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|----------------|---|--------------------|
| Docket:        | : | <u>A.15-09-001</u> |
| Exhibit Number | : | <u>ORA-3</u>       |
| Commissioner   | : | <u>M. Picker</u>   |
| ALJ            | : | <u>S. Roscow</u>   |
| Witness        | : | <u>N. Skinner</u>  |



**OFFICE OF RATEPAYER ADVOCATES  
CALIFORNIA PUBLIC UTILITIES COMMISSION**

**Report on the Results of Operations  
for  
Pacific Gas and Electric Company  
Test Year 2017  
General Rate Case**

**Safety, Risk and Integrated Planning**

San Francisco, California  
April 8, 2016

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1 **SAFETY, RISK and INTEGRATED PLANNING**

2 **I. INTRODUCTION**

3 This exhibit presents the analyses and recommendations of the Office of  
4 Ratepayer Advocates (ORA) regarding Pacific Gas and Electric Company’s (PG&E)  
5 “Safety and Risk” proposals associated with its Test Year (TY) 2017 General Rate  
6 Case (GRC). Specifically, this exhibit addresses PG&E’s proposals regarding safety  
7 and risk management, as presented in Exhibit (Ex.) PG&E-2, “Safety, Risk and  
8 Integrated Planning,” and in the risk analysis-based model PG&E used to determine  
9 which safety-related projects to include for cost recovery in this proceeding. This  
10 exhibit also addresses comments to the Safety and Enforcement Division (SED)  
11 Risk Assessment Section Staff Report on the Pacific Gas and Electric Company  
12 2017-2019 General Rate Case (Staff Report).

13 **II. SUMMARY OF RECOMMENDATIONS**

14 The following summarizes ORA’s recommendations regarding PG&E’s safety,  
15 risk, and integrated planning testimony:

- 16 • The Commission should not base its decisions on cost recovery  
17 based solely on PG&E’s safety and risk management proposals.  
18 Instead the adequacy and linkage of PG&E’s models should be left to  
19 the Safety Mitigation and Assessment Proceeding<sup>1</sup> and not resolved  
20 in this application.

21 **III. SAFETY, RISK, & INTEGRATED PLANNING**

22 **A. PG&E’s Proposal**

23 PG&E states that “safety is inextricably linked to our risk management  
24 process and weighted most heavily in the analysis,” and that the “connection of  
25 safety and risk is one that will continue to be refined and analyzed, especially in

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<sup>1</sup> Application (A.) 15-05-002, -003, -004, and -005, consolidated.

1 connection with our risk-informed approach for funding work.”<sup>2</sup> PG&E’s “long-term  
2 vision for managing risk is ultimately to achieve data-driven, risk-based decision  
3 making to support safe, reliable and efficient electric and gas service that is  
4 integrated into our planning process and becomes the foundation for our regulatory  
5 rate cases.”<sup>3</sup>

6 PG&E utilizes several tools in its process, primarily the Risk Evaluation Tool  
7 (RET),<sup>4</sup> currently in version 2.1.<sup>5</sup> The RET “is used to establish a score for each risk  
8 and to establish a relative priority for discussion and management purposes.”<sup>6</sup>

9 PG&E’s risk algorithm is mapped to three categories consisting of six  
10 subcategories.<sup>7</sup> This weighting is applied to the scores derived from risk  
11 assessment categories.<sup>8</sup> PG&E’s risk assessment scores are based on a P95  
12 occurrence, or “the probable worst case” event where only 5 percent of events are  
13 worse than anticipated.<sup>9</sup>

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<sup>2</sup> Ex. PG&E-2, Chapter 2, p. 2-6, lines 9-11 and 14-16.

<sup>3</sup> Ex. PG&E-2, Chapter 3, pp. 3-1 starting at line 26, through 3-2 line 2.

<sup>4</sup> Ex. PG&E-2, Chapter 3, p. 3-3.

<sup>5</sup> GRC-2017-Phi\_DR\_ORA\_011-Q01.

<sup>6</sup> Ex. PG&E-2, Chapter 3, p. 3-3, lines 9-11.

<sup>7</sup> Ex. PG&E-2 Workpapers, 2-AtchA-2, WP 3-27, under GOAL MAPPING TO RET IMPACT CATEGORIES.

<sup>8</sup> Ex. PG&E-2 Workpapers, Chapter 2, 2-AtchA-2, WP 3-27, under IMPACT WEIGHTING.

<sup>9</sup> Ex. PG&E-2 Workpapers, Chapter 2, 2-AtchA-2, WP 3-26.

1

**Table 3-1**

| <i>Goal Mapping to RET<br/>Impact Categories</i> |               |
|--|---------------|
| <b>2017 GRC</b>                                  | <b>Weight</b> |
| Safety   | 30%           |
| Environmental                                    | 5%            |
| Compliance                                       | 5%            |
|  | <b>40%</b>    |
|  |               |
| Reliability                                      | 25%           |
| Trust  | 5%            |
|  | <b>30%</b>    |
|  |               |
| Affordable                                       | 30%           |

2

3           These weighting factors are designed “to indicate the relative importance of  
4 one category to another and ensure safety risks receive higher scores than non-  
5 safety risks, and as such, higher priority for mitigation consideration.”<sup>10</sup> The  
6 “[calculation of] the risk reduction value of mitigation efforts is difficult and will be an  
7 iterative process... until final decisions about analytical methodologies are made.”<sup>11</sup>

8           Data behind the RET is also limited at this time. PG&E has confirmed that it  
9 lacks metrics for 75% of the risks in the corporate risk register.<sup>12, 13</sup> PG&E  
10 established their goal of having metrics for their top risks in 2013.<sup>14</sup> As for the 2014  
11 goals, PG&E uses data or models for evaluate the risk for less than half of the top  
12 risks.<sup>15</sup>

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<sup>10</sup> Ex. PG&E-2, Chapter 3, p. 3-3, lines 26-29.

<sup>11</sup> Ex. PG&E-2, Chapter 3, p. 3-11, lines 7-11.

<sup>12</sup> Ex. PG&E-2, Chapter 3, p. 3-4, Table 3-1. PG&E states that they have metrics for 25% of the top risks, or conversely, that there are not metrics for 75% of the top risks.

<sup>13</sup> GRC-2017-Phi\_DR\_ORA\_011-Q26.

<sup>14</sup> Ex. PG&E-2, Chapter 3, p. 3-4, Table 3-1.

<sup>15</sup> Ex. PG&E-2, Chapter 3, p. 3-6, Table 3-2.

1 PG&E does identify that as new data becomes available and is understood,  
2 that “it will develop a deeper, more granular understanding of the risks it faces and  
3 will be able to make better decisions as a result.”<sup>16</sup> However in quantifying risk, “the  
4 availability of relevant data remains a challenge.”<sup>17</sup>

5 PG&E operates a second process, known as the Risk Informed Budget  
6 Allocation (RIBA) framework and model.<sup>18, 19</sup> “The RIBA process provides a  
7 framework for making risk-informed budget decisions and follows the Integrated  
8 Planning process.”<sup>20</sup>

9 Risks to PG&E are provided individually in chapters and a comprehensive  
10 listing is not provided in PG&E’s testimony. PG&E provided a comprehensive listing  
11 in response to ORA discovery.<sup>21</sup> The top 10 risk register items are provided in  
12 Table 3-2 – Top 10 Risk Register Items (as of response dated October 27, 2015). It  
13 is “not appropriate to rank risks using the risk scores populated in the GT&S case  
14 and risks evaluated using the RET 2.1 model.”<sup>22</sup>

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<sup>16</sup> Ex. PG&E-2 Workpapers, Chapter 2, p. 2-11, WP 3-21.

<sup>17</sup> Ex. PG&E-2 Workpapers, Chapter 2, p. 2-11, WP 3-21.

<sup>18</sup> Ex. PG&E-2, Chapter 4, p. 4-6, lines 4-5.

<sup>19</sup> Ex. PG&E-2 Workpapers, Chapter 4.

<sup>20</sup> Ex. PG&E-2, Chapter 4, p. 4-6, lines 4-5.

<sup>21</sup> GRC-2017-Phi\_DR\_ORA\_025-Q11.

<sup>22</sup> GRC-2017-Phi\_DR\_ORA\_025-Q11.

1 **Table 3-2 – Top 10 Risk Register Items (as of response dated October 27, 2015)<sup>23</sup>**

2

| Risk Profile ID | Risk LOB                   | Risk Name   | Risk Description  | Risk Score | EO Risk Designation |
|-----------------|----------------------------|---|---|------------|---------------------|
| 258311          | Safety and Shared Services | Contractor Safety Program   | Failure to comply with the pre-qualification and field processes of the Contractor Safety Standard and LOB Procedures may result in serious injury and/or fatalities.   | 987        |                     |
| 258404          | Safety and Shared Services | Employee Safety Program   | The inability to fully identify, evaluate, and control workplace hazards may result in serious injury or loss of life for employees.  | 979        |                     |
| 251782          | Gas Operations             | TRA001- Catastrophic Pipeline Failure - External Corrosion  | Rupture of transmission pipeline due to external corrosion may result in loss of containment and/or uncontrolled gas flow that can lead to significant impact on public or employee safety, prolonged outages, property damages and/or significant environmental damage.  | 807        |                     |
| 251670          | Gas Operations             | TRA004 - Catastrophic Pipeline Failure - Manufacturing Related Defects  | Longitudinal rupture of transmission pipe may result in loss of containment and/or uncontrolled gas flow that can lead to significant impact on public safety, significant property damage, wide-scale/prolonged outages.   | 807        |                     |
| 312431          | Gas Operations             | TRA008 - Catastrophic Pipeline Failure - Internal Corrosion   | Rupture of transmission pipeline due to internal corrosion may result in loss of containment and/or uncontrolled gas flow that can lead to significant impact on public or employee safety, prolonged outages, property damage.   | 807        |                     |
| 251665          | Gas Operations             | TRA003 - Catastrophic Pipeline Failure - Welding / Fabrication Related Pre-1962 Construction with Land Movement | Circumferential rupture of vintage construction pipe (pre-radiographic pre-1962 girth welds, wrinkle bends, dresser couplings, miter bends, etc.) in known regions of geo-hazards and localized landslide zones may result in loss of containment and/or uncontrolled gas flow that can lead to significant impact on public safety, significant property damage, wide-scale/prolonged outages. | 806        |                     |
| 251726          | Gas Operations             | STO016 - Internal Corrosion and/or Erosion - Pipeline   | Rupture of pipeline due to internal corrosion and/or erosion may result in loss of containment, and/or uncontrolled gas flow that may lead to significant impact on public or employee safety, prolonged outages or net replacement of supply, property damage and/or environmental damage.   | 804        |                     |
| 252753          | Electric Operations        | Wildfire  | PG&E assets may initiate a wildland fire that is not easily contained and that endangers the public, private property, sensitive lands, and/or leads to long-duration service outages.  | 626        |                     |
| 389522          | Gas Operations             | DM S045 - Incorrect Operations - Cross Bore in Urban Area   | Third party sewer clearing may result in damage to distribution pipeline, loss of containment, migration of gas with ignition leading to significant property damage or public safety issues. (Multiple homes or buildings - e.g. downtown San Francisco)   | 617        |                     |
| 318024          | Gas Operations             | CP019 - Third Party/Mechanical Damage - Vandalism   | The risk of vandalism or terrorist attack at facility may result in personal safety, loss of service, loss of containment, and/or equipment damage.   | 596        |                     |

3 <sup>23</sup> Excerpted top 10 items from GRC-2017-Phi\_DR\_ORA\_025-Q11, Attachment 1.

1           Lastly, PG&E provides a report from Davies Consulting,<sup>24</sup> which is designed  
2 “to assess the maturity of PG&E’s risk, asset, and investment management.”<sup>25</sup> The  
3 study is based upon Davies proprietary Integrated Strategic Management Maturity  
4 Model (ISM<sup>3</sup>) evaluation framework.<sup>26</sup> ISM<sup>3</sup> is not a computer based model.<sup>27</sup> ISM<sup>3</sup>  
5 is a reduction from a 600 question audit tool developed by Praxiom Research Group  
6 Limited down to 25 questions.<sup>28</sup> Davies states that it “formulated its 25 questions to  
7 align with the 25 applicable sections in the ISO 31000 standard, as illustrated in the  
8 table below. The audit checklists also align with each section of ISO 31000.”<sup>29</sup>

9           Maturity is based on a 5 point scale, with 3 representing compliance with ISO  
10 55000, and a 5 representing full maturity.<sup>30</sup> Davies further describes a score of 3  
11 within the energy industry as being “a leading practice.”<sup>31</sup> There are four categories:  
12 Risk Management, Asset Management, Investment Management, and Integration.

13           PG&E’s Gas Operations has met the certification requirements for ISO  
14 55000, while Electric Operations and Energy Supply have not and are not currently  
15 seeking certification.<sup>32</sup> While Davies describes PG&E’s efforts as “leading” they  
16 also caveat that “both [risk and investment management] can be improved in terms  
17 of the analytics applied to support decision making.”<sup>33</sup>

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<sup>24</sup> Ex. PG&E-2, Chapter 5, Attachment A and Attachment 5A. References to this document will be made as “Davies” followed by a page number.

<sup>25</sup> Davies, p. 1.

<sup>26</sup> Davies, p. 1.

<sup>27</sup> GRC-2017-PhI \_DR\_ORA\_091-Q6.

<sup>28</sup> GRC-2017-PhI \_DR\_ORA\_091-Q8.

<sup>29</sup> GRC-2017-PhI \_DR\_ORA\_091-Q8.b.

<sup>30</sup> Davies, p. 19.

<sup>31</sup> Davies, p. 22.

<sup>32</sup> Davies, p. 32.

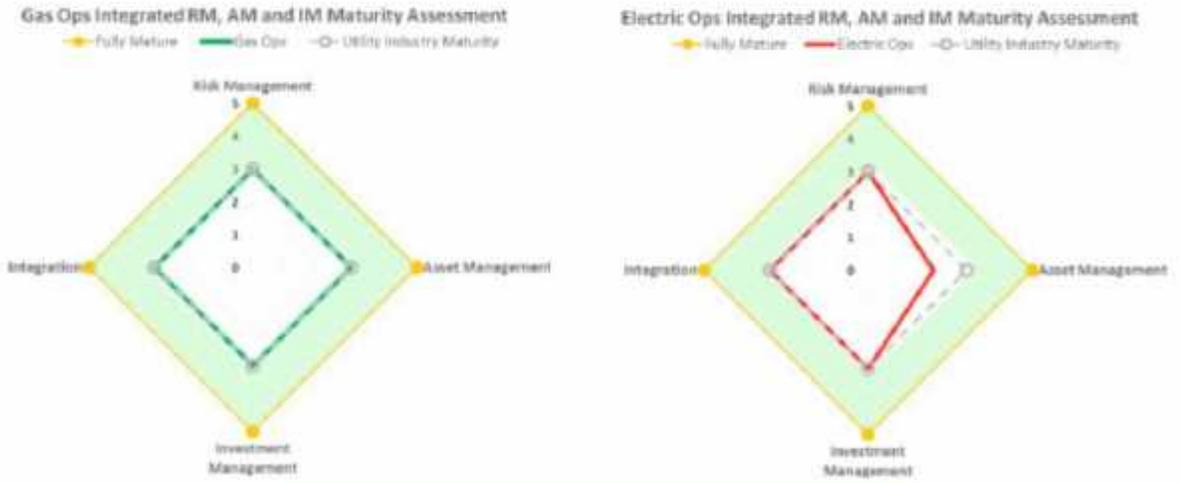
<sup>33</sup> Davies, p. 44.

1            Generally, Davies found Gas Operations to have a score of 3 in all four  
2 categories, and Energy Supply and Electric Operations having 3's in all but Asset  
3 Management which received scores of 2.<sup>34</sup>  
4

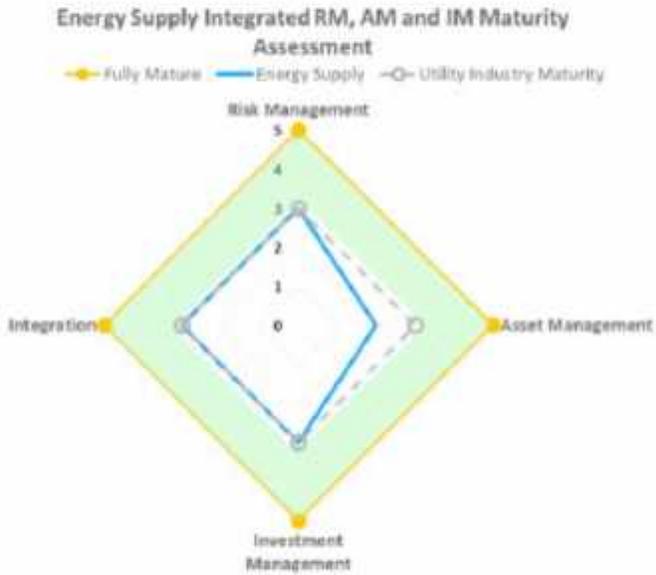
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<sup>34</sup> Davies, p. 46. The charts are shown on the following page of this testimony.

Figure 14 - LOB Maturity



Note: Aviation, e-Commerce, Banking, Insurance, and Space industries typically operate in shaded areas levels 4 and 5



1            However, Davies stated in regards to the Investment Management process:<sup>35</sup>  
2            The risks identified in Session D (Risk and Compliance Session) are  
3            not the starting point for Session 1 or formally integrated into the RIBA  
4            process. This is a concern because the overall intent of risk  
5            management is to demonstrate how the identified top enterprise risks  
6            (primarily safety related) are being mitigated. If capital projects and  
7            programs are being evaluated with limited focus on the starting risk  
8            exposure as determined through Session D, a top risk potentially may  
9            not receive adequate funding.

## 10            **B. ORA's Position**

11            At this time, ORA recommends that the Commission not establish funding  
12            priorities based on PG&E's risk models. The models, as described above, are not  
13            sufficiently grounded in factual data about PG&E's electric transmission &  
14            distribution, electric generation, and gas distribution systems. PG&E's models  
15            maintain many of the similar flaws ORA previously identified in the 2015 Gas  
16            Transmission and Storage (GT&S) Application (A.) 13-12-012.<sup>36</sup> Even without the  
17            data-driven problems, the RIBA process is too separate from the Session D process  
18            as discussed by Davies.<sup>37</sup>

### 19            **1. PG&E's 2015 GT&S vs 2017 GRC**

20            PG&E's weighting of company goals remains the same as in the 2015  
21            GT&S,<sup>38</sup> although the labeling has changed slightly as shown in Table 3-3.<sup>39</sup> The  
22            summation of scores means that PG&E places safety as 40% of the weighting, with  
23            reliability and financial totaling 60%.

24

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<sup>35</sup> Davies, p. 62.

<sup>36</sup> Included for reference in Ex. ORA-3-Atch2, ORA-02 (Skinner) on Safety and Risk Management from A.13-12-012.

<sup>37</sup> Davies, p. 62.

<sup>38</sup> GTS-RateCase2015\_DR\_TURN\_001-Q01Atch02, p. 2.

<sup>39</sup> Ex. PG&E-2 Workpapers, Chapter 2, Attachment B, WP 3-36.

1

**Table 3-3<sup>40</sup>**

| <i>Goal Mapping to RET Impact Categories</i> |               |
|--|---------------|
| <b>2017 GRC</b>                              | <b>Weight</b> |
| Safety                                       | 30%           |
| Environmental                                | 5%            |
| Compliance                                   | 5%            |
| <b><i>SAFE</i></b>                           | <b>40%</b>    |
| Reliability                                  | 25%           |
| Trust  | 5%            |
| <b><i>RELIABLE</i></b>                       | <b>30%</b>    |
| <b><i>AFFORDABLE</i></b> / Financial         | 30%           |

2

3 Notably, PG&E identifies affordability with financial impacts, some of which  
 4 may be more appropriately borne by utility shareholders than ratepayers.<sup>41</sup> SED in  
 5 its assessment of models in the Safety Model Assessment Proceeding specifically  
 6 calls out this issue, as discussed in section D.1, below.

7 PG&E’s risk assessment categories bear similar descriptions between the  
 8 2015 GT&S document TD-4011P-01<sup>42</sup> and the 2017 GRC (Impact Descriptions) as  
 9 demonstrated in Table 3-4.<sup>43</sup>

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<sup>40</sup> Text in capitals with Italics represent PG&E’s Company Goals, while the normal text are the RET impact categories (from Ex. PG&E-2 Workpapers, Chapter 2, Attachment B, WP 3-27).

<sup>41</sup> For example, the fines and penalties associated from utility imprudent actions.

<sup>42</sup> From PG&E Gas Operations Asset Management Systems Risk Management, Utility Procedure TD-4011P-01, Rev 0, dated 07/31/2013.

<sup>43</sup> Ex. PG&E-2 Workpapers, Chapter 2 Attachment B, starting at WP 3-28, “Risk Assessment Categories”.

1

**Table 3-4**

| 2015 GT&S         |                       | Definition   | 2017 GRC      |              |
|-------------------|-----------------------|--|---------------|--------------|
| TD-4011P-01 Rev 0 | Category              |  | Category      | Workpaper    |
| p. 37-38          | Health & Safety       | Fatalities or Injuries                             | Safety        | WP 3-29      |
| p. 40             | Environmental Impact  | Release of materials                               | Environmental | WP 3-30      |
| p. 39             | Regulatory Compliance | Adverse regulatory action or increased oversight   | Compliance    | WP 3-31      |
|                   | <b>SAFETY</b>         |  |               |              |
|                   |                       |  |               |              |
| p. 41             | Reliability           | Disruption of service                              | Reliability   | WP 3-32 & 33 |
| p. 42             | Reputation            | Media, political pressure, satisfaction, and brand | Trust         | WP 3-34 & 35 |
|                   | <b>RELIABLE</b>       |  |               |              |
|                   |                       |  |               |              |
| p. 42             | Financial             | Financial impacts, 3rd party damage, lawsuits      | Affordable    | WP 3-36      |

2

3 While TD-4011P-01 is more specific than the Impact Descriptions there are  
4 many similarities in the qualitative descriptions. For example, the level 7 health and  
5 safety value is described as “imminent and inevitable threat to lives”,<sup>44</sup> as compared  
6 to the Risk Assessment “many fatalities and life threatening injuries to the public or  
7 employees”.<sup>45</sup> In contrast the level 1 value is “on average, recordable incident with  
8 minor injury resulting in FirstAid, and with no lost work”<sup>46</sup> as compared to “no injury  
9 or illness up to an un-reported negligible injury.”<sup>47</sup>

10 Quantitatively, the scales have changed, particularly for financial impact. TP-  
11 4011P-01 ranges from > \$250 million with a score of 7 to a low of < \$30 thousand.<sup>48</sup>  
12 In contrast, the Impact Descriptions have > \$5 billion on the high end and <\$50  
13 thousand on the low end.<sup>49</sup>

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<sup>44</sup> TD-4011P-01, p. 37.

<sup>45</sup> Ex. PG&E-2 Workpapers, Chapter 2 Attachment B, WP 3-29.

<sup>46</sup> TD-4011P-01, p. 38.

<sup>47</sup> Ex. PG&E-2 Workpapers, Chapter 2 Attachment B, WP 3-29.

<sup>48</sup> TD-4011P-01, p. 42.

<sup>49</sup> Ex. PG&E-2 Workpapers, Chapter 2 Attachment B, WP 3-36.

## 2. Data Adequacy

PG&E's models are also flawed due to a lack of data. Seventy-five percent of the risks in the corporate risk register do not have associated metrics.<sup>50</sup> SED stated that PG&E identified only 45% of PG&E's top risks "used data and models to evaluate the risk."<sup>51</sup> As stated by PG&E, "it is impossible to list all areas where data remains a challenge, or is not a challenge, in developing metrics to track and manage risks."<sup>52</sup> This is emphasized by the focus on P95 scenarios<sup>53</sup>, which "PG&E uses ... as a proxy for risks for purposes of scoring. At this point we only require P95 risks to be scored so that risks can be consistently scored and prioritized."<sup>54</sup>

Accordingly, the use of P95 scenarios means PG&E's risk assessment is focused on high consequence and low frequency scenarios, rather than a broader assessment that also includes P50 (or more likely) scenarios. Similar to the focus on P95 events, PG&E's score of 280 cutoff is arbitrary, based on "a natural cutoff" rather than a quantitative approach.<sup>55</sup>

## C. Conclusion

The shortcomings lead to the statement that:<sup>56</sup>

Generally, PG&E is not able to quantify the increase or decrease in safety associated with an increase or decrease in funding allocated to a given program or capital project. PG&E and the other large IOUs, along with intervenors and the Commission, are discussing a similar topic in the S-MAP. In the S-MAP, parties are exploring how to

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<sup>50</sup> GRC-2017-Phi\_DR\_ORA\_011-Q26.

<sup>51</sup> Staff Report, p. 17, pointing to Ex. PG&E-2, Tables 3-1 and 3-2.

<sup>52</sup> GRC-2017-Phi\_DR\_ORA\_011-Q07.

<sup>53</sup> A P95 event is the unlikely but plausible event, where only a 5% worse outcome would be possible.

<sup>54</sup> GRC-2017-Phi\_DR\_ORA\_011-Q28.

<sup>55</sup> GRC-2017-Phi\_DR\_ORA\_011-Q29.

<sup>56</sup> GRC-2017-Phi\_DR\_ORA\_091-Q13.

1 measure risk reduction associated with the implementation of safety-  
2 related risk mitigation measures.

3 This is in line with the utilities' (including PG&E) most recent comments in the  
4 Safety Model Assessment Proceeding.<sup>57</sup>

5 Regardless of which risk scoring model is used, underdeveloped data  
6 and probabilistic risk modeling capabilities inhibit the confidence in risk  
7 scores. Accordingly, in the intermediate term, developing  
8 data/probabilistic risk modeling capabilities should be the focus of all  
9 the Utilities. These models will also facilitate transparency regarding  
10 the asset attributes, rationale for risk scores, and choice of mitigation.

11 Accordingly, the Commission should not make a finding regarding the  
12 adequacy of PG&E's models in this proceeding, and instead should resolve them in  
13 the Safety Model Assessment Proceeding.

#### 14 **D. ORA Comments on the Safety and Enforcement Division** 15 **Staff Report**

16 ORA provides the following comments on the SED Risk Assessment Section  
17 Staff Report on the Pacific Gas and Electric Company 2017-2019 General Rate  
18 Case (Staff Report).

19 ORA concurs that the assessments conducted as part of the Staff Report are  
20 "more concerned with describing PG&E's approach and offering useful insights to  
21 understand the process through illustrative examples rather than critiquing the  
22 particular process or outcomes of that process."<sup>58</sup> The Staff Report generally  
23 conveys the processes followed by PG&E in both the risk register process and the  
24 RET process in a concise and understandable format. The Staff Report also  
25 provides guidance where PG&E should provide further explanation of its risk-based  
26 decision-making, for example, why PG&E needs until 2018 to "implement processes

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<sup>57</sup> Utilities' [PG&E, San Diego Gas & Electric, Southern California Gas Company, and Southern California Edison] comments on January 28, 2016 Intervenor White Paper in Application 15-05-002 (consolidated).

<sup>58</sup> Staff Report, p. 5.

1 that quantify the data supporting the performance of top operational risks and  
2 corresponding mitigations to a baseline...”<sup>59</sup>

### 3 **1. S-MAP Proceeding**

4 SED’s “Evaluation Report on Risk Evaluation Models and Risk-based  
5 Decision Frameworks in A.15-05-002, et al.” dated March 21, 2016 (Staff Evaluation  
6 Report) provides key insights into PG&E’s risk-based decision-making process in  
7 addition to with the insights in the review conducted in the Staff Report tendered in  
8 this proceeding. The Staff Evaluation Report will be commented upon separately in  
9 the Safety Model Assessment Proceeding, but the findings of that report are  
10 germane to PG&E’s presentations in this GRC proceeding. Notably, the Staff  
11 Evaluation Report makes the following conclusions regarding utility safety models,  
12 including those of PG&E:

- 13 • Despite the progress the utilities, particularly PG&E, have made  
14 over the last several years to improve their risk models, the risk  
15 score evaluation models presented by the utilities in this proceeding  
16 are still indexing models producing dimensionless risk ranking  
17 scores.<sup>60</sup>
- 18 • The indexing approach based on a logarithmic scale of integer  
19 scores creates significant distortion in perception of the true  
20 magnitude of frequency and impact variables and the resulting risk  
21 scores.<sup>61</sup>
- 22 • Shareholder financial interests crept into enterprise and operational  
23 risk management focus.<sup>62</sup>
- 24 • Risk evaluation models emphasizing high consequence events will  
25 not yield the same portfolio of risk mitigation activities compared to

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<sup>59</sup> Staff Report, p. 27.

<sup>60</sup> Staff Evaluation Report, p. 8.

<sup>61</sup> Staff Evaluation Report, p. 8. Staff goes on to note that: “a good demonstration of this human perception always thinking linear-scale terms can be seen in PG&E’s Risk Informed Budget Allocation (RIBA) process. Despite the calibration sessions, PG&E’s SMEs [Subject Matter Experts] created an additional frequency score of 4.5 apparently because a 4.5 is midway between 4 and 5 as if the numbers were on the linear scale, even though the RIBA scores are explicitly on the log scale.”

<sup>62</sup> Staff Evaluation Report, p. 10 and 17.

1 an approach using the traditional formula of risk = frequency x  
2 consequence.<sup>63</sup>

## 3 2. ISO 55001<sup>64</sup>

4 The Staff Report encourages PG&E to move the electric lines of business to  
5 the ISO 55001 assessment management certification.<sup>65</sup> This certification cost  
6 PG&E approximately \$10.6 million dollars for its gas lines of business.<sup>66</sup> PG&E  
7 does not have an estimate of how much the certification would cost for the electric  
8 lines of business, but believes the gas certification provides a point of reference.<sup>67</sup>  
9 The ISO 55001 process “provide[s] a “consensus of experts” on the topic of asset  
10 management. They do not tell you how to “do” asset management, but will tell you  
11 what needs to be in place in order to manage how you do it.”<sup>68</sup> ISO 55001 is  
12 described by PG&E as follows:<sup>69</sup>

- 13 a) ISO 55001 specifies the requirements of an asset management  
14 system, but does not specify the design nor the operation of the  
15 system.
- 16 b) Obtaining certification does not inherently mean that PG&E’s system is  
17 safer than the day before attaining certification. We do believe that the  
18 efforts PG&E has undertaken, and is continuing to take, to achieve  
19 and retain certification, have made our gas operations safer.
- 20 c) PG&E uses ISO 55002 to provide guidance for the application of asset  
21 management in accordance with the requirements outlined in ISO  
22 55001.

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<sup>63</sup> Staff Evaluation Report, pp. 11-12.

<sup>64</sup> The International Organization for Standardization. ISO describes a standard as “a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose. We published over 19000 International Standards that can be purchased from the ISO store or from our members.” <http://www.iso.org/iso/home/standards.htm>

<sup>65</sup> Staff Report, p. 10.

<sup>66</sup> GRC-2017-Phi\_DR\_ORA\_223-Q1.

<sup>67</sup> GRC-2017-Phi\_DR\_ORA\_223-Q4.

<sup>68</sup> GRC-2017-Phi\_DR\_ORA\_223-Q5.

<sup>69</sup> GRC-2017-Phi\_DR\_ORA\_223-Q5.

1 d) PG&E determines to which of its assets this standard applies and how  
2 specifically to apply it. Also, the order in which the requirements are  
3 presented does not reflect their importance, nor imply the order in  
4 which they are to be implemented.

5 While ISO 55001 provides a framework for asset management, ORA believes  
6 it is premature to recommend moving all lines of PG&E's business to this standard.  
7 The efforts underway through the Risk Assessment Mitigation Phase of the General  
8 Rate Cases and the Safety Model Assessment Proceedings over the next several  
9 years can provide the framework to determine whether the costs associated with  
10 ISO 55001 are worth the benefits. The benefits are further called into question by  
11 SED's consultant's report in the PG&E Distribution Record Keeping Investigation 14-  
12 11-008, which stated:<sup>70</sup>

13 "SED audits still are finding records and mapping issues that PAS  
14 certification inspectors did not identify. This result brings into question  
15 how significant or valuable was the PAS certification and inspections if  
16 CPUC audits continue to find map and record issues."

17 With PG&E's mapping of its distribution pipeline system still far from  
18 achieved, and given these identified shortcomings with ISO 55001, a cautious  
19 approach to spending ratepayer money on certifications should be taken.

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<sup>70</sup> Staff Report, p. 11, FN 7. The SED report in the Investigation is titled "Investigation of PG&E Distribution System Recordkeeping in Support of OIL 14-11-008" and was prepared for SED by P Wood Associates (PWA) on September 30, 2015. The SED report is also noted in PG&E Supplemental Testimony, Ex. 17, p. 1-5, FN 8.

1 **IV. WITNESS QUALIFICATIONS**

2 My name is Nathaniel W. Skinner. My business address is 505 Van Ness  
3 Avenue, San Francisco, California. I am employed by the California Public Utilities  
4 Commission as a Program and Project Supervisor in the Office of Ratepayer  
5 Advocates, Energy Safety and Infrastructure Branch.

6 I received a Master of Arts degree in International Policy Studies from the  
7 Monterey Institute of International Studies, a Bachelor of Arts degree in Political  
8 Science and a Bachelor of Arts degree with Distinction in Scandinavian Area Studies  
9 from the University of Washington. I am currently a Ph.D Candidate in Public Policy  
10 and Administration specializing in Homeland Security Policy at Walden University.

11 Since joining the Commission in 2008, I have worked on various matters in an  
12 advisory role with the Commission's Energy Division primarily in the area of Long  
13 Term Procurement Planning for electric resources including reviewing models and  
14 assumptions for renewable energy integration. Since transitioning to ORA in 2013, I  
15 have worked on the General Rate Case Rulemaking (R.13-11-006) and the  
16 successor proceedings, the PG&E Orders to Show Cause issued August 2013,  
17 PG&E's PSEP Update Application (A.13-10-017), General Order 112-E, Southern  
18 California Gas's North-South Project Application (A.13-12-013), and various issues  
19 related to Natural Gas Transmission Safety Plans in R.11-02-019 and its successor  
20 proceedings.

21 This completes my prepared testimony.