

Company: San Diego Gas & Electric Company (U 902 M)
Proceeding: 2019 General Rate Case
Application: A.17-10-007/008 (cons.)
Exhibit: SDG&E-214

SDG&E
REBUTTAL TESTIMONY OF ALAN COLTON
(ELECTRIC DISTRIBUTION CAPITAL)
JUNE 18, 2018

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**



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**SDG&E REBUTTAL TESTIMONY OF ALAN F. COLTON
ELECTRIC DISTRIBUTION CAPITAL**

I. SUMMARY OF DIFFERENCES

The table below illustrates San Diego Gas & Electric Company's (SDG&E) request and the recommendations of each party regarding electric distribution capital expenses:

Table 1 – Summary of SDG&E request and Intervenor proposals by forecast year

TOTAL CAPITAL¹ – Constant 2016 (\$000)					
	2017	2018	2019	Total	Variance
SDG&E ²	\$445,116	\$588,317	700,757	1,734,190	---
ORA	\$415,789 ³	\$449,382	\$528,707	\$1,389,670	-\$344,520
TURN ⁴	\$445,116	\$499,624	\$521,363	\$1,466,103	-\$268,087
CUE ⁵	\$445,116	\$588,317	\$797,942	\$1,831,375	\$97,185
FEA ⁶	\$415,789	\$449,382	\$528,707	\$1,389,670	-\$344,520

¹ IT Projects costs are not included within the totals, because they are being addressed in the rebuttal testimony of Christopher R. Olmsted (Information Technology, Ex. SDG&E-224) and the rebuttal testimony of Ted Reguly (DER Projects, Ex. SDG&E-253).

² The 2018 and 2019 requested amounts incorporate ORA's recommendation for the Equipment/Tools/Miscellaneous budget category as described in Section IV.B of this testimony.

³ Excluding IT Projects, ORA's recommended 2017 total appears to be \$411.581M. However, a review of ORA's testimony and workpapers reveals that ORA appears to have inadvertently omitted two budget codes and understated a third budget code in its calculations. These omissions add up to approximately \$4.208M (Missing Budget Codes: BC11256 = \$2.316M, BC97248 = \$1.477M; Understated Budget Code BC904 = Understated by \$0.415M).

⁴ The Utility Reform Network (TURN) referenced actual expenditures in 2017, however, no recommendation was found regarding adjustments to SDG&E's 2017 forecast request in their testimony. Table 1 and subsequent tables thus assume TURN takes no issue with SDG&E's overall 2017 forecast request. Additionally, TURN addressed only specific categories to challenge in 2018 and 2019, thus Table 1 assumes that TURN does not take issue with forecasts to other budget categories not addressed.

⁵ The Coalition of California Utility Employees (CUE) only proposed increases to SDG&E electric-related capital expenditures for 2019 and did not address proposed 2017 and 2018 forecasts. Therefore, the forecasts above assume CUE did not take issue with SDG&E's forecasts for 2017 and 2018, while reflecting proposed expenditure increases for 2019 (including adjustments made to the Equipment/Tools/Miscellaneous budget category described in footnote 2 above). May 14, 2018, Opening Testimony of David Marcus on Behalf of the Coalition of California Utility Employees at 84:2-3.

⁶ The Federal Executive Agencies (FEA) recommends that the Commission utilize ORA's adjusted levels of electric distribution capital expenditures for 2017, 2018 and 2019, as reflected in the forecasts above. May 14, 2018, Direct Testimony of Ralph C. Smith, CPA, on behalf of The Federal Executive Agencies, Exhibit FEA-1 at 59:9-11.

1 This rebuttal describes a summary of the positions of each party, provides an introductory
2 discussion of overall intervenor comments, and then presents a detailed comparison and rebuttal
3 of the parties' positions by category (or 'portfolio') of capital projects.

4 **II. INTRODUCTION**

5 This rebuttal testimony regarding SDG&E's request for electric distribution capital
6 addresses the following testimony from other parties:

- 7 • The Office of Ratepayer Advocates (ORA) as submitted by Mr. Thomas
8 Roberts (Exhibit ORA-06)⁷ and by Mr. Gregory A. Wilson (Exhibit ORA-
9 07),⁸ dated April 13, 2018.
- 10 • The Utility Reform Network (TURN), as submitted by Mr. Eric Borden
11 (Exhibit TURN-01), dated May 14, 2018.⁹
- 12 • The Coalition of California Utility Employees (CUE), as submitted by Mr.
13 David Marcus, dated May 14, 2018.
- 14 • The Federal Executive Agencies (FEA), as submitted by Mr. Ralph C. Smith,
15 CPA (Exhibit FEA-1), dated May 14, 2018.

16 Please note that the fact that I may not have responded to every issue raised by others in
17 this rebuttal testimony does not mean or imply that SDG&E agrees with the proposal or
18 contention made by these or other parties. The forecasts contained in SDG&E's direct
19 testimony, performed at the project level, are based on sound estimates of its revenue
20 requirements at the time of testimony preparation.

21 My original testimony supports SDG&E's TY 2019 forecasts of Electric Distribution
22 Capital costs for the forecast years 2017, 2018, and 2019, and "demonstrates why these

⁷ April 13, 2018, Prepared Direct Testimony of Thomas Roberts, Report on the Results of Operations for San Diego Gas & Electric Company Southern California Gas Company Test Year 2019 General Rate Case, SDG&E – Electric Distribution Capital Expenditures Part 1 of 2, Exhibit ORA-06.

⁸ April 13, 2018, Prepared Direct Testimony of Gregory A. Wilson, Report on the Results of Operations for San Diego Gas & Electric Company Southern California Gas Company Test Year 2019 General Rate Case, SDG&E – Electric Distribution Capital Expenditures Part 2 of 2, Exhibit ORA-07.

⁹ May 14, 2018, Prepared Testimony of Eric Borden, Addressing the Proposals of San Diego Gas & Electric Company and Southern California Gas Company in Their Test Year 2019 General Rate Case Related to Electric Distribution Capital, Gas Transmission Operation, Gas Major Projects, Cash Working Capital, and Customer Forecast, Exhibit TURN-01.

1 expenditures are necessary and reasonable.”¹⁰ The projects and programs described are
2 “intended to maintain the delivery of safe and reliable service to customers. SDG&E prioritizes
3 its work to meet customer and system needs, comply with applicable laws and regulations, and to
4 provide system integrity and reliability in accordance with our commitment to safety.”¹¹

5 In direct testimony supporting its GRC application, SDG&E submitted detailed
6 summaries for 116 electric distribution capital budgets, and for each budget, the detailed
7 forecasting methodology was identified. In addition, SDG&E responded to numerous data
8 requests providing supplemental detail in support of SDG&E’s filed testimony and workpapers.
9 And, in the preceding Risk Assessment Mitigation Phase (RAMP) of this first-ever risk-informed
10 GRC, SDG&E submitted its first-ever RAMP Report,¹² which provided several hundred pages of
11 written descriptions and analysis of SDG&E’s top risks, and the baseline and proposed risk
12 mitigation activities to address them. My direct testimony requested funding for several of the
13 baseline and proposed risk mitigation projects that were identified, analyzed and described in the
14 RAMP Report. Section II and Appendix C of my direct testimony provided specific information
15 describing the top risks identified in SDG&E’s RAMP Report, the ongoing and planned capital
16 projects to mitigate those risks, and the 2017-2018 RAMP funding requests to support those
17 projects.¹³

18 Intervenor made very few challenges to SDG&E’s direct need for the described projects
19 and programs. From ORA, for example:

¹⁰ December 2017, Revised Direct Testimony of Alan F. Colton (Electric Distribution Capital), Ex. SDG&E-14-R at AFC-1.

¹¹ *Id.*, at AFC-2.

¹² I.16-10-015/-016 (cons.), November 30, 2016, “Risk Assessment and Mitigation Phase Report of San Diego Gas & Electric Company and Southern California Gas Company,” (RAMP Report), *available at* <https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socialgas>.

¹³ SDG&E-14R(Colton), Section II and Appendix C. The Risk Management testimony chapters of Diana Day and Jamie York provided additional comprehensive detail regarding the extensive processes required to identify RAMP risks, to develop the RAMP Report, and to integrate the RAMP Report into GRC funding requests. *See*, December 2017, Revised Direct Testimony of Diana Day (Chapter 1: Risk Management Policy), Gregory Flores (Chapter 2: Enterprise Risk Management Organization) and Jamie York (Chapter 3: Ramp to GRC Integration), Ex. SCG-02R/SDG&E-02-R; *see also* the Rebuttal Risk Management Testimony of Diana Day, Gregory Flores, and Jamie York, Ex. SCG-202/SDG&E-202.

1 ORA's forecasts for 2018 and 2019 represent adjustments that are based
2 on degree of need, not outright elimination. Stated another way, where
3 ORA disagrees with SDG&E's forecasts, those disagreements are largely
4 based on the levels of the requested expenditures; ORA has not concluded,
5 nor is it recommending, that any of these projects should be rejected.¹⁴

6 Rather, ORA and intervenors concentrated their recommendations on general cuts to overall
7 funding, as described below.

8 The forecasts for the period represented in my direct testimony of 2017 through 2019
9 reflects SDG&E's estimate of work needed to meet safety, reliability and customer objectives for
10 the electric system. As stated in my direct testimony,¹⁵ SDG&E's established safety-first culture
11 focuses on three primary areas – public, customer, and employee and contractor safety – by
12 integrating employee training, system operations and maintenance, and safe and reliable service.
13 This safety-first culture is embedded in the way we carry out our work and build our systems –
14 from initial employee training to the installation, operation, and maintenance of our utility
15 infrastructure. SDG&E prioritizes electric distribution capital investments to comply with
16 applicable laws and regulations, and to provide system integrity and reliability in accordance
17 with our commitment to safety. The proposed investment in electric capital projects and
18 programs described in my testimony are intended to maintain the delivery of clean, safe and
19 reliable service to our customers.¹⁶

20 This rebuttal testimony addresses key areas of disagreement between SDG&E and the
21 parties that provided testimony related to electric distribution capital. A summary of the key
22 points from the parties' testimony that I will be addressing in this rebuttal testimony is described
23 below, broken out by party and witness where applicable.

¹⁴ Ex. ORA-07 (Wilson) at 4:10-14.

¹⁵ SDG&E-14-R (Colton) at AFC-7.

¹⁶ *Id.*, at AFC-1, AFC-2.

1 **A. ORA**

2 **Table 2 – Summary of ORA Proposal by Forecast Year**
3 **and Comparison to SDG&E Total Request**

Constant 2016 (\$000) Category	2017	2018	2019	Totals		Variance
	ORA	ORA	ORA	ORA	SDG&E	
Capacity/Expansion	\$16,796 ¹⁷	\$15,353	\$15,353	\$47,502	\$49,447	-\$1,945
Equipment/Tools/Miscellaneous	\$8,130	\$1,037	\$1,037	\$10,204	\$6,907 ¹⁸	\$3,297
Franchise	\$31,374	\$36,983	\$35,190	\$103,547	\$109,833	-\$6,286
Mandated Programs	\$28,641	\$31,817	\$31,817	\$92,275	\$100,208	-\$7,933
Materials	\$18,303	\$25,317	\$26,316	\$69,936	\$78,880	-\$8,944
New Business	\$54,082	\$46,007	\$46,613	\$146,702	\$173,095	-\$26,393
Overhead Pools	\$85,634 ¹⁹	\$86,855	\$115,247	\$287,736	\$367,980	-\$80,244
Reliability/Improvements	\$77,593	\$51,479	\$51,479	\$180,551	\$286,729	-\$106,178
Safety and Risk Management	\$69,634	\$97,619	\$157,883	\$325,136	\$381,577	-\$56,441
DER Integration ²⁰	\$3,960	\$6,220	\$6,220	\$16,400	\$39,657	-\$23,257
Transmission/FERC Driven Projects	\$21,641	\$50,694	\$41,552	\$113,887	\$139,877	-\$25,990
IT Projects Sponsored by DER Policy and Elect. Dist. ²¹	\$23,578	\$11,513	\$11,513	\$46,604	\$108,016	-\$61,412
Total	\$439,366²²	\$460,894	\$540,220	\$1,440,480	\$1,842,206	-\$401,726

4

¹⁷ It appears that ORA inadvertently omitted 2017 actual expenditures for two budget codes within the Capacity budget category. These omissions add up to approximately \$3.793M and are included in Table 2 (Omitted Budget Codes: BC11256 = \$2.316M, BC97248 = \$1.477M).

¹⁸ SDG&E’s total request for the Equipment/Tools/Miscellaneous budget category incorporate ORA’s recommendation for the 2018 and 2019 requested amounts as described in Section IV.B of this testimony.

¹⁹ It appears that ORA inadvertently understated 2017 actual expenditures for a budget code within Overhead Pools. This understatement adds up to approximately \$0.415M and is included in Table 2 (Understated Budget Code BC904 = Understated by \$0.415M).

²⁰ DER Integration is being addressed in rebuttal testimony by Mr. Ted Reguly. June 18, 2018, Rebuttal Testimony of Ted Reguly (DER Projects), Ex. SDG&E-253.

²¹ IT Project costs are addressed in direct testimony by Mr. Christopher Olmsted. October 6, 2017, Direct Testimony of Christopher Olmsted (Information Technology), Ex. SDG&E-24. Rebuttal for IT Projects sponsored by DER Policy is addressed in Ex. SDG&E-253 (Reguly).

²² ORA’s 2017 total appears to be \$435.159M when the two witness proposals are totaled. However, it appears that ORA inadvertently omitted 2017 actual expenditures for two budget codes and understated a third budget code. These omissions and understatements add up to approximately \$4.208M and are included in the 2017 total in Table 2 (Missing Budget Codes: BC11256 = \$2.316M, BC97248 = \$1.477M; Understated Budget Code BC904 = Understated by \$0.415M).

1 ORA issued its Report on Electric Distribution Capital Expenditures on April 13, 2018.²³
 2 ORA provides an analysis of all electric capital categories included within my testimony, divided
 3 between two witnesses: Mr. Roberts (Part 1) and Mr. Wilson (Part 2). The following is a
 4 summary of ORA’s position(s).

5 **ORA-06 (Roberts, Part 1)**

6 **Table 3 – Summary of ORA-06 by Forecast Year and Comparison to SDG&E Total**
 7 **Request**

Constant 2016 (\$000) Category	2017	2018	2019	Totals		Variance
	ORA	ORA	ORA	ORA	SDG&E	
Capacity/Expansion	\$16,796 ²⁴	\$15,353	\$15,353	\$47,502	\$49,447	-\$1,945
Mandated Programs	\$28,641	\$31,817	\$31,817	\$92,275	\$100,208	-\$7,933
Overhead Pools – Engineering	\$77,349 ²⁵	\$76,677	\$102,032	\$256,058	\$327,824	-\$71,766
Reliability/Improvements	\$77,593	\$51,479	\$51,479	\$180,551	\$286,729	-\$106,178
DER Integration ²⁶	\$3,960	\$6,220	\$6,220	\$16,400	\$39,657	-\$23,257
IT Projects Sponsored by DER Policy and Elect. Dist. ²⁷	\$23,578	\$11,513	\$11,513	\$46,604	\$108,016	-\$61,412
<i>Total</i>	<i>\$227,917</i>	<i>\$193,059</i>	<i>\$218,414</i>	<i>\$639,390</i>	<i>\$911,881</i>	<i>-\$272,491</i>

8
 9 Mr. Roberts provides analysis within his testimony focused on the categories of
 10 Reliability/Improvements, Engineering Overhead Pools, Capacity/Expansion, Mandated,
 11 Distributed Energy Resources,²⁸ and IT.²⁹ The following is a summary of Mr. Roberts’ key
 12 recommendations per category that will be addressed in this rebuttal testimony.

²³ Ex. ORA-06 (Roberts); Ex. ORA-07 (Wilson).

²⁴ It appears that ORA inadvertently omitted 2017 actual expenditures for two budget codes within the Capacity category. These omissions add up to approximately \$3.793M and are included in Table 3 (Omitted Budget Codes: BC11256 = \$2.316M, BC97248 = \$1.477M).

²⁵ It appears that ORA inadvertently understated 2017 actual expenditures for one budget code within the Overhead Pools - Engineering category. This understatement adds up to approximately \$0.415M and is included in Table 3 (Understated Budget Code: BC904 = Understated by \$0.415M).

²⁶ DER Integration is being addressed in rebuttal testimony Ex. SDG&E-253 (Reguly).

²⁷ IT Project costs are addressed in direct testimony Ex. SDG&E-24 (Olmsted) and rebuttal for IT Projects sponsored by DER Policy is addressed in rebuttal testimony Ex. SDG&E-253 (Reguly).

²⁸ DER Integration is being addressed in rebuttal testimony Ex. SDG&E-253 (Reguly).

²⁹ IT Project costs are addressed in direct testimony Ex. SDG&E-24 (Olmsted) and rebuttal for IT Projects sponsored by DER Policy is addressed in rebuttal testimony Ex. SDG&E-253 (Reguly).

- 1 • ORA recommends 2017 recorded SDG&E capital expenditures should be
2 used in lieu of SDG&E's 2017 forecast.³⁰
- 3 • ORA's 2018 and 2019 recommendations for capital expenditures are
4 largely derived from an historical average of past years 2013 through
5 2017.
- 6 • ORA's recommendation for 2019 Capacity/Expansion capital
7 expenditures is \$15.353 million, in contrast to SDG&E's \$25.176 million
8 request.
- 9 • ORA's recommendation for 2019 Mandated capital expenditures is
10 \$31.817 million, in contrast to SDG&E's \$32.662 million request.
- 11 • ORA's recommendation for 2019 Engineering Overhead Pools capital
12 expenditures is \$102.032 million, in contrast to SDG&E's \$145.964
13 million request.
- 14 • ORA's recommendation for 2019 Reliability/Improvement capital
15 expenditures is \$51.479 million, in contrast to SDG&E's \$103.448 million
16 request.
- 17 • ORA's recommendation for 2019 ED related IT capital expenditures is
18 \$11.513 million, in contrast to SDG&E's \$29.393 million request.

³⁰ ORA recommends 2017 recorded SDG&E electric distribution capital expenditures except any costs expended for project budgets that were not identified in Ex. SDG&E-14-R (Colton), which include up to 54 budget codes that total up to \$20.908 million as discussed below in Section III.B of this rebuttal testimony.

1 **ORA-07 (Wilson, Part 2)**

2 **Table 4 – Summary of ORA-07 by Forecast Year and Comparison**
 3 **to SDG&E Total Request**

Constant 2016 (\$000)	2017	2018	2019	Totals		Variance
				ORA	SDG&E	
Equipment/Tools/Miscellaneous	\$8,130	\$1,037	\$1,037	\$10,204	\$6,907³¹	\$3,297
Franchise	\$31,374	\$36,983	\$35,190	\$103,547	\$109,833	-\$6,286
Materials	\$18,303	\$25,317	\$26,316	\$69,936	\$78,880	-\$8,944
New Business	\$54,082	\$46,007	\$46,613	\$146,702	\$173,095	-\$26,393
Overhead Pools - DOH & CA	\$8,286	\$10,178	\$13,215	\$31,679	\$40,156	-\$8,477
Safety and Risk Management	\$69,634	\$97,619	\$157,883	\$325,136	\$381,577	-\$56,441
Transmission/FERC Driven Projects	\$21,641	\$50,694	\$41,552	\$113,887	\$139,877	-\$25,990
Total	\$211,450	\$267,835	\$321,806	\$801,091	\$930,325	-\$129,234

4 Mr. Wilson provides analysis within his testimony focused on the categories of
 5 Equipment/Tools/Miscellaneous, Franchise, Materials, New Business, Department and Contract
 6 Administration Overhead Pools, Safety and Risk Mitigation, and Transmission/Federal Energy
 7 Regulatory Commission (FERC) Driven.³² The following is a summary of Mr. Wilson’s key
 8 recommendations per category that will be addressed in this rebuttal testimony.
 9

- 10 • ORA’s 2017 forecast is \$34.331 million lower than SDG&E’s request for
 11 \$245.781 million, to reflect recorded 2017 capital expenditures.³³
- 12 • ORA’s forecast for the Equipment/Tools/Miscellaneous capital category is
 13 lower than SDG&E’s request by \$1.494 million in 2018 and \$1.992
 14 million in 2019.
- 15 • ORA’s forecast for the Franchise capital category is lower than SDG&E’s
 16 request by \$3.197 million in 2018; ORA agrees with SDG&E’s 2019
 17 forecast of \$35.190 million.

³¹ SDG&E’s total request for the Equipment/Tools/Miscellaneous budget category incorporate ORA’s recommendation for the 2018 and 2019 requested amounts as described in Section IV.B of this testimony.

³² Ex. ORA-07 (Wilson).

³³ ORA recommends 2017 recorded SDG&E electric distribution capital expenditures except any costs expended for project budgets that were not identified in Ex. SDG&E-14-R (Colton), which include up to 54 budget codes that total up to \$20.908 million as discussed below in Section III.B of this rebuttal testimony.

- ORA’s forecast for the Materials capital category is lower than SDG&E’s request by \$0.998 million in 2018 and \$1.378 million in 2019.
- ORA’s forecast for the New Business capital category is lower than SDG&E’s request by \$11.179 million in 2018 and \$13.979 million in 2019.
- ORA’s forecast for the Overhead Pools capital category is lower than SDG&E’s request by \$3.084 million in 2018 and \$3.312 million in 2019.
- ORA’s forecast for the Safety and Risk Management capital category is lower than SDG&E’s request by \$15.878 million in 2018 and \$26.450 million in 2019.
- ORA’s forecast for the Transmission/FERC Driven capital category is lower than SDG&E’s request by \$6.882 million in 2018 and \$8.566 million in 2019.

B. TURN

Table 5 – Summary of TURN Proposal by Forecast Year and Comparison to SDG&E Total Request³⁴

Category	2017	2018	2019	Totals		Variance
	TURN	TURN	TURN	TURN	SDG&E	
Capacity/Expansion	\$13,269	\$11,002	\$25,176	\$49,447	\$49,447	\$0
Equipment/Tools/Miscellaneous	\$4,833	\$1,037	\$1,037	\$6,907	\$6,907	\$0
Franchise	\$34,463	\$40,180	\$35,190	\$109,833	\$109,833	\$0
Mandated Programs	\$33,169	\$34,377	\$32,662	\$100,208	\$100,208	\$0
Materials	\$24,871	\$24,417	\$24,928	\$74,216	\$78,880	-\$4,664
New Business	\$55,317	\$56,016	\$59,149	\$170,482	\$173,095	-\$2,613
Overhead Pools	\$85,103	\$71,029	\$71,029	\$227,161	\$367,980	-\$140,819
Reliability/Improvements	\$74,863	\$103,262	\$95,853	\$273,978	\$286,729	-\$12,751
Safety and Risk Management	\$83,747	\$92,097	\$124,287	\$300,131	\$381,577	-\$81,446

³⁴ TURN referenced actual expenditures in 2017, however, TURN made no recommendation regarding adjustments to SDG&E’s 2017 forecast request in their testimony. Table 5 thus assumes TURN does not take issue with SDG&E’s overall 2017 forecast request. Additionally, TURN addressed only specific categories to challenge in 2018 and 2019, thus Table 5 assumes that TURN does not take issue with SDG&E forecasts to budgets not addressed in the other categories including the incorporation of ORA’s recommendation for the Equipment/Tools/Miscellaneous budget category, as described in Section IV.B of this testimony.

DER Integration	\$3,298	\$7,295	\$100	\$10,693	\$39,657	-\$28,964
Transmission/FERC Driven Projects	\$32,183	\$57,576	\$50,118	\$139,877	\$139,877	\$0
IT Projects Sponsored by Elect. Dist.	\$36,811	\$38,134	\$33,071	\$108,016	\$108,016	\$0
Total	\$481,927	\$536,422	\$552,600	\$1,570,949	\$1,842,206	-\$271,257

1
2 TURN submitted testimony on May 14, 2018.³⁵ The following is a summary of TURN's
3 position(s):

- 4 • TURN's 2018 forecast is \$90.028 million lower than SDG&E's request
5 for \$589.811 million.³⁶
- 6 • TURN's 2019 forecast is \$181.227 million lower than SDG&E's request
7 for \$702.749 million.³⁷
- 8 • TURN's recommended budget for Meters and Regulators is lower than
9 SDG&E's request by \$1.898 million in 2018 and \$2.766 million in 2019.
- 10 • TURN's recommended budget for Overhead to Underground Conversion
11 is lower than SDG&E's request by \$1.170 million in 2018 and \$1.443
12 million in 2019.
- 13 • TURN's recommended budget for Overhead Pools is lower than
14 SDG&E's request by \$49.356 million in 2018 and \$91.461 million in
15 2019.
- 16 • TURN's recommended budget for 4kV Modernization is lower than
17 SDG&E's request by \$5.156 million in 2018 and \$7.595 million in 2019.
- 18 • TURN's recommended budget for Sulfur Hexafluoride (SF₆) Switch
19 replacement is lower than SDG&E's request by \$10.985 million in 2018
20 and \$10.985 million in 2019.
- 21 • TURN's recommended budget for Electric Integrity RAMP is lower than
22 SDG&E's request by \$7.429 million in 2018 and by \$26.203 million in
23 2019.

³⁵ Ex. TURN-01 (Borden).

³⁶ Ex. SDG&E-14R (Colton) at AFC-1.

³⁷ *Id.*, at AFC-1.

- TURN’s recommended budget for Pole Risk Mitigation and Engineering (PRiME) is lower than SDG&E’s request by \$2.986 million in 2018 and \$22.858 million in 2019.
 - TURN made no recommendation regarding adjustments to 2017 requested funding.
- C. CUE**

Table 6 – Summary of CUE Proposal by Forecast Year and Comparison to SDG&E Total Request³⁸

Constant 2016 (\$000) Category	2017	2018	2019	Totals		Variance
	CUE	CUE	CUE	CUE	SDG&E	
Capacity/Expansion	\$13,269	\$11,002	\$25,176	\$49,447	\$49,447	\$0
Equipment/Tools/Miscellaneous	\$4,833	\$1,037	\$1,037	\$6,907	\$6,907 ³⁹	\$0
Franchise	\$34,463	\$40,180	\$35,190	\$109,833	\$109,833	\$0
Mandated Programs	\$33,169	\$34,377	\$41,434	\$108,980	\$100,208	\$8,772
Materials	\$24,871	\$26,315	\$30,434	\$81,620	\$78,880	\$2,740
New Business	\$55,317	\$57,186	\$60,592	\$173,095	\$173,095	\$0
Overhead Pools	\$85,103	\$120,386	\$162,491	\$367,980	\$367,980	\$0
Reliability/Improvements	\$74,863	\$108,418	\$161,537	\$344,818	\$286,729	\$58,089
Safety and Risk Management	\$83,747	\$113,497	\$211,917	\$409,161	\$381,577	\$27,584
DER Integration ⁴⁰	\$3,298	\$18,343	\$18,016	\$39,657	\$39,657	\$0
Transmission/FERC Driven Projects	\$32,183	\$57,576	\$50,118	\$139,877	\$139,877	\$0
IT Projects Sponsored by Elect. Dist. ⁴¹	\$36,811	\$38,134	\$33,071	\$108,016	\$108,016	\$0
Total	\$481,927	\$626,451	\$831,013	\$1,939,391	\$1,842,206	\$97,185

³⁸ CUE only proposes increases to SDG&E’s electric-related capital expenditures for 2019 and did not address proposed 2017 and 2018 expenditures. Therefore, the forecasts above assume CUE agreed with forecasts for 2017 and 2018, while reflecting proposed expenditure increases for 2019 including the incorporation of ORA’s 2018 and 2019 forecast recommendation for the Equipment/Tools/Miscellaneous budget category as described in Section IV.B of this testimony. CUE (Marcus) at 84:1-2.

³⁹ SDG&E’s total request for the Equipment/Tools/Miscellaneous budget category incorporate ORA’s recommendation for the 2018 and 2019 requested amounts as described in Section IV.B of this testimony.

⁴⁰ DER Integration is being addressed in Ex. SDG&E-253 (Reguly).

⁴¹ IT Project costs are addressed in direct testimony Ex. SDG&E-24 (Olmsted) and rebuttal for IT Projects sponsored by DER Policy is addressed in rebuttal testimony Ex. SDG&E-253 (Reguly).

1 CUE submitted testimony on May 14, 2018⁴² that recommends increases over SDG&E's
2 2017-2019 electric distribution capital forecasts in nine category budgets, for a total
3 recommended increase of \$97.185 million over SDG&E's proposal.⁴³ CUE generally
4 recommends increased spending on certain category budgets of work through higher replacement
5 rates or more aggressive schedules. The following is a summary of CUE's recommendations in
6 Electric Distribution Capital for TY 2019:

- 7 • CUE recommends an increase to TY 2019 of \$48.699 million in addition
8 to SDG&E's request of \$15.564 forunjacketed cable replacements, for a
9 total requested expenditure of \$64.263 million for Budget 230.⁴⁴ CUE
10 agrees with SDG&E's plan to only replace jacketed cable reactively in this
11 GRC cycle.⁴⁵
- 12 • CUE recommends an increase to TY 2019 of \$17.610 million in addition
13 to SDG&E's request of \$14.088 for SF₆ Distribution Switch replacement,
14 for a total requested expenditure value of \$31.698 million for Budget
15 14249.⁴⁶
- 16 • CUE recommends an increase to TY 2019 of \$9.974 million in addition to
17 SDG&E's request of \$9.974 million for the 600-amp Tee connector
18 program, for a total requested expenditure value of \$19.948 million for
19 Budget 17249.⁴⁷
- 20 • CUE recommends an increase to TY 2019 of \$5.295 million in addition to
21 SDG&E's request of \$5.295 million for Supervisory Control and Data

⁴² CUE (Marcus).

⁴³ *Id.*, at 5, 84.

⁴⁴ *Id.*, at 64.

⁴⁵ *Id.*, at 83.

⁴⁶ *Id.*, at 66.

⁴⁷ *Id.*, at 68.

1 Acquisition (SCADA) Conversions, for a total requested expenditure
2 value of \$10.590 million for Budget 11249.⁴⁸

- 3 • CUE recommends an increase of \$4.905 million in addition to SDG&E's
4 request of \$1.635 million for the Avian Protection program, for a total
5 requested expenditure value to TY 2019 of \$6.540 million for Budget
6 10265.⁴⁹
- 7 • CUE recommends an increase of \$4.095 million in addition to SDG&E's
8 request of \$11.393 million for 4kV Elimination, for a total requested
9 expenditure value of \$15.488 million for Budget 6260.⁵⁰
- 10 • CUE recommends an increase to TY 2019 of \$3.201 million in addition to
11 SDG&E's request of \$5.438 million for unsafe underground switch
12 replacement, for a total requested expenditure value of \$8.639 million for
13 Budget 289.⁵¹
- 14 • CUE recommends an increase to TY 2019 of \$2.740 million in addition to
15 SDG&E's request of \$21.720 million for Distribution Transformer
16 installations and replacements, for a total requested expenditure value of
17 \$24.460 million for Budget 214.⁵²
- 18 • CUE recommends an increase to TY 2019 of \$0.666 million in addition to
19 SDG&E's request of \$10.803 million for the Corrective Maintenance
20 Program (CMP), for a total requested expenditure value of \$11.469
21 million for Budget 229.⁵³
- 22 • CUE does not dispute the need for PRiME Budget 17254 but recommends
23 a two-way balancing account, as opposed to SDG&E's proposed budget of

⁴⁸ *Id.*, at 70.

⁴⁹ *Id.*, at 71.

⁵⁰ *Id.*, at 73.

⁵¹ *Id.*, at 76.

⁵² *Id.*, at 79.

⁵³ *Id.*, at 81.

1 \$4.582 million in 2018 to ramp up to full production and \$40.430 million
2 in TY 2019 as the program is in full production.⁵⁴

- 3 • CUE does not fully address loadings for capital expenditures (Overhead
4 Pools) but recognizes that overheads will need to be addressed through
5 later modeling for any CUE proposals that are adopted by the
6 Commission.⁵⁵

7

⁵⁴ *Id.*, CUE at 82.

⁵⁵ *Id.*, CUE at 84.

D. FEA

Table 7 – Summary of FEA Proposal by Forecast Year and Comparison to SDG&E Total Request⁵⁶

Constant 2016 (\$000) Category	2017	2018	2019	Totals		Variance
	FEA	FEA	FEA	FEA	SDG&E	
Capacity/Expansion	\$16,796 ⁵⁷	\$15,353	\$15,353	\$47,502	\$49,447	-\$1,945
Equipment/Tools/Miscellaneous	\$8,130	\$1,037	\$1,037	\$10,204	\$6,907 ⁵⁸	\$3,297
Franchise	\$31,374	\$36,983	\$35,190	\$103,547	\$109,833	-\$6,286
Mandated Programs	\$28,641	\$31,817	\$31,817	\$92,275	\$100,208	-\$7,933
Materials	\$18,303	\$25,317	\$26,316	\$69,936	\$78,880	-\$8,944
New Business	\$54,082	\$46,007	\$46,613	\$146,702	\$173,095	-\$26,393
Overhead Pools	\$85,634 ⁵⁹	\$86,855	\$115,247	\$287,736	\$367,980	-\$80,244
Reliability/Improvements	\$77,593	\$51,479	\$51,479	\$180,551	\$286,729	-\$106,178
Safety and Risk Management	\$69,634	\$97,619	\$157,883	\$325,136	\$381,577	-\$56,441
DER Integration ⁶⁰	\$3,960	\$6,220	\$6,220	\$16,400	\$39,657	-\$23,257
Transmission/FERC Driven Projects	\$21,641	\$50,694	\$41,552	\$113,887	\$139,877	-\$25,990
IT Projects Sponsored by DER Policy and Elect. Dist. ⁶¹	\$23,578	\$11,513	\$11,513	\$46,604	\$108,016	-\$61,412
Total	\$439,366	\$460,894	\$540,220	\$1,440,480	\$1,842,206	-\$401,726

⁵⁶ FEA recommends that the Commission utilize ORA’s adjusted levels of electric distribution capital expenditures for 2017, 2018 and 2019 as reflected in the forecasts above. Table 7 is thus a duplicate of Table 2 of this rebuttal testimony. Ex. FEA-1 (Smith) at 59:9-11.

⁵⁷ It appears that ORA inadvertently omitted two budget codes within the Capacity category and since FEA recommends that the Commission utilize ORA’s adjusted levels of electric distribution capital expenditures this number is adjusted to include the omitted budgets. These omissions add up to approximately \$3.793M (Omitted Budget Codes: BC11256 = \$2.316M, BC97248 = \$1.477M).

⁵⁸ SDG&E’s total request for the Equipment/Tools/Miscellaneous budget category incorporate ORA’s recommendation for the 2018 and 2019 requested amounts as described in Section IV.B of this testimony.

⁵⁹ It appears that ORA inadvertently understated one budget code within the Overhead Pools - Engineering category and since FEA recommends that the Commission utilize ORA’s adjusted levels of electric distribution capital expenditures this number is adjusted to include the understated budget amount. This understatement adds up to approximately \$0.415M (Understated Budget Code: BC904 = Understated by \$0.415M).

⁶⁰ DER Integration is being addressed in rebuttal testimony Ex. SDG&E-253 (Reguly).

⁶¹ IT Project costs are addressed in direct testimony Ex. SDG&E-24 (Olmsted) and rebuttal for IT Projects sponsored by DER Policy is addressed in rebuttal testimony Ex. SDG&E-253 (Reguly).

1 FEA submitted testimony on May 14, 2018.⁶² The following is a summary of FEA's
2 position(s) related to Electric Distribution Capital:

- 3 • Electric distribution plant in service has only increased approximately 5%
4 annually over the last five years.⁶³
- 5 • Forecasted electric distribution capital levels for 2017, 2018 and 2019 are
6 much higher than the 2016 recorded year.⁶⁴
- 7 • Recommends the Commission utilize ORA's adjusted levels of electric
8 distribution capital expenditures for 2017, 2018 and 2019.⁶⁵
- 9 • Recommends the Ocean Ranch Substation Land and the Oceanside
10 Substation Land be excluded from Plant Held for Future Use (PHFFU) in
11 rate base until they are used and useful.⁶⁶

12 **III. REBUTTAL SUMMARY**

13 The summary below provides rebuttal regarding SDG&E's estimating and forecasting
14 practices, ORA's and other intervenors' methodologies, and the broader subject of RAMP and its
15 influence as a risk category or project driver.

16 **A. SDG&E's Estimating and Forecasting Practices**

17 Both ORA and TURN offer comments on the quality of the cost estimating and
18 forecasting practices as well as the cost information presented in my direct testimony and
19 through subsequent discovery.

20 SDG&E's forecasting methodology presentation for this TY 2019 GRC maintains a
21 consistent presentation that is easily repeatable and reviewable, as in prior rate cases. My direct
22 testimony describes the forecasting methodologies used in developing SDG&E's capital project
23 GRC estimates, as shown in the excerpted summary below:

24 In preparing our projections for TY 2019 requirements, SDG&E analyzed historical 2011
25 to 2016 spending levels, considered underlying cost drivers and developed an assessment of

⁶² Ex. FEA-1 (Smith).

⁶³ *Id.*, at 56.

⁶⁴ *Id.*, at 56.

⁶⁵ *Id.*, at 59.

⁶⁶ *Id.*, at 61.

1 future requirements. Forecast methodologies were selected based on future expectations for the
2 underlying cost drivers, and include:

- 3 • Forecasts based on historical averages;
- 4 • Forecasts based on the BY 2016 adjusted recorded spending; and
- 5 • Forecasts based on zero-based cost estimates for specific projects.

6 In addition, my testimony identifies work requirements incremental to levels of historical
7 spending and necessary to maintain the safe and reliable operation of the distribution system.
8 Funding requirements for these new or more extensive work elements are forecasted based on
9 historical spending plus incremental expense requirements. Roughly 75% of the forecasts for
10 Electric Distribution Capital are zero-based and 25% are based on averages (predominantly a
11 five-year average). Since a large portion of the capital electric distribution projects are specific
12 projects that are non-recurring in nature, zero-based cost estimates or forecasts were used.⁶⁷

13 SDG&E further described in several discovery responses that four classifications were
14 used to forecasted budget codes: Average, Trend, Base-Year and Zero-Base. Various
15 forecasting methodologies are applied depending on the facts and circumstances of the project.
16 For example, an upgrade at a specific substation with a defined scope of work and completion
17 timeframe will be estimated using a zero-base forecast considering all design, equipment and
18 construction activities. Whereas an historic average would be utilized for a compliance program
19 that requires inspections to occur prior to identifying facility replacements or enhancements that
20 may need to occur (*i.e.*, pole inspections/CMP). The historic forecasting method is helpful as
21 this is not necessarily a confined scope of work that will be completed depending on how much
22 replacement is required based on what is determined during inspections. Paraphrased excerpts of
23 some of the descriptions of the forecasting process SDG&E provided in its data request
24 responses are included below:

25 [After review of historical data and making necessary adjustments,
26 witnesses] then select an appropriate forecast methodology such as a 3-, 4-
27 or 5-year average, a 3-, 4- or 5-year linear trend, the ‘base year’ (a CPUC
28 Rate Case Plan term, meaning the most recently completed year prior to
29 filing of the GRC application, in this case 2016), or some other method

⁶⁷See SDG&E-14-R (Colton) at AFC-3. See also descriptions of forecasting methodologies described for each capital project throughout my direct testimony, generally found under the heading “b. Forecast Method.”

1 collectively called ‘zero-base.’ A zero-based method may consist of a
2 unit-cost-times-volume process, the use of similar like-kind work as a
3 model, or some other derivation that is not an average, trend or base-year
4 process.⁶⁸

5 And,

6 SDG&E utilized several forecasting methodologies, including average, trend, base year,
7 and zero-based methods. Zero-based methods can include:

- 8 • An arithmetic method such as unit cost multiplied by expected volume;
- 9 • Referencing a RFP response, an invoice, or other reference document;
- 10 • Use of Subject Matter Expert judgment;
- 11 • Reference to a like-kind project or activity performed elsewhere; and
- 12 • Reference to a similar project or work done in the past and updated for
13 current conditions.⁶⁹

14 And,

15 [SDG&E’s forecasting application, called ‘GRID’] is designed with these functions:

- 16 • Permit the review and adjustment of historical costs;
- 17 • Using the adjusted historical costs, permit the selection of an underlying
18 forecast methodology (3, 4 or 5-year average, 3, 4 or 5-year simple linear
19 trend, use of the ‘base year’ 2016 values, or a ‘zero-base’ method by
20 which the estimates of future costs are discretely entered with no
21 underlying forecast);
- 22 • Adjustment of forecasted costs and entry of descriptive data including
23 RAMP attributes;
- 24 • Production of workpapers as portable-document-files (PDFs);
- 25 • Production of ‘testimony tables’ as Word tables to be placed in testimony;
26 and
- 27 • Export data for [Results of Operations] RO model purposes.⁷⁰

⁶⁸ Paraphrased from discovery response CUE DR02 Q52.

⁶⁹ *Id.*

⁷⁰ ORA-SDGE-015-TCR Q3, provided in Appendix A.

1 Behind these forecasting methods are often other tools used in the routine project
2 estimating process not specifically designed for GRC forecasting, such as the SDG&E
3 applications Distribution Planning Support System (DPSS)⁷¹ and Budgeting, Scheduling and
4 Estimating (BSE).⁷² These are both enterprise applications utilizing underlying network
5 applications such as Microsoft SQL Server, IDMS, Oracle or other database management
6 platforms requiring enterprise-quality data systems and infrastructure. These same forecasting
7 practices have been utilized to support the last several GRC requests without significant issue
8 from many of the same parties participating in this GRC cycle.

9 In general, cost estimates were calculated as fully-loaded values, and the indirect costs
10 such as labor overheads were then removed for GRC purposes leaving direct labor and nonlabor
11 values. Fully loaded costs that include both direct and indirect costs are contained in SDG&E's
12 Capital Budget Documents (CBD, often used as supporting workpapers or in discovery
13 responses) and are described as part of the governance process starting on page AFC-11 of my
14 direct testimony, under the SDG&E Electric Transmission and Distribution Capital Committee.⁷³
15 Furthermore, fully loaded direct and indirect project costs are detailed in SDG&E's Work Order
16 Authorization (WOA) forms, also often used as supplemental workpapers or in discovery
17 responses.⁷⁴ WOA is a utility form that summarizes and documents the internal approval of a
18 base business or non-base business commitment that is less than \$300 million. CBD and WOA
19 forms are created upon project approval, as described in the governance process.

20 Although SDG&E's forecasting methodology presentation maintains a consistent
21 presentation relative to prior rate cases, SDG&E strives for continuous improvements to enhance
22 its processes and practices. This is particularly true in light of the Commission's increased focus
23 on risk identification, analysis and mitigation. The direct and rebuttal testimony chapters of
24 Diana Day, Greg Flores, and Jamie York regarding risk mitigation describe how SDG&E's risk

⁷¹ As described in discovery request ORA-SDGE-16-TCRQ1, provided in Appendix A.

⁷² As described in discovery requests ORA-SDGE-16-TCRQ1 and ORA-SDGE-028 Q1, provided in Appendix A.

⁷³ SDG&E-14-R at 8-14.

⁷⁴ For example, ORA-SDGE-16-Supplemental, Q1, CONFIDENTIAL. A public version of this Confidential Response is provided in Appendix A.

1 mitigation processes have evolved and become more rigorous, and how they will continue to
2 evolve in the future, through advancements in various CPUC proceedings.⁷⁵ Ms. Day’s direct
3 testimony describes SDG&E’s strategic planning trajectory to integrate risk, asset and
4 investment management in the TY 2019 GRC cycle, in which SDG&E

- 5 • “further aspires to connect the risks from the enterprise risk registry
6 (informed by the operating unit risk registers) with investment decisions
7 and to prioritize the risk mitigations with the ultimate goal of optimizing
8 portfolios”⁷⁶;
- 9 • is “committed to moving forward with a more formalized asset
10 management program,” by implementing ISO 55000 standards;⁷⁷ and
- 11 • will implement the outcome in the Commission’s pending Safety Model
12 Assessment Proceeding (S-MAP), which, “[d]epending on the outcome ...
13 may take considerable time, resources, and change management.”⁷⁸

14 With these new developments on the horizon, SDG&E expects that its GRC presentations
15 will continue to evolve and present further detailed information, particularly in light of
16 accountability reporting requirements for its next GRC presentation.⁷⁹ For this first risk-
17 informed GRC,⁸⁰ SDG&E’s presentation provides the necessary support for its requests.

18 **B. ORA’s Methodology**

19 To better understand ORA’s testimony, it is first beneficial to understand the high-level
20 similarities and differences between ORA’s two witnesses and their respective methodologies.

⁷⁵ SCG-02-R/SDG&E-02-R, Chapters 1-3 (Day, Flores and York); SCG-202/SDG&E-202 (Day, Flores and York).

⁷⁶ SCG-02-R/SDG&E-02-R, Chapter 1 (Day) at DD-27.

⁷⁷ SCG-02-R/SDG&E-02-R, Chapter 1 (Day) at DD-26-27. *See also* the Asset Management testimony of Kenneth J. Deremer (SDG&E-251), which describes SDG&E’s commitment to and funding request for implementing ISO 55000 standards.

⁷⁸ SCG-02-R/SDG&E-02-R, Chapter 1 (Day) at DD-26.

⁷⁹ *See* accountability reporting discussions in SCG-02-R/SDG&E-02-R, Chapter 1 (Day) at DD-3-5 and DD-26-27.

⁸⁰ *See* discussion of first risk-informed GRC in SCG-202/SDG&E-202.

1 As previously noted, my testimony was addressed by two ORA analysts, Mr. Thomas
2 Roberts (ORA-06) and Mr. Gregory A. Wilson (ORA-07). This dual assignment resulted in some
3 differences in ORA’s analytical methods, and hence some necessary distinctions in this rebuttal.
4 As described further, SDG&E disagrees with aspects of the methods used by both analysts. This
5 overview is discussed in greater detail in the following pages.

6 Both Mr. Roberts and Mr. Wilson utilized 2017 actual costs as the forecast for 2017, but
7 also excluded any project spending in 2017 associated with budget codes that were not identified
8 in SDG&E’s testimony, as follows:

9 ORA noted that the recorded data to the capital projects that were contained in all
10 of Ex. SDG&E-14-R, ORA noted that the recorded data contained 54 new capital
11 projects that had not been present in SDG&E’s testimony... The 2017
12 expenditure total for these 54 new capital projects amounts to \$20.908 million (in
13 2016 dollars).⁸¹

14 Mr. Wilson explicitly explains this in his testimony, while Mr. Roberts’ historical
15 average analysis utilizes it to further reduce averages. This omission appears to directly reduce
16 forecasts for budget codes associated with Mr. Roberts’ testimony and generally reduces ORA’s
17 overall GRC proposal, which SDG&E does not agree to be appropriate.

18 Mr. Wilson’s approach was budget code specific and included a significant amount of
19 attention to RAMP-related forecasts. His analysis can be classified into two main approaches:

- 20 1) Historical trend for RAMP specific forecasts only: It appears that Mr. Wilson
21 attempted to create a set of historical spend on what he deemed would have been
22 RAMP related (“RAMP-type”) projects or programs in the past, even though
23 RAMP was not yet in existence. This amounts to a retroactive reclassification of
24 historical costs which were incurred prior to the adoption of the RAMP
25 framework. Mr. Wilson determined past projects that were RAMP-type based on
26 reviewing historical projects to determine if the projects had a “clear and obvious
27 safety aspect, which in ORA’s judgment indicated that they would have been
28 included in the list of RAMP projects,” if they have “not been completed prior to

⁸¹ Ex. ORA-07 (Wilson) at 10-11.

1 2017.”⁸² He then used historical averages of the “RAMP-type” budgets to create
2 a trend line for 2018 and 2019 forecasts.

- 3 2) Non-RAMP related specific budget code analysis: Mr. Wilson either
4 recommended no change to some of these budgets, or to others he recommended
5 reductions by other means (*i.e.*, New Business was reduced due to meter count
6 analysis).

7 SDG&E does not agree with Mr. Wilson’s approach of retroactively classifying historical
8 budget spending and then applying the result to SDG&E’s forecasts. SDG&E also disagrees
9 with some more budget-specific methods as described later in this rebuttal.

10 Mr. Roberts’ approach was broader than Mr. Wilson’s, as he focused on categories of
11 forecasts rather than specific budget codes. This resulted in significant reductions across the
12 board for the categories he analyzed. It appears that Mr. Robert’s utilized two principal pieces of
13 information to create a historical average, which he then used for all the 2018 and 2019 forecasts
14 within the categories he analyzed:

- 15 1) SDG&E’s actual spend from 2013-2016, but excluding budgets that were not
16 assigned to categories, *e.g.* ‘not assigned’. (Those not-assigned expenditures
17 include Smart Meter, Fire & AMI expenditures and those categorized as “Not in
18 Past Capital GRCs Since 2008” by SDG&E). This equates to approximately
19 \$43M of omitted spend that would have otherwise been part of the historical
20 average that Mr. Roberts created.
- 21 2) SDG&E’s actual spend for 2017, but excluding all budgets that were not included
22 within SDG&E’s TY 2019 GRC request. This equates up to approximately
23 \$20.908 million of omitted spend that would also potentially be part of the
24 historical average. This \$20.908 million of omitted spend is the same as noted
25 above regarding Mr. Wilson’s comment about specific projects or programs that
26 were not in SDG&E’s GRC request.

27 SDG&E does not agree with Mr. Roberts’ approach of excluding actual historical spend
28 for projects that were not conveniently categorized, as well as historical spend for projects that

⁸² SEU-ORA-DR-08 Q2b. *See* referenced discovery response in Appendix A.

1 did not appear in the GRC forecast. To summarize, the main points of ORA’s approaches, and
2 SDG&E’s exceptions, include the following:

- 3 1) Exclusion of expenditures for actual projects and programs within 2017;
- 4 2) Utilization of historical averages for forecasts; and
- 5 3) Utilization of historical RAMP-type projects to create a trend line for RAMP
6 related forecasts.

7 **1. Exclusion of Expenditures for Actual Projects and Programs within**
8 **2017**

9 ORA adopted SDG&E’s actual 2017 expenditures as their 2017 forecast but intentionally
10 omitted \$20.908 million for 54 budgets that SDG&E did not include within its GRC request.
11 ORA does not take issue with any of the 54 budgets individually; rather, ORA seems to suggest
12 that SDG&E generally cannot recover its reasonably incurred costs unless those costs are
13 foreseen and forecasted in GRC testimony. SDG&E disagrees.

14 The GRC forecasting process is lengthy and time-consuming, and is “locked-down” in
15 several stages in advance of filing an application – in this case, well before the end of the third
16 quarter of 2017. The capital management process is dynamic, however, and does not follow
17 along a GRC timeline. New projects and programs can arise at any time, based on new
18 information and analysis, and may require planning and construction that is either not forecasted
19 far in advance or that spins off from other budget activities. The existence of these projects and
20 programs demonstrates the flexibility needed by SDG&E to conduct its business year-after-year.

21 The projects and programs which appear in the 2017 actuals were representative of many
22 types of projects similar to those found within SDG&E’s categories that are outlined within
23 testimony. While not explicitly mentioned in the GRC planning, these projects and programs
24 still fall within the types of costs presented in SDG&E’s forecasts, and represent valid utility
25 spending to serve customer needs. ORA has not provided any basis to conclude that the
26 excluded projects are unreasonable. The 54 omitted projects should thus be included within any
27 analysis of SDG&E’s just and reasonable, actual 2017 costs, including ORA’s recommended
28 forecast, if adopted.

29 **2. Utilization of Historical Averages for Forecasts**

30 Part 1 of ORA’s testimony for electric distribution capital was based on a portfolio-level
31 review of SDG&E’s capital projects and programs, based generally on an average of historical

1 costs: “The analysis leading to this testimony is rooted in two basic concepts: (1) SDG&E has
2 the obligation to support its requests for increased expenditures, and (2) a portfolio level review
3 of SDG&E’s requests is reasonable.”⁸³ ORA’s portfolio-level review is based on a premise that
4 “it is not necessary for a comprehensive review of each project and program since the final
5 decision in this case will authorize a total revenue request value, not the specific projects and
6 programs SDG&E discusses in testimony.”⁸⁴

7 As previously noted, my direct testimony provides “individual descriptions and analysis
8 of each project’s business justification, need and support related to the safety and reliability for
9 our customers, employees and communities,”⁸⁵ and describes the selected appropriate forecast
10 methodologies “based on future expectations for the underlying cost drivers.”⁸⁶ In contrast, Mr.
11 Roberts analyzed SDG&E’s proposals at a high, ‘portfolio’ level, using the historical adjusted
12 recorded values provided by SDG&E applicable to his six cost categories, lowering those
13 historical amounts by certain projects that are not planned to continue into the TY 2019 GRC
14 forecast years, then averaging that amount as a basis for his recommendations.

15 SDG&E has concerns with ORA’s methodology for several reasons, which are described
16 in more detail below. First, historical recorded values should not be assumed to indicate future
17 need in every circumstance. GRC forecasts should be based instead on the specific need
18 including the duration of need, discrete or on-going scope, cost drivers, and business
19 justifications for individual projects, as described in my direct testimony and in discovery.
20 Second, assuming an historical average were to be used (and SDG&E does not agree that it
21 should), removal of project and program costs that fall off in the base year would skew the
22 historical average, without a reasonable basis. Third, SDG&E takes issue with ORA
23 recommendations that appear to be based in part on a premise that SDG&E should link its
24 highest cost increases to the highest RAMP risk scores.⁸⁷ The risk management rebuttal

⁸³ ORA-06 at 10.

⁸⁴ *Id.*, at 11.

⁸⁵ SDG&E-14-R at AFC-2.

⁸⁶ *Id.*, at AFC-3.

⁸⁷ *See Ex. ORA-06 (Roberts) at 8-10, 36-37.*

1 testimony of Diana Day, Greg Flores, and Jamie York explains why funding decisions based on
2 RAMP risk scoring is not appropriate.⁸⁸

3 **a. Historical recorded values are not always an indication of**
4 **future need**

5 As described in detail above, there are several factors that SDG&E took into account in
6 developing its cost forecasts to continue with providing safe and reliable service, and believes
7 should be considered in establishing forecasts in this case. Such factors include (among other
8 things) the life expectancy of equipment or the need to replace equipment due to damage or
9 increase in unexpected, premature failure. A second consideration would be any identified new
10 risk or existing risk based on new information or analysis from record-keeping, new laws,
11 regulations or standards. Additionally, CPUC or other agency-directed tasks may be imposed at
12 any time, such as the consideration of new technologies or increased compliance requirements.
13 Another factor includes increased development/housing demand leading to an increase in new
14 construction, as discussed in the New Business budget category section IV.F below and
15 potentially resulting in heavily loaded distribution equipment. As customers and the distribution
16 system are evolving, enhancements in IT along with integrating DERs, also play a factor in
17 establishing forecasts.

18 It should also be noted that historical recorded values do not adequately take into account
19 the durations of needs, as required by discrete projects that are more appropriately forecasted
20 using a zero-based methodology. This is important as “[of the] 83 programs and projects
21 addressed in this [Mr. Roberts’] testimony, 67 (or 81%) use the zero-based methodology.”⁸⁹ The
22 unique scope for many of the projects reviewed by Mr. Roberts introduces an increase or
23 decrease in allocation within the category, depending on the need and duration of the need.
24 These factors should also be considered rather than solely relying on an average applied to each
25 of the six categories reviewed by Mr. Roberts.

⁸⁸ Ex. SCG-202/SDG&E-202 (Day, Flores and York) at II.D.

⁸⁹ ORA-06 at 14.

1 **b. Removal of actual project and program costs that were not**
2 **assigned to a specific cost category or were not identified in**
3 **SDG&E’s testimony skews the historical average**

4 The second concern with Mr. Roberts’ methodology is his recommendation to disregard
5 two sets of historical expenditures to develop his historical averages.

6 **i. Not Assigned**

7 It appears that Mr. Roberts recommended removal of 58 budgets from 2013-2016 which
8 reduced historical expenditures by approximately \$43 million. In performing this analysis, Mr.
9 Roberts identified budgets as “Not-Assigned” that were either identified by SDG&E as “Not in
10 Past Capital GRCs since 2008” or the cost category does not align with any of the existing
11 categories within my testimony.⁹⁰ The total historical recorded value of the “Not-Assigned”
12 category totaled approximately \$43 million for years 2013-2016.⁹¹ Mr. Roberts removed the
13 recorded values that fell under the “Not-Assigned” category, which resulted in lowering the
14 historical average for each category.

15 **ii. 2017 Actuals Not in GRC forecast**

16 As previously stated, Mr. Roberts additionally omits actual recorded expenditures in
17 2017 for 54 projects and programs which equates to approximately \$20.908 million because they
18 were not identified within SDG&E’s GRC forecast. This omission results in additional
19 reductions to the historical average for each category to which the costs may apply. It is not
20 realistic or reflective of the capital management process to disregard actual expenditures because
21 projects had not been included in a previous GRC forecast.

22 Removing these expenditures from an historical average perspective is inappropriate as
23 these charges were expended within the historical time period. In addition, Mr. Roberts claims
24 in his testimony, “Once the final decision is issued, SDG&E has no obligation, unless otherwise
25 ordered by the Commission, to perform any of the work included in its application and SDG&E
26 is free to spend less than requested or authorized for individual programs or projects.”⁹² Mr.
27 Roberts’ statement must be read with the understanding that SDG&E has a duty to deliver safe

⁹⁰ ORA-06 at 86.

⁹¹ *Id.*

⁹² ORA-06 at 11-12.

1 and reliable service, and must perform work in accordance with this duty. However, this
2 statement appears to recognize the necessary flexibility to shift funds as needed within or
3 between categories, potentially increasing or decreasing year to year funding per category to
4 proceed with emergent projects or changing priorities after a GRC decision. Therefore, to
5 remove the recorded based on the budget code not provided in a past GRC request is an incorrect
6 approach and contradicts Mr. Roberts' initial statement on the flexibility the utility possesses.
7 Based on these concerns it is not appropriate to rely solely on an underlying historical average
8 for each budget to establish the expenditure forecast recommendation.

9 **c. Recommendations Tied to RAMP Risk Scoring**

10 Mr. Roberts' recommendations also appear to be based in part on a premise that SDG&E
11 should link its highest cost increases to the highest risk scores.⁹³ In Table 6-5, ORA shows its
12 analysis of "Reliability Portfolio Programs and Projects by RAMP Risk," and takes issue with
13 the fact that the risk score for the Electric Infrastructure Integrity risk only constitutes 0.2% of
14 the risk score for Wildfire (the top risk), but only 8% of the Reliability Portfolio request is
15 related to Wildfire (compared to 62% for the EII risk).⁹⁴ Based on this analysis, ORA argued
16 that SDG&E's highest cost percentage increases due to RAMP risks do not match up with the
17 risk scores assigned to the risk that the spend is intended to address; i.e., ORA believes that the
18 risk score is not high enough to warrant a high percentage increase spend.

19 The risk management rebuttal testimony of Diana Day, Greg Flores, and Jamie York
20 explains why funding decisions based on RAMP risk scoring is not appropriate.⁹⁵ This
21 conclusion is consistent with the testimony of ORA witness Neil Stannik, who states that "it is
22 not appropriate to compare risk scores, expected results of mitigations, and funding of those
23 mitigations between risks."⁹⁶ Rather, Mr. Stannik states that the information produced by RAMP

⁹³ See Ex. ORA-06 (Roberts) at 8-10.

⁹⁴ *Id.* at 36-37. As discussed in section IV.H.1.c of this testimony, 62% of the Reliability Portfolio request relates to Electric Infrastructure Integrity (compared to ORA's Table 6-5, showing 59%).

⁹⁵ Ex. SCG-202/SDG&E-202 (Day, Flores and York) at II.D.

⁹⁶ April 13, 2018, Prepared Direct Testimony of Nils Stannik, Risk Management Policy; Enterprise Risk Management Organization; RAMP/GRC Integration; Pipeline Integrity; SoCalGas PSEP, Ex. ORA-03 at 12.

1 and integrated into SDG&E’s direct testimony presentation should be used “to inform funding
2 decisions, but not to dictate these decisions or bypass the traditional review process in the GRC,”
3 as Ms. Day, Mr. Flores, and Ms. York discuss.⁹⁷

4 **3. Utilization of Historical RAMP Type Projects to Create a Trend Line** 5 **for RAMP Related Forecasts**

6 Another approach to which SDG&E takes exception is ORA’s RAMP trend line and
7 ORA’s RAMP reduction value.⁹⁸ It appears that Mr. Wilson attempted to create a set of
8 historical spend on specific budget codes he deemed would have been RAMP-related in past
9 years, even though RAMP was not yet in existence. He then used historical averages of this
10 “RAMP type” budget group to create a RAMP trend line for 2018 and 2019 forecasts of RAMP
11 related budget codes.

12 For purposes of evaluating Mr. Wilson’s trend line workpaper, it is useful to assume
13 application of the trend line for forecasts and a factor of 0.5 to 2018 and 0.66 to 2019.⁹⁹ For
14 simplicity, Mr. Wilson’s calculation appears to be as follows:

- 15 • 2018 = Average of ORA’s trend line forecast + (SDG&E’s forecast **minus**
16 Average of ORA’s trend line forecast) x 0.5
- 17 • 2019 = Average of ORA’s trend line forecast + (SDG&E’s forecast **minus**
18 Average of ORA’s trend line forecast) x 0.66

19 It appears ORA does acknowledge that some increases above the RAMP trend line are
20 warranted due to the increased factors for 2019 relative to 2018, but there appears to be no
21 justification or explanation for why these yearly factors are utilized.

22 SDG&E has concerns with the use of this trend-based methodology because (1) there is
23 no basis for assuming that discrete capital projects would follow a linear trend; and (2) uniformly
24 spreading reductions throughout the RAMP-related projects and programs is not supported.

⁹⁷ Ex. SCG-202/SDG&E-202 (Day, Greg Flores and York) at II.A.1, citing Ex. ORA-03 (Stannik) at 15.

⁹⁸ See Ex. ORA-07-WP SDG&E Dist. Capital Linked Recorded and Forecasted Data (Wilson).xlsx in RAMP tab.

⁹⁹ SDG&E requested that ORA “describe in detail the step-by-step process ORA took to derive its forecasts” in ORA-07. See ORA response to SEU-ORA-DR-08 Q1. ORA responded that “a step-by-step description of how ORA derived its forecasts would essentially be a replication of the 47 pages contained in ORA’s testimony ...” *Id.*

1 **a. No Basis for Assuming that Discrete RAMP Related Projects**
2 **and Programs Follow a Linear Trend**

3 To the extent that ORA relied upon its linear trend for RAMP related forecasts, this
4 methodology would be flawed, because there is no basis for the assumption that historical
5 averages have a generally linear relationship to future expenditures. Similar to SDG&E’s 2016
6 GRC,¹⁰⁰ approximately seventy-five percent of projects and programs within my Electric
7 Distribution Capital testimony is derived from zero-based estimates, and the zero-based
8 methodology often applies to projects or programs that are not ongoing year after year and have
9 a set duration. These types of budgets typically need a scale-up or ramp-up period where early
10 years include planning, engineering, preparation and evaluation, with larger budgets being
11 required during implementation and construction periods. ORA’s methodology and
12 recommendation does not take into account the discrete nature of most of the projects described
13 in my direct testimony, and is therefore unreliable.

14 **b. Uniformly Spreading Reductions Throughout the RAMP-**
15 **Related Projects and Programs is Not Appropriate**

16 ORA’s reductions are spread evenly throughout all RAMP related projects and programs,
17 regardless of the risk the project or program is supporting. As previously mentioned, and
18 addressed in SDG&E’s risk management rebuttal testimony, ORA witness Mr. Stannik disagrees
19 with using the information produced by RAMP and integrated into SDG&E’s direct testimony
20 presentation to “bypass the traditional review process in the GRC,” as Ms. Day, Mr. Flores, and
21 Ms. York discuss.¹⁰¹ Without reasoning or justification to help support ORA’s
22 recommendations, it is not appropriate to adjust the costs provided and supported for each
23 project and program within my direct testimony, particularly with respect to RAMP projects,
24 which are intended to address SDG&E’s key risks.¹⁰² SDG&E continues to support the approval
25 of each electric distribution capital project and program based on the provided cost estimates and
26 forecasts with the exception of Equipment/Tools/Miscellaneous budget category as addressed
27 below in Section IV.B.

¹⁰⁰ July 2014, SDG&E Prepared Direct Testimony of John D. Jenkins, Electric Capital (SDG&E-09 2016) at JDJ-vii.

¹⁰¹ Ex. SCG-202/SDG&E-202 (Day, Greg Flores and York) at II.A.1, citing Ex. ORA-03 (Stannik) at 15.

¹⁰² Ex. SCG-202/SDG&E-202 (Day, Greg Flores and York) at II.A.1, 2.

1 **C. TURN**

2 As identified in the summary section, TURN provides input on seven (7) budgets that
3 will be addressed in my testimony below. These budgets include Meters and Regulators (Budget
4 202), Overhead to Underground Conversion (Budget 211), Overhead Pools (Budgets 901, 904,
5 905 and 906), 4kV Modernization (Budget 6260), SF6 Switch Replacement (Budget 14249),
6 Electric Integrity RAMP (Budget 16252), and Pole Risk Mitigation and Engineering (Budget
7 17254). These budgets represent five categories of the eleven categories included in my direct
8 testimony.

9 TURN recommends a disallowance of \$90.028 million in 2018 and \$181.227 million in
10 2019 from SDG&E's requested expenditure requests. TURN uses a variety of analyses to
11 determine these reductions, including five-year averages, 2017 actual spend, and forecast
12 normalization from the TY 2019 over the GRC Period (2021).

13 TURN recommends that the electric integrity RAMP project spending be tracked by a
14 one-way balancing account, subject to an overall cost cap. SDG&E does not agree. This would
15 reduce SDG&E's ability to reprioritize and adjust funds to meet new requirements and our
16 customer's needs, including the need to address pressing or emerging risks.¹⁰³

17 **D. CUE**

18 CUE reviewed nine specific budget items within the eleven subject categories associated
19 with my testimony and provided justification for their requested increase to my requested TY
20 2019 amount by \$97.185 million. This increase was based on two main factors after CUE
21 reviewed my testimony, workpapers and related data requests. These two factors pertain to
22 aging infrastructure and insufficient preventative infrastructure replacement by SDG&E. The
23 request to increase funding and construction on a particular capital project would result in either
24 an accelerated replacement of specific equipment or increased risk mitigation.

25 SDG&E continues to identify and prioritize equipment on its distribution system as that
26 equipment nears the end of its life expectancy for optimal performance. In considering CUE's
27 suggestions about specific budget recommendations to add funds for additional manpower and
28 increasing the rate of project completion, there are other limitations that affect projects and need

¹⁰³ See Ex. SCG-202/SDG&E-202 (Day, Greg Flores and York) at II.C (discussing how balancing of RAMP costs would be incompatible with the Commission's decisions D.14-12-025 and D.16-08-018, including accountability reporting requirements).

1 to be factored into the analysis. Factors that add significant time to each work order and
2 construction process include City and County permits that are required during the design process,
3 and environmental issues that must be addressed during construction. SDG&E's current forecast
4 considers both of these factors to the greatest extent possible. In addition, SDG&E utilizes its
5 internal forecasting methods outlined in Section I.B of my direct testimony¹⁰⁴ along with its
6 prioritization of capital projects¹⁰⁵ to comply with applicable laws and regulations, to provide
7 system integrity and reliability in accordance with SDG&E's commitment to safety.

8 Although SDG&E acknowledges there may be value in accelerating the replacement of
9 various aging infrastructure items on installation of newer technologies as recommended by
10 CUE, SDG&E believes the proposed plan in my direct testimony attempts to balance the process
11 and resource constraints while meeting infrastructure replacement rates appropriately to maintain
12 its high standard of reliability and safety for its customers.

13 **E. FEA**

14 FEA accepted ORA's adjusted forecasts for 2017, 2018 and 2019. For this reason,
15 SDG&E does not specifically address FEA's testimony below. SDG&E's rebuttal to ORA
16 testimony shall be considered to also apply to FEA.

17 **IV. REBUTTAL TO PARTIES' CAPITAL PROPOSALS**

18 In the following section, I provide rebuttal testimony for the primary areas of variance
19 between SDG&E's forecast and other parties' forecasts in each budget category.
20

¹⁰⁴ Ex. SDG&E-14R (Colton) at AFC-3.

¹⁰⁵ *Id.*, at AFC-8 through AFC-14.

1 **A. Capacity/Expansion**

2 **Table 8 – Summary of Capacity/Expansion proposal**
3 **by forecast year in comparison to SDG&E request**

Capacity/Expansion - Constant 2016 (\$000)					
	2017	2018	2019	Total	Variance
SDG&E	\$13,269	\$11,002	\$25,176	\$49,447	-
ORA	\$16,796 ¹⁰⁶	\$15,353	\$15,353	\$47,502	-\$1,945
TURN	\$13,269	\$11,002	\$25,176	\$49,447	\$0
CUE	\$13,269	\$11,002	\$25,176	\$49,447	\$0
FEA	\$16,796	\$15,353	\$15,353	\$47,502	-\$1,945

4
5 **1. ORA**

6 ORA’s main reduction to the requested capacity amount is associated with using the
7 adjusted recorded values from 2013-2017 to establish an historical average and its recommended
8 funding amount. SDG&E does not agree with this approach in this category of capacity projects.
9 The electric system is dynamic and the increases or decreases in demand change each year,
10 requiring the forecast for substations and circuits to also change each year. This constant
11 adjustment requires flexibility in funding, resulting in either an increase in capacity projects for
12 one year (*i.e.*, new large development) or a decrease in capacity-related projects (*i.e.*, changes in
13 housing and commercial developments). The history of capacity projects is not considered a
14 strong indicator of future needs. SDG&E does not believe that using an average in this budget
15 category is the most reasonable approach.

16 ORA takes issue with the capital forecast for this category and as a result reduces the
17 forecasted TY 2019 request by 39%.¹⁰⁷ The reduction recommended by ORA is based on the
18 following comments mentioned within ORA’s testimony. ORA states that “SDG&E’s forecast
19 is skewed based on recorded expenditures for one project, and forecast data on another.”¹⁰⁸
20 ORA also states that SDG&E “provided no analyses or results”¹⁰⁹ pertaining to the planning

¹⁰⁶ ORA appears to have inadvertently omitted two budget codes in the Capacity/Expansion category in its calculations. These omissions add up to approximately \$3.793M (Missing Budget Codes: BC11256 = \$2.316M, BC97248 = \$1.477M).

¹⁰⁷ Ex. ORA-06 (Roberts) at 59.

¹⁰⁸ *Id.*, at 59.

¹⁰⁹ *Id.*, at 61.

1 process. SDG&E does not agree with the 39% reduction based on the reasoning provided within
2 ORA's testimony and provides the following justification why the 39% is not appropriate.

3 ORA appears to have arrived at the 39% valuation based on the historical average 2013-
4 2017 adjusted-recorded expenditures and the reduction of the "Jamacha-New 12kV Ckt. 1090"
5 capacity project. The justification for reducing the historical average based on a specific
6 capacity project, according to ORA, is based on "one project being more than ten times over-
7 budget."¹¹⁰ This project is a good example of the variability of project requirements that can
8 occur as the design and permitting processes proceed. This specific project was required by
9 jurisdictions to modify the design to be installed underground within a busy highway and
10 constructed at night. SDG&E then had to adjust design and construction schedules and reduce
11 funding on other projects within this or other budget categories to allow for this priority capacity
12 project to be completed. The additional costs for this project and the associated adjustment of
13 schedules and funding for other projects compliments ORA's statements elsewhere in its
14 testimony that "SDG&E is free to spend less than requested or authorized for individual
15 programs or projects."¹¹¹ All projects submitted for the GRC are estimates based on best
16 available information at the time of submittal and all estimates may increase or decrease by the
17 time of project completion. In addition, ORA reduces the recorded value associated with the
18 specific project in question and uses it against the entire requested amount for this category. It
19 appears that ORA does not perform this action to all projects for consistency, but only this
20 specific project resulting in a dramatic decrease.

21 ORA suggested that SDG&E did not provide analysis or results associated with the
22 capacity projects.¹¹² As requested in ORA's discovery,¹¹³ SDG&E provided the results in a
23 load/overload-percentage format which has been used by SDG&E to justify projects for the last
24 several years, consistent with previous GRC requests. The percentage values were also captured

¹¹⁰ *Id.*, at 60.

¹¹¹ *Id.*, at 11 and 12.

¹¹² *Id.*, at 61.

¹¹³ Data Request ORA-SDG&E-18-TCR, Q1i provided analysis supporting the need for the project. Data Request is attached as Appendix A.

1 and provided within Ex. SDG&E-14-CWP-R,¹¹⁴ under the justification for many of the capacity
 2 projects with a zero-based forecast methodology. SDG&E also outlined its analysis process
 3 within the response to ORA’s data request,¹¹⁵ by providing the specific elements evaluated, the
 4 organization responsible for the final results and types of information used along with the format
 5 generated by the planning process, when the data was submitted and the specific peak year used
 6 to establish the forecasted values. The corresponding data provided within the data requests,
 7 along with the information under the justification section in Ex. SDG&E-14-CWP-R,¹¹⁶ and
 8 under the cost driver sections in my direct testimony¹¹⁷ are all adequate information to justify the
 9 need for the capacity projects.

10 ORA did not highlight the justification for projects as being incorrect or not needed, but
 11 instead reduced based on historical costs, suggesting they accept the justification for those
 12 projects. SDG&E requests that its forecast for Capacity and Expansion projects be approved as
 13 presented.

14 **B. Equipment/Tools/Miscellaneous**

15 **Table 9 – Summary of Equipment/Tools/Miscellaneous proposals by**
 16 **forecast year in comparison to SDG&E request¹¹⁸**

Equipment/Tools/Miscellaneous - Constant 2016 (\$000)					
	2017	2018	2019	Total	Variance
SDG&E	\$4,833	\$1,037	\$1,037	\$6,907	-
ORA	\$8,130	\$1,037	\$1,037	\$10,204	\$3,297
TURN	\$4,833	\$1,037	\$1,037	\$6,907	\$0
CUE	\$4,833	\$1,037	\$1,037	\$6,907	\$0
FEA	\$8,130	\$1,037	\$1,037	\$10,204	\$3,297

17
¹¹⁴ For example, *see* SDG&E-14-CWP-R at 22.

¹¹⁵ Data Request ORA-SDGE-118-TCR, attached as Appendix A.

¹¹⁶ For example, *see* SDG&E-14-CWP-R at 22.

¹¹⁷ Ex. SDG&E-14-R (Colton).

¹¹⁸ SDG&E’s total request for the Equipment/Tools/Miscellaneous budget category incorporate ORA’s recommendation for the 2018 and 2019 requested amounts.

1 **1. ORA**

2 For this project category, ORA, and FEA recommend incorporating recorded data for
3 2017, and to correct the methodology used to derive the 2018 and 2019 forecasts by using
4 SDG&E’s intended 3-year average. Therefore, ORA recommends expenditures of \$8.130
5 million in 2017, \$1.037 million in 2018, and \$1.037 million in 2019. These expenditure
6 recommendations are \$3.297 million higher than SDG&E’s request for 2017, \$1.494 million
7 lower in 2018, and \$1.992 million lower in 2019.¹¹⁹

8 SDG&E acknowledges, as reflected in Table 24, that a 3-year average was intended to be
9 used and accepts ORA’s recommendation.

10 **C. Franchise**

11 **Table 10 – Summary of Franchise Proposals by**
12 **Forecast Year in Comparison to SDG&E Request**

Franchise - Constant 2016 (\$000)					
	2017	2018	2019	Total	Variance
SDG&E	\$34,463	\$40,180	\$35,190	\$109,833	-
ORA	\$31,374	\$36,983	\$35,190	\$103,547	-\$6,286
TURN	\$34,463	\$40,180	\$35,190	\$109,833	\$0
CUE	\$34,463	\$40,180	\$35,190	\$109,833	\$0
FEA	\$31,374	\$36,983	\$35,190	\$103,547	-\$6,286

13
14 **1. ORA**

15 ORA did not take issue with SDG&E’s forecast for TY 2019, but revised 2018 forecasts
16 to reduce expenditures for budget codes 17250, 17251, and 17252, based on responses to ORA’s
17 data requests,¹²⁰ which asked to distinguish between collectible and rate base funding. SDG&E
18 included collectibles for these budget codes in direct testimony, but ORA recommends only the
19 net cost to ratepayers be included since this is the amount for which ratepayers will be
20 responsible.¹²¹

21 ORA’s proposal leads to an inaccurate result because, in the GRC process, the estimated
22 collectible amounts attributable to a project are recorded and later removed from the Results of

¹¹⁹ Ex. ORA-07 (Wilson) at 24.

¹²⁰ Data Request ORA-SDGE-18, Q2m attached as Appendix A.

¹²¹ Ex. ORA-07 (Wilson) at 27.

1 Operations (RO) model during the calculation of rate base. It is thus correct to show the
 2 collectible amount (*i.e.*, the refundable costs obtained from the customer in advance of
 3 construction) as part of the direct costs to do the work. Removing collectible costs from the
 4 direct costs supported in my testimony would have the effect of excluding them twice.

5 The rationale behind including the collectible portion of a given project in direct costs is
 6 to allow the full overhead pool to be allocated both to the collectible and the non-collectible
 7 portion of capital projects, thus accurately reflecting the appropriate amount of overheads to
 8 move into plant-in-service as capital project additions. Since SDG&E collects the applicable
 9 overheads from the customer, it would not be appropriate to include the entire overhead pool in
 10 rate base. Thus, collectibles should not be excluded from the forecasts for the three Franchise
 11 budget codes including budget code 213 (or other budget codes in my testimony), because
 12 collectibles are removed from the RO model during the calculation of rate base.

13 **D. Mandated**

14 **Table 11 – Summary of Mandated Proposals**
 15 **by Forecast Year in Comparison to SDG&E Request**

Mandated - Constant 2016 (\$000)					
	2017	2018	2019	Total	Variance
SDG&E	\$33,169	\$34,377	\$32,662	\$100,208	-
ORA	\$28,641	\$31,817	\$31,817	\$92,275	-\$7,933
TURN	\$33,169	\$34,377	\$32,662	\$100,208	\$0
CUE	\$33,169	\$34,377	\$41,434	\$108,980	\$8,772
FEA	\$28,641	\$31,817	\$31,817	\$92,275	-\$7,933

16 **1. ORA**

17
 18 ORA adopts SDG&E’s 2017 actual costs and based on the historical average method
 19 addressed in Section III.B above recommends a 7% reduction from SDG&E’s 2018 request and
 20 a 3% reduction from SDG&E’s 2019 request. ORA does not appear to dispute the purpose and
 21 need of any individual Mandated program as a part of the portfolio presented in testimony nor
 22 does ORA appear to dispute any individual cost estimates or forecasting methodologies for any
 23 Mandated program within the portfolio, but applies a generic reduction overall.

24 SDG&E disagrees with ORA’s recommendations for forecast adjustments in years 2018
 25 and 2019. Given ORA’s apparent lack of argument against the purpose and need and forecasting
 26 methodology for Mandated programs, there appears to be no credible reason provided for

1 reducing SDG&E's request for capital expenditure in this category, other than an arithmetic
2 adjustment.

3 As stated my direct testimony, Mandated projects are those required by the CPUC and
4 other regulatory agencies. In order to maintain compliance with applicable regulations, SDG&E
5 continues to support its requested funding for the Mandated programs as needed to promote
6 public and employee safety, protect the overhead and underground distribution facilities,
7 maintain quality of service to customers, and avoid degradation of reliability due to aging
8 electric systems.¹²²

9 **2. CUE**

10 CUE focuses its analysis and recommendations on a number of specific budgets for TY
11 2019. As part of its testimony, CUE recommends cost increases, in addition to SDG&E's
12 request in my direct testimony, to the following budgets in this category: Budget 10265 for
13 Avian Protection Program for an increase of \$4.905 million; Budget 289 for Underground
14 Switch Replacements for an increase of \$3.201 million; and Budget 229 for Corrective
15 Maintenance Program for an increase of \$0.666 million.

16 SDG&E acknowledges there may be value in accelerating the replacement of various
17 aging infrastructure items as recommended by CUE, and SDG&E believes the proposed plan in
18 my direct testimony attempts to balance the process and resource constraints of planning and
19 conducting this work while meeting infrastructure replacement rates appropriately.

20 **E. Materials**

21 **Table 12 – Summary of Materials Proposals**
22 **by Forecast Year in Comparison to SDG&E Request**

Materials - Constant 2016 (\$000)					
	2017	2018	2019	Total	Variance
SDG&E	\$24,871	\$26,315	\$27,694	\$78,880	-
ORA	\$18,303	\$25,317	\$26,316	\$69,936	-\$8,944
TURN	\$24,871	\$24,417	\$24,928	\$74,216	-\$4,664
CUE	\$24,871	\$26,315	\$30,434	\$81,620	\$2,740
FEA	\$18,303	\$25,317	\$26,316	\$69,936	-\$8,944

23

¹²² Ex. SDG&E-14R (Colton) at AFC-44.

1 **1. ORA**

2 This budget includes transformers, meters and regulators for both new installations as
3 well as routine replacements. The portion associated with new installations is correlated to the
4 budget for New Business, which is addressed in Section F below.

5 ORA takes issue with the capital forecast for the New Business category, and as a result
6 recommends lowering the related Electric Meters and Regulators budget by the same percentage
7 recommended for the New Business category. ORA concluded that the forecast adjustments for
8 Electric Meters and Regulators is warranted and agreed with the logic that an increase in New
9 Business will result in an increase in capital for the Electric Meters and Regulators budget.¹²³

10 As discussed in Section F below, SDG&E disagrees with ORA for reducing the New
11 Business category. ORA does not identify or acknowledge that this budget is also used for
12 “replacements for meters that are damaged or not properly functioning,”¹²⁴ as shown in my direct
13 testimony. Because ORA does not distinguish between new meters and replacement meters for
14 this budget, its recommended reduction for Electric Meters and Regulators is overstated.
15 SDG&E therefore does not agree with a reduction to either component of this budget and
16 recommends adoption of the requested funding for the Materials budget category in its entirety.

17 **2. TURN**

18 TURN recommends that Budget 202 for the Meters and Regulators component of this
19 category be reduced by \$1.898 million in 2018 and by \$2.766 million in 2019 from SDG&E’s
20 proposal. This recommendation is based on the 2012-2016 historical average for this budget.¹²⁵

21 TURN’s recommendation is misguided, because the forecast for meters and regulators in
22 large measure follows the trend of New Business, which is increasing. Budget 202 also includes
23 replacements for damaged or malfunctioning units. With the main driver for this budget
24 associated with New Business, SDG&E’s increased forecast compared to historical spend is
25 justified by the applicable forecast increase in the Construction Unit (CU) forecast, the
26 forecasting technique used by SDG&E.¹²⁶ The CU forecast comprises permit activity and

¹²³ Ex. ORA-07 (Wilson) at 30.

¹²⁴ Ex. SDG&E-14-R (Colton) at AFC-54.

¹²⁵ Ex. TURN-01 (Borden) at 10.

¹²⁶ Ex. SDG&E-14 (Colton) at AFC-17 and Appendix E.

1 housing/land development to populate expected growth for new business. This is further
 2 addressed in my direct testimony as well as in Section IV.F below. Supporting the CU forecast
 3 increase is critical to insuring customers can connect to SDG&E’s distribution system in a
 4 reasonable time. Without the proper inventory of electric meters, customers will be required to
 5 delay construction, potentially also delaying subsequent events such as occupancy of a premises
 6 or commencement of business. The equipment associated with this budget is key to the day-to-
 7 day operations of SDG&E’s interaction with customers. SDG&E therefore disagrees with
 8 TURN’s proposed reductions and recommends adoption of the requested funding for the
 9 Materials budget category in its entirety.

10 **3. CUE**

11 CUE focuses its comments on TY 2019 and recommends an increase to Budget 214 for
 12 Distribution Transformers of \$2.740 million, in addition to what SDG&E is requesting for this
 13 budget in my direct testimony. The purpose of this budget increase is to accommodate the
 14 increased New Business projections and replace failed equipment while allowing for potential
 15 cost increases for material and fabrication.

16 SDG&E acknowledges there may be value in accelerating the replacement of aging
 17 transformers while meeting the New Business demands. SDG&E believes the proposed funding
 18 in my direct testimony appropriately balances the process and resource constraints.

19 **F. New Business**

20 **Table 13 – Summary of New Business Proposals**
 21 **by Forecast Year in Comparison to SDG&E Request**

New Business - Constant 2016 (\$000)					
	2017	2018	2019	Total	Variance
SDG&E	\$55,317	\$57,186	\$60,592	\$173,095	-
ORA	\$54,082	\$46,007	\$46,613	\$146,702	-\$26,393
TURN	\$55,317	\$56,016	\$59,149	\$170,482	-\$2,613
CUE	\$55,317	\$57,186	\$60,592	\$173,095	\$0
FEA	\$54,082	\$46,007	\$46,613	\$146,702	-\$26,393

22 **1. ORA**

23 ORA takes issue with the capital forecast for the New Business category of projects,
 24 primarily because it claims that it is not able to verify the methodology of SDG&E’s
 25 Construction Unit (CU) Forecast. ORA states that there appears to be a problem in gathering
 26

1 accurate data on building permits, and/or a problem in translating the data into CUs,¹²⁷ and that
2 the forecast of CUs has been a poor predictor of the actual number of CUs that occur.¹²⁸ ORA's
3 GRC forecast recommendation is based on projected meter growth instead of the CU Forecast,
4 for the customer driven budget codes.¹²⁹

5 In its conclusions, ORA states it has incorporated adjusted-recorded 2017 data into its
6 spreadsheet and revised the proposed expenditures to reflect what ORA believes to be the link
7 between gross meter sets and forecasts for customer driven capital projects. ORA further states
8 such a linkage is utilized by other energy utilities.¹³⁰

9 SDG&E supports its use of CU forecasting methodology because it is a leading indicator,
10 as opposed to meter growth (based on permit applications), which is lagging. SDG&E finds CU
11 forecasting to be more appropriate, because it is a leading indicator and "an in-depth assessment
12 that combines data on permit activity and the most current outlook on housing and land
13 development, presented by a variety of economic forecasting entities," as explained in my direct
14 testimony.¹³¹ In fact, the CU forecasting methodology was accurate within a 7% variance from
15 actuals in 2017, as discussed below.

16 New business budgets are used to plan for and record capital expenditures associated
17 with work performed to add new electric distribution system customers within the SDG&E
18 service territory. SDG&E must expend capital for new electric distribution backbone feeders,
19 transformers and services well in advance of the meter set and ultimate energizing of the facility.
20 Hence, SDG&E utilizes the CU forecasting modeling method, as it attempts to forecast the
21 growth of new business requirements before the meter is actually energized. Construction units
22 are also an integral and necessary element of SDG&E's work order system (i.e., the Distribution
23 Planning & Scheduling System—DPSS). The forecast results of construction units are not
24 simply relegated to GRC forecasting, it is incorporated into one of SDG&E's major construction
25 planning systems.

¹²⁷ Ex. ORA-7 (Wilson) at 34.

¹²⁸ *Id.*, at 34.

¹²⁹ *Id.*, at 35-38.

¹³⁰ *Id.*, at 34.

¹³¹ Ex. SDG&E-14-R (Colton) at AFC-57-58, Appendix E.

1 The sequence of activities leading to construction units and, finally, on to meters is as
2 follows:

- 3 • First, a developer submits development plans to a local governmental
4 planning authority for review that leads to permitting. Typically, the
5 stages a developer goes through are: plan designation, tentative map, final
6 map, and then permitting.
- 7 • Second, as the developer's project moves through these stages they will
8 contact SDG&E to plan for electric service. SDG&E typically must
9 perform its capital work sometime during the multi-level permitting phase.
10 A developer may be permitted to develop property, but not yet permitted
11 for building construction.
- 12 • Third, once SDG&E completes its distribution capital work, the developer
13 can construct a building on the lot, and then SDG&E can place a meter on
14 the building to measure electricity consumption. In short, capital work
15 always precedes the installation of electric meters.

16 Since construction units are integral to planning for, monitoring and recording capital
17 expenditures for this type of new business work, construction units are what need to be
18 forecasted. Permit applications appear in the development cycle long before meter sets, and with
19 respect to new business construction are a leading indicator, whereas meter sets are a lagging
20 indicator. Permits are issued much closer in time to the work that is being planned than are
21 meter sets.

22 SDG&E's model used to forecast construction units uses a forecast of the issuance of
23 residential permits as its independent variable¹³² to produce a forecast of construction units.
24 Professional data service providers such as Moody's and Global Insight generate forecasts of
25 permits to be issued nationally, regionally, by state, and locally. These forecasts are used by
26 many in the construction industry. SDG&E uses the Global Insight data series.¹³³

¹³² Approximately 34% of permits issued during the current year and 66% of the permits issued one year prior.

¹³³ See ex. SDG&E-39 (Wilder).

1 SDG&E understands that the CU forecast differs from methodologies the other California
2 utilities use to predict their new business work, and that ORA prefers a simpler approach using
3 meter growth. However, given the above process background, SDG&E believes the CU forecast
4 model, which is based on the forecasted number of permits, is a superior model to the meter
5 growth forecast model, given that it minimizes lag, is better correlated and fits better with budget
6 timing. Despite ORA's argument that forecasted CUs have been a poor predictor of the actual
7 number of CUs that occur,¹³⁴ SDG&E's actual 2017 recorded CUs came within approximately
8 7% of the CU forecast (10,253 actual CUs, compared to our forecast of 11,023 CUs for 2017),
9 and actuals appear to be continuing on track with forecasts. This is supported by the behavior of
10 Budget Code 225 (Customer Requested Upgrades and Services), which spiked well above the
11 2017 forecast.

12 Finally, ORA's recommendation does not reflect collectible costs, which are included in
13 SDG&E's direct forecasts and removed during the RO model process, as explained above in
14 Section C (Franchise). All of the New Business budget codes, except BC 204 and 15258,
15 include collectible costs in the forecast, and should appropriately remain in the forecast to avoid
16 being removed a second time during the RO model process.

17 2. TURN

18 TURN takes issue with the capital forecast for only one of the budget codes within the
19 New Business category of projects, Budget Code 211 – Overhead to Underground Conversions.
20 TURN argues that the premise of SDG&E's estimate is flawed "because there is no indication
21 that increased building development, even if it were to happen, results in increased overhead to
22 underground conversions in a given year."¹³⁵ TURN further states that "there is no positive
23 correlation between residential or small commercial building growth and OH-UG conversion –
24 in fact, the correlation between meter growth and conversion cost is weak and negative."¹³⁶

25 SDG&E's forecast of this budget code is based on an historical 5-year average, with a
26 10% adder for each forecast year to account for development projections as discussed above.

¹³⁴ Ex. ORA-07 (Wilson) at 34.

¹³⁵ Ex. TURN-01 (Borden) at 11.

¹³⁶ *Id.*, at 11-12.

SDG&E’s 2017 actuals came in approximately 7% over forecast for OH to UG conversions, and we do not expect this demand to decline over the next few years of the GRC period.

Furthermore, similar to ORA, TURN’s recommendation does not reflect collectible costs, which are included in SDG&E’s direct forecasts and removed during the RO model process, as explained above in Section C (Franchise). All of the New Business budget codes, except BC 204 and 15258, include collectible costs in the forecast, and should appropriately remain in the forecast to avoid being removed a second time during the RO model process.

G. OH Pools

**Table 14 – Summary of Overhead Pool Proposals
by Forecast year in Comparison to SDG&E Request**

OH Pools - Constant 2016 (\$000)					
	2017	2018	2019	Total	Variance
SDG&E	\$85,103	\$120,386	\$162,491	\$367,980	-
ORA	\$85,634 ¹³⁷	\$86,855	\$115,247	\$287,736	-\$80,244
TURN	\$85,103 ¹³⁸	\$71,029	\$71,029	\$227,161	-\$140,819
CUE	\$85,103	\$120,386	\$162,491	\$367,980	\$0
FEA	\$85,634	\$86,855	\$115,247	\$287,736	-\$80,244

1. ORA

ORA takes issue with the capital forecast for the Overhead Pools, primarily Local Engineering Electric Distribution Pool Budget 901, and Local Engineering, Substation Pool Budget 904. ORA states that “SDG&E’s overhead pool forecasts are driven in part on SDG&E’s assumptions about which projects to include in the determination of the increase in each budget code, which is based on SDG&E’s analysis of 2016 data. Budget code 904 is described as providing planning, design, and engineering to support ‘the engineering needs for substation projects.’”¹³⁹ ORA reviewed the projects and programs that were included in the determination of

¹³⁷ It appears that ORA inadvertently understated 2017 actual expenditures for a budget code within Overhead Pools. This understatement adds up to approximately \$0.415M and is included in Table 14 (Understated Budget Code BC904 = Understated by \$0.415M).

¹³⁸ TURN referenced actual expenditures in 2017, however, they made no recommendation regarding adjustments to SDG&E’s 2017 forecast request in their testimony. Table 14 thus assumes TURN does not take issue with SDG&E’s overall 2017 forecast request for this category.

¹³⁹ Ex. ORA-06 (Roberts) at 46.

1 SDG&E’s forecast for Budget Code 904 and found that three of the five largest programs have
2 limited impact on substations based on the descriptions provided by SDG&E:

- 3 • BC 16252, Electric Integrity RAMP;
- 4 • BC 17254, Accelerated Pole Loading (PRiME); and
- 5 • BC213, City of San Diego Surcharge Program (20SD).¹⁴⁰

6 ORA recommended that the budget for Local Engineering Electric Distribution Pool
7 Budget 901 and Local Engineering, Substation Pool Budget 904 be based on SDG&E’s model,
8 with two adjustments:

- 9 1. Updating the model inputs to use ORA program and project forecasts; and
- 10 2. Reducing the number of programs that contribute to the Budget 904 forecast.

11 Below is the table showing the ORA recommendation for the Overhead pool in
12 comparison to SDG&E’s request.

13 **Table 15 – Summary of ORA’s proposed**
14 **Overhead Pools budgets in comparison to SDG&E’s request**

Overhead Pool	ORA Proposed 2017 - 2019	SDG&E 2017 - 2019	Variance 2017 - 2019
Local Engineering ED Pool (BC901)	\$208,427	\$239,606	-\$31,179
Local Engineering Substation Pool (BC904)	\$47,631 ¹⁴¹	\$88,218	-\$40,587
Department Overhead Pool (BC905)	\$12,079	\$17,522	-\$5,443
Contract Admin. Pool (BC906)	\$19,600	\$22,634	-\$3,034

15 ORA argues the accuracy of using engineering overhead labor pools versus direct
16 charging to projects,¹⁴² and recommends the CPUC to order SDG&E to ‘scale back its use of
17 engineering overhead pools.’¹⁴³ This would set up the argument about the CFR. In general,
18

¹⁴⁰ *Id.*

¹⁴¹ It appears that ORA inadvertently understated 2017 actual expenditures for this Local Engineering Substation Pool (BC904). This understatement adds up to approximately \$0.415M and is included in the totals for Table 15 (Understated Budget Code BC904 = Understated by \$0.415M).

¹⁴² Ex. ORA-06 (Roberts) at 53.

¹⁴³ *Id.*, at 55.

1 SDG&E uses the overhead pools method because it is a more efficient way of charging these
2 types of costs than direct charging, while achieving the same basic result. It would be
3 administratively burdensome, costly, and inefficient to require charging these types of costs
4 directly to projects, while providing no appreciable benefit. SDG&E's overhead pool
5 methodology applies general accounting concepts, including the Overhead Pools procedure as
6 stated in the Code of Federal Regulations:¹⁴⁴

7 4. Overhead Construction Costs.

8 A. All overhead construction costs, such as engineering, supervision,
9 general office salaries and expenses, construction engineering and
10 supervision by others than the accounting utility, law expenses, insurance,
11 injuries and damages, relief and pensions, taxes and interest, shall be
12 charged to particular jobs or units on the basis of the amounts of such
13 overheads reasonably applicable thereto, to the end that each job or unit
14 shall bear its equitable proportion of such costs and that the entire cost of
15 the unit, both direct and overhead, shall be deducted from the plant
16 accounts at the time the property is retired.

17 B. As far as practicable, the determination of pay roll charges includible in
18 construction overheads shall be based on time card distributions thereof.
19 Where this procedure is impractical, special studies shall be made
20 periodically of the time of supervisory employees devoted to construction
21 activities to the end that only such overhead costs as have a definite
22 relation to construction shall be capitalized. The addition to direct
23 construction costs of arbitrary percentages or amounts to cover assumed
24 overhead costs is not permitted.

25 C. For Major utilities, the records supporting the entries for overhead
26 construction costs shall be so kept as to show the total amount of each
27 overhead for each year, the nature and amount of each overhead
28 expenditure charged to each construction work order and to each electric
29 plant account, and the bases of distribution of such costs.

30 SDG&E therefore does not agree with ORA's proposed reductions based on the overhead
31 pool methodology described above and recommends adoption of the requested funding for the
32 Overhead Pools budget category in its entirety.

¹⁴⁴ Code of Federal Regulations, Title 18, Conservation of Power and Water Resources, Chapter I, Subchapter C, Part 101, Electric Plant Instructions, Paragraph 4, Overhead Construction Costs.

1 **2. TURN**

2 TURN takes issue with the capital forecast for the Overhead Pools category of capital
3 projects, proposing that SDG&E’s Overhead Pools be based on five-year historical averages for
4 all four of the overhead pools.¹⁴⁵ TURN referenced actual expenditures in 2017, however, they
5 made no recommendation regarding adjustments to SDG&E’s 2017 forecast request in their
6 testimony. Thus, it is assumed that TURN does not take issue with SDG&E’s overall 2017
7 forecast request. TURN’s proposed Overhead Pools budgets are shown in the table below:

8 **Table 16 – Summary of TURN’s proposed**
9 **Overhead Pools budgets in comparison to SDG&E’s request**

Overhead Pool	TURN Proposed 2018 - 2019	SDG&E Request 2018 – 2019	Variance 2018 - 2019
Local Engineering ED Pool (BC901)	\$109,110	\$178,818	-\$69,708
Local Engineering Substation Pool (BC904)	\$18,020	\$74,270	-\$56,250
Department Overhead Pool (BC905)	\$32,000	\$13,027	-\$7,127
Contract Admin. Pool (BC906)	\$9,030	\$16,762	-\$7,732

10 SDG&E believes its forecast methodology of calculating the growth in capital
11 expenditures on a percentage basis for each year is the more accurate and appropriate
12 methodology for Overhead Pools. Using historical average when forecasting for Overhead Pools
13 is not the most accurate process, because the expected amount of work in the future may not be
14 taken into account with an historical average. As discussed in Section IV.F (New Business)
15 above, SDG&E has observed an uptick in construction work through the CU forecasts in 2017
16 that appears to be continuing in 2018 and into the foreseeable future. Overhead pools are also
17 expected to be substantially more than the historical average due to new projects forecasted and
18 higher costs in this GRC cycle for fire safety, risk mitigation and reliability capital projects.
19 TURN’s use of a longer term historical average is therefore inconsistent with SDG&E’s
20 expected need.

21 **3. CUE**

22 Although CUE does not propose specific expenditure increase/decrease recommendations
23 for this category, CUE does propose increases to SDG&E’s overall electric-related capital
24 expenditures for 2019, which total \$97.185 million. CUE states that any of their proposals that

¹⁴⁵ Ex. TURN-01 (Borden) at 13.

are adopted by the Commission should have overhead loadings calculated and added in later modeling.¹⁴⁶ SDG&E agrees that overhead loadings should be calculated consistently with authorized proposals.

H. Reliability/Improvements

Table 17 – Summary of Reliability/Improvements Proposals by Forecast Year in Comparison to SDG&E Request

Reliability/Improvements - Constant 2016 (\$000)					
	2017	2018	2019	Total	Variance
SDG&E	\$74,863	\$108,418	\$103,448	\$286,729	-
ORA	\$77,593	\$51,479	\$51,479	\$180,551	-\$106,178
TURN	\$74,863	\$103,262	\$95,853	\$273,978	-\$12,751
CUE	\$74,863	\$108,418	\$161,537	\$344,818	\$58,089
FEA	\$77,593	\$51,479	\$51,479	\$180,551	-\$106,178

1. ORA

ORA proposes to adopt SDG&E’s 2017 actual expenditures for Reliability/Improvements and, based on the historical average of Reliability projects and programs from 2013 to 2017, reduce both 2018 and 2019 expenditures by approximately 50%.¹⁴⁷ Throughout ORA’s testimony for Reliability/Improvements, ORA states SDG&E’s increased request for funding over prior GRC years is unsubstantiated and does not support the need for increased reliability.

Many of the budgets in the Reliability/Improvements category are RAMP-related and address mitigation of one or more RAMP risks. The RAMP-related risk mitigation projects in my direct testimony (including the Reliability/Improvements category) were proposed consistently with the Commission’s new risk-informed GRC framework, as described in SDG&E’s direct and rebuttal risk management testimony volumes.¹⁴⁸ The Commission has stated its intent that risk-informed GRC framework will “result in additional transparency and participation on how the safety risks for energy utilities are prioritized ... and provide

¹⁴⁶ CUE (Marcus) at 84.

¹⁴⁷ Ex. ORA-06 (Roberts) at 25.

¹⁴⁸ See discussion regarding the Commission’s increased focus on risk and SDG&E’s risk informed GRC testimony presentation, Ex. SCG-02-R/SDG&E-02-R (Day, Flores and York) and SCG-202-R/SDG&E-202-R (Day, Flores and York).

1 accountability for how these safety risks are managed, mitigated and minimized,” as noted in
2 SDG&E’s risk management policy testimony.¹⁴⁹ And in SDG&E’s TY 2016 GRC decision, the
3 Commission stated: “When evaluating the revenue requirements requested by SDG&E and
4 SoCalGas, the Commission has placed an emphasis on programs and activities that enhance the
5 safety and reliability of the Applicants’ natural gas and electric power infrastructure and
6 operations.”¹⁵⁰

7 As described in Section III.B above, ORA’s methodology recommends cost levels for the
8 Reliability/Improvements category that are lower than SDG&E’s historical average by
9 eliminating historical project costs from its calculation for projects completed prior to 2017.
10 SDG&E disagrees with ORA’s methodology for assessing RAMP projects within the
11 Reliability/Improvements category, as discussed in SDG&E’s risk management testimony
12 rebuttal chapter.¹⁵¹ Below are responses to each argument:

13 **a. SDG&E Already has a Reliable System**

14 ORA points out that SDG&E has a high level of reliability, quoting from a CPUC report
15 stating that SDG&E has maintained a consistently high level of reliability within its service
16 territory.¹⁵² By alluding to this high level of reliability, ORA attempts to diminish SDG&E’s
17 identified need for increased spending in the Reliability/Improvements category to mitigate
18 potential risks of aging infrastructure in the coming years. SDG&E disagrees with ORA’s
19 assessment that SDG&E’s system is reliable enough to warrant their proposed cuts to SDG&E’s
20 forecasted outlook for the Reliability/Improvements category by nearly 40% between 2018 and
21 2019. SDG&E upholds the view that all Reliability/Improvement budgets described in my
22 testimony support maintaining the delivery of clean, safe and reliable service to our customers.
23 Maintaining a high level of reliability does not mean that a utility can reduce its spending and
24 stay in place. Rather, continued and potentially increased spending is needed to stay ahead of

¹⁴⁹ Ex. SCG-02-R/SDG&E-02-R(Day) at DD-3, quoting D.14-12-025, the December 4, 2014 “Decision Incorporating a Risk-Based Decision-Making Framework into the Rate Case Plan and modifying Appendix A of Decision 07-07-004” at 3, 10.

¹⁵⁰ D.16-06-054 at 37.

¹⁵¹ Ex. SCG-202/SDG&E-202 (Day, Flores, York) at II.D.

¹⁵² Ex. ORA-06 (Roberts) at 29.

1 additional challenges to system reliability. To obtain additional improvements is potentially
2 even more costly than to simply maintain a current reliability level.

3 ORA claims SDG&E has not provided detailed data on outages or their causes to justify
4 the need for the requested expenditures for the Reliability/Improvements category.¹⁵³ However,
5 SDG&E is not required to provide data on outages in order to prove that it must maintain a safe
6 and reliable system. SDG&E is required to deliver safe and reliable electricity to its customers,
7 and takes this responsibility seriously, as discussed in the policy testimony of Caroline Winn,¹⁵⁴
8 and as evidenced by the accolades cited throughout ORA's testimony. The facts ORA cites in
9 arguing that SDG&E has a very reliable electric system serve as evidence of SDG&E's
10 accountability in managing its Reliability/Improvements projects and do not support a reduction
11 from SDG&E's historic spend, as ORA argues.

12 Moreover, sample data was provided to ORA through data requests to address concerns
13 about the analysis and justification for various budgets within Reliability/Improvements.

- 14 • SDG&E's response to ORA's data requests¹⁵⁵ provided two examples of
15 projects driven by circuit reliability issues that explain past outages and
16 proposed measures to mitigate future occurrences to provide increased
17 reliability.
- 18 • SDG&E's response to ORA's data requests¹⁵⁶ provided alternatives
19 analysis and justification for various budgets requested by ORA in the
20 Reliability/Improvements category.

21 ORA specifically singles out the 230 Cable Replacement budget as not being able to
22 impact or address SDG&E's lower reliability figures from 2016 because "... SDG&E attributes
23 the majority of the decreased reliability in 2016 to fires ..." and that "... Future outages due to
24 fires or extreme weather cannot be mitigated by replacing underground cables."¹⁵⁷ SDG&E

¹⁵³ *Id.*, at 30.

¹⁵⁴ See Direct Testimony of Caroline A. Winn (Policy Overview), Ex. SDG&E-01 at Sections I.C and IV.B.

¹⁵⁵ SDG&E's response to Data Request ORA DR-119, Q4, attached as Appendix A.

¹⁵⁶ SDG&E's response to Data Request ORA DR-119, Q6, attached as Appendix A.

¹⁵⁷ Ex. ORA-06 (Roberts) at 30.

1 disagrees with ORA’s assessment and reaffirms that it has provided adequate detail to
2 substantiate the proposed forecast of cable replacements based on reliability impacts and aging
3 infrastructure.

4 Within my testimony for Reliability/Improvements, cable failures are specifically
5 identified as the leading cause of reliability impacts to SDG&E’s electric system. Facts
6 presented in my testimony, along with responses given to various data requests, show the outlook
7 for future failures based on the age of underground cable. SDG&E’s response to TURN’s data
8 requests provides underground cable failure rates from 2010 to 2016, costs to replace
9 underground circuits per mile from 2010 to 2016, and a calculation justifying the increased
10 request for funding on the 230-budget related to underground cable replacement.¹⁵⁸

11 Prior funding levels historically have been well below the amount needed to maintain an
12 average lifespan of 50 years for underground cable, therefore increased spending to proactively
13 replace cables is needed, regardless of fires or the impacts of extreme weather. In summary, the
14 increased funding to replace underground cable will allow SDG&E to:

- 15 - maintain a more reliable system with an average cable lifespan of 50 years
- 16 instead of the existing lifespan of 78 years;
- 17 - reduce overall costs through proactive replacement of all aging underground
- 18 cable instead of reactively replacing only failed underground cable; and
- 19 - reduce the chance of causing a future significant increase in costs when the cable
- 20 needs replacement.

21 **b. Reliability Justification Based on RAMP Filing**

22 ORA’s testimony¹⁵⁹ details the percent of SDG&E capital expenditures for the
23 Reliability/Improvements category by RAMP risk:

- 24 • SDG&E-1 (Wildfire)
- 25 • SDG&E-12 (Electric Infrastructure Integrity)
- 26 • None (Projects and Programs not Supporting RAMP)

¹⁵⁸ SDG&E’s response Data Request TURN DR-003, Q25, attached as Appendix A.

¹⁵⁹ Ex. ORA-06 (Roberts) at 36-37.

1 However, ORA’s count in Table 6-5¹⁶⁰ of reliability projects supporting RAMP risk
 2 category SDG&E-12 (Electric Infrastructure Integrity) appears to be missing one budget code:
 3 Budget 93240, Distribution Circuit Reliability. (See the table below for a full list of
 4 Reliability/Improvements budgets supporting RAMP risk categories.)

5 **Table 18 – List of Reliability Projects that Support RAMP Risk Chapters**

RAMP Risk	Budget	Budget Description	Budget Driver
SDG&E-1	11253	Wireless Fault Indicators	Reliability/Improvements
SDG&E-1	12243	Phasor Measurement Units (Distribution)	Reliability/Improvements
SDG&E-1	12246	Advanced Ground Fault Detection	Reliability/Improvements
SDG&E-1	12247	Smart Isolation & Reclosing	Reliability/Improvements
SDG&E-1	12249	Advanced Weather Sta. Integration & Fore	Reliability/Improvements
SDG&E -12	230	Replacement Of Underground Cables	Reliability/Improvements
SDG&E -12	236	Capital Restoration Of Service	Reliability/Improvements
SDG&E -12	6260	Remove 4kv Subs. From Service	Reliability/Improvements
SDG&E -12	11249	Install Scada On Line Capacitors	Reliability/Improvements
SDG&E -12	11261	Sewage Pump Station Rebuilds	Reliability/Improvements
SDG&E -12	11267	Scada Expansion-Distribution	Reliability/Improvements
SDG&E -12	12266	Condition Based Maintenance-Smart Grid	Reliability/Improvements
SDG&E -12	16260	Morro Hill Sub Rebuild	Reliability/Improvements
SDG&E -12	93240	Distribution Circuit Reliability Constru	Reliability/Improvements
SDG&E -12	99282	Replace Obsolete Sub. Eqpt.-Ferc	Reliability/Improvements

6
 7 With the above details taken into consideration, the percent distribution of forecasting for
 8 budgets supporting SDG&E-1, SDG&E-12, and “NONE” per ORA’s Table 6-5 changes as
 9 follows:

10 **Table 19 – Summary of Costs for Reliability Projects Supporting RAMP Risk Chapters**

RAMP RISK	Count	2017	2018	2019	Total	% of Total
SDG&E-1 Wildfire	5	\$4,241	\$8,287	\$9,026	\$21,554	8%
SDG&E-12 Electric Infrastructure Integrity	10	\$29,969	\$72,824	\$76,120	\$178,913	62%
None	17	\$40,653	\$27,307	\$18,302	\$86,262	30%
Total	32	\$74,863	\$108,418	\$103,448	\$286,729	100.00%

11
¹⁶⁰ *Id.*, at 36.

1 In its Table 6-5, ORA shows its analysis of “Reliability Portfolio Programs and Projects by
2 RAMP Risk,” and takes issue with the fact that the risk score for the Electric Infrastructure
3 Integrity risk only constitutes 0.2% of the risk score for Wildfire (the top risk), but only 8% of
4 the Reliability Portfolio request is related to Wildfire (compared to 62% for the EII risk).¹⁶¹
5 Based on this analysis, ORA appears to suggest that SDG&E’s highest cost percentage increases
6 due to RAMP risks do not match up with the risk scores assigned to the risk that the spend is
7 intended to address; i.e., that the risk score is not high enough to warrant a high percentage
8 increase spend.¹⁶²

9 The risk management rebuttal testimony of Diana Day, Greg Flores, and Jamie York
10 explains why funding decisions based on RAMP risk scoring is not appropriate, including the
11 fact that that many of SDG&E’s risk mitigating activities, programs and projects may mitigate
12 several different types of risks.¹⁶³ Electric infrastructure integrity and wildfire risks are
13 interrelated, and several mitigations that address infrastructure integrity would also help manage
14 the wildfire risk. For example, tree trimming helps to mitigate both wildfire and electric
15 infrastructure integrity risks.

16 ORA witness Neil Stannik states that “it is not appropriate to compare risk scores,
17 expected results of mitigations, and funding of those mitigations between risks.”¹⁶⁴ Rather, Mr.
18 Stannik agrees that the information produced by RAMP and integrated into SDG&E’s direct
19 testimony presentation should be used “to inform funding decisions, but not to dictate these
20 decisions or bypass the traditional review process in the GRC,” as Ms. Day, Mr. Flores, and Ms.
21 York discuss.¹⁶⁵ SDG&E disagrees with any suggestion that RAMP analysis should serve as a
22 sole mechanism to justify capital projects and programs, as also discussed above in section III.B.

¹⁶¹ *Id.* at 36-37.

¹⁶² *See* Ex. ORA-06 (Roberts) at 8-10.

¹⁶³ Ex. SCG-202/SDG&E-202 (Day, Flores and York) at II.D.

¹⁶⁴ April 13, 2018, Prepared Direct Testimony of Nils Stannik, Risk Management Policy; Enterprise Risk Management Organization; RAMP/GRC Integration; Pipeline Integrity; SoCalGas PSEP, Ex. ORA-03 at 12.

¹⁶⁵ Ex. SCG-202/SDG&E-202 (Day, Greg Flores and York) at II.A.1, quoting Ex. ORA-03 (Stannik) at 15.

1 **c. ORA’s Forecast Methodology**

2 ORA adopts a forecast recommendation based on the average of years 2013 to 2017 of
3 \$51.479 million for years 2018 and 2019, citing SDG&E’s lack of justification for the
4 Reliability/Improvements category.¹⁶⁶ As discussed above in section III.B, ORA’s methodology
5 and recommendation constitutes a reduction from the historical average by eliminating
6 completed projects from the historic average.

7 ORA’s use of an historical average as a forecast methodology has resulted in cuts across
8 the board to budgets that require full funding. SDG&E disagrees with this forecast
9 recommendation, because it does not consider the fact that 25 items, or 78%, of the budgets
10 within the Reliability/Improvements category have zero-based forecasts that have each been
11 estimated based on the project scope of work and require full funding in order to see them to
12 completion.

13 Applying an average to the Reliability/Improvements category as a whole also
14 disproportionately affects the remaining 7 budget codes that are based on a 3, 4, or 5-year
15 average. These projects were based on the average spend from prior years, yet ORA has chosen
16 to recommend a lower forecast because it has associated the category as a whole in its
17 recommendation.

18 SDG&E reaffirms its commitment to delivering safe and reliable service to our customers
19 and believes the forecast for Reliability/Improvements documented in my testimony meets that
20 goal.

21 **2. TURN**

22 TURN takes issue with the capital forecast for only one of the budget codes within the
23 Reliability/Improvements category of projects, Budget Code 6260 – 4kV Substation
24 Modernization, stating: “TURN agrees that some proactive replacement of 4kV equipment may
25 be necessary over the longer term. The question is, at what pace should this be accomplished
26 starting today?”¹⁶⁷ Additionally, “TURN recommends the forecast 2019 budget requested by
27 SDG&E be normalized over the TY period (to 2021), to allow for some proactive upgrades while

¹⁶⁶ *Id.*

¹⁶⁷ Ex. TURN-01 (Borden) at 22.

1 minimizing cost impacts on current SDG&E customers. The result is to disallow \$5.156 million
2 in 2018 and \$7.595 million in 2019 from SDG&E's proposed expenditures for this budget.¹⁶⁸

3 TURN claims SDG&E's "...4kV systems actually have better reliability than 12kV
4 systems..."¹⁶⁹, alluding to Table 7 of their rebuttal showing fewer outages of 4kV substations
5 versus greater outages of 12kV substations for years 2010 to 2016. TURN fails to realize
6 SDG&E has approximately four times as many 12kV substations than 4kV substations, which
7 means 4kV substation outages proportionately performed worse than 12kV substation outages in
8 five out of seven years from 2010 to 2016.

9 SDG&E does not agree with TURN's forecasting methodology. My direct testimony
10 provides justification for these expenditures due to the high failure rates and lack of replacement
11 parts. This presents the potential to cause more frequent and unnecessary extended outages that
12 could affect large numbers of customers.¹⁷⁰ Since this budget is made up of discrete projects and
13 these efforts are projected to accelerate beyond what has been conducted in the recent past on
14 4kV substations, there is not a substantial history on which to base a forecast. Therefore, the
15 zero-based forecasting reflected in my direct testimony for Budget Code 6260 is appropriate.¹⁷¹

16 3. CUE

17 CUE proposes expenditure increases above SDG&E's proposals for the following
18 budgets: Budget 230 for Unjacketed Cable Replacement (increase by \$48.699 million); Budget
19 11249 for SCADA Conversions (increase by \$5.295 million); and Budget 6260 for 4kV
20 Substation Elimination (increase by \$4.095 million).¹⁷² CUE bases these proposed expenditure
21 increases supporting the change-out of aging infrastructure and installation of newer technology
22 on SDG&E's system at a faster pace than what is proposed by SDG&E in support of the
23 continued reliability of the electric system.

24 Although SDG&E acknowledges there may be value in accelerating the replacement of
25 various aging infrastructure items or installation of newer technologies for this category as

¹⁶⁸ *Id.*, at 23.

¹⁶⁹ *Id.*, at 21.

¹⁷⁰ Ex. SDG&E-14R (Colton) at AFC-85.

¹⁷¹ *Id.*, at AFC-84, AFC-85.

¹⁷² CUE (Marcus) at 60-64, 68-70, 71-73, 84, fn 586.

1 recommended by CUE, my direct testimony proposal appropriately balances process and
2 resource constraints while meeting reasonable infrastructure replacement rates.

3 **I. Safety and Risk Management**

4 **Table 20 – Summary of Safety and Risk Management proposals by forecast year in**
5 **comparison to SDG&E request**

Safety and Risk Management - Constant 2016 (\$000)					
	2017	2018	2019	Total	Variance
SDG&E	\$83,747	\$113,497	\$184,333	\$381,577	-
ORA	\$69,634	\$97,619	\$157,883	\$325,136	-\$56,441
TURN	\$83,747	\$92,097	\$124,287	\$300,131	-\$81,446
CUE	\$83,747	\$113,497	\$211,917	\$409,161	\$27,584
FEA	\$69,634	\$97,619	\$157,883	\$325,136	-\$56,441

6
7 **1. ORA**

8 ORA proposes to utilize actual recorded data for 2017. ORA’s adjustments in 2018 and
9 2019 to the eight RAMP-driven projects that make up the Safety and Risk Management capital
10 category stem from its RAMP-driven investigation and analysis. ORA’s recommendations
11 appear to use an “historical” trend methodology, as discussed above in Section III.B. ORA did
12 not adjust the three non-RAMP projects for 2018 and 2019. ORA is recommending total Safety
13 and Risk Management capital expenditures of \$69.634 million in 2017, \$97.619 million in 2018,
14 and \$157.883 million in 2019. ORA’s recommended expenditures are \$14.113 million lower
15 than SDG&E’s in 2017, \$15.876 million lower in 2018, and \$26.450 million lower in 2019.

16 SDG&E agrees with ORA’s determination to not adjust SDG&E’s requested funding to
17 the three non-RAMP driven capital projects. However, SDG&E takes issue with ORA’s
18 treatment of those projects that are identified as supporting RAMP. Without stating so directly,
19 ORA appears to take a position that those projects are solely justified by RAMP, which is not the
20 case, as previously addressed in section III.B above. In fact, these projects are justified by safety
21 and risk management drivers established outside of RAMP. The fact that these projects have
22 been identified as supporting RAMP should not create a situation that reduces their funding by
23 that association, as discussed in the Companies’ risk management rebuttal testimony.¹⁷³

24 Additionally, the use of a historical trend methodology is not appropriate for these budgets, as

¹⁷³ Ex. SCG-202/SDG&E-202 (Day, Greg Flores and York) at II.A.2.

1 described in Section III.B above. These projects should be fully funded as requested in my direct
2 testimony.

3 **a. PRiME**

4 ORA takes issue with the capital forecast for the PRiME program. ORA states that
5 “SDG&E has not thoroughly explained how it intends to scale-up its resources to meet its
6 ambitious expenditure forecasts in 2018 and 2019.”¹⁷⁴ This argument is very similar to the
7 position ORA took against the FiRM project in SDG&E’s TY2016 GRC.¹⁷⁵

8 SDG&E disagrees with ORA’s claims about lack of support for the forecasted scale-up of
9 the PRiME program. SDG&E described the rationale behind the initial pilot phase of the
10 program in its original testimony, which is restated below:

11 The initial subset of poles will be made up of approximately 1,600 poles
12 as a pilot phase spread across SDG&E’s service territory. Appropriate
13 conclusions can be drawn geographically to determine the differences in
14 expected outcomes and population sizes that vary across SDG&E’s
15 service territory. This occurred with FiRM. SDG&E embarked on the
16 program with an initial strategy, but as data came in and construction
17 progressed, SDG&E saw the need to alter the methodology and approach
18 for that program.¹⁷⁶

19 SDG&E goes on to further describe the scale-up approach:

20 PRiME is a nine-year program designed to address risks related to pole
21 loading, specifically focused on wood poles. SDG&E will focus on the
22 areas of highest risk first. During initial implementation years, SDG&E
23 will aggressively analyze the poles based on a risk model where wood
24 poles will be replaced and designed for known local wind conditions, and
25 for all known attachments. PRiME will result in a much safer and more
26 reliable overhead electric system.¹⁷⁷

27 In addition to SDG&E’s original testimony, SDG&E responded to numerous data
28 requests from multiple intervenors, including ORA. SDG&E provided a significant amount of

¹⁷⁴ Ex. ORA-07 (Wilson) at 14.

¹⁷⁵ Ex. ORA-6 (Roberts) at 34-37; ORA Report on Results of Operations for San Diego Gas & Electric Company and Southern California Gas Company Test Year 2016 General Rate Case, SDG&E – Electric Distribution Capital Expenditures Part 1 of 2 (Greg Wilson), dated April 24, 2015.

¹⁷⁶ Ex. SDG&E-14R (Colton) at AFC-125.

¹⁷⁷ *Id.*, at AFC-126.

1 supporting detail regarding the PRiME program’s need, forecast and ramp-up approach in
2 response to these discovery requests. In response to one of ORA’s data requests, ORA-SDGE-
3 089-GAW question 5, part c,¹⁷⁸ SDG&E re-iterated the rationale behind the scale-up approach:

4 The pilot phase of 1600 poles will allow SDG&E to achieve a higher
5 confidence level to verify pole failure rates to further assist in project
6 forecasting. SDG&E will ramp from 1600 poles in 2018 to 22,600 poles
7 in 2019 in order to ensure SDG&E can complete pole analysis within
8 SDG&E’s Fire Threat Zone/Highest Risk Fire Areas by 2021.

9 SDG&E’s proposed scale-up plan for this nine-year program is a balanced approach.
10 SDG&E plans to conservatively develop a pilot program in 2018 to ensure that the overall
11 program’s approach and methodology is appropriate, then aggressively analyze and replace poles
12 in high-risk areas of SDG&E’s territory. ORA has not taken issue with the need for the program
13 or SDG&E’s proposal to implement a pilot program. The safety and reliability need for this
14 program, and the past success of the (FiRM) program supports SDG&E’s original forecasts.

15 **b. Twin Engine Helicopter**

16 ORA recommends that no additional funding beyond what was spent in 2017 be allowed
17 for Budget 17242 – Twin Engine Helicopter. SDG&E takes issue with this recommendation.
18 The requested budget for this helicopter purchase was approximately \$10 million. It was
19 anticipated that the entire purchase would occur in 2017; however, due to fabrication constraints,
20 final payment for the helicopter was delayed until 2018 (but has now occurred). This is an
21 example of delays that can occur to various projects and initiatives that may not be known at the
22 time cost estimates are prepared for the GRC, even though the best-known information is utilized
23 at that point in time. ORA does not take issue with the purchase of the twin engine helicopter
24 itself, only the timing. This budget should be fully funded as proposed in my direct testimony.

25 **2. TURN**

26 **a. PRiME (17254)**

27 TURN generally supports the scope of work for the PRiME program as a reasonable
28 effort to mitigate risk posed by overloaded poles. TURN, however, recommends adjustments to
29 the cost forecast due to an incorrect perception of potential overlap with other programs, in

¹⁷⁸ See referenced discovery response in Appendix A.

1 addition to other recommended reductions to SDG&E’s estimated pole replacement costs and
2 replacement rates.¹⁷⁹

3 **i. SDG&E included an overlap reduction factor to PRiME**

4 TURN incorrectly assumed SDG&E had not accounted for the overlap of costs forecasted
5 for the “pole replacement and reinforcement” cost category (Budget 87232) and that the PRiME
6 program should therefore be reduced by approximately 12%.¹⁸⁰

7 The PRiME program is a system-wide effort that will assess all poles within SDG&E’s
8 service territory. The pole count estimated for the PRiME program is shown in my original
9 testimony as a population of 170,000 poles¹⁸¹ of a total inventory of approximately 200,000¹⁸²
10 poles, or 85% of the total population. That 15% reduction was made as a conservative estimate
11 to account for any potential future overlap from other programs (including Budget 87232). This
12 15% reduction is 3% more than TURN is proposing to reduce the program. TURN’s proposal,
13 using the PRiME’s approximate total pole count of 200,000 poles, would increase the scope of
14 the program by approximately 6000 poles. TURN’s proposal would result, in effect, in a double-
15 reduction: SDG&E’s original 15% and then by TURN’s 12%. SDG&E therefore supports its
16 request as proposed.

17 **ii. PRiME is more than CMP**

18 TURN claims that SDG&E fails to provide a reasonable basis for the replacement rate
19 and cost for the PRiME program and recommends pole replacement costs be reduced from
20 \$25,000 to \$22,706 per pole and the replacement rate reduced from 7% to 2.2%.¹⁸³

21 TURN’s assumed \$22,706 cost figure and 2.2% replacement figures were derived from
22 SDG&E’s Corrective Maintenance inspection program (CMP) responses such as TURN-DR 25,
23 question 5.¹⁸⁴ CMP (Budget 87232) is a visual inspection and maintenance plan for all
24 distribution assets and equipment outside of substations, in compliance with General Order

¹⁷⁹ Ex. TURN-01 (Borden) at 28-37.

¹⁸⁰ *Id.*, at 28-31.

¹⁸¹ SDG&E-14-R at 125.

¹⁸² SDG&E-14-R at 123.

¹⁸³ *Id.*, at 31-35.

¹⁸⁴ *See* referenced discovery response in Appendix A.

1 (G.O.) 165. That compliance plan is filed with the Commission. The program is not a pole
2 replacement program as defined by TURN, it is an inspection program conducted under the
3 criteria of G.O. 165 that may incidentally result in the need to replace or reinforce some poles.
4 Inspections are performed on all facilities per the cycles defined in the plan, and repair work
5 orders are created to remedy visual non-conformances within one year. The visual and intrusive
6 inspections processes are still critical for compliance with general orders and public and
7 employee safety. The inspections detect safety issues such as broken cross arms, missing ground
8 molding, loose guy wires and anchors, cracked insulators, corrosion, leaking transformers, rotten
9 poles and many more issues that need to be identified and repaired. Infrequently, when a pole
10 fails an intrusive inspection, the pole will be replaced. CMP inspections are limited in scope to
11 what an inspector can see from the ground, coupled with the results of an intrusive inspection,
12 which involves wood core analysis, probe inspection and fungicide/fumigant placement.

13 The PRiME program is being established to utilize new known local wind data conditions
14 gathered from SDG&E's fleet of anemometers and new 3-D modeling software that goes beyond
15 the capability of visual inspections. These new advancements allow for an analysis of the
16 structure at all reasonably known potential wind and conductor loading conditions, including
17 worst case conditions, which are not likely to exist at the time of the visual inspection. The CMP
18 plan addresses compliance with all applicable general orders, while PRiME will go further to
19 mitigate the risks of a structure failure by analyzing structural performance under more strenuous
20 environmental and loading conditions.

21 These two programs have separate drivers, with differing costs and non-conformance
22 rates due to the different scope of each program.

23 **iii. PRiME utilizes previously established pole replacement**
24 **rates and associated costs.**

25 Due to scope similarities between programs, SDG&E utilized some initial assumptions
26 from SCE's 2012 pole loading study¹⁸⁵ to create initial baselines for the PRiME program. For the
27 initial non-conformance assumption, SCE's 2012 study resulted in a 9.8% non-conformance rate
28 which SDG&E used as a basis to determine a baseline non-conformance rate for the PRiME

¹⁸⁵ SCE 2015 General Rate Case - Transmission and Distribution (T&D) Volume 6, Part 2 - Pole Loading, Page 10, Subtext 12, Line 3.

1 program. With the consideration that a portion of the 9.8% would fall into re-arrangements vs.
2 full replacements, SDG&E referred to SCE's 2015 rate case¹⁸⁶ where SCE determined that 3%
3 would fall in the rearrangement category. SDG&E rounded the 9.8% non-conformance rate up
4 to 10% and split it into 7% replacement and 3% rearrangement. In SCE's recent 2018 GRC
5 filing, SCE has revised their pole replacement rate to 8.6%. Unless the proposed pilot study is
6 performed, it will be challenging for SDG&E to establish a higher confidence level to assist in
7 determining whether it would be prudent to raise a pole failure rate to a level that would align
8 more closely with SCE's most current 8.6% replacement rate. However, SDG&E's initial pole
9 replacement rate may actually be higher, because the initial assessment will be located within
10 SDG&E's Fire Threat Zone and High Risk Fire Area (FTZ/HRFA). SDG&E's Pole Loading
11 Risk Model will begin by identifying SDG&E's highest risk poles within the FTZ/HRFA where
12 higher elevations and wind speeds are prominent, which is expected to result in higher non-
13 conformance rates. This is expected to be determined and validated during the proposed pilot
14 study.

15 SDG&E assumed a cost estimate of \$25,000 per pole,¹⁸⁷ based on per pole replacement
16 costs associated with the FiRM Program. SDG&E expects that the \$25,000 per pole estimate
17 will provide a good baseline estimate that will cover the cost of the pole and also include the
18 added equipment costs and changes based on field conditions as they become known through the
19 design and construction phases of the project.

20 Due to SDG&E's conservative overlap reduction factor, proposed costs that are based on
21 past programs (FiRM) and proposed replacement rates based on actual programs (SCE), SDG&E
22 supports its proposed forecast.

23 **b. SF6 Switch Replacement (14249)**

24 TURN agrees that SDG&E should monitor SF6 switches and replace them if they are
25 leaking, but TURN does not support proactive replacement if a switch has remaining useful life

¹⁸⁶ *Id.*, at 22.

¹⁸⁷ In response to TURN's data requests, SDG&E states "The unit cost to replace a pole from 2012-2016 vary based on the complexity of the work. Approximately \$25,000 per pole was used based on similar construction activities." SDG&E's response to Data Request TURN-SEU-003, Q.43b included in Appendix A.

1 and has no leaks. Since costs for this category do not exist for the years between 2012 to 2015,
2 TURN recommends that the actual recorded expenditures in 2017 be utilized as the approved
3 expenditures in 2018 and 2019. Therefore, TURN recommends expenditures of \$3.103 million
4 in both 2018 and 2019, which is a reduction of \$10.985 million in each year.¹⁸⁸

5 SDG&E does not agree with this recommendation, because regulatory requirements from
6 CARB and EPA require increased tracking of SF6 switches, while proactive removal and
7 replacement of SF6 switches throughout SDG&E's distribution system will reduce the likelihood
8 of SF6 emissions from leaking switches, thus reducing emission rates of SF6 gases.¹⁸⁹
9 Therefore, SDG&E stands behind the estimate of requested expenditures for SF6 replacements in
10 2018 and 2019 shown in my direct testimony.

11 SDG&E has installed SF6 switches in 2017, but only in emergency situations when a
12 replacement switch that does not contain SF6 was not available. Several SF6 switches within
13 SDG&E's distribution system currently do not have a switch to replace them with a non-SF6
14 switch because of the existing footprint, configuration and/or required clearances. SDG&E is
15 also working with CARB to identify this industry constraint within their regulation on this topic,
16 to potentially modify the CARB requirement for specific situations outlined above (*i.e.*,
17 emergency situations). This budget should be fully funded as proposed in my direct testimony.

18 **c. Electric Integrity RAMP (16252)**

19 TURN does not support the expenditure request in this budget as they believe it is not
20 consistent with the preliminary state of the projects. TURN recommends the Commission adopt
21 a budget that is 50% of that requested for this budget. This would equate to an expenditure
22 reduction of \$7.429 million in 2018 and \$26.203 million in 2019 for total proposed expenditures
23 of \$7.429 million in 2018 and \$26.203 million in 2019. TURN also recommends that "the
24 electric integrity RAMP projects should be tracked in a one-way balancing account, subject to an
25 overall cost cap, and each activity's spending and unit costs should be tracked separately to
26 inform future budgeting decisions."¹⁹⁰

¹⁸⁸ Ex. TURN-01 (Borden) at 24-26.

¹⁸⁹ Ex. SDG&E-14R (Colton) at AFC-113.

¹⁹⁰ Ex. TURN-01 (Borden) at 28.

1 SDG&E disagrees with TURN’s recommendations. SDG&E has provided an appropriate
2 estimate of costs for the proposed work within my budget, work papers and discovery responses
3 to support our request. Also, SDG&E does not support the use of a one-way balancing account
4 for the Electric Integrity RAMP program as it reduces SDG&E’s ability to reprioritize and adjust
5 funds to meet our customer’s needs within an overall cost cap, as also discussed in the rebuttal
6 risk management testimony chapter.¹⁹¹ Additionally, the rebuttal risk management testimony
7 chapter notes that arbitrarily limiting RAMP-related spending in this fashion would set a poor
8 public policy precedent that is inconsistent with the Commission’s directive to place “an
9 emphasis on programs and activities that enhance the safety and reliability of the Applicants’
10 natural gas and electric power infrastructure and operations.”¹⁹²

11 3. CUE

12 CUE focuses their analysis and recommendations on specific budget costs for TY 2019.
13 CUE recommends cost increases in addition to SDG&E’s requests in my direct testimony to the
14 following budgets; Budget 14248 for SF6 switches for an increase of \$17.610 million; and
15 Budget 17249 for 600 Amp Tee Connectors for an increase of \$9.974 million. CUE also
16 proposes a two-way balancing account for Budget 17254 for PRiME due to the potential
17 uncertainty of costs as the program begins to scale up.¹⁹³

18 SDG&E acknowledges there may be value in accelerating the replacement of various
19 aging infrastructure items as recommended by CUE, and SDG&E believes the proposed plan in
20 my direct testimony attempts to balance the process and resource constraints while meeting
21 infrastructure replacement rates appropriately. Additionally, SDG&E does not agree with CUE’s
22 recommendation of using a two-way balancing account as suggested for the PRiME project, as it

¹⁹¹ See Ex. SCG-202/SDG&E-202 (Day, Greg Flores and York) at II.C (discussing how balancing of RAMP costs would be incompatible with the Commission’s decisions D.14-12-025 and D.16-08-018, including accountability reporting requirements).

¹⁹² *Id.*, at II.A.2; D.16-06-054 at 37.

¹⁹³ CUE (Marcus) at 60-85.

1 reduces SDG&E’s ability to reprioritize and adjust funds to meet our customer’s needs, as also
 2 discussed in the rebuttal risk management testimony chapter.¹⁹⁴

3 **J. Distributed Energy Resource (DER) Integration**

4 **Table 21 – Summary DER Integration proposals**
 5 **by forecast year in comparison to SDG&E request**

DER Integration - Constant 2016 (\$000)					
	2017	2018	2019	Total	Variance
SDG&E	\$3,298	\$18,343	\$18,016	\$39,657	-
ORA	\$3,960	\$6,220	\$6,220	\$16,400	-\$23,257
TURN	\$3,298	\$7,295	\$100	\$10,693	-\$28,964
CUE	\$3,298	\$18,343	\$18,016	\$39,657	\$0
FEA	\$3,960	\$6,220	\$6,220	\$16,400	-\$23,257

6 Please see the rebuttal testimony chapter of Mr. Ted Reguly (Exhibit SDG&E-253) for
 7 rebuttal to parties’ proposals regarding DER Integration capital projects.

8 **K. Transmission/FERC Driven Projects**

9 **Table 22 – Summary of Transmission/FERC Driven Project Proposals**
 10 **by Forecast Year in Comparison to SDG&E Request**

Transmission/FERC Driven Projects - Constant 2016 (\$000)					
	2017	2018	2019	Total	Variance
SDG&E	\$32,183	\$57,576	\$50,118	\$139,877	-
ORA	\$21,641	\$50,694	\$41,552	\$113,887	-\$25,990
TURN	\$32,183	\$57,576	\$50,118	\$139,877	\$0
CUE	\$32,183	\$57,576	\$50,118	\$139,877	\$0
FEA	\$21,641	\$50,694	\$41,552	\$113,887	-\$25,990

11 **1. ORA**

12
 13 ORA utilized recorded actual data for 2017. ORA’s adjustments in 2018 and 2019 to the
 14 six RAMP-driven projects (Cleveland National Forest Powerline Replacements (8165), TL649
 15 (9137), TL691 (10144), TL695/6971 (10146), TL697 (10147), and TL6912 (10149)) that make
 16 up the Transmission/FERC-Driven capital category are based on an historical RAMP trend
 17 methodology and stem from ORA’s detailed investigation and analysis of the 15 RAMP-driven

¹⁹⁴ See Ex. SCG-202/SDG&E-202 (Day, Greg Flores and York) at II.C (discussing how balancing of RAMP costs would be incompatible with the Commission’s decisions D.14-12-025 and D.16-08-018, including accountability reporting requirements).

1 projects.¹⁹⁵ None of the non-RAMP-driven capital projects were adjusted by ORA. Therefore,
2 ORA is recommending a total Transmission/FERC-driven capital expenditure of \$21.641 million
3 in 2017, \$50.694 million in 2018, and \$41.552 million in 2019. ORA's recommended
4 expenditures are \$10.542 million lower than SDG&E's in 2017, \$6.882 million lower in 2018,
5 and \$8.566 million lower in 2019.¹⁹⁶

6 SDG&E agrees with ORA's determination to not adjust SDG&E's requested funding to
7 all of the non-RAMP driven capital projects. However, SDG&E takes issue with ORA's
8 treatment of those projects that are identified as supporting RAMP. These projects are need-
9 based and not solely justified by RAMP, as ORA's recommendation suggests. In fact, these
10 projects are justified by other purposes and needs as determined through the CPUC G.O. 131d
11 approval process and other Federal approval processes to meet the Transmission/FERC-Driven
12 needs for the projects. The fact that these projects have been identified as supporting RAMP
13 should not cause reductions in their funding, as discussed above in section III.B and in SDG&E's
14 rebuttal risk management testimony.¹⁹⁷ In most cases, these projects have either already been
15 approved or are undergoing the process of being approved by the CPUC through an Advice
16 Letter or a Permit to Construct filing. Once the CPUC approves a Transmission project, the
17 associated distribution work required to be constructed needs to be fully funded through the GRC
18 process. It would be inconsistent and problematic to approve the transmission component of the
19 project and to not approve, or to reduce the funding for the companion distribution component.
20 Additionally, the use of historical trend methodology is not appropriate, as described above in
21 Section III.B.

¹⁹⁵ Ex. ORA-07 (Wilson) at 44-47.

¹⁹⁶ *Id.*, at 47.

¹⁹⁷ Ex. SCG-202/SDG&E-202 (Day, Flores, York) at II.A.2.

1 **L. IT – Sponsored Projects**

2 **Table 23 – Summary of IT Sponsored Project Proposals**
3 **by Forecast year in Comparison to SDG&E Request**

IT-Sponsored Projects - Constant 2016 (\$000)¹⁹⁸					
	2017	2018	2019	Total	Variance
SDG&E	\$36,811	\$38,134	\$33,071	\$108,016	-
ORA	\$23,578	\$11,513	\$11,513	\$46,604	-\$61,412
TURN	\$36,811	\$38,134	\$33,071	\$108,016	\$0
CUE	\$36,811	\$38,134	\$33,071	\$108,016	\$0
FEA	\$23,578	\$11,513	\$11,513	\$46,604	-\$61,412

4
5 **1. ORA**

6 ORA takes issue with recorded data provided within SDG&E’s response to data request
7 “ORA-SDGE-159-MRL-IT,”¹⁹⁹ specifically for “Electric GIS 2017 Enhancements”. ORA states
8 the adjustment captured within the data request response for “Electric GIS 2017 Enhancements”
9 was “unsupported and appeared unreasonable,” and therefore was removed.²⁰⁰

10 As stated above in section III.B of this rebuttal testimony, SDG&E does not agree with
11 ORA’s use of reduced historical averages to predict necessary funding for these projects, as well
12 as its conclusion that SDG&E’s request is unsupported and unreasonable. The data request in
13 question above asked for historical recorded values, which SDG&E provided. The initial
14 requested funding for the projects submitted in this GRC in the IT-ED capital section was lower
15 than the 2017 recorded actual costs. The increase in funding for this project was a result of
16 accelerating the start date of the project from 2018 to 2017, based on a re-evaluation of priorities
17 for business needs and scope enhancements, which occurred after finalizing testimony forecasts.
18 As discussed above in section III.B, removal of the recorded value from the historical average is
19 not justified.

20 **V. CONCLUSION**

21 To summarize, the main parties that submitted proposals for SDG&E’s Electric
22 Distribution Capital were ORA, TURN, CUE and FEA. Overall, ORA addressed each budget

¹⁹⁸ IT Project costs are addressed in Ex. SDG&E-24 (Olmsted) and rebuttal for IT Projects sponsored by DER Policy is addressed in rebuttal testimony Ex. SDG&E-253 (Reguly).

¹⁹⁹ SDG&E’s response to Data Request ORA-SDG&E159-MRL-IT, attached as Appendix A.

²⁰⁰ Ex. ORA-06 (Roberts) at 82.

1 category with recommended expenditure adjustments based on various forecasting methods
2 including historical averages (which included lower than average historical amounts for 2017 as
3 described in Section III.B), trends or a RAMP trend, while ignoring the impacts of zero-based
4 forecasts. This is not appropriate as three-quarters of the budgets included in the electric
5 distribution request are not ongoing year after year, and have characteristic set durations. Use of
6 an historical average or trend does not account for the inherent variabilities of projects that are
7 not ongoing. Additionally, ORA recommends adoption of reduced 2017 recorded capital
8 expenditures, rather than the 2017 forecast. This casts a narrow year-to-year cost view of
9 activities that were forecast over the span of three years, and ignores the broader spectrum of
10 various projects' total costs and activities that were reasonably forecasted and whose schedules
11 and/or scopes may have had to be adjusted to meet a variety of requirements.

12 TURN challenges specific budgets and forecasting methodologies related to the
13 Materials, New Business, Overhead Pools, Reliability/Improvements, and Safety and Risk
14 Management categories. FEA conveys support for ORA's analysis and recommendations, and
15 CUE recommends expenditure increases to ten specific budgets, as well as associated overhead
16 loaders related to the categories of Reliability/Improvements, Safety and Risk Management,
17 Mandated and Materials Budgets.

18 SDG&E's TY 2019 direct testimony showing offers the first-ever risk informed GRC
19 presentation. As SDG&E's risk management rebuttal testimony states:

20 The "purpose of RAMP is 'to examine the utility's assessment of its *key* risks and
21 its proposed programs for mitigating those risks.'" Thus, identifying a project or
22 program as RAMP-related is a useful indicator that the project or program is
23 intended to mitigate one of the Companies' key safety risks, and should be viewed
24 in that light. The "RAMP" designation in the GRC alerts parties that more
25 information is also available in the RAMP Report, including information about
26 risk mitigation activities that are ongoing (and may have been ongoing for some
27 time), as well as risk mitigation activities that are newly proposed in this
28 proceeding. Finally, the RAMP designation also alerts parties to the fact that *the*
29 *Companies will be held accountable for risk spending and effectiveness through*
30 *accountability reporting.*²⁰¹

²⁰¹ Ex. SCG-202/SDG&E-202 (Day, Flores, York) at II.A.1.

1 Thus, while RAMP-related information in my direct testimony does not provide sole justification
2 for RAMP projects, it should provide additional information to parties and the Commission
3 about the key safety risks they are meant to address.

4 In this application, SDG&E has put forth the best and most feasible forecast for electric
5 distribution capital, given the information available at the time. While SDG&E appreciates the
6 fact that CUE is focused on enhancing reliability through the increased pace of aging
7 infrastructure replacement and newer technology installations, SDG&E believes it already does
8 an excellent job of maintaining a reliable electric system. SDG&E has provided a substantial
9 amount of detail supporting the forecasts in testimony, workpapers, and data requests. It is
10 encouraging that intervenors in large part do not appear to challenge the underlying need of any
11 of the proposed projects and programs, only the forecasting methodology.

12 SDG&E is in the process of assessing possible impacts of potential tariffs and changes in
13 foreign trade agreements, which may have an upward pressure on the raw materials used in many
14 of SDG&E's equipment components such as transformers, power cables and conductors. This
15 potential for increased equipment costs is an important consideration to adopt SDG&E's
16 requested funding and to disregard recommendations to the contrary.

17 My original testimony and workpapers support SDG&E's commitment to provide safe
18 and reliable service, and to ensure this obligation will continue long into the future. SDG&E
19 respectfully requests the Commission to authorize the requested funding as presented in my
20 testimony and shown in the table below.

21 **Table 24 – SDG&E's TY 2019 Rebuttal Position Summary of Total Costs**

Total Capital - Constant 2016 (\$000)			
	2017	2018	2019
Capital	\$445,116	\$588,317	\$700,757

22 This concludes my prepared rebuttal testimony.
23

APPENDIX A

DISCOVERY RESPONSES

This appendix includes data request responses referenced in this rebuttal. Confidential data responses are redacted, unredacted versions are available on request.



ORA

Office of Ratepayer Advocates
California Public Utilities Commission

505 Van Ness Avenue
San Francisco, CA 94102
Phone: (415) 703-2544
Fax: (415) 703-2057

<http://ora.ca.gov>

ORA Response to Sempra Energy Utilities' Data Request
San Diego Gas & Electric Co. Test Year 2019 General Rate Case, A.17-10-007
Southern California Gas Co. Test Year 2019 General Rate Case, A.17-10-008

Origination Date: May 17, 2018
Due Date: June 1, 2018
Response Date: May 24, 2018

To: Chuck Manzuk
cmanzuk@semprautilities.com
1-858-654-1782

From: Clayton Tang and Truman Burns, Project Coordinators
Office of Ratepayer Advocates
505 Van Ness Avenue, Room 4205
San Francisco, CA 94102

Response by: Greg Wilson
Phone: 415-703-2740
Email: gaw@cpuc.ca.gov

Data Request No: SEU-ORA-DR-08
Exhibit Reference: ORA-07
Subject: Identification of RAMP Costs

The following is ORA's response to Sempra's data request. If you have any questions, please contact the responder at the phone number and/or email address shown above.

Q.1: On Page 9, Chapter 2 of ORA's Report on Electric Distribution Capital, ORA provides a narrative description of the trend line shown in ORA's Graph 7-1, shown on Page 8. On page 9, lines 22-23, ORA states: "Lastly, it is important to point out that ORA did not rely on this trend to derive its forecasts."

Please describe in detail the step-by-step process ORA took to derive its forecasts.

A.1: The 47 pages contained in Exhibit ORA-07 provide a detailed explanation of how ORA derived its forecasts. Depending on the specific capital forecast being analyzed and the specific year being considered, ORA sometimes: used recorded data (for 2017); adopted SDG&E's forecasts; used judgment; incorporated corrections provided by SDG&E; used updated data provided by SDG&E; developed its own methodologies; adjusted forecasts that were linked to other forecasts that were themselves being adjusted; and/or used SDG&E-provided spreadsheets to derive updated forecasts. Again, the methodologies behind these forecasts are all described in detail in Exhibit ORA-07; a step-by-step description of how ORA derived its forecasts would essentially be a replication of the 47 pages contained in ORA's testimony, copies of which are already in SDG&E's possession.

ORA provides the following general overview of how the calculations flow among the various spreadsheets that make up the Excel workbook that SDG&E has attached to its data request. The "Forecast" tab is the first tab in the workbook, and it acts much like a summary table. In general, each of the ORA forecasts contained in the "Forecast" tab originate (and are derived) in the specific table that analyzes that specific capital topic. For example, Line 1 of the "Forecast" tab presents forecasts for Equipment/Tools/Miscellaneous. That capital area is detailed in the "E-T-M" tab, which is the spreadsheet that analyzes the Equipment/Tools/Miscellaneous forecasts. As can be seen on Line 1 of the "E-T-M" tab, ORA's 2017 forecast is based on recorded data, and the 2018 and 2019 forecasts are based on corrections that SDG&E provided to ORA. ORA's 2017, 2018, and 2019 forecasts in the "E-T-M" tab are then transferred to the "Forecast" tab, and a discussion of ORA's analysis of the Equipment/Tools/Miscellaneous capital category can be found beginning on page 22 of Exhibit ORA-07. This same basic process is repeated for the other lines in the "Forecast" tab.

Q.2: On Page 11, Chapter 2 of ORA's Report on Electric Distribution Capital, ORA states: "While SDG&E has identified many different RAMP-driven capital projects in various areas of this GRC, ultimately 44 of those projects ended up being included in Ex. SDG&E-14-R (they are listed in Appendix C of SDG&E's testimony). Of those 44, only the 15 projects shaded in green are discussed and analyzed in this portion of ORA's testimony. As seen in Table 7-1, all but one of those RAMP-driven projects are included as part of either the Safety and Risk Management capital category or the Transmission/FERC-driven capital category."

a. Referring to the accompanying ORA workpaper file "Ex. ORA-07-WP SDGE E Dist Capital Linked Recorded and Forecast Data (Wilson).xlsx," under the "Forecast" tab, please describe in detail the step-by-step process ORA took to identify RAMP costs in any Category row described as "Projects Not in Testimony -- Completed Before 2017" such as the Excel lines C40 (ORA Line 25), C60 (ORA Line 41), and C82 (ORA Line 61) or any other appropriate lines.

- b. In that same file at those same locations, given that projects were not identified as associated with RAMP prior to 2017, please describe in detail how ORA identified projects in this category as associated with RAMP.
- c. Did ORA consider any other risk-mitigation or safety-related project costs to estimate “RAMP-driven” project costs in the years prior to RAMP’s existence? If so, please describe in detail the step-by-step process ORA took to identify such costs, and explain which risks those costs were intended to mitigate.

A.2.a: The three lines referenced in the above question (Lines 25, 41, and 61 under the “Forecast” tab) do not specifically identify RAMP costs, and were not meant to do so. The three lines referenced above are a mixture of RAMP projects and non-RAMP projects (all of which were completed prior to 2017). To view only pre-2017 “RAMP-type” projects, it is necessary to look at Lines 11 and 19 on Table 7-2 (page 17) of Exhibit ORA-07. ORA assumes that SDG&E is actually requesting information solely on “RAMP-type” projects completed prior to 2017. Accordingly, ORA responds to Question 2.a as follows.

In response to data request ORA-SDGE-096-GAW, SDG&E provided a list, for each of the recorded years 2012 through 2016, of all of its capital projects, regardless of their completion dates. That list provides the capital category to which each project was assigned (i.e., Franchise, Materials, New Business, etc.), and contains the level of recorded expenditures for each of these capital projects for each year. ORA sorted these projects by capital category. On page 7-1 of its workpapers, ORA provided a copy of Table 7-2 that included asterisks next to Lines 11 and 19. Those asterisks note that details surrounding the forecasts for those two lines could be found on pages 5-1 and 6-1 of ORA’s workpapers. Workpaper pages 5-1 and 6-1 are simply sorted printouts of the data provided in response to data request ORA-SDGE-096-GAW, with page 5-1 sorted to show all Safety & Risk Management projects, and page 6-1 sorted to show all Transmission/FERC-Driven projects. As shown on those workpaper pages, the capital projects shaded in tan were those projects that were not only completed prior to 2017 (i.e., they showed no expenditures in the years 2017, 2018, or 2019), but also judged by ORA (as discussed in its response to the next question) to have “RAMP-type” characteristics. On page 6-1 of ORA’s workpapers, there are also two projects shaded in pink. These two projects (Sunrise Powerlink and ECO Substation) were completed prior to 2017, but were excluded from the “RAMP-type” total as they did not have any discernable characteristics that pertained to RAMP. The pre-2017 totals that appear on workpaper pages 5-1 and 6-1 are shown on Lines 11 and 19 on Table 7-2.

A.2.b: As discussed in Q.2.a, ORA used SDG&E's response to data request ORA-SDGE-096-GAW to identify capital projects that were completed prior to 2017. After segregating these capital projects into the various capital categories that were discussed in Exhibit ORA-7 (i.e., Franchise, Materials, New Business, etc.), ORA examined these categories to see if any were likely to include RAMP-type projects. ORA concluded that only the Safety & Risk Management category and the Transmission/FERC-Driven category would contain capital projects that, had those projects not been completed prior to 2017, would have likely been included in the list of RAMP-driven projects contained in Appendix C of Exhibit SDG&E-14-R. It is important to note that for the capital categories analyzed in Exhibit ORA-07, the only RAMP-driven projects that SDG&E identified in its testimony (and that were scheduled to be completed in 2017 or later) were only contained in the same two capital categories, with one exception. (That one exception is a RAMP-driven project identified by SDG&E that is found in Account 906 of the Overhead Pool category, which had no expenditures prior to 2017 and would therefore not contain any "RAMP-type" projects prior to 2017.)

As discussed above in response to Q.2.a, workpaper pages 5-1 and 6-1 show the list of all the capital projects undertaken by SDG&E in the Safety & Risk Management category and the Transmission/FERC-Driven category. Those projects shaded in tan were identified by ORA as being likely to be included in Appendix C had they not been completed prior to 2017. ORA reviewed each of the capital projects on workpaper pages 5-1 and 6-1 (that were completed prior to 2017) to determine if they should be included in the "RAMP-type" category. The analyses of the capital projects contained on ORA's workpaper pages 5-1 and 6-1 generally involved either an analysis of the stated descriptions of the projects and/or an analysis of the details and purposes of the project that were provided by SDG&E in its Test Year 2016 GRC testimony. Projects that had stated descriptions of mitigating fire risks and/or mitigating/replacing overloaded poles (as an example, see Budget Code project 13255, which is described as mitigating fire risks) had obvious safety implications and were assumed to be "RAMP-type" capital projects. In many other instances, a review of SDG&E's 2016 testimony revealed that SDG&E's stated purpose for the project was to increase safety (as an example, see lines 3 and 4 on page JDJ-122 in Exhibit SDG&E-09 of the last GRC in regards to Budget Code project 12256); projects of this type have obvious "RAMP-type" properties and were therefore included in that category. In summary, all of the capital projects shaded in tan on workpaper pages 5-1 and 6-1 were carefully scrutinized by ORA and had clear and obvious safety aspects, which in ORA's judgment indicated that they would have been included in the list of RAMP projects contained in Appendix C of Exhibit SDG&E-14-R had they not been completed prior to 2017.

A.2.c: As discussed in response to the prior questions, ORA utilized the list of capital projects and project costs that was provided to ORA in response to data request ORA-SDGE-096-GAW. As shown on workpaper pages 5-1 and 6-1, the material provided by SDG&E allowed ORA to identify all of the capital projects and project costs that were undertaken (even if they were completed prior to 2017) in the Safety & Risk Management capital category and the Transmission/FERC-Driven capital category. As discussed above, those capital projects shaded in tan were identified by ORA as being likely to be included in Appendix C had they not been completed prior to 2017. ORA is assuming that the list of capital projects and project costs provided by SDG&E in response to data request ORA-SDGE-096-GAW was compiled correctly and is complete. With those assumptions, ORA is not aware of any additional pre-2017 capital projects or project costs that could be analyzed for potential inclusion in the RAMP-driven category.

END OF RESPONSE

CUE DR2Q52

Exhibit Reference: SDG&E-14

SDG&E Witness: Alan F. Colton

Subject: CUE-SDGE-DR-02-Capital Zero Based

SDG&E Response 1:

The direct testimony of Alan Colton, Exhibit SDG&E-14, describes the choice of forecasting methods for each capital project in categories A, D, G, H, and J. This description can generally be found in the section for each budget under the heading “b. Forecast Method”.

The format for the cost estimates for each project may vary from category to category, or even between budgets within a given category. In some cases, circumstances necessitate using historical unit cost information and applying that unit cost to the forecasted amount of work; in other cases, circumstances necessitate using comprehensive cost estimating programs that utilize current labor rates, the latest material costs, and other known costs to develop their estimates. Many of the electric distribution projects are estimated using a project estimating and management system called Distribution Planning Support System (DPSS), which is a database system developed in-house during the 1980’s. DPSS contains tables of typical project materials and labor estimates, from which a project is defined and managed. This part of DPSS is not unlike an automotive repair ‘parts and time guide’ which is used to estimate repair costs. Some examples of summary tables produced by DPSS appear below.

In general, cost estimates were calculated as fully-loaded values, and the indirect costs were then removed for GRC purposes leaving direct labor and nonlabor values. Fully loaded costs that include both direct and indirect costs are contained in SDG&E’s Capital Budget Documents (CBD) and are described as part of the governance process starting on page AFC-11, under the Electric Transmission and Distribution Capital Committee. Furthermore, fully loaded direct and indirect project costs are detailed in SDG&E’s Work Order Authorization (WOA) forms. WOA is a utility form that summarizes and documents the approval of a base business or non-base business commitment that is less than \$300 million. CBD and WOA forms are created upon project approval, as described in the governance process.

Budget estimates for the categories requested are shown below. The estimates were derived from historical unit cost information and applying that unit cost to the forecasted amount of work shown below in the tables. The tabulation shows the unit costs for the materials and labor involved and the quantity estimates for the job. The governance process for the approval of these budgets is explained in Section III of SDG&E testimony SDG&E-14.

Category A – Capacity/Expansion

2258 – SALT CREEK LAND PURCH, NEW SUB & 3 CIR

2017

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	13,927	\$766.0

12kV Switchgear Purchase	EA	2	\$1,740.0
12kV Capacitor Bank Purchase	EA	2	\$320.0
Foundations, Pads & Ducts Contract	EA	1	\$371.0
Services, Consultant Costs	Various	Various	\$139.0
Total			\$3,336

5253 – OCEAN RANCH 69/12kV SUBSTATION

2017

Description	Unit (FT, HR, EA)	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Internal Labor	HR	1,218	\$67
Environmental, licensing and other misc charges	various	various	\$103
Total			\$170

2018

Description	Unit (FT, HR, EA)	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Internal Labor	HR	9,309	\$512
Trench Conduit 8-5 Including Handholes	FT	3070	\$437
Manhole	EA	2	\$149
69/12kV Transformer (downpayment)	EA	2	\$727
Environmental, licensing and other misc charges	various	various	\$2,034
Total			\$3,859

2019

Description	Unit (FT, HR, EA)	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Internal Labor	HR	3,527	\$194

Trench Conduit 8-5 Including Handholes	FT	4030	\$573
Manhole	EA	2	\$149
Cable & Connections: 1000 kxmil AL	FT	13500	\$379
Cable & Connections: 1000 kxmil CU	FT	2100	\$176
Trench Conduit 4-5 Including Handholes	FT	2300	\$246
Retag/Cutover	EA	6	\$3
Trench Conduit 2-5 Including Handholes	FT	1650	\$133
12kV Capacitor Padmount SCADA 12kVAR	EA	4	\$135
Trayer 4-Way w/ SCADA Padmount Switch	EA	4	\$364
69/12kV Transformer (delivery charge and assembly)	EA	2	\$2,539
1/4 section 12kV Metalclad Switchgear and Assembly	EA	2	\$3,053
12kV Capacitor Bank	EA	2	\$766
Kerite Cable	EA	1	\$474
Below Grade	EA	1	\$1,158
Relay panels testing and commission	EA	4	\$986
Environmental, licensing and other misc charges	various	various	\$3,228
Total			\$14,558

8253 – SUBSTATION CAPACITOR BANK UPGRADES

2017

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Capacitors	EA	3	\$509.2
Below Grade	EA	3	\$116.9
UG/Control Cable	EA	3	\$123.4
Engineering	HR	1,288	\$66.9
Removals	HR	300	\$15.6
Labor	HR	1,680	\$90.9
Total			\$923

2018

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Capacitors	EA	3	\$509.2
Below Grade	EA	3	\$116.9
UG/Control Cable	EA	3	\$123.4
Engineering	HR	1,288	\$66.9
Removals	HR	300	\$15.6
Labor	HR	1,680	\$90.9
Total			\$923

2019

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Capacitors	EA	3	\$509.2
Below Grade	EA	3	\$116.9
UG/Control Cable	EA	3	\$123.4
Engineering	HR	1,288	\$66.9
Removals	HR	300	\$15.6
Labor	HR	1,680	\$90.9
Total			\$923

8260 – CIRCUIT 1047, CHOLLAS WEST-NEW CIRCUIT

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Cable & Connections: 2/0	FT	500	\$2
Cable & Connections: 1000 kcmil AL	FT	10000	\$250
Cable & Connections: 1000 kcmil CU	FT	500	\$40
Retag/Cutover	EA	3	\$1
Switch PME3 Manual	EA	1	\$13
Padmount Switch Trayer 4-way with SCADA	EA	1	\$130
Trench Conduit 4-5 Including Handholes	FT	2540	\$240
Trench Conduit 6-5 Including Handholes	FT	1200	\$138
Trench Conduit 2-5 Including Handholes	FT	1100	\$83
Switch Hook Stick	EA	1	\$2
Substation Circuit Breaker - Switchgear	EA	1	\$5
Labor	HR	9504	\$936
Total			\$1,840

11256 – C1023, LI: NEW 12 kV CIR & RECOND C354

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Cable and Connections: 1000 kcmil	Ft	4750	\$119.0
OH Reconductor	FT	11500	\$428.0

OH Retag	EA	10	\$1.0
Pole line Twin 4w to 7w	FT	15000	\$245.0
SR 630, Nova w/ SCADA	EA	1	\$37.0
Voltage Regulator Two Pole Platform	EA	2	\$70.0
Substation Circuit Breaker - Open Rack	EA	1	\$20.0
Labor	HR	23773	\$1,539.0
Total			\$2,459

16142 – C584 PAR, EXTEND C584 TO OFFLOAD C783

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Cable & Connections: 1000 kxmil AL	FT	3400	\$110
Retag/Cutover	EA	2	\$1
Switch PME10 SCADA	EA	1	\$113
Switch PME9 Manual	EA	1	\$35
Trench Conduit 4-5 Including Handholes	FT	445	\$46
Labor	HR	1549	\$101
Total			\$406

16267 – C1447 MTO: EXTENSION & OFFLOAD FROM C958

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Cable & Connections: 1000 kcmil AL	FT	750	\$19
Padmount 1200 kVAR Capacitor with SCADA	EA	1	\$30
Retag/Cutover	EA	2	\$1
Trench Conduit 2-5 Including Handholes	FT	800	\$60
Padmount Switch Trayer 4-way with SCADA	EA	1	\$124
Labor	HR	1554	\$156
Total			\$390

16268 – C1450, MTO: NEW 12kV CIRCUIT

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Cable & Connections: 1000 kcmil AL	FT	7200	\$200
Cable & Connections: 1000 kcmil CU	FT	330	\$28
Padmount 1200 kVAR Capacitor with SCADA	EA	1	\$30
Retag/Cutover	EA	2	\$1
Switch PME10 SCADA	EA	1	\$120
Trench Conduit 4-5 Including Handholes	FT	1800	\$206
Trench Conduit 6-5 Including Handholes	FT	292	\$42
Pole Line Twin 4-Wire to 7-wire	FT	1225	\$42
Switch Hook Stick	EA	2	\$4
Substation Circuit Breaker - Switchgear	EA	1	\$5
Labor	HR	5666	\$541
Total			\$1,219

16269 – JAMACHA NEW BANK & NEW 12kV CIRCUIT

2018

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Transformer	EA	1	\$330.0
Labor	HR	1100	\$114.0
Total			\$444

2019

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Transformer	EA	1	\$770
Switchgear	EA	2	\$1,300
Below Grade	EA	1	\$351
control/power cable	EA	1	\$427
Cable & Connections: 1000 kcmil AL	FT	28000	\$850
Pole Line Twin 4-Wire to 7-wire	FT	2257	\$64
SR 630, Nova w/ SCADA	EA	1	\$38
Switch Gang Operated	EA	1	\$30
Labor	HR	30259	\$1,348.0

Total			\$5,178
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16272 – DOHENY DESALINATION 15 MW PROJECT

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Cable & Connections: 1000 kcmil AL	FT	1000	\$55
Retag/Cutover	EA	2	\$1
Padmount Switch Trayer 4-way with SCADA	EA	1	\$180
Trench Conduit 4-5 Including Handholes	FT	500	\$80
Switch Gang Operated	EA	2	\$50
Total			\$366

Category D – Mandated

6247 – Replacement of Live Front Equipment

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	3,981	\$219
Non-Labor	EA	1	\$1836
Total			\$2,055

10265 – Avian Protection Program

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	27,240	\$1,362
Non-Labor	EA	1	\$3,543
Total			\$4,905

11144 – On-Ramp Aerial Lighting

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
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Labor	HR	13,080	\$654
Non-Labor	EA	1	\$602
Total			\$1,256

13264 – Distributed Generation Interconnection Program

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	2,520	\$126
Non-Labor	EA	1	\$840
Total			\$966

13266 – Distribution Aerial Marking and Lighting

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	5,820	\$291
Non-Labor	EA	1	\$66
Total			\$357

Category G – Overhead Pools

Please see our supplemental accompanying file “CUE DR02 Q52 OH Pools Supporting Tables.xlsx” for the breakout of overhead pools.

Category H – Reliability/Improvements

1269 – POINT LOMA – INSTALL 3RD BANK

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Transformers	EA	3	\$2,000.0
Switchgear	EA	3	\$2,100.0
Below Grade	EA	4	\$958.0
UG Control Cable	EA	2	\$264.0
Distribution Cable	EA	2	\$674
Control Equipment	EA	4	\$100.0
Engineering	HR	6,300	\$248.0
Removals	HR	3,509	\$287.0
Labor	HR	18,575	\$873
Total			\$7,504

6254 – Emergency Transformer & Switchgear

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	0	\$0
Non-Labor	EA	1	\$1,100
Total			\$1,100

6260 – 4kV Modernization

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
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Labor	HR	113,940	\$5,697
Non-Labor	EA	1	\$14,650
Total			\$20,347

7245 – TELEGRAPH CANYON – 4th BANK & C1226

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Cable & Connections: 1000 kcmil AL	FT	15000	\$401
Cable & Connections: 1000 kcmil CU	FT	2300	\$185
Retag/Cutover	EA	2	\$1
Switch PME3 Manual	EA	2	\$26
Trench Conduit 4-5 Including Handholes	FT	1100	\$112
Trench Conduit 6-5 Including Handholes	FT	1100	\$131
Trench Conduit 8-5 Including Handholes	FT	500	\$70
Trench Conduit 2-5 Including Handholes	FT	895	\$69
Substation Circuit Breaker - Switchgear	EA	1	\$5
Labor	HR	8744	\$771
Total			\$1,771

9271 – MARGARITA SUB-NEW 12kV CKT. 1259

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Cable & Connections: 1000 KCMIL AL	FT	9500	\$240
Cable & Connections: 1000 KCMIL CU	FT	110	\$8
Retag/Cutover	EA	3	\$1
Padmount Switch Trayer 4-way with SCADA	EA	1	\$120
Trench Conduit 4-5 Including Handholes	FT	890	\$77
Substation Circuit Breaker - Switchgear	EA	1	\$5
Labor	HR	10505	\$271
Total			\$722

11249 – Install SCADA Online Capacitors

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	43,720	\$2,186

Non-Labor	EA	1	\$8,744
Total			\$10,930

11253 – Wireless Fault Indicators

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	36,280	\$1,814
Non-Labor	EA	1	\$7,257
Total			\$9,071

11261 – SEWAGE PUMP STATION REBUILDS

2017

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Switchgear, Disconnects, Steel	EA	2	\$544.0
Below Grade	EA	1	\$357.0
UG/Control Cable	EA	1	\$19.0
Relays, Controls	EA	1	\$150.0
Engineering	HR	4,635	\$190.0
Removals	EA	1	\$130.0
Labor	HR	3,305	\$156.0
Total			\$1,546

2018

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Disconnects, Steel	EA	1	\$100.0
Labor	HR	5,020	\$231.0
Total			\$331

11267 – SCADA EXPANSION – DISTRIBUTION

Description	Unit (FT, HR, EA)	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	35	\$1,758
Materials	Per Site	20	\$9,402
Communications	Per Site	20	\$1,396
Removal	Per Site	20	\$1,396
Total			\$13,952

12246 – ADVANCED GROUND FAULT DETECTION

Description	Unit (FT, HR, EA)	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	3,030	\$240
Materials	Per Site	120	\$531
Communications	Per Site	120	\$96
Removal	Per Site	120	\$96
Total			\$963

12247 – SMART ISOLATION AND RECLOSING

Description	Unit (FT, HR, EA)	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	5,960	\$894
Materials	Per Circuit	21	\$2,360
Communications	Per Circuit	21	\$407
Removal	Per Circuit	21	\$407
Total			\$4,068

12249 – Advanced Weather Station Integration and Forecasting

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	7,820	\$391
Non-Labor	EA	1	\$1,013

Total			\$1,404
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12266 – Condition Based Maintenance – Smart Grid

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	1	\$1,038
Non-Labor	EA	1	\$3,600
Total			\$4,638

13242 – KEARNY 69/12KV REBUILD/RELOCATION

2017

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Switchgear	EA	4	\$3,200.0
Control Equipment & Cable	EA	6	\$172.0
Engineering	HR	2,000	\$90.0
Labor	HR	18,872	\$1,038.0
Total			\$4,500

2018

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Below Grade	EA	1	\$962.0
UG Control Cable	EA	1	\$326.0
Switchgear	EA	4	\$201.0
Capacitors	EA	4	\$660.0
Distribution Cable	EA	1	\$4,026.0
Removals	EA	1	\$225.0
Labor	HR	14,628	\$600.0
Total			\$7,000

13243 – New Vine 69/12kV Substation

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	10,800	\$594.0
Switchgear	EA	3	\$3,000.0
Material Issuances (warehouse)	various	various	\$800.0
Concrete Vault Parts	various	various	\$400.0
Dist work on Kettner	EA	1	\$3,000.0
Jack and Bore	EA	1	\$800.0
Dist work on Columbia	EA	1	\$500.0
Cabling	EA	1	\$500.0
Below Grade	EA	1	\$800.0
Other misc charges	various	various	\$548.0
Total			\$10,942

13244 – STREAMVIEW 69/12KV SUB REBUILD – PRE ENG

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	EA	1	\$150

14143 – POWAY SUBSTATION REBUILD

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	EA	1	\$46
Below Grade	EA	1	\$131
Total			\$177

15243 – SUBSTATION SCADA EXPANSION – DISTRIBUTION

2017

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Breakers	EA	11	\$303.0
Controls/Protection	EA	2	\$77.0
Engineering	HR	4,073	\$167.0
Total			\$547

2018

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Below Grade	EA	1	\$43.0
UG/Control Cable	EA	1	\$95.0
Controls/Protection	EA	1	\$90.0
Breakers	EA	1	\$37.0
Labor	HR	7,225	\$289.0
Total			\$554

16244 – Meteorology – Outage Prediction Modeling

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	7,380	\$369
Non-Labor	EA	1	\$348
Total			\$717

16245 – Meteorology – Fire Behavioral Modeling

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Non-Labor	EA	1	\$272
Total			\$272

16257 – Vault Restoration

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	35,500	\$1,775
Non-Labor	EA	1	\$7,102
Total			\$8,877

16258 – OIR Worst Circuits

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	34,920	\$1,746
Non-Labor	EA	1	\$5,760
Total			\$7,506

16260 – MORROW HILL SUB REBUILD

2017

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Engineering	EA	12	\$12.0
Total			\$12

2018

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Engineering	EA	1	\$192.0
Transformer	EA	1	\$926.0
Total			\$1,118

2019

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Below Grade	EA	1	\$406.0
UG/Cont Cable	EA	1	\$101.0
Switchgear	EA	2	\$1,584.0
Capacitor	EA	1	\$150.0
Protection/Control	EA	3	\$75.0
Distribution Cable	EA	1	\$449.0
Labor	HR	17,927	\$986.0
Total			\$3,751

17253 – ELECTRIC DISTRIBUTION GRID ANALYTICS

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	EA	1	\$2,200
Non-Labor	EA	1	\$4,400
Total			\$6,600

93240 – Distribution Circuit Reliability Construction

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	67,780	\$3,389
Non-Labor	EA	1	\$7,350
Total			\$10,739

Category J – DER Integration:**11246 – Smart Transformer**

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Hardware Contract	EA	1,055	\$58.0
Hardware and Software	EA	1	\$200.0
Total			\$258

11247 – ADVANCED ENERGY STORAGE

2018

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Energy Storage Unit	EA	2	\$3,880.5
DERMS Integration	EA	2	\$120.0
Labor	HR	20,981	\$1,154.0
Total			\$5,154

2019

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Energy Storage Unit	EA	4	\$7,761.0
Labor	HR	40,709	\$2,239.0
Total			\$10,000

14243 – BORREGO SPRINGS MICROGRID ENHANCEMENTS

2017

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	7,200	\$396.0
Ultra-Capacitor Installation	EA	1	\$250.0
Energy Storage Upgrade	EA	1	\$1,000.0
DERMS Integration	EA	1	\$123.0
Total			\$1,769

2018

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	2,090	\$115.0
Solar Integration	EA	1	\$250.0
DERMS Integration	EA	1	\$150.0
Total			\$515

14259 – VANADIUM FLOW BATTERY PROJECT

2017

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	4,545	\$250.0
CAISO Meter Installation	EA	1	\$150.0
Electrical Interconnection	EA	1	\$100.0
Commissioning	EA	1	\$39.0
Total			\$539

16243 – MICROGRID FOR ENERGY STORAGE

2018

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	19,230	\$1,100.0
Energy Storage Unit	EA	1	\$1,940.0
Land	EA	1	\$900.0
Telecom equipment	EA	1	\$200.0
Underground cabling	EA	1	\$800.0
Electric Interconnection	EA	1	\$600.0
DERMS Integration	EA	1	\$275.0
Commissioning	EA	1	\$79.0
Total			\$5,894

2019

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	25,000	\$1,400.0
Energy Storage Unit	EA	2	\$3,880.0
Telecom equipment	EA	1	\$378.0
Underground cabling	EA	1	\$800.0
Electric Interconnection	EA	1	\$600.0
DERMS Integration	EA	1	\$675.0
Commissioning	EA	1	\$183.0
Total			\$7,916

17244 – VOLT/VAR OPTIMIZATION TRANSFORMER

2018

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Replace Wood pole w/ Steel	EA	32	\$300.0
OH Working Foreman 4 Crew	HR	64	\$97.0
Fuse Cutout 2 phase	EA	32	\$27.0
UG Working Foreman 3 Crew	HR	96	\$76.0

Total			\$500
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2019

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Replace Wood pole w/ Steel	EA	6	\$60.0
OH Working Foreman 4 Crew	HR	24	\$36.0
Fuse Cutout 2 phase	EA	6	\$4.0
Total			\$100

17245 – ITF-INTEGRATED TEST FACILITY

2017

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Starline Bus Installation	EA	2	\$350.0
Substation Automation Lab	EA	1	\$173.0
Total			\$523

2018

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	6,363	\$350.0
IS Lab Expansion	EA	1	\$150.0
RTDS Equipment	EA	2	\$300.0
Individual Small Lab Space	EA	4	\$150.0
Protection QA/QC Lab	EA	1	\$100.0
Total			\$1,050

17246 – BORREGO MICROGRID 3.0

2017

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	1,254	\$69.0
Land	EA	1	\$140.0
Total			\$209

2018

Description	Unit	Quantity	Cost (\$1000) (material, direct charges, contract costs)
Labor	HR	20,000	\$1,100.0
Energy Storage Unit	EA	1	\$1,940.0
Land/Easements	EA	1	\$810.0
Equipment Procurement	EA	1	\$500.0
Telecom Equipment	EA	1	\$250.0
DERMS Development	EA	1	\$630.0
Total			\$5,230

Exhibit Reference: SDG&E-14

SDG&E Witness: Alan F. Colton

Subject: SDG&E-14 workpapers, digital format

Please provide the following:

3. Were the Exhibit SDG&E-14 (T&D) workpapers prepared using computer software? If not, please explain how SDG&E created and verified data in the workpapers. If so, provide the following:
 - a. Software vendor name and vendor name for the software product, version number, and any other information needed to fully define the software used to create the workpapers,
 - b. SDG&E's name for the software or IT system more generally,
 - c. How SDG&E used this software to create the workpapers,
 - d. List the digital formats available (e.g., .xls, .rtf, .pdf, .doc, etc.) that data can be exported, or that reports can be queried, from the software, and
 - e. List the digital formats (e.g., .xls, .rtf, .pdf, .doc, etc.) that currently exist for Exhibit SDG&E-14 (T&D) workpapers.

SDG&E Response 3:

The workpapers in Exhibit SDG&E-14 were produced using computer software as described below. It is made from several other applications and is called 'GRID', for 'General Ratecase Integrated Database'.

3a. The software is not a single application from a single vendor, e.g. an 'off the shelf' application, rather it was constructed in-house using these applications, all of which are enterprise network applications and reside on corporate network servers:

- Microsoft SQL Server 2012 – this is the underlying database system. It is a network-based enterprise database management application whose functions include table creation, establishing of dynamic relationships between tables, creation and running of queries. The database used for this filing is called the GRC database or the GRID database.

- Microsoft Visual Studio version 2010 – this is an application by which the user-interface is created, presenting online screens for data entry, retrieval and edit. The Visual Studio components are enabled through the Visual Basic programming language. This is the component through which users enter information such as forecasts. Calculations are handled by procedure calls to the Microsoft SQL Server GRC database.

SDG&E Response 3Continued:

- Crystal Reports version XI – this is the application by which reports, such as the workpapers, are designed and produced. Those reports are produced using ‘templates’. Queries are first run by the database application in order to extract necessary data, which are then used to populate the reports. Those reports are designed with all the various layout, form and style characteristics such as boxes, data positions, text titles, headers, footers and other components that appear on the workpapers. SDG&E/SoCalGas created a software subroutine called CrystalToPDF, again through Visual Studio, which makes procedure calls to the same database mentioned above. It uses previously created Crystal Reports templates to create each page of the Workpapers that are filed in the General Rate Case.
- The GRID version is 2.3, the result of various updates, enhancements and build versions.

3b. Internally, SDG&E refers to the application that produces the workpapers as ‘GRID’, which stands for General Ratecase Integrated Database

3c. GRID is designed with these functions:

- Permit the review and adjustment of historical costs
- Using the adjusted historical costs, permit the selection of an underlying forecast methodology (3, 4 or 5 year average, 3, 4 or 5 year simple linear trend, use of the ‘base year’ 2016 values, or a ‘zero-base’ method by which the estimates of future costs are discretely entered with no underlying forecast).
- Adjustment of forecasted costs and entry of descriptive data including RAMP attributes
- Production of workpapers as portable-document-files (PDFs)
- Production of ‘testimony tables’ as Word tables to be placed in testimony
- Export data for RO model purposes.

3d. The workpapers are formatted as PDFs and are not exportable as worksheets. With a good deal of additional programming or possibly the acquisition of another third-party software, it would be possible to export the workpapers as RTF.

3e. Exhibit SDG&E-14 (and all other GRID-produced workpapers) are only produced as PDFs.

Exhibit Reference: SDG&E-14

SDG&E Witness: Alan F. Colton

Subject: Insufficiency of SDG&E workpapers to support reasonableness review, part 1

Please provide the following:

1. ORA has reviewed selected workpapers in Category A, D, G, H, and J of Exhibit SDG&E-14 (T&D) and concludes they are lacking in the details required to determine if SDG&E's requests are reasonable or not.¹ The workpapers provide only narrative descriptions that largely reiterate testimony, plus historical and forecast annual expenditures classified as labor, non-labor, and "NSE." Provide the following for each project or program Category A, D, G, H, and J, as defined by a line item in the Index of Workpapers" for Exhibit SDG&E-14-CWP, for which SDG&E has used a "zero-based" forecast methodology:² the "detailed cost estimates" referenced in workpapers.³

SDG&E Response 1:

The direct testimony of Alan Colton, Exhibit SDG&E-14, describes the choice of forecasting methods for each capital project in categories A, D, G, H, and J. This description can generally be found in the section for each budget under the heading "b. Forecast Method".

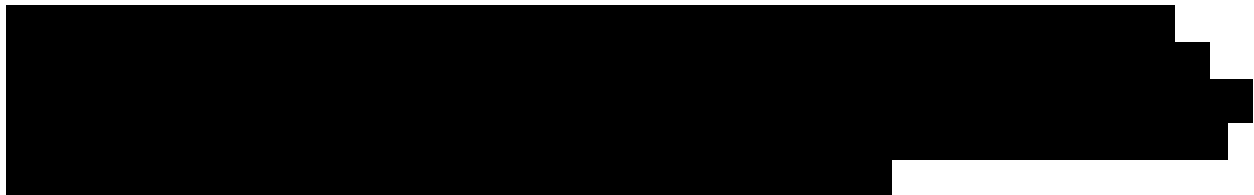
The format for the cost estimates for each project may vary from category to category, or even between budgets within a given category. In some cases, circumstances necessitate using historical unit cost information and applying that unit cost to the forecasted amount of work; in other cases, circumstances necessitate using comprehensive cost estimating programs that utilize current labor rates, the latest material costs, and other known costs to develop their estimates. Many of the electric distribution projects are estimated using a project estimating and management system called Distribution Planning Support System (DPSS), which is a database system developed in-house during the 1980's. DPSS contains tables of typical project materials and labor estimates, from which a project is defined and managed. This part of DPSS is not unlike an automotive repair 'parts and time guide' which is used to estimate repair costs. Some examples of summary tables produced by DPSS appear below.

A contingency value is included and shown in some estimates. Contingency estimates are a common practice for large construction projects and are based on historical experience with projects of that type; they are used to accommodate variations in the projected actual costs owing to construction delays, material cost changes and seasonal variables. In general, cost estimates were calculated as fully-loaded values, and the indirect costs were then removed for GRC purposes leaving direct labor and nonlabor values. Fully loaded costs that include both direct and indirect costs are contained in SDG&E's Capital Budget Documents (CBD) and are described as part of the governance process starting on page AFC-11, under the Electric Transmission and Distribution Capital Committee. Furthermore, fully loaded direct and indirect project costs are detailed in SDG&E's Work Order Authorization (WOA) forms. WOA is a utility form that summarizes and documents the approval of a base business or non-base business

commitment that is less than \$300 million. CBD and WOA forms are created upon project approval, as described in the governance process.

An example of the calculation of a budget estimate, in this case for Budget Code 11256, a new circuit number 1023 and a reconductor of associated circuit 354, is shown below. This estimate was derived from historical unit cost information and applying that unit cost to the forecasted amount of work shown below in the table. This tabulation shows the unit costs for the materials and labor involved, and the quantity estimates for the job. The governance process for the approval of this budget is explained in Section III of SDG&E testimony SDG&E-14. Additionally, an example of both the CBD and WOA forms are attached for Budget Code 11256, "ORA-SDGE-016-Budget 11256 CBD WOA_Redacted CONFIDENTIAL.pdf." This project is associated with workpaper 112560 in the workpaper exhibit SDGE-14-CWP beginning at page 51.

The example CBD and WOA forms provided in ORA-SDGE-016-Budget 11256 CBD WOA_Redacted CONFIDENTIAL.pdf have been redacted to remove non-responsive, non-relevant customer and employee information. The overhead cost information highlighted in yellow in the document is **Confidential Pursuant to P.U. Code Section 583 & General Order 66-C/D and D.16-08-024, and is accompanied by supporting declaration.**



[Redacted]	[Redacted]	[Redacted]	[Redacted]
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[Redacted]	[Redacted]	[Redacted]	[Redacted]

PROJECT NAME					IN SERVICE DATE	PROJECT NUMBER	BUDGET CODE	REVISION	
C1023, LI: New 12kV Circuit & Re-conductor C354					12/31/2017	11256	11256	1	
(1) PROJECT MANAGER		DATE	DRIVER	(2) LINE MANAGER OR DIRECTOR		DATE			
[REDACTED]		12/2/2016	Capacity	[REDACTED]		12/2/16			
(3) RESPONSIBLE DIRECTOR		DATE	RESP. CC #	(4) PLANNING TEAM CHAIR (FOR PLANNING PURPOSES)		DATE			
[REDACTED]		12/9/16	2100-0122	[REDACTED]		[REDACTED]			
PROJECT COST (\$000)	PRIOR YEARS	2017	2018	2019	2020	2021	2022	REMAINING YEARS	TOTAL
Present Capital W/O AFUDC	[REDACTED]								
Change									
Total W/O AFUDC									
AFUDC									
Total With AFUDC									
Associated O&M	[REDACTED]								
Total Project	[REDACTED]								

PROJECT NARRATIVE

BUSINESS PURPOSE

The purpose of this project is to mitigate an overload and serve [REDACTED] load addition. This will be accomplished by reconductoring C354 and installing a new C1023 out of Lilac substation.

PHYSICAL DESCRIPTION

Project requires installing 636 ACSR for the new circuit 1023 on twin pole line with C354 from [REDACTED] substation, reconductoring C354 and installing a hook stick switch. An existing capacitor on C354 will be transferred to C1023. Retagging of electric distribution equipment is also required after load is transferred.

PROJECT JUSTIFICATION

This project will mitigate a 4% overload on C354 and accommodate additional customer load.

SCOPE AND SCHEDULE

The project is needed to eliminate an overload on C354, meet new load demand and has an ISD of 2017.

ALTERNATE SOLUTION

There is not an alternate solution

ECONOMIC ANALYSIS

There is not an alternate solution

REVISION JUSTIFICATION

Project was revised to accommodate easement and permit delays resulting in the in-service-date extending. Project was approved for charges in 2017.

CAPITAL BUDGET DOCUMENTATION
FOR PLANNING PURPOSES ONLY



A Sempra Energy company

PROJECT NAME	IN SERVICE DATE	PROJECT NUMBER	BUDGET CODE	REVISION
C1023, LJ: New 12kV Circuit & Re-conductor C354	12/31/2017	11256	11256	1

Scope and Schedule

SUB BUDGETS PROJECT COSTS (\$000)	PRIOR YEARS	2017	2018	2019	2020	2021	2022	REMAINING YEARS	TOTAL
UG 11256.1									
OH 11256.2									
SUB 11256.2 Trans. FERC Dist. FERC									
TRANS 11256.2 Trans. FERC Dist. FERC									
LAND 11256.2									
TOTAL CAP W/O AFUDC									

UNDERGROUND

OVERHEAD

SUBSTATION

Install a circuit breaker

TRANSMISSION

N/A

LAND

N/A

Exhibit Reference: SDG&E-14

SDG&E Witness: Alan F. Colton

Subject: Insufficiency of SDG&E workpapers to support reasonableness review, part 2

Please provide the following:

1. Provide the following for each project or program in Category A, D, G, H, and J, as defined by a line item in the “Index of Workpapers” for Exhibit SDG&E-14-CWP, for which SDG&E has used a “zero-based” forecast methodology (refer to Slide 16 of SDG&E’s presentation from the GRC workshop held at the CPUC on November 1, 2017):

- i. Analysis supporting the purported need for the program or project, including the year of forecast need,

SDG&E Response 1:

Category A – Capacity/Expansion

2258 – Salt Creek Land Purch, New Sub & 3 Cir

- i. The analysis consists of the distribution forecast for two substations in the southeastern Chula Vista area exceeding the optimum maximum loading of 85% starting in 2015.

5253 – Ocean Ranch 69/12kV Substation

- i. The existing circuits currently serving the Oceanside area are fed primarily from the Melrose, Morro Hill and San Luis Rey substations. In 2018, the average loading of all three substations is projected to be at 94% of capacity, well above optimal operating conditions of 85%.

8253 – Substation Capacitor Bank Upgrades

- i. Overall system analysis was done showing the need for VAR support and indicating where the aging equipment was located.

8260 – Chollas West – New 12kV Ckt. 1047

- i. Based on the published 2017 Distribution Forecast, circuit 166 was forecasted to be 95% loaded in 2017, circuit 160 was forecasted to be 117% loaded in 2017 and a 3031 bus at Streamview Substation was forecasted to be 109% loaded in 2017.

11256 – C1023, LI: NEW 12KV CIR & RECOND C354

- i. Based on the published 2017 Distribution Forecast, circuit 354 was forecasted to be 104% loaded in 2017.

16142 – C584 PAR, EXTEND C584 TO OFFLOAD C783

- i. Based on the published 2017 Distribution Forecast, circuit 783 was forecasted to be 114% loaded in 2017.

16267 – C1447 MTO: EXTENSION & OFFLOAD FROM C958

- i. Based on the published 2017 Distribution Forecast, circuit 958 was forecasted to be 100% loaded and bus 3233 at Mesa Rim forecasted to be 93% loaded in 2017.

16268 – C1450, MTO: NEW 12kV CIRCUIT

- i. Based on the published 2017 Distribution Forecast, circuit 961 was forecasted to be 117% loaded in 2017.

16269 – JAMACHA NEW BANK & NEW 12kV CIRCUIT

- i. Based on the published 2017 Distribution Forecast, bus 30 was forecasted to be 98% loaded in 2017.

16272 – DOHENY DESALINATION 15 MW PROJECT

- i. In 2019 water authority is expecting to increase demand and provide alternative service. In order to bring an additional service SDG&E will need to extend the distribution circuit to provide the alternate service.

2. Where line items in the “Index of Workpapers” for Exhibit SDG&E-14-CWP are for a single project, regardless of the forecast methodology used by SDG&E, provide the following project specific data in addition to the information requested above:

- a. Project address or GPS coordinates if no address is applicable or available,
- b. Forecast need date,
- c. Planned operational date,
- d. Analysis supporting the purported need for the project by the planned need date, for example results of load flow analysis,
- e. Best available information on which elements of the project (e.g., project Management, engineering, planning, construction, etc.) will be performed by SDG&E staff, Sempra staff, or subcontractors,
- f. Bids or estimates provided by subcontractors,
- g. Existing layout and one-line drawings that illustrate the scope of the project,
- h. Bill of materials, including but not limited to the specific equipment listed in the “physical description” section of the workpaper,
- i. Analysis of alternatives, including DER-based alternatives,
- j. Project schedule,
- k. Annual capital expenditures prior to 2012, for any projects with capital expenditures prior to 2012. (For example, the Salt Creek Substation has significant expenditures for 2012, and the workpapers do not indicate that the project began in 2012 or before.)
- l. Annual capital expenditures after 2019, for any projects with forecast capital expenditures after 2019. (For example, the Jamacha New Bank and 12 kV Circuit project has significant expenditures for 2019, and it is not clear if the project is completed in 2019 or not.)
- m. Total project budget, with non-CPUC jurisdictional and third party funded scope identified,
- n. Current project status in terms of budget performance for all projects with an approved budget.

CATEGORY C - Franchise

17250 – Pacific Avenue 20B Conversion Phase 2

- m. Total project budget of \$4M of which \$1.2M expended by ratepayers and \$2.8M billed to the city as non-CPUC jurisdictional costs.

17251 – Espola Rd 20B Conversion

- m. Total project budget of \$1.2M of which \$360K expended by ratepayers and \$840K billed to the city as non-CPUC jurisdictional costs.

17252 – South Santa Fe Drive 20B Conversion Phase 2

- m. Total project budget of \$2M of which \$600K expended by ratepayers and \$1.4M billed to the city.

Exhibit Reference: SDG&E-14 and SDG&E-24

SDG&E Witness: Alan F. Colton and Christopher R. Olmsted

Subject: Accounting and Project Management

Please provide the following:

1. Provide the following for each system SDG&E uses to collect data for accounting, asset management, and project management use:
 - a. SDG&E's name for the system,
 - b. Vendor name, or indicate if developed by SDG&E or Sempra,
 - c. Product name and version number,
 - d. Date system was placed in service,
 - e. If any upgrades or replacements are requested in the current rate case.

SDG&E Response 1:

SDG&E objects to this request under Commission Rule 10.1 as it is overly broad, and to the extent it seeks information that is unduly burdensome to produce and neither relevant to the subject matter involved in the pending proceeding nor reasonably calculated to lead to the discovery of admissible evidence. Subject to and without waiving this objection, SDG&E responds as follows:

SDG&E uses many different data systems in the broad categories of accounting, asset management, and project management, and not all of these systems were used by SDG&E to generate information used in its GRC, and specifically in its electric distribution capital testimony. Below is a list of the responsive information that is representative of the major accounting, asset management and project management applications that SDG&E uses with respect to its electric distribution projects.

SDG&E Response 1 Continued:

SDG&E Name	Vendor Name	Product Name / Version	In Service Date	Upgrades / Replacements Planned incl. in GRC
SAP Suite on HANA (aka ECC)	SAP	Suite on Hana (ECC 6.0, EP8) (Hana 1.00.122)	Aug 2017 (1)	None
Business Warehouse	SAP	BW on Hana v7.4	Oct 2015 (1)	None
DPSS - Distribution Planning and Support System	Custom – in house developed	N/A	1989	None
BSE – Budgeting / Scheduling / Estimating	Custom – in house developed	N/A	1996	Replaced as part of TSPI project

Upgrades to these systems occur as incremental upgrades at various times throughout the life of the application, as well as major system upgrades dependent on the production from the vendor and business needs.

SDG&E uses its General Rate Case Integrated Database (GRID) application to generate General Rate Case forecasts and workpapers. It is not considered an accounting, asset management or project management application.

It should be understood that many of the data systems at SDG&E used for accounting, asset management and project management are enterprise-wide, not portable, reside on network servers, consist of many modules and require other applications in order to run. Similarly, many other applications used at SDG&E for accounting, asset management and project management require an underlying database management system (dbms), and perhaps a reporting application and user-interface application as well. Desktop applications such as Microsoft Word and Excel, while used throughout the organization for general purpose communications and modeling, are often not the primary applications used for accounting, asset management or project management.

SDG&E Response 05:

1. SDG&E begins its discussion of the FiRM GRC Blanket project (Budget Code project 13247) on page AFC-111. On workpaper page WP-703, SDG&E states that its forecast “is based on detailed cost estimates.” It further states that “any significant variances between the estimated costs for a project and the actual costs are scrutinized to determine if cost estimate inputs need to be adjusted for future projects.”

c. For each of the years 2017 through 2019, please break down the yearly total forecast costs into functional totals, such as the costs for replacing conductors, wood pole replacements, replacing aged splices, etc.

c. SDG&E used the following methodology to determine pole counts for the years 2018 and 2019:

- The pilot phase of 1600 poles will allow SDG&E to achieve a higher confidence level to verify pole failure rates to further assist in project forecasting. SDG&E will ramp from 1600 poles in 2018 to 22,600 poles in 2019 in order to ensure SDG&E can complete pole analysis within SDG&E’s Fire Threat Zone/Highest Risk Fire Areas by 2021.
- The number of poles to be replaced and/or rearranged was determined as a result of data collected from SDG&E’s GO 165 Corrective Maintenance Program (CMP).

**ORA DATA REQUEST ORA-SDGE-089-GAW SDG&E 2019 GRC – A.17-10-007 SDG&E
RESPONSE DATE RECEIVED: JANUARY 16, 2018 DATE RESPONDED: FEBRUARY 9,
2018**

SDG&E Response 05:-Continued

- Cost data was determined by using average costs based on other SDG&E programs for each activity required to meet the specific task e.g. pole analysis, pole replacement, or pole rearrangement.

Exhibit Reference: SDG&E-14

SDG&E Witness: Alan F. Colton

Subject: Planning process and justification for Capacity/Expansion projects

Please provide the following:

1. Pages AFC-17 and AFC-18 of Exhibit SDG&E-14 refer to a planning process that forecasts projected loads “on each circuit and substation within the system on an annual basis.” Please provide SDG&E’s name for this planning process, and when results are typically available, e.g., May 1 of each year.

SDG&E Response 01:

The name of this process of forecasting project load is referred to as the “Distribution Forecasting” and results are typically available near the end of the first quarter of each year.

2. Does the annual planning process referenced in Question 1 above include comparison of forecast load to system capability? If not, please explain.

SDG&E Response 02:

No, as the question referenced in Question 1 is referencing only forecasted distribution loads on the substation and its circuits.

3. Does the annual planning process referenced in Question 1 above include determination of required modifications? If not, please explain.

SDG&E Response 03:

No, as the question referenced in Question 1 is referencing only forecasted loads on the substation and circuits.

4. Provide the name of the organization that performs the planning process referenced in Question 1 above. If more than one organization contributes to the process, provide a table listing each organization involved and the specific tasks they perform within the planning process.

SDG&E Response 04:

The name of the department that performs the planning process referenced in Question 1 is Electric Distribution Planning.

5. Describe the types of information and format of information generated by the planning process referenced in Question 1 above.

SDG&E Response 05:

The types of information include but are not limited to, the actual summer and winter peak for the previous year, summer and winter forecasted amount and total customers. The format is in a database created by SDG&E.

6. Provide the name of the organization that generated the testimony and workpapers supporting SDG&E's request for Capacity/Expansion projects in Exhibit SDG&E-14. If more than one organization contributes to the process, provide a table listing each organization involved and the specific tasks they perform within this portion of the GRC process.

SDG&E Response 06:

The name of the department that generated the testimony and workpapers for Capacity/Expansion projects in Exhibit SDG&E-14 was Electric Distribution Planning.

7. Provide the date that the planning process referenced in Question 1 above was completed by the SDG&E department(s) listed in response to Question 4 above, and when the results were submitted to the GRC staff listed in response to Question 6 above.

SDG&E Response 07:

The planning process referenced in Question 1 was completed March 2017 and the GRC staff was from the same group.

8. Provide the results of the planning process referenced in Question 7 above in the original format used to transfer the information between the organizations provided in response to Questions 4 and 6 above. If SDG&E did not prepare a document or documents to comprehensively transfer this information:
- a. Describe how the information was transferred,
 - b. Provide, for each budget code listed in Section C (Capacity/Expansion) of Exhibit SDG&E-14, the analysis resulting from the planning process that justifies the need for each project, and the date it is needed.

SDG&E Response 08:

- a. Information is not transferred amongst other organizations, as the planning process all takes place with the Electric Distribution Planning organization.
- b. See response to data request ORA-SDGE-018, question 1-i, 2-c and 2-d.

9. Page AFC-17 of Exhibit SDG&E-14 states that SDG&E's peak load in 2016 was 4,343 MW. Is it correct that projects listed in Section C of Exhibit SDG&E-14 (Capacity/Expansion) are included primarily based on SDG&E's analysis of the 2016 peak, as opposed to the peak from any other year? If not, please explain and provide the peak load year used to justify any projects that are included based on analysis of the 2016 peak load.

SDG&E Response 09:

Yes, the projects are based on analysis of the 2016 peak.

10. In the current GRC request, did SDG&E consider the use of alternatives (e.g., distributed energy resource portfolios) in lieu of the proposed Capacity/Expansion projects? If so, provide the name and budget code for each proposed project and SDG&E's analysis showing that the proposed project is the best alternative.

SDG&E Response 10:

See response in data request ORA-SDGE-018, question 2-i.

Exhibit Reference: SDG&E-14

SDG&E Witness: Alan F. Colton

Subject: Planning process and justification for Capacity/Expansion projects

Please provide the following:

4. Provide the results of the circuit analyses referenced in Question 2 for Reliability/Improvement projects included in the current GRC. Provide results in the original format used to transfer the information between the organizations listed in response to Questions 2 and 3 above. If SDG&E did not prepare a document or documents to comprehensively transfer this information:

- a. Describe how the circuit analysis is documented,
- b. Describe how RAT decisions, and the basis of those decisions, are documented,
- c. Provide, for each budget code listed in Section J (Reliability/Improvements) of Exhibit SDG&E-14, the analysis that justifies the need for each project, and the date it is needed.

SDG&E Response 04:

- a. Each reliability analysis snapshot is kept in the local district where it is generated. The approved project details and the financial output of the analysis is documented on a work order request that is submitted for job processing.
- b. RAT decisions are documented in meeting minutes.
- c. **This response contains Confidential and Protected Materials Pursuant to PUC Section 583, GO 66-D, and D.17-09-023.**



Exhibit Reference: SDG&E-14

SDG&E Witness: Alan F. Colton

Subject: Planning process and justification for Capacity/Expansion projects

Please provide the following:

6. Page AFC-8 of Exhibit SDG&E-14 refers to the evaluation of alternatives to determine “the most cost-effective reliability benefit.” In the current GRC request, did SDG&E consider the use of alternatives (e.g., distributed energy resource portfolios) in lieu of any proposed Reliability/Improvement projects? If so, provide the name and budget code for each proposed project and SDG&E’s analysis showing that the proposed project is the best alternative.

SDG&E Response 06:

See the accompanying file, “ORA-SDGE-119 Q3_5_6.xlsx” for alternatives to Reliability/Improvement projects.

Budget Code	Question 6 Evaluation of Alternatives
230	The alternatives to this budget would be to run equipment to failure and replace in kind. This would result in higher safety impacts and much less reliability to the system. DER's were not considered as this is not a capacity driven project, it is a reliability driven project. SDG&E strives to continue achieving it's 99.976% year-round availability. When translating this same requirement to a DER portfolio, a DER either are not capable of achieving this type of availability or not cost effective.
16258	SDG&E does not have documented alternatives. Generally, DER alternatives are considered infeasible until the cost meets the requirements of review by the TRC. DER alternatives are then considered during those reviews. DER alternatives do not apply.
93240	SDG&E does not have documented alternatives. Generally, DER alternatives are considered infeasible until the cost meets the requirements of review by the TRC. DER alternatives are then considered during those reviews. DER alternatives do not apply.
16257	These are structures/vaults where SDG&E facilities reside. The cost of relocating our facilities is usually more than restoring the structure itself. Therefore, this program represents the least cost alternative. DER alternatives do not apply.
203	This is a program, not a specific project. Therefore there is no alternative analysis done at the program level. DER alternatives do not apply.
1269	The alternatives to this budget would be to run equipment to failure and replace in kind. This would result in higher safety impacts and much less reliability to the system. DER's were not considered as this is not a capacity driven project, it is a reliability driven project. SDG&E strives to continue achieving it's 99.976% year-round availability. When translating this same requirement to a DER portfolio, a DER either are not capable of achieving this type of availability or not cost effective.
6254	The alternatives to this budget would be to run equipment to failure and replace in kind. This would result in higher safety impacts and much less reliability to the system. DER's were not considered as this is not a capacity driven project, it is a reliability driven project. SDG&E strives to continue achieving it's 99.976% year-round availability. When translating this same requirement to a DER portfolio, a DER either are not capable of achieving this type of availability or not cost effective.
11261	The alternatives to this budget would be to run equipment to failure and replace in kind. This would result in higher safety impacts and much less reliability to the system. DER's were not considered as this is not a capacity driven project, it is a reliability driven project. SDG&E strives to continue achieving it's 99.976% year-round availability. When translating this same requirement to a DER portfolio, a DER either are not capable of achieving this type of availability or not cost effective.
13242	The alternatives to this budget would be to run equipment to failure and replace in kind. This would result in higher safety impacts and much less reliability to the system. DER's were not considered as this is not a capacity driven project, it is a reliability driven project. SDG&E strives to continue achieving it's 99.976% year-round availability. When translating this same requirement to a DER portfolio, a DER either are not capable of achieving this type of availability or not cost effective.
13244	The alternatives to this budget would be to run equipment to failure and replace in kind. This would result in higher safety impacts and much less reliability to the system. DER's were not considered as this is not a capacity driven project, it is a reliability driven project. SDG&E strives to continue achieving it's 99.976% year-round availability. When translating this same requirement to a DER portfolio, a DER either are not capable of achieving this type of availability or not cost effective.
14143	The alternatives to this budget would be to run equipment to failure and replace in kind. This would result in higher safety impacts and much less reliability to the system. DER's were not considered as this is not a capacity driven project, it is a reliability driven project. SDG&E strives to continue achieving it's 99.976% year-round availability. When translating this same requirement to a DER portfolio, a DER either are not capable of achieving this type of availability or not cost effective.
15243	SDG&E does not have an alternatives analysis for this budget

Budget Code	Question 6 Evaluation of Alternatives
16260	The alternatives to this budget would be to run equipment to failure and replace in kind. This would result in higher safety impacts and much less reliability to the system. DER's were not considered as this is not a capacity driven project, it is a reliability driven project. SDG&E strives to continue achieving its 99.976% year-round availability. When translating this same requirement to a DER portfolio, a DER either are not capable of achieving this type of availability or not cost effective.
99282	There are no alternatives analysis at the program level for the SEA team budget. Projects presented to the SEA team have their own alternatives analysis as detailed amongst other budget codes reviewed by the SEA team.
7245	The alternatives to this budget would be to run equipment to failure and replace in kind. This would result in higher safety impacts and much less reliability to the system. DER's were not considered as this is not a capacity driven project, it is a reliability driven project. SDG&E strives to continue achieving its 99.976% year-round availability. When translating this same requirement to a DER portfolio, a DER either are not capable of achieving this type of availability or not cost effective.
9271	The alternatives to this budget would be to run equipment to failure and replace in kind. This would result in higher safety impacts and much less reliability to the system. DER's were not considered as this is not a capacity driven project, it is a reliability driven project. SDG&E strives to continue achieving its 99.976% year-round availability. When translating this same requirement to a DER portfolio, a DER either are not capable of achieving this type of availability or not cost effective.
12249	SDG&E does not have documented alternatives, as this project was elective in order to support our meteorology department to address wildfire risk. DER alternatives do not apply.
16244	SDG&E does not have documented alternatives, as this project was elective in order to support our meteorology department to address wildfire risk. DER alternatives do not apply.
16245	SDG&E does not have documented alternatives, as this project was elective in order to support our meteorology department to address wildfire risk. DER alternatives do not apply.
226	There are no alternatives to these types of reactive projects as it is SDG&E's obligation to ensure that safe and reliable service to our customers is maintained at all times. DER alternatives do not apply.
227	There are no alternatives to these types of reactive projects as it is SDG&E's obligation to ensure that safe and reliable service to our customers is maintained at all times. DER alternatives do not apply.
236	There are no alternatives to these types of reactive projects as it is SDG&E's obligation to ensure that safe and reliable service to our customers is maintained at all times. DER alternatives do not apply.
11249	The alternatives to this budget would be to run equipment to failure and replace in kind. This would result in higher safety impacts and much less reliability to the system. DER's were not considered as this is not a capacity driven project, it is a reliability driven project. SDG&E strives to continue achieving its 99.976% year-round availability. When translating this same requirement to a DER portfolio, a DER either are not capable of achieving this type of availability or not cost effective.
11253	The evaluated alternative for this project was to install SCADA load monitors which would result in much higher costs and complexity to system. DER alternatives do not apply.
6260	The alternatives to this budget would be to run equipment to failure and replace in kind. This would result in higher safety impacts and much less reliability to the system. DER's were not considered as this is not a capacity driven project, it is a reliability driven project. SDG&E strives to continue achieving its 99.976% year-round availability. When translating this same requirement to a DER portfolio, a DER either are not capable of achieving this type of availability or not cost effective.
11267	Alternatives such as DER would not meet the objective of this program. However, this was evaluated via the RAT process detailed in testimony.

Budget Code	Question 6 Evaluation of Alternatives
12243	Alternatives such as DER would not meet the objective of this program. However, System Protection Engineering and Control selected the sites to correspond with PV penetration and fire risk.
12246	Alternatives such as DER would not meet the objective of this program. All applicable devices were included in this scope to address fire risk reduction.
12247	Alternatives such as DER would not meet the objective of this program. However, this was evaluated via the RAT process detailed in testimony.
17253	There was limited analysis for Grid Analytics in the concept phase in regard to alternatives. However, a cost benefit analysis will be conducted in our business case phase of the project.
13243	The alternatives to this budget would be to run equipment to failure and replace in kind. This would result in higher safety impacts and much less reliability to the system. DER's were not considered as this is not a capacity driven project, it is a reliability driven project. SDG&E strives to continue achieving its 99.976% year-round availability. When translating this same requirement to a DER portfolio, a DER either are not capable of achieving this type of availability or not cost effective.
12266	The alternative to this program would be to continue performing strictly time based maintenance instead of utilizing online monitoring to gauge the health of equipment over the long term. This could result in premature equipment failure and/or a more costly maintenance program that could otherwise be tailored to the equipment's overall health. DER alternatives do not apply.

Exhibit Reference: SDG&E 2017 Adjusted-Recorded Capital Expenditures and SDG&E Exs. 24 and 25

SDG&E Witnesses: Peter G. Girard

Subject: SDG&E Workpaper References and Formatting

Please provide the following to cure these deficiencies:

1. Please reformat the 2017 Recorded-Adjusted Capital Expenditure data into the same format as in SDG&E's workpapers for capital, SDG&E Exs. 24-CWP and 25-CWP. In particular, the alpha and numeric categories in the 2017 Adjusted-Recorded data contain incorrect column headings. Most specifically, the heading "Workpaper" contains Budget Codes, not references to SDG&E's workpapers and the heading "Workpaper Title" contains titles that do not appear anywhere in SDG&E's workpapers. To correct these errors, make specific citations to page numbers in SDG&E's workpapers (if appropriate), use "Workpaper Detail" identifiers as in SDG&E's workpapers, and allocate the dollar amounts by the same "Workpaper Detail" identifiers as in SDG&E's workpapers.

SDG&E Response 01:

SDG&E objects to this request on the grounds that it is argumentative (SDG&E's prior response is not deficient), unduly burdensome and outside the scope of this proceeding. SDG&E is not required to create new data or present existing data in a different form beyond that which might be readily available. The provision of Base Year + 1 data (in this case 2017 data) is outside the scope of the Rate Case Plan; nonetheless, SDG&E has provided information above and beyond the Rate Case Plan's requirements in the 2017 Recorded-Adjusted Capital Expenditure file submitted to ORA in March 12, 2018. Subject to and without waiving the foregoing objection, SDG&E responds as follows:

The data provided in the 2017 Recorded-Adjusted Capital Expenditure file is in the format nearly identical to, and containing the same data as that provided in the 2016 General Rate Case for base-year-plus-1 data. Additionally, that data consists of the same elements (fields) as that provided to ORA with the original history and forecast data on Dec. 1, 2017 in the file 'MDR General Requirements Item 17 SDGE/SCG 5-Yr Hist w Fcst.xlsx' which summarized the information from individual witness workpapers. Both listings are ordered by workpaper number.

Regarding various headings and other information on the workpapers:

In the capital workpapers, a 'Budget Code' is associated with one or more 'Workpaper Groups', which contain one or more 'Workpaper Details'. The capital workpaper volume workpapers can further be grouped into a 'Category' and perhaps a 'Category Sub' to permit display in related groupings at the discretion of the witness. For example, in workpaper exhibit SDG&E-24-CWP-R:

SDG&E Response 01 Continued:

- In the first page of the table of contents, grouped into a category titled “A. Controller, Reg Affrs, Legal” are two related “Workpaper Groups”
 - 00810A - T15061 POWERPLAN S REIMBURSABLES & REFUNDS (CAC)
 - 00813H - T15086 POWERPLANS REG MGMT SOL FOR FERC TRANS R
- The cover page for the first of those workpaper groups is found on page 3, the details beginning on page 4 show the budget code is 00810.0.
- The ‘Workpaper Detail’ on page 7 shows that detail to be:
 - 00810A.001 - T15061 POWERPLAN S REIMBURSABLES & REFUNDS (CAC)

In the GRC workpapers, capital budgets contain a prefix, often as zeros (‘0’ or ‘00’) to pack the label to 5 spaces for database purposes and to force appearance order in sorting. There may also be a suffix in order to permit grouping of associated budget components. Thus the ‘230’ budget will appear as ‘Budget Code 00230.0’, and in workpapers as ‘Workpaper Group 002300’ and will have one or more subcomponents (workpaper details) such as ‘002300.001’. The forecast for a particular budget is the sum of its subcomponents, e.g. the budget code 00230.0 does not in itself have a forecast cost, that will be the sum of 00230.001, 00230.002 and any other subcomponents (workpaper details).

If the forecast for a particular budget is fully numeric, that indicates that the budget or sub-budget has a cost history and the forecast may have been derived from that history, such as an average or trend. If the suffix is alpha, that indicates the budget does not have a cost history and that it was newly created in the GRC process.

Regarding the presence or absence of a workpaper in the provided Excel files:

- If a capital budget workpaper had \$0 (zero) spend in 2017, it will not be present in the workbook. This can also occur if the result of adjustments makes the 2017 value \$0.
- If there were any discrete combinations of budget codes into a capital workpaper that were not also made in the 2017 adjustment process, those 2017 codes may appear as orphans with no matching history. This should be rare.
- If a budget code was added for forecasting purposes but does not yet have an accounting record there will be no historical cost for it; it may be an ‘orphan’ in the 2017 listing.
- If any proxy codes were used, likely because of a late need to include a forecasted budget for which no code yet existed, then that proxy may not be matched up with its actual spend code, if it exists. This should be rare.

2. For each item in 1, above, please include in the reformatting of the 2017 Recorded-Adjusted data:

- a. The amount of CWIP and
- b. The In-Service Date.

SDG&E Response 02:

SDG&E objects to this request on the grounds that it is argumentative (SDG&Es' prior response is not deficient), unduly burdensome and outside the scope of this proceeding. SDG&E is not required to create new data or present existing data in a different form beyond that which might be readily available. The provision of Base Year + 1 data (in this case 2017 data) is outside the scope of the Rate Case Plan; nonetheless, SDG&E has provided information above and beyond the Rate Case Plan's requirements in the 2017 Recorded-Adjusted Capital Expenditure file submitted to ORA in March 12, 2018 in the format nearly identical to that provided in the 2016 General Rate Case for base-year-plus-1 data). Subject to and without waiving the foregoing objection, SDG&E responds as follows:

Please see the accompanying spreadsheets, which, in this particular instance, contain information that happens to be readily available. Such information may not be readily available for other GRC witness areas. SDG&E reserves the right to treat requests for such information on a case-by-case basis, including, but not limited to, whether information requested is unduly burdensome, irrelevant and/or exceeds the scope of permissible discovery under Rule 10.1 to produce.:

- ORA-SDG&E-159-MRL_IT Response.xlsx regarding exhibit SDG&E-24
- ORA-SDG&E-159-MRL_Cyber Response.xlsx regarding exhibit SDG&E-25

The attached spreadsheets contain the amount of CWIP (where applicable), the In-Service Data (where applicable) and work paper references for the IT and Cyber Security projects associated with the 2017 Recorded-Adjusted data.

Upon reviewing the list of projects, SDG&E found IT capital spend that should have been adjusted out of the 2017 actuals. This spend was for non-GRC funded capital projects. Therefore, the total in the spreadsheet "ORA-SDG&E-159-MRL_IT Response" is the correct showing of 2017 IT capital actuals and therefore replaces the IT portion of the 2017 Recorded-Adjusted Capital Expenditure file.

Exhibit Number	Witness Name	Workpaper	Workpaper Sub	Workpaper Page	Workpaper Title	Project Name	ISD	Base	Adj	V&S	Esc	Total Adj-Rec (2016\$)
Exh No:SDG&E-24-CWP-R	Christopher R. Olmsted	8330	8331.01	446	SOFTWARE-UTILITY OPERATIONS RELIABILITY	ELECTRIC GIS 2017 ENHANCEMENTS	12/31/2018	\$2,010	\$5,173	\$115	\$177	\$7,122

5. Regarding SDG&E's Corrective Maintenance Program (CMP) (budget code 229):

a. Please explain the relationship between this program and the proposed PRiME project (budget code 17254A). For example, will the PRiME budget eventually supplant (in whole or in part) investment in this program? What is the difference between the programs? How will PRiME affect the Corrective Maintenance Program budget or activities?

b. Please provide a definition and the type of work performed under "Wood Pole Integrity" (SDG&E-14-CWP AColton, p. 182).

c. Please provide a list of activities conducted under the Corrective

Maintenance Program related to overhead poles. For each activity, please provide in Excel the annual recorded costs (in nominal and constant 2016 dollars) and the number of units from 2012-2017.

d. If not previously provided please provide the number of poles replaced under this budget code and corresponding total cost (in nominal and constant 2016 dollars) on an annual basis from 2012-2017.

Utility Response 05:

- a. SDG&E evaluates all overhead and underground facilities in the service territory on an annual, 3-year, 5-year, and 10-year cycle as defined by our Corrective Maintenance Program (CMP) to meet GO 95 and 165 requirements. The CPUC's Safety and Enforcement Division (SED) audits this program annually. As conditions are found through the visual and intrusive inspection process, repairs or replacements are made to within one year on the inspection per the filed CMP plan.

The visual and intrusive inspections processes are still critical for compliance with general orders and the safety of the public and employees. They detect safety issues such as broken cross arms, missing ground molding, loose guy wires and anchors, cracked insulators, corrosion, leaking transformers, rotten poles, and many more issues that need to be identified and repaired. However, a visual inspection is limited by only seeing environmental (wind, heat) and loading (amps on the conductor that impacts conductor temperature sag and tension) conditions at the time of the inspection, it is very much a snapshot in time. The PRiME program is being established to utilize new known local condition wind data gathered from SDG&E's fleet of anemometers and new 3-D modeling software that goes beyond the capability of a visual inspections, allowing for an analysis of the structure at for potential wind and conductor loading conditions, including worst case conditions.

Utility Response 05:-Continued-

The CMP plan addresses compliance with all applicable general orders while PRiME will go further to mitigate the risks of a structure failure by analyzing structural performance under more environmental and loading conditions.

- b. The wood pole intrusive inspection is an investigation of the soundness of the pole. The crew digs around the butt of the pole below ground looking for decay. The crew performs a sounding test by hammering on the butt of the pole, listening for hollowness. The crew also drills into the pole below ground, at grade and 18” to 24” above ground looking for decay (they inspect the consistency of the chips) and treating the pole with a product that is designed to prevent any possible decay occurring within the treated areas.
- c. Please see accompanying file, tab Question 5, “SDGE-TURN DR-025”.
- d. Pole replacements are not included in budget 229.

Response 2b

Poles replaced in "Highest Risk Fire Areas" = QC pole replacements

Total Poles Replaced and Total Replacement Costs are based on Response 1c

Constant 2016 dollars are calculated using US Inflation Calculator at <http://www.usinflationcalculator.com/>

Year	Total Poles Replaced	Total Replacement Cost	QC Poles Replaced	QC Pole Percentage	Estimated QC Pole Replacement Cost	Est. QC Pole Replacement Cost in 2016 \$	
2012	804	\$ 15,988,689	349	43.4%	\$ 6,940,364	\$ 7,255,137	(cumulative rate of inflation 4.5%)
2013	1142	\$ 24,604,354	213	18.7%	\$ 4,589,078	\$ 4,727,958	(cumulative rate of inflation 3%)
2014	1156	\$ 23,649,813	201	17.4%	\$ 4,112,121	\$ 4,168,939	(cumulative rate of inflation 1.4%)
2015	1088	\$ 23,864,998	239	22.0%	\$ 5,242,403	\$ 5,308,537	(cumulative rate of inflation 1.3%)
2016	931	\$ 26,071,956	82	8.8%	\$ 2,296,348	\$ 2,296,348	(cumulative rate of inflation 0%)
2017	991	\$ 21,275,888	86	8.7%	\$ 1,846,343	\$ 1,807,830	(cumulative rate of inflation -2.1%)

2012 QC Only Repairs

District	Code	Description	Total:
EST	I246	Damaged pole or red tag	99
MTE	I246	Damaged pole or red tag	6
MTE	I280	Damaged stub pole	1
NRE	I246	Damaged pole or red tag	51
NRE	I280	Damaged stub pole	2
RAM	I246	Damaged pole or red tag	144
			303

2012 QC/OHVI Overlap Repairs

District	Code	Description	Total:
EST	I246	Damaged pole or red tag	19
MTE	I246	Damaged pole or red tag	3
NRE	I246	Damaged pole or red tag	23
RAM	I246	Damaged pole or red tag	1
			46

2013 QC Only Repairs

District	QC Codes	Definition	Total
EST	I246	SDG&E Pole / Stub Pole	3
MTE	I246	SDG&E Pole / Stub Pole	3
NRE	I246	SDG&E Pole / Stub Pole	141
RAM	I246	SDG&E Pole / Stub Pole	23
			170

2013 QC/OHVI Overlap Repairs

District	QC Codes	Definition	Total
NRE	I246	SDG&E Pole / Stub Pole Dar	32
RAM	I246	SDG&E Pole / Stub Pole Dar	11
			43

2014 QC Only Repairs

District	QC Codes	Definition	Total
EST	I246	SDG&E Pole / Stub Pole	39
MTE	I246	SDG&E Pole / Stub Pole	11
NRC	I246	SDG&E Pole / Stub Pole	1
NRE	I246	SDG&E Pole / Stub Pole	52
ORC	I246	SDG&E Pole / Stub Pole	1
RAM	I246	SDG&E Pole / Stub Pole	35
			139

2014 QC/OHVI Overlap Repairs

District	QC Codes	Definition	Total
MTE	I246	SDG&E Pole / Stub Pole Dar	2
NRE	I246	SDG&E Pole / Stub Pole Dar	35
RAM	I246	SDG&E Pole / Stub Pole Dar	25
			62

2015 QC Only Repairs

District	QC Codes	Definition	Total
EST	I246	SDG&E Pole / Stub Pole	8
MTE	I246	SDG&E Pole / Stub Pole	5
NRE	I246	SDG&E Pole / Stub Pole	111
RAM	I246	SDG&E Pole / Stub Pole	79
			203

2015 QC/OHVI Overlap Repairs

District	QC Codes	Definition	Total
EST	I246	SDG&E Pole / Stub Pole Dar	1
MTE	I246	SDG&E Pole / Stub Pole Dar	4
NRE	I246	SDG&E Pole / Stub Pole Dar	15
RAM	I246	SDG&E Pole / Stub Pole Dar	16
			36

2016 QC Only Repairs

District	QC Codes	Definition	Total
ALL	I246	SDG&E Pole / Stub Pole	66

2016 QC/OHVI Overlap Repairs

District	QC Codes	Definition	Total
ALL	I246	SDG&E Pole / Stub Pole Dar	16

2017 QC Only Repairs

District	QC Codes	Definition	Total
ALL	I246	SDG&E Pole / Stub Pole	84

2017 QC/OHVI Overlap Repairs

District	QC Codes	Definition	Total
ALL	I246	SDG&E Pole / Stub Pole Dar	2

	Total
2012 QC + QC/OHVI	349
2013 QC + QC/OHVI	213
2014 QC + QC/OHVI	201
2015 QC + QC/OHVI	239
2016 QC + QC/OHVI	82
2017 QC + QC/OHVI	86
	1,170

Constant 2016 dollars are calculated using US Inflation Calculator at <http://www.usinflationcalculator.com/>

Response 3a. Pole reinforcement

Year	Number of Poles Reinforced	Nominal Cost	Constant 2016 dollars	
2012	1010	\$ 804,708	\$ 841,205	(cumulative rate of inflation 4.5%)
2013	1811	\$ 1,711,853	\$ 1,763,659	(cumulative rate of inflation 3%)
2014	1241	\$ 1,137,576	\$ 1,153,294	(cumulative rate of inflation 1.4%)
2015	1339	\$ 1,213,947	\$ 1,229,261	(cumulative rate of inflation 1.3%)
2016	1080	\$ 946,366	\$ 946,366	(cumulative rate of inflation 0%)
2017	805	\$ 346,441	\$ 339,215	(cumulative rate of inflation -2.1%)

Response 3b. No pole rearrangement

Response 3c / d / e assumptions:

Wood to Steel : 63% of all poles replaced

Wood to Fiberglass: 1% of all poles replaced

Wood to Wood: 36% of all poles replaced

Total poles replaced and costs (see response 1c)

Year	Number of Poles Replaced	Replacement Cost
2012	804	\$ 15,988,689
2013	1142	\$ 24,604,354
2014	1156	\$ 23,649,813
2015	1088	\$ 23,864,998
2016	931	\$ 26,071,956
2017	991	\$ 21,275,888

Response 3c. Wood to steel replacement

Year	Wood to Steel	Cost	Constant 2016 dollars
2012	507	\$ 10,072,874	\$ 10,529,719
2013	719	\$ 15,500,743	\$ 15,969,843
2014	728	\$ 14,899,382	\$ 15,105,248
2015	685	\$ 15,034,949	\$ 15,224,617
2016	587	\$ 16,425,332	\$ 16,425,332
2017	624	\$ 13,403,809	\$ 13,124,217

Response 3d. Wood to fiberglass replacement

Year	Wood to Fiberglass	Cost	Constant 2016 dollars
2012	8	\$ 159,887	\$ 167,139
2013	11	\$ 246,044	\$ 253,490
2014	12	\$ 236,498	\$ 239,766
2015	11	\$ 238,650	\$ 241,661
2016	9	\$ 260,720	\$ 260,720
2017	10	\$ 212,759	\$ 208,321

Response 3e. Wood to wood replacement

Year	Wood to Wood	Cost	Constant 2016 dollars
2012	289	\$ 5,755,928	\$ 6,016,982
2013	411	\$ 8,857,567	\$ 9,125,624
2014	416	\$ 8,513,933	\$ 8,631,571
2015	392	\$ 8,591,399	\$ 8,699,781
2016	335	\$ 9,385,904	\$ 9,385,904
2017	357	\$ 7,659,320	\$ 7,499,553

Response 3f. No other major categories

5c. CMP Overhead Capital Repairs

Constant 2016 dollars are calculated using US Inflation Calculator at <http://www.usinflationcalculator.com/>

Year	# of OH capital repairs	Nominal Cost	Constant 2016 Dollars	
2012	2045	\$ 7,141,295	\$ 7,465,181	(Cumulative rate of inflation: 4.5%
2013	1835	\$ 6,040,778	\$ 6,223,591	(Cumulative rate of inflation: 3.0%
2014	1676	\$ 5,756,346	\$ 5,835,882	(Cumulative rate of inflation: 1.4%
2015	1452	\$ 3,786,650	\$ 3,834,419	(Cumulative rate of inflation: 1.3%
2016	1100	\$ 3,664,661	\$ 3,664,661	(Cumulative rate of inflation: 0%)
2017	1085	\$ 2,977,203	\$ 2,915,101	(Cumulative rate of inflation: -2.1%

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Year	Number of Poles Replaced	Replacement Cost
2012	804	\$ 15,988,689
2013	1142	\$ 24,604,354
2014	1156	\$ 23,649,813
2015	1088	\$ 23,864,998
2016	931	\$ 26,071,956
2017	991	\$ 21,275,888

Wood to steel replacement (from response 3c)

Year	Wood to Steel	Cost
2012	507	\$ 10,072,874
2013	719	\$ 15,500,743
2014	728	\$ 14,899,382
2015	685	\$ 15,034,949
2016	587	\$ 16,425,332
2017	624	\$ 13,403,809

Wood to fiberglass replacement (from response 3d)

Year	Wood to Fiberglass	Cost
2012	8	\$ 159,887
2013	11	\$ 246,044
2014	12	\$ 236,498
2015	11	\$ 238,650
2016	9	\$ 260,720
2017	10	\$ 212,759

43. Regarding Pole Risk Mitigation and Engineering (PRiME)
- a. Please provide or identify all RAMP related reports and supporting workpapers related to this project.
 - b. Please provide the unit costs of pole replacement in each year 2012-2016.
 - c. Please provide all workpapers that justify the costs of this program.
 - d. Please explain whether the costs of this project are to analyze poles or to actually replace poles. Please identify the costs of each of this activity forecast for 2017-2019.
 - e. Page AFC-125, lines 19-21 state “This occurred with FiRM. SDG&E embarked on the program with an initial strategy, but as data came in and construction progressed, SDG&E saw the need to alter the methodology and approach for that program.” Please explain this statement including why SDG&E altered the program.
 - f. Please explain how the pilot phase was determined to replace or analyze 1,600 poles ramping up to 22,600 poles in 2019. Please provide all supporting workpapers.
 - g. Please provide the number of poles SDG&E expects to replace in each year from 2017-2019.
 - h. Please provide all reports and workpapers related to this program to-date.
 - i. Please provide the quantitative impact on safety due to this program.
 - j. Please provide all evidence of any proven impact on safety due to this program.

Utility Response 43:

SDG&E objects to this request under Rule 10.1 as overly broad and unduly burdensome, to the extent that it seeks “all” documents supporting aspects of testimony and workpapers on this project, and/or information that has already been provided or is available to TURN. Subject to and without waiving this objection, SDG&E responds as follows:

- a. PRiME was included in SDG&E’s RAMP report as a mitigation to the Electric Infrastructure Integrity (EII) risk (see I.16-10-015, RAMP Report Risk Chapter SDG&E-12 – Electric Infrastructure Integrity, submitted on November 30, 2016, at SDGE 12-17) It is also referred to in the RAMP report as the Post-Construction True-Up Quality Assurance and Quality Control (QA/QC) program. The EII risk chapter can be on our website: <http://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas>. Workpapers for SDG&E’s RAMP Records Management risk chapters can be accessed using the following steps:
 - Visit the RAMP proceeding on SDG&E’s website: <https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas>.
 - Click on “Discovery.”

- Click on “CUE.”
 - The risk reduction benefit workpapers are shown as “CUE DR-01 RAMP RSE Workpapers.” The cost-related workpapers are labeled as “CUE DR-01 Cost Workpapers.”
- b. The unit cost to replace a pole from 2012-2016 vary based on the complexity of the work. Approximately \$25,000 per pole was used based on similar construction activities.
- c. Refer to response in f below. SDG&E used the following methodology to determine pole counts for the years 2018 and 2019:
- The pilot phase of 1600 poles will allow SDG&E to achieve a higher confidence level to verify pole failure rates to further assist in project forecasting.
- SDG&E will ramp from 1600 poles in 2018 to 22,600 poles in 2019 in order to ensure SDG&E can complete pole analysis within SDG&E’s Fire Threat Zone/Highest Risk Fire Areas by 2021.
- Refer to item g response: Number of poles to be replaced and/or analyzed was determined as a result of data collected from SDG&E’s CMP program.
- Cost data was determined by using average costs based on other SDG&E programs for each activity required to meet the specific task e.g., pole analysis, pole replacement, or pole rearrangement.
- d. The costs include both analysis and replacement/rearrangement of poles.
- 2017 Approximations
 - Project Management = \$270K
 - 2018 Approximations
 - Analysis = \$1.78M
 - Construction = \$2.80M
 - 2019 Approximations
 - Analysis = \$5.83M
 - Construction = \$34.60M
- e. The change in strategy was the evolution of FiRM throughout its lifecycle from ‘Pole Care’ in 2013 (focus on poles) to today where we take a more comprehensive approach (focus on wire, connectors, and poles) to minimizing fire risk by leveraging the Wildfire Risk Reduction Model (WRRM) and internal stakeholder meetings to help identify and prioritize the work to reduce fire risk. The WRRM takes into account various data points such as asset information, asset failure rates, and fire modeling theory and governing equations and provides

a quantitative evaluation to help identify and prioritize the scope of work. The results of the WRRM are then reviewed and discussed amongst the internal stakeholders at SDG&E, including operations and engineering, to validate results and refine the scope of work.

- f. The pilot phase of 1600 poles will allow SDG&E to achieve a higher confidence level to verify pole failure rates to further assist in project forecasting. SDG&E will ramp from 1600 poles in 2018 to 22,600 poles in 2019 in order to ensure SDG&E can complete pole analysis within SDG&E's Fire Threat Zone/Highest Risk Fire Areas by 2021.

- g. The number of poles SDG&E expects to replace in each year from 2017-2019 is shown below.
 - 2017 Pole Replacements
 - No pole replacements
 - 2018 Pole Replacement Approximations
 - 1600 to be analyzed
 - 112 pole replacements
 - 48 pole rearrangements
 - 2019 Pole Replacement Approximations
 - 22,600 to be analyzed
 - 1,582 pole replacements
 - 678 pole rearrangements

- h. Refer to response in f above. SDG&E used the following methodology to determine pole counts for the years 2018 and 2019:

The pilot phase of 1600 poles will allow SDG&E to achieve a higher confidence level to verify pole failure rates to further assist in project forecasting.

SDG&E will ramp from 1600 poles in 2018 to 22,600 poles in 2019 in order to ensure SDG&E can complete pole analysis within SDG&E's Fire Threat Zone/Highest Risk Fire Areas by 2021.

Refer to item g response: Number of poles to be replaced and/or analyzed was determined as a result of data collected from SDG&E's CMP program.

Cost data was determined by using average costs based on other SDG&E programs for each activity required to meet the specific task, e.g. pole analysis, pole replacement, or pole rearrangement.

- i. SDG&E estimated potential risk reduction benefits in its RAMP report pursuant to D.14-12-025 and D.16-08-018. The risk reduction benefits for PRiME were estimated as part of the larger overhead mitigation grouping in the RAMP report. Besides the analysis provided in the RAMP, SDG&E has not undertaken additional quantitative impact on safety for the PRiME program. As stated in Exhibit SDG&E-14-R, Revised Testimony of Alan Colton, on page AFC-125, in 2018 SDG&E plans to perform a quantitative pilot based on 1,600 poles. The “[r]esults from the pilot phase will be used to prioritize future year projects based on risk and to further define cost” (Exhibit SDG&E-14-R at AFC-125 lines 23-24).
- j. As mentioned in the response to part i above, SDG&E plans to perform a quantitative analysis in the form of a pilot in 2018 to provide the impacts on safety due to this program.

25. Regarding budget code 230 - replacement of underground cables:
- a. Please provide the number and miles of underground cables that failed each year from 2010-2016. Please segregate by type of cable.
 - b. Please provide the cost to replace underground circuits per circuit mile from 2010-2016. Please segregate by type where possible. Please provide all supporting workpapers.
 - c. Please explain and provide all supporting workpapers/calculations for the cost increase from 2017 to 2018 and 2019 for this budget category (workpaper page 453).
 - d. Regarding workpaper page 453, please provide all data and supporting analyses and workpapers/calculations, including referenced "electric reliability circuit analysis" and "cable failure data," that demonstrate underground cable has "a high probability of failure."
 - e. Please provide the related RAMP analysis for this category including if possible the quantified assumption in reliability improvements due to spending on this category.

Utility Response 25:

- a. See the accompanying Excel spreadsheet "Turn-SEU-003-Underground Cable Failures – 2010 to 2016.xlsx".
- b. See the accompanying Excel spreadsheet "Turn-SEU-003-Underground Cable Cost Per Mile – 2010 to 2016.xlsx".
- c. SDG&E objects to this request under Rule 10.1 as overly broad and unduly burdensome, to the extent that it seeks "all" documents supporting testimony and workpapers on this budget code, and/or information that has already been provided or made available to TURN. Subject to and without waiving this objection, SDG&E responds as follows: Please see the testimony and workpapers. SDG&E expects underground cable to have a useful life of 50 years. Based on the amount of underground cable in SDG&E's system and a blended rate for replacement per foot of cable, it has been determined that a funding increase is needed to maintain the replacement of underground cable within the useful life period. See accompanying file "Turn-SEU-003-Cable Budget Funding Analysis.pdf" for backup documentation.
- d. See responses to parts a and b above.
- e. RAMP did not perform any specific analysis that factored in reliability for this budget.

Calculation Assumptions

- Total Miles UG Cable = 10,525 mi.
 - 12kV – 10,293 mi.
 - 4kV – 232 mi.
- Assumed cost per ft. installed
 - \$80 Feeder, \$20 Lateral, 5:1 ratio of Feeder:Lateral in system
- Assumed cable life
 - 50 years (40 years is manufacturer recommendation)

Calculation

$$\text{Total Annual Cable Budget Needed} = \frac{(10,525 \text{ mi.UG cable}) * \frac{5280 \text{ ft. } (\$32 \text{ blended rate})}{\text{mi.}} * \frac{\text{ft. of cable}}{\text{ft. of cable}}}{50 \text{ years}}$$

= \$35.56M per year budgeted needed to coincide with useful life

Budget is currently funding at cable service life of **78.09 years**

TURN-SEU-003-Underground Cable Cost Per Mile - 2010 to 2016.xlsx							
	Proactive Cable Replacement						
Year	2010	2011	2012	2013	2014	2015	2016
Cost/circuit mile							
Feeder	\$417,000	\$417,000	\$417,000	\$507,000	\$380,000	\$845,000	\$575,000
Lateral	\$148,000	\$106,000	\$100,000	\$132,000	\$153,000	\$148,000	\$158,000
Note: Fully Loaded costs are used in table							

TURN-SEU-DR003-Q25a

TURN-SEU-003-Underground Cable Failures - 2010 to 2016.xlsx							
	Underground Cable Replacements - 2010 to 2016						
Year	2010	2011	2012	2013	2014	2015	2016
# of Failures	454	514	503	423	483	440	475
Circuit Miles	28.1	31.6	30.4	24	29.6	26.4	28.2
Types of Cable Replaced							
XLPE Unjacketed	287	321	318	276	289	249	255
HMWPE Unjacketed	144	176	163	134	167	156	183
XLPE Jacketed	19	9	16	11	20	21	24
TRXLPE Jacketed	2	3	3	2	7	10	10
PILC (Paper insulated lead covered)	2	4	3	0	0	3	1
Rubber covered	0	1	0	0	0	0	0
PE (Polyethylene)	0	0	0	0	0	1	1
EPR Jacketed	0	0	0	0	0	0	1
TOTAL	454	514	503	423	483	440	475

APPENDIX B

GLOSSARY OF TERMS

BSE	Budgeting, Scheduling and Estimating
CBD	Capital Budget Documents
CMP	Corrective Maintenance Program
CMP	Corrective Maintenance
CU	Construction Unit
CUE	The Coalition of California Utility Employees
DER	Distributed Energy Resource
DPSS	Distribution Planning Support System
FEA	The Federal Executive Agencies
FERC	Federal Energy Regulatory Commission
FTZ/HRFA	Fire Threat Zone and High Risk Fire Area
G.O.	General Order
ORA	The Office of Ratepayer Advocates
PHFFU	Plant Held for Future Use
PRiME	Pole Risk Mitigation and Engineering
RAMP	Risk Assessment Mitigation Phase
RO	Results of Operation
SCADA	Supervisory Control and Data Acquisition
SDG&E	San Diego Gas & Electric Company
S-MAP	Safety Model Assessment Proceeding
TURN	The Utility Reform Network
WOA	Work Order Authorization