

**ORA DATA REQUEST - 1**  
**SDG&E-SOCALGAS RAMP - I.16-10-015\_016**  
**SDG&E & SOCALGAS RESPONSE**  
**DATE RECEIVED: FEBRUARY 17, 2017**  
**DATE RESPONDED: MARCH 6, 2017**

**Question 1:** Provide detailed calculations on how you derived the risk scores and Risk Spend Efficiency (RSE) shown in all chapters of the SDG&E and SCG RAMP Testimony.

To the extent that workpapers were generated, please provide these in excel format if possible. Any excel documents should retain all functions (inputs entered in the formula bar) that were used for calculations. Any excel documents should be provided with full read/write access. To the extent that Subject Matter Experts used their judgment or opinion in generating a risk score, please provide the result(s) or outcome(s) of their judgment(s) or opinion(s).

**Response 01:**

The RSE workpapers can be found using the link below:

<http://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socialgas>

Then, use the following path: Discovery > CUE > CUE DR-01 RAMP RSE Workpapers

RSE Calculations

The RSE workpapers include all supporting documentation for the calculation of the potential risk reduction of each mitigation group. Such calculations serve as the numerator of the RSE scores seen in each risk chapter of the RAMP filing.

Each file has a tab entitled “Analysis” which contains the calculations used to derive the potential risk reduction of each mitigation group. This potential risk reduction is quantified in a column entitled “Weighted New Score” or “Calibrated Weighted New Score.” These are the figures used in the numerator of the RSE scores. In addition, the “Analysis” tab contains a sample RSE calculation with estimated cost figures to illustrate how the RSE can be calculated.

Some files may have additional worksheets which show supporting analysis or data for the results shown in the “Analysis” tab. The risk analysis team used this supplemental information to:

- summarize the analysis;
- facilitate discussions with the subject matter experts and other stakeholders as the mitigations were being evaluated and analyzed;
- consolidate external data for internal use;
- document discussion notes or other data;
- parse complex calculations for the sake of clarity; and/or
- provide reference for baseline residual risk scores.

SoCalGas and SDG&E found one calculation error regarding the RSE in its filing in Chapter SDG&E-03 (Employee, Contractor and Public Safety). The RSE workpapers reflect the corrected values and such instances have been explicitly noted.

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**Response 01:-Continued**

Risk Scores

The calculations of the 2015 residual risk scores are also provided in the RSE workpapers. However, RSE analysis was not performed for the Climate Change Adaptation risks at SoCalGas and SDG&E (SCG-9 and SDG&E-14, respectively). Accordingly, the following example provides the detailed calculations for the Climate Change Adaptation risks for both SCG-9 and SDG&E-14 (please note that the 2015 risk scores are the same for both the Climate Change Adaption risk chapters):

As shown on page SDGE/SCG B-6, the algorithm of the risk score is:

$$\text{risk score} = \sum_{i=1}^n \text{weight}_i * \text{frequency}_i * 10^{\text{impact}_i}$$

Each impact category is assigned a weight as follows:

- 40% for Health, Safety & Environmental,
- 20% for Operational and Reliability,
- 20% for Regulatory, Legal & Compliance, and
- 20% for Financial.

Frequency ratings translate to certain values as shown in the table below:

<u>Frequency Rating</u>	<u>Value</u>
1	0.005
2	0.018
3	0.058
4	0.183
5	0.577
6	3.162
7	31.623

Thus, the calculation for Climate Change Adaptation is:

<b>Residual Impact</b>				<b>Residual Frequency</b>	<b>Residual Risk Score</b>
<b>Health, Safety, Environmental</b>	<b>Operational &amp; Reliability</b>	<b>Regulatory, Legal, Compliance</b>	<b>Financial</b>		
<b>(40%)</b>	<b>(20%)</b>	<b>(20%)</b>	<b>(20%)</b>		
4	5	4	5	3	2,656

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(Using frequency table, frequency 3 has value of 0.058)

$$\begin{aligned} &= 0.4*0.058*10^4 \text{ [safety]} + 0.2*0.058*10^5 \text{ [reliability]} + 0.2*0.058*10^4 \text{ [compliance]} \\ &\quad + 0.2*0.058*10^5 \text{ [financial]} \\ &= 231 \text{ [safety]} + 1,155 \text{ [reliability]} + 115 \text{ [compliance]} + 1,155 \text{ [financial]} \\ &= 2,656 \end{aligned}$$

All the other risk scores were calculated using the same methodology. To the extent subject matter expertise was used to develop the scores for the RAMP risks, SoCalGas and SDG&E explained the thought processes in the Risk Score section in each risk chapter of the RAMP Report.

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**Question 2:** Provide, in 2015 dollars, 2011 through 2014 Baseline Risk Mitigation costs for all chapters of the SDG&E and SCG RAMP Testimony.

**Response 02:**

The RAMP cost workpapers include mitigation costs for the years 2011 through 2014 in direct, 2015 dollars. Those workpapers can be found using the link below:

<http://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socialgas>

Then, use the following path: Discovery > CUE > CUE DR-01 Cost Workpapers

Please note that the purpose of RAMP is not to request funding. Any funding requests will be made in the Test Year 2019 GRC, which will be filed on September 1, 2017. RAMP mitigation forecasts are provided only to estimate a range that will be refined with supporting testimony in the GRC.

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**Question 3:** Provide calculations, including assumptions, on how proposed Risk Mitigation Costs were derived for all chapters of the SDG&E and SCG Testimony.

**Response 03:**

The costs in the RAMP Report are included in the Summary of Mitigation sections of the risk chapters and are presented in two tables, Baseline Risk Mitigation Plan and Proposed Risk Mitigation Plan. The costs provided in the Capital and O&M columns of these two tables, as well as the GRC Total column where applicable, are supported in the cost workpapers provided in response to Question 2. The Control Total and Mitigation Total columns are the sum of the amounts shown in the capital and O&M amounts in the respective tables.

Assumptions, if any, were made by the Subject Matter Experts (SMEs) of SoCalGas and SDG&E to develop the baseline and proposed plans for the RAMP. Any assumptions and factors the SMEs considered in determining the baseline and proposed plans include but are not limited to: compliance obligations, future business needs, changing or anticipated changes in regulatory or legal requirements, and the balance of affordability with further risk reduction. Given these assumptions and factors, the SMEs developed ranges of costs for the RAMP that will be refined in the General Rate Case with supporting testimony and workpapers. These RAMP assumptions were made by a large group of SMEs over a period of months and would be very time consuming to attempt to collect at this point in time.

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**Question 4:** Provide a definition for the term “Residual Risk Multiplier” (RSM) as used in SDG&E 10. The definition should include an explanation of the significance of using the Residual Risk Multiplier in determining Risk Spend Efficiency. The equation provided by SDG&E that defines Residual Risk Multiplier is:

$$\frac{\text{Incident Rate from Selected Causes}}{\text{Incident Rate from all Causes}} \times \text{Proportion of Remediated Assets}$$

**Response 04:**

Definition: The residual risk multiplier (RSM) is the ratio of projected performance to current performance. It is used to prorate the impacts of the mitigation by:

1. the drivers (i.e., triggers, causes by cause code in PHMSA) impacted by the mitigation; and,
2. the proportion of the assets the mitigation remedies.

Following is a further explanation of the components of the RSM using as an example the TIMP mitigation from SDG&E 10:

**Incidents rate from selected causes (or drivers):** This component represents the projected performance if the mitigation is not funded. If the TIMP mitigation is not funded, the subject matter experts determined that the incident rate due to the selected causes (which are addressed by the TIMP mitigation) will deteriorate to the worst in the nation. The selected potential causes are:

- Corrosion
- Material failure of weld/pipe

If the TIMP mitigation is not funded, the deterioration due to these selected drivers is projected to be 4 incidents per year (using data from PHMSA).

**Incident rate from all causes:** This component represents the current performance. The current incident rate at the company from all causes is 0.153 incidents per year (data from PHMSA).

**Proportion of remedied assets:** Since the TIMP mitigation proposed in SDG&E 10 addresses only 3 of the 7 years of the program or 43%, the benefit of the mitigation needs to be pro-rated by that amount leading to:

$$\text{Residual Risk Multiplier} = \frac{4}{0.153} * 43\% = 11.2$$

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This means that the projected frequency of the risk event (and hence risk score) is expected to increase 11.2 times from the current level, should TIMP not be funded. The larger this value, the higher the RSE, as the benefit of the mitigation is greater.

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**Question 5:** On page SDGE 7/SCG 3-9, SCG and SDG&E discusses threat descriptions and motivations related to cyber security.

Please describe how and why SCG/SDG&E consider ‘intelligence’ a motivation for insiders.

**Response 05:**

SoCalGas and SDG&E consider ‘intelligence’ a motivation for insiders due to the significant confidential information that is collected and retained at the utilities, such as private customer and employee data, planned projects, proprietary and financial information, potential patents, critical infrastructure information, etc. The intelligence motivation, for example, would be to collect non-public information on behalf of a third party or for the insider’s benefit. Another example would be an attacker using social engineering techniques to trick an insider into providing non-public information. Given these concerns and because an insider has more access than an external party, additional cyber security controls may be necessary to protect confidential information.



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**Question 6:** Do SCG/SDG&E have any methodology or metrics for categorizing or otherwise distinguishing between types of cyber-attacks? See footnotes 7 and 8 on page SDGE 7/SCG 3-13.

**Response 06:**

SoCalGas' and SDG&E's categorization method is to group incident information to provide feedback to the Information Security program to identify effective mitigations and areas where the security posture could potentially be improved. SoCalGas and SDG&E do not currently maintain metrics on attackers or their techniques as they are dynamic and change over time. However, threat intelligence is monitored. SoCalGas' and SDG&E's cyber security risk mitigation strategy is to identify and mitigate vulnerabilities based on prioritized use of resources.

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**Question 7:** Please describe and quantify the costs and benefits of SCG's Voluntary Retirement Program (VREP) as described on page SCG 7-3.

**Response 07:**

In 2016, SDG&E and SoCalGas (the Companies), and in 2017, SoCalGas offered a Voluntary Retirement Enhancement Program (VREP) to certain employees with long-term service to effectively bring staffing in line with operational needs. VREP costs and benefits were not quantified in the RAMP Report. Since the VREP is still ongoing, the financial impacts/costs to workforce planning have not been calculated at this point. The Companies describe below the cost and benefit information that is available at this time.

For each employee that elected to and was accepted to retire under the program, VREP provides an additional post-retirement health benefit in the form of a one-time credit to a recordkeeping account in a Health Reimbursement Account (HRA) that can be utilized to pay for qualified medical expenses. The cost of the VREP will flow through the expense for Post-Retirement Benefits Other than Pension (PBOP). The CPUC-approved amount of PBOP expense that is recovered in rates by the Companies is the lesser of the IRS maximum taxable contribution or the non-regulatory Generally Accepted Accounting Principles (GAAP) cost.

The benefits of VREP include mitigating the risk of a mass exodus of retirement eligible employees all at once by offering voluntary retirement packages and beginning the exit process in an organized manner. VREP also creates new opportunities for less tenured employees to progress upward, alleviating both the risk of accelerated turnover from the non-retirement eligible employees due to a lack of job opportunities, as well as the risk of more seasoned employees to retire all at once. It is a proactive effort to maintain the long-term talent that SoCalGas needs to support the organization while continuing to provide safe and reliable operations.

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**Question 8:** On page SCG 9-4, SCG states:

“Additionally, SoCalGas’ current, not future, mitigation efforts to reduce its greenhouse gas emissions were not included in this RAMP chapter because this chapter is presenting the adaptation assessment and mitigation efforts for climate change adaptation, and not for climate change mitigation, as discussed above.” Please briefly describe SoCalGas’s efforts to reduce its greenhouse gas emissions.

**Response 08:**

As described in the portion of this risk chapter cited in the question above, although not within the scope of SoCalGas’ RAMP Report, SoCalGas has a long-standing commitment to modernizing its system infrastructure to increase safety and reliability and reduce methane emissions.

Over the past two decades, some of the most effective steps SoCalGas has taken include, but are not limited to:

- Modernizing equipment in its Measurement and Regulation (M&R) facilities to utilize zero or lower-emitting devices than previously available.
- Eliminating cast iron pipe from its system.
- Implementing operational procedures to minimize gas vented to atmosphere during routine maintenance and other operational activities.
- Prioritizing the replacement of pipe that does not meet current standards for the prevention of corrosion.
- Use of more sensitive leak detection equipment to allow earlier detection and repair of gas leaks.

SoCalGas continues to modernize equipment, use best management practices and technology to minimize emissions during maintenance and operational procedures, and prioritize replacement of pipe without current corrosion control technologies.

Additional information on SoCalGas’ efforts to reduce greenhouse gas emissions can be found in the link below:

<https://www.socalgas.com/stay-safe/methane-emissions>

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**Question 9:** On page SCG 9-4, SCG states:

“It is not the role of SoCalGas to question the validity of climate change, but rather to interpret physical data and results of climate studies to responsibly determine the potential effect of said data on SoCalGas assets.”

Does SCG acknowledge the validity of climate change (as the phrase is used above)?

**Response 09:**

Yes, as noted in the same chapter on page SCG 9-3, “[c]limate change is an emerging issue projected to expand over the coming decades in the form of climate threats.”

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**Question 10:** Do local climate conditions (for example, rainfall patterns in one area of SCG's service territory vs. another area) contribute to SCG's engineering and design work on facilities? If so, please describe how such work will be impacted as climate change changes such patterns and why this risk was not included in SCG's RAMP filing.

**Response 10:**

Yes, local climate conditions, as described in the question, are accounted for and contribute to SoCalGas' engineering and design work on facilities. Local climate conditions are indirectly taken into account if those conditions can trigger an event (e.g. landslide) that could cause damage to the gas infrastructure. SoCalGas engineers will be monitoring these changes and designing to mitigate such local climate-related impacts, such as installing the new pipelines below the slide plane. The RAMP Report identifies a monitoring program for certain areas of SoCalGas' system that reflect differences within the service territory that may be more prone to landslide/mudslide events triggered by local climate conditions, such as excessive rain.

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**Question 11:** On page SCG 9-17, in describing Strain Gauge Installation projects and Slope Stability & Erosion Control projects, SCG notes that “the forecast for this mitigation is based on the costs experienced to date as a proxy.”

Please provide the costs and associated documentation used in these calculations.

**Response 11:**

Included below is a screen shot from SoCalGas’ accounting reporting system, Business Warehouse, illustrating the 2015 expenditures related to Soil Erosion and Slope Stability projects. The report provides the internal accounting details, such as budget code, internal orders and cost elements.

Budget Code	Work Order	Order	Cost element	Fiscal year	K4/2015
00419.0	2200/91696	300772195	PDR-HLLSDE SOIL ERSION &SLOPE STABIL EAS	6110020	SAL-MGMT S/T \$ 27,838.92
				6110172	SAL-PT TIME C&T S/T \$ 374.72
				6130012	EMP TRVL-MILEAGE \$ 290.52
				6130014	EMP TRVL-PARKING \$ 12.25
				6220007	SRV-CONTR-TIME&EQUIP \$ 65,709.79
				6220008	SRV-CONTRACTORS \$ 309,836.00
				6220450	SRV-MAIL-POSTAGE \$ 35.27
				6220535	SRV-GOVT PERMITS \$ 277.00
				6220590	SRV-MISCELLANEOUS \$ 2,018.25
				6220640	SRV-TRNG & SEM IN-H \$ 0.40
				6340000	Cash Discounts on Pu -\$ 6,196.72
				Result	\$ 400,196.40
		Result			\$ 400,196.40
	2200/91887	300775067	AC - 2015 STORM DRAIN SYSTEMS INSTALL	6220530	SRV-CONSTRUCTN OTHER \$ 66,419.85
				6340000	Cash Discounts on Pu -\$ 406.66
				Result	\$ 66,013.19
		Result			\$ 66,013.19
	Result				\$ 466,209.59
Result					\$ 466,209.59

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**Question 12:** Please provide a summary table showing all SCG and SDG&E risks presented in this RAMP filing and their ‘Risk Type,’ ‘Asset/Function Category,’ and ‘Asset/Function Type.’ This table should be a compilation of the tables presented in each risk’s individual section (see, for example, page SCG 9-5, Table 1).

**Response 12:**

The included document, “*I1610015- Data Request ORA-RAMP-Sempra-01.pdf*,” is a compilation and summary of all the SCG and SDG&E risks presented in the RAMP Report by ‘Risk Type,’ ‘Asset/Function Category’ and ‘Asset/Function Type.’



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