and best known when there is still time to make revisions, if necessary, to the Report.

- To the extent it is possible, having the cost estimates complete prior to commencing risk reduction efforts help to eliminate potential duplicative work, especially if there is a number change after the risk spend efficiency has been calculated.
- Provide considerable time for quantifying the risk reduction – risk reduction is a new concept that is not necessarily intuitive. It is very challenging for the subject matter experts to determine the amount of risk reduction that can be achieved by implementing a particular mitigation. For example, what is the "benefit" or how much is risk reduced by implementing a public awareness campaign? This is difficult to address qualitatively, let alone attempt to quantify. SDG&E and SoCalGas originally had planned to spend six to eight weeks for the risk reduction calculation process, which proved to require more time.
- Manage expectations regarding risk reduction – not all mitigations are designed to reduce the risk score. Some mitigations are compliance-related while others are needed to prevent the risk from increasing, and are needed just to maintain status quo. This is important for all parties to understand.

SDG&E and SoCalGas expect that as the RAMP process matures, so will the utilities' showings. The utilities will continue to learn both from their experience as well as from the other utilities.