

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

Application of Pacific Gas and Electric Company for
Authority, Among Other Things, to Increase Rates and
Charges for Electric and Gas Service Effective on
January 1, 2020.

(U 39 M)

Application 18-12-009
(Filed: December 13, 2018)

**PACIFIC GAS AND ELECTRIC COMPANY'S (U39M) 2018 SPENDING
ACCOUNTABILITY REPORT IN COMPLIANCE WITH CALIFORNIA PUBLIC
UTILITIES COMMISSION DECISION 17-05-013**

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Dated: March 29, 2019

ATTACHMENT A

**PACIFIC GAS AND ELECTRIC COMPANY'S
2018 SPENDING ACCOUNTABILITY REPORT
IN COMPLIANCE
WITH CALIFORNIA PUBLIC UTILITIES COMMISSION
DECISION 17-05-013**

MARCH 29, 2019

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2018 SPENDING ACCOUNTABILITY REPORT
IN COMPLIANCE
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Pacific Gas and Electric Company (PG&E) submits its 2018 Spending Accountability Report in compliance with the *Decision Authorizing Pacific Gas and Electric Company's General Rate Case Revenue Requirement for 2017-2019*, Decision (D.) 17-05-013 (the Decision).¹ In addition, this report incorporates additional information per Energy Division's guidance as detailed further below.

This report is organized as follows:

Part A of this report provides an overview of PG&E's 2017 General Rate Case (GRC) imputed adopted costs and recorded costs² for Electric Distribution, Gas Distribution, Energy Supply, Customer Care, Shared Services/Information Technology (IT), Human Resource, and Corporate Services/Administrative and General (A&G) for 2018. It also includes the 2019 budget for those lines of business (LOB).³

Part B contains a detailed comparison of PG&E's 2018 imputed adopted and recorded costs. Specifically, Part B contains:

- 1) PG&E's imputed adopted and recorded costs for 2018, by Major Work Category (MWC) for Gas Distribution, Electric Distribution, Energy Supply, Customer Care, and Shared Services/IT.
- 2) PG&E's 2019 budget by MWC as of February 21, 2019, for Gas Distribution, Electric Distribution, Energy Supply, Customer Care, and Shared Services/IT.
- 3) Variance explanations for:
 - a) Imputed adopted versus recorded costs for 2018 by Maintenance Activity Type (MAT) for safety, reliability, and maintenance work for Electric Distribution and by MWC and/or Organization level for Customer Care, Generation,⁴ and Shared Services/IT subject to the following thresholds.⁵

Expense: A variance of at least \$10 million, or a percentage variance of at least 50 percent subject to a minimum variance of \$5 million.

¹ D.17-05-013, p. 186.

² Certain of the recorded costs may be included in claims submitted in PG&E's Chapter 11 Case and would be subject to compromise and discharge in accordance with the Bankruptcy Code and the terms of the plan of reorganization.

³ PG&E added Customer Care, Shared Services/IT, Human Resource, and Corporate Services/A&G expenditures to this report although not required by D.17-05-013 at the request of the Energy Division.

⁴ Generation, Shared Services/IT, HR, and Corporate Services/A&G do not use MAT codes and do not provide unit variances because they do not forecast at the unit cost level since they do not have a large number of like units (such as poles in Electric Distribution).

⁵ Per Energy Division direction, PG&E is using variance thresholds proposed in Energy Division Guidance for the Standardized Reporting and Outline of the Risk Spending Accountability Report dated August 31, 2018, p. 13, filed in the Safety Model Assessment Proceeding (SMAP) (Application (A.) 15-05-002, *et. al.*).

Capital: A variance of at least \$20 million, or a percentage variance of at least 100 percent subject to a minimum variance of \$10 million.

- b) Imputed adopted versus recorded costs for 2018 by MAT for safety, reliability, and maintenance work for Gas Distribution subject to the following thresholds:⁶

Expense: A variance of at least \$5 million, or a percentage variance of at least 50 percent subject to a minimum variance of \$1 million.

Capital: A variance of at least \$10 million, or a percentage variance of at least 100 percent subject to a minimum variance of \$2 million.

- c) Imputed adopted units versus recorded units for safety and reliability work for Electric Distribution and Gas Distribution for unit variances greater than 20 percent.

- 4) Electric Distribution reporting metrics from PG&E's 2017 GRC Settlement Agreement approved in the Decision (Part B, Section 3 below).⁷

Part C contains 20 of PG&E's safety metrics by month for 2018 as detailed in the Decision.⁸

Energy Division provided guidance in advance of the issuance of new reporting requirements in the SMAP (A.15-05-002, *et. al.*) on additional information to be included in the report as follows:

"The "interim" reports shall include the information and methods currently reported in the annual Spending Accountability Reports ordered by D.17-05-013 with the addition of the following:

- 1) Inclusion of other programs within Customer Care, Shared Services, Information Technology, Human Resources, and Administrative and General that impact safety, reliability or are associated with a maintenance activity, or were otherwise authorized or in effect during the record period.
- 2) Application of the selection criteria for Electric Distribution and Gas Distribution to these other programs.
- 3) For those programs meeting the selection criteria in Item 2,
 - a. A description of each program,
 - b. The location in the 2017 and 2020 GRC testimony where the program is described,
 - c. A list of projects that were canceled or deferred within each program,

⁶ *Id.*, p. 13.

⁷ D.17-05-013, pp. 148-150.

⁸ *Id.*, p. 193.

- d. A list of projects which were not presented in the 2017 GRC, but were taken up,
- 4) If applicable, the balancing or memorandum account where the spending for each program is recorded, the record year balances, and the disposition of any request for cost recovery.
- 5) The total company authorized spending for each record year categorized into expensed and capital programs.”

PG&E addressed this guidance as follows:

Regarding the information requested under Items 1 and 2 above, Customer Care data is provided in Part B, Section 6 and Shared Services and Information Technology data are provided in Part B, Section 7. Human Resources and Administrative and General do not have any activities costs that meet the interim reporting requirements.

Regarding the information requested under Items 3a., 3b., and 4 above, this detail is included in each LOBs' comparison table in Part B.

Regarding the information requested under items 3c and 3d above, where available, project information is included in the variance explanations for the safety, reliability, or maintenance-related MWC and MAT that meets the variance reporting thresholds. PG&E is unable to provide a full listing for 2018 as the 2017 Decision adopted a total 2018 revenue requirement, which did not contain underlying project information.

Regarding the information requested under Item 5) above, this detail is provided in Part A.1.a., Summary Tables below.

PG&E looks forward to continuing to work with the CPUC on finalizing a standard set of reporting requirements for all utilities through the SMAP. PG&E welcomes feedback on this interim report for improvement to future submissions.

PART A – OVERVIEW

PART A – OVERVIEW

1. 2018 Expense and Capital Comparison of Imputed Adopted and Recorded Costs

Summary

This report provides a summary of PG&E's 2018 actual expense and capital spending compared to imputed regulatory values for its LOBs included in its 2017 GRC. This includes the core LOBs (Electric Distribution, Gas Distribution and Energy Supply) as well as support organizations (Customer Care, Shared Services, and IT, and Corporate Services). PG&E's GRC cycle is three years (2017-2019) and this report presents recorded data for one year (2018).

This report has been designed to comply with the Decision and Energy Division's guidance. The report presents LOB spending but is not representative of total Company spending. Specifically, this report does not include spending on companywide items, including liability insurance premiums that were significantly higher than amounts adopted in the 2017 GRC Settlement.

Expense

In 2018, PG&E's LOB expense spending exceeded imputed regulatory values by \$520.3 million. The additional spending was primarily related to emergency response and additional vegetation management activities within Electric Distribution and increases in the volume of work in Gas Distribution, partially offset by lower levels of spending in Energy Supply, Customer Care, and Shared Services.

Expense: Core LOBs

Core LOB expense spending in 2018 was \$658.2 million more than imputed regulatory values. Electric Distribution spending in 2018 was \$712.7 million higher than the imputed regulatory values. This includes additional spending related to emergency response following catastrophic events and increased spending on vegetation management. Gas Distribution spending was \$51.2 million more than imputed regulatory values. This includes additional spending related to an increase in work arising from Underground Service Alert Tickets, Cathodic Protection surveys, and abnormal operating conditions, and increased unit costs for cross bore inspections. Energy Supply spending was \$105.7 million lower than the imputed regulatory values. This is primarily because funding for the second Diablo Canyon Power Plant (DCPP) refueling outage and the fossil plants' Long-Term Service Agreements was levelized over the 3-year GRC period (2017-2019) though such costs were not incurred in 2018. The need to reprioritize spending did not compromise safety or reliability in 2018.

The above figures include emergency response costs totaling \$433.9 million that are potentially recoverable through the Catastrophic Event Memorandum Account (CEMA) and fire risk mitigation costs totaling \$308.2 million that are potentially recoverable through the Fire Hazard Prevention Memorandum Account.

Expense: Support Organizations

For support organizations, including Customer Care, PG&E spent \$137.9 million less than the imputed regulatory values for expense. This is primarily due to a reduction in support costs achieved through affordability initiatives.

Capital

In 2018, PG&E's capital spending exceeded imputed regulatory values by \$576 million. The incremental spending was primarily due to additional spending in Electric Distribution related to weather events, wildfires, and capital replacement work, partially offset by lower spending in Energy Supply and Customer Care.

Capital: Core LOBs

Core LOB capital spending in 2018 was \$585.4 million more than imputed regulatory values. Electric Distribution capital expenditures were \$689.9 million higher than the imputed regulatory values. The incremental Electric Distribution capital spending was driven by emergency response following catastrophic events as well as the following: pole replacements, higher volumes of maintenance tags, non-exempt surge arrestor replacement program, substation equipment replacement, response to routine emergencies, and substation Supervisory Control and Data Acquisition installation. Gas Distribution capital spending was \$55.7 million more than imputed regulatory values. This includes additional spending related to an increase in the work performed on High Pressure Regulators and pipeline replacement. Energy Supply spent \$160.2 million less than the imputed regulatory values for capital, primarily due to project cancellations associated with the decision to retire DCPD at the end of its operating licenses, and lower expenditures on the main generator stator projects.

Electric Distribution and Gas Distribution capital spending includes emergency response costs totaling \$297.6 million in capital that is potentially recoverable through CEMA.

Capital: Support Organizations

Support organization capital spending in 2018 was \$9.4 million less than imputed regulatory values. The reduction was primarily driven by the transfer of the Field Meter Operations team from Customer Care to Electric Operations and Gas Operations in 2018, additional efficiencies, and reprioritization to fund safety and reliability work in Gas Distribution and Electric Distribution.

Summary Tables

For this report, PG&E has translated the imputed adopted regulatory values (Settlement Agreement, Appendix A) approved in the Decision to reflect PG&E's new cost model allocation methodology, which was implemented in January 2016. (Please refer to Appendix A: 2017 GRC Imputed Regulatory Values Methodology for additional details.) The tables below summarize PG&E's spending for expense and capital by LOB for the year 2018.

**2018 IMPUTED VS. RECORDED EXPENSE BY LINE OF BUSINESS
(MILLIONS OF DOLLARS)**

Line No.	LOB	2018 Imputed Regulatory Values	2018 Actual	2018 Recorded vs. Imputed Difference (%)	2018 Recorded vs. Imputed Difference (\$)	2019 Budget
1	Gas Distribution	\$336.7	\$387.9	15.2%	\$51.2	\$354.1
2	Electric Distribution	630.3	1,343.0	113.1	712.7	1,409.8
3	Energy Supply	642.6	536.9	(16.4)	(105.7)	590.5
4	Customer Care	312.6	258.0	(17.5)	(54.6)	266.1
5	Shared Services/IT	570.3	490.0	(14.1)	(80.3)	502.3
6	Corporate Services	197.1	187.7	(4.8)	(9.4)	159.8
7	Human Resources	69.0	75.4	8.5	6.4	77.8
8	Total	\$2,758.6	\$3,278.9	18.9%	\$520.3	\$3,360.4

**2018 IMPUTED VS. RECORDED CAPITAL BY LINE OF BUSINESS
(MILLIONS OF DOLLARS)**

Line No.	LOB	2018 Imputed Regulatory Values	2018 Recorded	2018 Recorded vs. Imputed Difference (%)	2018 Recorded vs. Imputed Difference (\$)	2019 Budget
1	Gas Distribution	\$908.9	\$964.6	6.1%	\$55.7	\$994.7
2	Electric Distribution	1,532.6	2,222.5	45.0	689.9	2,664.8
3	Energy Supply	456.7	296.5	(35.1)	(160.2)	374.8
4	Customer Care	170.8	126.1	(26.2)	(44.7)	116.2
5	Shared Services/IT	458.7	508.6	10.9	49.9	357.7
6	Corporate Services	31.6	15.9	(49.7)	(15.7)	16.5
7	Human Resources	3.4	4.5	32.4	1.1	1.2
8	Total	\$3,562.7	\$4,138.7	16.2%	\$576.0	\$4,525.9

PART B – 2018 IMPUTED VS. RECORDED COMPARISON

PART B – 2018 IMPUTED VS. RECORDED COMPARISON

SECTION 1 – Summary and Background Information

The significant drivers of the differences between 2018 imputed adopted and recorded costs for each line of business (LOB) are summarized below.

Information Technology (IT) and Corporate Real Estate (CRE) costs attributable to the LOBs at issue in this report are presented in a decentralized fashion, meaning LOB specific IT and CRE program costs are included within the costs for the LOBs that initiated the programs.

Gas Distribution

Expense: Gas Distribution's total expenses in 2018 exceeded imputed adopted values by \$51.2 million or 15.2 percent. For safety, reliability, and maintenance work, the increase was primarily due to: (1) an increase in work associated with increased volumes of Underground Service Alert (USA) Tickets, Cathodic Protection (CP) surveys, and abnormal operating conditions (AOC) identified through Atmospheric Corrosion (AC) inspections and leak survey; and (2) increased unit costs for cross bore inspections. These increases were partially offset by decreases in corrective maintenance expenses.

Capital: Gas Distribution's total 2018 capital expenditures exceeded imputed adopted values by \$55.7 million, or 6.1 percent. For safety and reliability work, the increase was primarily due to an increase in the work performed on High Pressure Regulators and pipeline replacement. This was partially offset by a decrease in capacity projects and lower service replacements than was forecast.

While not a primary increase driver, part of the increase to Gas Distribution expenditures was due to the transfer of the Field Meter Operations team from Customer Care to Gas Distribution in 2018.

Electric Distribution

Electric Distribution's 2018 expense and capital amounts exceeded imputed adopted values due to efforts to recover on its 2017 through 2019 workplan impacted by 2017 weather events and wildfires, additional work to further mitigate wildfire risk, and emergency response to weather events and wildfires of 2018. The increase was also partially due to the transfer of the Field Meter Operations team from Customer Care to Electric Operations and Gas Operations in 2018.

Expense: Electric Distribution's total expenses in 2018 exceeded imputed adopted values by \$712.7 million or 113.1 percent. For safety, reliability and maintenance work, 2018 expenses exceeded imputed adopted values by \$735.8 million or 131.1 percent. The increased costs for safety and reliability work were primarily due to emergency response work and include costs that are potentially recoverable under the CEMA mechanism, and vegetation management costs potentially recoverable under the Fire Hazard Prevention Memorandum Account. These increases were partially offset by decreases in expense due to a re-scoping of the surge arrester grounding correction

program to include the replacement of existing non-exempt arresters with exempt equipment in conjunction with the corrective grounding work to further mitigate wildfire risk (which resulted in a reclassification of the work from expense to capital), savings in patrols and inspections due to efficiencies, and decreases in actual volumes of overhead maintenance compared to imputed volumes.

Capital: Electric Distribution's total capital expenditures in 2018 exceeded imputed adopted values by \$689.9 million or 45 percent. For safety, reliability and maintenance work, 2018 capital expenditures exceeded imputed adopted values by \$597.1 million or 57.6 percent, driven mainly by response to weather events and wildfires, including expenditures potentially recoverable under CEMA, an increased number of pole replacements, higher volumes of maintenance tags, and expenditures related to the non-exempt surge arrester replacement program. There were also increased expenditures for substation equipment replacement, response to routine emergencies, and substation Supervisory Control and Data Acquisition installations, in addition to costs associated with Field Metering Operations work. The increases were partially offset by reductions in capacity projects, and lower expenditures and fewer units completed in reliability and asset replacement programs driven by limited resource availability due to emergency response efforts.

Energy Supply (Energy Procurement, Nuclear Generation, and Power Generation)

Energy Procurement

Energy Procurement's budget does not include any safety, reliability, or maintenance work. In addition, the differences between 2018 imputed and recorded values was lower than the variance thresholds. Therefore, no additional information is provided for the Energy Procurement Department.

Nuclear Generation

Expense: Nuclear Generation's total expenses in 2018 were below imputed adopted values by \$44.3 million or 11.7 percent. For safety, reliability and maintenance work, 2018 expenses were below imputed adopted values by \$20.0 million or 6.3 percent. Primary drivers are due to the 2017 GRC adopted costs of the second refueling outage being levelized over the 3-year 2017 GRC period (2017-2019) while actual costs were not incurred in 2018, lower costs for plant maintenance due to preventative maintenance optimization program efficiencies and turbine maintenance overhaul, lower cost for contracted engineering programs for backlog reduction, and maintenance of design calculations. The decreases were partially offset by higher plant security costs.

Capital: Nuclear Generation's total 2018 capital expenditures were below imputed adopted values by \$111.2 million or 66.8 percent. For safety, reliability and maintenance work, 2018 capital expenditures were below imputed adopted by \$102.5 million or 68.1 percent. The primary drivers are project cancellations associated with retirement of Diablo Canyon at the end of its operating licenses, write-offs of construction work in process on cancelled projects, and lower capital expenditures on the main generator stator projects.

Power Generation

Expense: Power Generation's total expenses in 2018 were below imputed adopted values by \$54.7 million or 25.4 percent. For safety, reliability and maintenance work, 2018 expenses were below imputed adopted by \$49.5 million or 30.7 percent. There are two primary drivers of this variance. Recorded expenses were below imputed regulatory values due to the fossil plant's Long-Term Service Agreement costs, which are levelized in the GRC forecast; however, the outage work associated with these costs only occurs on a periodic basis once every 4 to 5 years depending on operating profile and did not occur in 2018. The second driver was the companywide affordability effort that began in 2017, whereby PG&E reduced or reprioritized spending in certain MWCs in 2018, to fund other higher priority work in the company, such as additional expense work in Gas Distribution. The affordability effort is intended to reduce or reprioritize spending without negatively impacting public or employee safety.

Capital: Power Generation's total 2018 capital expenditures were below imputed adopted values by \$46.2 million or 17.0 percent. For safety, reliability and maintenance work, 2018 capital expenditures were below imputed adopted by \$31.7 million or 14.2 percent. Similar to expense, the primary driver of this reduction was the companywide affordability effort that began in 2017, whereby PG&E reduced or reprioritized spending in certain MWCs in 2018, to fund other higher priority work in the company, such as additional capital work in Gas and Electric Distribution.

Customer Care

Expense: Customer Care's total expenses in 2018 were below imputed adopted values by \$54.6 million or 17.5 percent. For safety, reliability, and maintenance work, 2018 expenses were below imputed adopted values by \$38.2 million or 34.1 percent. The decrease was primarily due to the transfer of the Field Meter Operations team from Customer Care to Electric Operations and Gas Operations in 2018, as well as achieving operational efficiencies and affordability savings at Contact Centers while continuing to meet service level requirements.

Capital: Customer Care's total 2018 capital expenditures were below imputed adopted values by \$44.7 million or 26.2 percent. For safety, reliability, and maintenance work, 2018 actual capital expenditures were below imputed adopted values by \$31.8 million or 25.0 percent. This was primarily due to the transfer of the Field Meter Operations team from Customer Care to Electric Operations and Gas Operations in 2018.

Shared Services/Information Technology

Expense: Shared Services/Information Technology's total expenses in 2018 were below imputed adopted values by \$80.3 million or 14.1 percent.

Capital: Shared Services / Information Technology's total 2018 capital expenditures exceeded imputed adopted values by \$49.9 million or 10.9 percent.

Corporate Real Estate

Expense: For safety, reliability, and maintenance work, 2018 expenses were below imputed adopted values by \$16.1 million or 85.8 percent. This was primarily due to an enterprisewide reprioritization to fund higher priority work.

Capital: For safety, reliability, and maintenance work, 2018 actual capital expenditures for safety, reliability, and maintenance work exceeded imputed adopted values by \$0.3 million or 0.5 percent.

Information Technology

Expense: Information Technology's total expenses for 2018 were below imputed adopted values by \$36.6 million or 12.1 percent. The primary driver for this reduction was the companywide affordability effort initiated in 2017. The intent of this effort was to reprioritize spending in organizations where there would be no negative impact on public or employee safety and redirect it to cover higher priority work that directly impacts safety and reliability, e.g., programs in Gas or Electric Distribution. Within the recorded spend, IT delivered various technology solutions that served to either improve or maintain safety, reliability or maintenance, e.g., cybersecurity services and maintenance and construction vendor service agreements.

Capital: Information Technology's capital expenditures for 2018 were below imputed adopted values by \$31.1 million or 16.4 percent. The primary driver for this reduction was the companywide affordability effort initiated in 2017. The intent of this effort was to reprioritize spending in organizations where there would be no negative impact on public or employee safety and redirect it to cover higher priority work that directly impacts safety and reliability, e.g., programs in Gas or Electric Distribution. Within the recorded spend, Information Technology delivered various technology solutions that served to either improve or maintain safety, reliability or maintenance, e.g., the Disaster Recovery and Identity Access and Management programs.

Human Resources

Expense: Human Resources total expenses in 2018 were above imputed adopted values by \$6.4 million or 8.5 percent. For safety, reliability, and maintenance work within PG&E Academy, the total 2018 expense is above imputed adopted values by \$23.9 million. The majority of the increase is related to the cost model change. Costs for Training Delivery were previously included in the all LOBs' costs, 2018 expense is \$16.5 million. PG&E moved Electric curriculum development from Electric to HR, total 2018 expense is \$2.8 million. In addition, Leadership Development training was previously charged out and is now centralized within PG&E Academy; recorded 2018 expense is \$4 million.

Capital: Human Resources total 2018 capital expenditures were above imputed adopted values by \$1.1 million or 32.4 percent.

Administrative and General

The Administrative and General (A&G) budget does not include any safety, reliability, or maintenance work. Therefore, no additional information is provided for A&G.

The information in this report is arranged by line of business, as follows:

- Section 2 – Gas Distribution
- Section 3 – Electric Distribution
- Section 4 – Energy Supply: Nuclear Generation
- Section 5 – Energy Supply: Power Generation
- Section 6 – Customer Care
- Section 7 – Shared Services/IT

SECTION 2
Gas Distribution
Imputed Adopted vs. Recorded

TABLE 2-1
GAS DISTRIBUTION 2018 EXPENSE COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2018 Imputed Regulatory Values	2018 Recorded ^(a)	2018 Difference Higher/(Lower)	2019 Budget
1	Support	AB	\$5,802	\$14,596	\$8,794	\$(16,781)
2	Provide Field Service	DD	45,818	40,728	(5,089)	41,877
3	Leak Survey	DE	18,184	27,646	9,462	21,762
4	Locate & Mark	DF	23,902	37,023	13,121	38,364
5	Cathodic Protection	DG	8,661	15,766	7,105	26,998
6	Develop & Provide Training	DN	3,590	5,068	1,478	1,030
7	Meter Protection Program	EX	916	369	(547)	9,583
8	Operate Gas Distribution System	FG	12,193	8,891	(3,301)	8,665
9	Preventive Maintenance (Gas)	FH	13,523	28,291	14,769	22,261
10	Corrective Maintenance (Gas)	FI	79,559	58,663	(20,896)	63,480
11	Gas Mapping	GF	3,606	3,909	304	4,145
12	Gas Distribution Planning & Operations Engineering	GG	7,148	6,329	(819)	6,083
13	Manage Energy Efficiency-NonBA	GM	3,301	3,632	331	3,660
14	Gas Research, Development & Demonstration	GZ	1,359	2,063	704	2,205
15	Change/Maintain Used Gas Meters	HY	1,695	4,161	2,465	1,923
16	Gas Distribution Integrity Management (NonBA)	JQ	27,766	39,480	11,714	39,172
18	Maintain IT Applications & Infrastructure	JV	24,373	15,704	(8,669)	10,951
19	Gas Expense WRO Activities	LK	3,814	5,848	2,034	5,438
20	Catastrophic Events	LX	-	36,661	36,661	29,630
21	Operational Management	OM	13,416	4,673	(8,743)	13,512
22	Operational Support	OS	38,063	28,440	(9,622)	20,121
23	Total		\$336,689	\$387,941	\$51,252	\$354,079

(a) In addition to the MWCs listed above, in 2018 approximately \$44,000 was recorded in MWC BC.

TABLE 2-2
GAS DISTRIBUTION 2018 CAPITAL COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2018 Imputed Regulatory Values	2018 Recorded	2018 Difference Higher/(Lower)	2019 Budget
1	Tools and Equipment	05	\$2,699	\$5,920	\$3,222	\$2,999
2	Gas Pipeline Replacement Program	14	361,387	439,838	78,451	388,380
3	Gas Meter Protection	27	323	1,033	710	15,950
4	Gas Distribution Customer Connections	29	70,536	95,055	24,519	96,093
5	NGV – Station Infrastructure	31	3,706	4,261	555	4,020
6	Catastrophic Events	3Q	-	21,776	21,776	30,000
7	Gas Distribution New Capacity	47	41,224	26,094	(15,130)	51,944
8	Gas Distribution Reliability	50	243,303	214,883	(28,420)	218,920
9	Gas Work at the Request of Others	51	55,403	56,076	673	70,525
10	Gas Distribution Emergency Response	52	700	1,744	1,044	1,957
11	Install New Gas Meters	74	2,745	1,780	(965)	2,158
12	Manage Buildings	78	15,234	(1,345)	(16,580)	-
13	Build IT Applications & Infrastructure	2F	37,371	17,919	(19,452)	12,765
14	Gas Distribution Replace/Convert Customer HPRs	2K	37,493	55,186	17,693	70,541
15	Gas Distribution Control Operations Assets	4A	36,743	24,393	(12,350)	28,442
16	Total		\$908,867	\$964,613	\$55,746	\$994,694

MWC Descriptions – Expense

MWC AB – Support – encompasses general support of the gas distribution system, as well as a number of smaller programs, including: (1) Miscellaneous expenses such as industry association dues; and (2) Collection point for zero sum allocation type work such as Standard Cost Variance,¹ Blanket Purchase Orders and Working Stock. MWC AB also includes the total planned efficiency offsets from various gas distribution efficiency initiatives.

MWC DD – Provide Field Services – includes customer generated requests for service that require site visit by field technician. Service requests include investigating reports of possible gas leaks, carbon monoxide monitoring, customer requests for stop/starts of gas service, appliance pilot relights, appliance adjustment and safety checks.

MWC DE – Leak Survey – includes periodic or routine leak surveys performed by PG&E on its distribution system that are necessary to comply with pipeline safety regulations. MWC DE also includes special leak surveys conducted by PG&E on its gas distribution system that are outside of the routine leak survey schedule for either operating reasons or to assess the integrity of the pipe.

MWC DF – Locate and Mark – includes the work necessary to comply with federal pipeline safety regulations and state law that requires PG&E to belong to and share the costs of operating the regional “one-call” notification systems. Builders, contractors, and others planning to excavate use these systems to notify underground facility owners, like PG&E, of their intent to excavate. PG&E then provides the excavators with information about the location of its underground facilities by visiting the work site and placing color-coded surface markings to show the location of pipes and wires.

¹ Standard Cost Variance (SCV) represents the difference between actual costs incurred and the amount charged out by employees at a predetermined rate (i.e., standard cost). Costs charged out are calculated using productive hours multiplied by a planned standard hourly rate. When results match initial estimates, SCV should be minimal. That said, while initial estimates do factor in external factors (e.g., extreme weather) based on historical data, actual results inevitably vary resulting in a SCV.

The following is a simplified example of the standard cost calculation and how SCVs occur. Based on the historic pattern of Team A’s productivity and anticipated workload, it is projected that Team A will have a monthly cost of \$100,000 for 10 employees and will perform 1,000 hours of work in a month. The resulting standard rate for Team A is \$100 per hour (\$100,000/1,000 hours). If Team A completes 1,000 hours of work in the month according to plan, Team A will have a zero SCV. However, if Team A does not complete all the planned work, e.g., due to unanticipated bad weather, and only completes 950 hours of work, Team A will have an unfavorable SCV of \$5,000 (50 hours × \$100 per hour).

MWC DG – Cathodic Protection – includes work related to mitigating the effects of corrosion on metallic gas distribution pipelines. Corrosion of gas piping systems can cause leaks and other potential safety hazards. In the case of steel gas lines, the pipe is coated or wrapped before installation, followed by the application of Cathodic Protection (CP) through the use of either an impressed system or galvanic anodes as required by federal pipeline safety regulations.

MWC DN – Develop and Provide Training – the Gas Training Curriculum Development program creates new and enables significant revisions to existing training materials ensuring that the Gas Operations workforce is competent, safe, and qualified. The Training Curriculum program does not include the general maintenance or delivery of training materials.

MWC EX – Gas Meter Protection Program (MPP) – includes efforts to ensure that gas meter locations that do not conform to current PG&E standards and/or federal pipeline safety regulations are addressed. The program focuses on two types of non-conforming meter locations: those with inadequate protection from potential damage by vehicles; and those with inaccessible service or shutoff valves. The work to correct these non-conforming facilities generally involves one of three work activities: installing barrier posts, installing a new valve or relocating the meter set.

MWC FG – Operate Gas System – includes a broad range of operations to keep the system safe, such as monitoring the system pressures and flows, checking odorant intensity levels for leak detection; operating valves and regulator stations, and changing pressure recorder charts. Additionally, this program includes occasional manual operations to provide necessary capacity during peak demand periods in the morning (e.g., using a compressed (CNG) or liquefied (LNG) natural gas tanker to inject gas, manually opening separation valves to redirect gas, or manually bypassing regulator station equipment to flow more gas).

MWC FH – Preventive Maintenance –includes work to comply with pipeline safety regulations that require PG&E to conduct periodic or routine maintenance on its gas distribution system. Preventive maintenance work includes regulator station maintenance, maintenance on mains and services, distribution valve replacement, service valve replacement, and overall preventive gas maintenance support.

MWC FI – Corrective Maintenance – includes work to repair or replace damaged or failed gas facilities. In many cases, the need for such restoration is identified during the preventive maintenance activities described in MWC FH. Corrective maintenance includes leak repair, dig-in repair, cathodic protection restoration, regulator station repair, and distribution valve repair.

MWC GF – Gas Mapping – encompasses tracking the size, material type, location, configuration, and other essential information needed to monitor and identify over thousands of miles of underground gas main and millions of gas services. Gas Mapping updates and maintains the gas distribution system maps and records.

MWC GG – Gas Engineering – includes local gas planning engineers modeling the gas distribution system to ensure a safe, reliable, and cost-effective supply of natural gas to customers and to ensure that the system can accommodate future load growth. By simulating changes in load demand, engineers use modeling to identify potential constraints in the system to support service reliability.

MWC GM – Natural Gas Fueling Facilities Operation and Maintenance (O&M) – includes the work required to maintain and operate existing natural gas fueling facilities. PG&E operates over 800 Natural Gas Vehicles (NGVs) and has over 6,000 customers that use the natural gas fueling facilities. PG&E's network of natural gas fueling stations also serves as a back up to customer owned stations that are not available due to breakdowns or maintenance.

MWC GZ – Gas Research, Development and Demonstration (RD&D) – includes work in targeted areas of gas distribution. The objectives of gas distribution RD&D are to explore new opportunities, concepts and technologies to continue to provide safe and reliable service to customers at a lower cost, where possible.

MWC HY – Gas Meter Maintenance – the meter set is defined as the facilities between the shut-off valve (i.e., service valve and inlet valve) and service tee or meter outlet valve.

Maintenance includes:

- Corrective Maintenance work performed on meter sets greater than 1,000 CFH and less than or equal to 1,000 CFH. Outlet Valve greater than or equal to 2 inches in diameter and less than 2 inches in diameter.
- Preventive Maintenance work performed on meter sets greater than 1,000 CFH. Preventive maintenance work includes: Differential Pressure Tests, Regulator A Inspections, Pressure Verification, Electronic Corrector Maintenance, Turbine Spin Test, Delta A Turbine and Ultra-Sonic Diagnostic Testing.

MWC JQ – Distribution Integrity Management Program (DIMP) –The program is mandated by Federal regulations and includes efforts to enhance gas distribution system safety by identifying risks to the gas distribution system and addressing those risks. The types of work in this MWC include development and improvements in the following areas: DIMP program, preventative maintenance, DIMP leak surveys, operator qualifications, training, and programs including the Cross Bore Inspection Program, and Plastics Program.

MWC JV – Maintain Applications and Infrastructure – includes costs for ongoing maintenance, operations and repair for PG&E's IT applications, systems and infrastructure.

MWC LK – Work Requested by Others (WRO) – Gas Maintenance – encompasses work required by tariff, third-party requests, and franchise compliance, including:

- Gas main relocations and rearrangement of gas facilities initiated by customers due to overbuilds (billable to the customer);
- Raise gas valve frame and covers to grade;
- Gas service cutout at property line;
- Provide temporary gas service that is not expected to last more than 1 year (Rule 13) (applicant pays for installation and removal costs); and
- Complete additional work above normal level of mark and locate activities as needed for third-party work. Work will normally be done at applicant's expense unless done to comply with city or county franchise agreements.

MWC LW– Leak Abatement Program – captures incremental costs associated with leak survey and repair, and Research and Development (R&D) to support Gas Leak Abatement best practices. Cost recovery for 2018 is through the Leak Abatement OIR (D. 17-06-015), not the GRC.

MWC OM – Operational Management – includes labor and employee-related costs to provide supervision and management support. MWC OM also includes costs incurred by the administrative staff working for the supervisors/managers.

MWC OS – Operational Support – includes labor and employee-related costs to provide services and support that are unrelated to supervision and management. Examples include Business Finance and Sourcing departments that support the lines of business.

MWC and MAT Code Descriptions for Safety, Reliability, and Maintenance Work – Expense

MAT DDD – Pilot Relight – Seasonal and other gas pilot relight activities at customer's request. Does not include: (1) Relight for Gas Pipeline Replacement Program; (2) “Off by crew” relights, charge to work order causing pilot off (i.e., Pipeline Replacement); (3) Service restoration following a major gas event, charge to major event. Unit of measure is number of service tickets.

MAT DDE – Appliance Adjustments – includes input, primary air, cleaning burner or pilot, safety checks and energy cost inquiries. Unit of measure is number of service tickets.

MAT DDF – Gas Fumigation Activity – Gas starts/stops to facilitate fumigation work at customer premise. Unit of measure is number of service tickets.

MAT DDG – Gas Leaks & Emergencies – Respond to customer-reported gas emergencies, includes high/low pressure, leaks, fires, explosions, carbon monoxide investigations, etc. on the customer's side of the gas meter. Includes flame pack call-out initiated by Gas Field Service where no leak is found on the distribution service or main. Does not include: (1) Leak Survey generated Non-hazardous leak repairs at meter; (2) Leak Survey initiated Hazardous gas leak repair at the meter set; (3) Gas dig in response or stand-by, company or non- company equipment; (4) Repair or replacement of gas valve; (5) Replacement of gas regulators; (6) Meter replacement; (7) Leaks on distribution main or service. Unit of measure is number of service tickets.

MAT DDK – Gas Start – Turn-on (start) gas service at customer's request using routine change of account process. Requires site visit and manual operation. Does not include: (1) Company generated field credit activity; (2) New Business generated customer connects. Unit of measure is number of service tickets.

MAT DDL – Gas Stop – Turn-off (stop) gas service at customer's request using routine change of account process. Requires site visit and manual operation. Does not include: (1) Company generated field credit activity; (2) Gas disconnect and removal for obsolete facilities. Unit of measure is number of service tickets.

MAT DEA – Leak Survey – Perform compliance foot and mobile surveys of distribution mains and services only. Includes cost of equipment calibration, e.g., flame pack units. Also includes Atmospheric Corrosion Inspections of exposed mains, exposed services, service risers, and meter sets being conducted in the course of the leak survey. Does not include Grade 1 Leak Standby unless the surveyor is actively helping with the repair (i.e., bar-hole pinpointing, digging etc.). Unit of measure is services surveyed.

MAT DEB – Special Leak Survey – Perform special (non-compliance) foot and mobile leak survey of distribution mains and services, by special request (city paving, customer callout, emergencies, engineering, and risk mitigation). Includes calibration of the instruments associated to this work. Does not include costs to investigate leaks found at or downstream of the service valve. Unit of measure is miles surveyed.

MAT DEC – Downgrade No Repair – Includes instances where a repairable leak (Grade 1,2 or 3)² is downgraded to a non-hazardous leak (Grade 3) that does not require repair, the leak is not found (Grade 0) or leak is due to non-PG&E gas. Unit of measure is services surveyed.

MAT DED – Rechecks – Includes routine above and below ground Grade 3 and 2 leak rechecks and/or follow-up Grade 0 rechecks. Does not include: Downgrades to 3, or 0. Unit of measure is number of rechecks performed.

MAT DEE – Customer Calls – Survey/Investigation of leaks found on the distribution system where investigation is initiated by Customer Odor Complaint. Does not include: (1) Leak repair (pinpointing, digging, etc.); (2) Investigation of customer odor complaint where leak is found on the customer side of the service valve (3) Leak repair (no meter exchange/rebuild). Unit of measure is number of customer calls.

MAT DEF – Picarro Rollout – Includes: (1) Use of Picarro Surveyor to perform compliance leak survey (drive) of distribution mains and services only (2) Perform foot survey of leak indication search areas (LISA) and Gap Survey (foot survey performed for service & mains not in the field of view of Picarro surveyor) (2) Field of View Survey (five feet from building survey sweep). Does not include: If the surveyor is actively helping with the repair (i.e., bar-hole pinpointing, digging etc.). Unit of measure is services surveyed.

MAT DEG – Picarro Special Survey – Includes: (1) Use of Picarro Surveyor to perform special (non-compliance) leak survey of distribution mains and services, by special request (city paving, customer callout, emergencies); (2) Foot survey of Leak indication search areas (LISA) and Gap Survey (foot survey performed for service and mains not in the field of view of Picarro surveyor); (3) Calibration of the instruments associated to this work is charged here. Unit of measure is number of facility site visits.

² Grade 1 leaks (also referred to as “hazardous” leaks) represent existing or probable hazards to persons or property and require immediate repair or continuous action until conditions are no longer hazardous. Grade 2 leaks are non-hazardous to persons or property at the time of detection, but still require a scheduled repair because they present probable future hazards. Grade 3 leaks are non-hazardous at the time of detection and can reasonably be expected to remain non-hazardous.

MAT DFA – Locate and Mark – Locate and Mark underground Gas and Electric Distribution facilities per Underground Service Alert (USA) requests. Preparation of maps, process tickets, and perform administrative work, and Gas and Electric damage prevention activities. Does not include: locate and mark for Gas and Electric Transmission, or fiber optic facilities. Also includes calibration/repair of equipment. Unit of measure is number of USA tickets worked.

MAT DFB – Mark and Locate Standby – Includes observation of work performed within five feet of a gas or electric transmission facility or for excavation activity within close proximity of a critical distribution facility. Unit of measure is number of sites requiring a standby.

MAT DF# – Includes provider cost center standard cost variance aligned with quality assurance/quality control support spend related to Locate and Mark.

MAT DGA – Cathodic Protection: Monitoring – Include all types of pipe-to-soil reads, including isolated steel, rectifier reads, and remote monitoring. Also includes remote rectifier monitoring unit communication and software costs, and electric utility costs for rectifiers. Unit of measure is number of monitoring points read.

MAT DGB – Cathodic Protection: Troubleshoot – Includes troubleshooting and identification of problems with down Cathodic Protection Areas (CPA) and performance of any remedial actions. Unit of measure is number of CPA's troubleshot.

MAT DGC – Cathodic Protection: Rectifier Maintenance – Perform rectifier maintenance and associated costs. Unit of measure is number of rectifiers maintained.

MAT DGD – Cathodic Protection: Resurvey – Conduct enhanced cathodic protection survey and associated activities. Unit of measure is number of Cathodic Protection Area miles surveyed.

MAT DGE – Gas Isolated Steel Service Evaluation – Identify and evaluate electrically connected isolated steel services and associated activities. Unit of measure is number of # of Electrically Connected Isolated Steel Risers.

MAT DGF – Gas Unprotected Steel Main Evaluation – Identify and evaluate unprotected steel main as part of the enhanced cathodic protection survey program. Unit of measure is number of miles unprotected pipe surveyed.

MAT DGG – Installing casing test stations – Install casing test stations. Unit of measure is number of casings mitigated.

MAT DGH – Casing short mitigation less than 100' – Clear casing shorts or replace cased pipe less than 100' in length. Unit of measure is number of casings mitigated.

MAT DGI – Casing monitoring without lead – Annual casing monitoring for casings without leads. Unit of measure is number of casings monitored.

MAT EXA – Meter Protection Program Inspections – Inspect the Meter Protection Database or perform a special survey to identify the need for Barrier Posts or Service Valves. Unit of measure is number of inspections.

MAT EXB – Meter Protection Program Protections – Install barrier posts in order to protect above ground gas facilities (meters and risers) from damage by vehicles. Does not include: Relocation requiring re-running the service from the main, charge to MWC 27. Unit of measure is number of locations.

MAT EXC – Meter Program Protection Service Valves – Includes: Installation of a new service valve or the relocation of an existing service valve if the property does not have an accessible service valve (for emergency response). Does not include: Re-running the service from the main which is charged to MWC 27. Unit of measure is number of valves installed.

MAT FGA – Gas Distribution Control Center – Includes gas control personal, contractor support, increased main Remote Terminal Unit (RTU) and Electronic Recorders (ERX), apprentice training program, damage prevention, abnormal conditions, emergency response, compliance, systems operations, data collection, clearance process and benchmarking. This is a non-unitized MAT.

MAT FGB – Operate Distribution-Gas Mains/Services – Includes: Changing winter and station pressure recorder charts (including downloading ERX), performing instrument calibrations (test equipment, gauges, portable pressure recorders, etc.) operating valves (including changes in emergency zones), removing distribution system pipeline liquids and monitoring system pressure. Does not include: Calibration of Distribution Regulator Station mechanical pressure recorders during station maintenance, distribution Supervisory Control and Data Acquisition (SCADA) including ERX calibrations. Unit of measure is number of charts changed.

MAT FGC – Operate Distribution-Gas Regulator Station General – Control the supply and flow of gas through the distribution system via direction from the Gas Distribution Control Center, adjust and change Distribution Regulator Station pressure set points, maintain station pressure in conjunction with winter or planned operational clearances. Unit of measure is number of operations performed.

MAT FG# – Includes provider cost center standard cost variance aligned with operating the gas distribution system.

MAT FHA – Maintenance-Preventative-Gas Mains – Includes: (1) Non-leak repairs to distribution gas mains; (2) Rewrap, lower, or paint gas distribution mains; (3) Replace cover; protect shallow pipe; (4) Replace/repair pipe hangars; (5) Replace/relocate greater than 100 feet of gas distribution main; (6) Identify pipe; (7) Install Electrical Test Station (ETS) for the purpose of locating the main. Does not include: (1) Main leak repairs; (2) Any work related to gas transmission; (3) Any work caused by work or alteration by a customer or third party; (5) Pothole gas facilities for potential conflicts with third-party work; (6) Third-Party damage; (7) Atmospheric corrosion; (8) Install ETS for purposes of corrosion prevention; (9) Fire valve repair or replacement; (10) Main or service alterations due to “sewer cross-bores”; (11) Any corrective work related to sunk trenches or sunk bell holes. Unit of measure is number of mains maintained.

MAT FHB – Maintenance-Preventative-Gas Regulator Stations – Includes: scheduled maintenance on distribution regulator stations; required maintenance work for all associated equipment inside the district regulator station; and vault dewatering. Does not include: (1) Repairs to inlet and outlet fire valves with a pressure greater than 60 psig; (2) SCADA calibration of Gas Distribution Control Center RTUs and ERXs installed at a regulator station; (3) Calibration of pressure recorders for planning “winter chart” applications (non-Gas Distribution Control Center). Unit of measure is number of operations on equipment.

MAT FHC – Maintenance-Preventative-Gas Farm Tap – Perform atmospheric inspections on customer High Pressure Regulator sets. Inspections set point and lockup checks. Unit of measure is number of inspections.

MAT FHE – Maintenance-Preventative-Gas Services – Includes: (1) Repair non-leaking gas distribution services; (2) Riser replacement; (3) Rewrap, lower, or paint gas distribution services; (4) Clear and/or repair plugged services; (5) Replace cover, protect shallow pipe; (6) Repair, replace, relocate, or cut-off less than a full service; (7) Repair, replace curb valves less than 2 inches; (8) Investigate idle gas stub service cut-offs; (9) Install Electrical Test Station (ETS) for the purpose of locating the service; (10) Installation of EFV (when not related to leak repair). Does not include: (1) Stub or service cut-off; (2) Any work caused by work or alteration by a customer or third party; (3) Third-Party damage; (4) Atmospheric corrosion; (5) Service valve replacement; (6) Work above the service valve; (7) Install ETS for the purpose of corrosion prevention; (8) Service leak repairs; (9) Main or service alterations due to “sewer cross-bores”; (10) Any corrective work related to sunk trenches or sunk bell holes. Unit of measure is number of services repaired.

MAT FHG – Maintenance-Preventative-Gas Valve – Perform scheduled inspection of distribution main valves. Verify operation, identification, and location. Clean/pump out vaults/enclosures. Lubricate/flush valves. Clean/paint valve/frame and cover. Unit of measure is number of valves maintained.

MAT FHI – Maintenance-Corrective-Gas Service Valves – Includes repair or replace inoperative service valves less than 2 inches. Does not include: (1) Valves greater than or equal to 2 inches (should be capitalized against MAT 50E); (2) Work above the service valve. Unit of measure is number of valves replaced.

MAT FHJ – Gas Non-Recurring Projects; preventative maintenance – One-time non-recurring maintenance projects on non-gas carrying facilities. This is a non-unitized MAT.

MAT FHK – Atmospheric Corrosion Monitoring Distribution – Inspect atmospherically exposed gas mains and services, for atmospheric corrosion. Unit of measure is number of spans inspected.

MAT FHL – Atmospheric Corrosion Main Repairs – Perform expense repair of atmospheric corrosion on mains. Unit of measure is number of spans repairs.

MAT FHM – Atmospheric Corrosion Service Repairs – Expense repairs of atmospheric corrosion on services to below stopcock. Does not include: Atmospheric corrosion repairs of customer gas regulators and meter sets. Unit of measure is number of services repaired.

MAT FHN – Atmospheric Corrosion Distribution Regulator Station Repair – Expense repairs of atmospheric corrosion on distribution district regulator stations. Unit of measure is number of stations mitigated.

MAT FHO – Preventative Maintenance Supervisory Control and Data Acquisition (SCADA) – SCADA Preventive Maintenance to RTU, SCADA Transmitters and ERXs. Does not include: Preventative maintenance associated with pressure recorders for planning “winter chart” applications (non-Gas Distribution Control Center). Unit of measure is number of RTUs maintained.

MAT FHP – Corrective Maintenance Supervisory Control and Data Acquisition (SCADA) – SCADA Corrective Maintenance to RTUs, SCADA Transmitters and ERXs. SCADA corrective maintenance of GDCC RTUs and GDCC ERXs. Does not include: Corrective maintenance associated with pressure recorders for planning “winter chart” applications (non-GDCC). Unit of measure is number of RTUs repaired.

MAT FHQ – GD Overpressure Protection Enhancements – The Overpressure Protection (OPP) Enhancements Program includes: installation of pilot filters to reduce the likelihood of pilot-operated regulator or monitor failure due to sulfur; system planning studies to identify the most effective secondary overpressure protection option for specific stations; revision of Standard and Procedures; program management for developing and maintaining the master over pressure elimination plan and schedule; pilot studies on new equipment technologies for applicability to the PG&E system; and Gas Quality improvements at District Regulator stations to prevent over-pressure events. This is a non-unitized MAT.

MAT FH# – Includes provider cost center standard cost variance aligned with preventive maintenance, quality assurance/quality control support, and measurement and regulation field support.

MAT FIB – Maintenance-Corrective-Gas Regulators General – Maintain and repair failed or inoperative distribution district regulation equipment. Does not include: Repair of SCADA equipment at a district regulator station; corrective paint work; or repairs for vault lids or station fencing. Unit of measure is number of regulator station repairs.

MAT FIC – Maintenance-Corrective-Gas Farm Tap – Perform repairs on customer High Pressure Regulator sets. Unit of measure is number of leak repairs.

MAT FIF – Maintenance -Corrective-Gas Main Valves – Includes (1) Replace valves less than 2 inches; (2) Repair all distribution main valves; (3) Repair / seal vaults and lids; (4) Raise vaults and lids unless due to Work Requested by Others (especially street repaving). Unit of measure is number of valves repaired.

MAT FIG – Maintenance -Corrective-Gas Main Leak – Expense repair of non-dig-in leaks less than 100 feet on any distribution main and appurtenances (flanges, valves, etc.). Includes leak pinpointing. Includes repair of service leak by replacing a portion of main (100 feet or less). If leak on main side of tee, then charge as main repair, if leak on service side of tee, then charge as service repair. Includes repair of leak on existing cut-off service tee (24 inches or less). Does not include: If a suspected leak is excavated and downgraded to a 3 or 0 that won't be repaired; non-PG&E gas; If service tee is cut off within 12 inches of main and no service exists. Unit of measure is number of main leaks repaired.

MAT FIH – Corrective Maintenance: Gas Service Leak Above Ground – Leak pin-pointing and repair of non-dig-in leaks below the service valve on the above ground portion of the service. Does not include: If a suspected leak is excavated and downgraded to a 3 or 0 that won't be repaired; or non-PG&E gas. Unit of measure is number of service leak repairs (above ground).

MAT FII – Maintenance-Corrective-Gas Cathodic Protection – Includes: Repair existing anodes or rectifiers; dig up gas facilities to install insulating material; install new anodes on isolated steel as necessary; Install an Electrical Test Station (ETS); restore a down Cathodic Protection Area without replacing capital plant. Does not include: any cathodic protection remediation or restoration activities. Unit of measure is number of corrosion tags cleared.

MAT FIJ – Maintenance-Corrective-Gas Main Dig-Ins – Expense repair of dig-in leaks and other third-party damage to any distribution main and appurtenances (flanges, valves, etc.). Unit of measure is number of main dig-ins repaired.

MAT FIK – Maintenance-Corrective-Gas Service Dig-Ins – Expense repair of dig-in leaks and other third-party damage to any service (including curb valves). Unit of measure is number of service dig-ins repaired.

MAT FIM – Includes gas major events and emergencies declared by the Governor or President as Catastrophic Event Memorandum Account (CEMA). This is a non-unitized MAT.

MAT FIO – Gas Overbuild – Relocation of partial gas service and/or main (less than 100 feet) due to encroachment condition. Unit of measure is number of services repaired.

MAT FIP – Maintenance-Corrective-Gas Service Leak Below Ground – Leak pinpointing and repair of non-dig in leak on below ground section of any service (includes curb valves) from tee to where riser breaks ground. Includes: (1) Above ground leak that requires below ground repair (i.e., must replace section of below ground pipe or riser); (2) Riser replacement including section of below ground service. Does not include: If a suspected leak is excavated and downgraded to a 3 or 0 or non-PG&E gas. Unit of measure is number of service leak repairs (below ground).

MAT FIQ – Atmospheric Corrosion Monitoring – Inspect atmospherically risers, customer gas regulators (including High Pressure Regulators), and meter sets for atmospheric corrosion where not completed by routine leak survey work. Unit of measure is number of locations inspected.

MAT FIR – Tee-Cap Replacement Program – Projects specified by the plastic tee cap repair team to lower risks in the plastic system. Units: Primary Units equal the number of Tee Cap Replaced/Secondary Unit equals the number of Dry Holes excavated and restored. Unit of measure is number of tee caps replaced.

MAT FIS – Leak Survey Meter Repair – Scheduled repair of Non-Hazardous gas leaks at the meter set. Does not include: (1) Hazardous gas leak repair at the meter set initiated by Leak Survey; (2) Customer generated field orders for gas leak investigation; (3) Repair or replacement of gas valve; (4) Replacement of gas regulators; (5) Meter replacement; (6) Gas leak surveys performed by Leak Surveyors. Unit of measure is number of meters repaired.

MAT FI# – Includes provider cost center standard cost variance aligned with corrective maintenance, quality assurance/quality control support, and sand, gravel, and spoilage spend.

MAT GFO – Distribution Mapping – Includes: (1) Distribution Mapping activities not directly charged to orders such as Posting Obsolete Orders, Delineations, Data Management Non-Posting and Map Reprographics, Annexations, Posting Corrections, Operating Maps, and Diagrams, Asset Registry and Request for Work, Corrective Action Program Mapping and Information and Data Requests; (2) Special Distribution Mapping projects. This is a non-unitized MAT.

MAT GG# – Engineering Expense: Gas – Preliminary engineering prior to determining the type of work (install vs. repair) to be performed, such as, defining economic alternatives, field checking of asset conditions, approximate scope/cost of work, and economic analysis. This is a non-unitized MAT.

MAT GGA – Gas System Planning: Gas System Operations – Perform hydraulic analysis on gas distribution systems to support operations and long-term design. Build and maintain computer models of the gas distribution system. This is a non-unitized MAT.

MAT HYI – Gas Meter Atmospheric Corrosion (AC) – Perform remediation of atmospheric corrosion on customer gas meters and regulators as identified through the Atmospheric Corrosion Inspection Program Does not include: (1) AC inspection; (2) AC repair on High Pressure Regulators; (3) AC repair on distribution mains, services, valves, etc.; (4) Meter replacement; (5) Regulator replacement. Unit of measure is number of meters repaired.

MAT HY# – Includes provider cost center standard cost variance aligned with gas meter maintenance.

MAT JQA – Distribution Integrity Management Program (DIMP) Leak Survey – Leak Survey enhancements. Unit of measure is number of services surveyed.

MAT JQD – Distribution Integrity Management Program emergent work. This is non-unitized work.

MAT JQE – Plastic Program – Oversees selection, testing and development of plastic materials, tools and associated construction methods for use on the PG&E distribution system. Also includes: Laboratory testing, sample material, and prototype tools and equipment purchases. This is a non-unitized MAT.

MAT JQK – Legacy Cross Bore Sewer Project – Includes: research of records, create and execute legacy storm and sewer inspections. Repair costs to remove legacy cross bores. Does not include: Replacement of gas pipe beyond the cross bore segment. Unit of measure is number of inspections.

MAT JQL – Distribution Integrity Management Program (DIMP) Program Management – Costs for DIMP staff. This is non-unitized work.

MWC OM – Operational Management³ – includes labor and employee-related costs to provide supervision and management support. MWC OM also includes costs incurred by the administrative staff working for the supervisors/managers. This is a non-unitized MWC.

³ MWC OM is included as a maintenance activity in accordance with Energy Division's February 12, 2019 letter to PG&E. Gas Distribution does not consider MWC OM as safety and reliability work.

**TABLE 2-3
GAS DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
1	DD	Provide Field Service	DDA	Field Services, Other	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	–	9	–	–	–	9	Below variance threshold.	N/A	N/A
2	DD	Provide Field Service	DDD	Pilot Relight	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	140,479	10,525	171,175	11,916	(30,696)	(1,391)	Below variance threshold.	N/A	N/A
3	DD	Provide Field Service	DDE	Appliance Adjustments	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	12,161	913	10,904	745	1,257	168	Below variance threshold.	N/A	N/A
4	DD	Provide Field Service	DDF	Gas Fumigation	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	35,762	3,105	31,054	2,349	4,708	756	Below variance threshold.	N/A	N/A
5	DD	Provide Field Service	DDG	Gas Leaks & Emergencies	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	160,436	17,540	151,521	18,943	8,915	(1,402)	Below variance threshold.	N/A	N/A
6	DD	Provide Field Service	DDK	Gas Start	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	47,398	4,745	65,465	6,868	(18,067)	(2,122)	Recorded units were below imputed values due to a decrease in gas start customer service requests and application of unit cost efficiencies.	N/A	N/A
7	DD	Provide Field Service	DDL	Gas Stop	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	78,431	3,891	112,794	4,997	(34,363)	(1,106)	Recorded units were below imputed values due to a decrease in gas stop customer service requests and application of unit cost efficiencies.	N/A	N/A
8	DE	G Dist Leak Survey	DEA ^(b)	Routine Leak Survey	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	434,874	9,165	457,207	6,785	(22,333)	2,380	Below variance threshold.	N/A	N/A
9	DE	G Dist Leak Survey	DEB	Special Leak Survey	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	11,697	729	3,757	59	7,940	670	Program units exceeded imputed units due to an unplanned internal leak survey audit in 2018 of leak data and equipment calibration, which led to an increase in special leak survey notifications and leak rechecks.	N/A	N/A
10	DE	G Dist Leak Survey	DEC	Leak Downgrade, No Repair	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	6,627	3,387	7,040	1,939	(413)	1,448	Program expenses exceeded imputed regulatory values due to the increase in labor costs related to leak investigation, resulting from the increase in rechecks from the unplanned internal leak survey audit discussed in MAT DEB above.	N/A	N/A

**TABLE 2-3
GAS DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
11	DE	G Dist Leak Survey	DED	Leak Rechecks	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	23,124	2,104	3,636	441	19,488	1,663	Program expenses and units exceeded imputed values and units due to moving from the 4-year survey cycle to a 3-year survey cycle. The increase in units drove an increase in labor costs and contract costs.	N/A	N/A
12	DE	G Dist Leak Survey	DEE	Customer Callouts	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	3,979	1,476	4,088	698	(109)	778	Below variance threshold.	N/A	N/A
13	DE	G Dist Leak Survey	DEF	Picarro Leak Survey	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	522,131	6,526	581,702	5,106	(59,571)	1,420	Below variance threshold.	N/A	N/A
14	DE	G Dist Leak Survey	DEG	Picarro Special Leak Survey	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	–	3	33,294	411	(33,294)	(408)	Program recorded units were below imputed units due to Picarro leak survey work being reclassified to traditional special leak survey (MAT DEB) post-2017 GRC application.	N/A	N/A
15	DE	G Dist Leak Survey	DEH	Distribution Uprates	N/A	Exhibit (PG&E-3), Chapter 9	–	3,933	–	–	–	3,933	Variance explanation is not applicable. This is a new MAT code that was not included in the 2017 GRC.	N/A	N/A
16	DE	G Dist Leak Survey	DE#	Leak Survey Support	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	–	322	–	2,744	–	(2,423)	Program expenses were below imputed values due to spoils costs being captured across other MWCs.	N/A	N/A
17	DF	G&E T&D Locate and Mark	DFA	Locate and Mark	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	559,871 ^(c)	36,048	464,905	21,510	246,630	14,538	Program expenses exceeded imputed values as a result of higher unit costs due to new PG&E requirements to improve project documentation including: <ul style="list-style-type: none"> • Photographing the excavator's delineations, and PG&E's post locate marks; and • Documenting communication and agreements between the excavator and PG&E, work completed, and facilities marked. Recorded units exceeded imputed values due to an increased number of calls to the 811 "Call Before You Dig" number.	N/A	N/A
18	DF	G&E T&D Locate and Mark	DFB	Locate and Mark Standby	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	943	205	2,234	1,336	(1,291)	(1,132)	Program expenses and recorded units were below imputed values and units due to coordination of field meets and standbys that reduced the amount of standbys necessary.	N/A	N/A

**TABLE 2-3
GAS DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
19	DF	G&E T&D Locate and Mark	DF#	Locate and Mark Other	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	-	771	-	1,056	-	(285)	Below variance threshold.	N/A	N/A
20	DG	G Dist Cathodic Protection	DGA	Cathodic Protection - Monitoring	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	79,496	2,764	54,478	1,609	25,018	1,155	2018 recorded units reflect performance of work required to implement PG&E's gas distribution corrosion control monitoring program detailed in the 2017 GRC. Imputed units reflect the reduction in adopted funding spread uniformly across all Corrosion MATs; however, the scope of work for this MAT was not reduced as all reads are mandatory. The 2017 GRC included forecasts for monitoring casings with test leads as one of four work streams in MAT DG#. As this monitoring is conducted in conjunction with cathodic protection monitoring conducted in MAT DGA, casing monitoring with leads has been moved into MAT DGA.	N/A	N/A
21	DG	G Dist Cathodic Protection	DGB	Cathodic Protection - Troubleshoot	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	5,885	3,215	6,810	3,314	(925)	(99)	Below variance threshold.	N/A	N/A
22	DG	G Dist Cathodic Protection	DGC	Cathodic Protect - Rectifier Maintenance	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	4,045	503	2,704	317	1,307	187	2018 recorded units reflect performance of work required to implement PG&E's gas distribution corrosion control monitoring program detailed in the 2017 GRC and Subpart I of 192. Imputed units reflect the reduction in adopted funding spread uniformly across all Corrosion MATs; however, the scope of work for this MAT was not reduced as all reads are mandatory.	N/A	N/A

**STABLE 2-3
GAS DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
23	DG	G Dist Cathodic Protection	DGD ^(d)	Cathodic Protection – Enhanced Resurvey	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	3,200	2,594	654	2,749	2,546	(155)	<p>The 2017 GRC presented MAT DGD as unitized and forecast the unit of work, 813, by multiplying the % of the distribution system that is constructed of steel piping (20%) times the number of Cathodic Protection Areas (4,065). Imputed units reflect the reduction in adopted funding spread uniformly across all Corrosion MATs; however, the scope of work for MAT DGD was not reduced.</p> <p>The unitization of this work stream (as presented in the 2017 GRC) did not account for the fact that completion of all work in a CPAs typically spans multiple years. As the majority of costs associated with a CPA will lag completion of the unit by years, an annual comparison of costs vs. units is not indicative of work completed. PG&E has completed a manual review of all CPAs and identified all areas of steel piping that require field verification. The 2018 scope of work included completion of 3,198 miles of field verification across hundreds of CPAs; however, very few of these CPAs are considered to be complete.</p> <p>PG&E is changing MAT DGD to a non-unitized work stream given the complexity of the program does not allow for unitization. This is a five year program and PG&E forecasts the project will be completed in 2021.</p>	N/A	N/A
24	DG	G Dist Cathodic Protection	DGE	Electrically Connected Isolated Steel Services (EC-ISSP)	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	–	3,074	–	–	53,029	3,074	Variance explanation is not applicable. This is a new work stream that was not included in the 2017 GRC.	N/A	N/A
25	DG	G Dist Cathodic Protection	DGF	Unprotected Steel Main Evaluation	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	197	2,404	37	380	160	2,023	Program expenses and recorded units exceeded imputed values and units because the total mileage of unprotected pipe is higher than forecast in the 2017 GRC.	N/A	N/A

**TABLE 2-3
GAS DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
26	DG	G Dist Cathodic Protection	DGG	Install Casing Test Stations	N/A	Exhibit (PG&E-3), Chapter 7	-	-	-	-	-	-	No work was performed in this MAT in 2018. The 2017 GRC included forecasts for Casing Test Station Installations as one of four work streams in MAT DG#. MAT DGG has been assigned to this work stream; however, no imputed units or costs are available for this work stream.	N/A	N/A
27	DG	G Dist Cathodic Protection	DGH	Casing Short Mitigation < 100 feet	N/A	Exhibit (PG&E-3), Chapter 7	10	648	-	-	10	648	Variance explanation is not applicable. The 2017 GRC included forecasts for Casing Mitigation (Expense - < 100') as one of four work streams in MAT DG#. MAT DGH has been assigned to this work stream; however, no imputed units or costs are available for this work stream.	N/A	N/A
28	DG	G Dist Cathodic Protection	DGI	Casing Monitoring w/o Lead	N/A	Exhibit (PG&E-3), Chapter 7	-	-	-	-	-	-	No work was performed in this MAT in 2018. The 2017 GRC included forecasts for Casing w/o Leads Monitoring as one of four work streams in MAT DG#. MAT DGI has been assigned to this work stream; however, no imputed units or costs are available for this work stream.	N/A	N/A
29	DG	G Dist Cathodic Protection	DG#	Cathodic Protection Other	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	-	565	-	292	-	274	Below variance threshold. The 2017 GRC included four casing work streams in MAT DG#. This work has been moved to DGA (casing monitoring with leads), DGG (casing test station installation), DGH (casing mitigation <100'), and DGI (casing monitoring without leads).	N/A	N/A
30	EX	G Dist Meter Protection	EXA	MPP Inspections	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	2	2	275	43	(273)	(41)	Recorded units were below imputed values primarily due to these inspections being performed through Atmospheric Corrosion (AC) inspections (MAT FIQ) and the leak survey program (MAT DEA).	N/A	N/A
31	EX	G Dist Meter Protection	EXB	MPP Protections (Bollards)	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	337	358	1,474	873	(1,137)	(514)	Recorded units were below imputed values due to workforce resource constraints against higher priority work like compliance driven leak repairs. Units not completed in 2018 are in the 2019 work plan.	N/A	N/A
32	EX	G Dist Meter Protection	EXC	MPP Service Valves	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	2	8	2	1	-	8	Below variance threshold.	N/A	N/A

**TABLE 2-3
GAS DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
33	FG	G Dist Operate System	FGA	Gas Distribution Control Center Operations	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	-	7,659	-	10,960	-	(3,301)	Below variance threshold.	N/A	N/A
34	FG	G Dist Operate System	FGB	Manual Field Operations, Mains and Services	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	5,865	1,089	16,929	1,096	(11,064)	(7)	Recorded units were below imputed values due to a combination of reasons, including a reduced requirement to change paper charts because of increased use of electronic pressure recording devices currently captured under MAT FHO.	N/A	N/A
35	FG	G Dist Operate System	FGC	Manual Field Operations, Other	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	153	138	1,078	137	(925)	1	Recorded units were below imputed values due to the increased visibility at Supervisory Control and Data Acquisition (SCADA) sites thereby decreasing the need for manual regulator adjustments which control the amount of gas flowing through the regulator.	N/A	N/A
36	FG	G Dist Operate System	FG#	Operate Gas Distribution System	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	-	5	-	-	-	5	Below variance threshold.	N/A	N/A
37	FH	G Dist Preventive Maint	FHA	Preventative Maintenance, Gas Mains	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	502	1,361	416	724	86	637	Recorded units exceeded imputed values due to additional volume of corrosion related work previously identified as service replacement work (MAT 50B) being completed under corrective work.	N/A	N/A
38	FH	G Dist Preventive Maint	FHB	Preventative Maintenance Gas Regulator Station	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	30,024	4,090	3,621	2,569	26,403	1,521	Program expense and recorded units exceeded imputed values due to a different unit of measure than was forecast in the 2017 GRC and due to corrective maintenance costs captured on the preventative maintenance orders because the projects did not have orders assigned to them, or because of bundling. The unit of measure included in the 2017 GRC was a district regulator station. The 2018 recorded value included in this table is composed of individual components of a district regulator station.	N/A	N/A
39	FH	G Dist Preventive Maint	FHC	Preventative Maintenance, Gas Farm Tap	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	844	300	913	183	(69)	117	Below variance threshold.	N/A	N/A

**TABLE 2-3
GAS DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
40	FH	G Dist Preventive Maint	FHE	Preventative Maintenance, Gas Services	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	2,086	3,604	2,117	1,553	(31)	2,051	Program expenses exceeded imputed values due to (1) an increase in the volume of work completed by additional resources relating to abnormal operating conditions (AOC) tags identified through AC inspections and leak survey, and (2) work previously identified as service replacement completed under service maintenance.	N/A	N/A
41	FH	G Dist Preventive Maint	FHG	Preventative Maintenance, Gas Valves	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	5,998	1,056	5,798	911	200	145	Below variance threshold.	N/A	N/A
42	FH	G Dist Preventive Maint	FHI	Corrective Maintenance, Gas Service Valves	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	21,685	7,015	14,329	1,192	7,356	5,823	Program expenses exceeded imputed values due to a significant increase in the volume of work and the use of contractor resources. Recorded units exceed imputed units due to AOC tags identified through AC inspections, the leak survey program, and work previously identified as service replacement completed under maintenance. Contractors were needed because of increased volume of AOC locations identified via these programs required repair in 2018 and internal resources worked on higher priority work like compliance driven leak repairs.	N/A	N/A
43	FH	G Dist Preventive Maint	FHJ	Gas Non-Recurring Projects, Preventative Maintenance	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	–	2,499	–	519	–	1,980	Program expenses exceeded imputed values due to non-recurring work driven by safety and compliance. The scope of this work includes replacing aged and/or unsafe vault lids, paving work for aged projects and/or pursuant to requests from municipalities, and validating work completed on identified pipe per standards.	N/A	N/A
44	FH	G Dist Preventive Maint	FHK	Atmospheric Corrosion Inspections, Mains and Services	N/A	Exhibit (PG&E-3), Chapter 7	433	78	–	–	433	78	Variance explanation is not applicable. This is a new MAT code for atmospheric inspections of distribution piping that was not included in the 2017 GRC.	N/A	N/A

**TABLE 2-3
GAS DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
45	FH	G Dist Preventive Maint	FHL	Atmospheric Corrosion Main Repairs	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	73	1,708	3	1,909	70	(201)	The 2017 GRC included three atmospheric corrosion remediation work streams in MAT FHL: spans, services, and stations. Costs for atmospheric corrosion remediation of services have moved to MAT FHM, and atmospheric corrosion remediation of stations to MAT FHN. All imputed units and costs for this work stream remain in MAT FHL. Note that in the 2017 GRC, the units was based upon the number of three man paint crews that would be required to address all atmospheric corrosion remediation of spans, stations, and services. PG&E is changing the units for FHL, FHM, and FHN to reflect the actual number of spans, stations, or services remediated.	N/A	N/A
46	FH	G Dist Preventive Maint	FHM	Atmospheric Corrosion Service Repairs	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	563	486	–	–	563	486	Variance explanation is not applicable. This is a new MAT code that was not included in the 2017 GRC. As explained above, imputed units and costs for this work are included in MAT FHL.	N/A	N/A
47	FH	G Dist Preventive Maint	FHN	Atmospheric Corrosion Distribution Regulatory Station Repair	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	53	1,367	–	–	53	1,367	Variance explanation is not applicable. This is a new MAT code that was not included in the 2017 GRC. As explained above, imputed units and costs for this work are included in MAT FHL.	N/A	N/A
48	FH	G Dist Preventive Maint	FHO	Preventative Maintenance, SCADA	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	4,361	698	1,598	268	2,763	430	Recorded units exceeded imputed values due to a greater number of SCADA units to maintain which includes work previously captured in MAT FGB.	N/A	N/A
49	FH	G Dist Preventive Maint	FHP	Corrective Maintenance, SCADA	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	321	372	1,456	705	(1,135)	(333)	Recorded units were below imputed values due to less corrective maintenance for remote terminal units identified than forecast.	N/A	N/A
50	FH	G Dist Preventive Maint	FHQ	Overpressure Enhancements Program	N/A	Exhibit (PG&E-3), Chapter 5	–	2,514	–	–	–	2,514	Variance explanation is not applicable. This is a new MAT code that was not included in the 2017 GRC.	N/A	N/A

**TABLE 2-3
GAS DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
51	FH	G Dist Preventive Maint	FH#	Preventative Maintenance, Other	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 5 and Chapter 6	–	1,144	–	2,990	–	(1,846)	#MATs comprise orders that are aligned to MWCs without a MAT code assignment. Types of order costs can include, but are not limited to standard cost variance, and quality assurance (QA)/quality control (QC). Program expenses were below imputed values due to standard cost variance costs consolidating into MWC AB.	N/A	N/A
52	FI	G Dist Corrective Maint	FIB	Corrective Maintenance, Gas, Regulator Station	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	1,371	2,056	2,127	2,462	(756)	(406)	The unit of measure included in the 2017 GRC was a district regulator station. The 2018 recorded value in this table is composed of individual components of a district regulator station. The program also transitioned to a more systematic approach towards work.	N/A	N/A
53	FI	G Dist Corrective Maint	FIC	Corrective Maintenance, Gas, Farm Tap	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	26	214	192	159	(166)	55	Recorded units were below imputed values due to less corrective maintenance identified for farm tap repairs than forecast.	N/A	N/A
54	FI	G Dist Corrective Maint	FIF	Corrective Maintenance, Gas, Main Valve	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	63	367	359	905	(296)	(538)	Recorded units were below imputed adopted units due to less corrective maintenance identified for valve repairs than forecast.	N/A	N/A
55	FI	G Dist Corrective Maint	FIG ^(b)	Main Leak Repair	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	2,381	16,427	5,846	21,546	(3,465)	(5,118)	Program expenses and recorded units were below imputed values due to a lower leak find rate materializing than was forecast in the 2017 GRC.	N/A	N/A
56	FI	G Dist Corrective Maint	FIH	Service Leak Repair, Above Ground	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	3,800	1,580	36,469	4,957	(32,669)	(3,376)	Program expenses and recorded units were below imputed values due to a lower leak find rate materializing than was forecast in the 2017 GRC.	N/A	N/A
57	FI	G Dist Corrective Maint	FII	Corrective Maintenance, Cathodic Protection	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	1,669	3,644	2,925	3,663	(1,256)	(19)	Recorded units were lower than imputed values because FII is a find it fix it MAT that includes a variety of repair options based on site conditions.	N/A	N/A
58	FI	G Dist Corrective Maint	FIJ	Service Dig-In Repair	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	346	1,148	156	(34)	190	1,181	Program expenses and recorded units exceeded imputed values due to an increase in volume of third-party dig-ins as well as longer processing time of invoices and billing to third parties for damages.	N/A	N/A

**TABLE 2-3
GAS DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
59	FI	G Dist Corrective Maint	FIK	Main Dig-In Repair	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	1,660	1,687	911	(42)	749	1,729	Program expenses and recorded units exceeded imputed values due to an increase in volume of third-party dig-ins as well as longer processing time of invoices and billing to third parties for damages.	N/A	N/A
60	FI	G Dist Corrective Maint	FIM	Leak Management - Major Event	N/A	Exhibit (PG&E-3), Chapter 8	–	730	–	–	–	730	Below variance threshold. These include CEMA eligible costs.	N/A	N/A
61	FI	G Dist Corrective Maint	FIO	Encroachment Program	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	68	708	55	541	13	168	Recorded units exceeded imputed values due to a higher number of overbuilds (encroachments) identified that resulted in more remediation work than forecast.	N/A	N/A
62	FI	G Dist Corrective Maint	FIP	Service Leak Repair, Below Ground	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	4,691	15,177	12,254	18,718	(7,563)	(3,541)	Program expenses and recorded units were below imputed values due to a lower leak find rate materializing than was forecast in the 2017 GRC.	N/A	N/A
63	FI	G Dist Corrective Maint	FIQ ^(e)	Atmospheric Corrosion Meter Inspection	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	458,460	6,440	2,132,198	14,558	(1,673,738)	(8,119)	Program expenses and recorded units were below imputed values due to the change in leak survey schedule to 3-years aligning with AC inspection resulting in units inspected through routine leak survey without additional costs in MAT FIQ.	N/A	N/A
64	FI	G Dist Corrective Maint	FIR	Tee-Cap Replacement Program	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	1,178	1,654	1,060	1,297	118	358	Below variance threshold.	N/A	N/A
65	FI	G Dist Corrective Maint	FIS	Leak Survey Meter Repair	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	53,919	4,603	101,273	8,699	(47,354)	(4,096)	Program expenditures and units were below imputed values due to fewer units of work found than forecast.	N/A	N/A
66	FI	G Dist Corrective Maint	FI#	Leak Repair Support	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	–	2,226	–	2,131	–	95	Below variance threshold.	N/A	N/A
67	GF	Gas Trans & Dist Sys Mapping	GFO	Mapping Support	Exhibit (PG&E-3), Chapter 10 (MWC Level))	Exhibit (PG&E-3), Chapter 11	–	3,909	–	–	–	3,909	Program expenses exceeded imputed values because the work was forecast in MAT GF# but the work is now being performed in MAT GFO.	N/A	N/A
68	GF	Gas Trans & Dist Sys Mapping	GF#	Mapping Support	Exhibit (PG&E-3), Chapter 10 (MWC Level))	Exhibit (PG&E-3), Chapter 11	–	–	–	3,606	–	(3,606)	See variance explanation in MAT GFO above.	N/A	N/A

**TABLE 2-3
GAS DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
69	GG	Gas Distribution Planning & Operations Engineering	GGA	Gas System Planning	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	–	4,315	–	6,061	–	(1,746)	Below variance threshold.	N/A	N/A
70	GG	Gas Distribution Planning & Operations Engineering	GG#	Gas Distribution Portfolio Management and Engineering	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	–	2,014	–	1,087	–	927	Below variance threshold.	N/A	N/A
71	GM	Natural Gas Fueling Facilities Operations and Maintenance	GMA	Operate District Regulator Station	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5 (MWC Level)	–	–	–	3,301	–	(3,301)	In the 2017 GRC, the work was forecast at a MWC category level not a MAT code level for this program. There is an immaterial variance at the MWC level. Variance explanation is not applicable.	N/A	N/A
72	GM	Natural Gas Fueling Facilities Operations and Maintenance	GMC	Gas Distribution LNG/CNG Station O&M	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5 (MWC Level)	–	3,734	–	–	–	3,734	In the 2017 GRC, the work was forecast at a MWC category level not a MAT code level for this program. There is an immaterial variance at the MWC level. Variance explanation is not applicable.	N/A	N/A
73	GM	Natural Gas Fueling Facilities Operations and Maintenance	GM#	Natural Gas Fueling Facilities, Other	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5 (MWC Level)	–	5	–	–	–	5	Below variance threshold.	N/A	N/A
74	HY	Change/Maint Used Gas Meters	HYI	Meter Set Atmospheric Corrosion Remediation	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	85,335	4,156	40,346	1,695	44,989	2,460	Program expenses and recorded units exceeded imputed regulatory values due to (1) higher unit costs, driven by increased job time and drive time; and (2) the transition from a 4-year to a 3-year leak survey cycle which increased the units of work.	N/A	N/A
75	HY	Change/Maint Used Gas Meters	HY#	Meter Set Maintenance, Other	N/A	Exhibit (PG&E-3), Chapter 6	–	5	–	–	–	5	Below variance threshold.	N/A	N/A
76	JQ	G Dist Integrity Mgt (Non Bal)	JQA ^(f)	DIMP Leak Survey	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	14,650	183	48,609	926	(7,339)	(743)	Program recorded units were below imputed values due to work not materializing.	N/A	N/A
77	JQ	G Dist Integrity Mgt (Non Bal)	JQC	Damage Prevention	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 6	–	1,166	–	1,364	–	(197)	Below variance threshold.	N/A	N/A

**TABLE 2-3
GAS DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
78	JQ	G Dist Integrity Mgt (Non Bal)	JQD	DIMP Emergent Work	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	–	5,245	–	3,323	–	1,922	Program expenses exceeded imputed values as the amount of emergent work was higher than anticipated, more specifically, due to butt fusion sampling work identified through fusion failure monitoring.	N/A	N/A
79	JQ	G Dist Integrity Mgt (Non Bal)	JQE	Plastic Program	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	–	323	–	317	–	6	Below variance threshold.	N/A	N/A
80	JQ	G Dist Integrity Mgt (Non Bal)	JQK ^(g)	Cross Bore Sewer Project	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	46,050	28,579	40,708	19,474	5,342	9,105	Program expenses exceeded imputed values due to higher unit costs to perform the work because increased difficulty to perform inspections in San Francisco.	N/A	N/A
81	JQ	G Dist Integrity Mgt (Non Bal)	JQL	DIMP Program Management	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	–	3,983	–	2,362	–	1,621	Program expenses exceeded imputed values because the imputed dollars were below the actual budget required for the DIMP staff.	N/A	N/A
82	LX	Catastrophic Events	LXA	GD Restore & Rebuild Expense	N/A	N/A	–	36,661	–	–	–	36,661	Variance explanation is not applicable. This is a new MAT code that was not included in the 2017 GRC. The work recorded in this MAT code was for restoration work related to severe weather events. These include CEMA eligible costs.	N/A	N/A
83	OM	Operational Management	#	Operational Support	N/A	Exhibit (PG&E-3), Chapter 4	–	4,673	–	13,416	–	(8,743)	Expenses were below imputed values due to a lower headcount in the Operational Management Cost Centers, than forecast.	N/A	N/A

- (a) PG&E continues data integrity validation related to the implementation of the new SAP platform, Asset Maintenance Backbone & Station (AMBBS) and time recording practices. As such, the snapshot of recorded costs, recorded units, and variance explanations for MATs FGB, FGC, FHB, FHC, FHG, FHO, FHP, FHQ, FIB, FIC, and FIF provided are subject to change. PG&E will update these recorded costs, recorded units, and variance explanations should there be any material differences following the completion of the data validation project.
- (b) The incremental expense and capital work for 2018, as required by Best Practice 21 adopted in Leak Abatement OIR Decision (D.) 17-06-015, is recorded in MWC LW and MWC 3P. To the extent that these are incremental costs, they will be recovered through the balancing accounts established by that decision.
- (c) PG&E analyzed a statistical set of Locate and Mark tickets worked in 2018 which derived the recorded value shown in this table.
- (d) The 2018 recorded miles reflects field verification only - the units are not represented as completed miles.
- (e) In addition to the recorded amounts reported, approximately 20,000 units and associated costs around approximately \$600,000 were not captured in 2018. The units were not captured correctly due to a software issue and the costs were not captured on time due to late accruals.
- (f) The incremental expense work for 2018, as required by Best Practice 16 adopted in Leak Abatement OIR Decision (D.) 17-06-015, is recorded in MWC LW. To the extent that these are incremental costs, they will be recovered through the balancing accounts established by that decision.
- (g) The primary unit of measure is the number of inspections, however, MAT JQK actual and imputed units and expenses also include cross bore repairs and record review costs. The imputed count of inspections is 40,465 and count of repairs is 243. The recorded 2018 inspections is 46,050 and number of repairs is 45.

MWC Descriptions – Capital

MWC 05 – Tools and Equipment – includes the costs of miscellaneous tools and equipment. Regular expenditures are necessary to replace damaged, worn out, or obsolete tools and to ensure specialized tools are available to perform testing and other functions.

MWC 14 – Gas Pipeline Replacement Program (GPRP) – primarily encompasses three gas distribution asset replacement programs: (1) the GPRP; (2) Copper Service Replacement Program (CSR); and (3) Aldyl-A-Plastic Replacement Program. The GPRP targets cast iron and pre-1940 steel gas mains. PG&E uses age, materials, seismic factors, and gas leaks to identify and prioritize gas mains for replacement. In addition to gas main replacement, the program includes related service replacement and meter relocation work. CSR was added to MWC 14 in 2006 because copper services were determined to have a similar relative risk to GPRP pipe. Subsequently, plastic was added into MWC 14 in 2012 because of increase in the relative risk of vintage plastic material such as Aldyl-A.

MWC 27 – Gas Meter Protection Program (MPP) – includes efforts to ensure that gas meter locations that do not conform to current PG&E standards and/or federal pipeline safety regulations are addressed. The program focuses on two types of non-conforming meter locations: those with inadequate protection from potential damage by vehicles; and those with inaccessible service or shutoff valves. The work to correct these non-conforming facilities generally involves one of three work activities: installing barrier posts, installing a new valve or relocating the meter set.

MWC 29 – Gas Distribution Customer Connections – includes building new gas distribution systems to provide service to new customers and the costs of regulators purchased for emergency response, regulator change outs, and system upgrades.

MWC 31 – Natural Gas Vehicle (NGV) Station Infrastructure – includes keeping PG&E’s natural gas fueling infrastructure safe and in compliance for PG&E’s fleet and customers. This work includes: (1) Cathodic protection and underground corrosion protection; (2) Upgrading stations from 3,000 psi to 3,600 psi to better serve the vehicles being produced in the market today; (3) Increasing the reliability of stations; (4) Security monitoring as required at some public access stations; and (5) Remote monitoring of stations.

MWC 47 – Gas Distribution New Capacity – includes capacity additions to meet load growth by reinforcing the existing gas systems.

MWC 50 – Gas Distribution Reliability – includes installation or replacement of gas facilities to: improve system safety and reliability, replace aging facilities (which have reached the end of their useful life or have increasing failure rates), and maintain compliance with pipeline safety regulations. Facilities replaced include: mains, services, regulator stations, cathodic protection equipment, electronic chart recorders and remote cathodic protection monitoring equipment.

MWC 51 – Gas Work at the Request of Others – includes relocating gas distribution and service facilities at the request of a governmental agency or other third parties (e.g., customers and developers). This work could be due to road widening, street improvements, sewer improvements and other similar work.

MWC 52 – Gas Distribution Emergency Response – includes work and materials required to replace damaged or failed facilities including replacement of mains and services due to gas dig-ins and external forces such as landslides and earthquakes.

MWC 74 – Gas Metering Capital – includes regulator replacement labor to remove and install new regulators and meters and regulators for new business connections and labor to install.

The meter set is defined as the facilities between the shut-off valve (i.e., service valve and inlet valve) and service tee or meter outlet valve.

Maintenance includes: (1) Compliance – Scheduled Meter Change outs (SMC) < or = 1,000 CFH; (2) Compliance – Periodic Meter Change outs, every 10 years (PMC) > 1,000 CFH; (3) Corrective Maintenance work with replacement of meter performed on meter sets < or = 1,000 CFH and > 1,000 CFH; Meter outlet valve > or = 2” diameter; (4) Meter removal (retire) < or =1,000 CFH and > 1,000 CFH; (5) New Business < 400 CFH and 400 - 1,000 CFH; (6) Capital projects (i.e., ECAT Replacement); and (7) SmartMeter™ gas module replacements

MWC 78 – Manage Buildings – includes capital buildings projects (i.e., facility upgrades/improvements as well as new construction) for Gas Operations.

MWC 2F – Build Information Technology (IT) Applications and Infrastructure – includes the costs to design, develop and enhance applications, systems and infrastructure technology solutions.

MWC 2K – Gas Distribution Replace/Convert Customer HPRs – is a key safety and integrity program and includes the replacement of gas customer High Pressure Regulators (HPR) or the reconstruction of gas distribution systems to eliminate the need for HPRs.

MWC 3P – Gas Leak Abatement Program – captures leak survey and repair, and technology improvements to support Gas Leak Abatement best practices. Cost recovery is through the Leak Abatement OIR (D. 17-06-015) not the GRC.

MWC 4A – Gas Distribution Control Operations Assets – includes costs associated with the installation of Supervisory Control and Data Acquisition devices, electronic recorders, and similar instrumentation assets and related tools. MWC 4A captures costs associated with the development of software tools to support the collection, retention, and presentation of data related to the Control Center. Capital outlays support telecommunication radio system assets to monitor and control the gas distribution network.

MAT Code Descriptions for Safety and Reliability Work – Capital⁴

MAT 14A – Pipeline Replacement Program – Mains and Services – Replace main and services qualifying for replacement under the Gas Pipeline Replacement Program. Does not include: Deactivation of main with no capital main installation (less than 100 feet). Unit of measure is feet of main Installed.

MAT 14B – Copper Service Replacement – Replace copper services identified under the Copper Service Replacement Program. Unit of measure is number of services replaced.

MAT 14C – A-67 Copper Replacement – Replace copper services as a result of leaks and incremental costs for full service replacement. Does not include: Customer-requested copper service replacements. Inaccessible services found under MAT 14B. Unit of measure is Services replaced.

MAT 14D – Plastic Pipe Replacement Main/Service – Replace main and services qualifying for replacement under the Plastic Pipeline Replacement Program. Does not include: Deactivation of main with no capital main installation (less than 100 feet). Unit of measure if Feet of Main Installed.

MAT 2KA – Customer High Pressure Regulator Station (HPR) Main Conversion – Replace or install: greater or equal to 100 feet gas distribution main to eliminate customer High Pressure Regulators. Unit of measure is number of HPR mitigated.

MAT 2KB – Customer High Pressure Regulator Station (HPR) Conversion to Distribution Regulator Station – Replace or install: (1) farm tap to convert to a High Pressure Regulator Station Type district regulator (DR) (2) High Pressure Regulator Type DR to convert to a pilot operated district regulator station. Does not include: Replacement of pilot operated district regulator stations or High Pressure Type DR with regulation 1 inch and above. Unit of measure is number of HPR mitigated.

MAT 2KC – Customer High Pressure Regulator (HPR) Reg Station Replacement – Includes: Replacement of HPR in kind. Unit of measure is number of HPR mitigated.

⁴ MWC numbers that include # are not MAT codes. Costs included in # categories reflect orders assigned at a MWC level and do not include a MAT assignment. Therefore, variance explanations are not applicable. # dollar and unit information are provided here for reference.

MAT 27A – Meter Protection-Capital – Includes: (1) Meters that cannot be adequately protected by barrier posts and require relocation with re-running the service from the main; and (2) services with inaccessible service valves (emergency response) that require re-running the service from the main. Does not include: Minor relocations or service valve installations that do not require re-running the service from the main. Unit of measure is number of services corrected.

MAT 4AA – Supervisory Control and Data Acquisition (SCADA) Type 1: High Pressure Regulator Station; 1 Run; With Flow; With Control; Remote Terminal Unit – High Pressure Regulator Station Monitoring and Control-Single Run. Includes upstream, midstream, and downstream pressure, differential pressure, flow and shut-off control. Unit of measure is remote terminal units installed.

MAT 4AB – Supervisory Control and Data Acquisition (SCADA) Type 3: High Pressure Regulator Station; 1 Run; With Flow; No Control; Remote Terminal Unit – High Pressure Regulator Station Monitoring-Single Run: Includes Upstream, midstream, and downstream pressure, differential pressure and flow. Unit of measure is remote terminal units installed.

MAT 4AC – Supervisory Control and Data Acquisition (SCADA) Type 4: High Pressure Regulator Station; No Flow; No Control; Remote Terminal Unit – High Pressure Regulator Station Monitoring: Includes upstream and downstream pressure. Unit of measure is remote terminal units installed.

MAT 4AD – Supervisory Control and Data Acquisition (SCADA): Meter – Meter monitoring.

MAT 4AE – Supervisory Control and Data Acquisition (SCADA) Type 4: Valve; Remote Terminal Unit – Valve monitoring.

MAT 4AF – Supervisory Control and Data Acquisition (SCADA) Type 6: Regulator Station, Hydraulically Independent System (HIS) Pipeline or Valve; electronic recorder Pressure Monitoring – Includes regulator station, HIS pipeline or valve pressure. Unit of measure is number of electronic pressure recorders.

MAT 4AH – Supervisory Control and Data Acquisition (SCADA) Type 1N: High Pressure/Low Pressure Regulator Station; 1 Run; No Flow; With Control; Remote Terminal Unit – High and Low Pressure Regulator Station Monitoring and Control-Single Run: Includes upstream, midstream, and downstream pressure, differential pressure (high pressure only), vault water level (low pressure only) and shut-off control. Unit of measure is remote terminal units installed.

MAT 4AI – Supervisory Control and Data Acquisition (SCADA) Type 1: High Pressure Regulator Station; 2 Runs; With Flow; With Control; Remote Terminal Unit – High Pressure Regulator Station Monitoring and Control-Dual Run. Includes upstream, midstream, and downstream pressure, differential pressure, flow and shut-off control. Unit of measure is remote terminal units installed.

MAT 4AJ – Supervisory Control and Data Acquisition (SCADA) Type 1N: High Pressure/Low Pressure Regulator Station; 2 Runs; No Flow; With Control; Remote Terminal Unit – High and Low Pressure Regulator Station Monitoring and Control-Dual Run: Includes upstream, midstream, and downstream pressure, differential pressure (high pressure only), vault water level (Low pressure only) and shut-off control. Unit of measure is remote terminal units installed.

MAT 4AK – High and Low Pressure Regulator Station Monitoring and Control-Dual Run: Includes upstream, midstream, and downstream pressure, differential pressure (high pressure only), vault water level (low pressure only) and shut-off control – High and Low Pressure Regulator Station Monitoring-Single Run: Includes upstream, midstream, and downstream pressure, differential pressure (high pressure only) and vault water level (low pressure only). Unit of measure is remote terminal units installed.

MAT 4AL – Supervisory Control and Data Acquisition (SCADA) Type 3: High pressure Regulator Station; 2 Runs; With Flow; No Control; Remote Terminal Unit – High Pressure Regulator Station Monitoring-Dual Run: Includes upstream, midstream, and downstream pressure, differential pressure and flow. Unit of measure is remote terminal units installed.

MAT 4AM – Supervisory Control and Data Acquisition (SCADA) Type 3N: High pressure/Low pressure Station; 2 Runs; No Flow; No Control; Remote Terminal Unit – High and Low Regulator Station Monitoring-Dual Run: Includes upstream, midstream, and downstream pressure; differential pressure (high pressure only) and vault water level (low pressure only). Unit of measure is remote terminal units installed.

MAT 47B – Construction/Acquisition New Facility-Gas-Capital-Mains – Installation of gas main to provide additional capacity. Unit of measure is feet of main installed.

MAT 47C – Construct/Acquire New Facility-Gas-Capacity-Regulator Station – Installation of new district regulator station to provide additional capacity (including cost to install Supervisory Control and Data Acquisition (SCADA)). Unit of measure is total number of regulator stations addressed.

MAT 47D – Construct/Acquire New Facility-Gas-Capacity-Replace Regulator Station – Install or replace gas regulation equipment at an existing district regulator station to provide additional capacity. Unit of measure is number of regulator station components.

MAT 47E – Construct/Acquire New Facilities Gas-Capacity-Emergent – Install gas main to provide additional capacity for Emergent Projects. Does not include: Installing new facilities for new customers to fulfill a customer request. This MAT is non-unitized.

MAT 47F – Construct/Acquire New Facility Gas-Capacity-Other – Install or replace facility for capacity. This MAT is non-unitized.

MAT 50A – Improve Reliability/System Dependencies – Gas Main – Replace/install greater than or equal to 100 feet of gas distribution main due to deterioration or reduced reliability. Does not include: Deactivation of main; shallow mains and services, if the condition was caused by work or alteration by a customer/ third party. Unit of measure is feet of main installed.

MAT 50B – Improve Reliability-Gas Services. Includes: (1) Replace entire service due to deterioration or reduced reliability; and (2) re-establishing an existing electronic recorder to a service that is being replaced. Does not include: Capital service leak repairs; opportunistic Service Replacements; idle stub cut-offs; shallow services, if the condition was caused by work or alteration by a customer/third party; new installations of electronic recorders. Unit of measure is number of services replaced.

MAT 50C – Improve Reliability – Gas Regulation. Replacement of an entire district regulator station (existing pilot operated station and High Pressure Regulator Type stations with regulation 1 inch and above) due to deterioration or reduced reliability. Does not include: replacement of High Pressure Regulators. Unit of measure: number of Regulator Stations Addressed.

MAT 50D – Improve Reliability – Gas Cathodic Protection Systems. Includes: For ETS (Electrical Test Station) greater than or equal to 5 stations at a single location the following – Rectifier; Pipe Coating greater than or equal to 100 feet; Remote Monitoring Units (RMUs); Casing Remediation greater than 100 feet. Does not include: Impressed Current Anodes (Deep or Shallow bed) which is now part of new MAT 50P. Cathodic Protection systems for Electrical (ETS) less than 5 stations at a single location are charged to expense. Unit of measure is number of cathodic protection systems installed.

MAT 50E – Improve Reliability- Gas Valves – Includes: Replace / install gas distribution valves greater or equal to 2 inches (e.g. emergency shutdown, riser valves 2" or greater, and therm billing area valves). Does not include: station fire valve or block valve replacement (part of MAT 50L Regulator Station Components). Unit of measure is number of valves installed.

MAT 50F – Improve Reliability- Gas Other Equipment – Includes: Replace/install/deactivate other units of gas capital; permanent pressure recorders and new pits/vaults; all deactivation-only jobs for Cathodic Protection systems. Does not include: partial pit/vault rebuilds and/or lids only. This is a non-unitized MAT.

MAT 50G – Improve Reliability – Gas Service Replace Leaks. Replace/deactivate entire or stub services due to leaks not due to idle facilities or “dig-ins.” Unit of measure is number of services replaced.

MAT 50H – Improve Reliability – Cut-Off Idle Gas Service – Remove/deactivate entire or stub services due to idle facilities and not due to leaks, overbuilds, “dig-ins.” or demolitions. Does not include: Capital work for demolition. Unit of measure is cut off idle services.

MAT 50I – Improve Reliability – Deactivation Only for Mains, Regulators, and Valves. Deactivate gas main (and the associated services), regulator stations or valves. Does not include: new mains limited to less than 100 feet; those with greater than or equal to 100 feet; gas service deactivations with no main deactivation. Unit of measure is number of deactivations.

MAT 50J – Encroachment Program – Relocation/rearrangement of gas main (greater than 100 continuous feet) and/or complete gas service replacement to clear overbuild conflicts. Does not include: customer requested relocations to clear overbuild. Unit of measure is number of relocated/rearranged mains and completed gas services replaced.

MAT 50K – Emergent Leaking Main Replacement – Replace/install greater than or equal to 100 feet of gas distribution main due to leaks. Does not include: Deactivation of main only jobs. Unit of measure is feet of main installed.

MAT 50L – Improve Reliability – Gas Regulator Station Component. Replacement of regulator station component due to deterioration or reduced reliability. Includes valves (both upstream and downstream fire valves and block valves), filters, regulators, and other capital equipment within the station. Unit of measure is number of Regulator Station components replaced within a station.

MAT 50M – Improve Reliability – Gas Service Replace Leaks. Replace/deactivate entire or stub complex services due to leaks not due to idle facilities or “dig-ins.” Also includes large commercial meter sets, and any complex load calculations that require Gas Distribution Engineering and Design. Unit of measure is number of services replaced.

MAT 50N – GD Overpressure Protection (OPP) Enhancements. The OPP Enhancements Program includes: installation of filters and separators at strategic locations within the system to reduce the likelihood of debris and liquids from entering the system and impacting pilot-operated regulators and monitors; and installation of secondary OPP devices at stations with pilot-operated regulators and monitors. These additional devices may include slam shuts valves, monitor valves, relief valves, or alternate technologies to prevent overpressure events from occurring; and installation of pressure transmitters system wide for enhanced visibility and removal or installation of additional maximum allowed operating pressure (MAOP) separation valves. Unit of measure is total number of regulator stations addressed.

MAT 50P – Improve Reliability /System Dependability – Deep Well Anode. Installation of impressed current ground bed, deep or shallow. Unit of measure is number of cathodic protection new and replaced.

MAT 52B – Emergency Response to Dig-Ins, Services – Replace/deactivate entire or stub services due to “dig-in,” outside forces or third-party damage. Also, includes service cut-offs due to emergencies (i.e., due to fire). Unit of measure is number of services replaced.

MAT 52C – Emergency Response to Dig-Ins, Mains – Replace greater than or equal to 100 feet gas distribution main due to dig-in or damage by outside forces or third party. Deactivate greater than or equal to 1-foot gas distribution main due to dig-in or damage by outside forces. Unit of measure is footage of main replaced.

MAT 74A – Gas Regulator Replacement – Labor to replace failed or deteriorating residential and non-residential regulators while performing routine maintenance or other field activity. Includes targeted regulator replacement programs and filter replacement with regulator replacement for large meter work 2” and greater. Does not include (1) regulator replacement in conjunction with a meter set, charge to meter install/replace MATs; (2) the cost of the regulator; (3) HPR replacement; (4) distribution district regulation equipment; and (5) replacement of strainer. Unit of measure is number of regulators.

**TABLE 2-4
GAS DISTRIBUTION 2017 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
1	14	G Dist Pipeline Repl Program	14A	Gas Pipeline Replacement Program	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	230,314	157,648	221,141	141,063	9,173	16,585	Program expenditures exceeded imputed values due to performing more units at a higher unit cost. The higher unit cost was due to increases in restoration and paving work, and contracting costs.	N/A	N/A
2	14	G Dist Pipeline Repl Program	14B	Copper Service Replacement	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	212	7,738	16	191	196	7,547	Program expenditures and recorded units exceeded imputed regulatory values due to additional copper services locations added to the scope of the program after the 2017 GRC forecast was submitted. Also, the unit costs were higher due to more complex service dependencies on the work completed in 2018. Examples of complex service dependencies performed in 2018 were difficult geographic terrain, excessive house plumbing, and coordination with LNG.,	N/A	N/A
3	14	G Dist Pipeline Repl Program	14C	A-67 Copper Replacement	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	41	1,179	–	–	41	1,179	Variance explanation is not applicable. While this MAT code for replacing copper services was not included in the 2017 GRC, units were identified after the GRC was filed, and work was performed.	N/A	N/A
4	14	G Dist Pipeline Repl Program	14D	Plastic Pipe Replacement Program	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	480,032	273,254	456,702	220,132	23,330	53,121	Program expenditures exceeded imputed values due to performing more units at a higher unit cost. The higher unit cost was due to increases in restoration and paving work, contracting costs.	N/A	N/A
5	14	G Dist Pipeline Repl Program	14#	Pipeline Replacement Program Spoils	N/A	Exhibit (PG&E-3), Chapter 4	–	18	–	–	–	18	Below variance threshold.	N/A	N/A
6	27	Gas Meter Protection-Capital	27A	Relocation of Meter Sets	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	27	1,033	25	323	2	710	Below variance threshold.	N/A	N/A
7	2K	G Dist Repl/Convert Cust HPR	2KA	HPR Regulator Station Conversion, Main	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5	217	33,281	–	–	217	33,281	In the 2017 GRC, the HPR forecast was at the MWC 2K level and not at the MAT level. At a MWC level, program expenditures and recorded units exceeded imputed values due to (1) carryover work from 2017 being completed in 2018, and (2) increased costs driven by scope, location and construction constraints for jobs with greater difficulty of work.	N/A	N/A

**TABLE 2-4
GAS DISTRIBUTION 2017 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
8	2K	G Dist Repl/Convert Cust HPR	2KB	HPR Regulator Station Conversion, District	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5	13	1,297	-	-	13	1,297	Variance explanation is not applicable. In the 2017 GRC, the HPR forecast was at the MWC 2K level and not at the MAT level. For planning purposes, the work for HPRs is now tracked at the MAT level. See explanation for MAT 2KA above for additional detail on the variance at the MWC level.	N/A	N/A
9	2K	G Dist Repl/Convert Cust HPR	2KC	HPR Regulator Station Replacement	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5	178	20,609	-	-	178	20,609	Variance explanation is not applicable. In the 2017 GRC, the HPR forecast was at the MWC 2K level, and not at the MAT level. See explanation for MAT 2KA above for additional detail on the variance at the MWC level.	N/A	N/A
10	2K	G Dist Repl/Convert Cust HPR	2K#	Replace Convert Customer HPR	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5	-	-	341	37,493	(341)	(37,493)	Variance explanation is not applicable. In the 2017 GRC, the HPR forecast was at the MWC 2K level and not at the MAT level. See explanation for MAT 2KA above for additional detail on the variance at the MWC level.	N/A	N/A
11	3Q	Catastrophic Events	3QA	GD Restore & Rebuild Capital	N/A	N/A	76	21,776	-	-	76	21,776	This MAT code was not included in the 2017 GRC. The work recorded in this MAT code was for restoration work related to severe weather events. These include CEMA eligible costs.	N/A	N/A
12	31	NGV - Station Infrastructure	31A	LNG/CNG Station, Equipment Replacement	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5	-	4,261	-	-	-	4,261	Variance explanation is not applicable. In the 2017 GRC, the work was forecast the MWC 31 level, and not at the MAT level for this program. The variance is immaterial at the MWC level.	N/A	N/A
13	31	NGV - Station Infrastructure	31#	LNG/CNG Other	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5	-	-	-	3,706	-	(3,706)	Variance explanation is not applicable. In the 2017 GRC, the work was forecast was at the MWC 31 level, and not at the MAT level for this program. The variance is immaterial at the MWC level.	N/A	N/A
14	47	G Dist Capacity	47B	Gas Capacity, Mains	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	41,753	20,466	62,822	28,941	(21,069)	(8,475)	Program expenditures and recorded units were below imputed values due to (1) Gas System Planning process changes that facilitated improved load predictions, and (2) delays in customers' development schedules. Therefore, fewer capacity projects were needed.	N/A	N/A

**TABLE 2-4
GAS DISTRIBUTION 2017 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
15	47	G Dist Capacity	47C	Gas Capacity, Regulator Station	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	4	4,641	10	7,996	(6)	(3,355)	Program expenditures and recorded units were below imputed values due to regulator stations being eliminated, existing supply determined to be adequate, or modifications of existing regulator stations to accommodate projected loads.	N/A	N/A
16	47	G Dist Capacity	47D	Gas Capacity, Replace Regulator Station Component	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	22	67	18	2,014	4	(1,948)	Below variance threshold. Upon further review, it was discovered that the recorded units were 18, not 22. PG&E is in the process of correcting this in our system of record.	N/A	N/A
17	47	G Dist Capacity	47E	Gas Capacity Emergent Work	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	–	478	–	1,871	–	(1,393)	Below variance threshold.	N/A	N/A
18	47	G Dist Capacity	47F	Gas Capacity, Other Enhancements	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	–	442	–	401	–	41	Below variance threshold.	N/A	N/A
19	4A	G Dist Ctrl Operations Assets	4AA	SCADA RTU HPR Station, Type 1	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	–	(829)	20	3,856	(20)	(4,686)	Program expenditures and units were below imputed values due to reprioritization related to anticipated need for budget in higher risk areas.	N/A	N/A
20	4A	G Dist Ctrl Operations Assets	4AB	SCADA RTU HPR Station Type 3	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	33	6,778	135	23,404	(102)	(16,627)	Program expenditures and units were below imputed values, due to reprioritization related to anticipated need for budget in higher risk areas.	N/A	N/A
21	4A	G Dist Ctrl Operations Assets	4AC	SCADA RTU HPR Station, Type 4	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	16	2,857	69	4,181	(53)	(1,324)	Program expenditures and units were below imputed values, due to reprioritization related to anticipated need for budget in higher risk areas.	N/A	N/A
22	4A	G Dist Ctrl Operations Assets	4AF	Install ERX Pressure Monitoring Device	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	33	(144)	184	2,522	(151)	(2,666)	Program expenditures and units were below imputed values, due to reprioritization related to anticipated need for budget in higher risk areas.	N/A	N/A
23	4A	G Dist Ctrl Operations Assets	4AH	SCADA HPR/LPR Station Type 1N	N/A	Exhibit (PG&E-3), Chapter 9	1	190	–	–	1	190	This MAT code was broken out after the 2017 GRC was filed. The work recorded in this MAT code was forecast as part of 4AA. See variance explanation in MAT code 4AA.	N/A	N/A
24	4A	G Dist Ctrl Operations Assets	4AK	SCADA HPR/LPR Station	N/A	Exhibit (PG&E-3), Chapter 9	18	3,881	–	–	18	3,881	This MAT code was broken out after the 2017 GRC was filed. The work recorded in this MAT code was forecast as part of 4AB. See variance explanation in MAT code 4AB.	N/A	N/A

**TABLE 2-4
GAS DISTRIBUTION 2017 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
25	4A	G Dist Ctrl Operations Assets	4AL	SCADA RTU HPR Station Type 3, Dual Flow	N/A	Exhibit (PG&E-3), Chapter 9	38	8,087	–	–	38	8,087	This MAT code was broken out after the 2017 GRC was filed. The work recorded in this MAT code was forecast as part of 4AB. See variance explanation in MAT code 4AB.	N/A	N/A
26	4A	G Dist Ctrl Operations Assets	4AM	Install RTU Pressure Monitoring Device	N/A	Exhibit (PG&E-3), Chapter 9	11	3,520	–	–	11	3,520	This MAT code was broken out after the 2017 GRC was filed. The work recorded in this MAT code was forecast as part of 4AB. See variance explanation in MAT code 4AB.	N/A	N/A
27	4A	G Dist Ctrl Operations Assets	4A#	SCADA Support	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	–	52	–	2,779	–	(2,726)	Below variance threshold.	N/A	N/A
28	50	G Dist Reliability General	50A	Reliability Main Replacement	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	160,821	76,308	72,111	42,781	88,710	33,527	Program expenditures and recorded units exceeded imputed due to performing more replacement work related to wildfires. These include CEMA eligible costs.	N/A	N/A
29	50	G Dist Reliability General	50B	Reliability Service Replacement	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	707	11,644	835	9,206	(128)	2,438	Below variance threshold. These include CEMA eligible costs.	N/A	N/A
30	50	G Dist Reliability General	50C	Gas Regulator Station Rebuilds	Exhibit (PG&E-3), Chapter 5	Exhibit (PG&E-3), Chapter 5	29	46,459	27	22,126	2	24,333	Program expenditures exceeded imputed values due to higher unit costs driven by factors such as design changes, station location, construction constraints and local cities requirements.	N/A	N/A
31	50	G Dist Reliability General	50D	Cathodic Protection - Remote Monitoring Units	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	1,343	8,346	726	18,994	617	(10,648)	The 2017 GRC included capital casing remediation, new CP groundbeds, replacement CP groundbeds, rectifier replacements, and RMU installations in MAT 50D. MAT 50P was created for new / replacement groundbeds and actual units / costs for 2018 new / replacement groundbeds are presented below under MAT 50P. The imputed costs and units remain in MAT 50D. The recorded program expenditures and units for 2018 presented in MAT 50D include capital casing remediation, rectifier replacements, and RMU installations.	N/A	N/A

**TABLE 2-4
GAS DISTRIBUTION 2017 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
32	50	G Dist Reliability General	50E	Reliability Gas Valve Replacement	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	412	21,022	312	14,224	100	6,799	Program expenditures and recorded units exceeded imputed values due to an increase in emergency shutdown zone valve installations to make up for the prior year along with an increase in valve replacements.	N/A	N/A
33	50	G Dist Reliability General	50F	Reliability Gas Other Equipment Replacement	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	-	562	-	987	-	(425)	Program expenditures are below variance threshold. Unit variance is not applicable.	N/A	N/A
34	50	G Dist Reliability General	50G ^(a)	Leak Management - Simple Service Replacement	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	641	7,463	9,621	90,946	(8,980)	(83,483)	Program expenditures and recorded units were below imputed values due to (1) a lower find rate materializing, (2) re-evaluation and implementation of a new strategy for service repair leading to a lower number of below ground leak repairs recorded, and (3) the transition of work to regional crews.	N/A	N/A
35	50	G Dist Reliability General	50H	Reliability, Cut-Off Idle Gas Service	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	213	1,888	819	5,755	(606)	(3,867)	Recorded units were below imputed values due to a lower volume of stub services being identified for deactivation.	N/A	N/A
36	50	G Dist Reliability General	50I	Reliability, Deactivation Only, Main / Regulator / Valves	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	156	7,222	48	5,196	108	2,026	Recorded units exceeded imputed values because in the 2017 GRC forecast was a combination of unitized and non-unitized work. The 2017 GRC imputed units reflect units of MAOP separation valves. The 2018 recorded units is a total number of deactivation jobs.	N/A	N/A
37	50	G Dist Reliability General	50J	Encroachment Program	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	768	14,193	448	9,440	320	4,753	Program expenditures and recorded units exceeded imputed values due to more encroachments (overbuilds) and mobile home park services identified.	N/A	N/A
38	50	G Dist Reliability General	50K	Emergent Leaking Main Replacement	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	2,969	2,609	15,458	9,488	(12,489)	(6,879)	Recorded units were below imputed values due to less actual emergent main replacements materializing than what was forecast.	N/A	N/A

**TABLE 2-4
GAS DISTRIBUTION 2017 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
39	50	G Dist Reliability General	50L	Gas Regulator Stations Component Rebuilds	Exhibit (PG&E-3), Chapter 5	Exhibit (PG&E-3), Chapter 5	136	7,986	118	7,103	18	883	Below variance threshold.	N/A	N/A
40	50	G Dist Reliability General	50M	Leak Management - Complex Service Replacement	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	57	621	1,082	7,057	(1,025)	(6,436)	Program expenditures and recorded units were below imputed values due to (1) a lower find rate materializing, (2) re-evaluation and implementation of a new strategy for service repair leading to a lower number of below ground leak repairs recorded, and (3) the transition of work to regional crews.	N/A	N/A
41	50	G Dist Reliability General	50N	Over-Pressure Enhancements Program	N/A	Exhibit (PG&E-3), Chapter 5	–	2,122	–	–	v	2,122	Variance explanation is not applicable. This is a new MAT code that was not included in the 2017 GRC.	N/A	N/A
42	50	G Dist Reliability General	50P	Cathodic Protection System - New/Replace	N/A	Exhibit (PG&E-3), Chapter 7	51	6,433	–	–	51	6,433	Variance explanation is not applicable. As explained above, MAT 50D was split and new / replacement groundbeds were moved to MAT 50P. The imputed costs / units remain in MAT 50D.	N/A	N/A
43	50	G Dist Reliability General	50#	Gas Distribution Reliability Spoils	N/A	Exhibit (PG&E-3), Chapter 4	–	5	–	–	–	5	Below variance threshold.	N/A	N/A
44	52	G Dist Leak Repl/Emergency	52B	Emergency Response, Gas, Dig-Ins, Services	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	170	1,621	–	700	170	922	Recorded units exceeded imputed values due to more resources needed than planned in response to severe weather events.	N/A	N/A
45	52	G Dist Leak Repl/Emergency	52C	Emergency Response, Gas, Dig-Ins, Mains	N/A	Exhibit (PG&E-3), Chapter 8	768	123	–	–	768	123	Recorded units exceeded imputed values due to more resources needed than planned in response to severe weather events.	N/A	N/A
46	74	Install New Gas Meters	74A	Gas Regulator Replacement	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	6,617	1,780	6,043	2,745	574	(965)	Below variance threshold.	N/A	N/A

(a) The incremental expense and capital work for 2018, as required by Best Practice 21 adopted in Leak Abatement OIR Decision (D.) 17-06-015, is recorded in MWC LW and MWC 3P. To the extent that these are incremental costs, they will be recovered through the balancing accounts established by that decision.

SECTION 3
Electric Distribution
Imputed Adopted vs. Recorded and Electric Metrics

TABLE 3-1
ELECTRIC DISTRIBUTION 2018 EXPENSE COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2018 Imputed Regulatory Values	2018 Recorded	2018 Difference Higher/(Lower)	2019 Budget
1	Support and Emergency Preparedness and Response	AB	\$9,735	\$36,406	\$26,670	\$6,094
2	Read & Investigate Meters	AR	–	11,190	11,190	10,380
3	Electric Distribution Operation Activities	BA	27,424	22,421	(5,003)	18,444
4	Perform Reimbursable Work for Others	BC	–	1	1	–
5	Patrols and Inspections	BF	36,756	26,949	(9,807)	127,147
6	Electric Distribution Routine Emergency	BH	54,526	59,196	4,670	59,668
7	Maintenance of Other Equipment	BK	1,982	1,414	(567)	1,607
8	Customer Field Service Work	DD	16,858	20,673	3,815	20,370
9	Develop & Provide Training	DN	7,686	–	(7,686)	–
10	New Customer Connection Service Inquiry Activities	EV	8,852	11,975	3,124	11,638
11	Work Requested by Others (WRO)	EW	13,854	8,243	(5,611)	8,357
12	Change/Maintain Used Electric Meter	EY	–	5,975	5,975	7,536
13	Manage Various Customer Care Processes	EZ	–	–	–	(245)
14	Electric Distribution Engineering and Planning	FZ	14,678	12,107	(2,571)	15,759
15	Poles – Intrusive Inspection/Test and Treat	GA	14,032	10,700	(3,332)	13,172
16	Operate and Maintain Distribution Substation Assets	GC	26,810	26,958	148	25,709
17	Electric Distribution Mapping	GE	5,437	4,903	(534)	3,686
18	Electric Distribution Operations Technology	HG	–	4,404	4,404	10,467
19	Vegetation Management Balancing Account	HN	213,371	260,460	47,089	223,170
20	Distribution Automation/SCADA, Protection Support	HX	1,447	1,466	19	1,897
21	Perform Gas Meter Maintenance	HY	–	777	777	825
22	Electric Distribution Major Emergency	IF	54,412	330,067	275,655	229,715
23	Fire Hazard Prevention Memorandum Account (FHPMA), Fire Hazard Prevention (Tree Mortality) (CEMA) and Rule 20A Balancing Account Expense	IG	–	399,529	399,529	478,335
24	Streetlight Support	IS	–	853	853	1,057
25	Maintain IT Applications and Infrastructure	JV	6,544	7,779	1,235	8,649
26	Preventive Maintenance and Equipment Repair, Overhead	KA	49,175	33,130	(16,045)	95,704
27	Preventive Maintenance and Equipment Repair, Underground	KB	16,602	17,078	475	12,989
28	Preventive Maintenance and Equipment Repair, Network	KC	4,364	4,007	(358)	4,032
29	Operational Management	OM	19,869	4,023	(15,846)	6,191
30	Operational Support	OS	25,853	20,345	(5,508)	7,426
31	Total		\$630,267	\$1,343,029	\$712,761	\$1,409,779

B3-1

TABLE 3-2
ELECTRIC DISTRIBUTION 2018 CAPITAL COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2018 Imputed Regulatory Values	2018 Recorded	2018 Difference Higher/(Lower)	2019 Budget
1	Tools & Equipment	5	\$(16,832)	\$7,209	\$24,041	\$8,162
2	Electric Distribution Line and Equipment Capacity	6	82,989	67,666	(15,323)	85,266
3	Pole Replacement	7	68,557	227,844	159,287	387,391
4	Overhead Asset Replacement	8	41,888	39,550	(2,338)	241,786
5	Electric Distribution Automation and Protection	9	44,751	72,731	27,980	73,563
6	Electric Work at the Request of Others (WRO)	10	70,975	121,015	50,040	119,928
7	Electric Distribution Customer Connections	16	371,321	434,486	63,165	415,270
8	Electric Distribution Routine Emergency	17	136,457	187,744	51,287	198,999
9	Miscellaneous Capital and Emergency Preparedness & Response	21	7,434	9,314	1,880	(9,901)
10	Implement Real Estate Strategy	23	5,238	-	(5,238)	-
11	Install New Electric Meters	25	-	24,656	24,656	23,929
12	Electric Distribution Work Requested by Others – Rule 20A	30	53,804	32,610	(21,194)	45,000
13	Electric Distribution Substation Capacity	46	62,942	12,376	(50,566)	27,716
14	Electric Distribution Replace Substation Equipment	48	75,145	106,911	31,766	92,419
15	Electric Distribution Circuit/Zone Reliability	49	74,713	25,782	(48,932)	42,619
16	Electric Distribution Substation Transformer Replacements	54	39,654	31,086	(8,568)	60,040
17	Electric Distribution Underground Asset Replacement	56	100,094	83,007	(17,087)	94,302
18	Electric Distribution Substation Safety and Security	58	2,151	2,290	139	9,918
19	Electric Distribution Substation Emergency Replacement	59	42,283	62,881	20,598	57,184
20	Electric Operations Control Center Facility and Operations Technology	63	1,019	6,841	5,823	35,476
21	Install New Gas Meters	74	-	8,079	8,079	7,390
22	Electric Distribution Major Emergency	95	52,462	309,428	256,966	138,622
23	Electric Distribution Preventive Maintenance, Overhead	2A	109,649	224,548	114,899	415,064
24	Electric Distribution Preventive Maintenance, Underground	2B	40,640	70,325	29,685	48,310
25	Electric Distribution Preventive Maintenance, Network	2C	18,700	20,847	2,147	18,632
26	Build IT Applications and Infrastructure	2F	46,565	33,251	(13,314)	27,697
27	Total		\$1,532,599	\$2,222,477	\$689,878	\$2,664,782

B3-2

MWC Descriptions – Expense

MWC AB – Support and Emergency Preparedness and Response – Includes general support of the electric distribution system, including performance improvement initiatives, interdepartmental meter costs, consulting fees, as well as a number of smaller projects such as the Electric Magnetic Fields program. In addition, MWC AB captures standard cost variance of multiple electric distribution workgroups in Electric Operations, a forecast offset for productivity improvements, and costs for fleet services. This major work category also includes costs for PG&E’s Emergency Preparedness and Response (EP&R) organization and Community Wildfire Safety Program (CWSP) Initiatives.

MWC BA – Electric Distribution Operation Activities – includes distribution control center and field operations, including work performed by Distribution Operators, and engineers. This work includes operating switches to transfer load between circuits, isolating customers or de-energizing sections of line during planned construction or maintenance, and reconfiguring circuits to mitigate unplanned situations such as dig-ins, car pole accidents and storms. Beginning in 2017, costs for the Dispatch and Scheduling personnel to assign work to troublemen in the field are captured in MWC DD.

MWC BC – Perform Reimbursable Work for Others – Includes costs and the reimbursable expenses incurred to provide mutual assistance support to other utilities.

MWC BF – Patrols and Inspections – includes patrols and inspections of overhead (OH) and underground (UG) electric distribution facilities per General Order (GO) 165; patrols and inspection of OH facilities in wildfire areas; infrared inspections; testing and inspection of OH and UG line equipment; special patrols and inspections; and other work associated with electric distribution system maintenance.

MWC BH – Electric Distribution Routine Emergency – Includes response to OH or UG outages that occur during normal conditions including routine emergency response work as well as work issued using PG&E’s Field Automation System (FAS) for either emergency response or system reliability.

MWC BK – Maintenance of Other Equipment – Includes repair of specialized equipment, such as transformers, voltage regulators, circuit reclosers, capacitor banks and line switches, as well as equipment repair activities at the Emeryville repair facility.

MWC DD – Customer Field Service Work – Includes Electric Distribution’s portion of customer-generated field service activities, specifically start/stop service requests and other customer-generated electric field service requests. Beginning in 2017, this work also includes work by distribution operation dispatchers and schedulers dispatching work to Troublemens in the field. Beginning in 2018, includes activities for electric turn-ons and shut-offs initiated by customers, which are mainly performed by electric meter technicians and meter maintenance person resources at commercial and agricultural customer premises.

MWC DN – Develop and Provide Training – includes revising existing and creating new training materials and course curriculums for PG&E’s workforce. This work has moved to the Human Resources organization.

MWC EV – New Customer Connection Service Inquiry Activities – Includes processing customer requests related to new business or increased connection capacity (added load) on existing services.

MWC EW – Work Requested by Others (WRO) – encompasses work required by tariff, third-party requests and franchise compliance, including:

- Relocations: Non-plant related relocations of electric facilities; Land Department right-of-way record research requested by third parties that are not project specific; and local division office WRO service inquiries not requiring Land Department involvement. (WRO related to gas service has moved to MWC LK in Gas Operations.)
- Generation Interconnection Services (GIS): Managing the electric interconnection process for CPUC and Federal Energy Regulatory Commission jurisdictional customer generation projects connected at the distribution service level from receipt of the interconnection inquiry through the in-service date of the new generation facility and continuing through billing, settlements and refunds.
- Pre-Parallel Inspections: On-site inspections of distribution voltage interconnections that are funded via Electric Tariff Rule 21. Pre-parallel inspections are performed to ensure safe and reliable operation of customer-owned generators paralleled with PG&E’s grid.

MWC FZ – Electric Distribution Engineering and Planning – Supports many programs that require engineering and planning services, including the Electric Distribution Capacity, Electric Distribution Reliability, and Underground Asset Management programs. This program also supports: investigating secondary voltage complaints that troublemen cannot resolve on the first visit; investigation of down power lines; electric distribution Diagnostic Center; and operational field work that electric planning personnel initiate, such as phase balancing and replacing fuses that are projected to be overloaded.

MWC GA – Poles – Intrusive Inspection/Test and Treat – Includes activities to assess the condition of the lower section of wood poles and preserve the poles’ wood strength through the application of chemicals, and restoration of poles as

warranted. This program also includes coordination of billing joint owners and tenants for their share of costs for work performed on jointly owned or leased facilities.

MWC GC – Operate and Maintain Distribution Substation Assets – Includes operations, preventive maintenance and corrective maintenance of distribution substation assets.

- Preventive maintenance includes: Substation facility and equipment inspections; diagnostic testing; overhauls; washing insulators; maintenance of mobile and Capitalized Emergency Material (CEM) equipment; maintaining station logs.
- Corrective maintenance includes: Restoration and repair of failed equipment; switching and restoring service to customers; mobile substation and mobile transformer installation costs; and relocation of emergency and surplus equipment.
- Operations in a substation include: Activities associated with providing safe working conditions for employees; calibrating and adjusting substation equipment; building maintenance, miscellaneous activities such as yard repairs, janitorial work and landscaping, vegetation management, rental contracts, and system-funded expense projects, such as transformer relocations.

MWC GE – Electric Distribution Mapping – Includes providing timely and accurate data and spatial information for PG&E's electric system that supports construction, engineering, estimating, operational, restoration, inspection, and maintenance activities.

MWC HN – Vegetation Management Balancing Account – Includes costs necessary to support and execute patrolling, inspecting and maintaining clearances of vegetation along PG&E's OH high voltage distribution lines. The program covers routine tree trimming and removal, vegetation control, contractor quality control, environmental compliance and public education, and fire risk reduction work.

MWC HG – Electric Distribution Operations Technology – Covers technical support for Electric Distribution Operations, including but not limited to operational and development support for various control center applications and tools.

MWC HX –Distribution Automation/SCADA, Protection Support – Includes engineering and technical support for automation and protection equipment. Also includes the service and software costs associated with distribution SCADA software. Engineering support consists of three components: (1) Automation Engineering support; (2) Protection Engineering support; and (3) SCADA Specialist support.

MWC IF – Electric Distribution Major Emergency – Includes response work to OH or UG outages when a division Operations Emergency Center (OEC) has been activated and consistent with PG&E’s Major Emergency Balancing Account (MEBA) Criteria Guidance Document. Beginning in 2014, these costs are included in the two-way MEBA authorized by Decision 14-08-032.

MWC IS – Streetlight Support – Includes work in support of streetlight inventory and LS-2 Streetlight Audit Services, and the Light Emitting Diode (LED) and other streetlight programs.

MWC JV – Maintain IT Applications and Infrastructure – Includes costs for ongoing maintenance, operations and repair for PG&E’s IT applications, systems and infrastructure.

MWC KA – Preventive Maintenance and Equipment Repair, Overhead – Includes repair of OH facilities; repair of OH Critical Operating Equipment (COE); repair of streetlights and group streetlight replacements; refurbishment and overhaul of specific types of OH distribution line equipment; repair of OH facilities to address migratory bird requirements; investigation and response to radio television interference (RTVI) inquiries; washing insulators; investigation of idle facilities; grounding surge arresters; wood pole bridge bonding; and other OH maintenance work.

MWC KB – Preventive Maintenance and Equipment Repair, Underground – Includes repair of UG facilities; repair of UG COE; grounding WYE transformers; and other UG line maintenance work.

MWC KC – Preventive Maintenance and Equipment Repair, Network – Includes repair of network facilities; repair of network equipment, repair of network SCADA equipment, testing and overhaul of network protectors, transformer oil sampling; and other miscellaneous network maintenance work.

MWC OM – Operational Management – Includes labor- and employee-related costs to provide supervision and management support. MWC OM also includes costs incurred by the administrative staff working for the Supervisors/Managers.

MWC OS – Operational Support – Includes labor- and employee-related costs that provide services and support that are unrelated to supervision and management.

New MWC Descriptions – Expense

MWC AR – Read & Investigate Meters – Includes activities for dedicated meter readers, other field resources performing manual meter reading activities, and the systems, administration and clerical support necessary to effectively perform these activities.

MWC EY – Change/Maintain Used Electric Meter – Includes activities such as: electric meter preventive maintenance, electric meter corrective maintenance, meter programming, meter network maintenance, electric meter accuracy testing, and the associated staff support necessary to effectively perform these activities.

MWC EZ – Manage Various Customer Care Processes – Includes activities primarily associated with SmartMeter Opt-Out Program oversight and supplemental utility meter engineering support.

MWC HY – Perform Gas Meter Maintenance – Covers gas meter maintenance activities that do not result in new meter exchanges, including meter tests, minimal regulator maintenance, meter/module communication trouble-shooting, and meter/module repairs.

MWC IG – Fire Hazard Prevention Memorandum Account (FHPMA), Fire Hazard Prevention (Tree Mortality) (CEMA) and Rule 20A Balancing Account Expense:

- FHPMA – Includes costs incurred related to fire hazard prevention in compliance with Commission D.09-08-029. This account will be used to track costs for the initial increased clearing activities in Tier 2 and Tier 3 High Fire Threat District (HFTD) areas in 2018 and 2019 required per OIR Rule 35. Beginning in 2020, however, ongoing maintenance of these clearances will become a part of the routine tree work compliance program funded through the General Rate Case (GRC). Enhanced VM work in Tier 2 and Tier 3 HFTD areas will also be tracked in the FHPMA in 2018 and 2019. Beginning in 2020, PG&E proposes that these costs be funded through the GRC. These costs may include the following expenses:
 - Expenses associated with increasing clearance of vegetation (driven by revisions to GO 95);
 - Expenses incurred in design, construction, and maintenance of facilities to mitigate fire hazard in high speed wind areas; and
 - Any other expenses incurred in implementing this order.
- Fire Hazard Prevention (Tree Mortality) (CEMA) – Includes costs to mitigate fire risk specifically due to severe drought conditions beginning in 2014. PG&E implemented a program that targeted work in several areas, including additional vegetation inspection and mitigation work, dead and dying tree identification and mitigation, and emergency response. PG&E seeks cost recovery for these amounts through CEMA applications.
- Rule 20A Balancing Account Expense – includes costs associated with the Rule 20A Audit ordered by D.18-03-022, and expense amounts for cancelled projects.

MAT Code Descriptions for Safety and Reliability Work – Expense

MAT BF3 – Underground (UG) BART Cable Testing/Inspections – Annual inspections/tests of 34.5 kV Bay Area Rapid Transit (BART) Cable for compliance with Utility Standard TD-2302S.

MAT BF4 – UG Auto Transfer Switch Testing/Inspections – Annual inspection/testing of individual electronic-component style and microprocessor style auto-transfer switches (ATS) for compliance with Utility Standard TD-2302S.

MAT BFA – Poles Patrolled – Visual patrol of overhead distribution facilities to identify obvious structural problems or hazards for compliance with GO 165 and the Electric Distribution Preventive Maintenance (EDPM) Manual. Patrolled facilities include primary, secondary, and service, and other associated electric distribution facilities outside the substation fence to the end of the line. Towers supporting only distribution facilities are included in the overhead patrol. Patrols can be performed from a vehicle, on foot, or by helicopter. Units measured: Number of poles patrolled.

MAT BFB – Poles Inspected – Detailed inspection of overhead distribution facilities to examine and record any compelling, abnormal conditions that will adversely impact safety or reliability for compliance with GO 165 and the EDPM Manual. Inspected facilities include PG&E solely and jointly owned poles, including all equipment and facilities on the pole; primary and secondary risers and services; primary and secondary conductor; transmission poles with distribution under build; distribution towers and lattices; streetlights on PG&E solely owned or joint poles; and primary metering. Units measured: Number of poles inspected.

MAT BFC – OH Infrared Inspections – Infrared inspection of overhead distribution facilities to identify pending failure of equipment. Work includes contractor-performed reliability work and internal-performed ad hoc requests.

MAT BFD – Enclosures Patrolled – Visual patrol of underground distribution facilities to identify obvious structural problems or hazards for compliance with GO 165 and the EDPM Manual. Patrolled facilities include pad-mounted equipment, primary enclosures, and visible secondary enclosures outside the substation fence to the end of the line. An UG patrol may be performed by walking or driving. Units measured: Number of enclosures patrolled.

MAT BFE – Enclosures Inspected – Detailed inspection of underground distribution facilities to examine and record any compelling, abnormal conditions that will adversely impact safety or reliability for compliance with GO 165 and the EDPM Manual. Inspected facilities include pad-mounted facilities; all underground equipment, conductors, splices, and elbows within primary enclosures; primary metering that includes all visible, primary cable up to termination point plus the primary metering facilities. An infrared inspection must be performed in conjunction with underground inspections. Units measured: Number of enclosures inspected.

MAT BFF – UG Line Equipment Inspected and Tested – Annual inspections of underground distribution line equipment for compliance with Utility Standard TD-2302S. Facility inspections only include manholes with special equipment (i.e., oil-filled equipment). 34.5 kV BART Cable Inspections and Auto-Transfer Switch Inspections are performed and tracked in MATs BF3 and BF4, respectively. Units measured: Number of UG line equipment inspected and tested.

MAT BFG – OH Line Equipment Inspected and Tested – Annual inspection/testing of overhead, pad-mounted, and underground distribution line equipment for compliance with Utility Standard TD-2302S. Facilities include: capacitors, regulators, reclosers, and SCADA operated switches, interrupters, and sectionalizers. Units measured: Number of OH line equipment inspected and tested.

MAT BFH – CPUC Quality Assurance EDM Audits – Support of California Public Utilities Commission (CPUC) annual GO 165 audits, QA Electric Distribution Audits and ad hoc requests throughout the year. This MAT also includes miscellaneous special projects as requested by Asset Strategy. Projects include inspections or patrols of equipment determined to present safety related conditions. Some projects are multi-year while others are single year. Other projects are related to re-inspections or re-patrols as needed as a result of work verifications and is required by GO 165. Other funding in this MAT is related to UG inspection sticker costs required as part of the UG inspections.

MAT BFJ – OH Patrol Outage Review Team Post Outage – For requested post-outage patrols as an action from an Outage Review Team (ORT) meeting. Work scope (including the area to be patrolled and the volume of poles and enclosures) must be identified during the ORT meeting. This includes UG Infrared requests.

MAT BFL – Santa Barbara Wildfire Poles Patrolled – Annual patrols of overhead distribution facilities in the Santa Barbara Wildfire risk area. Work is performed in two divisions (Los Padres and Kern) in PG&E territory in the Santa Barbara county area. Units measured: Number of poles patrolled.

MAT BFM – Urban and OWF Poles Inspected – Annual inspection of overhead distribution facilities in the designated Urban and Other Wildfire risk areas. These inspections are performed annually as compared to the 5-year overhead cycle to mitigate fire risks. Units measured: Number of poles inspected.

MAT DDC – Electric Start/Stop – includes activities for electric turn-ons and shut-offs initiated by customers, which are mainly performed by electric meter technicians and meter maintenance person resources at commercial and agricultural customer premises.

MAT DDH – Outages on Customer Equipment – Part outs or complete outs related to customer equipment. Part outs occur when a customer is only receiving energy to a portion of their home or business (e.g., burnt out fuses, customer wiring, service connection at the weather-head, etc.). Units measured: Number of outages.

MAT DDJ – Swing Service, Disconnects/Reconnects – (1) Swing service: transfer of service from old location to new, using existing wire; (2) Service upgrades; (3) Temporary service disconnect, such as a temporary disconnects at a customer's request to enable tree trimming, weather-head or panel work; and (4) Reconnect service due to disconnects for items such as tree trimming, panel or weather-head work by customer, etc. Units measured: Number of disconnects/reconnects.

MAT DD# – Customer Field Service Work – Covers Electric Distribution's portion of customer-generated field service activities, specifically start/stop service requests, emergency response and other customer-generated electric field service requests. The primary work includes addressing: partial and complete outages related to customer equipment; transfers of service; electric service upgrades; and temporary disconnections or reconnections of service. This work was previously included in MWC BA.

MAT FZA – General Engineering – Work primarily covers electric distribution engineering and planning services labor, which includes wires down investigations.

MAT FZB – Voltage Complaints Investigations – Used for investigating secondary voltage complaints that troublemen cannot resolve on the first visit, and the settling of recording volt meters for these voltage complaints.

MAT FZC – Transformer Reports Manage – Used for investigating overloaded and idle transformers.

MAT FZD – Field Work Plan – Used for supporting operational field work that engineering personnel initiate, such as phase balancing, and replacing fuses that are projected to be overloaded.

MAT FZE – Troublemen Field Work – Field Personnel performing seasonal, permanent and emergency load transfer field switching, change settings related to seasonal capacitors, or perform special load/voltage readings/setting changes when specifically requested by the Electric Distribution Engineers and directed by the Distribution Control Center Operator.

MAT GAA – Intrusive Inspection – Intrusive testing and treatment of wood poles. Compliance inspection program for GO95 and GO165. Units measured: Number of inspections.

MAT GAD – Pole Restoration – Reinforce deteriorated, decayed or damaged poles with steel trusses. Program typically follows one year behind Pole Test and Treat program and restores poles to original design strength. Units measured: Number of reinforcements.

MAT GAI – Pole Evaluation – Pole evaluation program to better prioritize pole replacement and reinforcement work. Units measured: Number of evaluations.

MAT GC1 – Electric Distribution Substation-Engineering Maintenance Support – Distribution substation costs in engineering and other maintenance support.

MAT GC2 – Electric Distribution Substation-Major Emergency Corrective Maintenance – Distribution substation costs from major emergencies and emergent work.

MAT GCA – Transformer Preventive Maintenance – Distribution substation costs for transformers, regulators, and load tap changer (LTC) Oil Tests. Units measured: Number of transformers.

MAT GCB – Circuit Breaker Preventive Maintenance – Distribution substation costs for breaker exercises. Units measured: Number of circuit breakers.

MAT GCC – Substation Relay Preventive Maintenance – Distribution substation costs for relay functional tests. Units measured: Number of substation tests.

MAT GCD – Substation Inspections – Distribution substation costs for recurring station inspection of equipment.

MAT GCE – General Station Preventive Maintenance – Distribution substation costs for preventive maintenance tasks on variety of other types of substation equipment. Units measured: Number of tasks.

MAT GCF – Battery Preventive Maintenance – Distribution substation costs for battery tests. Units measured: Number of batteries.

MAT GCG – Vegetation Management – Distribution substation costs in vegetation management to stay compliant and correct customer compliance of outside the fence vegetation. Routine vegetation control, rodent control, mowing and administration of the program.

MAT GCH – Building Maintenance – Distribution substation costs for substation facility/building and yard work such as repair breaches in station fences, roof leaks, plumbing repairs, station security such as lighting and card readers, etc.

MAT GCI – Switch Preventive Maintenance – Distribution substation costs for switch diagnostic/performance tests. Units measured: Number of switches.

MAT GCJ – Distribution Substation: Corrective – Distribution substation costs for various substation equipment corrective repair work.

MAT GCM – Circuit Breaker Mechanism Services – Distribution substation costs for breaker mechanism services, including required breaker oil analysis. Units measured: Number of breakers.

MAT GCO – Transformer Overhaul Inspections – Distribution substation costs for transformer/regulator Load Tap Changer overhaul inspections. Units measured: Number of transformer overhaul inspections.

MAT GCS – Circuit Switcher & Motor-Operated Air Switch (MOAS) Mechanism Services – Distribution substation costs for circuit switcher and MOAS mechanism services. Units measured: Number of services.

MAT GCV – Circuit Breaker Overhauls – Distribution substation costs for circuit breaker overhauls. Units measured: Number of circuit breaker overhauls.

MAT GCW– Distribution Station Washes – Distribution substation costs for station insulator washing.

MAT GEO – Mapping – Electric Distribution Mapping includes activities such as annexations (city/county boundary and tax changes) and delineations (internal mapping information to external agencies, e.g., engineering firms, other utilities). This MAT also includes records management work described in MAT GEP.

MAT GEP – Records Management – Records and Information Management labor for full-time employees (FTE) in execution of the following projects: Field Asset Inventory, Field Records Inventory, Convert Paper Records and Migrate Electronic Records, as well as ongoing business process reviews, change management, process mapping and implementation of Enterprise Records and Information Management program (ERIM) policies and standards. This work is now included in MAT GEO.

MAT KA# – Transformer Labor Expense – Transformer labor expense work replaces failed transformers with refurbished transformers instead of new transformers. Project costs are related to the work to restore existing transformers back to working condition.

MAT KAA – OH Notifications – Repair overhead facilities or replace individual components that are not an imminent hazard, and have not caused an outage. Facilities include: connectors, insulators, low conductors, leaning poles, slack guys, etc. Repair, replace, or install grounds, moldings, leaking bushings, and related work on all OH transformers and equipment associated with transformers. Units measured: Number of notifications.

MAT KAB – Regulators/Reclosers Corrective Maintenance Tag – Regulator and recloser equipment repairs.

MAT KAC – Bird Safe – Repair, replace, or install bird guard materials such as jumper covers, bushing covers, perch guards, or perching platforms on incident and/or adjacent poles in response to a bird electrocution, per U.S. Fish and Wildlife Service (USFWS) requirements and Utility Operating Standard S2321. Units measured: Number of notifications.

MAT KAD – Bird Retrofits – Install bird guard materials such as jumper covers, bushing covers, perch guards, or perching platforms on poles identified in the Annual Pole Retrofit Program to prevent bird electrocutions, per USFWS requirements and Utility Operating Standard S2321. Units measured: Number of notifications.

MAT KAF – OH COE – Repair of Critical Operating Equipment (COE). Also includes ordering batteries for work in MAT BFG. Units measured: Number of notifications.

MAT KAH – Streetlight Burnouts – Repair or replace lamps, photo cells, and related items associated with non-operating streetlights. If the street light head needs replacement, the time and material to replace the head is charged to 2AA. If the burnout is caused by a secondary underground failure, the time and material to make the repair is charged to 2BA. Units measured: Number of burnout repairs.

MAT KAK – Radio and Television Interference (RTVI) Investigations – Investigation of Radio/TV interference (RTVI) where cause is linked to Company equipment. Units measured: Number of investigations.

MAT KAM – Insulator Washing – Washing pole-mounted insulators.

MAT KAO – Idle Facilities Investigations – Investigation by Service planning as to whether identified idle facilities have a foreseeable future use.

MAT KAP – Major Projects OH – Major Projects for the replacement of OH electric facilities that are not an imminent hazard and have not caused an outage. Includes pre-planned major projects.

MAT KAQ – Wood Pole Bridge Bonding - Wood Pole Bonding maintenance activity where an existing wood pole supporting both transmission and distribution line facilities is retrofitted with grounding protection to prevent fires which can occur at the location on the pole where the distribution cross arm is bolted to the pole. Before 2016, this work was accounted for in Electric Transmission.

MAT KAR – Surge Arrester Grounding – Installation of a separate ground for surge arresters installed in the same location as distribution transformers where a common ground condition currently exists. Beginning in 2017, this program was re-scoped to include the replacement of the arresters with exempt equipment in addition to the grounding work; the combined program will be accounted for in MAT 2AP. Units measured: Number of surge arresters.

MAT KAS – FAS OH Expense – Field Automation System (FAS) Overhead expense is work that is identified during a field job and completed by a single troubleman. Units measured: Number of notifications.

MAT KB# – Unassigned – Transformer labor reclassification costs incurred when a transformer is refurbished and reused instead of being replaced with a new unit. Additionally, this MAT includes costs for sand, gravel, spoils and other oil-filled equipment used on a variety of underground jobs.

MAT KBA – UG Notifications – Repair underground facilities (including UG IR tags) or replace individual components that are not an imminent hazard and have not caused an outage. Includes cleaning enclosures, re-securing equipment, resurfacing lids, and tagging. Repair, replace, or install grounds, moldings, leaking bushings, and related work on all UG transformers and equipment associated with transformers. Units measured: Number of notifications.

MAT KBC – UG COE – Repair of underground Critical Operating Equipment (COE). Units measured: Number of notifications.

MAT KBD – Nitrogen Cylinders – Replacement of Nitrogen Cylinders-San Francisco and East Bay division only-annual nitrogen cylinder replacements.

MAT KBE – BART Cable Repair – Repair of 34.5 kV Bay Area Rapid Transit (BART) Cable issues identified during annual inspections/tests performed under BF3.

MAT KBP – UG Projects – Major Projects for the replacement of underground electric facilities that are not an imminent hazard and have not caused an outage. Includes pre-planned major projects.

MAT KBQ – Elbow/Splices Replace – Costs in this category are for special splicing projects. Splices are performed in order to fix portions of cable rather than replacing the entire cable.

MAT KCA – Network Related EC Notifications – Repairs related to network transformers and network protectors. Does not include oil replacement work. Units measured: Number of notifications.

MAT KCB – Network Transformer Oil Replacement – Replacement of oil in network primary termination chambers or network ground switches. Includes resample of network transformer oil. Units measured: Number of oil replacements.

MAT KCC – Network Vault Cleanup – Vault environmental cleanup. Excludes work associated with network transformers and network protectors. Units measured: Number of vault cleanups.

MAT KCD – Network Transformer Oil Sampling – Annual maintenance on network transformers and associated oil filled chambers. Includes oil sampling on all chambers and pressure testing of units. Units measured: Number of oil samplings.

MAT KCE – Network Protector Maintenance – Routine maintenance of network protectors conducted once every three years (triennial). Excludes repairs in excess of \$500 or requiring greater than one hour which are covered by MAT category KCA. Units measured: Number of protector maintenance tags.

MAT KCF – Fiber Optic Repair-SF – Repair of existing network SCADA and fiber optics systems. Includes communication and RT SCADA activities to support the distribution networks.

**TABLE 3-3
ELECTRIC DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
1	AB	Misc Expense	N/A	–	4-19	4-18	–	24,288	–	2,125	–	22,163	Program expenses exceeded imputed regulatory values due to several factors. The primary drivers are: 1) Community Wildfire Safety Plan (CWSP) activities and the establishment of the CWSP Project Management Organization, 2) unplanned physical location security contracts for distribution assets and miscellaneous third-party contracts, uncleared Standard Cost Variance, and higher than expected company energy usage. Additionally, the imputed regulatory value contains a consolidated forecast for expected expense efficiency offsets which are not tracked or recorded in MWC AB.	N/A	N/A
2	AB	Emergency Preparedness and Response	AB6	–	4-3	4-3	–	12,118	–	7,611	–	4,507	Below variance threshold.	N/A	N/A
3	AR	Read & Investigate Meters	N/A	–	6-7	6-6	–	11,190	–	–	–	11,190	Program expenses exceeded imputed regulatory values due to transfer of Customer Care programs to Electric Distribution in 2018.	N/A	N/A
4	BA	E Dist Operate System	BAF	Genl Operate	4-5	4-5	–	19,978	–	26,435	–	(6,458)	Below variance threshold.	N/A	N/A
5	BA	E Dist Operate System	BAH	FLISR Maintenance	4-5	4-15	–	–	–	924	–	(924)	Below variance threshold.	N/A	N/A
6	BA	E Dist Operate System	#	Not assigned	4-13	4-10	–	2,443	–	64	–	2,379	Below variance threshold.	N/A	N/A
7	BC	Perf Reimburs Wk for Oth	N/A	–	N/A	N/A	–	1	–	–	–	1	Below variance threshold.	N/A	N/A
8	BF	E T&D Patrol/Insp	BF3	UG BART Cable Test/Insp	4-6	4-6	–	12	–	29	–	(16)	Below variance threshold.	N/A	N/A
9	BF	E T&D Patrol/Insp	BF4	UG Auto Xfer Swch Test/Insp	4-6	4-6	–	53	–	60	–	(7)	Below variance threshold.	N/A	N/A

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**TABLE 3-3
ELECTRIC DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
10	BF	E T&D Patrol/Insp	BFA	OH Patrol	4-6	4-6	1,602,447	4,550	1,186,065	3,497	416,382	1,053	Actual units were higher than imputed units due to additional patrols required to comply with changes to GO165 as a result of HFTD Fire Safety Order Instituting Rulemaking (OIR) Decision and moving pad mount equipment from MAT BFD to this program cycle.	N/A	N/A
11	BF	E T&D Patrol/Insp	BFB	OH Insp	4-6	4-6	538,991	10,787	473,086	10,518	65,905	269	Below variance threshold.	N/A	N/A
12	BF	E T&D Patrol/Insp	BFC	OH Insp Infrared	4-6	4-6	–	1,861	–	4,230	–	(2,369)	Below variance threshold.	N/A	N/A
13	BF	E T&D Patrol/Insp	BFD	UG Patrol	4-6	4-6	186,554	1,086	245,869	1,766	(59,315)	(680)	Actual units were lower than imputed units due to moving pad mount patrols to the overhead cycle in MAT BFA.	N/A	N/A
14	BF	E T&D Patrol/Insp	BFE	UG Insp Infrared	4-6	4-6	104,781	4,744	144,027	10,027	(39,246)	(5,283)	Actual units were lower than imputed units and program expenses were below imputed regulatory values due primarily to moving pad mount inspections from the underground inspection cycle to the overhead cycle in MAT BFB. Cost savings from lower unit cost than imputed due to majority of work being completed by internal resources rather than contract.	N/A	N/A
15	BF	E T&D Patrol/Insp	BFF	UG Manhole Insp Annual	4-6	4-6	1,377	367	2,921	729	(1,544)	(362)	Actual units were lower than imputed units due to including manhole inspections with GO 165 underground inspections which is captured in MAT BFE.	N/A	N/A
16	BF	E T&D Patrol/Insp	BFG	OH Equip Test	4-6	4-6	23,632	2,089	24,209	2,244	(577)	(155)	Below variance threshold.	N/A	N/A
17	BF	E T&D Patrol/Insp	BFH	Inspection Projects	4-6	4-6	–	1,276	–	1,749	–	(473)	Below variance threshold.	N/A	N/A
18	BF	E T&D Patrol/Insp	BFJ	OH Patrol ORT Post Outage	4-6	4-6	–	123	–	762	–	(639)	Below variance threshold.	N/A	N/A
19	BF	E T&D Patrol/Insp	BFL	SB WF Patrols	4-6	4-6	–	–	14,689	52	(14,689)	(51)	Actual units were lower than imputed units and program expenses were below imputed regulatory values as result of moving all SB WF Patrol work to MAT BFA as a result of the changes to GO 165 stemming from the HFTD Fire Safety OIR Decision.	N/A	N/A

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**TABLE 3-3
ELECTRIC DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
20	BF	E T&D Patrol/Insp	BFM	Urban and Other WF Inspection	4-6	4-6	–	–	39,253	1,095	(39,253)	(1,095)	Actual units were lower than imputed units as result of moving all Urban and other WF Inspection work to MAT BFA as a result of the changes to GO 165 stemming from the HFTD Fire Safety OIR Decision.	N/A	N/A
21	BH	E Dist Routine Emergency	N/A	–	4-4	4-4	–	59,196	–	54,526	–	4,670	Below variance threshold.	N/A	N/A
22	BK	Maint Other Equip	BKA	Transformer Repr Emeryville	4-6	4-6	708	1,134	1,780	1,360	(1,072)	(226)	Actual units were lower than imputed units due to shift in work to field repairs and scrapping, driven by storm and wildfire recovery activities.	N/A	N/A
23	BK	Maint Other Equip	BKJ	Equip Overhaul Emeryville	4-6	4-6	36	126	116	316	(80)	(190)	Actual units were lower than imputed units due to shift in work to field repairs and scrapping, driven by storm damage and wildfire damage.	N/A	N/A
24	BK	Maint Other Equip	BKK	Equip Warranty Repr Emeryville	4-6	4-6	123	154	–	–	–	154	Below variance threshold.	N/A	N/A
25	BK	Maint Other Equip	#	Not assigned	4-6	4-6	–	–	–	306	–	(306)	Below variance threshold.	N/A	N/A
26	DD	Provide Field Service	DDC	Electric Start/Stop	6-7	6-6	–	829	–	–	–	829	Below variance threshold.	N/A	N/A
27	DD	Provide Field Service	DDH	Electric Trouble Cust Equipt	4-5	4-5	37,647	5,312	40,164	5,864	(2,517)	(552)	Below variance threshold.	N/A	N/A
28	DD	Provide Field Service	DDJ	Electric - Other	4-5	4-5	78,821	9,387	80,776	10,994	(1,955)	(1,607)	Below variance threshold.	N/A	N/A

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**TABLE 3-3
ELECTRIC DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
29	DD	Provide Field Service	#	Not assigned	4-5	4-5	–	5,145	–	–	–	5,145	Program expenses exceeded imputed regulatory values due to organizational alignment and movement of costs from MAT BAF to DD#. Actual includes the realignment of the schedule and dispatch operators that was not part of the imputed amount.	N/A	N/A
30	DN	Develop & Provide Training	N/A	–	4-19	Moved to HR, 8-6	–	0	–	7,686	–	(7,686)	Program expenses below imputed regulatory values due to the movement of training work to the Human Resources organization.	N/A	N/A
31	EY	Change/Maint Used Elec Meter	N/A	–	6-7	6-6	–	5,975	–	–	–	5,975	Program expenses exceeded imputed regulatory values due to transfer of the Field Meter Operations to Electric Operations and Gas Operations in 2018 See Section 6 for imputed regulatory values.	N/A	N/A
32	EZ	Manage Var Cust Care Processes	N/A	–	6-7	6-6	–	–	–	–	–	–	Below variance threshold.	N/A	N/A
33	FZ	E Dist Planning & Ops Engineer	FZA	Genl Engineer	4-14	4-14	–	9,893	–	11,738	–	(1,845)	Below variance threshold.	N/A	N/A
34	FZ	E Dist Planning & Ops Engineer	FZB	Voltage Complaints Invest	4-14	4-14	–	444	–	859	–	(416)	Below variance threshold.	N/A	N/A
35	FZ	E Dist Planning & Ops Engineer	FZC	Transformer Reports Manage	4-14	4-14	–	2	–	153	–	(151)	Below variance threshold.	N/A	N/A
36	FZ	E Dist Planning & Ops Engineer	FZD	Field Work Plan	4-14	4-14	–	399	–	382	–	17	Below variance threshold.	N/A	N/A
37	FZ	E Dist Planning & Ops Engineer	FZE	Troublemens Field Work	4-14	4-14	–	1,370	–	1,546	–	(176)	Below variance threshold.	N/A	N/A

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**TABLE 3-3
ELECTRIC DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
38	GA	E T&D Maint OH Poles	GAA	Pole Test & Treat	4-8	4-8	138,730	8,842	260,297	13,087	(121,567)	(4,245)	Actual units were lower than imputed units due to process change transitioning to a system-wide approach for pole intrusive testing. Prior to 2018, PG&E was performing annual pole testing in a concentrated geographic area (e.g. testing all poles in 2 to 3 divisions) with the objective of having all of its divisions tested within a ten-year cycle. The number of poles varies each year due to schedule and work priorities.	N/A	N/A
39	GA	E T&D Maint OH Poles	GAB	Pole Joint Util Maint Reimb	4-8	4-8	–	(173)	–	–	–	(173)	Below variance threshold.	N/A	N/A
40	GA	E T&D Maint OH Poles	GAC	Pole Analyze Loading	4-8	4-8	–	6	–	–	–	6	Below variance threshold.	N/A	N/A
41	GA	E T&D Maint OH Poles	GAD	Pole Reinforce	4-8	4-8	2,355	2,839	4,176	3,573	(1,821)	(734)	Actual units were lower than imputed units due to workplan re-prioritization of HFTD Pole Reinforcements; HFTD units and costs are now recorded in the Fire Hazard Prevention Memorandum Account (FHPMA).	N/A	N/A
42	GA	E T&D Maint OH Poles	GAE	Pole Review Engineer Non-Reim	4-8	4-8	–	5	–	–	–	5	Below variance threshold.	N/A	N/A
43	GA	E T&D Maint OH Poles	GAF	Telco Engr Revw Non-Reimbursed	4-8	4-8	–	13	–	168	–	(155)	Below variance threshold.	N/A	N/A
44	GA	E T&D Maint OH Poles	GAH	Pole Joint Util Maint Non-Reim	4-8	4-8	–	334	–	445	–	(111)	Below variance threshold.	N/A	N/A
45	GA	E T&D Maint OH Poles	GAI	Pole Evaluation	4-8	4-8	–	21	3,475	516	(3,475)	(495)	Actual units were lower than imputed units due to process change utilizing pole strength software in the test and treat program that eliminated evaluation units.	N/A	N/A
46	GA	E T&D Maint OH Poles	#	Not assigned	4-8	4-8	–	(1,187)	–	(3,757)	–	2,570	Below variance threshold.	N/A	N/A
47	GC	E Dist Subst O&M	GC1	EI DSub-Engrg_Maint Support	4-12	4-12	–	4,613	–	4,752	–	(139)	Below variance threshold.	N/A	N/A

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**TABLE 3-3
ELECTRIC DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
48	GC	E Dist Subst O&M	GC2	EI DSub-Major Emerg_Corr Maint	4-12	4-12	–	3,459	–	2,578	–	881	Below variance threshold.	N/A	N/A
49	GC	E Dist Subst O&M	GCA	Dsbn: TXfmr - prev maint.	4-12	4-12	4,824	819	4,029	785	795	34	Below variance threshold.	N/A	N/A
50	GC	E Dist Subst O&M	GCB	Dsbn: Breaker - prevent maint.	4-12	4-12	1,215	448	2,109	1,050	(894)	(603)	Actual units were lower than imputed units due to breaker maintenance plan adjustments; breaker exercises are not required if the breaker operated in service, confirming its operability.	N/A	N/A
51	GC	E Dist Subst O&M	GCC	Dist Sub: Substation Test Dpt	4-12	4-12	1,012	1,978	1,531	2,053	(519)	(75)	Actual units were lower than imputed units due to relay maintenance plan adjustments that reflect current relay maintenance cycles. Units may vary from year to year.	N/A	N/A
52	GC	E Dist Subst O&M	GCD	Dsbn: Station Read_prev maint.	4-12	4-12	7,164	2,241	8,328	2,615	(1,164)	(373)	Below variance threshold.	N/A	N/A
53	GC	E Dist Subst O&M	GCE	Dsbn: Gnrl station_prev maint.	4-12	4-12	1,145	348	1,062	665	83	(317)	Below variance threshold.	N/A	N/A
54	GC	E Dist Subst O&M	GCF	Dsbn: Batteries - prev maint.	4-12	4-12	658	272	702	323	(44)	(51)	Below variance threshold.	N/A	N/A
55	GC	E Dist Subst O&M	GCG	Vegetation Management	4-12	4-12	–	1,914	–	1,211	–	702	Below variance threshold.	N/A	N/A
56	GC	E Dist Subst O&M	GCH	Building Maintenance	4-12	4-12	–	1,059	–	388	–	671	Below variance threshold.	N/A	N/A
57	GC	E Dist Subst O&M	GCI	Dsbn: Switches_pre vent maint.	4-12	4-12	93	62	83	60	10	3	Below variance threshold.	N/A	N/A
58	GC	E Dist Subst O&M	GCJ	Dist Sub: Corrective (T80)	4-12	4-12	–	7,886	–	6,902	–	984	Below variance threshold.	N/A	N/A
59	GC	E Dist Subst O&M	GCM	Breaker Mechanism Services	4-12	4-12	433	678	813	1,431	(380)	(753)	Actual units were lower than imputed units due to breaker maintenance plan adjustments that extended the frequency of breaker mechanism service from four to eight years.	N/A	N/A

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**TABLE 3-3
ELECTRIC DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
60	GC	E Dist Subst O&M	GCO	Transformer Overhauls	4-12	4-12	118	749	165	1,660	(47)	(911)	Actual units were lower than imputed units due to fewer transformer load tap changers (LTC) meeting their overhaul threshold based on operation history.	N/A	N/A
61	GC	E Dist Subst O&M	GCS	CKSW MOAS Mechanism Services	4-12	4-12	55	89	90	180	(35)	(91)	Actual units were lower than imputed units due to circuit switcher/motor-operated air switch maintenance plan adjustments that reflect current equipment in the field.	N/A	N/A
62	GC	E Dist Subst O&M	GCV	Breaker Overhauls	4-12	4-12	5	20	30	158	(25)	(138)	Actual units were lower than imputed units due to fewer breakers reaching their overhaul threshold in accumulated critical current.	N/A	N/A
63	GC	E Dist Subst O&M	GCV	Dist Sub: Station Washes	4-12	4-12	405	323	–	–	405	323	Actual units were higher than imputed units due to newly unitized tracking of work. Purpose of this MAT Code item was to add transparency to substation insulator cleaning maintenance activities (station washes). Prior to this accounting change, station washes were included in MAT GCE.	N/A	N/A
64	GC	E Dist Subst O&M	#	Not assigned	4-12	4-12	–	–	–	–	–	–	Below variance threshold.	N/A	N/A
65	GE	E Dist Mapping	GEO	GEO_Mapping	4-16	4-18	–	4,571	–	3,182	–	1,389	Below variance threshold.	N/A	N/A
66	GE	E Dist Mapping	GEP	GEP_Records Management	4-16	4-18	–	–	–	2,255	–	(2,255)	Below variance threshold.	N/A	N/A
67	GE	E Dist Mapping	#	Not assigned	4-16	4-18	–	332	–	–	–	332	Below variance threshold.	N/A	N/A
68	HG	Elec Trans Ops Engr & Tech	N/A	–	4-15	4-5 and 4-19	–	4,404	–	–	–	4,404	Below variance threshold.	N/A	N/A
69	HN	E Dist Tree Trim Bal Acct	N/A	–	4-7	4-7	–	260,460	–	213,371	–	47,089	Program expenses exceeded imputed regulatory values due to a higher than anticipated volume of trees requiring work and higher contracting costs driven by wildfire-related insurance costs and the increased demand for tree workers due to wildfire risk reduction work being performed statewide.	Vegetation Management Balancing Account	Decision 17-05-013

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**TABLE 3-3
ELECTRIC DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
70	HX	E T&D Automation & Protection	N/A	–	4-10	4-10	–	1,466	–	1,447	–	19	Below variance threshold.	N/A	N/A
71	HY	Change/Maint Used Gas Meters	N/A	–	6-7	6-6	–	777	–	–	–	777	Program expenses exceeded imputed regulatory values due to transfer of Customer Care programs to Electric Distribution in 2018.	N/A	N/A
72	IF	CEMA Expense - Electric Total	IF - CEMA	–	N/A	N/A	–	301,278	–	–	–	301,278	Program expenses exceeded imputed regulatory values due to Catastrophic Event Memorandum Account (CEMA) - qualified expenses that are eligible for recovery through a separate application. By their nature, CEMA qualified costs cannot be forecasted, therefore there is no imputed unit or cost value.	Catastrophic Event Memorandum Account	N/A
73	IF	Major Emergency Total	IF - MEBA	–	4-4	4-4	–	28,789	–	54,412	–	(25,623)	Program expenditures were lower than the imputed regulatory values in 2018 as a result of many 2018 storm and wildfire events qualifying for CEMA treatment..	Major Emergency Balancing Account	Decision 17-05-013
74	IG	FHPMA Total	IG - FHPMA	–	N/A	4-7	–	308,224	–	–	–	308,224	Program expenses exceeded imputed regulatory values due to activities associated with the December 2017 Fire Safety OIR Decision regarding vegetation management clearances, and the costs for the Enhanced Vegetation Management work intended to reduce wildfire risk in Tier 2 and Tier 3 High Fire Threat Districts. As the Fire Safety OIR was a separate proceeding through the end of 2017, no forecast for these activities' costs was presented in the 2017 GRC.	Fire Hazard Prevention Memorandum Account	N/A
75	IG	Fire Hazard Prevention (Tree Mortality) (CEMA) Total	IG - CEMA	–	N/A	N/A	–	90,508	–	–	–	90,508	Program expenses exceeded imputed regulatory values due to activities associated with the Drought Emergency and the Tree Mortality Emergency Declarations by Governor Brown. These are Catastrophic Event Memorandum Account (CEMA) -qualified expenses and are eligible for recovery through a separate application. By their nature, CEMA qualified costs cannot be forecasted, therefore there is no imputed unit or cost value.	Catastrophic Event Memorandum Account	N/A

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**TABLE 3-3
ELECTRIC DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
76	IS	Streetlight Support	N/A	–	N/A	4-18	–	853	–	–	–	853	Below variance threshold.	N/A	N/A
77	JV	Maintain IT Apps & Infra	N/A	–	4-13 and 4-15	4-13 and 4-15	–	7,779	–	6,544	–	1,235	Below variance threshold.	N/A	N/A
78	KA	E Dist Maint OH General	KAA	OH Genl CM Tag	4-6	4-6	29,210	21,270	23,919	16,412	5,291	4,858	Actual units were higher than imputed units due to completion of priority F tags (non-compelling conditions that pose no outage or reliability risk), exempted 2017 tags completed in 2018 as result of major emergency response, and completion of tags in Tier 3 HFTD required by HFTD Fire Safety Decision.	N/A	N/A
79	KA	E Dist Maint OH General	KAB	Regs/Recls CM Tag	4-6	4-6	–	–	–	229	–	(229)	Below variance threshold.	N/A	N/A
80	KA	E Dist Maint OH General	KAC	Bird Safe Retrofit	4-6	4-6	722	699	1,697	1,205	(975)	(506)	Actual units were lower than imputed units due to fewer bird mitigation jobs completed.	N/A	N/A
81	KA	E Dist Maint OH General	KAD	Bird Safe Retrofit Annual	4-6	4-6	915	1,354	1,033	674	(118)	680	Below variance threshold.		
82	KA	E Dist Maint OH General	KAF	OH COE CM Tag	4-6	4-6	1,273	4,743	1,889	4,990	(616)	(248)	Actual units were lower than imputed units due to completing a higher percentage of capital COE units. Total units completed between capital and expense in 2018 aligns with the imputed amounts.	N/A	N/A
83	KA	E Dist Maint OH General	KAG	Streetlights Repl Group	4-6	4-6	–	–	–	–	–	–	Below variance threshold.	N/A	N/A
84	KA	E Dist Maint OH General	KAH	Streetlights Repl Burnouts	4-6	4-6	11,067	1,738	18,261	2,873	(7,194)	(1,135)	Actual units were lower than imputed units due to fewer burnouts as a direct result of the LED conversion project.	N/A	N/A
85	KA	E Dist Maint OH General	KAK	RTVI Invest/Repr	4-6	4-6	90	53	358	259	(268)	(206)	Actual units were lower than imputed units due to receiving fewer customer complaints regarding radio interference compared to historical rates.	N/A	N/A
86	KA	E Dist Maint OH General	KAM	Insulators Wash	4-6	4-6	–	22	–	244	–	(222)	Below variance threshold.	N/A	N/A
87	KA	E Dist Maint OH General	KAO	Idle Fac Invest - Svc Plng	4-6	4-6	–	479	–	210	–	269	Below variance threshold.	N/A	N/A

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**TABLE 3-3
ELECTRIC DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
88	KA	E Dist Maint OH General	KAP	OH EXP Projects	4-6	4-6	–	160	–	376	–	(216)	Below variance threshold.	N/A	N/A
89	KA	E Dist Maint OH General	KAR	Surge Arresters	4-6	4-6	–	174	18,757	19,772	(18,757)	(19,599)	Actual units were lower than imputed units and program expenses were below imputed regulatory values due to performing surge arrester grounding work in conjunction with the replacement of surge arresters. This combined program is accounted for in MAT 2AR.	N/A	N/A
90	KA	E Dist Maint OH General	KAS	FAS Overhead Expense	4-6	4-6	10,263	1,524	10,756	1,765	(493)	(241)	Below variance threshold.	N/A	N/A
91	KA	E Dist Maint OH General	#	Not assigned	4-6	4-6	–	915	–	164	–	751	Below variance threshold.	N/A	N/A
92	KB	E Dist Maint UG	KBA	UG Genl CM Tag	4-6	4-6	7,402	15,498	7,240	13,677	162	1,821	Below variance threshold.	N/A	N/A
93	KB	E Dist Maint UG	KBC	UG COE CM Tag	4-6	4-6	151	654	511	2,208	(360)	(1,554)	Actual units were lower than imputed units due to a process change resulting in less cable testing prior to replacement.	N/A	N/A
94	KB	E Dist Maint UG	KBD	Nitrogen Cylinders CM	4-6	4-6	–	61	–	45	–	16	Below variance threshold.	N/A	N/A
95	KB	E Dist Maint UG	KBE	BART Cable Repr	4-6	4-6	–	50	–	97	–	(47)	Below variance threshold.	N/A	N/A
96	KB	E Dist Maint UG	KBP	UG EXP Projects	4-6	4-6	–	515	–	281	–	235	Below variance threshold.	N/A	N/A
97	KB	E Dist Maint UG	KBQ	Elbows/Splices Repl	4-6	4-6	–	201	–	–	–	201	Below variance threshold.	N/A	N/A
98	KB	E Dist Maint UG	#	Not assigned	4-6	4-6	–	98	–	294	–	(196)	Below variance threshold.	N/A	N/A
99	KC	E Dist Maint Network	KCA	Ntwk Equip Correct Maint NWTX	4-6	4-6	104	458	237	316	(133)	142	Actual units were lower than imputed units due to less work identified through inspections compared to the imputed amount.	N/A	N/A
100	KC	E Dist Maint Network	KCB	Ntwk Oil Repl & 60Day F/U NWTX	4-6	4-6	25	21	9	33	16	(11)	Below variance threshold.	N/A	N/A

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**TABLE 3-3
ELECTRIC DISTRIBUTION 2018 EXPENSE COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
101	KC	E Dist Maint Network	KCC	Ntwk Vault Correct Maint NWTX	4-6	4-6	24	119	82	188	(58)	(69)	Actual units were lower than imputed units due to reduction in vaults requiring mitigation located near the Civic Center in San Francisco.	N/A	N/A
102	KC	E Dist Maint Network	KCD	Ntwk Xfmr PrevMaint/Restst NWTX	4-6	4-6	3,434	1,956	3,696	2,988	(262)	(1,031)	Below variance threshold.	N/A	N/A
103	KC	E Dist Maint Network	KCE	Ntwk Protector Prev Maint NWTX	4-6	4-6	462	561	399	639	63	(78)	Below variance threshold.	N/A	N/A
104	KC	E Dist Maint Network	KCF	Fiber/SCADA Comm Repr NWTX	4-6	4-6	–	891	–	201	–	690	Below variance threshold.	N/A	N/A

MWC Descriptions – Capital

MWC 05 – Tools and Equipment – Includes the costs of miscellaneous tools and equipment, Advanced Technology Services (ATS) tools, and of overdrawn materials. ATS tools include the cost of laboratory and test equipment used for field work or in ATS laboratories. In the 2017 GRC, this MWC also included PG&E’s forecast for an offset for capital-related productivity improvements. Beginning in 2018, includes tools and equipment necessary to perform all field metering, meter maintenance, meter repair, and accuracy testing activities.

MWC 06 – Electric Distribution Line and Equipment Capacity – Includes capacity expansion work outside a substation necessary to correct specific capacity deficiencies or overload conditions on the distribution lines and equipment. This work includes replacing/upgrading conductors and devices along with installing capacitors, switches or other equipment; establishing new circuit outlets; converting circuit line sections to a higher operating voltage; and reconfiguring primary distribution circuits to redistribute loading.

MWC 07 – Pole Replacement – Includes the replacement of poles to support safety and reliability of the electric distribution system.

MWC 08 – Overhead Asset Replacement – Includes rebuilding and reframing OH distribution lines (including the installation of covered wire and non-wood distribution poles); and performing other reliability and system hardening improvement work such as replacing annealed OH conductors, and replacing obsolete switches.

MWC 09 – Electric Distribution Automation and Protection – Covers investments in field automation and protection devices including installing or replacing substation Remote Terminal Units; installing or replacing supervisory control and data acquisition (SCADA) peripherals; installing or replacing automated line equipment; replacing obsolete protection equipment, primarily relays, in distribution substations; and replacing automation or protection equipment due to unanticipated failure.

MWC 10 – Electric Work at the Request of Others (WRO) – Includes relocating electric distribution facilities at the request of a governmental agency or other third parties (e.g., customers and developers) and conversion of OH electric facilities to UG under Tariff Rule 20B and Rule 20C.

MWC 16 – Electric Distribution Customer Connections – Includes building new UG and OH primary distribution systems, and the associated secondary systems and services to both residential and non-residential customers.

MWC 17 – Emergency – Includes facility replacements in response to OH or UG outages that occur during normal conditions.

MWC 21 – Miscellaneous Capital and Emergency Preparedness & Response – Includes costs to build critical infrastructure required for response to catastrophic emergencies. This includes costs for basecamps, facility upgrades, communications and data infrastructure improvements, and also natural disaster models. Beginning in 2016, this MWC may include an offset for capital-related productivity improvements and work execution risk. In 2020 GRC, this MWC also includes a) Community Wildfire Safety Program Management Office and b) Paid Time Off, Indirect Labor, and Material Burden Overheads.

MWC 23 – Implement Real Estate Strategy – includes the costs for new buildings and yards, including the purchase of land and the purchase and installation of furniture, office equipment, and IT Infrastructure, as well as the costs to improve building environmental sustainability, to implement workplace strategy, and to optimize the real estate portfolio. This work moved to Corporate Real Estate in 2016.

MWC 30 – Electric Distribution Work Requested by Others – Rule 20A – Conversion of existing OH electric distribution facilities to underground facilities. To qualify under the Rule 20A Tariff, a project must meet certain criteria including being in the general public interest and having sufficient work credits to convert the facilities. Beginning in 2017, these costs are included in the one-way Rule 20A balancing account authorized by Decision 17-05-013.

MWC 46 – Electric Distribution Substation Capacity – Includes capacity work within substations including new substations, increased capacity at existing substations, and work on feeders/breakers within a substation.

MWC 48 – Electric Distribution Replace Substation Equipment – Includes all major and minor substation equipment replacements not included in MWC 54 (Transformer Program). Specific sub-programs include: (1) Ancillary Substation Equipment Replacement; (2) Ground Grid Replacement; (3) Circuit Breaker Replacement Program; (4) Switch Replacement; (5) Battery Replacement; (6) Civil Structure Replacements; (7) Switchgear Replacement; (8) Regulator Replacement; (9) Yard Improvement Replacement; (10) Diagnostic Installation Program; (11) Arc Flash Reduction Replacement; (12) Animal Abatement; and (13) Transformer Bushings.

MWC 49 – Electric Distribution Circuit/Zone Reliability Program – Includes various circuit reliability improvement work to address repeat outages and customer service-level complaints. This program also includes the purchase of line reclosers (revolving stock), the installation of Fault Location, Isolation, and Service Restoration (FLISR) systems, and the targeted circuit initiative which addresses the least reliable circuits and typically involves a mixture of installing new fuses, reclosers, fault indicators and animal and bird guards, reframing poles to increase phase separation, and repairing or replacing existing equipment.

MWC 54 – Electric Distribution Substation Transformer Replacements – Includes maintaining or improving substation reliability by replacing transformers that have the highest risk of failure. This MWC also includes maintaining an adequate supply of emergency transformer stock, mobile transformers, and breakers for emergency response.

MWC 56 – Electric Distribution Underground Asset Replacement – Includes reliability related replacement of primary distribution cables (includes tie-cables), primary and secondary Network Cables, non-emergency related failed primary distribution cables, Transfer Ground Rocker Arm Main/Transfer Ground Rocker Arm Line (TGRAM/TGRAL) switches, Load Break Oil Rotary (LBOR) switches, and replacement of failed primary distribution cables. Program also includes performing cable rejuvenation (injection) and testing.

MWC 58 – Electric Distribution Substation Safety and Security – Includes substation security, fire protection and suppression work. Also encompasses miscellaneous, unforeseen, short lead-time and emergency environmental work (e.g., removal of an old asbestos panel in a control room that requires special handling).

MWC 59 – Electric Distribution Substation Emergency Replacement – Includes replacements for substation equipment that fails or is forced out of service as well as an emergency supply of transformers and other equipment to replace failed equipment.

MWC 63 – Electric Operations Control Center Facility – covers ongoing capital improvements and enhancements to the consolidated control centers, the Fresno Dispatch Facility, and technology and systems for these facilities.

MWC 95 – Electric Distribution Major Emergency – Includes response to OH or UG outages when a division OEC has been activated and consistent with PG&E's MEBA Criteria Guidance Document. Beginning in 2014, these costs are included in the MEBA authorized by Decision 14-08-032.

MWC 2A – Electric Distribution Preventive Maintenance, Overhead – includes replacing deteriorated OH facilities on a planned basis where it is not cost effective to repair those facilities. Typical equipment replacements include corroded transformers, deteriorated cross-arms, inoperative line switches, and other OH distribution facilities. Work also includes replacing PG&E owned non-decorative High-Pressure Sodium Vapor (HPSV) streetlights with Light Emitting Diode (LED) streetlights and non-exempt surge arrester replacements. Equipment is replaced in kind in most cases; however upgrades may be required where necessary to meet current operating conditions, technology, and safety standards.

MWC 2B – Electric Distribution Preventive Maintenance, Underground – Includes replacing deteriorated UG facilities on a planned basis where it is not cost effective to repair those facilities. Typical equipment replacements include corroded transformers, inoperative switches, damaged UG enclosures and other UG distribution facilities. Equipment is replaced in kind in most cases; however upgrades are required where necessary to meet current operating conditions, technology, and safety standards.

MWC 2C – Electric Distribution Preventive Maintenance, Network – Includes replacing deteriorated network facilities on a planned basis where it is not cost effective to repair those facilities. Typical equipment replacements include corroded transformers, inoperative switches, and other network distribution facilities. Additional work includes safety improvement programs such as High-Rise Building Transformer Replacements, new monitoring system installation and the manhole cover replacement program.

MWC 2F – Build IT Applications and Infrastructure – Includes the costs to design, develop and enhance applications, systems and infrastructure technology solutions.

New MWC Descriptions – Capital

MWC 25 – Install New Electric Meters – Includes new electric meter purchases for new customer growth, replacement of failed units, and the associated installation labor necessary to perform electric meter installations, exchanges, removals, and retirements.

MWC 74 – Install New Gas Meters – Includes new gas meter and module purchases for new customer growth, replacement of failed units, and the associated installation labor necessary to perform gas meter and module installations, exchanges, removals and retirements.

MAT Code Descriptions for Safety and Reliability Work – Capital

MAT 2A# – Not assigned.

MAT 2AA – OH General Replace – Replace deteriorated overhead facilities that are not an imminent hazard, and have not caused an outage. Facilities include crossarms, leaking transformers, conductor, capacitors, surge arresters, switches, removal of capital electric idle facilities (including poles), street light heads, and equipment. Units measured: Number of notifications.

MAT 2AB – Bird Safe Install/Replace – Capital modifications to bird-safe incident and/or adjacent poles in response to a bird electrocution, per USFWS requirements and S2321. Units measured: Number of notifications.

MAT 2AC – Bird Safe Install/Replace Annual – Capital work performed as part of annual pole retrofit program to prevent bird electrocutions, per USFWS requirements and S2321. Units measured: Number of notifications.

MAT 2AE – OH COE Replace – Replace overhead equipment classified as Critical Operating Equipment (COE). Units measured: Number of notifications.

MAT 2AF – OH Idle Facility Remove – Removal of Idle Facilities that have been determined to have no likely foreseeable future foreseeable use. Units measured: Number of facilities.

MAT 2AG – San Francisco Series Streetlights – Replacement of the regulated output (RO) streetlights, also referred to as constant current streetlight systems, owned and operated by PG&E in San Francisco. This project will replace the existing RO loops with the type of streetlight circuits used elsewhere in PG&E's system.

MAT 2AH – LED Streetlights – Replacement of PG&E LS-1 non-decorative streetlights with Light Emitting Diode (LED) fixtures and new photocells. Units measured: Number of streetlights.

MAT 2AI – San Francisco Historical Streetlights – Replacement or refurbishment of cast-iron decorative streetlights in the Golden Triangle/Union Square area of San Francisco that have been found to have corroded steel support poles.

MAT 2AP – OH CAP Projects – Major overhead projects, defined as jobs costing more than \$100,000 per location.

MAT 2AQ – Ceramic Post Insulators – Replacement of ceramic post insulators that were manufactured in 1972 or prior and are currently installed on PG&E poles.

MAT 2AR – Surge Arrester Replacement – Replacement of current (non-exempt) surge arresters with exempt surge arresters to reduce fire risk from distribution operations. Non-exempt surge arresters are overhead distribution equipment that have the potential to expel hot or molten material upon normal operation, leading to an increased risk of wildfire

MAT 2AS – FAS Overhead Capital – Field Automation System (FAS) Overhead capital is work that is identified during a field job and completed by a single troubleman. The work could be replacement or installations of OH facilities: Electric distribution conductors, components, structures, and associated equipment constructed above ground level. Units measured: Number of notifications.

MAT 2B# – Not assigned – Sand, gravel, spoils and oil-filled equipment used on a variety of underground jobs.

MAT 2BA – UG General Replace – Replace deteriorated underground facilities that are not an imminent hazard, and have not caused an outage. Facilities include leaking transformers, conduit, enclosures, pads, and idle equipment. Units measured: Number of notifications.

MAT 2BB – Fault Indicator Replacements – Replace deteriorated fault indicators that are not an imminent hazard, and have not caused an outage.

MAT 2BD – UG COE Replace – Replace underground equipment determined Critical Operating Equipment (COE) by the division operators, Maintenance and Construction, and restoration, and validated by Distribution Engineers. Units measured: Number of notifications.

MAT 2BF – UG Idle Facility Remove – Removal of underground Idle Facilities that have been determined not to have a likely use in the foreseeable future.

MAT 2BP – UG CAP Projects – Major underground projects, defined as jobs costing more than \$100,000 per location.

MAT 2C# – Not assigned.

MAT 2CA – Network Protector Relay Replacement – Replacement of individual network protectors or replacement of network protectors as part of planned replacement program. Units measured: Number of replacements.

MAT 2CB – Fiber/SCADA Communication Replace – Includes any upgrade/replacement work to the existing network SCADA systems for reliable operations until new SCADA is installed (not part of the new monitoring system as part of MAT 2CE).

MAT 2CC – Transformer & Protector Replace – Planned Replacement of distribution network transformers including deteriorated, oil related or high rise. Units measured: Number of replacements.

MAT 2CD – Venting Manhole Covers Replace – Replacement of existing manhole covers on the distribution network and distribution radial systems with venting manhole covers. Units measured: Number of replacements.

MAT 2CE – Network SCADA Safety Monitoring Project – Installation of new network monitoring systems for the distribution networks including sensor installation, communications, fiber optic replacement and programming activities.

MAT 06# – Line Voltage Regulator Revolving Stock – Purchase of Line Voltage Regulator Revolving Stock.

MAT 06A – Feeder Projects Associated with Substation Capacity – Includes installation and replacement of underground cable and overhead conductor associated with a new substation transformer and feeder.

MAT 06B – Transformer Replace Overloaded – Replacement of Transformers identified through overload reports using SmartMeter™ data, recorded high oil temperature indicators, or multiple thermal protective device operations during peak load periods. This does not include replacement of transformers identified via the new business, WRO or any other process. Units measured: Number of transformers.

MAT 06D – Circuits Reinforce-DP Managed – Installation of new overhead and underground facilities or reconductoring of existing facilities with larger wire to meet capacity needs or voltage support. These upgrades are performed to address one of the following possible scenarios: (1) Line Capacity Overload; (2) Under or Over-Voltage Conditions; (3) Operational or Emergency Capacity; and (4) Future Underground Facilities in Joint Trench Projects. This MAT covers circuit reinforcement projects managed by Distribution Planning (DP).

MAT 06E – Circuits Reinforce-PS Managed – Installation of new overhead and underground facilities or reconductoring of existing facilities with larger wire to meet capacity needs or voltage support. These upgrades are performed to address one of the following possible scenarios: (1) Line Capacity Overload; (2) Under or Over-Voltage Conditions; (3) Operational or Emergency Capacity; and (4) Future Underground Facilities in Joint Trench Projects. This MAT covers circuit reinforcement projects managed by Project Services (PS).

MAT 06H – Distribution Line New Business Performance – Includes projects identified to address capacity deficiencies for a specific New Business customer(s) demand increase.

MAT 06I – Distribution Line Operational Capacity – Includes overhead or underground new facilities or reconductoring of existing facilities with large wire to improve reliability as well as increase emergency and operational capability of the system.

MAT 06K – Power Factor Management – Includes installing SCADA controls on strategically located distribution capacitor banks to allow control setting changes remotely for better power factor management, as well as increased voltage and reactive power support of the system.

MAT 06P – Enable Distributed Generation Distribution Line – Includes distribution line upgrades for the DER Integration Capacity Program. The primary purpose of the program is to upgrade the distribution system to enable two-way power flow in order to facilitate interconnection by DER customers.

MAT 07C – Special Criteria Pole Replacement – Replace all wooden center-bore poles in the system. Units measured: Number of poles.

MAT 07D – Pole Replacement – Replace poles identified as deteriorated/damaged and in need of replacement. Units measured: Number of poles.

MAT 07G – Pole Joint Utility Telco Reimbursement – Pole/Anchor replacement due to an overloaded condition caused by an owner's tenant. This can be driven by a PG&E tenant or another joint owner's tenant. This work is 100 percent reimbursed and managed by the local telco cable attachment project manager. Project manager must obtain tenant approval prior to creation of an 07G order. Units Measured: Number of Poles.

MAT 07L – Steel Lattice Structures – Replacement or repair of steel lattice structures that carry distribution conductor across the Delta to provide the required Navigable Waterway height clearance requirements from various local and state agencies: San Joaquin, Contra Costa, Alameda, Solano, and Yolo Counties. Units measured: Number of Poles.

MAT 07O – Overloaded Pole Replacements – Replace poles identified as overloaded (additional load applied to the pole beyond what it is designed to hold) and in need of replacement. Units measured: Number of Poles.

MAT 08J – Overhead Conductors Replacement – Replace annealed/deteriorated conductor. Units measured: Number of circuit miles. Starting in 2018, MAT 08J also includes PG&E's Wires-Down Program, which addresses conductors that fail and result in a contact with the ground, a vehicle or other object. The program consists of the following actions: (1) Post wire-down investigation; and (2) Splice data review. Units measured: Number of circuit miles.

MAT 08S – Replace Grasshopper/ OH Switches – Replace “grasshopper” switches installed between 1950 and 1970 to minimize potential safety issues during routine and emergency switching operations, and improve reliability. Units measured: Number of switches.

MAT 08W – Overhead System Hardening – System Hardening performing site specific primary conductor replacement, secondary conductor replacement, replacement of non-exempt equipment, replacement of overhead distribution line

transformers, replacement of existing wood poles with more resilient poles, upgrades to electrical protective devices and systems through equipment replacements and device programming.

MAT 09A – ED Line SCADA Install/Replace – This includes the Distribution Automation (DA) Initiative, installing new Remote Terminal Units (RTU) to improve visibility, reliability, and operations, and continuing to upgrade and replace obsolete, deficient, and failed automation and protection equipment.

MAT 09B – ED Substation SCADA/RTU Replace – Replace outmoded RTU in distribution substations to provide visibility and remote controllability to Operations.

MAT 09D – ED Substation SCADA/RTU Install – Install additional SCADA RTU in distribution substations to provide visibility and remote controllability to Operations.

MAT 09E – ED Substation Protective Relay Install/Replace – Install and replace protective relays in distribution substations to maintain optimal system protection and reliability.

MAT 09F – ED Substation SCADA Emergency Replace – Miscellaneous and emergency replacement projects initiated and funded by System Automation & Protection program.

MAT 46A – Substation General Install/Replace – Projects to support general distribution substation capacity increases for banks, bus, feeders, or other substation components that do not fall into one of the other MWC 46 MATs.

MAT 46F – Distribution Substation Emergency and Operational Capacity– Projects identified in this MAT increase the distribution capacity by upgrading banks, bus, feeders, or other substation components to improve reliability by providing emergency capacity and/or operational flexibility at the bank and feeder level.

MAT 46H – Distribution Substation New Business Perf – These projects are similar to other projects under MWC 46, however these projects have been identified to address capacity deficiencies for specific New Business customers' demand increase.

MAT 46N – Distribution Substation New Substation – Includes projects to increase area distribution substation capacity by siting, permitting, and constructing new substations.

MAT 46T – Distribution Substation Support Transmission or Substation Related Work – Projects identified in this MAT replace or relocate distribution substation equipment to support a related Transmission bus reconfiguration or voltage conversion or Substation condition-based replacement projects.

MAT 48A – Replace Distribution Substation Other Equipment – Replace other distribution substation equipment, such as ancillary equipment, ground grids, etc. Includes replacement projects with complex or wide-ranging scope of work that include various equipment types.

MAT 48B – Replace Distribution Substation Regulators – Replace regulators that are distribution substation assets, mainly distribution class (less than 50 kV), single-phase or three-phase.

MAT 48C – Replace Distribution Substation Batteries – Replace battery system at distribution substation. Units measured: Number of batteries.

MAT 48D – Replace Distribution Substation Breakers – Replace distribution substation circuit breakers.

MAT 48E – Replace Distribution Substation Switches – Replace distribution substation disconnect switches.

MAT 48F – Replace Distribution Substation Switchgear – Replace distribution substation switchgear equipment.

MAT 48H – Replace Distribution Substation Civil Structures – Replace civil structures (structures, foundation, etc.) that are distribution substation assets.

MAT 48L – Distribution Line Work Support Substation – Includes work required on distribution lines associated with substation equipment replacement work.

MAT 48N – Distribution Substation Insulators – Replacement of distribution insulators that have reached end-of-life.

MAT 48R – Distribution Substation Reactors – Replacement of distribution reactors that have reached end-of-life.

MAT 48X – Distribution Substation Animal Abatement – Animal abatement program retroactively mitigates substations that have previously had animal contacts. Units measured: Number of locations.

MAT 49# – Line Reclosers Revolving Stock – Purchase Line Reclosers Revolving Stock.

MAT 49B – Recloser Control Upgrades – Strategic upgrade of recloser controls (units in-service, NOT deteriorated or damaged), includes minor communication, or other minor upgrades to expand or improve SCADA coverage and improve reliability. Units measured: Number of recloser controls.

MAT 49C – OH Fuses Install/Replace – Install New OH Fuses to improve reliability. Units measured: Number of fuses.

MAT 49D – OH Recloser/Sectionalizers/Switch Install/Replace – Install New Reclosers, Sectionalizers, OH Switches or solid blade disconnects to improve reliability. Units measured: Number of devices.

MAT 49E – Targeted Circuits Program – Line work that typically includes reliability work, such as protective devices, reframing lines, installing tree wire, etc.: Targeted Circuit Program, as well as system or city/community programs to improve reliability. Units measured: Number of circuits.

MAT 49F – UG Fuses Install/Replace – Install or replace UG fuses to improve reliability. Units measured: Number of fuses.

MAT 49G – UG Recloser/Sectionalizers/Switch Install/Replace – Install or replace UG interrupters to improve reliability. Units measured: Number of devices.

MAT 49H – UG Fault Indicator Install/Replace – Install or replace UG fault indicators to improve reliability. Units measured: Number of indicators.

MAT 49I – Fault Indicators / Line Sensors – Install new OH fault indicators or line sensors to improve reliability. Units measured: Number of devices.

MAT 49M – Resilience Zones – Build resilience zones around pre-installed interconnection hubs (PIH)—permanent, “plug and play” infrastructure enabling temporary generation to connect to the distribution grid at pre-determined locations. Generally, PIHs will consist of a transformer and associated interconnection equipment, ground grid, and grid isolation and protection devices

MAT 49S – FLISR Systems – The FLISR automation system reduces the effect of outages to customers by quickly opening and closing automated switches. This is the same automation work done previously under the Cornerstone project. Units measured: Number of circuits.

MAT 49T – Distribution Trip Saver Cutout Mounted Line Recloser – Install new TripSaver equipment. Units measured: Number of devices.

MAT 49X – Emerging Distribution Reliability Improvements – Emergent Reliability projects focused on addressing localized reliability issues not covered by broad, system-wide reliability programs.

MAT 56A – UG Cable Other Replace – Capital work associated with underground primary cable systems, including replacement of underground cable and associated components. Units measured: Number of miles.

MAT 56B – UG Cable Rejuvenation and Testing – Rejuvenation (injection) of primary underground cables to restore insulation integrity, and testing of primary underground cables for targeted replacement work performed under MAT 56A.

MAT 56C – UG Cable COE Replace – Primary underground cable replacement required to address failed primary cable sections noted on the Critical Operating Equipment (COE) list. Units measured: Number of projects.

MAT 56D – TGRAM/TGRAL Switch Replacement – Replacement of underground TGRAM/TGRAL switches. Units measured: Number of replacements.

MAT 56N – Network Cable Replacement – Systematic replacement of network cable assets in San Francisco and Oakland. The work involves replacing primary and secondary cables, and installing new equipment.

MAT 56S – Replace Obsolete UG Switches – Proactive replacement of underground oil-filled switches whose condition warrants replacement in order to avoid potential failures. Units measured: Number of replacements.

MAT 56T – Install Temperature Indicator – Install Distribution Temperature Monitor, otherwise known as Temperature Alarm Devices, for Substation Distribution Assets (Transformers, Load Break Oil Rotary Switches and 600 amp Mainline Switches

MAT 58A – Distribution Substation Safety, Environmental, Fire Protection – Replace or install fire protection in distribution substation assets.

MAT 58S – Distribution Substation Security Upgrades – Replace or install security in distribution substation assets.

**TABLE 3-4
ELECTRIC DISTRIBUTION 2018 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
1	05	Tools & Equipment	N/A	–	4-19	4-18	–	7,209	–	(16,832)	–	24,041	Program expenditures exceeded imputed regulatory values because the imputed regulatory value contains a consolidated forecast for expected capital efficiency offsets which are not tracked or recorded in MWC 05. The recorded costs in MWC 05 represent the cost for tools and equipment for electric distribution in 2018.	N/A	N/A
2	06	E Dist Line Capacity	06A	Fdr Prj Assoc w/Subst Capacity	4-13	4-13	–	10,875	–	5,641	–	5,235	Below variance threshold.	N/A	N/A
3	06	E Dist Line Capacity	06B	Transformer Repl Overloaded	4-13	4-13	6	83	225	3,058	(219)	(2,976)	Actual units were lower than imputed units due to less overloaded transformer replacement work completed due to resource constraints and focus on higher priority work in other programs such as major emergency, pole replacement, and overhead maintenance.	N/A	N/A
4	06	E Dist Line Capacity	06D	Circuits Reinforce-DP Managed	4-13	4-13	–	2,222	–	4,741	–	(2,518)	Below variance threshold.	N/A	N/A
5	06	E Dist Line Capacity	06E	Circuits Reinforce-PS Managed	4-13	4-13	–	4,963	–	20,437	–	(15,473)	Below variance threshold.	N/A	N/A
6	06	E Dist Line Capacity	06G	Voltage Correct Secondary	4-13	4-13	–	3,319	–	2,654	–	665	Below variance threshold.	N/A	N/A
7	06	E Dist Line Capacity	06H	Dist Line New Business Perf	4-13	4-13	–	30,192	–	38,595	–	(8,402)	Below variance threshold.	N/A	N/A
8	06	E Dist Line Capacity	06I	Operational Capacity Proj	4-13	4-13	–	7,180	–	–	–	7,180	Below variance threshold.	N/A	N/A
9	06	E Dist Line Capacity	06K	Power Factor Management	4-13	4-13	–	65	–	–	–	65	Below variance threshold.	N/A	N/A
10	06	E Dist Line Capacity	06L	Do Not Use - Cornerstone	4-13	4-13	–	1	–	–	–	1	Below variance threshold.	N/A	N/A
11	06	E Dist Line Capacity	06M		4-13	4-13	–	15	–	–	–	15	Below variance threshold.	N/A	N/A
12	06	E Dist Line Capacity	06O	06O_SmartGrid VVO Dist Line	4-13	4-13	–	–	–	1,052	–	(1,052)	Below variance threshold.	N/A	N/A

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**TABLE 3-4
ELECTRIC DISTRIBUTION 2018 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
13	06	E Dist Line Capacity	06P	06P_Enable DG Dist Line	4-13	4-13	–	384	–	–	–	384	Below variance threshold.	N/A	N/A
14	06	E Dist Line Capacity	#	Not assigned	4-13	4-13	–	8,367	–	6,812	–	1,555	Below variance threshold.	N/A	N/A
15	07	E Dist Inst/Repl OH Poles	07C	Special Criteria Pole Repl	4-8	4-8	–	580	–	–	–	580	Below variance threshold.	N/A	N/A
16	07	E Dist Inst/Repl OH Poles	07D	Pole Repl	4-8	4-8	12,399	220,105	6,125	68,557	6,274	151,548	Actual units were higher than imputed units and program expenditures were higher than imputed regulatory values due to work carried over from 2017, higher volume of deteriorated units identified in higher unit cost divisions, and accelerated pole retirements.	N/A	N/A
17	07	E Dist Inst/Repl OH Poles	07G	Pole Joint Util Telco Reimb	4-8	4-8	–	(131)	–	–	–	(131)	Below variance threshold.	N/A	N/A
18	07	E Dist Inst/Repl OH Poles	07L	Steel Lattice Structures	4-8	4-8	1	58	–	–	1	58	Actual units were higher than imputed units due to replacement of a Steel Lattice Structure, not included in the 2017 GRC forecast, as a result of compliance inspections. These structures are multi-year projects because of the advanced engineering required.	N/A	N/A
19	07	E Dist Inst/Repl OH Poles	07O	Overloaded Pole Replacements	4-8	4-8	140	3,384	–	–	140	3,384	Actual units exceeded imputed regulatory values due to transfer of Overloaded Pole Replacement units from MAT 2AA to new MAT 07O.	N/A	N/A
20	07	E Dist Inst/Repl OH Poles	#	Not assigned	4-8	4-8	–	3,847	–	–	–	3,847	Below variance threshold.	N/A	N/A
21	08	E Dist Replace OH Asset	08F	Cornerstone	4-9	4-9	–	(44)	–	–	–	(44)	Below variance threshold.	N/A	N/A
22	08	E Dist Replace OH Asset	08J	Repl Deteriorated OH Conductor	4-9	4-9	35	16,109	74	33,233	(39)	(17,124)	Actual units were lower than imputed units due to resource constraints and focus on higher priority work in other programs such as major emergency, pole replacement, and overhead maintenance.	N/A	N/A

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**TABLE 3-4
ELECTRIC DISTRIBUTION 2018 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
23	08	E Dist Replace OH Asset	08S	Replace Obsolete OH Switches	4-9	4-9	19	415	30	1,239	(11)	(824)	Actual units were lower than imputed units due to resource constraints and focus on higher priority work in other programs such as major emergency, pole replacement, and overhead maintenance.	N/A	N/A
24	08	E Dist Replace OH Asset	08W	Wildfire Resiliency projects	4-9	4-9	17	23,759	16	7,416	1	16,343	Program expenditures exceeded imputed regulatory values due to ramp-up of wildfire circuit hardening work.	N/A	N/A
25	08	E Dist Replace OH Asset	#	Not assigned	4-9	4-9	–	(690)	–	–	–	(690)	Below variance threshold.	N/A	N/A
26	09	E Dist Automation & Protection	09A	ED Line SCADA Inst/Repl	4-10	4-10	–	8,418	–	2,661	–	5,757	Below variance threshold.	N/A	N/A
27	09	E Dist Automation & Protection	09B	ED Sub SCADA/RTU Replace	4-10	4-10	–	11,206	–	8,977	–	2,230	Below variance threshold.	N/A	N/A
28	09	E Dist Automation & Protection	09D	ED Sub SCADA/RTU Install	4-10	4-10	–	43,031	–	30,847	–	12,184	Below variance threshold.	N/A	N/A
29	09	E Dist Automation & Protection	09E	ED Sub Protect Relay Inst/Repl	4-10	4-10	–	4,712	–	2,041	–	2,671	Below variance threshold.	N/A	N/A
30	09	E Dist Automation & Protection	09F	ED Sub SCADA Emergency Repl	4-10	4-10	–	5,363	–	226	–	5,138	Below variance threshold.	N/A	N/A
33	17	E Dist Routine Emergency	N/A	–	4-4	4-4	–	187,744	–	136,457	–	51,287	Program expenditures exceeded imputed regulatory values due to higher spending in overall contract costs and higher over time /double time hours.	N/A	N/A
34	21	EP&R and Misc Capital	N/A	–	4-3	4-3,4-18	–	9,314	–	7,434	–	1,880	Below variance threshold.	N/A	N/A
35	23	Implement Real Estate Strategy	N/A	–	4-19	N/A	–	–	–	5,238	–	(5,238)	Below variance threshold.	N/A	N/A
36	25	Install New Electric Meters	N/A	–	6-7	6-6	–	24,656	–	–	–	24,656	Program expenditures exceeded Electric Distribution imputed regulatory values due to transfer of the Field Meter Operations to Electric Operations and Gas Operations in 2018 See Section 6 for imputed regulatory values.	N/A	N/A

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**TABLE 3-4
ELECTRIC DISTRIBUTION 2018 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
37	2A	E Dist Inst/Repl OH General	2AA	OH Genl Repl	4-6	4-6	14,641	95,034	9,630	46,205	5,011	48,829	Actual units were higher than imputed units and program expenditures exceeded imputed regulatory values due to a higher than forecast number of completed priority F tags, 2017 notifications completed in 2018 as result of major emergency response requirements in 2017, and completion of a higher number of HFTD Tier 3 tags compared to imputed values. Increase in cost also due to increased use of contract labor to complete maintenance notifications.	N/A	N/A
38	2A	E Dist Inst/Repl OH General	2AB	Bird Safe Inst/Repl	4-6	4-6	736	1,978	1,379	3,843	(643)	(1,865)	Actual units were lower than imputed units due to fewer bird incidents/bird mitigation jobs completed.	N/A	N/A
39	2A	E Dist Inst/Repl OH General	2AC	Bird Safe Inst/Repl Annual	4-6	4-6	1,284	5,271	900	2,545	384	2,726	Actual units were higher than imputed units due to a higher volume of capital bird mitigation jobs completed.	N/A	N/A
40	2A	E Dist Inst/Repl OH General	2AE	OH COE Repl	4-6	4-6	1,392	37,743	852	18,044	540	19,698	Actual units were higher than imputed units and program expenditures exceeded imputed regulatory values due to a higher volume of COE replacements completed. Higher total cost also impacted by type of work completed and increased use of contract resources for construction.	N/A	N/A
41	2A	E Dist Inst/Repl OH General	2AF	OH Idle Facility Remove	4-6	4-6	1,464	6,338	887	3,179	577	3,159	Actual units were higher than imputed units due to a higher volume of idle facility removals completed, as a result of 2017 carryover work, 2019 pull-forward tags, and slightly higher find rate than imputed.	N/A	N/A
42	2A	E Dist Inst/Repl OH General	2AG	SF Series Streetlights	4-6	4-6	–	17,838	–	7,371	–	10,466	Program expenditures exceeded imputed regulatory values due to higher volume of planned streetlight work performed in 2018. This project experienced significant delays in prior years due to moratoriums and permitting requirements.	N/A	N/A

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**TABLE 3-4
ELECTRIC DISTRIBUTION 2018 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
43	2A	E Dist Inst/Repl OH General	2AH	LED Streetlights	4-6	4-6	18,967	8,866	54,281	23,627	(35,314)	(14,761)	Actual units were lower than imputed units due to fewer LED streetlight retrofits completed. PG&E currently forecasts completion of non-decorative and decorative conversions in 2019. This does not include High Pressure Sodium Vapor lights whose power is supplied by City and County of San Francisco but which are owned by PG&E.	N/A	N/A
44	2A	E Dist Inst/Repl OH General	2AI	SF Historical Streetlights	4-6	4-6	-	1,389	-	3,239	-	(1,850)	Below variance threshold.	N/A	N/A
45	2A	E Dist Inst/Repl OH General	2AP	OH CAP Projects	4-6	4-6	-	1,205	-	923	-	283	Below variance threshold.	N/A	N/A
46	2A	E Dist Inst/Repl OH General	2AQ	Ceramic Post Insulators	4-6	4-6	-	1,959	-	-	-	1,959	Below variance threshold.	N/A	N/A
47	2A	E Dist Inst/Repl OH General	2AR	Surge Arrester Replacement	4-6	4-6	12,615	45,419	-	-	12,615	45,419	Actual units were higher than imputed units and program expenditures exceeded imputed regulatory value due to completion of surge arrester replacements (including corrective grounding work) not forecast in the 2017 GRC.	N/A	N/A
48	2A	E Dist Inst/Repl OH General	2AS	FAS Overhead Capital	4-6	4-6	2,129	680	2,020	674	109	6	Below variance threshold.	N/A	N/A
49	2A	E Dist Inst/Repl OH General	#	Not assigned	4-6	4-6	-	830	-	-	-	830	Below variance threshold.	N/A	N/A

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**TABLE 3-4
ELECTRIC DISTRIBUTION 2018 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
50	2B	E Dist Inst/Repl UG	2BA	UG Genl Repl	4-6	4-6	3,490	62,720	5,750	33,499	(2,260)	29,221	Actual units were lower than imputed units due to shifting fault indicators replacements from MAT 2BA to 2BB. However, more high cost units were completed in 2018 than reflected in imputed unit volume. Program expenditures were above imputed regulatory values due to a higher overall volume of work completed (2017 work completed in 2018 due to North Bay fires and other major emergency response), the use of contract labor to complete maintenance work, and increased units associated with replacement of primary enclosures.	N/A	N/A
51	2B	E Dist Inst/Repl UG	2BB	Fault Indicator Replacements	4-6	4-6	4,384	1,035	–	–	4,384	1,035	Actual units were higher than imputed units due to recording units and costs associated with fault indicator replacement in MAT 2BB. The 2017 GRC forecast included fault indicator units in MAT 2BA whereas 2018 actual spending records the majority of the fault indicator units in MAT 2BB.	N/A	N/A
52	2B	E Dist Inst/Repl UG	2BD	UG COE Repl	4-6	4-6	138	6,037	112	4,109	26	1,927	Actual units were higher than imputed units due to completion of 2017 underground COE replacement work in 2018 (as a result of 2017 major emergency response).	N/A	N/A
53	2B	E Dist Inst/Repl UG	2BF	UG Idle Facility Remove	4-6	4-6	–	409	–	360	–	49	Below variance threshold.	N/A	N/A
54	2B	E Dist Inst/Repl UG	2BP	UG CAP Projects	4-6	4-6	–	1,603	–	2,209	–	(606)	Below variance threshold.	N/A	N/A
55	2B	E Dist Inst/Repl UG	#	Not assigned	4-6	4-6	–	(1,478)	–	461	–	(1,940)	Below variance threshold.	N/A	N/A
56	2C	E Dist Inst/Repl Network	2CA	Network Misc	4-6	4-6	34	272	27	391	7	(120)	Actual units were higher than imputed units due to the number of relays identified for replacement in the field.	N/A	N/A

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**TABLE 3-4
ELECTRIC DISTRIBUTION 2018 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
57	2C	E Dist Inst/Repl Network	2CB	Fiber/SCADA Communication Repl	4-6	4-6	-	155	-	202	-	(47)	Below variance threshold.	N/A	N/A
58	2C	E Dist Inst/Repl Network	2CC	Transformer & Protector Repl	4-6	4-6	28	5,799	25	5,433	3	366	Below variance threshold.	N/A	N/A
59	2C	E Dist Inst/Repl Network	2CD	Venting Manhole Covers Repl	4-6	4-6	1,042	4,442	1,350	3,443	(308)	999	Actual units were lower than imputed units due to program moving to locations with non-standard covers which have higher unit costs.	N/A	N/A
60	2C	E Dist Inst/Repl Network	2CE	SCADA Communications Upgrd	4-6	4-6	-	10,648	-	9,230	-	1,418	Below variance threshold.	N/A	N/A
61	2C	E Dist Inst/Repl Network	#	Not assigned	4-6	4-6	-	(469)	-	-	-	(469)	Below variance threshold.	N/A	N/A
62	2F	Build IT Apps & Infra	N/A	-	4-13,4-15,4-5,4-9	4-5,4-9,4-15,4-19	-	33,251	-	46,565	-	(13,314)	Below variance threshold.	N/A	N/A
64	46	E Dist Subst Capacity	46A	DSub Nor Capacity	4-13	4-13	-	390	-	-	-	390	Below variance threshold.	N/A	N/A
65	46	E Dist Subst Capacity	46B	Do Not Use - Cornerstone	4-13	4-13	-	-	-	-	-	-	Below variance threshold.	N/A	N/A
66	46	E Dist Subst Capacity	46F	DSub Em and Op Capacity	4-13	4-13	-	5,894	-	734	-	5,160	Below variance threshold.	N/A	N/A
67	46	E Dist Subst Capacity	46H	DSub New Bus Related Capacity	4-13	4-13	-	3,291	-	28,976	-	(25,684)	Program expenditures were below imputed regulatory values due to less than forecast work required to support new business-related projects.	N/A	N/A
68	46	E Dist Subst Capacity	46N	DSub Land Purchase_ New Sub	4-13	4-13	-	2,052	-	5,885	-	(3,833)	Below variance threshold.	N/A	N/A
69	46	E Dist Subst Capacity	46T	DSub Support T/S Related Wk	4-13	4-13	-	543	-	26,772	-	(26,229)	Program expenditures were below imputed regulatory values due to change in MAT classification after 2017 GRC Settlement. Work forecast in 46F and 46T in 2017 GRC currently resides in 46A, 46H and 46F. 46T now supports work identified in Transmission projects or Substation Condition based replacement projects.	N/A	N/A

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**TABLE 3-4
ELECTRIC DISTRIBUTION 2018 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
70	46	E Dist Subst Capacity	46V	DSub Smart Grid VVO	4-13	4-13	–	–	–	574	–	(574)	Below variance threshold.	N/A	N/A
71	46	E Dist Subst Capacity	46W	DSub Enable DG	4-13	4-13	–	–	–	–	–	–	Below variance threshold.	N/A	N/A
72	46	E Dist Subst Capacity	#	Not assigned	4-13	4-13	–	206	–	–	–	206	Below variance threshold.	N/A	N/A
73	48	E Dist Subst Repl Other Equip	48A	Repl Dsub Other Equipment	4-12	4-12	–	5,916	–	3,435	–	2,481	Below variance threshold.	N/A	N/A
74	48	E Dist Subst Repl Other Equip	48B	Repl DSub Regulators	4-12	4-12	–	650	–	–	–	650	Below variance threshold.	N/A	N/A
75	48	E Dist Subst Repl Other Equip	48C	Repl DSub Batteries	4-12	4-12	3	734	10	936	(7)	(202)	Actual units were lower than imputed units due to funding allocation to higher priority work such as emergency equipment replacement work at various substations recorded in MWC 59.	N/A	N/A
76	48	E Dist Subst Repl Other Equip	48D	Repl DSub Breakers	4-12	4-12	–	8,871	–	6,508	–	2,363	Below variance threshold.	N/A	N/A
77	48	E Dist Subst Repl Other Equip	48E	Repl DSub Switches	4-12	4-12	–	1,170	–	497	–	673	Below variance threshold.	N/A	N/A
78	48	E Dist Subst Repl Other Equip	48F	Repl DSub Switchgear	4-12	4-12	–	64,547	–	55,499	–	9,048	Below variance threshold.	N/A	N/A
79	48	E Dist Subst Repl Other Equip	48H	Repl DSub Civil Structures	4-12	4-12	–	706	–	5,683	–	(4,977)	Below variance threshold.	N/A	N/A
80	48	E Dist Subst Repl Other Equip	48L	Dist Line Work Support Substat	4-12	4-12	–	17,743	–	–	–	17,743	Program expenditures were higher than regulatory values because this MAT code was created after the 2017 GRC was filed. Work in this MAT code is for distribution line work associated with substation projects that was included in the forecast for other projects in MWC 48.	N/A	N/A
81	48	E Dist Subst Repl Other Equip	48N	DSub Insulators	4-12	4-12	–	2,400	–	297	–	2,103	Below variance threshold.	N/A	N/A

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**TABLE 3-4
ELECTRIC DISTRIBUTION 2018 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
82	48	E Dist Subst Repl Other Equip	48X	DSub Animal Abatement	4-12	4-12	14	4,175	27	2,289	(13)	1,886	Actual units were lower than imputed units due to funding allocation to higher priority work such as emergency equipment replacement work at various substations recorded in MWC 59.	N/A	N/A
83	49	E Dist Reliability Ckt/Zone	49B	Recl Ctrls Inst/Repl	4-9	4-9	8	318	28	508	(20)	(190)	Actual units were lower than imputed units due to resource constraints and focus on higher priority work in other programs such as major emergency, pole replacement, and overhead maintenance.	N/A	N/A
84	49	E Dist Reliability Ckt/Zone	49C	OH Fuses Inst/Repl	4-9	4-9	57	498	270	3,637	(213)	(3,140)	Actual units were lower than imputed units due to resource constraints and focus on higher priority work in other programs such as major emergency, pole replacement, and overhead maintenance.	N/A	N/A
85	49	E Dist Reliability Ckt/Zone	49D	OH Recl/Sect/Sw ch Inst/Repl	4-9	4-9	5	709	92	4,190	(87)	(3,481)	Actual units were lower than imputed units due to resource constraints and focus on higher priority work in other programs such as major emergency, pole replacement, and overhead maintenance.	N/A	N/A
86	49	E Dist Reliability Ckt/Zone	49E	Genl Inst/Repl Circuit/Zone	4-9	4-9	42	4,175	33	24,186	9	(20,011)	Actual units exceeded imputed regulatory units due to more targeted circuits being completed at a lower cost, driven by a significant reductions in scope of work. Overall program spending reduced due to resource constraints and focus on higher priority work in other programs such as major emergency, pole replacement, and overhead maintenance.	N/A	N/A
87	49	E Dist Reliability Ckt/Zone	49F	UG Fuses Inst/Repl	4-9	4-9	1	634	10	2,114	(9)	(1,480)	Actual units were lower than imputed units due to resource constraints and focus on higher priority work in other programs such as major emergency, pole replacement, and overhead maintenance.	N/A	N/A

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**TABLE 3-4
ELECTRIC DISTRIBUTION 2018 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
88	49	E Dist Reliability Ckt/Zone	49G	UG Recl/Sect/Swch Inst/Repl	4-9	4-9	–	196	5	1,001	(5)	(805)	Actual units were lower than imputed units due to resource constraints and focus on higher priority work in other programs such as major emergency, pole replacement, and overhead maintenance.	N/A	N/A
89	49	E Dist Reliability Ckt/Zone	49H	UG Fault Indicator Inst/Repl	4-9	4-9	–	45	–	–	–	45	Below variance threshold.	N/A	N/A
90	49	E Dist Reliability Ckt/Zone	49I	49I OH FltInd/LnSnsr Inst/Repl	4-9	4-9	–	377	1,002	4,131	(1,002)	(3,754)	Actual units were lower than imputed units due to resource constraints and focus on higher priority work in other programs such as major emergency, pole replacement, and overhead maintenance.	N/A	N/A
91	49	E Dist Reliability Ckt/Zone	49M	PIH / Microgrids: non-gen	4-9	4-9	–	692	–	–	–	692	Below variance threshold.	N/A	N/A
92	49	E Dist Reliability Ckt/Zone	49S	Elect Reliability Inst FLISR	4-9	4-9	10	6,621	104	20,916	(94)	(14,295)	Actual units were lower than imputed units due to resource constraints and focus on higher priority work in other programs such as major emergency, pole replacement, and overhead maintenance.	N/A	N/A
93	49	E Dist Reliability Ckt/Zone	49T	D-TripSaverII Cutout-MountedLR	4-9	4-9	1	1,074	–	–	1	1,074	Actual units were higher than imputed due to implementation of new TripSaver program not forecast in the 2017 GRC.	N/A	N/A
94	49	E Dist Reliability Ckt/Zone	49X	Emerging Dist Rel Improvements	4-9	4-9	–	4,384	–	4,254	–	130	Below variance threshold.	N/A	N/A
95	49	E Dist Reliability Ckt/Zone	#	Not assigned	4-9	4-9	–	6,060	–	9,777	–	(3,718)	Below variance threshold.	N/A	N/A
96	54	E Dist Subst Repl Transformer	54A	E Dist Subst-Repl Transfm	4-12	4-12	–	31,084	–	39,654	–	(8,569)	Below variance threshold.	N/A	N/A
97	54	E Dist Subst Repl Transformer	#	Not assigned	4-12	4-12	–	2	–	–	–	2	Below variance threshold.	N/A	N/A

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**TABLE 3-4
ELECTRIC DISTRIBUTION 2018 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
98	56	E Dist Replace UG Asset-Gen	56A	UG Cable Other Repl	4-11	4-11	27	29,916	28	33,137	(1)	(3,221)	Below variance threshold.	N/A	N/A
99	56	E Dist Replace UG Asset-Gen	56B	UG Cable Inject	4-11	4-11	–	1,565	–	2,004	–	(439)	Below variance threshold.	N/A	N/A
100	56	E Dist Replace UG Asset-Gen	56C	UG Cable COE Repl	4-11	4-11	206	28,506	245	29,734	(39)	(1,227)	Below variance threshold.	N/A	N/A
101	56	E Dist Replace UG Asset-Gen	56D	TGram/TGral Switch Replacement	4-11	4-11	1	370	–	–	1	370	Actual units were higher than imputed due to replacement of a switch not included in the 2017 GRC forecast.	N/A	N/A
102	56	E Dist Replace UG Asset-Gen	56N	Network Cable Replacement	4-11	4-11	–	24,548	–	27,071	–	(2,523)	Below variance threshold.	N/A	N/A
103	56	E Dist Replace UG Asset-Gen	56S	Replace Obsolete UG Switches	4-11	4-11	23	1,362	144	8,148	(121)	(6,786)	Actual units were lower than imputed units due to resource constraints and focus on higher priority work in other programs such as major emergency, pole replacement, and overhead maintenance.	N/A	N/A
104	56	E Dist Replace UG Asset-Gen	56T	Install Temperature Indicator	4-11	4-11	–	1,519	–	–	–	1,519	Below variance threshold.	N/A	N/A
105	56	E Dist Replace UG Asset-Gen	#	Not assigned	4-11	4-11	–	(4,780)	–	–	–	(4,780)	Below variance threshold.	N/A	N/A
106	58	E Dist Repl Substation Safety	58A	DSub Safety&Envir &Fire Protect	4-12	4-12	–	2,092	–	820	–	1,272	Below variance threshold.	N/A	N/A
107	58	E Dist Repl Substation Safety	58C	Repl Dist Sub Misc Equip	4-12	4-12	–	24	–	–	–	24	Below variance threshold.	N/A	N/A
108	58	E Dist Repl Substation Safety	58S	DSub Security Upgrades	4-12	4-12	–	173	–	1,331	–	(1,157)	Below variance threshold.	N/A	N/A
109	59	E Dist Subst Emergency Repl	N/A	–	4-12	4-12	–	62,881	–	42,283	–	20,598	Program expenditures exceeded imputed regulatory values due to higher than forecast emergency equipment replacement work at various substations.	N/A	N/A

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**TABLE 3-4
ELECTRIC DISTRIBUTION 2018 CAPITAL COMPARISON
BY MAT CODE FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Recorded Units	2018 Recorded Costs	2018 Imputed Units	2018 Imputed Costs	2018 Difference in Units	2018 Difference in Costs	Explanation ^(a)	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
110	63	E T&D Control System/ Facility	N/A	–	4-5	4-5,4-19	–	6,841	–	1,019	–	5,823	Below variance threshold.	N/A	N/A
111	74	Install New Gas Meters	N/A	–	6-7	6-6	–	8,079	–	–	–	8,079	Below variance threshold.	N/A	N/A
112	95	E Dist Major Emergency	95 - CEMA	–	N/A	N/A	–	272,402	–	–	–	272,402	Program expenditures exceeded imputed regulatory values due to CEMA-qualified expenses that are eligible for recovery through a separate application. CEMA qualified costs cannot be forecasted, therefore there is no imputed unit or cost value.	Catastrophic Event Memorandum Account	N/A
113	95	E Dist Major Emergency	95- MEBA	–	4-4	4-4	–	37,026	–	52,462	–	(15,435)	Program expenditures were lower than the imputed value in 2018 as a result of many 2018 storm and wildfire events qualifying for CEMA treatment.	Major Emergency Balancing Account	Decision 17-05-013

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**TABLE 3-5
ELECTRIC DISTRIBUTION 2018 UNIT REPORT**

Line No.	Description	2018 Recorded Units
1	Wood Poles replaced through Pole Replacement and other Company programs	26,594
2	Stand-alone circuit breakers replaced or installed across all Company programs	35
3	Miles of paper-insulated lead sheath cable (PILC) replaced across all Company programs	5.7
4	Miles of HMWPE cable, respectively, replaced across all Company programs	70
5	Miles of HMWPE cable, respectively, rejuvenated across all Company programs	0
6	Miles of overhead conductor replaced or installed across all Company programs	275
7	Grasshopper switches replaced across all Company programs	16
8	FLISR installations in the Reliability Program	10
9	Overhead fuse installations across all Company programs	3,525

**TABLE 3-6
2018 SURGE ARRESTER PROGRESS REPORT
(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Description	Amount
1	Expense (MAT KAR)	\$174
2	Capital (MAT 2AR)	\$45,419
3	Total Program Spend:	\$45,593
4	Units Completed	12,615
5	Locations in PG&E's survey identified as not requiring work:	0

**TABLE 3-7
ELECTRIC DISTRIBUTION WOOD POLE COUNT BY AGE**

Line No.	Wood Pole Count by Age	
	Age (Years)	Number of Poles
1	1-5	91,719
2	6-10	98,153
3	11-15	72,865
4	16-20	119,662
5	21-25	117,976
6	26-30	132,815
7	31-35	175,390
8	36-40	158,042
9	41-45	200,942
10	46-50	177,002
11	51-55	156,890
12	56-60	214,238
13	61-65	164,558
14	66-70	169,371
15	71-75	87,384
16	76-80	11,923
17	81-85	7,791
18	86-90	3,828
19	91-95	2,528
20	96-100	87
21	Unavailable	112,220
22	Total	2,275,384

2018 Accelerated Retirement Pole Population

PG&E was in an unprecedented situation in 2018. The October 2017 wildfires greatly impacted the entire company, shifting priorities and resources to the affected areas to provide crucial assistance.

In addition, the CPUC issued Decision 17-12-024 (Fire Safety Rulemaking) and associated HFTD maps in early 2018. This rulemaking requires that assets in Tier 3 and Tier 2 areas be remediated within 6 months and 12 months, respectively, of the inspection date, which accelerates PG&E’s remediation timeframe. It also required that all poles identified for replacement in Tier 3 areas be replaced prior to August 31, 2018, and all poles identified for replacement in Tier 2 areas to be replaced by June 30, 2019.

As a result of these changes, PG&E chose to expand the criterion for the 2018 accelerated retirement population to allow poles to be identified for accelerated replacement through PG&E’s GO 165 inspections. Because of the revised regulation, which accelerates remediation requirements in the newly defined HFTDs, and the Company’s desire to decrease wildfire drivers, PG&E ultimately chose to limit the 2018 accelerated retirement population to poles in Tier 3 and Tier 2 HFTD areas, which PG&E considers to be higher risk. PG&E performed the following pole replacements in 2018, compared to the GRC imputed adopted amounts:

**TABLE 3-8
2018 POLE REPLACEMENT IMPUTED AMOUNTS VERSUS ACTUAL**

Line No.		2018 Imputed Adopted Amounts	2018 Actuals	Percent Increase
1	Units	6,125	12,399	102%
2	Spend	\$68.6 M	\$220.1 M	221%

PG&E performed the following pole replacements in 2018 in Tier 3 and 2 areas:

**TABLE 3-9
2018 POLE REPLACEMENTS UNITS, TIER 2 AND TIER 3**

	Tier 3	Tier 2	Total
Units	1,627	3,121	4,748

The following subset of pole replacements occurred in 2018 in Tier 3 and 2 areas and were accelerated due to the regulation remediation requirements. This subset of pole replacements would normally have been planned for future years. However, the pole replacements were completed in 2018.

TABLE 3-10
2018 ACCELERATED RETIREMENT POLE REPLACEMENTS TIER 2 AND TIER 3

Line No.		Tier 3	Tier 2	Total
1	Units	502	229	731
2	Spend	\$8.8 M	\$4.0M	\$12.8M

Due to the extenuating circumstances and heightened focus on reducing wildfire drivers, PG&E accelerated the retirement of 731 pole replacements in 2018, spending \$12.8 million.

SECTION 4
Energy Supply: Nuclear Generation
Imputed Adopted vs. Recorded

**TABLE 4-1
NUCLEAR GENERATION 2018 EXPENSE COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)**

Line No.	MWC Description	MWC	2018 Imputed Regulatory Values	2018 Recorded	2018 Difference Higher/ (Lower)	2019 Budget
1	Support	AB	\$20,174	\$(144)	\$(20,318)	\$(1)
2	Manage Environmental Operations	AK	2,937	(2,630)	(5,567)	1,931
3	Manage DCPD Business	BP	11,708	12,292	584	14,115
4	DCPD Support Services	BQ	39,843	48,720	8,877	53,452
5	Operate DCPD Plant	BR	74,828	82,940	8,112	86,112
6	Maintain DCPD Plant Assets	BS	120,133	110,332	(9,801)	137,657
7	Nuclear Generation Fees	BT	18,125	14,440	(3,685)	13,732
8	Procure DCPD Materials & Services	BU	-	(1,389)	(1,389)	-
9	Maintain DCPD Plant Configuration	BV	42,130	31,635	(10,495)	34,966
10	Manage Waste Disp & Transportation	CR	113		(113)	-
11	Provide Nuclear Support	EO	184	(1)	(186)	-
12	Manage Var Bal Acct Processes	IG	9,848	12,929	3,081	9,647
13	Operational Management	OM	11,151	6,809	(4,342)	6,198
14	Operational Support	OS	23,994	15,669	(8,325)	16,103
15	Maintain IT Apps & Infrastructure	JV	2,202	1,433	(769)	689
16	Total		\$377,370	\$333,035	\$(44,336)	\$374,601

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TABLE 4-2
NUCLEAR GENERATION 2018 CAPITAL COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2018 Imputed Regulatory Values	2018 Recorded	2018 Difference Higher/ (Lower)	2019 Budget
1	Office Furniture and Equipment	3	\$225	\$156	\$(69)	-
2	Fleet/Auto Equipment	4	817	-	(817)	-
3	Tools and Equipment	5	1,299	3,052	1,753	-
4	DCPP Capital	20	137,659	40,227	(97,431)	\$110,383
5	Nuclear Safety and Security	3I	12,978	7,884	(5,094)	4,200
6	BuildIT Apps & Infrastructure	2F	13,452	3,934	(9,518)	4,674
7	Total		\$166,430	\$55,253	\$(111,176)	\$119,257

MWC Descriptions – Expense

MWC AB – Support – Includes miscellaneous support cost from both within and outside of Nuclear Generation. Also, used for GRC imputed adopted for levelizing the cost of nuclear refueling outages when two outages are forecast to occur in a single year. Refueling outage recorded costs are recorded in other MWCs as appropriate.

MWC AK – Manage Environmental Operations – Includes managing the environmental protection programs mandated by federal, state, and local regulations.

MWC BP – Manage DCCP Business – Includes: (1) all activities associated with representing the Company and providing technical input to committees, owners groups, industry, professional and trade associations that support electric utilities; (2) dues to the Institute of Nuclear Power Operators, Nuclear Energy Institute, Strategic Teaming and Resource Sharing, and Diablo Canyon Independent Safety Committee; (3) land management activities; and (4) planned emergent work funding for the entire Nuclear Generation organization.

MWC BQ – DCCP Loss Prevention – Includes support for the management and implementation of the Security, Industrial Safety and Health, Emergency Preparedness and Fire Protection programs.

MWC BR – Operate DCCP Plant – Includes all activities to operate the plant, radiation control, monitoring of plant chemistry, managing radioactive waste and hazardous waste generation, nuclear fuel movement, and reactor physics testing.

MWC BS – Maintain DCCP Plant Assets – Includes all preventative and corrective maintenance activities for systems, structures, and components at the plant.

MWC BT – Nuclear Generation Fees – Includes Nuclear Regulatory Commission license fees and supporting contracts to conduct training programs for license and non-license operator, maintenance, engineering, and all general employee training development and delivery.

MWC BU – Procure DCCP Materials & Services – Includes cost for under/over clearing of material burden.

MWC BV – Maintain DCCP Plant Configuration – Includes design engineering, system engineering, component engineering, reactor engineering, in service testing and inspection, reliability engineering, and fire protection engineering.

MWC CR – Manage Waste Disposal and Transportation – Includes cost for disposal and transportation of site hazardous waste.

MWC EO – Provide Nuclear Support – Includes cost for plant support provided by PG&E’s Corporate Support organizations such as security and communications.

MWC IG – Manage Balancing Account Processes – Includes costs subject to the 2-way balancing account established for Nuclear Safety and Security regulatory mandated projects.

MWC JV – Maintain Applications and Infrastructure – Includes costs for ongoing maintenance, operations and repair for PG&E’s IT applications, systems and infrastructure.

MWC OM – Operational Management – Includes labor- and employee-related costs to provide supervision and management support. MWC OM also includes costs incurred by the administrative staff working for the supervisors/ managers.

MWC OS – Operational Support – Includes labor- and employee-related costs to provide services and support that are unrelated to supervision and management. Examples include Business Finance and Sourcing that support the lines of business.

**TABLE 4-3
NUCLEAR GENERATION 2018 EXPENSE COMPARISON
BY MWC FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)**

Line No.	MWC	MWC Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Imputed Regulatory Values	2018 Recorded Costs	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
1	AB	Support (total)	Ex. 5, Ch. 3	Ex. 5, Ch. 3	\$20,174	\$(144)	\$(20,318)	Program expenses were below imputed regulatory values due to the GRC adopted costs of the second refueling outage being levelized over the 3-year GRC period (2017-2019) while actual costs were not incurred in 2018. Actual costs for this outage are forecast to occur in 2019.	N/A	N/A
2	BQ	DCPP Support Services	Ex. 5, Ch. 3	Ex. 5, Ch. 3	39,843	48,720	8,877	Below variance threshold.	N/A	N/A
3	BP	Manage DCP Business	Ex. 5, Ch. 3	Ex. 5, Ch. 3	11,708	12,292	584	Below variance threshold.	N/A	N/A
4	BR	Operate DCP Plant	Ex. 5, Ch. 3	Ex. 5, Ch. 3	74,828	82,940	8,112	Below variance threshold.	N/A	N/A
5	BS	Maintain DCP Plant Assets	Ex. 5, Ch. 3	Ex. 5, Ch. 3	120,133	110,332	(9,801)	Below variance threshold.	N/A	N/A
6	BV	Maintain DCP Plant Configuration	Ex. 5, Ch. 3	Ex. 5, Ch. 3	42,130	31,635	(10,495)	Program expenses were below imputed regulatory values due to shift in plant make-up water cost from MWC BV to MWC BR, and completion of contracted engineering programs for backlog reduction, training, inspections and maintenance of design calculations.	N/A	N/A
7	IG	Manage Var Bal Acct Processes	Ex. 5, Ch. 3	Ex. 5, Ch. 3	9,848	12,929	3,081	Below variance threshold.	Nuclear Regulatory Commission Rulemaking Balancing Account	D.14-08-032, p. 732, OP 6
8	Total				\$316,665	\$298,704	\$(19,961)			

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MWC Descriptions – Capital

MWC 03 – Office Furniture and Equipment – Includes capital costs to replace office furniture and equipment.

MWC 04 – Fleet/Auto Equipment – Includes replacement of station fleet/auto equipment which has been in use longer than their useful life.

MWC 05 – Tools and Equipment – Includes replacement of tools and shop equipment.

MWC 20 – DCPD Capital Projects – Includes replacement of capital structures, systems and components that no longer can be maintained to safely and reliably operate and protect the plant. There are three major drivers to these replacements: (1) reliability has degraded to cause replacement to be needed; (2) obsolete replacement material, not allowing proper maintenance to continue; and (3) regulatory driven (NRC) requirements.

MWC 2F – Build Applications and Infrastructure – Includes the costs to design, develop and enhance applications, systems and infrastructure technology solutions.

MWC 3I – Nuclear Safety and Security – Includes DCPD capital projects subject to the 2-way balancing account established for Nuclear Safety and Security regulatory-mandated projects.

**TABLE 4-4
 NUCLEAR GENERATION 2018 CAPITAL COMPARISON
 BY MWC FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
 (THOUSANDS OF DOLLARS)**

Line No.	MWC	MWC Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Imputed Regulatory Values	2018 Recorded Costs	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
1	20	D CPP Capital	Ex. 5, Ch. 3	Ex. 5, Ch. 3	\$137,659	\$40,227	\$(97,431)	Actual expenditures were below imputed regulatory values primarily due to project cancellations and write-off of construction work in progress on cancelled projects as a result of PG&E's decision to retire Diablo Canyon at the end of its current licenses and lower expenditures on the main generator stator projects. This decrease is partially offset by an increase associated with new security projects, acceleration of purchase of reactor control rods, upgrade of the spent fuel pool bridge crane, replacement of the boric acid transfer pumps, upgrade of the oily water separator system, replacement of the high-pressure turbine rotor blades, and replacement of polisher computer workstations.	Diablo Canyon Retirement Balancing Account	D.18 01 022, pp. 46-47
2	31	Nuclear Safety and Security	Ex. 5, Ch. 3	Ex. 5, Ch. 3	12,978	7,884	(5,094)	Below variance threshold.	Diablo Canyon Retirement Balancing Account	D.18 01 022, pp. 46-47
3	Total				\$150,637	\$48,111	\$(102,525)			

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SECTION 5
Energy Supply: Power Generation
Imputed Adopted vs. Recorded

**TABLE 5-1
POWER GENERATION 2018 EXPENSE COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)**

Line No.	MWC Description	MWC	2018 Imputed Regulatory Values	2018 Recorded Costs	2018 Difference Higher/Lower	2019 Budget
1	Business/Miscellaneous Expense (Hydro)	AB	\$2,198	\$4,784	\$2,586	\$6,122
2	Manage Environmental Operations (Hydro)	AK	1,099	750	(349)	979
3	Maintain Hydro Reservoirs, Dams & Waterways (Hydro)	AX	25,134	17,194	(7,941)	24,616
4	Habitat and Species Protection (Hydro)	AY	164	114	(50)	133
5	Perform Reimbursable Work for Others (Hydro)	BC	–	29	29	–
6	Manage Property & Buildings (Hydro)	EP	1,470	1,209	(261)	1,119
7	Implement Environment Projects (Hydro)	ES	111	121	9	50
8	Manage Var Balancing Account Processes (Hydro)	IG	3,695	117	(3,578)	1,545
9	Catastrophic Event Memorandum Account (CEMA)	IG	–	4,714	4,714	3,000
10	Maintain IT Applications & Infrastructure (Hydro)	JV	2,516	1,829	(687)	265
11	Operate Hydro Electric Generation (Hydro)	KG	38,204	29,972	(8,232)	30,705
12	Maintain Hydro Electric Generating Equipment (Hydro)	KH	25,052	19,598	(5,454)	20,229
13	Maintain Hydro Electric Generation Buildings, Grounds & Infrastructure (Hydro)	KI	11,821	5,939	(5,881)	8,628
14	Regulatory Compliance Hydro Electric Generation (Hydro)	KJ	35,789	30,452	(5,336)	33,625
15	Operational Management (Hydro)	OM	4,732	1,830	(2,901)	2,129
16	Operational Support (Hydro)	OS	2,048	4,607	2,559	3,805
17	Business/Miscellaneous Expense (Fossil)	AB	–	–	–	–
18	Manage Environmental Operations (Fossil)	AK	2,868	2,166	(702)	2,561
19	Maintain IT Applications & Infrastructure (Fossil)	JV	0	195	195	–
20	Operate Fossil Generation (Fossil)	KK	13,950	11,544	(2,406)	13,068
21	Maintain Fossil Generating Equipment (Fossil)	KL	36,133	17,507	(18,626)	13,528
22	Maintain Fossil Generation Buildings, Grounds & Infrastructure (Fossil)	KM	2,944	2,127	(817)	2,856
23	Operate Alternative Generation (Fossil)	KQ	641	1,062	421	807
24	Maintain Alternative Generation Generating Equipment (Fossil)	KR	3,025	1,273	(1,752)	3,243
25	Maintain Alternative Generation Building, Ground, Infrastructure (Fossil)	KS	657	680	22	493
26	Operational Management (Fossil)	OM	334	904	570	303
27	Operational Support (Fossil)	OS	981	142	(839)	188
28	Total		\$215,566	\$160,859	\$(54,707)	\$173,997

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TABLE 5-2
POWER GENERATION 2018 CAPITAL COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2018 Imputed Regulatory Values	2018 Recorded Costs	2018 Difference Higher/ (Lower)	2019 Budget
1	Office Furniture & Equipment (Hydro)	03	–	\$270	\$270	\$16
2	Tools & Equipment (Hydro)	05	\$976	1,223	247	343
3	Relicensing Hydro Generation (Hydro)	11	717	1,350	633	1,661
4	Implement Environment Projects (Hydro)	12	3,785	796	(2,989)	370
5	Build IT Applications & Infrastructure (Hydro)	2F	18,814	7,459	(11,355)	503
6	Install/Replace for Hydro Generation Safety & Regulatory Requirements (Hydro)	2L	35,559	20,422	(15,137)	27,249
7	Install/Replace Hydro Generating Equipment (Hydro)	2M	98,428	96,997	(1,431)	103,423
8	Install/Replace Reservoirs, Dams & Waterways (Hydro)	2N	62,781	40,768	(22,013)	44,607
9	Install/Replace Hydro Generation Buildings, Grounds & Infrastructure (Hydro)	2P	11,980	26,533	14,553	22,935
10	Hydro Elec License & License Conditions (Hydro)	3H	25,258	23,884	(1,375)	36,000
11	Office Furniture & Equipment (Fossil)	03	46	33	(13)	60
12	Tools & Equipment (Fossil)	05	326	264	(62)	179
13	Build IT Applications & Infrastructure (Fossil)	2F	–	113	113	–
14	Install/Replace Fossil Generating Safety & Regulatory Requirements (Fossil)	2R	2,790	52	(2,738)	600
15	Install/Replace Fossil Generating Equipment (Fossil)	2S	10,527	4,822	(5,705)	4,111
16	Install/Replace Fossil Generation Buildings, Grounds & Infrastructure (Fossil)	2T	142	202	60	1,157
17	Install/Replace Alternative Generation Safety and Regulation (Fossil)	3A	28	92	64	10
18	Install/Replace Alternative Generation Equipment (Fossil)	3B	270	961	691	–
19	Total		\$272,427	\$226,241	\$(46,187)	\$243,224

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MWC Descriptions – Expense

MWC AB – Business / Miscellaneous Expense – includes costs associated with efficiency savings, Land Conservation Commitment, Contracts and Consulting Services, and miscellaneous support costs.

MWC AK – Manage Environmental Operations – includes costs associated with managing environmental operations.

MWC AX – Maintain Hydro Reservoirs, Dams & Waterways – includes costs associated with maintenance of hydroelectric reservoirs, dams, and water conveyance systems. These maintenance activities also ensure safety through routine and preventive maintenance.

MWC AY – Habitat and Species Protection – includes compliance with regulations to protect endangered species and sensitive habitats as part of PG&E's broader Environmental Stewardship Program.

MWC BC – Perform Reimbursable Work for Others – includes costs associated with managing the irrigation district contracts and the reimbursable expenses incurred to perform maintenance on behalf of the irrigation districts. Also includes reimbursable work for other third parties.

MWC EP – Manage Property & Buildings – includes costs associated with managing land rights and property leases in support of the operation of hydro power plants.

MWC ES – Implement Environmental Projects – includes costs associated with the implementing environmental projects and programs.

MWC IG – Balancing Account – Regulatory Compliance Hydro Electric Generation – includes costs to maintain FERC license compliance to support hydroelectric generation activities for licenses received after January 1, 2014.

MWC IG – Catastrophic Event Memorandum Account (CEMA) – includes costs for which PG&E is seeking recovery through CEMA.

MWC JK – Manage Environmental Remediation (Earnings impacted) – includes costs for the cleanup of contaminated sites which are not recovered through the Hazardous Substance Mechanism (HSM), decommissioning accounts, or at shareholder expense. These include internal labor and expenses associated with management and support of the site remediation as well as contractor and legal fees.

MWC JV – Maintain Applications and Infrastructure – includes costs for ongoing maintenance, operations and repair for PG&E's IT applications, systems and infrastructure.

MWC KG – Operate Hydro Electric Generation – includes costs to operate hydroelectric power generating stations and associated facilities.

MWC KH – Maintain Hydro Electric Generating Equipment – includes costs to maintain generating equipment or components to support hydroelectric generation activities.

MWC KI – Maintain Hydro Electric Generation Buildings, Grounds & Infrastructure – includes costs to maintain buildings, grounds and infrastructure to support hydroelectric generation activities, including roads and bridges.

MWC KJ – Regulatory Compliance Hydro Electric Generation – includes costs to maintain Federal Energy Regulatory Commission (FERC) license compliance to support hydroelectric generation activities for licenses received prior to January 1, 2014.

MWC KK – Operate Fossil Generation – includes costs to operate fossil power generating stations.

MWC KL – Maintain Fossil Generating Equipment – includes costs to maintain fossil power generating station equipment.

MWC KM – Maintain Fossil Generation Buildings, Grounds & Infrastructure – includes costs to maintain buildings, grounds and infrastructure on the plant site to support fossil generation activities, including buildings and facilities, roadways, landscaping, retaining walls, fencing, and yard lighting systems.

MWC KQ – Operate Alternative Generation – includes costs to operate alternative generation sites.

MWC KR – Maintain Alternative Generation Generating Equipment – includes costs to maintain alternative power generating station equipment.

MWC KS – Maintain Alternative Generation Building, Ground, Infrastructure – includes costs to maintain photovoltaic and fuel cell generation common facilities.

MWC OM – Operational Management – includes labor and employee related costs to provide supervision and management support. MWC OM also includes costs incurred by the administrative staff working for the supervisors/managers.

MWC OS – Operational Support – includes labor and employee related costs to provide services and support that are unrelated to supervision and management. Examples include Business Finance and Sourcing that support the lines of business.

**TABLE 5-3
POWER GENERATION 2018 EXPENSE COMPARISON
BY MWC FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	MWC	MWC Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Imputed Regulatory Values	2018 Recorded Costs	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
1	AX	Maint Resv,Dams& Waterways	Ex. 5, Ch. 4	Ex. 5, Ch. 4	\$25,134	\$17,194	\$(7,941)	Below variance threshold.	N/A	N/A
2	BC	Perf Reimburs Wk for Oth	Ex. 5, Ch. 4	Ex. 5, Ch. 4	–	29	29	Below variance threshold.		
3	IG	Manage Var Bal Acct Processes	Ex. 5, Ch. 4	Ex. 5, Ch. 4	3,695	117	(3,578)	Below variance threshold.	Hydro Licensing Balancing Account	D.14-08-032, Section 6.2.3, pp. 379-380
4	IG	Catastrophic Event Memorandum Account (CEMA)	N/A	N/A	–	4,714	4,714	Below variance threshold.	Catastrophic Event Memorandum Account	N/A
5	KG	Operate Hydro Generation	Ex. 5, Ch. 4	Ex. 5, Ch. 4	38,204	29,972	(8,232)	Below variance threshold.		
6	KH	Maint Hydro Generating Equip	Ex. 5, Ch. 4	Ex. 5, Ch. 4	25,052	19,598	(5,454)	Below variance threshold.	N/A	N/A
7	KI	Maintain Hyd Sctr, Rds&Infst	Ex. 5, Ch. 4	Ex. 5, Ch. 4	11,821	5,939	(5,881)	Below variance threshold.	N/A	N/A
8	KK	Operate Fossil Generation	Ex. 5, Ch. 5	Ex. 5, Ch. 5	13,950	11,544	(2,406)	Below variance threshold.	N/A	N/A

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**TABLE 5-3
POWER GENERATION 2018 EXPENSE COMPARISON
BY MWC FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF NOMINAL DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Imputed Regulatory Values	2018 Recorded Costs	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
9	KL	Maint Fossil Generating Equip (total)	Ex. 5, Ch. 5	Ex. 5, Ch. 5	36,133	17,507	(18,626)	Program expenses were below imputed regulatory values due to the Long-Term Service Agreement costs, which are levelized in the GRC forecast; however, the outage work associated with these costs only occurs on a periodic basis once every 4 to 5 years depending on operating profile and did not occur in 2018.	N/A	N/A
10	KM	Maint Fossil Bldg,Grnd, Infrast	Ex. 5, Ch. 5	Ex. 5, Ch. 5	2,944	2,127	(817)	Below variance threshold.	N/A	N/A
11	KQ	Operate Alternative Gen	Ex. 5, Ch. 5	Ex. 5, Ch. 5	641	1,062	421	Below variance threshold.	N/A	N/A
12	KR	Maint AltGen Generating Equip	Ex. 5, Ch. 5	Ex. 5, Ch. 5	3,025	1,273	(1,752)	Below variance threshold.	N/A	N/A
13	KS	Maint AltGen Bldg,Grnd, Infrast	Ex. 5, Ch. 5	Ex. 5, Ch. 5	657	680	22	Below variance threshold.	N/A	N/A
14	Total				\$161,257	\$111,755	\$(49,502)			

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MWC Descriptions – Capital

MWC 01 – IT Computing Equipment – includes capital costs to replace computing equipment.

MWC 03 – Office Furniture & Equipment – includes capital costs to replace office furniture and equipment.

MWC 05 – Tools & Equipment – includes purchase of tools and equipment required to perform various functions to maintain the safety and reliability of fossil and hydro electric generation operations.

MWC 11 – Relicensing and License Compliance Hydro Electric Generation – includes costs for complying with the conditions required by FERC licenses received prior to January 1, 2014, and other compliance work generally related to facility safety.

MWC 12 – Implement Environmental Projects – includes costs for capital projects to comply with water and air quality regulations and various oil spill prevention projects.

MWC 2F – Build Applications and Infrastructure – includes the costs to design, develop and enhance applications, systems and infrastructure technology solutions.

MWC 2L – Install/Replace for Hydro Electric Generation Safety & Regulatory Requirements – includes capital costs primarily related to employee or public safety and regulatory requirements that are not connected with relicensing for hydroelectric generation.

MWC 2M – Install/Replace Hydro Electric Generating Equipment – includes capital costs to install/replace generating equipment or components to support hydroelectric generation activities.

MWC 2N – Install/Replace Reservoirs, Dams & Waterways – includes capital costs to support the operation of reservoirs, dams and waterways.

MWC 2P – Install/Replace Hydro Electric Generation Buildings, Grounds & Infrastructure – includes capital costs to install/replace buildings, grounds and infrastructure to support hydroelectric generation activities, including roads and bridges.

MWC 2R – Install/Replace Fossil Generating Safety & Regulatory Requirements – includes capital costs primarily related to employee safety or regulatory requirements for fossil generation.

MWC 2S – Install/Replace Fossil Generating Equipment – includes capital costs to install new or replace existing generating equipment or components to support fossil generation activities.

MWC 2T – Install/Replace Fossil Generation Buildings, Grounds & Infrastructure – includes capital costs to install or replace new buildings, grounds and infrastructure on the plant site to support fossil generation activities.

MWC 3A – Install/Replace Alternative Fossil Generation Safety and Regulation – includes capital costs associated with the installation and/or replacement of safety equipment for alternative generation.

MWC 3B – Install/Replace Alternative Generation Equipment – includes capital costs associated with the installation of solar photovoltaic generation equipment.

MWC 3C – Install/Replace Alternative Generation Buildings, Grounds & Infrastructure – includes capital costs to install or replace new buildings, grounds and infrastructure on the plant site to support Alternative Generation activities.

MWC 3H – Balancing Account – Relicensing Hydro Electric Generation – includes costs for relicensing existing FERC licenses; obtaining major license amendments; surrendering licenses for facilities that are no longer economic; complying with the conditions required by existing and newly issued FERC licenses and major license amendments; and anticipated to be required by pending new FERC licenses for licenses. This includes costs for all pending licenses as of January 1, 2014, and new licenses applied for after January 1, 2014.

**TABLE 5-4
POWER GENERATION 2018 CAPITAL COMPARISON
BY MWC FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)**

Line No.	MWC	MWC Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Imputed Regulatory Values	2018 Recorded Costs	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
1	2L	Instl/Rpl for Hydro Safety&Reg	Ex. 5, Ch. 4	Ex. 5, Ch. 4	\$35,559	\$20,422	\$(15,137)	Below variance threshold.	N/A	N/A
2	2M	Instal/Repl Hydro Gneratng Eqp	Ex. 5, Ch. 4	Ex. 5, Ch. 4	98,428	96,997	(1,431)	Below variance threshold.	N/A	N/A
3	2N	Instal/Repl Resv,Dams&W aterway	Ex. 5, Ch. 4	Ex. 5, Ch. 4	62,781	40,768	(22,013)	Program expenditures were below imputed regulatory values due to a reduction in programmatic spend such as penstocks and water conveyance programs to fund emergent priority work discussed below in MWC 2P	N/A	N/A
4	2P	Instl/Repl Hydr BldgGrndInfrst	Ex. 5, Ch. 4	Ex. 5, Ch. 4	11,980	26,533	14,553	Program expenditures were above imputed regulatory values due to continued repair to road and generating asset replacements throughout the hydro system driven by record high rainfall, flooding, rockslides, and mudslides in 2017, which caused significant damage to hydro assets. Increase also due to crane modernization program at several powerhouses, which is being completed in advance of major asset replacements in the near term. Increased expenditure was offset by lower expenditure in other MWCs, such as in MWC 2N.	N/A	N/A

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**TABLE 5-4
POWER GENERATION 2018 CAPITAL COMPARISON
BY MWC FOR SAFETY AND RELIABILITY WORK
(THOUSANDS OF DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Imputed Regulatory Values	2018 Recorded Costs	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
5	2R	Instl/Rpl for Fossil Safety&Reg	Ex. 5, Ch. 5	Ex. 5, Ch. 5	2,790	52	(2,738)	Below variance threshold.	N/A	N/A
6	2S	Instal/Repl Fossil Gneratng Eqp	Ex. 5, Ch. 5	Ex. 5, Ch. 5	10,527	4,822	(5,705)	Below variance threshold.	N/A	N/A
7	2T	Instl/Repl Fossil BldgGrndInfrst	Ex. 5, Ch. 5	Ex. 5, Ch. 5	142	202	60	Below variance threshold.	N/A	N/A
8	3A	Instl/Rpl for AltGen Safty&Reg	Ex. 5, Ch. 5	Ex. 5, Ch. 5	28	92	64	Below variance threshold.	N/A	N/A
9	3B	Instal/Repl AltGen GneratngEqp	Ex. 5, Ch. 5	Ex. 5, Ch. 5	270	961	691	Below variance threshold.	N/A	N/A
10	Total				\$222,506	\$190,850	\$(31,657)			

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SECTION 6
Customer Care
Imputed Adopted vs. Recorded

TABLE 6-1
CUSTOMER CARE 2018 EXPENSE COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2018 Imputed Regulatory Values	2018 Recorded	2018 Difference Higher/(Lower)	2019 Budget
1	Miscellaneous Expense	AB	–	26	26	–
2	Read and Investigate Meters ^(a)	AR	16,392	(655)	(17,047)	(1,606)
3	Provide Field Service ^(a)	DD	1,181	–	(1,181)	0
4	Manage Customer Inquiries	DK	75,638	58,517	(17,121)	64,518
5	Develop New Revenue	EL	20,347	39,103	18,756	32,324
6	Manage Service Inquiries	EV	0	(901)	(901)	0
7	Change/Maintain Used Electric Meters ^(a)	EY	13,169	892	(12,277)	1,248
8	Manage Various Customer Care Processes	EZ	29,276	35,243	5,967	42,462
9	Retain and Grow Customers	FK	611	966	355	990
10	Manage Energy Efficiency (Non-Balancing Account)	GM	7,044	6,973	(72)	8,097
11	Change/Maintain Used Gas Meters ^(a)	HY	7,079	6,422	(657)	5,043
12	Manage Various Balancing Account Processes ^(b)	IG	4,527	(12)	(4,540)	–
13	Bill Customers	IS	59,552	50,202	(9,350)	50,087
14	Manage Credit	IT	15,300	14,683	(617)	14,447
15	Collect Revenue	IU	24,063	19,097	(4,967)	18,678
16	Provide Account Services	IV	17,225	14,972	(2,253)	15,950
17	Maintain IT Applications and Infrastructure	JV	5,435	11,599	6,164	6,011
18	Operational Management ^(a)	OM	6,457	5,301	(1,156)	7,051
19	Operational Support ^(a)	OS	9,320	(4,462)	(13,782)	783
20	Total		\$312,616	\$257,966	\$(54,653)	\$266,083

- (a) Please note that the Field Meter Operations team transferred from Customer Care to Electric Operations and Gas Operations in 2018. As a result, all 2018 recorded costs associated with Field Meter Operations in this MWC are reflected in their destination organization (i.e., Electric Operations or Gas Operations).
- (b) In 2017, PG&E closed the SmartMeter Opt-Out Balancing Account, which tracked costs for MWC IG (see D.17-05-013, pp. 119-120). 2018 recorded costs in MWC IG reflect an adjustment to the balancing account for 2017. These activities are now tracked entirely in MWC AR within Electric Operations.

**TABLE 6-2
CUSTOMER CARE 2018 CAPITAL COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)**

Line No.	MWC Description	MWC	2018 Imputed Regulatory Values	2018 Recorded	2018 Difference Higher/(Lower)	2019 Budget
1	IT – Desktop Computers	01	490	–	(490)	–
2	Tools and Equipment	05	2,554	24	(2,530)	100
3	Miscellaneous Capital	21	6,939	960	(5,979)	5,994
4	Install New Electric Meters ^(a)	25	43,020	29,223	(13,797)	38,105
5	Build IT Applications and Infrastructure	2F	38,267	29,946	(8,321)	10,555
6	Smart Meter Opt-Out ^(b)	3J	362	–	(362)	–
7	Install New Gas Meters ^(a)	74	79,125	65,977	(13,148)	61,402
8	Total		\$170,757	\$126,130	\$(44,627)	\$116,156

- (a) Please note that the Field Meter Operations team transferred from Customer Care to Electric Operations and Gas Operations in 2018. As a result, all 2018 recorded costs associated with Field Meter Operations in this MWC are reflected in their destination organization (i.e. Electric Operations or Gas Operations).
- (b) In 2017, PG&E closed the SmartMeter Opt-Out Balancing Account, which tracked costs for MWC 3J (see D.17-05-013, pp. 119-120). These activities are now tracked in MWC 25. Within MWC 25, costs associated with meter installations are tracked in Electric Operations and costs associated with meter purchases are tracked in Customer Care.

MWC Descriptions – Expense

MWC AB – Miscellaneous Expense – Costs associated with work considered administrative and general in nature (i.e., benefiting the entire corporation and not just one functional area).

MWC AR – Read and Investigate Meters – Covers all meter reading activities, including meter reads of traditional meters and interval meters by field personnel and the communication costs associated with reading interval meters that are not converted to use SmartMeter technology.

MWC DD – Provide Field Service – Covers Customer Care’s portion of customer-generated field service activities, specifically electric start/stop service requests and other customer-generated field services requests.

MWC DK – Manage Customer Inquiries – Includes expenses incurred in operating the Company’s four Contact Centers which handle approximately 20 million calls per year, with approximately 7 million of these handled by a customer service representative, costs associated with PG&E’s Customer Relations department; and expenses to address customer inquiries at the local offices, and various non-cash receiving front counter activities.

MWC EL – Develop New Revenue – Covers work in support of the New Revenue Development team on streetlight light emitting diode (LED) turnkey work, wireless telecommunications and fiber optics attachments on PG&E assets, and various other services based on secondary use of PG&E assets.

MWC EV – Manage Service Inquiries – Costs associated before a request for service is submitted by the customer or approved by PG&E, including service planning (e.g., tariff information), land (e.g., title-searching), and estimating/engineering (cost-only) services to provide information in response to New Business and WRO inquiries. This applies to gas and electric extensions and services, relocations, removals, etc., in advance of applications, project deposits, or other actions that indicates that the project will proceed.

MWC EY – Change/Maintain Used Electric Meters – Covers all electric meter maintenance activities that do not result in new meter exchanges, including electric meter tests, meter communication trouble-shooting, and meter repairs.

MWC EZ – Manage Various Customer Care Processes – Covers customer satisfaction surveys; customer service; customer experience; program implementation and outreach; rate education and outreach; rate tools; correspondence management and literature fulfillment; customer facing check and letter generation and delivery; SmartMeter Opt-Out project management support; and tariff, risk, compliance, and privacy support.

MWC FK – Retain and Grow Customers – Covers responding to economic development inquiries; providing detailed analyses of service options desired by customers; and providing detailed explanations of special rate components.

(MWC FK also includes “below the line” activities related to public power and Community Choice Aggregation issues. Below-the-line costs are not included in this report.

MWC GM – Manage Energy Efficiency (Non-Balancing Account) – Covers required safety and compliance work associated with Low Income Energy Efficiency direct installation measures, including Natural Gas Appliance Testing (NGAT) tests which measure levels of carbon monoxide after weatherization of homes of low-income customers. This MWC also covers support required for guiding and adhering to policy related to Electric Vehicles (EV), introducing new services that benefit EV customers, and for minimal market readiness activities for EVs.

MWC HY – Change/Maintain Used Gas Meters – Covers gas meter maintenance activities that do not result in new meter exchanges, including meter tests, minimal regulator maintenance, meter/module communication trouble-shooting, and meter/module repairs.

MWC IG – Manage Various Balancing Account Processes – Covers expenses pertaining to SmartMeter Opt-Out, including expenses related to manual meter reading, billing, customer notifications, program administration, regulatory reporting, and related activities.

MWC IS – Bill Customers – Includes expenses incurred to print, insert and mail over 52 million customer bills annually; provide electronic bills to customers, bill complex commercial and industrial accounts including the growing number of Net Energy Metering accounts; calculate and remit franchise fees and taxes; perform user acceptance testing of the customer billing system to ensure billing accuracy; and verify and/or resolve billing issues. Also covers work in support of streetlight inventory and discontinuing service/investigating situation of metered commodity usage with no customer service agreement (e.g., broken lock).

MWC IT – Manage Credit – Covers expenses incurred to perform credit risk management for retail customers; delinquent account follows-up and post account closure collections; open account collections on high dollar accounts; balance transfers for closed accounts; fraud verification, and costs related to notifying customers of past due amounts, as well as discontinuing and reconnecting service for non-payment. MWC IT also includes external collection agency costs.

MWC IU – Collect Revenue – Covers expenses incurred to process energy payments received through the U.S. mail and in Local Offices, as well as vendor transaction fees for on-line energy payments. MWC IU also includes expenses to manage and resolve customer payment inquiries, managing cash refunds; investigating and settling all customer energy theft allegations.

MWC IV – Provide Account Services – Covers the cost of labor, materials and other expenses incurred in responding to customer inquiries, primarily for non-residential customers, regarding contracts, credit, billing and accounting, collections

and complaints, providing reliability and outage information, coordinating planned outages, providing retail interconnection information, and responding to customer needs of Energy Service Providers (ESP) and Core Transport Agents (CTA).

MWC JV – Maintain IT Applications and Infrastructure – Includes costs for ongoing maintenance, operations and repair for PG&E' IT applications, systems and infrastructure.

MWC OM – Operational Management – Includes labor and employee related costs to provide supervision and management support. MWC OM also includes costs incurred by the administrative staff working for the supervisors and managers.

MWC OS – Operational Support – Includes labor and employee related costs to provide services and support that are unrelated to supervision and management.

**TABLE 6-3
CUSTOMER CARE 2018 EXPENSE COMPARISON
BY MWC FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	MWC	MWC Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Imputed Regulatory Values	2018 Recorded Costs	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
1	AR ^(a)	Read and Investigate Meters	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	14,323	–	(14,323)	Program expenses/expenditures were below imputed regulatory values due to the transfer of the Field Meter Operations to Electric Operations and Gas Operations in 2018.	N/A	N/A
2	DD ^(a)	Provide Field Service	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	1,181	–	(1,181)	Below variance threshold.	N/A	N/A
3	DK	Manage Customer Inquiries	Exhibit (PG&E-6), Chapter 4	Exhibit (PG&E-6), Chapter 4	67,515	58,214	(9,302)	Below variance threshold.	N/A	N/A
4	EY ^(a)	Change/Maintain Used Electric Meters	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	13,169	892	(12,277)	Program expenses/expenditures were below imputed regulatory values due to the transfer of the Field Meter Operations to Electric Operations and Gas Operations in 2018.	N/A	N/A
5	EZ	Manage Various Customer Care Processes	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	–	227	227	This is a new MWC for Metering that was not included in the 2017 GRC.	N/A	N/A
6	GM	Manage Energy Efficiency (Non-Balancing Account)	Exhibit (PG&E-6), Chapter 3	Exhibit (PG&E-6), Chapter 3	4,124	6,725	2,601	Below variance threshold.	N/A	N/A

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**TABLE 6-3
CUSTOMER CARE 2018 EXPENSE COMPARISON
BY MWC FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF NOMINAL DOLLARS)
(CONTINUED)**

Line No.	MWC	MWC Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Imputed Regulatory Values	2018 Recorded Costs	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
7	HY ^(a)	Change/Maintain Used Gas Meters	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	7,079	6,422	(657)	Below variance threshold.	N/A	N/A
8	IG ^(b)	Manage Various Balancing Account Processes	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	4,321	(12)	(4,334)	Below variance threshold.	N/A	N/A
9	IU ^(c)	Collect Revenue	Exhibit (PG&E-6), Chapter 8	Exhibit (PG&E-6), Chapter 6	–	1,295	1,295	Below variance threshold.	N/A	N/A
10	JV ^(d)	Maintain IT Applications and Infrastructure	Exhibit (PG&E-6), Chapter 10	None	292	–	(292)	Below variance threshold.	N/A	N/A
11		Total			\$112,004	\$73,763	\$(38,241)			

- (a) Please note that the Field Meter Operations team transferred from Customer Care to Electric Operations and Gas Operations in 2018. As a result, all 2018 recorded costs associated with Field Meter Operations in this MWC are reflected in their destination organization (i.e. Electric Operations or Gas Operations).
- (b) In 2017, PG&E closed the SmartMeter Opt-Out Balancing Account, which tracked costs for MWC IG (see D.17-05-013, pp. 119-120). 2018 recorded costs in MWC IG reflect an adjustment to the balancing account for 2017. These activities are now tracked entirely in MWC AR within Electric Operations.
- (c) MWC IU includes revenue assurance activities that support safety by detecting and investigating unauthorized and unaccounted-for energy use. PG&E requested funding for these activities in the 2017 GRC in Exhibit (PG&E-6), Chapter 8 (Billing, Revenue and Credit). However, MWC IU in Exhibit (PG&E-6), Chapter 8 supports other activities not related to safety, such as payment processing, payment channels, payment research, revenue and statistics, and credit operations. As a result, PG&E is unable to provide an imputed value for only the revenue assurance activities in MWC IU. However, PG&E can provide 2018 recorded costs for revenue assurance activities because they are now tracked distinctly as part of Metering. See Exhibit (PG&E-6), Chapter 6 in the 2020 GRC for more information.
- (d) Imputed regulatory values reflect what was requested and authorized in the 2017 GRC for the Meter Traceability and Information Management project in WP 10-55 to 10-59, Exhibit (PG&E-6), and have been adjusted to the new cost model. Please note that the Meter Traceability and Information Management project was an IT companion project to the Field Asset Management System project, which was requested and authorized in the 2017 GRC in Exhibit (PG&E-6), Chapter 7 in MWC 05. This project was cancelled since the Field Asset Management System project was reduced in scope.

MWC Descriptions – Capital

MWC 01 – IT – Desktop Computers – Includes costs associated with the purchase of mobile laptops used by the field technicians to manage and record work activities.

MWC 05 – Tools and Equipment – Includes tools and equipment used by field technicians and meter repair facilities to perform field metering and meter repair activities.

MWC 21 – Miscellaneous Capital – Includes various capital equipment.

MWC 25 – Install New Electric Meters – Includes new electric meters, and field technician labor to install/remove electric meters due to maintenance and new business growth activities.

MWC 2F – Build IT Applications and Infrastructure – Includes the costs to design, develop and enhance applications, systems, and infrastructure technology solutions.

MWC 3J – SmartMeter Opt-Out – Covers separately funded capital expenditures pertaining to SmartMeter Opt-Out, including labor and material costs related to electric and gas meter exchanges and gas module removals.

MWC 74 – Install New Gas Meters – Includes new gas meters, new gas modules, and field technician labor to install/remove gas meters and regulators due to maintenance and new business growth activities.

**TABLE 6-4
CUSTOMER CARE 2018 CAPITAL COMPARISON
BY MWC FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)**

Line No.	MWC	MWC Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Imputed Regulatory Values	2018 Recorded Costs	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
1	05	Tools and Equipment	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	2,554	24	(2,530)	Below variance threshold.	N/A	N/A
2	25 ^(a)	Install New Electric Meters	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	43,020	29,223	(13,797)	Below variance threshold.	N/A	N/A
3	74 ^(a)	Install New Gas Meters	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	79,125	65,977	(13,148)	Below variance threshold.	N/A	N/A
4	2F ^(b)	Build IT Applications and Infrastructure	Exhibit (PG&E-6), Chapter 10	None	1,936	–	(1,936)	Below variance threshold.	N/A	N/A
5	3J ^(c)	SmartMeter Opt-Out	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	362	–	(362)	Below variance threshold.	N/A	N/A
6		Total			\$126,997	\$95,225	\$(31,773)			

- (a) Please note that the Field Meter Operations team transferred from Customer Care to Electric Operations and Gas Operations in 2018. As a result, all 2018 recorded costs associated with Field Meter Operations in this MWC are reflected in their destination organization (i.e. Electric Operations or Gas Operations).
- (b) Imputed regulatory values reflect what was requested and authorized in the 2017 GRC for the Meter Traceability and Information Management project in WP 10-55 to 10-59, Exhibit (PG&E-6), and have been adjusted to the new cost model. Please note that the Meter Traceability and Information Management project was an IT companion project to the Field Asset Management System project, which was requested and authorized in the 2017 GRC in Exhibit (PG&E-6), Chapter 7 in MWC 05. This project was canceled since the Field Asset Management System project was reduced in scope.
- (c) In 2017, PG&E closed the SmartMeter Opt-Out Balancing Account, which tracked costs for MWC 3J (see D.17-05-013, pp. 119-120). These activities are now tracked in MWC 25. Within MWC 25, costs associated with meter installations are tracked in Electric Operations and costs associated with meter purchases are tracked in Customer Care.

SECTION 7
Shared Services/Information Technology
Imputed Adopted vs. Recorded

TABLE 7-1
SHARED SERVICES/IT 2018 EXPENSE COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2018 Imputed Regulatory Values	2018 Recorded	2018 Difference Higher/(Lower)	2019 Budget
1	Miscellaneous Expense	AB	\$201,949	\$209,030	\$7,081	\$201,263
2	Manage Environmental Operations	AK	8,674	8,729	55	7,078
3	Habitat and Species Protection	AY	256	320	65	308
4	Maintain Buildings	BI	18,730	2,687	(16,044)	125
5	Manage DCCP Business	BP	3,440	1,898	(1,541)	5,174
6	Manage Waste Disposal and Transportation	CR	2,729	2,649	(79)	2,474
7	Manage Property and Buildings	EP	130,368	109,963	(20,405)	112,126
8	Implement Environment Projects	ES	1,331	697	(635)	630
9	Special A&G/Other Costs-Budget Department	FA	3,267	186	(3,081)	200
10	Safety Engineering and OSHA Compliance	FL	24,526	15,864	(8,662)	16,195
12	Manage Land Services	JE	4,038	4,250	213	4,087
13	Implement Real Estate Strategy	JH	5,555	4,945	(610)	4,375
14	Manage Environmental Remediation (Earnings)	JK	4,914	2,760	(2,154)	2,818
15	Procure Materials and Services	JL	20,729	15,188	(5,541)	16,529
16	Maintain IT Applications and Infrastructure	JV	15,672	5,981	(9,691)	2,339
17	Provide Human Resource Services	KX	-	6,998	6,998	7,091
18	Provide Regulation Services	KY	-	1,260	1,260	1,423
19	Charges from Affiliates	LL	-	667	667	1,000
20	Operational Management	OM	(345)	487	832	\$368
21	Operational Support	OS	8,832	7,771	(1,062)	7,182
22	Shared Services Sub-Total		\$454,665	\$402,330	\$(52,334)	\$392,785
23	Fleet Capitalization	AB	(116,067)	(107,761)	8,306	(108,206)
24	Building Services Capitalization	EP	(71,008)	(70,739)	269	(72,779)
25	Shared Services Total		\$267,590	\$223,830	\$(43,759)	\$211,800

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TABLE 7-1
SHARED SERVICES/IT 2018 EXPENSE COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)
(CONTINUED)

Line No.	MWC Description	MWC	2018 Imputed Regulatory Values	2018 Recorded	2018 Difference Higher/(Lower)	2019 Budget
26	Miscellaneous Expense	AB	-	\$(201)	\$(201)	\$2
27	Maintain IT Applications and Infrastructure	JV	\$348,605	304,255	(44,349)	286,792
28	Charges from Affiliates	LL	-	171	171	41
29	Corp A&G Allocation - ATL	LO	-	-	-	210
30	Operational Management	OM	4,387	3,124	(1,263)	2,190
31	Operational Support	OS	-	1,004	1,004	1,225
32	Information Technology Sub-Total		\$352,992	\$308,353	\$(44,638)	\$290,460
33	End User Services Capitalization	AB	\$(50,260)	\$(42,239)	\$8,021	-
34	Information Technology Total		\$302,732	\$266,114	\$(36,617)	\$290,460
35	Shared Services/Information Technology Total		\$570,322	\$489,944	\$(80,376)	\$502,260

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TABLE 7-2
SHARED SERVICES/IT 2018 CAPITAL COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2018 Imputed Regulatory Values	2018 Recorded	2018 Difference Higher/(Lower)	2019 Budget
1	Fleet / Auto Equip	04	\$100,243	\$53,528	\$(46,716)	\$41,694
2	Tools and Equipment	05	1,758	2,401	643	2,626
3	Implement Environment Projects	12	5,629	5,238	(390)	9,779
4	Miscellaneous Capital	21	619	31,392	30,773	9,600
5	Maintain Buildings	22	45,270	86,193	40,923	79,892
6	Implement Real Estate Strategy	23	100,079	164,611	64,531	85,912
7	EV - Station Infrastructure	28	2,851	1,854	(997)	3,280
8	Build IT Applications and Infrastructure	2F	12,728	5,045	(7,683)	440
9	Manage Buildings	78	-	6	6	-
10	Shared Services Total		\$269,177	\$350,268	\$81,090	\$233,223
11	Build IT Applications and Infrastructure	2F	\$189,474	\$158,345	\$(31,129)	\$124,488
12	Information Technology Total		\$189,474	\$158,345	\$(31,129)	\$124,488
13	Shared Services/Information Technology Total		\$458,651	\$508,613	\$49,961	\$357,711

MWC Descriptions – Expense

MWC AB – Support – includes costs associated with climate protection and other environmental leadership initiatives.

MWC AB also includes standard cost variances for Shared Services departments that charge out their costs to other organizations and miscellaneous support costs.

MWC AK – Manage Environmental Operations – includes costs for environmental compliance support, permits and day-to-day costs that are part of facility environmental operations. MWC AK also includes routine environmental work, including the labor costs of environmental professionals and facility personnel who perform environmental compliance tasks (e.g., inspections, compliance assessments, corrective actions and hazardous waste management).

MWC AY – Habitat and Species Protection – includes compliance with regulations to protect endangered species and sensitive habitats as part of PG&E’s broader Environmental Stewardship Program. The Environmental Stewardship Program covers initiatives to support habitat and species protection, Safe Harbor Agreement, avian protection, land stewardship and conservation partnerships. MWC AY includes labor and expense associated with administration of the different programs.

MWC BI – Maintain Buildings – includes costs to repair and maintain base building to extend the life of building components, correct building component deficiencies, improve equipment operating efficiencies, and increase the operating reliability of buildings and yards.

MWC BP – Manage DCPD Business – includes costs of aircraft services that have been moved from the Nuclear Generation line of business.

MWC CR – Manage Waste Disposal & Transportation – includes costs of transportation and disposal of hazardous and other regulated wastes in accordance with federal and state laws and regulations.

MWC EP – Manage Property and Buildings – includes costs to operate, maintain, and repair PG&E’s facilities and shared conference center space.

MWC ES – Implement Environment Projects – includes costs associated with repairing, replacing, or upgrading equipment to comply with environmental regulations.

MWC FA/FL – Safety Engineering & OSHA Compliance – includes costs of the Safety Engineering & Health Services department which provides overall direction and implementation of the Company’s occupational safety and health

programs. MWC FL also includes costs for the development and integration of safety and health solutions supporting the goal of eliminating employee injuries.

MWC JE – Manage Land Services – includes costs to establish policies and provide support for the management and protection of the Company’s land and land rights in support of PG&E’s utility operations. MWC JE also includes costs to manage the Company’s timberlands to achieve optimal revenues while maintaining and/or enhancing timberland values.

MWC JH – Real Estate Strategy and Transactions – includes costs for long-term real estate strategy development, space demand forecasting and planning and lease administration and transaction management.

MWC JK – Manage Environmental Remediation-Earnings – includes costs for the clean-up of contaminated sites which are not recovered through the Hazardous Substance Mechanism (HSM), decommissioning accounts, or at shareholder expense. These include internal labor and expenses associated with management and support of the site remediation as well as contractor and legal fees.

MWC JL – Procure Materials & Services – includes costs to procure goods and services, including implementing programs to improve organizational effectiveness, developing supplier alliances, and maintaining and promoting a diverse supplier base.

MWC JV – Maintain Applications and Infrastructure – includes costs for ongoing maintenance, operations and repair for PG&E’s IT applications, systems and infrastructure.

MWC KX – Provide Human Resource Services – represents services provided by Human Resources.

MWC KY – Provide Regulations Services – includes costs for regulatory services and support.

MWC OM – Operational Management –includes labor and employee related costs to provide supervision and management support. MWC OM also includes costs incurred by the administrative staff working for the supervisors/managers.

MWC OS – Operational Support –includes labor and employee related costs to provide services and support that are unrelated to supervision and management. Examples include Business Finance and Sourcing that support the lines of business.

**TABLE 7-3
CORPORATE REAL ESTATE 2018 EXPENSE COMPARISON
BY MWC FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)**

Line No.	MWC	MWC Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Imputed Regulatory Values	2018 Recorded Costs	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
1	BI ^(a)	Maintain Buildings	Exhibit (PG&E-7), Chapter 6	Exhibit (PG&E-7), Chapter 5	\$18,730	\$2,665	\$(16,065)	Program expenses/expenditures were below imputed regulatory values due to an enterprise-wide reprioritization to fund higher priority work.	None	None
2	JH ^(b)	Implement Real Estate Strategy	Exhibit (PG&E-7), Chapter 6	Exhibit (PG&E-7), Chapter 5	76	–	(76)	Below threshold variance.	None	None
3	Total				\$18,806	\$2,665	\$(16,141)			

(a) Imputed and recorded costs are specific to PG&E's Facility Asset Upkeep Program, which is tracked as part of MWC BI.

(b) Imputed and recorded costs are specific to PG&E's Seismic - Customer Service Office Relocation Program, which is tracked as part of MWC JH. The imputed regulatory value reflects what was requested and authorized in the 2017 GRC in WP 6-255 to 6-257, Exhibit (PG&E-7), and has been adjusted to the new cost model.

MWC Descriptions – Capital

MWC 04 – Fleet/Automotive Equipment – includes acquisition of vehicles, power-operated and off-road equipment, and trailers needed to respond to customer service requests and the myriad of maintenance and construction needs of the Company.

MWC 05 – Tools & Equipment – includes purchase of tools and equipment required to perform various functions, including fleet repairs, warehouse operations, etc.

MWC 12 – Implement Environment Projects – includes costs associated with repairing, replacing, or upgrading equipment and facilities to comply with environmental regulations.

MWC 21 – Purchase/Install – Other Capital – includes costs related to the miscellaneous purchase of capital and/or the disposition and sale of PG&E’s surplus, obsolete or damaged assets.

MWC 22 – Maintain Buildings – includes the costs to replace and construct base buildings, to extend the life of building components, correct building component deficiencies, improve equipment operating efficiencies, replace failed or functionally obsolete building components, and increase the operating reliability of buildings and yards. This includes furniture, office equipment, and IT Infrastructure for buildings.

MWC 23 – Implement Real Estate Strategy – includes the costs for new buildings and yards, including the purchase of land and the purchase and installation of furniture, office equipment, and IT Infrastructure, as well as the costs to improve building environmental sustainability, to implement workplace strategy, and to optimize the real estate portfolio.

MWC 28 – EV-Station Infrastructure – includes the cost of electric vehicle charging infrastructure for PG&E’s owned vehicles.

MWC 2F – Build Applications and Infrastructure – includes the costs to design, develop and enhance applications, systems and infrastructure technology solutions.

**TABLE 7-4
CORPORATE REAL ESTATE 2018 CAPITAL COMPARISON
BY MWC FOR SAFETY, RELIABILITY, AND MAINTENANCE WORK
(THOUSANDS OF DOLLARS)**

Line No.	MWC	MWC Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2018 Imputed Regulatory Values	2018 Recorded Costs	2018 Difference in Costs	Explanation	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request
1	22 ^(a)	Maintain Buildings	Exhibit (PG&E-7), Chapter 6	Exhibit (PG&E-7), Chapter 5	\$45,270	\$50,147	\$4,877	Below threshold variance.	None	None
2	23 ^(b)	Implement Real Estate Strategy	Exhibit (PG&E-7), Chapter 6	Exhibit (PG&E-7), Chapter 5	4,718	104	(4,613)	Below threshold variance.	None	None
3	Total				\$49,988	\$50,251	\$264			

(a) Imputed and recorded costs are specific to PG&E's Facility Asset Upkeep Program, which is tracked as part of MWC 22.

(b) Imputed and recorded costs are specific to PG&E's Seismic - Customer Service Office Relocation Program, which is tracked as part of MWC 23. The imputed regulatory value reflects what was requested and authorized in the 2017 GRC in WP 6-255 to 6-257, Exhibit (PG&E-7), and has been adjusted to the new cost model.

PART C – SAFETY METRICS

**TABLE 1
2018 TOTAL COMPANY SAFETY METRICS**

	Metric Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	T&D Wires Down	217	174	369	229	210	228	257	205	169	213	206	282
2	911 Emergency Response	98.36%	98.86%	97.70%	99.06%	97.71%	98.10%	97.90%	97.97%	98.60%	97.90%	96.30%	97.80%
3	Dig-In Reductions	1.12	1.63	1.14	1.53	2.04	1.75	1.9	1.67	1.83	1.61	1.52	1.37
4	Gas Emergency Response	20.5	20.5	20.3	20.5	20.4	20.5	20.8	21.2	21.3	21.0	20.4	20.4
5	DCPP Reliability and Safety Indicator – Unit 1	97.0	96.9	96.9	96.9	96.8	96.8	96.8	96.9	96.9	97.9	100.0	100.0
6	DCPP Reliability and Safety Indicator – Unit 2	90.0	90.0	90.0	89.9	89.9	89.9	89.9	89.9	90.0	90.0	90.0	90.0
7	Hydro Public Safety Actions Index	92%	92%	92%	87%	87%	87%	87%	87%	87%	91%	91%	91%
8	Lost Workday Case Rate	0.000	0.111	0.340	0.426	0.202	0.214	0.817	0.379	0.789	0.516	0.194	0.788
9	OSHA Recordable Rate	1.834	1.939	2.718	3.463	3.077	3.364	4.359	3.032	3.550	2.439	2.429	3.214
10	Near-Hits Reported	138	121	137	174	157	121	145	157	153	135	111	80
11	PMVI Rate	3.137	2.176	2.705	1.593	2.939	2.961	2.855	2.964	2.897	3.076	2.493	3.528
12	SPMVI Rate	0.112	0.000	0.082	0.089	0.155	0.435	0.084	0.456	0.193	0.280	0.000	0.307
13	Contractor Lost Workdays	0.26	0.91	0.15	0.39	0.07	0.15	0.15	0.4	0.42	0.21	0.38	0.16
14	Contractor Days Away	0.85	1.21	0.95	0.54	0.14	0.37	0.51	0.58	0.84	0.37	0.48	0.38
15	Contractor OSHA Recordable Rate	1.36	1.44	1.09	0.62	0.77	0.88	0.94	0.98	1.2	0.63	0.64	0.8
16	Fire Ignitions	4	7	6	10	38	100	87	70	50	33	26	3
17	Number of Employee Serious Injuries & Fatalities	0	0	0	1	0	0	0	1	0	0	0	1

**TABLE 2
2018 LOST WORKDAY CASE RATE METRIC BY LOB**

	Lost Workday Case Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Gas Operations	0.000	0.240	0.634	0.646	0.203	0.214	1.092	0.000	1.143	0.922	0.383	0.698
2	Electric Operations	0.000	0.172	0.438	0.316	0.150	0.318	0.487	0.547	0.677	0.838	0.000	1.481
3	Nuclear Generation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.903	1.040	0.000	0.915	0.000
4	Power Generation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.387	3.105	0.000	0.000	0.000
5	Strategy & Policy	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	Customer Care	0.000	0.000	0.000	0.000	0.432	0.446	1.397	0.830	0.491	0.000	0.000	1.112
7	IT & Supply Chain	0.000	0.000	0.545	0.588	0.551	0.000	1.205	0.000	0.640	0.000	0.582	0.000
8	Safety & Health	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	Human Resources	0.000	0.000	0.000	0.000	0.000	0.000	3.584	0.000	0.000	0.000	0.000	0.000
10	Finance & Risk	0.000	0.000	0.000	2.951	0.000	0.000	2.890	0.000	0.000	0.000	0.000	0.000
11	General Counsel	0.000	0.000	0.000	1.474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	Compliance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**TABLE 3
2018 OSHA RECORDABLE RATE METRIC BY LOB**

	OSHA Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Gas Operations	2.564	3.364	3.806	4.740	3.445	4.707	7.859	4.590	5.486	3.687	5.164	2.793
2	Electric Operations	1.819	1.375	3.355	3.163	4.050	5.398	3.573	2.874	3.552	3.351	1.731	5.738
3	Nuclear Generation	0.000	0.000	0.000	1.003	0.000	0.000	0.000	0.903	2.081	0.000	0.000	0.000
4	Power Generation	1.451	1.575	1.362	2.777	4.086	0.000	1.559	0.000	6.209	0.000	0.000	0.000
5	Strategy & Policy	0.000	0.000	0.000	0.000	0.000	0.000	2.783	0.000	0.000	0.000	0.000	2.964
6	Customer Care	2.250	2.369	4.076	4.017	3.887	1.783	5.122	4.564	3.434	1.236	0.926	3.892
7	IT & Supply Chain	1.840	3.738	1.091	2.938	1.103	1.766	3.014	2.614	1.279	2.094	2.911	0.664
8	Safety & Health	6.147	0.000	0.000	0.000	5.629	0.000	6.055	0.000	0.000	0.000	0.000	0.000
9	Human Resources	0.000	0.000	0.000	3.574	3.424	0.000	7.169	3.254	0.000	3.034	0.000	0.000
10	Finance & Risk	3.117	0.000	2.783	2.951	2.810	0.000	2.890	2.653	3.264	0.000	0.000	0.000
11	General Counsel	0.000	1.574	1.363	4.421	0.000	0.000	0.000	0.000	3.085	0.000	4.558	1.585
12	Compliance	0.000	0.000	0.000	49.554	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**TABLE 4
2018 PMVI RATE METRIC BY LOB**

	PMVI Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Gas Operations	4.709	3.031	2.179	1.746	2.651	3.098	2.664	2.993	2.442	2.367	3.359	4.138
2	Electric Operations	2.528	2.076	2.831	1.360	2.753	3.738	2.325	4.062	3.037	3.712	2.081	2.342
3	Nuclear Generation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.768	0.000	0.000	0.000	38.175
4	Power Generation	6.537	0.000	0.000	1.671	2.952	0.000	1.643	0.000	0.000	1.291	1.688	1.561
5	Strategy & Policy	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	28.607	0.000	0.000
6	Customer Care	0.000	3.531	4.392	4.885	2.096	1.156	1.142	0.000	4.054	2.908	2.396	7.537
7	IT & Supply Chain	1.482	0.000	2.025	0.000	6.030	3.255	10.970	2.840	7.514	3.929	2.077	5.205
8	Safety & Health	0.000	0.000	0.000	0.000	8.513	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	Human Resources	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.476	0.000	0.000
10	Finance & Risk	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.365	0.000	0.000
11	General Counsel	0.000	0.000	10.617	0.000	2.486	2.536	0.000	0.000	0.000	0.000	2.402	2.251
12	Compliance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**TABLE 5
2018 SPMVI RATE METRIC BY LOB**

	SPMVI Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Gas Operations	0.000	0.000	0.000	0.000	0.221	0.000	0.242	0.641	0.271	0.197	0.000	0.436
2	Electric Operations	0.281	0.000	0.000	0.227	0.197	1.099	0.000	0.387	0.000	0.353	0.000	0.195
3	Nuclear Generation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	Power Generation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	Strategy & Policy	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	Customer Care	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.351	0.000	0.000	0.000
7	IT & Supply Chain	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.947	0.000	0.000	0.000	1.041
8	Safety & Health	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	Human Resources	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.476	0.000	0.000
10	Finance & Risk	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	General Counsel	0.000	0.000	2.654	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	Compliance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**TABLE 6
2018 NEAR HITS METRIC BY LOB**

	Near Hits	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Gas Operations	14	16	18	31	26	20	17	15	9	19	6	10
2	Electric Operations	71	65	60	79	75	60	70	69	69	62	59	39
3	Nuclear Generation	0	0	0	0	0	0	0	0	0	0	0	0
4	Power Generation	2	8	6	6	3	1	5	3	2	3	0	1
5	Strategy & Policy	0	0	0	0	0	0	0	0	0	0	1	0
6	Customer Care	42	28	45	54	46	38	48	64	68	45	42	28
7	IT & Supply Chain	3	0	2	2	4	1	4	1	0	4	0	0
8	Safety & Health	3	2	0	1	2	0	0	4	2	2	0	1
9	Human Resources	0	0	0	1	0	0	0	0	0	0	1	0
10	Finance & Risk	0	1	0	0	0	0	0	1	0	0	2	0
11	General Counsel	3	1	6	0	1	1	1	0	3	0	0	1
12	Compliance	0	0	0	0	0	0	0	0	0	0	0	0

Metric Descriptions

T&D Wires Down – Number of instances where an electric transmission or primary distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object; excludes down secondary distribution wires and “Major Event Days” (typically due to severe storm events) as defined by the Institute of Electrical and Electronics Engineers.

911 Emergency Response – The percent of time PG&E personnel respond (are on-site) within one hour after receiving a 911 (electric related) call, with on-site defined as arriving at the premises where the 911 agency personnel are standing by.

Dig-In Reductions – The total number of third-party dig-ins to PG&E gas assets per 1,000 Underground Service Alert (USA) tickets. A dig-in refers to any damage (impact or exposure) that results in a repair or replacement of an underground facility as a result of an excavation.

Gas Emergency Response – The average response time that a Gas Service Representative or a qualified first responder (e.g., Gas Crew, Leak Surveyor) takes to respond to the site of an immediate response gas emergency order. Excludes area odor complaints, duplicate and cancelled orders, and multiple calls on a multi-meter manifold.

DCPP Reliability and Safety Indicator: Unit 1 – Composite of 11 nuclear industry-based performance indicators, including unit capability, online reliability, safety system unavailability, radiation exposure, and safety accident rate. Indicator performance periods range from a rolling 18 months to 36 months.

DCPP Reliability and Safety Indicator: Unit 2 – Composite of 11 nuclear industry-based performance indicators, including unit capability, online reliability, safety system unavailability, radiation exposure, and safety accident rate. Indicator performance periods range from a rolling 18 months to 36 months.

Hydro Public Safety Actions Index – Composite measure of milestones achieved on hydro public safety initiatives. It incorporates information on health of high-risk hydro assets, safety training, and information sharing, along with milestones achieved with key mitigations.

Lost Workday Case Rate – A Lost Workday Case is a current year OSHA Recordable incident that has resulted in at least one lost workday. Excludes fatalities.

OSHA Recordable Rate – An OSHA Recordable incident is an occupational (job related) injury or illness that requires medical treatment beyond first aid, or results in work restrictions, death or loss of consciousness.

DART Rate – Count of Days Away, Restricted and Transfer (DART) Cases. Includes OSHA-recordable injuries that result in lost time or restricted duty.

Timely Reporting of Injuries – The calculation for this metric is the total number of work-related injury calls to the 24/7 Nurse Report Line within one day of incident divided by total number of calls. One day is measured by subtracting date of call from the date the employee states injury occurred. Calls that were non-work related in nature or for Report Purposes Only are excluded from the metrics. Participation by employees in the Industrial Athlete Early Symptom Intervention program is considered a timely report. Percentage of Self-Care and Clinic-Visit calls reported within one day of the incident.

Workforce Unavailable due to Health – Percentage of full-time employees unavailable for work either due to long-term or short-term health reasons. To account for seasonality effects, data is rolling 12-month view (data reported one month in arrears).

PMVI Rate – A “Preventable” incident is one where the PG&E driver could have but failed to take reasonable steps to prevent the incident. The term “Preventable” should not be confused with “fault” or “liability.” An incident can be considered “Preventable” even if the PG&E driver is not legally at fault. The determining factor is whether or not the PG&E driver could have reasonably prevented the incident.

SPMVI Rate – The total number of serious preventable motor vehicle incidents (SPMVIs) for which the PG&E driver could have reasonably avoided, per 1 million miles driven. A serious MVI is one where one or more of the following conditions occur: injuries that require immediate treatment away from the scene of the incident, a vehicle is towed, or vehicle damage exceeds \$5,000.

Near-Hits Reported – An unplanned event that did not result in harm or injury to employees, contractors or the public, but had the potential to do so. This metric is a count of Near Hits reported by employees.

Contractor Lost Workdays – A Lost Workday Case is a current year OSHA Recordable incident that has resulted in at least one lost workday. Excludes fatalities.

Calculation: $\text{Count of LWD Cases} * 200,000 / \text{Productive Labor Hours}$

Contractor Days Away – Days Away, Restricted and Transfer (DART) Cases include OSHA-recordable injuries that result in lost time or restricted duty.

Calculation: $\text{Count of DART Cases} * 200,000 / \text{Productive Labor Hours}$

Contractor OSHA Recordable Rate – An OSHA Recordable incident is an occupational (job related) injury or illness that requires medical treatment beyond first aid, or results in work restrictions, death or loss of consciousness.

Calculation: $\text{Count of OSHA cases} * 200,000 / \text{Productive Labor Hours}$

Fire Ignitions – The number of powerline-involved fire incidents annually reportable to the CPUC per Decision 14-02-015. A reportable fire incident includes all of the following: (1) Ignition is associated with PG&E powerlines; (2) something other than PG&E facilities burned; and (3) the resulting fire traveled more than one meter from the ignition point.

Number of Employee Serious Injuries and Fatalities – A work-related injury or illness that results in a fatality, inpatient hospitalization for more than 24 hours (other than for observation purposes), a loss of any member of the body, or any serious degree of permanent disfigurement.

PACIFIC GAS AND ELECTRIC COMPANY

APPENDIX A

2017 GRC IMPUTED REGULATORY VALUES METHODOLOGY

PACIFIC GAS AND ELECTRIC COMPANY
APPENDIX A
2017 GRC IMPUTED REGULATORY VALUES METHODOLOGY

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PACIFIC GAS AND ELECTRIC COMPANY
APPENDIX A
2017 GRC IMPUTED REGULATORY VALUES METHODOLOGY

A. Introduction

Decision 17-05-013 (the Decision) adopted, with some modifications, a Settlement Agreement which included 2017 revenue requirements for the electric generation, electric distribution and gas distribution functions, and attrition increases by function for 2018 through 2019.¹

Adopted revenue requirements reflect Decision-approved cost forecasts originally prepared by PG&E in 2015 using its former cost allocation (budgeting) methodology. Effective January 1, 2016, the Company's budget and recorded costs reflect PG&E's new cost allocation methodology.

The section below describes the methodology used by PG&E to develop expense and capital regulatory values (i.e., imputed adopted amounts) in the old cost allocation methodology, consistent with the format used to prepare the 2017 GRC application forecast. For comparability purposes, PG&E translated the 2017-2019 regulatory values to the new cost allocation methodology to be consistent with the budgeted and recorded costs.

1. 2017 Test Year

The Decision adopted 2017 test year operations and maintenance (O&M) and administrative and general (A&G) expense values at the Major Work Category (MWC) and/or Organizational level, and capital expenditure values at the MWC level. The adopted test year expense and capital costs at the MWC and/or Organizational levels are included in the Settlement Agreement, Appendix A.

2. 2018 to 2019 Post Test Year

a. Background and Summary

The Decision adopted 2018 and 2019 functional revenue requirements based on the attrition increases included in the Settlement Agreement for the 2018 and 2019 post-test year by the functional areas. These adopted revenue requirements were negotiated with the Settling Parties, and were

¹ D.17-05-013, Appendix A: Table 6.

not derived through Results of Operation modeling. The Settlement Agreement did not provide specific MWC values for 2018 and 2019.

On October 31, 2016, at the request of the Administrative Law Judge, PG&E filed Late Exhibit (PG&E-46) to provide imputed regulatory values resulting from the Settlement Agreement revenue requirements. Exhibit 46 provides an overview of PG&E's post-test year imputation methodology used to calculate detailed 2018 and 2019 imputed regulatory values that conform to the overall Settlement revenue requirements. These calculated imputed regulatory values at the MWC and/or Organizational levels, presented in Appendix A of Exhibit 46 in the old cost allocation methodology, are not a part of the Settlement Agreement.

Exhibit 46 was filed before the CPUC issued the 2017 GRC Decision, which adopted the overall functional level Settlement Agreement test year revenue requirements and post-test year amounts included in the Settlement Agreement Appendix A and Joint Comparison Exhibit, Chapter 5, Volume II.

b. Details

1) Imputation Methodology

As mentioned above, the Decision adopted 2017 test year O&M and A&G expense values at the MWC and/or Organizational level, and capital expenditure values at the MWC level. For the post-test years, the Settlement Agreement provides only functional level 2018 and 2019 revenue requirement attrition amounts, as described in Exhibit 46. Unlike the adopted test year amounts, these amounts are not broken down by expense and capital and by MWC. The Settlement Agreement does not specify how to impute regulatory values for 2018 and 2019 that conform to the Settlement Agreement parameters, nor does the Settlement Agreement instruct how to allocate the imputed expense and capital revenue requirements to the function-specific MWC and/or Organizational level by line of business (LOB). Therefore, the regulatory values imputation process included in Exhibit (PG&E-46) and summarized below is separate from the Settlement Agreement.

2) Capital vs. Expense

2017 adopted expenses were escalated to 2018 then to 2019 based on agreed on labor and non-labor escalation rates. The remaining available revenue requirements were allocated to capital.

3) Capital regulatory values by LOB

To impute capital functional level revenue requirements based on available capital revenue requirements, PG&E reduced its 2017 capital net additions by approximately 7 percent in 2018 and an additional 2-3 percent in 2019, as compared to 2017 adopted capital net additions. This additions pattern reflects a gradual decline in year-over-year additions.

4) Expense regulatory values by LOB

PG&E subtracted the function-specific capital-related revenue requirement increases from the overall function-specific revenue requirement increases prescribed in the Settlement Agreement to calculate the function-specific expense revenue requirement increases for 2018 and 2019.

5) 2018 and 2019 Expense and Capital by MWC and/or Organization Levels

PG&E further broke down the function-specific expense and capital expenditure amounts by MWC, consistent with PG&E's 2017 GRC presentation format in the Application filing. For capital expenditures, PG&E used the 2017 capital net addition to capital expenditure ratios to calculate the corresponding capital expenditures at the MWC level for 2018 and 2019. For expense, PG&E allocated the 2018 and 2019 function-specific post-test year expense adjustments to each MWC in proportion to the total function-specific (i.e., Line of Business) amount.

3. Imputation Methodology (MAT Level for Electric Distribution and Gas Distribution)

To impute regulatory values for 2017 at the MAT code level, PG&E applied program specific MAT code adjustments to PG&E's request for the test year, as appropriate, based on the specification described in the Decision, Joint Comparison Exhibit and/or Settlement Agreement. For any adjustments that

were not specifically identified at the MAT code level, PG&E prorated the adjustments to PG&E's request for each MWC to all MAT codes, as applicable, using the MAT code to MWC ratios from PG&E's Application forecast. To impute associated 2017 MAT units of work, PG&E divided the 2017 imputed MAT code values by the forecast MAT code unit cost. The imputed 2017 MAT code unit cost was then calculated as the imputed MAT code values divided by imputed units.

To impute regulatory values for 2018 and 2019 by MAT code, PG&E used the 2018 and 2019 MWC imputed values from Exhibit PG&E-46 and prorated the amounts by MAT code based on the MAT code to MWC ratios from PG&E's 2017 imputed adopted values. To calculate the adopted units of work, as applicable, PG&E divided the post-test year imputed MAT code regulatory values by the escalated unit cost.

4. 2017-2019 Imputed Regulatory Values using PG&E's New Cost Allocation Methodology

PG&E's 2017 GRC cost forecast was presented using the Company's former cost allocation methodology. As a result, the Decision and adopted values also reflect the old cost allocation methodology. Effective January 1, 2016, PG&E's budget and recorded costs reflect the Company's new cost allocation methodology, which was described in PG&E's 2017 GRC testimony, as well as in PG&E's March 31, 2016 and July 10, 2017 Budget Compliance Reports. In brief, the new cost allocation methodology uses a "labor only" rate which no longer includes support and overhead costs. These costs, which include benefits and payroll taxes, are budgeted and recorded through separate line items for the expense programs. For capital projects, consistent with Federal Energy Regulatory Commission Uniform System of Accounts rules, the new cost allocation methodology allocates the proportionate amount of support and overhead costs to the capital project work. Accounting for existing balancing account activities is treated similar to capital work to ensure balancing accounts reflect fully allocated costs consistent with prior Commission decisions. To properly compare 2017 recorded costs, which reflect the new cost allocation methodology versus the adopted values, PG&E has translated the adopted values from the Decision to the new cost allocation

methodology using the 2015 recorded costs conversion factors. The translated adopted amounts are referred to as imputed regulatory values.

PACIFIC GAS AND ELECTRIC COMPANY
APPENDIX B
2017-2019 IMPUTED REGULATORY VALUES BY
LINE OF BUSINESS

**2017 GRC BUSINESS UNITS EXPENSE IMPUTED ADOPTED REGULATORY VALUES
NEW COST MODEL VIEW
(THOUSANDS OF NOMINAL DOLLARS)**

Line	Exhibit	Chapter	MWC	MWC Description	2017 Imputed	2018 Imputed	2019 Imputed	Line
Gas Distribution (Exhibit 3)								
1	3	4	EX	G Dist Meter Protection	988	916	881	1
2	3	4	FI	G Dist Corrective Maint	1,971	1,837	1,774	2
3	3	4	JQ	G Dist Integrity Mgt (Non Bal)	30,103	27,766	26,599	3
4	3	5	GM	Manage Energy Efficiency-NonBA	3,563	3,301	3,172	4
5	3	6A	DD	Provide Field Service	48,860	45,818	44,431	5
6	3	6A	DF	G&E T&D Locate and Mark	23,784	23,902	24,238	6
7	3	6A	FH	G Dist Preventive Maint	12,425	11,614	11,235	7
8	3	6A	FI	G Dist Corrective Maint	13,114	12,225	11,804	8
9	3	6A	HY	Change/Maint Used Gas Meters	1,808	1,695	1,644	9
10	3	6B	DG	G Dist Cathodic Protection	9,273	8,661	8,373	10
11	3	6B	FH	G Dist Preventive Maint	2,042	1,909	1,847	11
12	3	6B	FI	G Dist Corrective Maint	19,546	18,221	17,594	12
13	3	6C	DE	G Dist Leak Survey	19,498	18,184	17,564	13
14	3	6C	FI	G Dist Corrective Maint	50,713	47,276	45,647	14
15	3	7	FG	G Dist Operate System	13,099	12,193	11,760	15
16	3	7	GG	Gas Trans & Dist Sys Modeling	7,601	7,148	6,945	16
17	3	8	LK	G Dist WRO - Maintenance	4,253	3,814	3,600	17
18	3	9	GZ	R&D Non-Balancing Account	1,472	1,359	1,303	18
19	3	9	JV	Maintain IT Apps & Infra	26,279	24,373	23,445	19
20	3	10	AB	Misc Expense	6,262	5,802	5,577	20
21	3	10	DN	Develop & Provide Training	3,915	3,590	3,424	21
22	3	10	GF	Gas Trans & Dist Sys Mapping	3,853	3,606	3,492	22
23	3	3	OM	Operational Management	14,294	13,416	13,017	23
24	3	3	OS	Operational Support	40,552	38,063	36,929	24
25				Total Exhibit (PG&E-3)	359,268	336,688	326,295	25
Electric Distribution (Exhibit 4)								
26	4	3	AB	Emer. Prep. & Response	7,425	7,611	7,796	26
27	4	4	BH	E Dist Routine Emergency	51,541	54,526	56,990	27
28	4	4	IF	E Dist Major Emergency	51,438	54,412	56,846	28
29	4	5	BA	E Dist Operate System	25,964	27,360	28,537	29
30	4	5	DD	Provide Field Service	15,979	16,858	17,593	30
31	4	6	BF	E T&D Patrol/Insp	34,764	36,756	38,391	31
32	4	6	BK	Maint Other Equip	1,877	1,982	2,069	32
33	4	6	KA	E Dist Maint OH General	46,458	49,175	51,383	33
34	4	6	KB	E Dist Maint UG	15,712	16,602	17,337	34
35	4	6	KC	E Dist Maint Network	4,129	4,364	4,558	35
36	4	7	HN	E Dist Tree Trim Bal Acct	201,033	213,371	223,172	36
37	4	8	GA	E T&D Maint OH Poles	13,049	14,032	14,817	37
38	4	10	HX	E T&D Automation & Protection	1,370	1,447	1,511	38
39	4	12	GC	GC E Dist Subst O&M	25,372	26,810	27,996	39
40	4	13	BA	E Dist Operate System	61	64	67	40
41	4	13	JV	Maintain IT Apps & Infra	343	363	379	41
42	4	14	FZ	E Dist Planning & Ops Engineer	13,919	14,678	15,314	42
43	4	15	JV	Maintain IT Apps & Infra	5,840	6,181	6,458	43
44	4	16	GE	E Dist Mapping	5,146	5,437	5,678	44
45	4	17	EV	Manage Service Inquiries	8,391	8,852	9,237	45
46	4	17	EW	E TD WRO - Maintenance	12,895	13,854	14,645	46
47	4	19	AB	Misc Expense	2,011	2,125	2,218	47
48	4	19	DN	Develop & Provide Training	7,239	7,686	8,040	48
49	4	4	IS	Bill Customers	N/A	N/A	N/A	49
50	4	4	OM	Operational Management	18,776	19,869	20,768	50
51	4	4	OS	Operational Support	24,432	25,853	27,024	51
52				Total Exhibit (PG&E-4)	595,163	630,269	658,823	52

**2017 GRC BUSINESS UNITS EXPENSE IMPUTED ADOPTED REGULATORY VALUES
NEW COST MODEL VIEW
(THOUSANDS OF NOMINAL DOLLARS)
(CONTINUED)**

Line	Exhibit	Chapter	MWC	MWC Description	2017 Imputed	2018 Imputed	2019 Imputed	Line
Energy Supply (Exhibit 5)								
Nuclear Generation								
53	5	3	AB	Misc Expense	19,656	20,174	20,564	53
54	5	3	AK	Manage Environmental Oper	2,733	2,937	3,082	54
55	5	3	BP	Manage DCPD Business	10,913	11,708	12,282	55
56	5	3	BQ	DCPD Support Services	37,299	39,843	41,727	56
57	5	3	BR	Operate DCPD Plant	70,002	74,828	78,387	57
58	5	3	BS	Maintain DCPD Plant Assets	112,192	120,133	125,924	58
59	5	3	BT	Nuclear Generation Fees	16,848	18,125	19,032	59
60	5	3	BV	Maintain DCPD Plant Configurtn	39,364	42,130	44,153	60
61	5	3	CR	Mnge Waste Disp & Transp	105	113	119	61
62	5	3	EO	Provide Nuclear Support	172	184	193	62
63	5	3	IG	Manage Var Bal Acct Processes	9,165	9,848	10,337	63
64	5	7	JV	Maintain IT Apps & Infra	2,045	2,202	2,314	64
65	5	3	OM	Operational Management	10,397	11,151	11,703	65
66	5	3	OS	Operational Support	22,371	23,994	25,183	66
67				Sub-total Nuclear Generation	353,261	377,370	395,000	67
Hydro Generation								
68	5	4	AB	Misc Expense	2,045	2,198	2,309	68
69	5	4	AK	Manage Environmental Oper	1,021	1,099	1,156	69
70	5	4	AX	Maint Resv	23,398	25,134	26,409	70
71	5	4	AY	Habitat and SpeciProtection	153	164	172	71
72	5	4	EP	Manage Property & Bldgs	1,368	1,470	1,545	72
73	5	4	ES	Implement Environment Projects	104	111	117	73
74	5	4	IG	Manage Var Bal Acct Processes	3,443	3,695	3,881	74
75	5	7	JV	Maintain IT Apps & Infra	2,337	2,516	2,645	75
76	5	4	KG	Operate Hydro Generation	35,681	38,204	40,070	76
77	5	4	KH	Maint Hydro Generating Equip	23,402	25,052	26,274	77
78	5	4	KI	Maint Hydro Bldg	10,998	11,821	12,424	78
79	5	4	KJ	License Compliance Hydro Gen	33,205	35,789	37,672	79
80	5	4	OM	Operational Management	4,409	4,732	4,969	80
81	5	4	OS	Operational Support	1,908	2,048	2,151	81
82				Sub-total Hydro Generation	143,472	154,033	161,792	82
Fossil Generation								
83	5	5	AB	Misc Expense	N/A	N/A	N/A	83
84	5	5	AK	Manage Environmental Oper	2,663	2,868	3,014	84
85	5	5	KK	Operate Fossil Generation	13,022	13,950	14,628	85
86	5	5	KL	Maint Fossil Generating Equip	33,507	36,133	37,993	86
87	5	5	KM	Maint Fossil Bldg	2,728	2,944	3,096	87
88	5	5	KQ	Operate Alternative Gen	594	641	674	88
89	5	5	KR	Maint AltGen Generating Equip	2,818	3,025	3,175	89
90	5	5	KS	Maint AltGen Bldg	609	657	691	90
91	5	5	OM	Operational Management	310	334	351	91
92	5	5	OS	Operational Support	911	981	1,030	92
93				Sub-total Fossil Generation	57,164	61,533	64,652	93
94				Sub-total Power Generation	200,636	215,565	226,444	94
Energy Procurement								
95	5	6	AB	Misc Expense	1,577	1,687	1,767	95
96	5	6	BI	Maint Buildings	56	61	64	96
97	5	6	CT	Acq & Manage Elect Supply	39,218	41,842	43,799	97
98	5	6	CV	Acq & Manage Gas Supply	3,239	3,053	2,972	98
99	5	7	JV	Maintain IT Apps & Infra	2,823	3,040	3,195	99
100	5	6	OM	Operational Management	N/A	N/A	N/A	100
101	5	6	OS	Operational Support	N/A	N/A	N/A	101
102				Sub-total Energy Procurement	46,913	49,682	51,798	102
103				Total Exhibit (PG&E-5)	600,810	642,618	673,242	103

**2017 GRC BUSINESS UNITS EXPENSE IMPUTED ADOPTED REGULATORY VALUES
NEW COST MODEL VIEW
(THOUSANDS OF NOMINAL DOLLARS)
(CONTINUED)**

Line	Exhibit	Chapter	MWC	MWC Description	2017 Imputed	2018 Imputed	2019 Imputed	Line
Customer Care (Exhibit 6)								
104	6	2	EL	Develop New Revenue	18,781	20,347	21,602	104
105	6	2	EZ	Manage Var Cust Care Processes	2,724	2,825	2,917	105
106	6	2	EZ	California Solar Initiative (CSI)	2,620	2,717	2,806	106
107	6	2	EZ	Customer Data Access	394	409	422	107
108	6	2	EZ	Energy Data Center Memo Account	376	390	403	108
109	6	2	FK	Retain & Grow Customers	592	611	629	109
110	6	2	GM	Manage Energy Efficiency-NonBA	2,830	2,920	3,007	110
111	6	2	IV	Provide Account Services	17,169	17,225	17,453	111
112	6	3	EZ	Manage Var Cust Care Processes	5,151	5,472	5,724	112
113	6	3	EZ	Dynamic Pricing Memo Account	5,591	5,939	6,212	113
114	6	3	GM	Manage Energy Efficiency-NonBA	4,451	4,124	3,963	114
115	6	4	DK	Manage Customer Inquiries	67,316	67,515	68,392	115
116	6	5	DK	Manage Customer Inquiries	8,099	8,123	8,228	116
117	6	5	EZ	Manage Var Cust Care Processes	740	739	747	117
118	6	5	IU	Collect Revenue	13,349	13,365	13,521	118
119	6	6	FK	Retain & Grow Customers	-	-	-	119
120	6	7	AR	Read & Investigate Meters	14,278	14,323	14,511	120
121	6	7	DD	Provide Field Service	1,119	1,181	1,233	121
122	6	7	EY	Change/Maint Used Elec Meter	12,466	13,169	13,749	122
123	6	7	HY	Change/Maint Used Gas Meters	7,558	7,079	6,858	123
124	6	7	IG	Manage Var Bal Acct Processes	4,338	4,321	4,353	124
125	6	8	AR	Read & Investigate Meters	2,062	2,069	2,096	125
126	6	8	EZ	Manage Var Cust Care Processes	3,175	3,171	3,202	126
127	6	8	IG	Manage Var Bal Acct Processes	185	184	186	127
128	6	8	IS	Bill Customers	59,454	59,552	60,250	128
129	6	8	IT	Manage Credit	15,281	15,300	15,477	129
130	6	8	IU	Collect Revenue	10,684	10,698	10,835	130
131	6	9	EZ	Manage Var Cust Care Processes	7,622	7,613	7,688	131
132	6	9	IG	Manage Var Bal Acct Processes	22	22	22	132
133	6	10	JV	Maintain IT Apps & Infra	5,441	5,435	5,487	133
134	6	6	OM	Operational Management	6,401	6,457	6,563	134
135	6	6	OS	Operational Support	9,239	9,320	9,473	135
136				Sub-total Customer Care	309,509	312,617	318,008	136

**2017 GRC BUSINESS UNITS EXPENSE IMPUTED ADOPTED REGULATORY VALUES
NEW COST MODEL VIEW
(THOUSANDS OF NOMINAL DOLLARS)
(CONTINUED)**

Line	Exhibit	Chapter	MWC	MWC Description	2017 Imputed	2018 Imputed	2019 Imputed	Line
Shared Services, IT & Enterprise Programs (Exhibit 7)								
Shared Services								
137	7	2	FL	Safety Engineering & OSHA Cmpl	23,914	24,526	25,135	137
138	7	2	JV	Maintain IT Apps & Infra	473	484	496	138
139	7	3	BP	Manage DCPD Business	3,206	3,440	3,608	139
140	7	3	JV	Maintain IT Apps & Infra	475	487	498	140
141	7	5	JL	Procure Materials & Services	20,230	20,729	21,218	141
142	7	5	JV	Maintain IT Apps & Infra	3,180	3,259	3,337	142
143	7	6	BI	Maint Buildings	18,285	18,730	19,160	143
144	7	6	JH	Implement RealEstate Strategy	5,422	5,555	5,684	144
145	7	7	AK	Manage Environmental Oper	8,217	8,674	9,046	145
146	7	7	AY	Habitat and Species Protection	242	256	267	146
147	7	7	CR	Mnge Waste Disp & Transp	2,570	2,729	2,854	147
148	7	7	ES	Implement Environment Projects	1,255	1,331	1,392	148
149	7	7	FA	Spc A&G/Oth Csts-Bud Dept	3,187	3,267	3,349	149
150	7	7	JE	Manage Land Services	3,754	4,038	4,245	150
151	7	7	JK	Manage Environ Remed (Earning)	4,779	4,914	5,044	151
152	7	N/A	OM	Operational Management	(333)	(345)	(355)	152
153	7	N/A	OS	Operational Support	7,730	7,999	8,238	153
154	7	3	AB	Fleet Services	172,927	178,588	183,686	154
155	7	3	AB	Fleet Services Allocation	(112,388)	(116,067)	(119,381)	155
156	7	6	EP	Building Services	126,235	130,368	134,089	156
157	7	6	EP	Building Services Allocation	(68,757)	(71,008)	(73,035)	157
158				Sub-total Shared Services	224,602	231,954	238,575	158
IT								
159	7	9	JV	Maintain IT Apps & Infra	235,921	241,443	247,037	159
160	7	9	OM	Operational Management	4,287	4,387	4,489	160
161	7	9	AB/JV	Centralized Services: IT End User Services	102,842	107,162	109,644	161
162	7	9	AB/JV	IT End User Services Capitalization	(48,234)	(50,260)	(51,425)	162
163				Sub-total IT	294,816	302,731	309,745	163
164				Sub-total Shared Services & IT	519,417	534,685	548,320	164
Enterprise Programs								
165	7	8A	AB	Misc Expense	10,009	10,295	10,574	165
166	7	8A	OS	Operational Support	551	566	582	166
167	7	8B	AB	Misc Expense	12,731	13,066	13,402	167
168	7	8B	OS	Operational Support	260	267	274	168
169	7	8B	JV	Maintain IT Apps & Infra	11,149	11,442	11,736	169
170				Sub-total Enterprise Programs	34,700	35,637	36,567	170
171				Total Exhibit (PG&E-7)	554,117	570,322	584,887	171

**2017 GRC BUSINESS UNITS CAPITAL IMPUTED ADOPTED REGULATORY VALUES
NEW COST MODEL VIEW
(THOUSANDS OF NOMINAL DOLLARS)**

Line	Exhibit	Chapter	MWC	MWC Description	2017 Imputed	2018 Imputed	2019 Imputed	Line
Gas Distribution (Exhibit 3)								
1	3	4	14	G Dist Pipeline Repl Program	386,855	361,387	353,800	1
2	3	4	27	Gas Meter Protection-Capital	346	323	316	2
3	3	4	50	G Dist Reliability General	93,762	87,590	85,751	3
4	3	5	31	NGV - Station Infrastructure	3,967	3,706	3,628	4
5	3	5	50	G Dist Reliability General	31,289	29,229	28,615	5
6	3	5	2K	G Dist Repl/Convert Cust HPR	40,136	37,493	36,706	6
7	3	6A	74	Install New Gas Meters	2,939	2,745	2,687	7
8	3	6B	50	G Dist Reliability General	20,333	18,994	18,596	8
9	3	6C	50	G Dist Reliability General	115,065	107,490	105,234	9
10	3	6C	52	G Dist Leak Repl/Emergency	751	700	685	10
11	3	7	47	G Dist Capacity	44,129	41,224	40,358	11
12	3	7	4A	G Dist Control Operations Assets	39,333	36,743	35,971	12
13	3	8	29	G Dist Customer Connects	75,507	70,536	69,056	13
14	3	8	51	G Dist WRO	59,308	55,403	54,240	14
15	3	9	2F	Build IT Apps & Infra	40,005	37,371	36,587	15
16	3	10	5	Tools & Equipment	2,912	2,699	2,628	16
17	3	10	78	Manage Buildings	16,440	15,234	14,838	17
18				Sub-total Gas Distribution	973,078	908,867	889,696	18
Electric Distribution (Exhibit 4)								
19	4	3	21	Emergency Preparedness and Response	8,022	7,434	7,241	19
20	4	4	17	E Dist Routine Emergency	146,893	136,457	132,051	20
21	4	4	95	E Dist Major Emergency	56,474	52,462	50,768	21
22	4	5	63	E T&D Control System/ Facility	1,096	1,019	986	22
23	4	6	2A	E Dist Installation/Repl OH General	118,036	109,649	106,109	23
24	4	6	2B	E Dist Install/Repl Underground	43,748	40,640	39,328	24
25	4	6	2C	E Dist Install/Repl Network	20,130	18,700	18,096	25
26	4	8	7	E Dist Install/Repl OH Poles	86,328	68,557	76,503	26
27	4	9	8	E Dist Reliability Base	45,091	41,888	40,535	27
28	4	9	49	E Dist Reliability Circuit/Zone	80,428	74,713	72,301	28
29	4	10	9	E Dist Automation & Protection	48,174	44,751	43,306	29
30	4	11	56	E Dist Repl Underground Asset-Generation	107,750	100,094	96,862	30
31	4	12	48	E Dist Subst Repl Other Equipment	80,892	75,145	72,718	31
32	4	12	54	E Dist Subst Repl Transformer	42,686	39,654	38,373	32
33	4	12	58	E Dist Repl Substation Safety	2,315	2,151	2,081	33
34	4	12	59	E Dist Substation Emergency Repl	45,517	42,283	40,918	34
35	4	13	6	E Dist Line Capacity	89,337	82,989	80,310	35
36	4	13	46	E Dist Substation Capacity	67,755	62,942	60,909	36
37	4	13	2F	Build IT Apps & Infra	3,365	3,126	3,025	37
38	4	15	2F	Build IT Apps & Infra	46,761	43,439	42,036	38
39	4	17	10	E Dist Work at the Request of Others General	76,403	70,975	68,683	39
40	4	17	16	E Dist Customer Connects	399,720	371,321	359,331	40
41	4	18	30	E Dist Work at the Request of Others Rule 20A	57,919	53,804	52,067	41
42	4	19	5	Tools & Equipment	(18,143)	(16,832)	(16,346)	42
43	4	19	23	Implement Real Estate Strategy	5,652	5,238	5,102	43
44				Sub-total Elec. Distribution	1,662,351	1,532,598	1,493,292	44

**2017 GRC BUSINESS UNITS CAPITAL IMPUTED ADOPTED REGULATORY VALUES
NEW COST MODEL VIEW
(THOUSANDS OF NOMINAL DOLLARS)
(CONTINUED)**

Line	Exhibit	Chapter	MWC	MWC Description	2017 Imputed	2018 Imputed	2019 Imputed	Line
Energy Supply (Exhibit 5)								
Nuclear Generation								
45	5	3	3	Office Furniture & Equipment	243	225	219	45
46	5	3	4	Fleet / Auto Equip	881	817	795	46
47	5	3	5	Tools & Equipment	1,402	1,299	1,265	47
48	5	3	20	DCPP Capital	147,340	137,659	135,005	48
49	5	3	3I	Nuclear Safety and Security	13,891	12,978	12,728	49
50	5	N/A	2F	Build IT Apps & Infra	14,318	13,452	13,194	50
51				Sub-total Nuclear Generation	178,075	166,430	163,206	51
Hydro Generation								
52	5	4	5	Tools & Equipment	1,052	976	951	52
53	5	4	11	Relicensing Hydro Gen	766	717	703	53
54	5	4	12	Implement Environment Projects	4,046	3,785	3,714	54
55	5	4	2L	Instl/Rpl for Hydro Safety&Reg	38,015	35,559	34,894	55
56	5	4	2M	Instal/Repl Hydro Gneratng Eqp	105,226	98,428	96,586	56
57	5	4	2N	Instal/Repl Resv,Dams&Waterway	67,117	62,781	61,606	57
58	5	4	2P	Instl/Repl Hydr BldgGrndInfrst	12,808	11,980	11,756	58
59	5	4	3H	Hydroelectric Lic & Lic Conditions	26,506	25,258	24,920	59
60	5	N/A	2F	Build IT Apps & Infra	20,025	18,814	18,452	60
61				Sub-total Hydro Generation	275,562	258,298	253,583	61
Fossil Generation								
62	5	5	3	Office Furniture & Equipment	50	46	45	62
63	5	5	5	Tools & Equipment	352	326	318	63
64	5	5	2R	Instl/Rpl for Fossil Safety&Reg	2,977	2,790	2,737	64
65	5	5	2S	Instal/Repl Fossil Gneratng Eqp	11,234	10,527	10,329	65
66	5	5	2T	Instl/Repl Fosl BldgGrndInfrst	152	142	140	66
67	5	5	3A	Instl/Rpl for AltGen Saftey&Reg	30	28	28	67
68	5	5	3B	Instal/Repl AltGen GneratngEqp	288	270	265	68
69				Sub-total Fossil Generation	15,083	14,130	13,861	69
70				Sub-total Power Generation	290,645	272,428	267,444	70
Energy Procurement								
71	5	7	2F	Build IT Apps & Infra	18,955	17,809	17,466	71
72	5	7	3M	Instal/Repl Var Bal Acct				72
73				Sub-total Energy Procurement	18,955	17,809	17,466	73
74				Sub-total Energy Supply	487,675	456,667	448,116	74
Customer Care (Exhibit 6)								
75	6	2	3M	Instal/Repl Var Bal Acct				75
76	6	4	21	Misc Capital	1,964	1,820	1,773	76
77	6	4	23	Implement Real Estate Strategy	-	-	-	77
78	6	5	21	Misc Capital	614	569	554	78
79	6	7	1	IT - Desktop Computers	528	490	477	79
80	6	7	5	Tools & Equipment	2,756	2,554	2,488	80
81	6	7	25	Install New Electric Meters	46,726	43,020	41,968	81
82	6	7	74	Install New Gas Meters	84,701	79,125	77,464	82
83	6	7	97	Manage Smart Meter	-	-	-	83
84	6	7	3J	Smart Meter Opt Out	391	362	353	84
85	6	8	21	Miscellaneous Capital	4,910	4,550	4,431	85
86	6	10	2F	Build IT Apps & Infra	41,296	38,267	37,271	86
87				Sub-total Customer Care	183,887	170,757	166,779	87

**2017 GRC BUSINESS UNITS CAPITAL IMPUTED ADOPTED REGULATORY VALUES
NEW COST MODEL VIEW
(THOUSANDS OF NOMINAL DOLLARS)
(CONTINUED)**

Line	Exhibit	Chapter	MWC	MWC Description	2017 Imputed	2018 Imputed	2019 Imputed	Line
Shared Services & IT (Exhibit 7)								
Shared Services								
88	7	2	2F	Build IT Apps & Infra	1,759	1,630	1,588	88
89	7	3	4	Fleet / Auto Equip	108,177	100,243	97,634	89
90	7	3	5	Tools & Equipment	991	918	895	90
91	7	3	28	EV - Station Infrastructure	3,076	2,851	2,777	91
92	7	3	2F	Build IT Apps & Infra	102	94	92	92
93	7	3	21	Miscellaneous Capital	-	-	-	93
94	7	4	5	Tools & Equipment	611	566	552	94
95	7	4	21	Misc Capital	668	619	603	95
96	7	4	2F	Build IT Apps & Infra	-	-	-	96
97	7	5	2F	Build IT Apps & Infra	8,357	7,744	7,542	97
98	7	6	22	Maintain Buildings	48,853	45,270	44,092	98
99	7	6	23	Implement Real Estate Strategy	107,999	100,079	97,474	99
100	7	6	2F	Build IT Apps & Infra	-	-	-	100
101	7	7	5	Tools & Equipment	295	273	266	101
102	7	7	12	Implement Environment Projects	6,074	5,629	5,482	102
103	7	7	2F	Build IT Apps & Infra	-	-	-	103
104	7	8A	2F	Build IT Apps & Infra	510	476	466	104
105	7	8B	2F	Build IT Apps & Infra	3,004	2,784	2,711	105
106				Sub-total Shared Services	290,476	269,177	262,172	106
IT								
107	7	9	2F	Build IT Apps & Infra	204,470	189,474	184,542	107
108	7	9	3J	Smart Meter Opt Out	-	-	-	108
109				Sub-total IT	204,470	189,474	184,542	109
110				Sub-total Shared Services & IT	494,945	458,651	446,714	110
Human Resources (Exhibit 8)								
111	8	2	2F	Build IT Apps & Infra	948	948	948	111
112	8	3	2F	Build IT Apps & Infra	-	-	-	112
113	8	4	22	Maintain Buildings	144	133	130	113
114	8	4	2F	Build IT Apps & Infra	-	-	-	114
115	8	6	5	Tools & Equipment	427	396	385	115
116	8	6	22	Maintain Buildings	746	692	674	116
117	8	6	2F	Build IT Apps & Infra	1,350	1,251	1,219	117
118				Sub-total Human Resources	3,615	3,419	3,355	118
Administrative and General (Exhibit 9)								
119	9	2	2F	Build IT Apps & Infra	3,981	3,689	3,593	119
120	9	3	2F	Build IT Apps & Infra	12,076	11,191	10,899	120
121	9	4	2F	Build IT Apps & Infra	3,057	2,833	2,759	121
122	9	5	2F	Build IT Apps & Infra	-	-	-	122
123	9	7	2F	Build IT Apps & Infra	14,777	13,843	13,535	123
124				Sub-total Administrative and General	33,891	31,555	30,787	124

PACIFIC GAS AND ELECTRIC COMPANY
2017 GRC BUSINESS UNITS EXPENSE IMPUTED ADOPTED REGULATORY VALUES
NEW COST MODEL VIEW
(THOUSANDS OF NOMINAL DOLLARS)

Line	Exhibit	Chapter	Organization	2017 Imputed	2018 Imputed	2019 Imputed	Line
Corporate Services							
1	8	2, 4, 6	Human Resources	64,988	66,640	68,307	1
2	9	2	Finance	50,289	51,566	52,851	2
3	9	3, 4	Risk and Audit, Compliance & Ethics	21,685	22,238	22,798	3
4	9	5	Regulatory Affairs	24,998	25,636	26,283	4
5	9	6	Law Department	50,349	51,609	52,860	5
6	9	7	Executive Offices and Corporate Secretary	8,697	8,913	9,126	6
7	9	8	Corporate Affairs	30,986	31,763	32,536	7
8			Sub-total Corporate Services Organization	251,992	258,366	264,762	8
9			Corporate Services IT Expense	7,667	7,777	7,919	9
10			Sub-total Shared Services & IT	259,660	266,143	272,681	10