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PACIFIC GAS AND ELECTRIC COMPANY

2019 RISK SPENDING ACCOUNTABILITY REPORT IN COMPLIANCE WITH CALIFORNIA PUBLIC UTILITIES COMMISSION DECISION 19-04-020

MARCH 30, 2020

PACIFIC GAS AND ELECTRIC COMPANY
2019 RISK SPENDING ACCOUNTABILITY REPORT

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A. Introduction

Pacific Gas and Electric Company (PG&E) submits its 2019 Risk Spending Accountability Report (RSAR) in compliance with the Phase Two Decision Adopting Risk Spending Accountability Report Requirements and Safety Performance Metrics for Investor-Owned Utilities and Adopting a Safety Model Approach for Small and Multi-Jurisdictional Utilities, Decision (D.) 19-04-020 (the Decision).[1] While the new reporting requirements in the Decision are not required until PG&E files its 2020 RSAR, PG&E has endeavored to incorporate as many of the new requirements from the Decision as possible, consistent with Energy Division guidance. [2]

This report is organized as follows:

The Introduction and Overview section of this report (Section 1) provides an overview of PG&E's 2017 General Rate Case (GRC) imputed adopted costs and recorded costs[3] for Gas Distribution, Electric Distribution, Energy Supply, Customer Care, Shared Services/Information Technology (IT), Corporate Services, and Human Resources for 2019.

Sections 2 through 6 contain detailed comparisons of PG&E's 2019 imputed adopted and recorded costs by line of business (LOB)[4]. Specifically, Sections 2 through 6 contain:

1) PG&E's imputed adopted and recorded costs for 2019, by Major Work Category (MWC) and/or Maintenance Activity Type (MAT) Code for Gas

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1 D.17-05-013, p. 186.

2 Letter from Energy Division "Review of the Pacific Gas and Electric Company 2016 Budget Report and 2017-2018 Spending Accountability Reports," dated November 6, 2019, p. 2.

3 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.

4 Human Resources and Corporate Services do not have costs that meet the variance explanation requirements.

Distribution, Electric Distribution, Energy Supply, Customer Care, and Shared Services/IT.

2) Variance explanations for:

a) Imputed adopted versus recorded costs/units for 2019 by MWC and/or MAT for safety, reliability, and maintenance work subject to the following thresholds.[5]

- Expense: A variance of at least $10 million, or a percentage variance of at least 20 percent subject to a minimum variance of $5 million;
- Capital: A variance of at least $20 million, or a percentage variance of at least 20 percent subject to a minimum variance of $10 million; and
- Units: A variance of at least 20 percent.

Section 7 discusses the cost recovery of actual expenditures that flow through a balancing account or memorandum account.

The Decision requires the list of programs that are related to safety, reliability, or maintenance to "be separated into risk mitigation programs identified in the risk assessment and mitigation phase (RAMP)".[6] The 2017 RAMP, which was PG&E's first RAMP, supports PG&E's 2020 GRC. There is no RAMP mitigation information for PG&E's 2017 GRC, which preceded the Commission's RAMP requirements. Consistent with Energy Division direction, PG&E's report includes the MWCs and MAT codes associated with each safety risk identified in PG&E's risk register, as provided in its 2017 GRC.

B. 2019 Expense and Capital Comparison of Imputed Adopted and Recorded Costs Summary

This report provides a summary of PG&E's 2019 actual expense and capital expenditures compared to imputed adopted values derived from PG&E's 2017 GRC decision.[7] This includes the core lines of business (LOBs) (Electric Distribution, Gas Distribution and Energy Supply) as well as support

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5 D.19-04-020, p. 43.

6 D.19-04-020, Attachment 2, p. 1.

7 D. 17-05-013.

organizations (Customer Care, Shared Services, IT, and Corporate Services). PG&E's 2017 GRC cycle covers the period 2017 through 2019.

This report has been designed to comply with D.19-04-020 Ordering Paragraph 8 and Energy Division's guidance.[8] in the. While this report presents certain LOB expenditures, it is not representative of total Company expenditures. Specifically, this report does not include expenditures on companywide items, including liability insurance premiums that were significantly higher than amounts adopted in the 2017 GRC, and does not include emergency response costs that are recoverable through the Catastrophic Event Memorandum Account (CEMA). The only non-GRC memorandum accounts included in this report are those costs that are recorded in the Fire Risk Mitigation Memorandum Account (FRMMA) and the Wildfire Mitigation Plan Memorandum Account (WMPMA) as activities costs associated with these accounts align with activities funding requested in PG&E's 2017 GRC.

1. Expense

In 2019, PG&E's LOB expense spending exceeded imputed adopted values by $870.3 million. The increase was primarily attributable to additional wildfire risk mitigation work which included enhanced inspections and associated repairs, enhanced vegetation management, and Public Safety Power Shutoff (PSPS) event activities within Electric Distribution, partially offset by lower levels of spending in Energy Supply, Customer Care, Shared Services, IT, and Corporate Services. Energy Supply had the greatest reduction in spending relative to imputed adopted values, primarily attributable to: (1) the levelization of Long-Term Service Agreements payments over the 3-year 2017 GRC period (2017-2019) although such costs were not incurred in 2019 and (2) the 2017 affordability effort, which yielded year-over-year savings extending into 2018 and 2019. The affordability effort was intended to reduce spending without impacting public or employee safety and reliability. Spending reductions for Customer Care were primarily due to through the movement of the Field Operations Department out of Customer Care. Spending reductions for Shared

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8 November 6, 2019 letter from Energy Division Director, Edward Randolph, to PG&E's Vice President of Regulatory Affairs, Robert Kenney.

Services and IT were primarily achieved through affordability initiatives which were intended to reduce spending without impacting public or employee safety and reliability. Spending reductions for Corporate Real Estate (CRE) were primarily attributable to an enterprise-wide reprioritization to fund higher priority work.

2. Capital

In 2019, PG&E's capital spending exceeded imputed adopted values by $823.2 million. The increase was primarily attributable to additional spending in Electric Distribution related to wildfire system hardening and equipment replacements, partially offset by lower spending in Energy Supply, Customer Care, Shared Services, IT, and Corporate Services. Energy Supply had the greatest reduction in spending primarily due to project cancellations associated with the decision to retire Diablo Canyon Power Plant at the end of its operating licenses.

C. Summary Tables

For this report, PG&E translated the imputed adopted regulatory values (Settlement Agreement, Appendix A) approved in the 2017 GRC 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 by expense and capital by LOB for the year 2019.

TABLE 1
2019 IMPUTED ADOPTED VS. ACTUAL EXPENSE BY LINE OF BUSINESS
(MILLIONS OF DOLLARS)

Line No.	LOB	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A
1	Gas Distribution	326.3	378.9	52.6	16.1%
2	Electric Distribution	658.8	1,744.1	1,085.2	164.7%
3	Energy Supply	673.2	572.8	(100.4)	-14.9%
4	Customer Care	318.0	247.1	(70.9)	-22.3%
5	Shared Services/IT	584.9	514.4	(70.5)	-12.1%
6	Corporate Services	203.2	179.3	(23.9)	-11.8%
7	Human Resources	69.5	67.6	(1.9)	-2.7%
8	**Total**	**2,833.9**	**3,704.2**	**870.3**	**30.7%**

TABLE 2
2019 IMPUTED ADOPTED VS. ACTUAL CAPITAL BY LINE OF BUSINESS
(MILLIONS OF DOLLARS)

Line No.	LOB	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A
1	Gas Distribution	889.7	921.4	31.8	3.6%
2	Electric Distribution	1,493.3	2,602.4	1,109.2	74.3%
3	Energy Supply	447.2	323.9	(123.3)	-27.6%
4	Customer Care	166.8	127.4	(39.4)	-23.6%
5	Shared Services/IT	446.7	322.2	(124.5)	-27.9%
6	Corporate Services	30.8	2.0	(28.8)	-93.5%
7	Human Resources	3.4	1.6	(1.8)	-53.7%
8	**Total**	**3,477.8**	**4,301.0**	**823.2**	**23.7%**

D. 2019 Imputed vs. Recorded Comparison by Line of Business

The significant drivers of the differences between 2019 imputed adopted and recorded costs for each LOB are summarized below.

IT and 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 LOBs that initiated the programs.

1. Gas Distribution

Expense: Gas Distribution's total recorded expenses in 2019 exceeded imputed adopted values by $52.6 million or 16 percent. For safety, reliability, and maintenance work, 2019 recorded expenses exceeded imputed values by $85.9 million, or 34 percent.[9] The increases were primarily attributable to: (1) an increase in work associated with increased volumes of Underground Service Alert tickets, Cathodic Protection surveys, and abnormal operating conditions 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, for example AC inspection aligning with the 3-year leak survey schedule.

Capital: Gas Distribution's total 2019 recorded capital expenditures exceeded imputed adopted values by $31.8 million, or 4 percent. For safety, reliability, and maintenance work, 2019 recorded capital expenditures exceeded imputed adopted values by $10.7 million, or 1.5 percent. The increase drivers were primarily attributable to an increase in the work performed on high pressure regulators and pipeline replacement. This increase was partially offset by a decrease in Supervisory Control and Data Acquisition (SCADA) units installed in addition to lower service replacement than was forecast.

2. Electric Distribution

Expense: Electric Distribution's total recorded expenses in 2019 exceeded imputed adopted values by $1,085.2 million or 165 percent. For safety, reliability and maintenance work, 2019 recorded expenses exceeded imputed adopted values by $1,121.8 million or 191 percent. The increases were primarily attributable to wildfire mitigation work which included, enhanced inspections and associated repairs, enhanced vegetation management, and PSPS events. Other increase drivers include costs associated with responding to storms and wildfire events, and the transfer of Field Metering Operations work to Electric Operations.

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9 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, reliability, and maintenance work.

Capital: Electric Distribution's total recorded capital expenditures in 2019 exceeded imputed adopted values by $1,109.2 million or 74 percent. For safety, reliability and maintenance work, 2019 recorded capital expenditures exceeded imputed adopted values by $958 million or 95 percent. The increase drivers were primarily attributable to wildfire system hardening, equipment replacements identified though enhanced inspections in high fire threat districts, an increased number of pole replacements with higher unit costs, and expenditures related to the non-exempt surge arrester replacement program. There were also increased expenditures for emergency substation equipment replacement, underground maintenance tags, substation SCADA replacements, and costs associated with the transfer of Field Metering Operations work to Electric Operations. The increases were partially offset by reductions in substation capacity projects, and lower expenditures in underground cable replacement work due to limited resource availability due to wildfire mitigation efforts.

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

a. Energy Procurement

The Energy Procurement Department does not have safety, reliability, or maintenance related work. Therefore, no additional information is provided for the Energy Procurement Department.

b. Nuclear Generation

Expense: Nuclear Generation's total recorded expenses in 2019 were below imputed adopted values by $26.6 million or 6.7 percent. For safety, reliability and maintenance work, 2019 recorded expenses were below imputed adopted values by $7.0 million or 2.1 percent. The decrease in spending is spread across several MWCs and is primarily the result of the 2017 and 2018 affordability effort, which yielded year-over-year savings extending into 2019. The savings effort was intended to reduce Nuclear Generation spending without impacting public or employee safety and reliability.

Capital: Nuclear Generation's total 2019 recorded capital expenditures were below imputed adopted values by $48.3 million or

29.6 percent. For safety, reliability and maintenance work, 2019 recorded capital expenditures were below imputed adopted by $41.3 million or 28.0 percent. The primary driver is project cancellations associated with the decision to retire Diablo Canyon at the end of its operating licenses.

c. Power Generation

Expense: Power Generation's total expenses in 2019 were below imputed adopted by $61.3 million or 27.1 percent. For safety, reliability and maintenance work, 2019 recorded expenses were below imputed adopted values by $57.3 million or 27.7 percent. The decrease drivers are primarily attributable to the levelization of the fossil plants' Long-Term Service Agreements imputed adopted payments over the 3-year GRC period (2017-2019) though such costs were not incurred in 2019 and the 2017 and 2018 affordability effort, which yielded year-over-year savings extending into 2019. The savings effort was intended to reduce Power Generation spending without impacting public or employee safety and reliability in 2019.

Capital: Power Generation's total 2019 recorded capital expenditures were below the imputed adopted values by $66.6 million or 25.0 percent. For safety, reliability and maintenance work, 2019 recorded capital expenditures were below the imputed adopted values by $42.8 million or 19.6 percent. The decrease drivers were primarily attributable to a reduction in programmatic spend for penstocks and water conveyance programs, which were largely completed before 2019. Reductions were used to fund emergent priority work in another Power Generation MWC and to fund other higher priority work in the company, such as additional capital work in Gas and Electric Distribution. Additionally, 2017 actual spend was above imputed due to emergent 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. Some of the emergent replacement projects completed in 2017 eliminated the need to complete previously planned projects intending to be completed in 2018 and 2019.

4. Customer Care

Expense: Customer Care's total recorded expenses in 2019 were below imputed adopted values by $70.9. million or 22.3 percent. For safety, reliability, and maintenance work, 2019 recorded expenses were below imputed adopted values by $39.3 million or 34.8 percent. The decrease in spending is primarily attributable to the transfer of the Field Meter Operations team from Customer Care to Electric Operations and Gas Operations in 2018. Minor decrease spending was achieved through operational efficiencies and affordability savings in PG&E's Contact Centers that were achieved while continuing to meet service level requirements. Customer Care had increased costs associated with customer outreach during PSPS events that were recorded to Electric Distribution MWCs and MATs and are tracked in the FRMMA and WMPMA.

Capital: Customer Care's total 2019 recorded capital expenditures were below imputed adopted values by $39.4 million or 23.6 percent. For safety, reliability, and maintenance work, 2019 recorded capital expenditures were below imputed adopted values by $16.7 million or 13.7 percent. The decrease drivers were primarily attributable to the transfer of the Field Meter Operations team from Customer Care to Electric Operations and Gas Operations in 2018.

5. Shared Services/Information Technology

Expense: Shared Services and IT's total recorded expenses in 2019 were below imputed adopted values by $70.5 million or 12.1 percent. The decrease driver was primarily attributable to the companywide affordability effort initiated in 2017 which carried forward in 2018 and 2019. The affordability effort was intended to reduce spending without impacting public or employee safety and reliability. The savings effort was intended to reduce spending without impacting public or employee safety and reliability in 2019 to fund other higher priority work in the company. Within the recorded spend, IT delivered various technology solutions that served to either improve or maintain safety, reliability or maintenance, e.g., cybersecurity services, maintenance and construction vendor service agreements and support for IT operation centers.

Capital: Shared Services and IT's total 2019 recorded capital expenditures were below imputed adopted by $124.5 million or 27.9 percent. The decrease driver was primarily attributable to the companywide affordability effort initiated in 2017, which carried forward savings into 2018 and 2019. Within the recorded spend, IT delivered various technology solutions that served to either improve or maintain safety, reliability or maintenance, e.g., continued investments in the Identity Access and Management, network and mobility programs.

a. Corporate Real Estate

Expense: For safety, reliability, and maintenance work, 2019 recorded expenses were below imputed adopted values by $20.0 million or 80.5 percent. This decrease driver is primarily associated with an enterprise-wide reprioritization to fund higher priority work.

Capital: For safety, reliability, and maintenance work, 2019 recorded capital expenditures for safety, reliability, and maintenance work exceeded imputed adopted values by $14.6 million or 10.3 percent. The increase driver is primarily attributable to continued investments in programs that have a direct impact on safety.

b. Corporate Services

The Corporate Services total expenses do not include any safety, reliability, or maintenance work.[10] Therefore, no additional information is provided for this organization.

6. Human Resources

Expense: Human Resources total recorded expenses in 2019 were below imputed adopted values by $1.9 million or 3 percent. For safety, reliability, and maintenance work within PG&E Academy, 2019 recorded expenses were above imputed adopted values by $21.2 million.[11] The primary increase driver is related to a cost model change that occurred post-2017 GRC filing. In the 2017 GRC, Training Delivery, Curriculum Development, and Leadership Training activities were included in the LOB

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10 The safety, reliability, and maintenance analysis does not include FRMMA/WMPMA activities.

11 PG&E Academy spend does not include FRMMA/WMPMA activities.

forecasts. However, in 2016, funding for these activities costs was moved to Human Resources.

Capital: Human Resources total 2019 recorded capital expenditures were below imputed adopted values by $1.8 million or 54 percent.

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SECTION 2

GAS DISTRIBUTION IMPUTED ADOPTED VS. RECORDED COMPARISON

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A. Introduction

This section includes the following information for the Gas Distribution line of business: a comparison of the total 2019 imputed adopted spend to the actual spend, Major Work Category (MWC) descriptions, and for those programs that are related to safety, reliability, or maintenance the 2019 imputed adopted spend vs. actual spend comparison details, Maintenance Activity Type (MAT) descriptions, and variance explanations. In addition, per Decision (D.) 19-04-020 the MWC and MAT descriptions include how each program relates to safety, reliability, or maintenance.

B. Comparison Summary Tables

TABLE 2-1
GAS DISTRIBUTION 2019 EXPENSE COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs [(a)] ($000) (B)	2019 Cost Difference ($000) (B-A)
1	Support	AB	5,577.4	4,175.8	(1,401.7)
2	Provide Field Service	DD	44,431.4	52,601.3	8,169.9
3	Leak Survey	DE	17,563.6	30,961.5	13,397.9
4	Locate and Mark	DF	24,238.1	47,483.9	23,245.8
5	Cathodic Protection	DG	8,373.1	22,338.8	13,965.7
6	Develop & Provide Trainng	DN	3,423.9	2,618.0	(805.9)
7	Meter Protection Program	EX	880.5	8,478.7	7,598.2
8	Operate Gas Distribution System	FG	11,760.3	8,426.1	(3,334.2)
9	Preventive Maintenance (Gas)	FH	13,082.0	29,368.8	16,286.8
10	Corrective Maintenance (Gas)	FI	76,818.5	66,675.2	(10,143.2)
11	Gas Mapping	GF	3,491.8	3,090.2	(401.6)
12	Gas Distribution Planning & Operations Engineering	GG	6,945.4	6,348.7	(596.7)
13	Natural Gas Fueling Facilities O&M	GM	3,172.3	4,231.1	1,058.8
14	Gas Research and Development (R&D)	GZ	1,302.7	1,756.5	453.8
15	Gas Meter Maintanance	HY	1,644.1	2,714.1	1,070.0
16	Gas Distribution Integrity Management Program	JQ	26,599.2	41,974.5	15,375.3
17	Information Technology	JV	23,445.0	10,785.0	(12,660.0)
18	Gas Expense Work at the Request of Others Activities	LK	3,599.6	6,240.6	2,641.0
19	Operational Management	OM	13,016.7	13,225.6	208.9
20	Operational Support	OS	36,928.8	15,458.0	(21,470.8)
21	**Total**		**326,294.5**	**378,929.5**	**52,635.0**

(a) In addition to the MWCs listed above, in 2019, approximately $2,188 was recorded in MWC BC, and approximately ($25,165) was credited to Gas Distribution in MWC IG.

TABLE 2-2
GAS DISTRIBUTION 2019 CAPITAL COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)
1	Tools and Equipment	05	2,628.3	7,755.4	5,127.1
2	Gas Pipeline Replacement Program	14	353,799.7	362,182.3	8,382.6
3	Gas Meter Protection	27	316.3	2,338.0	2,021.7
4	Gas Distribution Customer Connects	29	69,055.6	105,036.7	35,981.1
5	Build IT Applications & Infrastructure	2F	36,586.9	16,059.0	(20,527.9)
6	Gas Distribution Replace/Convert Customer HPRs	2K	36,706.3	64,838.4	28,132.1
7	NGV - Station Infrastructure	31	3,628.3	4,303.9	675.6
8	Gas Distribution Capacity	47	40,358.1	36,607.5	(3,750.6)
9	Gas Distribution Control Operations Assets	4A	35,971.1	27,807.4	(8,163.8)
10	Gas Distribution Reliability	50	238,194.9	221,234.4	(16,960.5)
11	Gas Work at the Request of Others	51	54,240.2	69,261.8	15,021.6
12	Gas Distribution Emergency Response	52	685.2	1,206.4	521.2
13	Install New Gas Meters	74	2,687.4	2,498.7	(188.8)
14	Manage Buildings	78	14,837.6	316.8	(14,520.7)
15	**Total**		**889,695.9**	**921,446.7**	**31,750.8**

C. 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

[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).

Orders and Working Stock. MWC AB also includes the total planned efficiency offsets from various gas distribution efficiency initiatives.

This MWC does not relate directly to safety and/or reliability and/or maintenance.

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.

This MWC relates to safety and/or reliability and/or maintenance as it includes customer generated requests for service that require site visit by field technician to address issues such as possible gas leaks or 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.

This MWC relates to safety and/or reliability and/or maintenance as it includes periodic or routine leak surveys performed by PG&E on its distribution system that are necessary to comply with pipeline safety regulations.

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.

This MWC relates to safety and/or reliability and/or maintenance as it includes the work necessary to comply with federal pipeline safety regulations and state law that requires PG&E to belong to, respond to notifications, and share the costs of operating the regional “one-call” notification systems.

MWC DG – Cathodic Protection (CP) – 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 CP through the use of either an impressed system or galvanic anodes as required by federal pipeline safety regulations.

This MWC relates to safety and/or reliability and/or maintenance as it 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.

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.

This MWC does not relate directly to safety and/or reliability and/or maintenance.

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.

This MWC relates to safety and/or reliability and/or maintenance as it 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 MPP 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.

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 Natural Gas (CNG) or Liquefied Natural Gas (LNG) natural gas tanker to inject gas, manually opening separation valves to redirect gas, or manually bypassing regulator station equipment to flow more gas).

This MWC relates to safety and/or reliability and/or maintenance as it 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.

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.

This MWC relates to safety and/or reliability and/or maintenance as it includes work to comply with pipeline safety regulations that require PG&E to conduct periodic or routine maintenance on its gas distribution system.

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, CP restoration, regulator station repair, and distribution valve repair.

This MWC relates to safety and/or reliability and/or maintenance as it includes work to repair or replace damaged or failed gas facilities.

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.

This MWC relates to safety and/or reliability and/or maintenance as it involves 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.

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.

This MWC relates to safety and/or reliability and/or maintenance as it 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.

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 (NGV) 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.

This MWC relates to safety and/or reliability and/or maintenance as it includes the work required to maintain and operate existing natural gas fueling facilities.

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

This MWC does not relate directly to safety and/or reliability and/or maintenance.

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 than1,000 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.

This MWC relates to safety and/or reliability and/or maintenance as it includes corrective and preventative maintenance work performed on meter sets.

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.

This MWC relates to safety and/or reliability and/or maintenance as it includes efforts to enhance gas distribution system safety by identifying risks to the gas distribution system and addressing those risks.

MWC JV –Information Technology (IT) – Includes costs for ongoing maintenance, operations and repair for PG&E's IT applications, systems and infrastructure.

This MWC was not presented in the 2017 GRC as related directly to safety and/or reliability and/or maintenance. However, certain projects within this MWC provide support for safety and/or reliability and/or maintenance projects.

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.

This MWC does not relate directly to safety and/or reliability and/or maintenance.

MWC LW– Leak Abatement Program – Captures incremental costs associated with leak survey and repair, and Research and Development to support Gas Leak Abatement best practices. Cost recovery for 2019 is through the Leak Abatement Order Instituting Rulemaking (OIR) (D.17-06-015), not the General Rate Case (GRC). This work was not forecast in the 2017 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.

This MWC 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 related directly to safety and/or reliability and/or maintenance work.

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.

This MWC does not relate directly to safety and/or reliability and/or maintenance.

D. 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.

This MWC does not relate directly to safety and/or reliability and/or maintenance.

MWC 14 – Gas Pipeline Replacement Program (GPRP) – Primarily encompasses three gas distribution asset replacement programs: (1) the GPRP; (2) Copper Service Replacement Program (CSRP); 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. CSRP 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.

This MWC relates to safety and/or reliability and/or maintenance as it includes gas distribution pipe replacement and service replacement programs for safety and reliability reasons.

MWC 27 – Gas Meter Protection Program – 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.

This MWC relates to safety and/or reliability and/or maintenance as it 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.

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. This MWC does not relate directly to safety and/or reliability and/or maintenance.

MWC 31 – 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) CP 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.

This MWC relates to safety and/or reliability and/or maintenance as it includes keeping PG&E's natural gas fueling infrastructure safe.

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

This MWC relates to safety and/or reliability and/or maintenance as it includes capacity additions to meet load growth.

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, CP equipment, electronic chart recorders and remote CP monitoring equipment.

This MWC relates to safety and/or reliability and/or maintenance as it includes installation or replacement of gas facilities to: improve system safety and reliability, replace aging facilities, and maintain compliance with pipeline safety regulations.

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.

This MWC does not relate directly to safety and/or reliability and/or maintenance.

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.

This MWC relates to safety and/or reliability and/or maintenance as it includes work and materials required to replace damaged or failed facilities.

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.

This MWC relates to safety and/or reliability and/or maintenance as it includes regulator replacement labor to remove and install new regulators and meters.

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

This MWC does not relate directly to safety and/or reliability and/or maintenance.

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

This MWC was not presented in the 2017 GRC as related directly to safety and/or reliability and/or maintenance. However, certain projects within this MWC provide support for safety and/or reliability and/or maintenance projects.

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.

This MWC relates to safety and/or reliability and/or maintenance as it includes the replacement of gas customer 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 for 2019 is through the Leak Abatement OIR (D.17-06-015), not the GRC and was not forecast in the 2017 GRC.

MWC 4A – Gas Distribution Control Operations Assets – Includes costs associated with the installation of SCADA devices, Electronic Recorders (ERX), 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.

This MWC relates to safety and/or reliability and/or maintenance as it includes costs to support the collection, retention, and presentation of data related to the Control Center as well as support costs for telecommunication radio system assets to monitor and control the gas distribution network.

E. Comparison by MAT for Safety, Reliability, and Maintenance Work Tables

TABLE 2-3
GAS DISTRIBUTION 2019 EXPENSE COMPARISON BY MAT 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required	Unit Variance Explanation Required (Y/N)
1	DD	Provide Field Service	DDA	Field Services: Other	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	0.0	1,116.7	1,116.7	100.0%	0	0	0	-	NO	NO	NO
2	DD	Provide Field Service	DDD	Pilot Relight	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	11,555.2	10,773.1	(782.1)	-6.8%	162,105	137,413	(24,692)	-15%	NO	NO	NO
3	DD	Provide Field Service	DDE	Appliance Adjs	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	722.7	1,030.4	307.8	42.6%	10,326	12,123	1,797	17%	NO	NO	NO
4	DD	Provide Field Service	DDF	Gas Fumigation Activity	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	2,277.9	3,066.2	788.3	34.6%	29,409	32,542	3,133	11%	NO	NO	NO
5	DD	Provide Field Service	DDG	Gas Leaks & Emergencies	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	18,369.5	28,120.0	9,750.5	53.1%	143,492	160,592	17,100	12%	NO	YES	NO
6	DD	Provide Field Service	DDK	Gas Start	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	6,660.0	4,411.6	(2,248.5)	-33.8%	61,997	43,620	(18,377)	-30%	NO	NO	YES
7	DD	Provide Field Service	DDL	Gas Stop	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	4,846.1	4,083.3	(762.8)	-15.7%	106,818	77,322	(29,496)	-28%	NO	NO	YES
8	DE	G Dist Leak Survey	DEA	Leak Survey	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	6,554.0	13,913.4	7,359.3	112.3%	431,265	472,145	40,880	9%	NO	YES	NO
9	DE	G Dist Leak Survey	DEB	Special Leak Survey	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	56.6	617.1	560.6	990.8%	3,544	16,165	12,621	356%	NO	NO	YES
10	DE	G Dist Leak Survey	DEC	Downgrade No Repair	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	1,872.5	2,681.5	809.1	43.2%	6,640	7,796	1,156	17%	NO	NO	NO
11	DE	G Dist Leak Survey	DED	Leak Rechecks	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	426.3	2,610.1	2,183.8	512.3%	3,429	24,040	20,611	601%	NO	NO	YES
12	DE	G Dist Leak Survey	DEE	Customer Calls	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	674.1	1,469.9	795.8	118.0%	3,856	3,801	(55)	-1%	NO	NO	NO

TABLE 2-3
GAS DISTRIBUTION 2019 EXPENSE COMPARISON BY MAT 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required	Unit Variance Explanation Required (Y/N)
13	DE	G Dist Leak Survey	DEF	Picarro Leak Survey	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	4,932.3	5,574.1	641.8	13.0%	548,696	338,098	(210,598)	-38%	NO	NO	YES
14	DE	G Dist Leak Survey	DEG	Picarro Special Leak Survey	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	397.0	0.2	(396.9)	-100.0%	31,405	0	(31,405)	-100%	NO	NO	YES
15	DE	G Dist Leak Survey	DEH	GD Capacity Uprates	N/A	Exhibit (PG&E-3), Chapter 8	0.0	2,957.5	2,957.5	100.0%	0	0	0	-	NO	NO	NO
16	DE	G Dist Leak Survey	DE#	Leak Survey Support	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	2,650.8	1,137.7	(1,513.1)	-57.1%	0	0	0	-	NO	NO	NO
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	21,812.5	45,680.0	23,867.4	109.4%	460,392	767,914	307,522	67%	YES	YES	YES
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	1,355.2	292.6	(1,062.5)	-78.4%	2,212	427	(1,785)	-81%	NO	NO	YES
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	1,070.4	1,511.3	440.9	41.2%	0	0	0	-	NO	NO	NO
20	DG	G Dist Cathodic Protection	DGA	Cath Protect - Monitoring	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	1,555.4	3,517.6	1,962.2	126.2%	51,435	84,392	32,957	64%	NO	NO	YES
21	DG	G Dist Cathodic Protection	DGB	Cath Protect-Troubleshoot	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	3,204.3	5,479.9	2,275.6	71.0%	6,430	20,867	14,437	225%	NO	NO	YES
22	DG	G Dist Cathodic Protection	DGC	Cath Protect - Rectifier Maint	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	306.0	489.9	183.9	60.1%	2,553	3,925	1,372	54%	NO	NO	YES
23	DG	G Dist Cathodic Protection	DGD	Cath Protect - Resurvey	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	2,657.6	2,813.7	156.1	5.9%	618	3,434	2,816	456%	NO	NO	YES
24	DG	G Dist Cathodic Protection	DGE	G:Isolated Steel Svc Evaluatn	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	0.0	3,716.6	3,716.6	100.0%	0	62,504	62,504	10000%	NO	NO	YES

TABLE 2-3
GAS DISTRIBUTION 2019 EXPENSE COMPARISON BY MAT 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required	Unit Variance Explanation Required (Y/N)
25	DG	G Dist Cathodic Protection	DGF	G:Unprotectd Steel Main Evalu	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	367.8	1,879.6	1,511.8	411.0%	35	89	54	156%	NO	NO	YES
26	DG	G Dist Cathodic Protection	DGG	Install casing test stations	N/A	Exhibit (PG&E-3), Chapter 7	0.0	286.7	286.7	100.0%	0	4	4	100%	NO	NO	YES
27	DG	G Dist Cathodic Protection	DGH	Casing mitigate < than 100ft	N/A	Exhibit (PG&E-3), Chapter 7	0.0	3,277.0	3,277.0	100.0%	0	27	27	100%	NO	NO	YES
28	DG	G Dist Cathodic Protection	DGI	Casing monitoring w/o leads	N/A	Exhibit (PG&E-3), Chapter 7	0.0	55.7	55.7	100.0%	0	79	79	100%	NO	NO	YES
29	DG	G Dist Cathodic Protection	DG#	Cathodic Protection, Other	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	282.0	822.2	540.3	191.6%	0	0	0	-	NO	NO	NO
30	EX	G Dist Meter Protection	EXA	MPP Inspections	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	40.9	0.5	(40.4)	-98.8%	258	1	(257)	-100%	NO	NO	YES
31	EX	G Dist Meter Protection	EXB	MPP Protections	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	838.9	8,450.6	7,611.7	907.3%	1,383	10,425	9,042	654%	NO	YES	YES
32	EX	G Dist Meter Protection	EXC	MPP - Service Valves	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	0.7	27.6	27.0	4064.7%	2	3	1	77%	NO	NO	YES
33	FG	G Dist Operate System	FGA	Gas Distribution Control Centr	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	10,571.6	7,395.3	(3,176.3)	-30.0%	0	0	0	-	NO	NO	NO
34	FG	G Dist Operate System	FGB [(a)]	Op Distr-G Mns/Svcs	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	1,056.8	899.3	(157.6)	-14.9%	15,946	3,578	(12,368)	-78%	NO	NO	YES
35	FG	G Dist Operate System	FGC [(a)]	Op Distr-G Reg Genl	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	131.9	131.7	(0.1)	-0.1%	1,015	136	(879)	-87%	NO	NO	YES
36	FG	G Dist Operate System	FG#	Operate Gas Distribution System, Other	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	0.0	(0.2)	(0.2)	-100.0%	0	0	0	-	NO	NO	NO

TABLE 2-3
GAS DISTRIBUTION 2019 EXPENSE COMPARISON BY MAT 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required	Unit Variance Explanation Required (Y/N)
37	FH	G Dist Preventive Maint	FHA	Maint-Prev-G Mains	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	700.6	1,751.5	1,050.8	150.0%	393	686	293	75%	NO	NO	YES
38	FH	G Dist Preventive Maint	FHB [(a)]	Maint-Prev-G Reg Sta	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	2,485.2	4,046.4	1,561.2	62.8%	3,421	31,303	27,882	815%	NO	NO	YES
39	FH	G Dist Preventive Maint	FHC [(a)]	Maint-Prev-G Farm Tap	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	177.4	690.5	513.1	289.2%	862	1,993	1,131	131%	NO	NO	YES
40	FH	G Dist Preventive Maint	FHE	Maint-Prev-G Svcs	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	1,502.2	4,575.1	3,072.9	204.6%	2,000	2,593	593	30%	NO	NO	YES
41	FH	G Dist Preventive Maint	FHG [(a)]	Maint-Prev-G Main Vlv	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	881.4	1,103.1	221.7	25.2%	5,478	7,003	1,525	28%	NO	NO	YES
42	FH	G Dist Preventive Maint	FHI	Maint-Corr G Svc Valves	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	1,153.1	7,357.6	6,204.5	538.1%	13,537	29,663	16,126	119%	NO	YES	YES
43	FH	G Dist Preventive Maint	FHJ	Gas Non-Recurring Projects	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	502.0	2,988.2	2,486.2	495.2%	0	0	0	-	NO	NO	NO
44	FH	G Dist Preventive Maint	FHK	GD Corrosion AC Inspections	N/A	Exhibit (PG&E-3), Chapter 7	0.0	220.3	220.3	100.0%	0	340	340	100%	NO	NO	YES
45	FH	G Dist Preventive Maint	FHL	Atmospheric Corsn Main Rep	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	1,846.8	980.5	(866.2)	-46.9%	3	62	59	2061%	NO	NO	YES
46	FH	G Dist Preventive Maint	FHM	Atmospheric Corsn Serv Rep	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	0.0	664.9	664.9	100.0%	0	999	999	100%	NO	NO	YES
47	FH	G Dist Preventive Maint	FHN	Atmospheric Corsn Reg Stn Rprs	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	0.0	1,074.5	1,074.5	100.0%	0	89	89	100%	NO	NO	YES
48	FH	G Dist Preventive Maint	FHO [(a)]	PM SCADA	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	258.8	864.2	605.4	233.9%	1,510	5,820	4,310	285%	NO	NO	YES

TABLE 2-3
GAS DISTRIBUTION 2019 EXPENSE COMPARISON BY MAT 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required	Unit Variance Explanation Required (Y/N)
49	FH	G Dist Preventive Maint	FHP [(a)]	CM SCADA	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	681.9	372.3	(309.7)	-45.4%	1,375	419	(956)	-70%	NO	NO	YES
50	FH	G Dist Preventive Maint	FHQ	GD Over Pressure Protectn Exp.	N/A	Exhibit (PG&E-3), Chapter 5	0.0	1,509.8	1,509.8	100.0%	0	0	0	-	NO	NO	NO
51	FH	G Dist Preventive Maint	FH#	Preventative Maintenance, Other	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	2,892.5	1,169.9	(1,722.6)	-59.6%	0	0	0	-	NO	NO	NO
52	FI	G Dist Corrective Maint	FIB [(a)]	Maint-Corr-G Reg Genl	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	2,376.9	1,960.1	(416.8)	-17.5%	2,006	1,721	(285)	-14%	NO	NO	NO
53	FI	G Dist Corrective Maint	FIC [(a)]	Maint-Corr-G Farm Tap	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	153.6	931.7	778.1	506.6%	181	931	750	414%	NO	NO	YES
54	FI	G Dist Corrective Maint	FIF [(a)]	Maint-Corr-G Main Vlv	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	873.6	271.7	(601.9)	-68.9%	339	117	(222)	-65%	NO	NO	YES
55	FI	G Dist Corrective Maint	FIG	Maint-Corr-G Main Lk	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	20,803.4	16,570.0	(4,233.4)	-20.3%	5,512	2,144	(3,368)	-61%	NO	NO	YES
56	FI	G Dist Corrective Maint	FIH	Maint-Corr_G_Svc Leak_AG	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	4,785.9	1,389.3	(3,396.6)	-71.0%	34,386	5,087	(29,299)	-85%	NO	NO	YES
57	FI	G Dist Corrective Maint	FII	Maint-Corr-G Cath Prot	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	3,536.7	5,551.9	2,015.1	57.0%	2,758	4,358	1,600	58%	NO	NO	YES
58	FI	G Dist Corrective Maint	FIJ	Maint-Corr G Main Dig-in	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	(32.5)	433.3	465.8	-1434.7%	147	289	142	96%	NO	NO	YES
59	FI	G Dist Corrective Maint	FIK	Maint-Corr G Svc Dig-in	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	(40.5)	1,504.3	1,544.8	-3813.6%	859	1,577	718	84%	NO	NO	YES
60	FI	G Dist Corrective Maint	FIM	Major Event-Distribution Gas	N/A	Exhibit (PG&E-3), Chapter 8	0.0	367.2	367.2	100.0%	0	0	0	-	NO	NO	NO

TABLE 2-3
GAS DISTRIBUTION 2019 EXPENSE COMPARISON BY MAT 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required	Unit Variance Explanation Required (Y/N)
61	FI	G Dist Corrective Maint	FIO	Encroachment	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	521.9	711.9	190.0	36.4%	52	71	19	36%	NO	NO	YES
62	FI	G Dist Corrective Maint	FIP	Maint-Corr_G_Svc Leak_BG	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	18,073.2	15,387.8	(2,685.5)	-14.9%	11,554	4,537	(7,017)	-61%	NO	NO	YES
63	FI	G Dist Corrective Maint	FIQ	Atmospheric Corrosion Monitorg	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	14,056.9	9,308.2	(4,748.8)	-33.8%	2,010,165	536,939 [(b)]	(1,473,226)	-73%	NO	NO	YES
64	FI	G Dist Corrective Maint	FIR	Tee-Cap Replacement Program	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	1,252.1	1,915.2	663.1	53.0%	1,000	1,189	189	19%	NO	NO	NO
65	FI	G Dist Corrective Maint	FIS	Leak Survey Meter Repair	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	8,399.6	6,326.0	(2,073.6)	-24.7%	95,493	68,158	(27,335)	-29%	NO	NO	YES
66	FI	G Dist Corrective Maint	FI#	Leak Repair Support	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	2,057.5	4,046.8	1,989.3	96.7%	0	0	0	-	NO	NO	NO
67	GF	Gas Trans & Dist Sys Mapping	GFO	Production Mapping Dist	Exhibit (PG&E-3), Chapter 10 (MWC Level)	Exhibit (PG&E-3), Chapter 11	0.0	3,090.2	3,090.2	100.0%	0	0	0	-	NO	NO	NO
68	GF	Gas Trans & Dist Sys Mapping	GF#	Mapping Support	Exhibit (PG&E-3), Chapter 10 (MWC Level)	Exhibit (PG&E-3), Chapter 11	3,491.8	0.0	(3,491.8)	-100.0%	0	0	0	-	NO	NO	NO
69	GG	Gas Trans & Dist Sys Modeling	GGA	Gas System Planning_GSO	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	5,888.8	4,529.9	(1,358.9)	-23.1%	0	0	0	-	NO	NO	NO
70	GG	Gas Trans & Dist Sys Modeling	GG#	Gas Distribution Portfolio Management and Engineering	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	1,056.5	1,818.8	762.2	72.1%	0	0	0	-	NO	NO	NO
71	GM	Manage Energy Efficiency-NonBA	GMA	NGV Fueling Station Maintenance	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5 (MWC Level)	3,172.3	0.0	(3,172.3)	-100.0%	0	0	0	-	NO	NO	NO
72	GM	Manage Energy Efficiency-NonBA	GMC	GD LNG/CNG Station	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5 (MWC Level)	0.0	4,231.3	4,231.3	100.0%	0	0	0	-	NO	NO	NO

TABLE 2-3
GAS DISTRIBUTION 2019 EXPENSE COMPARISON BY MAT 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required	Unit Variance Explanation Required (Y/N)
73	GM	Manage Energy Efficiency-NonBA	GM#	Natural Gas Fueling Facilities, Other	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5 (MWC Level)	0.0	(0.2)	(0.2)	-100.0%	0	0	0	-	NO	NO	NO
74	HY	Change/Maint Used Gas Meters	HYI	G Meter Atmospheric Corrosion	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	1,644.1	2,714.3	1,070.2	65.1%	38,212	52,923	14,711	38%	NO	NO	YES
75	HY	Change/Maint Used Gas Meters	HY#	Meter Set Maintenance, Other	N/A	Exhibit (PG&E-3), Chapter 6	0.0	(0.2)	(0.2)	-100.0%	0	0	0	-	NO	NO	NO
76	JQ	Distribution Integrity Management Program (DIMP)	JQA	DIMP Leak Survey	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	887.4	654.2	(233.2)	-26.3%	45,469	9,830	(35,639)	-78%	NO	NO	YES
77	JQ	Distribution Integrity Management Program (DIMP)	JQC	Damage Prevention	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 6	1,306.4	2,841.8	1,535.4	117.5%	0	0	0	-	NO	NO	NO
78	JQ	Distribution Integrity Management Program (DIMP)	JQD	DIMP Emergent Work	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	3,183.1	2,800.5	(382.6)	-12.0%	0	0	0	-	NO	NO	NO
79	JQ	Distribution Integrity Management Program (DIMP)	JQE	Plastic Program	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	303.5	244.9	(58.5)	-19.3%	0	0	0	-	NO	NO	NO
80	JQ	Distribution Integrity Management Program (DIMP)	JQK	Cross Bored Sewer Project	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	18,655.8	31,118.1	12,462.3	66.8%	38,070 [(c)]	43,424	5,354	14%	YES	YES	NO
81	JQ	Distribution Integrity Management Program (DIMP)	JQL	DIMP Program Management	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	2,263.0	4,313.3	2,050.2	90.6%	0	0	0	-	NO	NO	NO
82	JQ	Distribution Integrity Management Program (DIMP)	JQ#	DIMP, Other	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	0.0	1.8	1.8	100.0%	0	0	0	-	NO	NO	NO
83	OM	Operational Management	OM#	Operational Management	N/A	Exhibit (PG&E-3), Chapter 2	13,016.7	13,225.6	208.9	1.6%	0	0	0	-	NO	NO	NO

(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, 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 2019 recorded units include both AC inspection units plus CGI units.

(c) The primary unit of measure for MAT JQK is number of inspections, however, the imputed amounts also include cross bore repairs and record review costs. The 2019 imputed number of inspections is 37,842 and the imputed number of repairs is 227.

TABLE 2-4
GAS DISTRIBUTION 2019 CAPITAL COMPARISON BY MAT 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required	Unit Variance Explanation Required (Y/N)
1	14	G Dist Pipeline Repl Program	14A	Pipeline Repl Pgm-Mains & Svcs	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	138,101.9	89,127.2	(48,974.7)	-35.5%	210,602	105,302	(105,300)	-50%	YES	YES	YES
2	14	G Dist Pipeline Repl Program	14B	Copper Service Replacements	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	187.2	38,329.0	38,141.8	20373.2%	16	1,485	1,469	9414%	YES	YES	YES
3	14	G Dist Pipeline Repl Program	14C	A-67 Copper Replacement	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	0.0	106.1	106.1	100.0%	0	4	4	100%	NO	NO	YES
4	14	G Dist Pipeline Repl Program	14D	Plastic Pipe Replace_Main/Svc	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	215,510.6	234,619.8	19,109.3	8.9%	434,936	474,956	40,020	9%	NO	NO	NO
5	14	G Dist Pipeline Repl Program	14#	Pipeline Replacement Program, Other	N/A	Exhibit (PG&E-3), Chapter 4	0.0	0.2	0.2	100.0%	0	0	0	-	NO	NO	NO
6	27	Gas Meter Protection - Capital	27A	Meter Protection-Capital	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	316.3	2,338.0	2,021.7	639.1%	23	102	79	336%	NO	NO	YES
7	2K	G Dist Repl/Convert Cust HPR	2KA	Cust HPR Reg Sta Convert Main	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5	0.0	35,228.9	35,228.9	100.0%	0	232	232	100%	YES	YES	YES
8	2K	G Dist Repl/Convert Cust HPR	2KB	Cust HPR Reg Sta Conv Dist Reg	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5	0.0	1,519.7	1,519.7	100.0%	0	7	7	100%	NO	NO	YES
9	2K	G Dist Repl/Convert Cust HPR	2KC	Cust HPR Reg Station Replace	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5	0.0	28,089.7	28,089.7	100.0%	0	174	174	100%	YES	YES	YES
10	2K	G Dist Repl/Convert Cust HPR	2K#	Replace Convert Custon	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5	36,706.3	0.2	(36,706.2)	-100.0%	325	0	(325)	-100%	YES	YES	YES
11	31	NGV - Station Infrastructure	31A	31A-LNG/CNG Stations	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5 (MWC Level)	0.0	4,303.9	4,303.9	100.0%	0	0	0	-	NO	NO	NO
12	31	Natural Gas Vehicle (NGV) Station Infrastructure, other	31#	Natural Gas Vehicle (NGV) Station Infrastructure, othe	Exhibit (PG&E-3), Chapter 5 (MWC Level)	Exhibit (PG&E-3), Chapter 5 (MWC Level)	3,628.3	0.0	(3,628.3)	-100.0%	0	0	0	-	NO	NO	NO

TABLE 2-4
GAS DISTRIBUTION 2019 CAPITAL COMPARISON BY MAT 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required	Unit Variance Explanation Required (Y/N)
13	47	G Dist Capacity	47B	Cons/Acq New Fac-G-Cap-Mains	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	28,333.3	32,321.9	3,988.6	14.1%	59,828	46,032	(13,796)	-23%	NO	NO	YES
14	47	G Dist Capacity	47C	Cons/Acq New Fac-G-Cap-RegSta	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	7,828.4	3,561.7	(4,266.7)	-54.5%	10	2	(8)	-79%	NO	NO	YES
15	47	G Dist Capacity	47D	Cons/Acq New Fac-G-Cap-ReplReg	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	1,972.1	258.2	(1,713.8)	-86.9%	17	9	(8)	-48%	NO	NO	YES
16	47	G Dist Capacity	47E	Con/AcquireNewFacil G-Cap-Betr	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	1,831.7	412.1	(1,419.6)	-77.5%	0	0	0	-	NO	NO	NO
17	47	G Dist Capacity	47F	Cons/Acquire New Fac G-Cap-Oth	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	392.7	53.5	(339.2)	-86.4%	0	0	0	-	NO	NO	NO
18	4A	G Dist Ctrl Operations Assets	4AA	Reg Sta Montr & Contrl-1	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	3,775.2	287.9	(3,487.4)	-92.4%	19	0	(19)	-100%	NO	NO	YES
19	4A	G Dist Ctrl Operations Assets	4AB	Reg Station Monitoring-3	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	22,913.1	944.7	(21,968.3)	-95.9%	128	2	(126)	-98%	YES	YES	YES
20	4A	G Dist Ctrl Operations Assets	4AC	Real Time PSI Monitor-4	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	4,093.2	680.7	(3,412.5)	-83.4%	66	3	(63)	-95%	NO	NO	YES
21	4A	G Dist Ctrl Operations Assets	4AF	ERX Pressure Monitoring-6	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	2,469.2	1,315.3	(1,153.9)	-46.7%	175	61	(114)	-65%	NO	NO	YES
22	4A	G Dist Ctrl Operations Assets	4AH	Reg Stat Mntr Sngle No Flow-1	N/A	Exhibit (PG&E-3), Chapter 9	0.0	1.4	1.4	100.0%	0	0	0	-	NO	NO	NO
23	4A	G Dist Ctrl Operations Assets	4AK	Reg Stat Mntr Sngle No Flow-3	N/A	Exhibit (PG&E-3), Chapter 9	0.0	2,511.5	2,511.5	100.0%	0	8	8	100%	NO	NO	YES
24	4A	G Dist Ctrl Operations Assets	4AL	Reg Stat Mntr Dual Flow-3	N/A	Exhibit (PG&E-3), Chapter 9	0.0	1,115.2	1,115.2	100.0%	0	3	3	100%	NO	NO	YES

TABLE 2-4
GAS DISTRIBUTION 2019 CAPITAL COMPARISON BY MAT 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required	Unit Variance Explanation Required (Y/N)
25	4A	G Dist Ctrl Operations Assets	4AM	Reg Stat Mntr Dual No Flow-3	N/A	Exhibit (PG&E-3), Chapter 9	0.0	20,939.0	20,939.0	100.0%	0	85	85	100%	YES	YES	YES
26	4A	G Dist Ctrl Operations Assets	4A#	SCADA Support	Exhibit (PG&E-3), Chapter 7	Exhibit (PG&E-3), Chapter 9	2,720.4	10.4	(2,710.1)	-99.6%	0	0	0	-	NO	NO	NO
27	50	G Dist Reliability General	50A	Impr Rel/ Dep - Gas Mains	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	41,883.2	61,969.7	20,086.6	48.0%	68,674	84,297	15,623	23%	YES	YES	YES
28	50	G Dist Reliability General	50B	Impr Rel/Dep - Gas Services	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	9,012.4	14,423.7	5,411.2	60.0%	795	521	(274)	-34%	NO	NO	YES
29	50	G Dist Reliability General	50C	Impr Rel/Dep Gas Regulation	Exhibit (PG&E-3), Chapter 5	Exhibit (PG&E-3), Chapter 5	21,661.4	47,053.5	25,392.1	117.2%	26	25	(1)	-4%	YES	YES	NO
30	50	G Dist Reliability General	50D	Impr Rel/Dep Gas CP Systems	Exhibit (PG&E-3), Chapter 6B	Exhibit (PG&E-3), Chapter 7	18,595.5	16,971.9	(1,623.6)	-8.7%	691	52	(639)	-92%	NO	NO	YES
31	50	G Dist Reliability General	50E	Impr Rel/Dep Gas Valves	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	13,924.9	14,772.9	848.0	6.1%	297	256	(41)	-14%	NO	NO	NO
32	50	G Dist Reliability General	50F	Impr Rel/Dep Gas Other Equip	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	966.5	252.8	(713.6)	-73.8%	0	0	0	-	NO	NO	NO
33	50	G Dist Reliability General	50G	Impr Rel/Dep-Gas Svc Repl Leak	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	89,036.3	7,761.5	(81,274.8)	-91.3%	9,163	619	(8,544)	-93%	YES	YES	YES
34	50	G Dist Reliability General	50H	Impr Rel/Dep-CutOff Idle G Svc	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	5,634.5	2,925.8	(2,708.7)	-48.1%	780	307	(473)	-61%	NO	NO	YES
35	50	G Dist Reliability General	50I	Impr Rel/Dep-Deac Only-M/R/V	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	5,087.1	4,539.9	(547.2)	-10.8%	46	286	240	522%	NO	NO	YES
36	50	G Dist Reliability General	50J	Encroachment Program	Exhibit (PG&E-3), Chapter 4	Exhibit (PG&E-3), Chapter 4	9,242.0	10,991.1	1,749.0	18.9%	427	267	(160)	-37%	NO	NO	YES

TABLE 2-4
GAS DISTRIBUTION 2019 CAPITAL COMPARISON BY MAT 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required	Unit Variance Explanation Required (Y/N)
37	50	G Dist Reliability General	50K	Emergent Leaking Main Replace	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	9,288.8	4,211.0	(5,077.8)	-54.7%	14,722	6,922	(7,800)	-53%	NO	NO	YES
38	50	G Dist Reliability General	50L	Impr Rel Dep Gas Reg Component	Exhibit (PG&E-3), Chapter 5	Exhibit (PG&E-3), Chapter 5	6,953.8	9,952.2	2,998.4	43.1%	113	164	51	45%	NO	NO	YES
39	50	G Dist Reliability General	50M	Complex-Gas Svc Repl Leak	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	6,908.4	463.5	(6,444.9)	-93.3%	1,030	23	(1,007)	-98%	NO	NO	YES
40	50	G Dist Reliability General	50N	GD Over Pressure Protection	N/A	Exhibit (PG&E-3), Chapter 5	0.0	7,366.7	7,366.7	100.0%	0	87	87	100%	NO	NO	YES
41	50	G Dist Reliability General	50P	Cathodic Protection System - New/Replace	N/A	Exhibit (PG&E-3), Chapter 7	0.0	17,578.1	17,578.1	100.0%	0	52	52	100%	NO	YES	YES
42	50	G Dist Reliability General	50#	Gas Distribution Reliabil	N/A	Exhibit (PG&E-3), Chapter 4	0.0	0.1	0.1	100.0%	0	0	0	-	NO	NO	NO
43	52	G Dist Leak Repl/Emergency	52B	Emerg Resp-G-Dig-Ins-Svcs	Exhibit (PG&E-3), Chapter 6C	Exhibit (PG&E-3), Chapter 8	685.2	1,424.3	739.1	107.9%	0	150	150	100%	NO	NO	YES
44	52	G Dist Leak Repl/Emergency	52C	Emerg Resp-G-Dig-Ins-Main	N/A	Exhibit (PG&E-3), Chapter 8	0.0	(217.9)	(217.9)	100%	0	608	608	100%	NO	NO	YES
45	74	Install New Gas Meters	74A	Install Regulators	Exhibit (PG&E-3), Chapter 6A	Exhibit (PG&E-3), Chapter 6	2,687.4	2,498.7	(188.8)	-7.0%	5,755	8,337	2,582	45%	NO	NO	YES

F. MAT Descriptions for Safety, Reliability, and Maintenance Work – Expense

For descriptions of how the following Gas Distribution expense programs relate to safety, reliability, or maintenance, please see the MAT descriptions which explain the type of work associated with each MAT below.

MAT DDA – Gas Field Services, Other – Other Support costs for Field Services. This is a non-unitized MAT.

This MAT relates to safety and/or reliability and/or maintenance as it involves other support costs for MWC DD Gas Field Services and Response.

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); and (3) Service restoration following a major gas event, charge to major event. Unit of measure is number of service tickets.

This program relates to safety and/or reliability and/or maintenance as it involves seasonal and other gas pilot relight activities at a customer's request.

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.

This program relates to safety and/or reliability and/or maintenance as it includes input, primary air, cleaning burner or pilot, safety checks and energy cost inquiries.

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

This program relates to safety and/or reliability and/or maintenance as it involves gas starts/stops to facilitate fumigation work at customer premise.

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; and (7) Leaks on distribution main or service. Unit of measure is number of service tickets.

This program relates to safety and/or reliability and/or maintenance as it involves responding to customer reported gas emergencies, including high/low pressure, leaks, fires, explosions, carbon monoxide investigations, etc. on the customer's side of the gas meter.

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; and (2) New Business generated customer connects. Unit of measure is number of service tickets.

This program relates to safety and/or reliability and/or maintenance as it involves turning-on (starting) gas service at customer's request.

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; and (2) Gas disconnect and removal for obsolete facilities. Unit of measure is number of service tickets.

This program relates to safety and/or reliability and/or maintenance as it involves turning-off (stopping) gas service at customer's request.

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 (AC) 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.

This program relates to safety and/or reliability and/or maintenance as it involves performing compliance foot and mobile gas leak surveys of distribution mains and services. It also includes AC Inspections of exposed mains, exposed services, service risers, and meter sets being conducted in the course of the leak survey.

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.

This program relates to safety and/or reliability and/or maintenance as it involves 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). It also includes calibration of the instruments associated to this work.

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.

This program relates to safety and/or reliability and/or maintenance as it includes instances where a repairable leaks (Grade 1,2 or 3) are downgraded to a non-hazardous leak (Grade 3) that do not require repair, instances where the leak is not found (Grade 0) or the leak is due to non-PG&E gas.

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.

This program relates to safety and/or reliability and/or maintenance as it includes routine above and below ground Grade 3 and 2 leak rechecks and/or follow-up Grade 0 rechecks.

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

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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.

valve (3) Leak repair (no meter exchange/rebuild). Unit of measure is number of customer calls.

This program relates to safety and/or reliability and/or maintenance as it involves survey and/or investigation of leaks found on the distribution system where the investigation is initiated by a customer odor complaint.

MAT DEF – Picarro Leak Survey – 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); and (3) 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.

This program relates to safety and/or reliability and/or maintenance as it includes: (1) Use of Picarro Surveyor to perform compliance leak survey (drive) of distribution mains and services only (2) Perform foot survey of LISA and Gap Survey (foot survey performed for service & mains not in the field of view of Picarro surveyor) and (3) Field of View Survey (five feet from building survey sweep).

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 LISA and Gap Survey (foot survey performed for service and mains not in the field of view of Picarro surveyor); and (3) Calibration of the instruments associated to this work is charged here. Unit of measure is number of facility site visits.

This program relates to safety and/or reliability and/or maintenance as it 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 LISA and Gap Survey (foot survey performed for service and mains not in the field of view of Picarro surveyor); and (3) Calibration of the instruments associated to this work is charged here.

MAT DEH – Distribution Uprates and Downrates – Perform special leak survey of distribution mains and services and other work (such as service

modification, regulator, GSR, valve, & leak repair work) necessary for distribution uprates and downrates. This is a non-unitized MAT.

This program relates to safety and/or reliability as it involves performing special leak survey of distribution mains and services and other work (such as service modification, regulator, GSR, valve, & leak repair work) necessary for distribution uprates and downrates.

MAT DE# – Leak Survey Support – Support costs for Leak Survey.

This MAT relates to safety and/or reliability and/or maintenance as it includes other support costs such as labor and other support for MWC DE Leak Survey.

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.

This program relates to safety and/or reliability and/or maintenance as it involves locating and marking underground Gas and Electric Distribution facilities per USA requests and additional damage prevention activities like preparation of maps, processing tickets, performing administrative work, and calibration/repair of equipment.

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.

This program relates to safety and/or reliability and/or maintenance as it 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.

MAT DF# – Locate and Mark, Other – Support costs for Locate and Mark, including membership costs for Underground Service Alert.

This MAT relates to safety and/or reliability and/or maintenance as it includes support costs for MWC DF 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.

This program relates to safety and/or reliability and/or maintenance as it includes all types of pipe-to-soil reads (which provides information about the CP levels on the pipeline), including isolated steel, rectifier reads, and remote monitoring. Also includes remote rectifier monitoring unit communication and software costs, and electric utility costs for rectifiers.

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.

This program relates to safety and/or reliability and/or maintenance as it includes troubleshooting and identification of problems with down CPA and performance of any remedial actions.

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

This program relates to safety and/or reliability and/or maintenance as it involves performing rectifier maintenance.

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

This program relates to safety and/or reliability and/or maintenance as it involves conducting enhanced CP survey and associated activities.

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.

This program relates to safety and/or reliability and/or maintenance as it involves identifying and evaluating electrically connected isolated steel services and associated activities.

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

This program relates to safety and/or reliability and/or maintenance as it involves identifying and evaluating unprotected steel main as part of the enhanced CP survey program.

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

This program relates to safety and/or reliability and/or maintenance as it involves installing casing test stations.

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.

This program relates to safety and/or reliability and/or maintenance as it involves clearing casing shorts or replacing cased pipe less than 100' in length.

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

This program relates to safety and/or reliability and/or maintenance as it involves annual casing monitoring for casings without leads.

MAT DG# – Cathodic Protection, Other – Includes other support costs such as engineering related to CP.

This MAT relates to safety and/or reliability and/or maintenance as it includes support costs for MWC DG CP.

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.

This program relates to safety and/or reliability as it involves inspecting the Meter Protection Database or performing a special survey to identify the need for Barrier Posts or Service Valves.

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.

This program relates to safety and/or reliability as it involves installing barrier posts in order to protect above ground gas facilities (meters and risers) from damage by vehicles.

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.

This program relates to safety and/or reliability and/or maintenance as it involves the 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).

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

This program relates to safety and/or reliability and/or maintenance as it includes gas control personal, contractor support, increased main RTU and ERXs, apprentice training program, damage prevention, abnormal conditions, emergency response, compliance, systems operations, data collection, clearance process and benchmarking.

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 SCADA including ERX calibrations. Unit of measure is number of charts changed.

This program relates to safety and/or reliability and/or maintenance as it 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.

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 (GDCC), 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.

This program relates to safety and/or reliability and/or maintenance as it involves controlling the supply and flow of gas through the distribution system via direction from the GDCC, adjusting and changing Distribution Regulator Station pressure set points, and maintaining station pressure in conjunction with winter or planned operational clearances.

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; and (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) AC; (8) Install ETS for purposes of corrosion prevention; (9) Fire valve repair or replacement; (10) Main or service alterations due to “sewer cross-bores”; and (11) Any corrective work related to sunk trenches or sunk bell holes. Unit of measure is number of mains maintained.

This program relates to safety and/or reliability and/or maintenance as it includes: (1) Non-leak repairs to distribution gas mains; (2) Rewrapping, lowering, or painting gas distribution mains; (3) Replacing cover; protecting shallow pipe; (4) Replacing/repairing pipe hangars; (5) Replacing/relocating greater than 100 feet of gas distribution main; (6) Identifying pipe; and (7) Installing ETS for the purpose of locating the main.

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 GDCC RTUs and ERXs installed at a regulator station; and (3) Calibration of pressure recorders for planning "winter chart" applications (non-GDCC). Unit of measure is number of operations on equipment.

This program relates to safety and/or reliability and/or maintenance as it includes scheduled maintenance on distribution regulator stations, required maintenance work for all associated equipment inside the district regulator station, and vault dewatering.

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

This program relates to safety and/or reliability and/or maintenance as it involves performing atmospheric inspections on customer HPR sets, including inspections set point and lockup checks.

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 ETS for the purpose of locating the service; and (10) Installation of excess flow valve (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) AC; (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"; and (10) Any corrective work related to sunk trenches or sunk bell holes. Unit of measure is number of services repaired.

This program relates to safety and/or reliability and/or maintenance as it includes: (1) Repairing non-leaking gas distribution services; (2) Riser replacement; (3) Rewrapping, lowering, or painting gas distribution services; (4) Clearing and/or repairing plugged services; (5) Replacing cover; protecting

shallow pipe; (6) Repairing, replacing, relocating, or cutting-off less than a full service; (7) Repairing or replacing curb valves less than 2 inches; (8) Investigating idle gas stub service cut-offs; (9) Installing ETS for the purpose of locating the service; and (10) Installation of EFV (when not related to leak repair).

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.

This program relates to safety and/or reliability and/or maintenance as it involves performing scheduled inspection of distribution main valves. This can include: (1) verifying operation, identification, and location; (2) Cleaning and/or pumping out vaults and/or enclosures; (3) Lubricating and/or flushing valves; and (4) Cleaning and/or painting the valve and/or frame and cover.

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); and (2) Work above the service valve. Unit of measure is number of valves replaced.

This program relates to safety and/or reliability and/or maintenance as it involves repairing or replacing inoperative service valves less than 2 inches.

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.

This program relates to safety and/or reliability and/or maintenance as it includes one-time non-recurring maintenance projects on non-gas carrying facilities.

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

This program relates to safety and/or reliability and/or maintenance as it involves inspecting atmospherically exposed gas mains and services, for AC.

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

This program relates to safety and/or reliability and/or maintenance as it involves performing expense repairs of AC on mains.

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

This program relates to safety and/or reliability and/or maintenance as it involves expense repairs of AC on services to below the stopcock.

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

This program relates to safety and/or reliability and/or maintenance as it involves expense repairs of AC on distribution district regulator stations.

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-GDCC). Unit of measure is number of RTUs maintained.

This program relates to safety and/or reliability and/or maintenance as it involves performing SCADA Preventive Maintenance to RTUs, SCADA Transmitters and ERXs.

MAT FHP – Corrective Maintenance Supervisory Control and Data Acquisition – 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.

This program relates to safety and/or reliability and/or maintenance as it involves performing SCADA Corrective Maintenance to RTUs, SCADA Transmitters and ERXs. It also includes SCADA corrective maintenance of GDCC RTUs and GDCC ERXs.

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

OPP 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.

This program relates to safety and/or reliability and/or maintenance as it 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 OPP 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.

MAT FH# – Preventative Maintenance, Other – Includes provider cost center SCV aligned with preventive maintenance, quality assurance/ quality control support, and measurement and regulation field support.

This MAT relates to safety and/or reliability and/or maintenance as it includes support costs for MWC FH Preventative Maintenance.

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.

This program relates to safety and/or reliability and/or maintenance as it involves maintaining and repairing failed or inoperative distribution district regulation equipment.

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

This program relates to safety and/or reliability and/or maintenance as it involves performing repairs on customer HPR sets.

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; and (4) Raise vaults and lids unless due to Work

Requested by Others (especially street repaving). Unit of measure is number of valves repaired.

This program relates to safety and/or reliability and/or maintenance as it includes: (1) Replacing valves less than 2 inches; (2) Repairing all distribution main valves; (3) Repairing and/or sealing vaults and lids; and (4) Raising vaults and lids (non WRO work).

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.

This program relates to safety and/or reliability and/or maintenance as it involves expense repairs of non-dig-in leaks less than 100 feet on any distribution main and appurtenances (flanges, valves, etc.). It includes leak pinpointing, repair of service leak by replacing a portion of main (100 feet or less), and repair of leak on existing cut-off service tee (24 inches or less).

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).

This program relates to safety and/or reliability and/or maintenance as it includes leak pin-pointing and repair of non-dig-in leaks below the service valve on the above ground portion of the service.

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 ETS; restore a down Cathodic Protection Area without replacing capital plant. Does not include: any CP remediation or restoration activities. Unit of measure is number of corrosion tags cleared.

This program relates to safety and/or reliability and/or maintenance as it includes: (1) repairing existing anodes or rectifiers; (2) digging up gas facilities to install insulating material; (3) installing new anodes on isolated steel as necessary; (4) installing an ETS; and (5) restoring a down CP Area without replacing capital plant.

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.

This program relates to safety and/or reliability and/or maintenance as it involves expense repairs of dig-in leaks and other third-party damage to any distribution main and appurtenances (flanges, valves, etc.).

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.

This program relates to safety and/or reliability and/or maintenance as it involves expense repairs of dig-in leaks and other third-party damage to any service (including curb valves).

MAT FIM – Leak Management Major Event – Includes gas major events and also emergencies declared by the Governor or President as Catastrophic Event Memorandum Account. This is a non-unitized MAT.

This program relates to safety and/or reliability and/or maintenance as it involves work in response to gas major events and emergencies declared by the Governor or President.

MAT FIO – Encroachment (formerly 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.

This program relates to safety and/or reliability and/or maintenance as it involves the relocation of a partial gas service and/or main (less than 100 feet) due to encroachment conditions.

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); and (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).

This program relates to safety and/or reliability and/or maintenance as it involves leak pinpointing and repair of non-dig in leak on below ground section of any service (includes curb valves) from tees to where risers breaks ground. It includes: (1) Above ground leak that requires below ground repair (i.e., must replace section of below ground pipe or riser); and (2) Riser replacement including section of below ground service.

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

This program relates to safety and/or reliability and/or maintenance as it involves inspecting atmospherically risers, customer gas regulators (including HPRs), and meter sets for AC where not completed by routine leak survey work.

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.

This program relates to safety and/or reliability and/or maintenance as it involves projects specified by the plastic tee cap repair team to lower risks in the plastic system.

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; and (6) Gas leak surveys performed by Leak Surveyors. Unit of measure is number of meters repaired.

This program relates to safety and/or reliability and/or maintenance as it involves scheduled repair of Non-Hazardous gas leaks at the meter set.

MAT FI# – This includes support costs for Gas Corrective Maintenance including leak repair support. This MAT relates to safety and/or reliability and/or maintenance as it includes support costs for MWC FI Gas Corrective Maintenance.

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; and (2) Special Distribution Mapping projects. This is a non-unitized MAT.

This program relates to safety and/or reliability and/or maintenance as it 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; and (2) Special Distribution Mapping projects.

MAT GF# – Gas Distribution Mapping, Other – Includes other support costs related to Gas Mapping.

For how this MAT relates to safety and/or reliability and/or maintenance see MWC GF Gas Mapping.

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.

This program relates to safety and/or reliability and/or maintenance as it involves performing hydraulic analysis on gas distribution systems to support operations and long-term design. It also includes building and maintaining computer models of the gas distribution system.

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.

This MAT relates to safety and/or reliability and/or maintenance as it includes support costs for MWC GG Gas Mapping.

MAT GMA – GD LNG/CNG Station – Maintenance for NGV fueling stations. This is a non-unitized MAT.

This program relates to safety and/or reliability and/or maintenance as it involves maintenance for NGV fueling stations.

MAT GMC – LNG/CNG Stations – Corrective and Preventative Maintenance on CNG Stations. This is a non-unitized MAT.

This program relates to safety and/or reliability and/or maintenance as it involves corrective and preventative maintenance on CNG Stations.

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

This program relates to safety and/or reliability and/or maintenance as it involves performing remediation of AC on customer gas meters and regulators as identified through the AC Inspection Program.

MAT HY# – Meter Set Maintenance, Other – Includes provider cost center SCV aligned with gas meter maintenance.

This MAT relates to safety and/or reliability and/or maintenance as it includes support costs for MWC HY Meter Maintenance.

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

This program relates to safety and/or reliability and/or maintenance as it involves system integrity leak surveys.

MAT JQC – Dig-In Reduction Team – Costs associated with the Dig-in Reduction Team (DiRT). The costs include investigations of dig-ins, documentation of damage incidents, 811 outreach and education, 811 Ambassador program management and response and other Damage Prevention activities by DiRT Members. These Damage Prevention activities include: Field contacts at excavation sites, follow-up on reports of unsafe excavation activities and meetings with excavators. Also, costs associated with Irth Solutions

Utilisphere ticket management system (i.e., licensing fees, data storage and required formatting changes). This is a non-unitized MAT.

See MWC DF Locate and Mark for how this program relates to safety and/or reliability and/or maintenance .

MAT JQD – Distribution Integrity Management Program Emergent Work – Emergent work associated with operational events and risk mitigation activities identified by the DIMP. This is non-unitized work.

This program relates to safety and/or reliability as it manages and executes the DIMP emergent 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. This program relates to safety and/or reliability and/or maintenance as it oversees selection, testing and development of plastic materials, tools and associated construction methods for use on the PG&E distribution system. It also includes: laboratory testing, sample material, and prototype tools and equipment purchases.

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.

This program relates to safety and/or reliability as it involves conducting storm and sewer inspections, repair costs to remediate cross bores, and records research.

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

This program relates to safety and/or reliability and/or maintenance as it involves costs for DIMP staff.

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. This is a non-unitized MWC.

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 related directly to safety and/or reliability and/or maintenance work.

G. MAT Descriptions for Safety and Reliability Work – Capital

For descriptions of how the following Gas Distribution capital programs relate to safety, reliability, or maintenance, please see the MAT descriptions which explain the type of work associated with each MAT below.

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. Unit of measure is feet of main Installed.

This program relates to safety and/or reliability as it involves replacing main and services qualifying for replacement under the Gas Pipeline Replacement Program.

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

This program relates to safety and/or reliability and/or maintenance as it involves replacing copper services identified under the Copper Service Replacement Program.

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.

This program relates to safety and/or reliability and/or maintenance as it involves replacing copper services as a result of leaks and incremental costs for full service replacement.

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.

This program relates to safety and/or reliability and/or maintenance as it involves replacing main and services qualifying for replacement under the Plastic Pipeline Replacement Program.

MAT 14# – Pipeline Replacement Program, Other – This includes support costs for Pipeline Replacement.

This MAT relates to safety and/or reliability and/or maintenance as it includes spoils costs for MWC 14 Gas Pipeline Replacement Program.

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 HPRs. Unit of measure is number of HPR mitigated.

This program relates to safety and/or reliability and/or maintenance as it includes the replacement of gas customer HPRs or the reconstruction of gas distribution systems to eliminate the need for HPRs.

MAT 2KB – Customer High Pressure Regulator Station Conversion to Distribution Regulator Station – Replace or install: (1) farm tap to convert to a HPR Station Type district regulator (DR) (2) HPR 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.

This program relates to safety and/or reliability and/or maintenance as it includes the replacement of gas customer HPRs or the reconstruction of gas distribution systems to eliminate the need for HPRs.

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

This program relates to safety and/or reliability and/or maintenance as it includes the replacement of gas customer HPRs or the reconstruction of gas distribution systems to eliminate the need for HPRs.

MAT 2K# – Gas Distribution Replace/Convert Customer HPRs, Other – Includes other support costs related to HPRs.

See MWC 2K Gas Distribution Replace/Convert Customer HPRs for how this MAT relates to safety and/or reliability and/or maintenance .

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.

This program relates to safety and/or reliability and/or maintenance as it 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.

MAT 31A – LNG/CNG Stations – Capital work on CNG stations. This MAT is non-unitized.

This program relates to safety and/or reliability and/or maintenance as it involves capital work on CNG stations.

MAT 4AA – Regulator Station Monitoring and Control-Type 1 – HPR Station Monitoring and Control-Single Run. Includes upstream, midstream, and downstream pressure, differential pressure, flow and shut-off control. Unit of measure is RTUs installed.

This program relates to safety and/or reliability and/or maintenance as it involves HPR Station monitoring and control (single run). It includes upstream, midstream, and downstream pressure, differential pressure, flow and shut off control.

MAT 4AB – Regulator Station Monitoring-Type 3 – HPR Station Monitoring-Single Run: Includes Upstream, midstream, and downstream pressure, differential pressure and flow. Unit of measure is RTUs installed.

This program relates to safety and/or reliability and/or maintenance as it involves HPR Station monitoring (single run). It includes upstream, midstream, and downstream pressure, differential pressure and flow.

MAT 4AC – Real-time PSR Monitor-Type 4 – HPR Station Monitoring: Includes upstream and downstream pressure. Unit of measure is RTUs installed.

This program relates to safety and/or reliability and/or maintenance as it involves HPR Station monitoring. It includes upstream and downstream pressure.

MAT 4AF – ERX Pressure Monitoring-Type 6 – Includes regulator station, Hydraulically Independent System (HIS) pipeline or valve pressure. Unit of measure is number of electronic pressure recorders.

This program relates to safety, reliability and compliance as it involves electronic recorder pressure monitoring. It includes regulator stations, HIS pipeline or valve pressure.

MAT 4AH – Regulator Station Monitoring Single No Flow-Type 1 – 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 RTUs installed.

This program relates to safety and/or reliability and/or maintenance as it involves High and Low Pressure Regulator Station monitoring and control (single run). It includes upstream, midstream, and downstream pressure, differential pressure (high pressure only), vault water level (low pressure only) and shut-off control.

MAT 4AJ – Regulator Station Monitoring Dual No Flow-Type 1 – 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 RTUs installed.

This program relates to safety and/or reliability and/or maintenance as it involves High and Low Pressure Regulator Station monitoring and control (dual run). It includes upstream, midstream, and downstream pressure, differential pressure (high pressure only), vault water level (low pressure only) and shut-off control.

MAT 4AK – Regulator Station Monitoring Single No Flow-Type 3 – 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 RTUs installed.

This program relates to safety and/or reliability and/or maintenance as it involves High and Low Pressure Regulator Station monitoring (single run). It includes upstream, midstream, and downstream pressure, differential pressure (high pressure only), vault water level (low pressure only) and shut-off control.

MAT 4AL – Regulator Station Monitoring Dual Flow-Type 3 – HPR Station Monitoring-Dual Run: Includes upstream, midstream, and downstream pressure, differential pressure and flow. Unit of measure is RTUs installed.

This program relates to safety and/or reliability and/or maintenance as it involves High Pressure Regulator Station monitoring (dual run). It includes upstream, midstream, and downstream pressure, differential pressure and flow.

MAT 4AM – Regulator Station Monitoring Dual No Flow-Type 3 – 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 RTUs installed.

This program relates to safety and/or reliability and/or maintenance as it involves High and Low Pressure Regulator Station monitoring (dual run). It includes upstream, midstream, and downstream pressure, differential pressure (high pressure only), and vault water level (low pressure only).

MAT 4A# – Gas Distribution Control Operations Assets, Other –Includes other support costs related to Gas Distribution Control Operations.

See MWC 4A Gas Distribution Control Operations Assets for how this MAT relates to safety and/or reliability and/or maintenance .

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.

This program relates to safety and/or reliability and/or maintenance as it involves installation of gas main to provide additional capacity.

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

This program relates to safety and/or reliability and/or maintenance as it involves installation of new district regulator station to provide additional capacity (including cost to install SCADA).

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.

This program relates to safety and/or reliability and/or maintenance as it involves installation or replace gas regulation equipment at an existing district regulator station to provide additional capacity.

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.

This program relates to safety and/or reliability and/or maintenance as it involves installing gas main to provide additional capacity for Emergent Projects.

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

This program relates to safety and/or reliability and/or maintenance as it involves installing or replacing facility for capacity.

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.

This program relates to safety and/or reliability and/or maintenance as it involves replacing and/or installing greater than or equal to 100 feet of gas distribution main due to deterioration or reduced reliability.

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 ERXs. Unit of measure is number of services replaced.

This program relates to safety and/or reliability and/or maintenance as it 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.

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

This program relates to safety and/or reliability and/or maintenance as it includes replacement of an entire district regulator station (existing pilot operated station and HPR Type stations with regulation 1 inch and above) due to deterioration or reduced reliability.

MAT 50D – Improve Reliability – Gas Cathodic Protection Systems. Includes: For ETS 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 (RMU); Casing Remediation greater than 100 feet. Does not include: Impressed Current Anodes (Deep or Shallow bed) which is now part of new MAT 50P. CP systems for Electrical (ETS) less than 5 stations at a single location are charged to expense. Units of measure include RMUs, Casing Mitigation, and CP Systems.

This program relates to safety and/or reliability and/or maintenance as it includes for ETS greater than or equal to 5 stations at a single location the following: (1) Rectifier, pipe coating greater than or equal to 100 feet, and (2) RMU, casing remediation greater than 100 feet.

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.

This program relates to safety and/or reliability and/or maintenance as it includes replacing or installing gas distribution valves greater or equal to 2 inches (e.g., emergency shutdown, riser valves 2” or greater, and therm billing area valves).

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 CP systems. Does not include: partial pit/vault rebuilds and/or lids only.

This is a non-unitized MAT. This program relates to safety and/or reliability and/or maintenance as it includes: (1) replacing, installing, or deactivating other units of gas capital; (2) permanent pressure recorders and new pits or vaults; and (3) all deactivation-only jobs for CP systems.

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.

This program relates to safety and/or reliability and/or maintenance as it includes replacement or deactivation of an entire stub or stub service due to leaks that are not due to idle facilities or dig-ins.

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.

This program relates to safety and/or reliability and/or maintenance as it involves removal or deactivation of an entire service or stub services due to idle facilities and not due to leaks, overbuilds, dig-ins, or demolitions.

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.

This program relates to safety and/or reliability and/or maintenance as it involves deactivation of gas main (and the associated services), regulator stations, or valves.

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.

This program relates to safety and/or reliability and/or maintenance as it involves relocation or rearrangement of a gas main (greater than 100 continuous feet) and/or complete gas service replacement to clear overbuild conflicts.

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.

This program relates to safety and/or reliability and/or maintenance as it involves replacement or installation of greater than or equal to 100 feet of gas distribution main due to leaks.

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.

This program relates to safety and/or reliability and/or maintenance as it involves replacement of regulator station component due to deterioration or reduced reliability. It includes valves (both upstream and downstream fire valves and block valves), filters, regulators, and other capital equipment within the 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.

This program relates to safety and/or reliability and/or maintenance as it involves replacement or deactivation of an entire or stub complex services due to leaks not due to idle facilities or dig-ins. It also includes large commercial meter sets, and any complex load calculations that require Gas Distribution Engineering and Design.

MAT 50N – GD Overpressure Protection 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.

This program relates to safety and/or reliability and/or maintenance as it includes: installation of secondary OPP devices at pilot-operated regulator stations. These additional devices may include slam shuts devices, 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 MAOP separation valves.

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

This program relates to safety and/or reliability and/or maintenance as it involves installation of impressed current ground bed, deep or shallow.

MAT 50# – Gas Distribution Reliability Other – Includes provider cost center standard cost variance costs.

This MAT relates to safety and/or reliability and/or maintenance as it includes spoils costs for MWC 50 Gas Distribution Reliability.

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.

This program relates to safety and/or reliability and/or maintenance as it involves replacing or deactivating an entire service or stub services due to “dig-ins,” outside forces, or third party damage. It also includes service cut-offs due to emergencies (i.e., due to fire).

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.

This program relates to safety and/or reliability and/or maintenance as it involves replacing greater than or equal to 100 feet gas distribution main due to dig-ins, damage by outside forces, or third parties. It also includes deactivations of greater than or equal to 1-foot gas distribution main due to dig-ins or damage by outside forces.

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.

This program relates to safety and/or reliability and/or maintenance as it involves labor to replace failed or deteriorating residential and non-residential regulators while performing routine maintenance or other field activity. It includes targeted regulator replacement programs and filter replacement with regulator replacement for large meter work 2" and greater.

H. Variance Explanations – Expense

MWC DD, MAT DDG – Gas Leaks & Emergencies – Program expenses exceeded imputed values due to an accounting change. Labor costs related to incident response standby are now reflected in this program to allow for greater visibility to the standby hours for incident response. Prior to 2019, costs were recorded as indirect labor across multiple programs.

MWC DD, MAT DDK – Gas Start – Actual units were below imputed units due to a decrease in gas start customer service requests.

MWC DD, MAT DDL – Gas Stop – Actual units were below imputed units due to a decrease in gas stop customer service requests.

MWC DE, MAT DEA – G Dist Leak Survey – Program expenses exceeded imputed values due to higher unit costs to perform the work that were primarily driven by the increased difficulty to perform leak surveys near inaccessible meters.

MWC DE, MAT DEB – Special Leak Survey – In 2019, actual units exceeded imputed units due to an unplanned special DIMP survey which included quarterly copper survey, and daily, weekly and monthly plastic fusion surveys. In addition, an unplanned special leak recheck effort as a result of leak cancellation review generated additional units.

MWC DE, MAT DED – Leak Rechecks – Actual units exceeded imputed units due to moving from the 4-year survey cycle to a 3-year survey cycle.

MWC DE, MAT DEF – Picarro Leak Survey – Actual units were below imputed units due to reprioritization to fund higher risk activities within Gas Distribution, for example, cross bore inspections. Units not completed in 2019 are in the workplan for 2020.

MWC DE, MAT DEG – Picarro Special Leak Survey – Actual units were below imputed units due to Picarro leak survey work being reclassified from this program to traditional special leak survey (MAT DEB) which occurred post-2017 GRC application.

MWC DF, MAT DFA –Locate and Mark – Program expenses exceeded imputed values as a result of higher unit costs due to new PG&E requirements to improve project documentation including:

- Photographing the excavator's delineations, and PG&E's post locate marks;
- Documenting communication and agreements between the excavator and PG&E, work completed, and facilities marked."

Actual units exceeded imputed units due to an increased number of calls to the 811 "Call Before You Dig" number.

MWC DF, MAT DFB –Locate and Mark Standby – Recorded units are below imputed units a result of revisions to the PG&E's Critical Facility definitions. Previously, standby was performed whenever excavation was occurring within 5 feet of a PG&E gas distribution Critical Facility and/or when deemed appropriate (based on risk factors). Damage Prevention revised its Critical Facility definition to align with the California Government Code definition of a "high priority subsurface installation" (Govt. Code §4216(j)), which resulted in removing gas distribution and fiber facilities from PG&E's Critical Facility definition. The definition revisions have impacted actual Standby/Field Meets units resulting in lower than planned.

MWC DG, MAT DGA – G Dist Cathodic Protection – In 2019, actual units exceeded imputed because the 2019 recorded (actual) 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 CP monitoring conducted in MAT DGA, casing monitoring with leads has been moved into MAT DGA.

MWC DG, MAT DGB – Cathodic Protection Troubleshoot – Actual units exceeded imputed units due to an increase in work identified from the Electrically-Connected Isolated Steel Service Program and units from 2018 that were executed in 2019.

MWC DG, MAT DGC – Cathodic Protection, Rectifier Maintenance – In 2019, actual units exceeded imputed because 2019 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 CFR Section 192. The 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.

MWC DG, MAT DGD – Cathodic Protection – Enhanced Resurvey – In 2019, actual units exceeded imputed because 2017 GRC presented MAT DGD as unitized and forecast the unit of work, 813, by multiplying the percent of the distribution system that is constructed of steel piping (20 percent) times the number of CPA (4065). 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. 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 2019 scope of work included completion of 3,434 miles of field verification across hundreds of CPAs; however, very few of these CPAs are considered to be complete. 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.

MWC DG, MAT DGE – Electrically Connected Isolated Steel Services – Actual costs and actual units are higher than imputed values and imputed units because this work was not included in the 2017 GRC forecast.

MWC DG, MAT DGF – Unprotected Steel Main Evaluation – In 2019, actual units exceeded imputed units because the total mileage of unprotected pipe is higher than forecast in the 2017 GRC.

MWC DG, MAT DGG – Install Casing Test Stations – Actual units exceeded imputed units because 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, there are no imputed units .

MWC DG, MAT DGH – Casing Short Mitigation – Actual units exceeded imputed units because 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 are available.

MWC DG, MAT DGI – Casing Monitoring w/o Lead – Actual units exceeded imputed units because 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 are available.

MWC EX, MAT EXA – G Dist Meter Protection Inspections – Actual units were below imputed units primarily due to these inspections being performed through AC inspections (MAT FIQ) and the leak survey program (MAT DEA).

MWC EX, MAT EXB – G Dist Meter Protection – "Program expenses exceeded imputed adopted values as a result of the Abnormal Operating Condition (AOC) remediation work.[3] Actual units exceeded imputed units due to AOC remediation work and carryover work from 2018 that was completed in 2019.

MWC EX, MAT EXC – G Dist Meter Protection Service Valves – Actual units were above imputed units due to emergent field AOC findings.

MWC FG, MAT FGB – Manual Field Operations, Mains and Services – Actual units were below imputed units 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.

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3 When PG&E field personnel visit a meter set, whether as part of a survey or for other reasons, they are required to make a note of any "abnormal operating conditions" or AOCs that may need follow up (e.g., encroachments, danger from vehicular traffic, etc.). In 2019, PG&E began to validate and remediated AOC field observations recorded from 2014-2017.

MWC FG, MAT FGC – Manual Field Operations, Other – Actual units were below imputed units due to the increased visibility at SCADA sites thereby decreasing the need for manual regulator adjustments which control the amount of gas flowing through the regulator.

MWC FH, MAT FHA – G Dist Preventive Maint, Gas Mains – Actual units exceeded imputed units due to additional volume of unanticipated work identified in 2019.

MWC FH, MAT FHB – G Dist Preventive Maint, Gas Regulator Station – Actual units exceeded imputed units due to a change in the way units are counted since the 2017 GRC. The unit of measure included in the 2017 GRC was a district regulator station. The 2019 recorded value included in this table is comprised of individual components of a district regulator station.

MWC FH, MAT FHC – G Dist Preventive Maint, Gas Farm Tap – Actual units exceeded imputed units because in 2019, Farm Tap maintenance increased system wide due to the new PHMSA requirement to service and operate the Farm Tap components. Farm Taps are HPR sets that reduce transmission pressure to distribution pressure for single customer services lines not exceeding two customers.

MWC FH, MAT FHE – G Dist Preventive Maint, Gas Services – Actual units exceeded imputed units due to AOC remediation work and carryover work from 2018 that was completed in 2019.

MWC FH, MAT FHG – G Dist Preventive Maint, Gas Valves – Actual units exceeded imputed units due to an increased amount of valves installed.

MWC FH, MAT FHI – Corrective Maintenance, Gas Service Valves – Program expenses exceeded imputed adopted values due to a significant increase in the volume of work and the use of contractor resources. Actual units exceeded 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 2019 and internal resources worked on higher priority work like compliance-driven leak repairs.

MWC FH, MAT FHK – Atmospheric Corrosion Inspections, Mains and Services – Actual units exceeded imputed units because this is a new MAT

code for atmospheric inspections of distribution piping that was not included in the 2017 GRC.

MWC FH, MAT FHL – Atmospheric Corrosion Main Repairs – Actual units exceeded imputed units because the 2017 GRC included three AC remediation work streams in MAT FHL: spans, services, and stations. Costs for AC remediation of services have moved to MAT FHM, and AC 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 number of units was based upon the number of three man paint crews that would be required to address all AC 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.

MWC FH, MAT FHM – Atmospheric Corrosion Service Repairs – Actual units/exceeded imputed units because this is a new MAT code that was not included in the 2017 GRC. As explained above in MAT FHL, imputed units for this work are included in MAT FHL.

MWC FH, MAT FHN – Atmospheric Corrosion Distribution Regulator Station Repairs – Actual units exceeded imputed units because this is a new MAT code that was not included in the 2017 GRC. As explained above in MAT FHL, imputed units for this work are included in MAT FHL.

MWC FH, MAT FHO – G Dist Preventive Maint, SCADA – Actual units exceeded imputed units due to a greater number of SCADA units to maintain which includes work previously captured in MAT FGB.

MWC FH, MAT FHP – G Dist Corrective Maint, SCADA – Actual units were lower than imputed units due to less corrective maintenance for RTUs identified than forecast.

MWC FI, MAT FIC – G Dist Corrective Maint, Gas Farm Tap – Actual units exceeded imputed units because in 2019, Farm Tap maintenance increased system wide due to the new PHMSA requirement to service and operate the Farm Tap components.

MWC FI, MAT FIF – G Dist Corrective Maint, Gas Main Valve – Actual units were below imputed units because: (1)corrective work did not materialize; and (2) maintenance was addressed through bundling with preventative maintenance work.

MWC FI, MAT FIG – Main Leak Repair – Actual units were below imputed units due to a lower leak find rate materializing than was forecast in the 2017 GRC.

MWC FI, MAT FIH – Service Leak Repair, Above Ground – Actual units were below imputed units due to a lower leak find rate materializing than was forecast in the 2017 GRC.

MWC FI, MAT FII – Corrective Maintenance Cathodic Protection – Actual units exceeded imputed units due to an increase in work identified from the Electrically-Connected Isolated Steel Service Program.

MWC FI, MAT FIJ – Service Dig-in Repair – Actual units exceeded imputed units due to an increase in volume of third-party dig-ins.

MWC FI, MAT FIK – Main Dig-in Repair – Actual units exceeded imputed units due to an increase in volume of third-party dig-ins.

MWC FI, MAT FIO – Encroachment – Actual units exceeded imputed units due to a higher number of overbuilds (encroachments) identified that resulted in more remediation work than forecast.

MWC FI, MAT FIP – Service Repair, Below Ground – Actual units were below imputed units due to a lower leak find rate materializing than was forecast in the 2017 GRC.

MWC FI, MAT FIQ – Atmospheric Corrosion Meter Inspection – Actual units were below imputed units due to the change in leak survey schedule from a 4-year cycle to 3-year cycle aligning with AC inspection resulting in units inspected through routine leak survey without additional costs in MAT FIQ.

MWC FI, MAT FIS – Leak Survey Meter Repair – Actual units were below imputed units due to fewer units of work found than forecast.

MAT HYI – Meter Set Atmospheric Corrosion Remediation – Actual units exceeded imputed units 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.

MWC JQ, MAT JQA – DIMP Leak Survey – Actual units were below imputed units because work did not materialize.

MWC JQ, MAT JQK – Cross Bore Sewer Project – Program expenses exceeded imputed values due to higher unit costs to perform the work.

I. Variance Explanations – Capital

MWC 14, MAT 14A – G Dist Pipeline Repl Program – Program expenses were below imputed adopted values in 2019 due to workplan focused on maximizing risk reduction bundling with estimated work and supporting Fire Rebuild Projects. Actual units were below imputed units due to 2019 workplan focused on maximizing risk reduction bundling with estimated work and supporting Fire Rebuild projects.

MWC 14, MAT 14B – Copper Service Replacement – Program expenses exceeded imputed adopted 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 2019. Examples of complex service dependencies performed in 2019 were difficult geographic terrain, excessive house plumbing, and coordination with CNG. Actual units exceeded imputed units due to additional copper services locations added to the scope of the program after the 2017 GRC forecast was submitted.

MWC 14, MAT 14C – A-67 Copper Replacement – 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.

MWC 27 – Gas Meter Protection – Capital – Actual units were above imputed units due to increased AOC MPP work which also resulted in more capital relocation work than anticipated.

MWC 2K, MAT 2KA – HPR Regulator Station Conversion, Main – In the 2017 GRC, the HPR forecast was at the MWC level and not at the MAT level. At a MWC level, program expenses and actual units exceeded imputed values due to: (1) carryover work from 2018 being completed in 2019; and (2) increased costs driven by scope, location and construction constraints for jobs with greater difficulty of work.

MWC 2K, MAT 2KB – HPR Regulator Station Conversion, District – In the 2017 GRC, the HPR forecast was at the MWC level and not at the MAT level. At a MWC level, program recorded units exceeded imputed units due to carryover work from 2018 being completed in 2019.

MWC 2K, MAT 2KC – HPR Regulator Station Replacement – In the 2017 GRC, the HPR forecast was at the MWC level and not at the MAT level. At a

MWC level, program expenses and actual units exceeded imputed values due to: (1) carryover work from 2018 being completed in 2019; and (2) increased costs driven by scope, location and construction constraints for jobs with greater difficulty of work.

MWC 2K, MAT 2K# – G Dist Repl/Convert Cust HPR – In the 2017 GRC, the HPR forecast was at the MWC level and not at the MAT level. At a MWC level, program expenses and actual units exceeded imputed values due to: (1) carryover work from 2018 being completed in 2019; and (2) increased costs driven by scope, location and construction constraints for jobs with greater difficulty of work.

MWC 47, MAT 47B – G Dist Capacity, Mains – Actual units were below imputed units 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.

MWC 47, MAT 47C – G Dist Capacity, Regulator Station – Actual units were below imputed units due to capacity station requests being eliminated after scoping found either forecasted load increases had changed, existing supply determined to be adequate, or capacity need could be met through modifications of existing regulator stations to accommodate projected loads.

MWC 47, MAT 47D – G Dist Capacity, Replace Regulator Station Component – Actual units were below imputed units because a lower amount of work was needed than forecast in the 2017 GRC. Units are based on jobs as-needed.

MWC 4A, MAT 4AA – Regulator Station Monitoring and Control-Type 1 – Program expenses and actual units were below imputed units due to reprioritization within Gas Distribution. For example, one area that received reallocated capital funding was Copper Service Replacement.

MWC 4A, MAT 4AB – Regulator Station Monitoring-Type 3 – Program units were below imputed units due to reprioritization within Gas Distribution. For example, one area that received reallocated capital funding was Copper Service Replacement.

MWC 4A, MAT 4AC – Real-time PSR Monitor-Type 4 – Program units were below imputed units due to reprioritization within Gas Distribution. For

example, one area that received reallocated capital funding was Copper Service Replacement.

MWC 4A, MAT 4AF – ERX Pressure Monitoring-Type 6 – Program units were below imputed units due to reprioritization within Gas Distribution. For example, one area that received reallocated capital funding was Copper Service Replacement.

MWC 4A, MAT 4AK – Regulator Station Monitoring Single No Flow-Type 3 – Actual units exceeded imputed units because this MAT 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.

MWC 4A, MAT 4AL – Regulator Station Monitoring Dual Flow-Type 3 – Actual units exceeded imputed units because this MAT 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.

MWC 4A, MAT 4AM – Regulator Station monitoring Dual No Flow-Type 3 – Program expenses and actual units exceeded imputed units because this MAT code was broken out after the 2017 GRC was filed. The work recorded in this MAT was forecast as part of MAT 4AB. See variance explanation in MAT 4AB.

MWC 50, MAT 50A – G Dist Reliability Main Replacement – Program expenses exceeded imputed adopted values due to performing more replacement work related to wildfires. Actual units exceeded imputed units as more units were identified for replacement.

MWC 50, MAT 50B – G Dist Reliability Service Replacement – Program recorded units were below imputed units due to a lower materialization of emergent units than forecast.

MWC 50, MAT 50C – Gas Regulator Station Rebuilds – Program expenses exceeded imputed adopted values primarily due to higher unit costs driven by factors such as design changes, station location, construction constraints and local cities requirements.

MWC 50, MAT 50D – Gas Cathodic Protection Systems – Actual units were below imputed units because 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 2019 new/placement groundbeds are presented below under MAT 50P. All imputed costs and units remain in MAT 50D. The recorded units/costs for 2019 presented in MAT 50D include capital casing remediation, rectifier replacements, and RMU installations.

MWC 50, MAT 50G – Gas Service Replace Leaks – Program expenses were below imputed adopted values due to: (1) less actual emergent service replacements; and (2) re-evaluation and implementation of a new strategy for service repair leading to a lower number of below ground leak repairs recorded.

Actual units were below imputed units due to: (1) less actual emergent service replacements; and (2) re-evaluation and implementation of a new strategy for service repair leading to a lower number of below ground leak repairs recorded.

MWC 50, MAT 50H – Cut-Off Idle Gas Service – Actual units were below imputed units due to a lower volume of stub services being identified for deactivation

MWC 50, MAT 50I – Reliability Deactivation – Actual units exceeded imputed units because the 2017 GRC forecast was a combination of unitized and non-unitized work. The 2017 GRC imputed units reflect units of removed MAOP separation valves. The 2019 actual units are the total number of deactivation jobs.

MWC 50, MAT 50J – Encroachment – Actual units were lower than imputed units due to fewer encroachments (overbuilds) and mobile home park services identified.

MWC 50, MAT 50K – Emergent Leaking Main Replacement – Actual units were lower than imputed units due to less actual emergent main replacements materializing than what was forecast.

MWC 50, MAT 50L – Gas Regulator Station Component Rebuild – Actual units exceeded imputed units due to bundling component replacements with pre-planned asset maintenance work and other projects which resulted in more units for 2019.

MWC 50, MAT 50M – Complex Service Replace – Actual units were below imputed units due to: (1) less actual emergent service replacements; (2) re-evaluation and implementation of a new strategy for service repair leading to a lower number of below ground leak repairs recorded.

MWC 50, MAT 50N – Overpressure Protection Enhancements – This is a new MAT and was not included in the 2017 GRC.

MWC 50, MAT 50P – Cathodic Protection System – New/Replace – As explained above, MAT 50D was split and new or replacement groundbeds costs and units were moved to MAT 50P. The imputed costs and remain in MAT 50D. As explained above, MAT 50D was split and new or replacement groundbeds costs and units were moved to MAT 50P. The imputed units remain in MAT 50D.

MWC 52, MAT 52B – Emergency Response to Dig-Ins, Services – Actual units were above imputed units due to dig-ins, outside forces or third-party damage being significant that required replacement or deactivation instead of repair. There were no imputed units.

MWC 52, MAT 52C – Emergency Response to Dig-Ins, Main – Actual units were above imputed units due to dig-ins, outside forces or third-party damage being significant that required replacement or deactivation instead of repair. There were no imputed units.

MWC 74, MAT 74A – Gas Regulator Replacement – Program units were above imputed units due to additional units that were identified as needing replacement during routine maintenance or other field activity than forecast.

PACIFIC GAS AND ELECTRIC COMPANY

SECTION 3

ELECTRIC DISTRIBUTION

IMPUTED ADOPTED VS. RECORDED COMPARISON

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 3
ELECTRIC DISTRIBUTION
IMPUTED ADOPTED VS. RECORDED COMPARISON

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PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 3
ELECTRIC DISTRIBUTION
IMPUTED ADOPTED VS. RECORDED COMPARISON

A. Introduction

This section includes the following information for the Electric Distribution line of business: a comparison of the total 2019 imputed adopted spend vs. the actual spend. This section also includes, for programs that are related to safety, reliability, or maintenance, the Major Work Category (MWC)/Maintenance Activity Type (MAT) Code descriptions, imputed adopted vs. actuals comparison details and variance explanations. As required by Decision (D.) 19-04-020[1] the MWC/MAT Code descriptions include a discussion of how each program/project relates to safety, reliability, or maintenance.

[1] Attachment 2, p. 9.

B. Comparison Summary Tables

TABLE 3-1
ELECTRIC DISTRIBUTION 2019 EXPENSE COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)
1	Support and Emergency Preparedness and Response	AB	10,013.9	22,754.2	12,740.3
2	Read & Investigate Meters	AR	0.0	10,063.0	10,063.0
3	Electric Distribution Operation Activities	BA	28,603.5	22,779.2	(5,824.2)
4	Electric Operations Patrols/Inspections	BF	38,390.9	193,728.6	155,337.8
5	Electric Distribution Routine Emergency	BH	56,990.1	71,326.3	14,336.2
6	Maintenance of Other Equipment	BK	2,068.7	1,927.3	(141.4)
7	Customer Field Service Work	DD	17,592.7	20,239.6	2,646.9
8	Develop and Provide Training	DN	8,040.2	0.0	(8,040.2)
9	New Customer Connection Service Inquiry Activities	EV	9,237.1	10,240.0	1,002.9
10	Electric Operations Work Requested by Others (WRO)	EW	14,645.4	4,854.5	(9,790.9)
11	Change/Maintenance Used Electric Meter	EY	0.0	5,409.1	5,409.1
12	Manage Various Customer Care Processes	EZ	0.0	0.0	0.0
13	Electric Distribution Engineering and Planning	FZ	15,314.5	11,106.2	(4,208.3)
14	Poles – Intrusive Inspection/Test and Treat Program	GA	14,816.9	17,678.6	2,861.7
15	Electric Distribution Substations Operate and Maintain Assets	GC	27,995.8	41,811.4	13,815.6
16	Electric Distribution Mapping	GE	5,677.5	175.4	(5,502.1)
17	Electric Distribution Operations Technology	HG	0.0	3,956.9	3,956.9
18	Vegetation Management Balancing Account	HN	223,172.4	363,266.6	140,094.2
19	Electric Operations Automation/Supervisory Control and Data Acquisition (SCADA), Protection Support	HX	1,510.5	1,970.8	460.2
20	Perform Gas Meter Maintenance	HY	0.0	1,156.8	1,156.8
21	Electric Distribution Major Emergency	IF	56,846.0	121,632.2	64,786.2
22	Fire Risk Mitigation Memorandum Account (FRMMA), Wildfire Mitigation Plan Memorandum Account (WMPMA), and Rule 20A Balancing Account Expense	IG	0.0	669,581.9	669,581.9
23	Streetlight Support	IS	0.0	164.8	164.8
24	Collect Revenue	IU	0.0	1,355.1	1,355.1
25	Maintain IT Applications and Infrastructure	JV	6,836.8	2,889.5	(3,947.2)
26	Preventive Maintenance and Equipment Repair, Overhead (OH)	KA	51,383.1	103,049.7	51,666.7
27	Preventive Maintenance and Equipment Repair, Underground (UG)	KB	17,336.8	16,441.8	(895.0)
28	Preventive Maintenance and Equipment Repair, Network	KC	4,558.1	4,514.1	(43.9)
29	Operational Management	OM	20,768.4	12,407.3	(8,361.1)
30	Operational Support	OS	27,024.1	7,570.7	(19,453.4)
31	**Total**		**658,823.4**	**1,744,051.6**	**1,085,228.2**

TABLE 3-2
ELECTRIC DISTRIBUTION 2019 CAPITAL COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)
1	Tools & Equipment	05	(16,345.6)	7,532.0	23,877.6
2	Electric Distribution Line and Equipment Capacity	06	80,309.8	73,444.3	(6,865.4)
3	Electric Distribution Install/Replace Overhead (OH) Poles	07	76,502.7	361,082.8	284,580.1
4	Electric Distribution Reliability Base - Overhead (OH) Asset Replacement	08	40,535.1	294,384.9	253,849.8
5	Electric Distribution Automation and Protection	09	43,306.3	63,115.4	19,809.2
6	Electric Distribution Work Requested by Others (WRO) General	10	68,683.3	120,958.5	52,275.2
7	Electric Distribution Customer Connections	16	359,331.1	472,265.3	112,934.2
8	Electric Distribution Routine Emergency	17	132,050.8	211,989.5	79,938.6
9	Miscellaneous Capital and Emergency Preparedness & Response (EP&R)	21	7,240.6	19,266.6	12,026.0
10	Implement Real Estate Strategy	23	5,101.6	6,542.2	1,440.6
11	Install New Electric Meters	25	0.0	25,224.6	25,224.6
12	Electric Distribution Preventive Maintenance, Overhead (OH)	2A	106,108.9	323,784.0	217,675.1
13	Electric Distribution Preventive Maintenance, Underground (UG)	2B	39,327.8	60,872.6	21,544.7
14	Electric Distribution Preventive Maintenance, Network	2C	18,096.0	18,470.0	374.0
15	Build IT Applications and Infrastructure	2F	45,061.3	30,245.9	(14,815.4)
16	Electric Distribution Work Requested by Others (WRO) – Rule 20A	30	52,066.9	45,758.5	(6,308.4)
17	Electric Distribution Substation Capacity	46	60,909.2	17,899.9	(43,009.2)
18	Electric Distribution Substation Replace Other Equipment	48	72,718.2	79,976.6	7,258.5
19	Electric Distribution Circuit/Zone Reliability Program	49	72,300.8	76,160.3	3,859.5
20	Electric Distribution Substation Transformer Replacements	54	38,373.2	39,161.3	788.1
21	Electric Distribution Underground (UG) Asset Replacements	56	96,862.2	66,026.4	(30,835.8)
22	Electric Distribution Substation Safety and Security	58	2,081.1	9,054.4	6,973.3
23	Electric Distribution Substation Emergency Replacements	59	40,917.9	82,125.0	41,207.1
24	Electric Operations Control Center Facility and Operations Technology	63	985.6	13,382.8	12,397.2
25	Install New Gas Meters	74	0.0	11,129.7	11,129.7
26	Electric Distribution Major Emergency	95	50,767.6	72,594.5	21,826.9
27	**Total**		**1,493,292.3**	**2,602,448.0**	**1,109,155.8**

C. Comparison by MAT Code for Safety, Reliability, and Maintenance Work Tables

TABLE 3-3
ELECTRIC DISTRIBUTION 2019 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)	Unit Variance Explanation Required (Y/N)
1	AB	Support and Emergency Preparedness and Response	AB6	Emergency Preparedness and Response (EP&R)	4-19	4-3; 4-18	7,795.7	6,044.6	(1,751.1)	-22.5%	0	0	0		NO	NO	NO
2	AB	Support and Emergency Preparedness and Response	N/A	-	4-3	4-3	2,218.1	16,709.6	14,491.4	653.3%	0	0	0		YES	YES	NO
3	AR	Read & Investigate Meters	N/A	-	6-7; 6-8	6-6	0.0	10,063.0	10,063.0	100.0%	0	0	0		YES	YES	NO
4	BA	Electric Distribution Operation Activities	#	Not assigned	4-13	4-5	66.7	2,951.7	2,884.9	4322.1%	0	0	0		NO	NO	NO
5	BA	Electric Distribution Operation Activities	BAF	General Operations	4-5	4-5	27,572.5	19,827.6	(7,744.9)	-28.1%	0	0	0		NO	YES	NO
6	BA	Electric Distribution Operation Activities	BAH	Fault Location, Isolation and Service Restoration (FLISR) Maintenance	4-5	4-5	964.2	0.0	(964.2)	-100.0%	0	0	0		NO	NO	NO
7	BF	Electric Operations Patrols/Inspections	BF3	Underground (UG) Bay Area Rapid Transit (BART) Cable Testing/Inspections	4-6	4-6	29.8	13.7	(16.2)	-54.2%	0	0	0		NO	NO	NO
8	BF	Electric Operations Patrols/Inspections	BF4	Underground (UG) Auto Transfer Switch Testing/Inspections	4-6	4-6	62.4	63.8	1.4	2.2%	0	0	0		NO	NO	NO
9	BF	Electric Operations Patrols/Inspections	BFA	Overhead (OH) Poles Patrolled	4-6	4-6	3,652.6	6,151.6	2,499.0	68.4%	1,210,385	1,600,804	390,419	32.3%	NO	NO	YES
10	BF	Electric Operations Patrols/Inspections	BFB	Overhead (OH) Poles Inspected	4-6	4-6	10,985.9	138,261.0	127,275.1	1158.5%	482,786	690,633	207,847	43.1%	YES	YES	YES
11	BF	Electric Operations Patrols/Inspections	BFC	Overhead (OH) Infrared Inspections	4-6	4-6	4,418.0	1,918.8	(2,499.2)	-56.6%	0	0	0		NO	NO	NO
12	BF	Electric Operations Patrols/Inspections	BFD	Underground (UG) Enclosures Patrolled	4-6	4-6	1,844.2	1,178.5	(665.8)	-36.1%	250,910	169,534	(81,376)	-32.4%	NO	NO	YES
13	BF	Electric Operations Patrols/Inspections	BFE	Underground (UG) Infrared Inspections	4-6	4-6	10,472.9	4,884.9	(5,588.0)	-53.4%	146,980	63,674	(83,306)	-56.7%	NO	YES	YES
14	BF	Electric Operations Patrols/Inspections	BFF	Underground (UG) Line Equipment Inspected and Tested	4-6	4-6	761.6	458.1	(303.5)	-39.8%	2,981	1,540	(1,441)	-48.3%	NO	NO	YES
15	BF	Electric Operations Patrols/Inspections	BFG	Overhead (OH) Line Equipment Inspected and Tested	4-6	4-6	2,343.7	2,108.4	(235.3)	-10.0%	24,705	22,421	(2,284)	-9.2%	NO	NO	NO
16	BF	Electric Operations Patrols/Inspections	BFH	California Public Utilities Commission (CPUC) Quality Assurance (QA) Electric Distribution Maintenance (EDM) Audits	4-6	4-6	1,826.6	38,510.0	36,683.3	2008.3%	0	0	0		YES	YES	NO
17	BF	Electric Operations Patrols/Inspections	BFJ	Overhead (OH) Patrol Outage Review Team (ORT) Post Outage	4-6	4-6	795.5	179.0	(616.6)	-77.5%	0	0	0		NO	NO	NO
18	BF	Electric Operations Patrols/Inspections	BFL	Santa Barbara Wildfire Poles Patrolled	4-6	4-6	53.8	0.0	(53.8)	-100.0%	14,990	0	(14,990)	-100.0%	NO	NO	YES
19	BF	Electric Operations Patrols/Inspections	BFM	Urban and Other Wildfire (OWF) Poles Inspected	4-6	4-6	1,143.6	0.0	(1,143.6)	-100.0%	40,058	0	(40,058)	-100.0%	NO	NO	YES
20	BF	Electric Operations Patrols/Inspections	BFO	Santa Barbara Wildfire Poles Inspected	4-6	4-6	0.0	1.0	1.0	100.0%	0	0	0		NO	NO	NO

TABLE 3-3
ELECTRIC DISTRIBUTION 2019 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)	Unit Variance Explanation Required (Y/N)
21	BH	Electric Distribution Routine Emergency	N/A	-	4-4	4-4	56,990.1	71,326.3	14,336.2	25.2%	0	0	0		YES	YES	NO
22	BK	Maintenance of Other Equipment	#	Not assigned	4-6	4-6	319.4	0.0	(319.4)	-100.0%	0	0	0		NO	NO	NO
23	BK	Maintenance of Other Equipment	BKA	Line Equipment Overhauls (Emeryville)	4-6	4-6	1,419.4	1,690.6	271.2	19.1%	1,815	773	(1,042)	-57.4%	NO	NO	YES
24	BK	Maintenance of Other Equipment	BKJ	Line Equipment Overhauls (Division Up/Down Labor) (Emeryville)	4-6	4-6	329.9	135.6	(194.3)	-58.9%	119	39	(80)	-67.2%	NO	NO	YES
25	BK	Maintenance of Other Equipment	BKK	Equipment Warranty Repair (Emeryville)	4-6	4-6	0.0	101.1	101.1	100.0%	0	0	0		NO	NO	NO
26	DD	Customer Field Service Work	#	Customer Field Service Work	4-5	4-5	0.0	5,711.9	5,711.9	100.0%	0	0	0		NO	YES	NO
27	DD	Customer Field Service Work	DDC	Electric Start/Stop	6-7	6-6	0.0	581.5	581.5	100.0%	0	0	0		NO	NO	NO
28	DD	Customer Field Service Work	DDH	Electric Trouble Customer Equipment	4-5	4-5	6,119.4	5,170.2	(949.2)	-15.5%	40,940	37,313	(3,627)	-8.9%	NO	NO	NO
29	DD	Customer Field Service Work	DDJ	Swing Service, Disconnects/Reconnects	4-5	4-5	11,473.3	8,776.0	(2,697.3)	-23.5%	82,337	79,093	(3,244)	-3.9%	NO	NO	NO
30	DN	Develop and Provide Training	N/A	-	4-19	Moved to HR, 8-6	8,040.2	0.0	(8,040.2)	-100.0%	0	0	0		NO	YES	NO
31	EY	Change/Maintenance Used Electric Meter	N/A	-	6-7	6-6	0.0	5,409.1	5,409.1	100.0%	0	0	0		NO	YES	NO
32	FZ	Electric Distribution Engineering and Planning	FZA	General Engineering	4-14	4-14	12,246.8	9,101.3	(3,145.5)	-25.7%	0	0	0		NO	NO	NO
33	FZ	Electric Distribution Engineering and Planning	FZB	Voltage Complaints Investigations	4-14	4-14	896.3	331.2	(565.2)	-63.1%	0	0	0		NO	NO	NO
34	FZ	Electric Distribution Engineering and Planning	FZC	Transformer Reports Manage	4-14	4-14	159.6	0.0	(159.6)	-100.0%	0	0	0		NO	NO	NO
35	FZ	Electric Distribution Engineering and Planning	FZD	Field Work Plan	4-14	4-14	398.8	253.3	(145.4)	-36.5%	0	0	0		NO	NO	NO
36	FZ	Electric Distribution Engineering and Planning	FZE	Troublemen Field Work	4-14	4-14	1,613.0	1,420.4	(192.6)	-11.9%	0	0	0		NO	NO	NO
37	GA	Poles – Intrusive Inspection/Test and Treat Program	#	Not assigned	4-8	4-8	(3,966.8)	(4,082.5)	(115.7)	2.9%	0	0	0		NO	NO	NO
38	GA	Poles – Intrusive Inspection/Test and Treat Program	GAA	Intrusive Inspection Program	4-8	4-8	13,818.9	17,848.7	4,029.8	29.2%	268,672	221,491	(47,181)	-17.6%	NO	NO	NO
39	GA	Poles – Intrusive Inspection/Test and Treat Program	GAB	Pole Joint Utilities Maintenance Reimbursement	4-8	4-8	0.0	(230.0)	(230.0)	-100.0%	0	0	0		NO	NO	NO
40	GA	Poles – Intrusive Inspection/Test and Treat Program	GAC	Pole Analyze Loading	4-8	4-8	0.0	52.1	52.1	100.0%	0	0	0		NO	NO	NO
41	GA	Poles – Intrusive Inspection/Test and Treat Program	GAD	Pole Restoration Program	4-8	4-8	3,772.6	3,764.3	(8.3)	-0.2%	4,311	5,336	1,025	23.8%	NO	NO	YES
42	GA	Poles – Intrusive Inspection/Test and Treat Program	GAF	Joint Utilities Telecom Engineer Review Non-reimbursed	4-8	4-8	176.9	23.1	(153.8)	-86.9%	0	0	0		NO	NO	NO
43	GA	Poles – Intrusive Inspection/Test and Treat Program	GAH	Joint Utilities Maintenance Non-reimbursed	4-8	4-8	470.4	302.8	(167.5)	-35.6%	0	0	0		NO	NO	NO
44	GA	Poles – Intrusive Inspection/Test and Treat Program	GAI	Pole Evaluations	4-8	4-8	544.9	0.0	(544.9)	-100.0%	3,587	0	(3,587)	-100.0%	NO	NO	YES
45	GC	Electric Distribution Substations Operate and Maintain Assets	#	Not assigned	4-12	4-12	0.0	0.9	0.9	100.0%	0	0	0		NO	NO	NO

TABLE 3-3
ELECTRIC DISTRIBUTION 2019 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)	Unit Variance Explanation Required (Y/N)
46	GC	Electric Distribution Substations Operate and Maintain Assets	GC1	Electric Distribution Substation: Engineering Maintenance Support	4-12	4-12	4,961.7	5,547.5	585.8	11.8%	0	0	0		NO	NO	NO
47	GC	Electric Distribution Substations Operate and Maintain Assets	GC2	Electric Distribution Substation: Major Emergency Corrective Maintenance	4-12	4-12	2,692.4	16,859.2	14,166.8	526.2%	0	0	0		YES	YES	NO
48	GC	Electric Distribution Substations Operate and Maintain Assets	GCA	Electric Distribution Substation: Transformer Preventive Maintenance	4-12	4-12	819.4	796.4	(23.0)	-2.8%	4,110	4,537	427	10.4%	NO	NO	NO
49	GC	Electric Distribution Substations Operate and Maintain Assets	GCB	Electric Distribution Substation: Circuit Breaker Preventive Maintenance	4-12	4-12	1,096.9	457.3	(639.6)	-58.3%	2,151	1,374	(777)	-36.1%	NO	NO	YES
50	GC	Electric Distribution Substations Operate and Maintain Assets	GCC	Electric Distribution Substation: Relay Preventive Maintenance	4-12	4-12	2,144.1	1,630.8	(513.2)	-23.9%	1,562	1,251	(311)	-19.9%	NO	NO	NO
51	GC	Electric Distribution Substations Operate and Maintain Assets	GCD	Electric Distribution Substation: Inspections	4-12	4-12	2,730.3	2,621.7	(108.6)	-4.0%	8,496	6,867	(1,629)	-19.2%	NO	NO	NO
52	GC	Electric Distribution Substations Operate and Maintain Assets	GCE	Electric Distribution Substation: General Station Preventive Maintenance	4-12	4-12	694.5	431.1	(263.4)	-37.9%	1,083	1,374	291	26.9%	NO	NO	YES
53	GC	Electric Distribution Substations Operate and Maintain Assets	GCF	Electric Distribution Substation: Battery Preventive Maintenance	4-12	4-12	337.0	398.4	61.5	18.2%	716	1,202	486	67.9%	NO	NO	YES
54	GC	Electric Distribution Substations Operate and Maintain Assets	GCG	Electric Distribution Substation: Vegetation Management	4-12	4-12	1,264.9	2,113.5	848.6	67.1%	0	0	0		NO	NO	NO
55	GC	Electric Distribution Substations Operate and Maintain Assets	GCH	Electric Distribution Substation: Building Maintenance	4-12	4-12	404.9	1,369.0	964.1	238.1%	0	0	0		NO	NO	NO
56	GC	Electric Distribution Substations Operate and Maintain Assets	GCI	Electric Distribution Substation: Switch Preventive Maintenance	4-12	4-12	62.3	66.6	4.3	7.0%	84	104	20	23.5%	NO	NO	YES
57	GC	Electric Distribution Substations Operate and Maintain Assets	GCJ	Electric Distribution Substation: Corrective (T80)	4-12	4-12	7,207.3	7,487.3	280.0	3.9%	0	0	0		NO	NO	NO
58	GC	Electric Distribution Substations Operate and Maintain Assets	GCM	Electric Distribution Substation: Circuit Breaker Mechanism Services	4-12	4-12	1,494.2	728.0	(766.2)	-51.3%	829	416	(413)	-49.8%	NO	NO	YES
59	GC	Electric Distribution Substations Operate and Maintain Assets	GCO	Electric Distribution Substation: Transformer Overhaul Inspections	4-12	4-12	1,733.4	740.7	(992.7)	-57.3%	168	72	(96)	-57.2%	NO	NO	YES
60	GC	Electric Distribution Substations Operate and Maintain Assets	GCS	Electric Distribution Substation: Circuit Switcher & Motor-Operated Air Switch (MOAS) Mechanism Services	4-12	4-12	187.5	259.8	72.3	38.6%	92	95	3	3.7%	NO	NO	NO
61	GC	Electric Distribution Substations Operate and Maintain Assets	GCV	Electric Distribution Substation: Circuit Breaker Overhauls	4-12	4-12	165.3	66.5	(98.8)	-59.8%	31	14	(17)	-54.1%	NO	NO	YES
62	GC	Electric Distribution Substations Operate and Maintain Assets	GCW	Electric Distribution Substation: Station Washes	4-12	4-12	0.0	236.8	236.8	100.0%	0	251	251	100.0%	NO	NO	YES
63	GE	Electric Distribution Mapping	#	Not assigned	4-16	4-18	0.0	1.7	1.7	100.0%	0	0	0		NO	NO	NO
64	GE	Electric Distribution Mapping	GEO	Mapping	4-16	4-18	3,323.0	173.8	(3,149.2)	-94.8%	0	0	0		NO	NO	NO
65	GE	Electric Distribution Mapping	GEP	Records Management	4-16	4-18	2,354.5	0.0	(2,354.5)	-100.0%	0	0	0		NO	NO	NO
66	HG	Electric Distribution Operations Technology	N/A	-	4-15	4-5; 4-19	0.0	3,956.9	3,956.9	100.0%	0	0	0		NO	NO	NO

TABLE 3-3
ELECTRIC DISTRIBUTION 2019 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)	Unit Variance Explanation Required (Y/N)
67	HN	Vegetation Management Balancing Account	N/A	-	4-7	4-7	223,172.4	363,266.6	140,094.2	62.8%	0	0	0		YES	YES	NO
68	HX	Electric Operations Automation/Supervisory Control and Data Acquisition (SCADA), Protection Support	N/A	-	4-10	4-10	1,510.5	1,970.8	460.2	30.5%	0	0	0		NO	NO	NO
69	HY	Perform Gas Meter Maintenance	N/A	-	6-7	6-6	0.0	1,156.8	1,156.8	100.0%	0	0	0		NO	NO	NO
70	IF	Electric Distribution Major Emergency	N/A	-	4-4	4-4	56,846.0	120,589.6	63,743.6	112.1%	0	0	0		YES	YES	NO
71	IG	Fire Risk Mitigation Memorandum Account (FRMMA), Wildfire Mitigation Plan Memorandum Account (WMPMA), and Rule 20A Balancing Account Expense	N/A	-	N/A	4-7	0.0	671,899.3	671,899.3	100.0%	0	0	0		YES	YES	NO
72	IS	Streetlight Support	N/A	-	N/A	4-18	0.0	164.8	164.8	100.0%	0	0	0		NO	NO	NO
73	JV	Maintain IT Applications and Infrastructure	N/A	-	4-13; 4-15	4-5; 4-15; 4-19	6,836.8	2,889.5	(3,947.2)	-57.7%	0	0	0		NO	NO	NO
74	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	#	Not assigned	4-6	4-6	171.6	(377.1)	(548.7)	-319.8%	0	0	0		NO	NO	NO
75	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAA	Overhead (OH) General Corrective Maintenance (CM) Tag	4-6	4-6	17,148.8	87,754.0	70,605.2	411.7%	24,423	46,567	22,144	90.7%	YES	YES	YES
76	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAB	Regulators/Reclosers Corrective Maintenance (CM) Tag	4-6	4-6	239.2	0.2	(239.0)	-99.9%	0	0	0		NO	NO	NO
77	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAC	Bird Safe Retrofit	4-6	4-6	1,259.1	801.8	(457.3)	-36.3%	1,732	498	(1,234)	-71.3%	NO	NO	YES
78	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAD	Bird Safe Retrofit Annual	4-6	4-6	704.1	354.4	(349.7)	-49.7%	1,055	260	(795)	-75.4%	NO	NO	YES
79	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAF	Overhead (OH) Critical Operating Equipment (COE) Corrective Maintenance (CM) Tag	4-6	4-6	5,214.6	5,354.0	139.4	2.7%	1,929	1,274	(655)	-33.9%	NO	NO	YES
80	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAH	Streetlight Replace Burnouts	4-6	4-6	3,002.2	1,544.0	(1,458.2)	-48.6%	18,646	8,853	(9,793)	-52.5%	NO	NO	YES
81	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAK	Radio and Television Interference (RTVI) Investigations/Repairs	4-6	4-6	271.1	34.9	(236.2)	-87.1%	365	105	(260)	-71.2%	NO	NO	YES
82	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAL	Capacitor Controllers Replacements	4-6	4-6	0.0	0.1	0.1	100.0%	0	0	0		NO	NO	NO
83	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAM	Insulator Washing	4-6	4-6	255.4	2.5	(252.9)	-99.0%	0	0	0		NO	NO	NO
84	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAO	Idle Facilities Investigations Service Planning	4-6	4-6	219.6	337.2	117.5	53.5%	0	0	0		NO	NO	NO
85	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAP	Overhead (OH) Expense Projects	4-6	4-6	392.5	5,679.5	5,287.1	1347.2%	0	0	0		NO	YES	NO

TABLE 3-3
ELECTRIC DISTRIBUTION 2019 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)	Unit Variance Explanation Required (Y/N)
86	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAQ	Wood Pole Bridge Bonding	4-6	4-6	0.0	2.9	2.9	100.0%	0	0	0		NO	NO	NO
87	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAR	Surge Arrester Grounding	4-6	4-6	20,660.3	(0.4)	(20,660.7)	-100.0%	19,152	0	(19,152)	-100.0%	YES	YES	YES
88	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)	KAS	Field Automation System (FAS) Overhead (OH) Expense	4-6	4-6	1,844.6	1,561.8	(282.8)	-15.3%	10,982	10,670	(312)	-2.8%	NO	NO	NO
89	KB	Preventive Maintenance and Equipment Repair, Underground (UG)	#	Not assigned	4-6	4-6	307.2	0.0	(307.2)	-100.0%	0	0	0		NO	NO	NO
90	KB	Preventive Maintenance and Equipment Repair, Underground (UG)	KBA	Underground (UG) General Corrective Maintenance (CM) Tag	4-6	4-6	14,282.4	15,233.7	951.4	6.7%	7,386	6,031	(1,355)	-18.3%	NO	NO	NO
91	KB	Preventive Maintenance and Equipment Repair, Underground (UG)	KBC	Underground (UG) Critical Operating Equipment (COE) Corrective Maintenance (CM) Tag	4-6	4-6	2,305.7	1,016.7	(1,289.0)	-55.9%	521	145	(376)	-72.2%	NO	NO	YES
92	KB	Preventive Maintenance and Equipment Repair, Underground (UG)	KBD	Nitrogen Cylinders Corrective Maintenance (CM)	4-6	4-6	47.0	31.8	(15.3)	-32.4%	0	0	0		NO	NO	NO
93	KB	Preventive Maintenance and Equipment Repair, Underground (UG)	KBE	Bay Area Rapid Transit (BART) Cable Repair	4-6	4-6	101.6	6.1	(95.6)	-94.0%	0	0	0		NO	NO	NO
94	KB	Preventive Maintenance and Equipment Repair, Underground (UG)	KBP	Underground (UG) Expense Projects	4-6	4-6	292.9	135.6	(157.3)	-53.7%	0	0	0		NO	NO	NO
95	KB	Preventive Maintenance and Equipment Repair, Underground (UG)	KBQ	Elbow/Splices Replace	4-6	4-6	0.0	18.0	18.0	100.0%	0	0	0		NO	NO	NO
96	KC	Preventive Maintenance and Equipment Repair, Network	KCA	Network Equipment Corrective Maintenance Notifications	4-6	4-6	330.3	319.0	(11.3)	-3.4%	242	62	(180)	-74.4%	NO	NO	YES
97	KC	Preventive Maintenance and Equipment Repair, Network	KCB	Network Transformer Oil Replacement & 60Day F/U Notifications	4-6	4-6	34.0	48.0	14.0	41.3%	9	26	17	174.4%	NO	NO	YES
98	KC	Preventive Maintenance and Equipment Repair, Network	KCC	Network Vault Corrective Maintenance Notifications	4-6	4-6	196.2	46.8	(149.4)	-76.1%	83	17	(66)	-79.6%	NO	NO	YES
99	KC	Preventive Maintenance and Equipment Repair, Network	KCD	Network Transformer Preventive Maintenance/Restore Notifications	4-6	4-6	3,120.2	2,395.4	(724.8)	-23.2%	3,771	3,498	(273)	-7.2%	NO	NO	NO
100	KC	Preventive Maintenance and Equipment Repair, Network	KCE	Network Protector Preventive Maintenance Notifications	4-6	4-6	667.7	744.5	76.7	11.5%	408	507	99	24.4%	NO	NO	YES
101	KC	Preventive Maintenance and Equipment Repair, Network	KCF	Fiber Optic/Supervisory Control and Data Acquisition (SCADA) Communications Repair Notifications	4-6	4-6	209.7	960.5	750.8	358.1%	0	0	0		NO	NO	NO

TABLE 3-4
ELECTRIC DISTRIBUTION 2019 CAPITAL 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)	Unit Variance Explanation Required (Y/N)
1	05	Tools & Equipment	N/A	-	4-19	4-18	(16,345.6)	7,532.0	23,877.6	-146.1%	0	0	0		YES	YES	NO
2	06	Electric Distribution Line and Equipment Capacity	#	Line Voltage Regulator Revolving Stock	4-13	4-13	6,592.3	2,431.1	(4,161.3)	-63.1%	0	0	0		NO	NO	NO
3	06	Electric Distribution Line and Equipment Capacity	06A	Feeder Projects Associated with Substation Capacity	4-13	4-13	5,458.7	7,867.3	2,408.6	44.1%	0	0	0		NO	NO	NO
4	06	Electric Distribution Line and Equipment Capacity	06B	Transformer Replace Overloaded	4-13	4-13	2,959.5	644.8	(2,314.7)	-78.2%	211	53	(158)	-74.9%	NO	NO	YES
5	06	Electric Distribution Line and Equipment Capacity	06D	Circuits Reinforce - Distribution Planning (DP) Managed	4-13	4-13	4,587.5	2,202.4	(2,385.0)	-52.0%	0	0	0		NO	NO	NO
6	06	Electric Distribution Line and Equipment Capacity	06E	Circuits Reinforce – Project Services (PS) Managed	4-13	4-13	19,776.7	9,304.8	(10,471.9)	-53.0%	0	0	0		NO	YES	NO
7	06	Electric Distribution Line and Equipment Capacity	06G	Voltage Correct Secondary	4-13	4-13	2,568.1	2,792.4	224.3	8.7%	0	0	0		NO	NO	NO
8	06	Electric Distribution Line and Equipment Capacity	06H	Electric Distribution Line New Business Performance	4-13	4-13	37,348.4	41,066.5	3,718.1	10.0%	0	0	0		NO	NO	NO
9	06	Electric Distribution Line and Equipment Capacity	06I	Electric Distribution Line Operational Capacity Projects	4-13	4-13	0.0	6,778.3	6,778.3	100.0%	0	0	0		NO	NO	NO
10	06	Electric Distribution Line and Equipment Capacity	06K	Power Factor Management	4-13	4-13	0.0	77.2	77.2	100.0%	0	0	0		NO	NO	NO
11	06	Electric Distribution Line and Equipment Capacity	06M	Do Not Use - Cornerstone	4-13	4-13	0.0	3.0	3.0	100.0%	0	0	0		NO	NO	NO
12	06	Electric Distribution Line and Equipment Capacity	06O	SmartGrid Volt Var Optimization (VVO) Distribution Line	4-13	4-13	1,018.5	0.0	(1,018.5)	-100.0%	0	0	0		NO	NO	NO
13	06	Electric Distribution Line and Equipment Capacity	06P	Enable Distributed Generation Electric Distribution Line	4-13	4-13	0.0	276.5	276.5	100.0%	0	0	0		NO	NO	NO
14	07	Electric Distribution Install/Replace Overhead (OH) Poles	#	Not assigned	4-8	4-8	0.0	9,167.3	9,167.3	100.0%	0	0	0		NO	NO	NO
15	07	Electric Distribution Install/Replace Overhead (OH) Poles	07C	Special Criteria Pole Replacement	4-8	4-8	0.0	61.7	61.7	100.0%	0	0	0		NO	NO	NO
16	07	Electric Distribution Install/Replace Overhead (OH) Poles	07D	Pole Replacement	4-8	4-8	76,502.7	346,831.5	270,328.8	353.4%	7,327	14,250	6,923	94.5%	YES	YES	YES
17	07	Electric Distribution Install/Replace Overhead (OH) Poles	07G	Pole Joint Utility Telecommunications Reimbursement	4-8	4-8	0.0	6.0	6.0	100.0%	0	0	0		NO	NO	NO
18	07	Electric Distribution Install/Replace Overhead (OH) Poles	07L	Steel Lattice Structures	4-8	4-8	0.0	468.8	468.8	100.0%	0	1	1	100.0%	NO	NO	YES
19	07	Electric Distribution Install/Replace Overhead (OH) Poles	07O	Overloaded Pole Replacements	4-8	4-8	0.0	4,547.5	4,547.5	100.0%	0	180	180	100.0%	NO	NO	YES
20	08	Electric Distribution Reliability Base - Overhead (OH) Asset Replacement	#	Not assigned	4-9	4-9	0.0	(2,932.0)	(2,932.0)	-100.0%	0	0	0		NO	NO	NO
21	08	Electric Distribution Reliability Base - Overhead (OH) Asset Replacement	08F	Do Not Use - Cornerstone	4-9	4-9	0.0	1.4	1.4	100.0%	0	0	0		NO	NO	NO
22	08	Electric Distribution Reliability Base - Overhead (OH) Asset Replacement	08J	Replace Deteriorated Overhead (OH) Conductor	4-9	4-9	32,159.8	9,664.6	(22,495.2)	-69.9%	69	9	(59)	-86.4%	YES	YES	YES

TABLE 3-4
ELECTRIC DISTRIBUTION 2019 CAPITAL 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)	Unit Variance Explanation Required (Y/N)
23	08	Electric Distribution Reliability Base - Overhead (OH) Asset Replacement	08S	Replace Obsolete Overhead (OH) Switches	4-9	4-9	1,198.9	221.5	(977.4)	-81.5%	30	8	(22)	-73.3%	NO	NO	YES
24	08	Electric Distribution Reliability Base - Overhead (OH) Asset Replacement	08W	Wires Down Generated Projects	4-9	4-9	7,176.3	0.0	(7,176.3)	-100.0%	15	0	(15)	-100.0%	NO	NO	YES
25	08	Electric Distribution Reliability Base - Overhead (OH) Asset Replacement	08W	System Hardening: Wildfire Resiliency projects	4-9	4-9	0.0	287,429.3	287,429.3	100.0%	0	114	114	100.0%	YES	YES	YES
26	09	Electric Distribution Automation and Protection	09A	Electric Distribution Line Supervisory Control and Data Acquisition (SCADA) Install/Replace	4-10	4-10	2,575.1	6,643.4	4,068.4	158.0%	0	0	0		NO	NO	NO
27	09	Electric Distribution Automation and Protection	09B	Electric Distribution Substation Supervisory Control and Data Acquisition/Remote Terminal Unit (SCADA/RTU) Replace	4-10	4-10	8,686.8	14,491.5	5,804.7	66.8%	0	0	0		NO	NO	NO
28	09	Electric Distribution Automation and Protection	09D	Electric Distribution Substation Supervisory Control and Data Acquisition/Remote Terminal Unit (SCADA/RTU) Install	4-10	4-10	29,850.9	34,474.4	4,623.4	15.5%	0	0	0		NO	NO	NO
29	09	Electric Distribution Automation and Protection	09E	Electric Distribution Substation Protective Relay Install/Replace	4-10	4-10	1,975.3	1,984.1	8.8	0.4%	0	0	0		NO	NO	NO
30	09	Electric Distribution Automation and Protection	09F	Electric Distribution Substation Supervisory Control and Data Acquisition (SCADA) Emergency Replace	4-10	4-10	218.3	5,522.1	5,303.8	2429.8%	0	0	0		NO	NO	NO
31	17	Electric Distribution Routine Emergency	N/A	-	4-4	4-4	132,050.8	211,989.5	79,938.6	60.5%	0	0	0		YES	YES	NO
32	21	Miscellaneous Capital and Emergency Preparedness & Response (EP&R)	N/A	-	4-3	4-3; 4-18	7,240.6	15,540.8	8,300.2	114.6%	0	0	0		NO	NO	NO
33	23	Implement Real Estate Strategy	N/A	-	4-19	N/A	5,101.6	0.0	(5,101.6)	-100.0%	0	0	0		NO	NO	NO
34	25	Install New Electric Meters	N/A	-	6-7	6-6	0.0	25,224.6	25,224.6	100.0%	0	0	0		YES	YES	NO
35	2A	Electric Distribution Preventive Maintenance, Overhead (OH)	#	Not assigned	4-6	4-6	0.0	(1,875.1)	(1,875.1)	-100.0%	0	0	0		NO	NO	NO
36	2A	Electric Distribution Preventive Maintenance, Overhead (OH)	2AA	Overhead (OH) General Replacement	4-6	4-6	44,713.0	228,142.5	183,429.5	410.2%	9,021	19,255	10,234	113.4%	YES	YES	YES
37	2A	Electric Distribution Preventive Maintenance, Overhead (OH)	2AB	Bird Safe Install/Replacement	4-6	4-6	3,719.0	2,458.0	(1,261.0)	-33.9%	1,292	659	(633)	-49.0%	NO	NO	YES
38	2A	Electric Distribution Preventive Maintenance, Overhead (OH)	2AC	Bird Safe Install/Replacement Annual	4-6	4-6	2,462.7	1,839.8	(622.8)	-25.3%	843	546	(297)	-35.3%	NO	NO	YES
39	2A	Electric Distribution Preventive Maintenance, Overhead (OH)	2AE	Overhead (OH) Critical Operating Equipment (COE) Replacement	4-6	4-6	17,461.6	34,864.7	17,403.1	99.7%	799	1,205	406	50.9%	NO	YES	YES
40	2A	Electric Distribution Preventive Maintenance, Overhead (OH)	2AF	Overhead (OH) Idle Facility Remove	4-6	4-6	3,076.1	10,689.2	7,613.2	247.5%	831	1,605	774	93.2%	NO	NO	YES
41	2A	Electric Distribution Preventive Maintenance, Overhead (OH)	2AG	San Francisco Series Streetlights	4-6	4-6	7,133.2	4,498.1	(2,635.1)	-36.9%	0	0	0		NO	NO	NO

TABLE 3-4
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(THOUSANDS OF DOLLARS)
(CONTINUED)

Line No.	MWC	MWC Name	MAT	MAT Name	2017 GRC Testimony Reference	2020 GRC Testimony Reference	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)	Unit Variance Explanation Required (Y/N)
42	2A	Electric Distribution Preventive Maintenance, Overhead (OH)	2AH	Light Emitting Diode (LED) Streetlights	4-6	4-6	22,864.5	6,738.7	(16,125.8)	-70.5%	50,850	14,001	(36,849)	-72.5%	NO	YES	YES
43	2A	Electric Distribution Preventive Maintenance, Overhead (OH)	2AI	San Francisco Historical Streetlights	4-6	4-6	3,134.0	1,890.0	(1,244.0)	-39.7%	0	0	0		NO	NO	NO
44	2A	Electric Distribution Preventive Maintenance, Overhead (OH)	2AP	Overhead (OH) Capital Projects	4-6	4-6	892.8	10,704.6	9,811.8	1099.0%	0	707	707	100.0%	NO	NO	YES
45	2A	Electric Distribution Preventive Maintenance, Overhead (OH)	2AQ	Ceramic Post Insulators	4-6	4-6	0.0	1,459.0	1,459.0	100.0%	0	0	0		NO	NO	NO
46	2A	Electric Distribution Preventive Maintenance, Overhead (OH)	2AR	Surge Arrester Replacement	4-6	4-6	0.0	21,767.4	21,767.4	100.0%	0	4,611	4,611	100.0%	YES	YES	YES
47	2A	Electric Distribution Preventive Maintenance, Overhead (OH)	2AS	Field Automation System (FAS) Overhead (OH) Capital	4-6	4-6	652.1	607.0	(45.1)	-6.9%	1,892	2,171	279	14.7%	NO	NO	NO
48	2B	Electric Distribution Preventive Maintenance, Underground (UG)	#	Not assigned	4-6	4-6	446.6	(4,427.0)	(4,873.6)	-1091.3%	0	0	0		NO	NO	NO
49	2B	Electric Distribution Preventive Maintenance, Underground (UG)	2BA	Underground (UG) General Replacement	4-6	4-6	32,417.8	57,285.5	24,867.7	76.7%	5,387	2,321	(3,066)	-56.9%	YES	YES	YES
50	2B	Electric Distribution Preventive Maintenance, Underground (UG)	2BB	Fault Indicator Replacements	4-6	4-6	0.0	528.3	528.3	100.0%	0	2,798	2,798	100.0%	NO	NO	YES
51	2B	Electric Distribution Preventive Maintenance, Underground (UG)	2BD	Underground (UG) Critical Operating Equipment (COE) Replacement	4-6	4-6	3,976.7	6,813.6	2,836.9	71.3%	105	90	(15)	-13.9%	NO	NO	NO
52	2B	Electric Distribution Preventive Maintenance, Underground (UG)	2BF	Underground (UG) Idle Facility Remove	4-6	4-6	348.8	469.5	120.7	34.6%	0	36	36	100.0%	NO	NO	YES
53	2B	Electric Distribution Preventive Maintenance, Underground (UG)	2BP	Underground (UG) Capital Projects	4-6	4-6	2,138.0	202.7	(1,935.3)	-90.5%	0	0	0		NO	NO	NO
54	2C	Electric Distribution Preventive Maintenance, Network	#	Not assigned	4-6	4-6	0.0	(1,138.4)	(1,138.4)	-100.0%	0	0	0		NO	NO	NO
55	2C	Electric Distribution Preventive Maintenance, Network	2CA	Network Protector Relay Replacement	4-6	4-6	378.7	60.0	(318.7)	-84.2%	25	6	(19)	-76.3%	NO	NO	YES
56	2C	Electric Distribution Preventive Maintenance, Network	2CB	Fiber/Supervisory Control and Data Acquisition (SCADA) Communication Replace	4-6	4-6	195.6	90.2	(105.4)	-53.9%	0	0	0		NO	NO	NO
57	2C	Electric Distribution Preventive Maintenance, Network	2CC	Network Transformer & Protector Replace	4-6	4-6	5,257.5	6,658.9	1,401.5	26.7%	24	29	5	22.8%	NO	NO	YES
58	2C	Electric Distribution Preventive Maintenance, Network	2CD	Venting Manhole Covers Replacement	4-6	4-6	3,331.8	5,710.8	2,379.0	71.4%	1,265	540	(725)	-57.3%	NO	NO	YES
59	2C	Electric Distribution Preventive Maintenance, Network	2CE	Network Supervisory Control and Data Acquisition (SCADA) Communications Upgrade	4-6	4-6	8,932.4	7,088.5	(1,843.9)	-20.6%	0	0	0		NO	NO	NO
60	2F	Build IT Applications and Infrastructure	#	Not assigned	4-5; 4-9; 4-13; 4-15	4-5; 4-9; 4-15; 4-19	45,061.3	48,038.3	2,977.1	6.6%	0	0	0		NO	NO	NO
61	46	Electric Distribution Substation Capacity	46A	Electric Distribution Substation General Install/Replace	4-13	4-13	0.0	6,915.2	6,915.2	100.0%	0	0	0		NO	NO	NO
62	46	Electric Distribution Substation Capacity	46F	Electric Distribution Substation Emergency and Operational Capacity	4-13	4-9; 4-13	710.4	7,119.5	6,409.1	902.1%	0	0	0		NO	NO	NO

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(THOUSANDS OF DOLLARS)
(CONTINUED)

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63	46	Electric Distribution Substation Capacity	46H	Electric Distribution Substation New Business Related Capacity	4-13	4-13	28,040.1	3,580.0	(24,460.1)	-87.2%	0	0	0		YES	YES	NO
64	46	Electric Distribution Substation Capacity	46N	Electric Distribution Substation Land Purchase New Substation	4-13	4-13	5,695.0	285.2	(5,409.8)	-95.0%	0	0	0		NO	NO	NO
65	46	Electric Distribution Substation Capacity	46T	Electric Distribution Substation Support Transmission or Substation Related Work	4-13	4-13	25,907.8	0.0	(25,907.8)	-100.0%	0	0	0		YES	YES	NO
66	46	Electric Distribution Substation Capacity	46V	SmartGrid Volt Var Optimization (VVO) Distribution Substation	4-13	4-13	555.8	0.0	(555.8)	-100.0%	0	0	0		NO	NO	NO
67	48	Electric Distribution Substation Replace Other Equipment	48A	Replace Electric Distribution Substation Other Equipment	4-12	4-12	3,323.8	12,485.3	9,161.4	275.6%	0	0	0		NO	NO	NO
68	48	Electric Distribution Substation Replace Other Equipment	48B	Replace Electric Distribution Substation Regulators	4-12	4-12	0.0	(86.5)	(86.5)	-100.0%	0	0	0		NO	NO	NO
69	48	Electric Distribution Substation Replace Other Equipment	48C	Replace Electric Distribution Substation Batteries	4-12	4-12	906.2	(70.5)	(976.7)	-107.8%	9	0	(9)	-100.0%	NO	NO	YES
70	48	Electric Distribution Substation Replace Other Equipment	48D	Replace Electric Distribution Substation Breakers	4-12	4-12	6,297.8	6,569.9	272.1	4.3%	0	0	0		NO	NO	NO
71	48	Electric Distribution Substation Replace Other Equipment	48E	Replace Electric Distribution Substation Switches	4-12	4-12	480.6	1,732.7	1,252.0	260.5%	0	0	0		NO	NO	NO
72	48	Electric Distribution Substation Replace Other Equipment	48F	Replace Electric Distribution Substation Switchgear	4-12	4-12	53,707.2	41,314.9	(12,392.2)	-23.1%	0	0	0		NO	YES	NO
73	48	Electric Distribution Substation Replace Other Equipment	48H	Replace Electric Distribution Substation Civil Structures	4-12	4-12	5,499.5	47.6	(5,451.9)	-99.1%	0	0	0		NO	NO	NO
74	48	Electric Distribution Substation Replace Other Equipment	48L	Electric Distribution Line Work Support Substation	4-12	4-12	0.0	15,027.0	15,027.0	100.0%	0	0	0		NO	YES	NO
75	48	Electric Distribution Substation Replace Other Equipment	48N	Electric Distribution Substation Insulators	4-12	4-12	287.6	1,649.8	1,362.2	473.7%	0	0	0		NO	NO	NO
76	48	Electric Distribution Substation Replace Other Equipment	48R	Electric Distribution Substation Reactors	4-12	4-12	0.0	0.1	0.1	100.0%	0	0	0		NO	NO	NO
77	48	Electric Distribution Substation Replace Other Equipment	48X	Electric Distribution Substation Animal Abatement	4-12	4-12	2,215.5	1,306.7	(908.8)	-41.0%	25	5	(20)	-80.2%	NO	NO	YES
78	49	Electric Distribution Circuit/Zone Reliability Program	#	Line Reclosers Revolving Stock	4-9	4-9	9,461.4	9,032.0	(429.4)	-4.5%	367	0	(367)	-100.0%	NO	NO	YES
79	49	Electric Distribution Circuit/Zone Reliability Program	49B	Recloser Control Install/Replace	4-9	4-9	492.1	15.7	(476.4)	-96.8%	26	1	(25)	-96.2%	NO	NO	YES
80	49	Electric Distribution Circuit/Zone Reliability Program	49C	Overhead (OH) Fuses Install/Replace	4-9	4-9	3,519.8	75.5	(3,444.3)	-97.9%	253	4	(249)	-98.4%	NO	NO	YES
81	49	Electric Distribution Circuit/Zone Reliability Program	49D	Overhead (OH) Recloser/Sectionalizers/Switch Install/Replace	4-9	4-9	4,054.3	983.4	(3,070.8)	-75.7%	86	7	(79)	-91.9%	NO	NO	YES
82	49	Electric Distribution Circuit/Zone Reliability Program	49E	General Installations/Replace Circuits/Zone	4-9	4-9	23,404.9	767.9	(22,637.0)	-96.7%	31	0	(31)	-100.0%	YES	YES	YES

TABLE 3-4
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(THOUSANDS OF DOLLARS)
(CONTINUED)

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83	49	Electric Distribution Circuit/Zone Reliability Program	49F	Underground (UG) Fuses Install/Replace	4-9	4-9	2,045.4	231.0	(1,814.4)	-88.7%	9	1	(8)	-89.2%	NO	NO	YES
84	49	Electric Distribution Circuit/Zone Reliability Program	49G	Underground (UG) Recloser/Sectionalizers/Switch Install/Replace	4-9	4-9	969.0	24.0	(945.1)	-97.5%	4	0	(4)	-100.0%	NO	NO	YES
85	49	Electric Distribution Circuit/Zone Reliability Program	49H	Public Safety Power Shutoff (PSPS) Sectionalizer Device Install/Replace	4-9	4-9	0.0	51,193.1	51,193.1	100.0%	0	298	298	100.0%	YES	YES	YES
86	49	Electric Distribution Circuit/Zone Reliability Program	49I	Overhead (OH) Fault Indicators/Line Sensors Install/Replace	4-9	4-9	3,997.1	2,977.8	(1,019.3)	-25.5%	939	333	(606)	-64.5%	NO	NO	YES
87	49	Electric Distribution Circuit/Zone Reliability Program	49M	Resilience Zones	4-9	4-9	0.0	3,320.0	3,320.0	100.0%	8	1	(7)	-87.5%	NO	NO	YES
88	49	Electric Distribution Circuit/Zone Reliability Program	49S	Electric Reliability Install Fault Location, Isolation, and Service (FLISR) Systems	4-9	4-9	20,240.6	4,737.1	(15,503.6)	-76.6%	98	25	(73)	-74.4%	NO	YES	YES
89	49	Electric Distribution Circuit/Zone Reliability Program	49T	Electric Distribution Trip Saver II Cutout Mounted Line Recloser	4-9	4-9	0.0	859.8	859.8	100.0%	0	10	10	100.0%	NO	NO	YES
90	49	Electric Distribution Circuit/Zone Reliability Program	49X	Emerging Electric Distribution Reliability Improvements	4-9	4-9	4,116.2	1,942.9	(2,173.3)	-52.8%	0	0	0		NO	NO	NO
91	54	Electric Distribution Substation Transformer Replacements	54A	Electric Distribution Substation – Replace Transformer	4-12	4-12	38,373.2	39,161.3	788.1	2.1%	0	0	0		NO	NO	NO
92	56	Electric Distribution Underground (UG) Asset Replacements	#	Not assigned	4-11	4-11	0.0	(11,831.4)	(11,831.4)	-100.0%	0	0	0		NO	YES	NO
93	56	Electric Distribution Underground (UG) Asset Replacements	56A	Underground (UG) Cable Other Replace	4-11	4-11	32,067.1	30,135.2	(1,931.9)	-6.0%	27	6	(21)	-77.8%	NO	NO	YES
94	56	Electric Distribution Underground (UG) Asset Replacements	56B	Underground (UG) Cable Rejuvenation and Testing	4-11	4-11	1,939.3	3,074.3	1,135.1	58.5%	0	0	0		NO	NO	NO
95	56	Electric Distribution Underground (UG) Asset Replacements	56C	Underground (UG) Cable Critical Operating Equipment (COE) Replace	4-11	4-11	28,773.5	19,221.4	(9,552.1)	-33.2%	229	82	(147)	-64.2%	NO	NO	YES
96	56	Electric Distribution Underground (UG) Asset Replacements	56D	Transfer Ground Rocker Arm Main/Transfer Ground Rocker Arm Line (TGRAM/TGRAL) Switch Replacement	4-11	4-11	0.0	464.3	464.3	100.0%	0	0	0		NO	NO	NO
97	56	Electric Distribution Underground (UG) Asset Replacements	56N	Network Cable Replacement	4-11	4-11	26,197.0	20,745.7	(5,451.3)	-20.8%	0	0	0		NO	NO	NO
98	56	Electric Distribution Underground (UG) Asset Replacements	56S	Replace Obsolete Underground (UG) Switches	4-11	4-11	7,885.3	1,555.8	(6,329.4)	-80.3%	135	8	(127)	-94.1%	NO	NO	YES
99	56	Electric Distribution Underground (UG) Asset Replacements	56T	Install Temperature Indicator	4-11	4-11	0.0	2,661.0	2,661.0	100.0%	0	0	0		NO	NO	NO
100	58	Electric Distribution Substation Safety and Security	58A	Electric Distribution Substation Safety, Environmental, Fire Protection	4-12	4-12	793.3	6,785.6	5,992.3	755.3%	0	0	0		NO	NO	NO
101	58	Electric Distribution Substation Safety and Security	58B	Replace Electric Distribution Substation Civil Structures	4-12	4-12	0.0	29.4	29.4	100.0%	0	0	0		NO	NO	NO

TABLE 3-4
ELECTRIC DISTRIBUTION 2019 CAPITAL 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	2019 Imputed Adopted Units (C)	2019 Actual Units (D)	2019 Unit Difference (D-C)	2019 Unit Percent Change (%) (D-C)/C	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)	Unit Variance Explanation Required (Y/N)
102	58	Electric Distribution Substation Safety and Security	58C	Replace Distribution Substation Miscellaneous Equipment	4-12	4-12	0.0	459.7	459.7	100.0%	0	0	0		NO	NO	NO
103	58	Electric Distribution Substation Safety and Security	58S	Electric Distribution Substation Security Upgrades	4-12	4-12	1,287.8	1,779.7	491.9	38.2%	0	0	0		NO	NO	NO
104	59	Electric Distribution Substation Emergency Replacements	N/A	-	4-12	4-12	40,917.9	82,125.0	41,207.1	100.7%	0	0	0		YES	YES	NO
105	63	Electric Operations Control Center Facility and Operations Technology	N/A	-	4-5	4-5; 4-19	985.6	13,382.8	12,397.2	1257.8%	0	0	0		NO	YES	NO
106	74	Install New Gas Meters	N/A	-	6-7	6-6	0.0	11,129.7	11,129.7	100.0%	0	0	0		NO	YES	NO
107	95	Electric Distribution Major Emergency	#	Not assigned	4-4	4-4; 4-7; 4-18	50,767.6	72,594.5	21,826.9	43.0%	0	0	0		YES	YES	NO

D. 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, and several smaller projects such as the Electric Magnetic Fields (EMF) Program. In addition, MWC AB captures standard cost variance of multiple electric distribution workgroups in Electric Operations and a forecast offset for productivity improvements. This MWC also includes costs for PG&E's Emergency Preparedness and Response (EP&R) organization, recorded in MAT code AB6. This program relates to safety, reliability, or maintenance because the initiatives are for emergency preparedness for all employees. Employees are trained to respond to the Emergency Operations Center (EOC) activations during emergencies, and specifically how to perform their function within the Incident Command Structure organization. These activities are for the purpose of responding to emergencies in safe manner and timely restoring customer service to minimize reliability impacts. In addition, this MWC includes Public Awareness Outreach, and the Advanced Technology Services (ATS) organization responsible for equipment testing and calibration and coordinating the EMF Program.

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. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

MWC BA – Electric Distribution Operation Activities – Includes electric 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 customer services 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. This program relates to safety, reliability, or maintenance because the costs are incurred for

timely response and restoration during emergencies and power outages and to develop and execute switching to reduce customer impacts from planned work.

MWC BC – Perform Reimbursable Work for Others – Includes costs and the reimbursable expenses incurred to provide mutual assistance support to other utilities. This program relates to safety, reliability, or maintenance because the costs are associated with repairing compromised systems to maintain customer reliability.

MWC BF – Electric Operations Patrols/Inspections – Includes patrols and inspections of overhead (OH) and underground (UG) electric distribution facilities per General Order (GO) 165; patrols and inspections of OH facilities in wildfire areas; infrared inspections; testing and inspections of OH and UG line equipment; special patrols and inspections; and other work associated with electric distribution system maintenance. This program relates to safety, reliability, or maintenance because the costs are incurred to proactively identify assets needing repair or replacement and generate corrective work orders for future work planning.

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. This program relates to safety, reliability, or maintenance because the costs are incurred for timely response to and restoration following power outages.

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. This program relates to safety and reliability because of the overhaul/repair and testing of all distribution line equipment. Units which cannot be safely restored are taken out of service and disposed of properly.

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 electric distribution operation dispatchers and schedulers dispatching work to Troublemen in the field.

Beginning in 2018, this work 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. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

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. This program relates to safety, reliability, or maintenance because effective training equips PG&E employees with the skills and experience to provide safe and reliable service.

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. PG&E is required by its approved electric tariff and franchise agreements to perform this work. This program does not relate to safety, reliability, or maintenance because it is customer-driven work.

MWC EW – Electric Operations 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: Managing the electric interconnection process for the California Public Utilities Commission (CPUC or Commission) and Federal Energy Regulatory Commission jurisdictional customer generation projects connected at the electric 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 electric distribution voltage interconnections that are funded via Electric Tariff Rule 21. Pre-parallel

inspections are performed for safe and reliable operation of customer-owned generators paralleled with PG&E's grid.

This program does not relate to safety, reliability, or maintenance because it is customer, or other third-party driven work.

MWC EY – Change/Maintenance Used Electric Meter – Includes activities such as: electric meter preventive maintenance, electric meter Corrective Maintenance (CM), meter programming, meter network maintenance, electric meter accuracy testing, and the associated staff support necessary to effectively perform these activities. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

MWC EZ – Manage Various Customer Care Processes – Includes activities primarily associated with SmartMeter™ Opt-Out Program oversight and supplemental utility meter engineering support. This work moved to the Customer Care organization. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

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: performing diagnostics on data from automated field equipment to support the Distribution Control Centers; investigating secondary voltage complaints that Troublemen cannot resolve on the first visit; and operational field work that electric planning personnel initiate, such as phase balancing and replacing fuses that are projected to be overloaded. This program relates to safety, reliability, or maintenance because it includes the electrical engineering and planning services work necessary for a variety of asset management activities.

MWC GA – Poles – Intrusive Inspection/Test and Treat Program – 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. This program relates to safety, reliability, or

maintenance because the costs are incurred to check if poles are in good condition and prevent premature failure.

MWC GC – **Electric Distribution Substations Operate and Maintain Assets** – Includes operations, preventive maintenance and CM of electric distribution substation assets.

- Preventive maintenance includes: Substation facility and Equipment Inspections (EI); diagnostic testing; overhauls; washing insulators; maintenance of mobile and Capitalized Emergency Material 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.

This program relates to safety, reliability, or maintenance because it targets the operation, preventive and CM of substation equipment and identifies any abnormalities in the equipment's intended function.

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. This program relates to safety, reliability, or maintenance because it enables the accurate collection of records related to field assets. These records are crucial to determine that field assets are safely, and reliably operated and necessary maintenance is performed in a timely fashion.

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 and Integrated Grid Platform (IGP) applications, including the

implementation of an Advanced Distribution Management System (ADMS). This program relates to reliability because it enables advanced outage management applications including instantaneous fault location and automated switching recommendations and relates to safety because it enhances cybersecurity and promotes operator awareness of real-time circuit conditions.

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 electric 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. This program relates to safety and reliability by managing the vegetation adjacent to powerlines to reduce the risk of vegetation contact with the electric distribution equipment.

MWC HX – **Electric Operations Automation/Supervisory Control and Data Acquisition (SCADA), Protection Support** – Includes engineering and technical support for automation and protection equipment. Also includes the service and software costs associated with electric distribution SCADA software. Engineering support consists of three components: (1) Automation Engineering support; (2) Protection Engineering support; and (3) SCADA Specialist support. This program relates to safety, reliability, or maintenance because it includes engineering support for the maintenance and operation of automation and protection equipment.

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. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

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 D.14-08-032. This

program relates to safety, reliability, or maintenance because the costs are incurred for timely response to and restoration from power outages.

MWC IG – Fire Risk Mitigation Memorandum Account (FRMMA), Wildfire Mitigation Plan Memorandum Account (WMPMA), and Rule 20A Balancing Account Expense:

- Fire Risk Mitigation Memorandum Account (FRMMA) – Includes costs incurred for wildfire risk mitigation beginning January 1, 2019. PG&E will determine the incrementality of these amounts to the Company's revenue requirement when it applies for cost recovery.
- Wildfire Mitigation Plan Memorandum Account (WMPMA) – Includes costs beginning June 5, 2019 incurred to implement PG&E's approved Wildfire Mitigation Plan. Costs include expense amounts for activities including operational practices, inspection programs, system hardening, EVM, enhanced situational awareness, Public Safety Power Shutoffs (PSPS), and alternative technologies. PG&E will determine the incrementality of these amounts to the Company's revenue requirement when it applies for cost recovery.
- 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.

This program relates to safety, reliability, or maintenance because the memorandum accounts, excluding Rule 20A, track work to implement safety prevention measures, system reliability risk reductions, and mandated maintenance improvements to address wildfire risk.

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. This program relates to safety, reliability, or maintenance for the successful inventory of streetlights necessary for ongoing maintenance and safe operations.

MWC JV – **Maintain Information Technology (IT) Applications and Infrastructure** – Includes costs for ongoing maintenance, operations and repair for PG&E's IT applications, systems and infrastructure. This program relates to safety, reliability, or maintenance by maintaining the safety, engineering and work management technologies which enable work.

MWC KA – **Preventive Maintenance and Equipment Repair, OH** – Includes repair of OH facilities; repair of OH Critical Operating Equipment (COE); repair of streetlights and group streetlight replacements; repair of OH facilities to address migratory bird requirements; investigation and response to Radio and Television Interference (RTVI) inquiries; washing insulators; investigation of idle facilities; wood pole bridge bonding; and other OH maintenance work. This program relates to safety, reliability, or maintenance because it addresses a non-conformance identified by preventative maintenance programs such as inspections and patrols, as well as internal operational processes (e.g., equipment testing).

MWC KB – **Preventive Maintenance and Equipment Repair, UG** – Includes repair of UG facilities; repair of UG COE; grounding WYE (three-phase star configuration) transformers; and other UG line maintenance work. This program relates to safety, reliability, or maintenance because it addresses a non-conformance identified by preventative maintenance programs such as inspections and patrols, as well as internal operational processes (e.g., equipment testing).

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 (NP), transformer oil sampling; and other miscellaneous network maintenance work. This program relates to safety, reliability, or maintenance because it addresses the maintenance and repair of the equipment necessary and fundamental to maintaining a safe and reliable distribution network system.

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. This program is not directly related to safety, reliability, or maintenance because this MWC represents PG&E operational management staff necessary to direct field execution of work on PG&E assets.

MWC OS – **Operational Support** – Includes labor- and employee-related costs that provide services and support that are unrelated to supervision and management. This program is not directly related to safety, reliability, or maintenance because this MWC represents PG&E operational support staff

necessary to plan and coordinate field execution of work on PG&E assets, develop asset family strategies and standards, and drive necessary process coordination and improvement efforts.

E. New MWC Descriptions – Expense

MWC IU – **Collect Revenue** – Meter activities that are focused on the detection, investigation, and resolution of customer energy theft. This includes the field employees, systems and staff support necessary to effectively perform these activities. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

F. MWC Descriptions – Capital

MWC 05 – **Tools & Equipment** – Includes the costs of miscellaneous tools and equipment, 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 General Rate Case (GRC), this MWC also included PG&E's forecast for an offset for capital- related productivity improvements. Beginning in 2018, this category includes tools and equipment necessary to perform all field metering, meter maintenance, meter repair, and accuracy testing activities. This program relates to safety, reliability, or maintenance because it includes funds for the purchase of necessary tools to be used in the safe execution of work by field personnel.

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 electric 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 electric distribution circuits to redistribute loading. This program relates to safety, reliability, or maintenance because it corrects overloads on distribution equipment, mitigating the risk of equipment failure due to overloads.

MWC 07 – **Electric Distribution Install/Replace OH Poles** – Includes the replacement of poles, 99 percent of which are wood, to support safety and reliability of the electric distribution system. This program relates to safety,

reliability, or maintenance because it actively works to determine whether poles are in good condition and prevents premature failure. This program enhances overall system safety by replacing poles identified as overloaded or nearing the end of their in-service life, prior to premature failure.

MWC 08 – **Electric Distribution Reliability Base – OH Asset Replacement** – Includes rebuilding and reframing OH electric distribution lines (including the installation of covered wire and non-wood electric distribution poles); and performing other reliability and system hardening improvement work such as replacing annealed OH conductors and obsolete switches. This program relates to safety, reliability, or maintenance because it directly funds projects designed to replace overhead equipment and rebuild electric distribution lines in high fire threat districts as part of PG&E's CWSP.

MWC 09 – **Electric Distribution Automation (DA) and Protection** – Covers investments in field automation and protection devices including installing or replacing substation Remote Terminal Units (RTU); installing or replacing SCADA peripherals; installing or replacing automated line equipment; replacing obsolete protection equipment, primarily relays, in electric distribution substations; and replacing automation or protection equipment due to unanticipated failure; and continuing of the Fire Risk Management initiative that allows remote operation of reclose relays on certain circuit breakers and line reclosers to reduce the likelihood of wildland and urban fires. This program relates to safety, reliability, or maintenance because it directly funds projects which support the automation of equipment and electric distribution line devices.

MWC 10 – **Electric Distribution WRO General** – 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. This work is mandated by PG&E's electric tariff and franchise agreements. This program does not relate to safety, reliability, or maintenance because it is third-party driven work.

MWC 16 – **Electric Distribution Customer Connections** – Includes building new UG and OH primary electric distribution systems, and the associated secondary systems and services to both residential and non-residential customers. PG&E is required by its approved electric tariff and

franchise agreements to perform this work. This program does not relate to safety, reliability, or maintenance because it is customer-driven work.

MWC 17 – **Electric Distribution Routine Emergency** – Includes facility replacements in response to OH or UG outages that occur during normal conditions. This program relates to safety, reliability, or maintenance as it relates to timely response to and restoration following to power outages.

MWC 21 – **Miscellaneous Capital and EP&R** – Includes costs to build critical infrastructure required for response to catastrophic emergencies. This includes costs for EOCs, basecamps, facility upgrades, communications and data infrastructure improvements, and natural disaster models. Beginning in 2016, this MWC may include an offset for capital-related productivity improvements and work execution risk. This program relates to safety, reliability, or maintenance because work in this program is critical to effective emergency response and supporting the CWSP Management Office.

MWC 23 – **Implement Real Estate Strategy** – Includes the costs for new buildings, yards, and Applied Technology Services (ATS), including the purchase of land and the purchase and installation of furniture, office equipment, and IT infrastructure, ATS labs, as well as the costs to improve building environmental sustainability, to implement workplace strategy, and to optimize the real estate portfolio. This program relates to safety, reliability, or maintenance because these investments allow employees to work safely in facilities across PG&E's service area.

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. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

MWC 2A – **Electric Distribution Preventive Maintenance (EDPM), OH** – includes replacing deteriorated OH facilities on a planned basis where it is not cost effective to repair those facilities. This work is similar to the work performed in MWC KA, but includes replacing equipment, rather than repair and maintenance. Typical equipment replacements include corroded transformers, deteriorated cross-arms, inoperative line switches, and other OH electric

distribution facilities. Work also includes replacing PG&E owned non-decorative High-Pressure Sodium Vapor streetlights with 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. This program relates to safety, reliability, or maintenance because it addresses non-conformances identified by preventative maintenance programs such as inspections and patrols, as well as internal operational processes (e.g., equipment testing). In addition, the programs in this MWC also addresses certain asset replacements (i.e., San Francisco Regulated Output (RO) Streetlights).

MWC 2B – **EDPM, UG** – Includes replacing deteriorated UG facilities on a planned basis where it is not cost effective to repair those facilities. This work is like the work performed in MWC KB, but includes replacing equipment, rather than repair and maintenance. Typical equipment replacements include corroded transformers, inoperative switches, damaged UG enclosures and other UG electric 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. This program relates to safety, reliability, or maintenance because it addresses non-conformances identified by preventative maintenance programs such as inspections and patrols, as well as internal operational processes (e.g., equipment testing). In addition, the programs in this MWC also address certain asset replacements (i.e., UG equipment).

MWC 2C – **EDPM, Network** – Includes replacing deteriorated network facilities on a planned basis where it is not cost effective to repair those facilities. This work is like the work performed in MWC KC, but includes replacing equipment, rather than repair and maintenance. Typical equipment replacements include corroded transformers, inoperative switches, and other network distribution facilities. Equipment is replaced in kind in most cases; however, upgrades are required where the equipment must meet current operating conditions, technology, and safety standards. Additional work includes safety improvement programs such as High-Rise Building Transformer Replacements, new monitoring system installation and the Manhole Cover Replacement Program. This program relates to safety, reliability, or

maintenance because it addresses the replacement of faulty network equipment identified by the preventative maintenance program in addition to the planned new equipment upgrade which is fundamental to maintaining a safe and reliable distribution network system.

MWC 2F – **Build IT Applications and Infrastructure** – Includes the costs to design, develop and enhance applications, systems and infrastructure technology solutions. This program relates to safety, reliability, or maintenance by developing safety, engineering and work management technologies which enable work.

MWC 30 – **Electric Distribution WRO – Rule 20A** – Conversion of existing OH electric distribution facilities to UG 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 D.17-05-013. This program does not relate to safety, reliability, or maintenance because it is customer driven work.

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. This program relates to safety, reliability, or maintenance because it corrects overloads on substation equipment, mitigating the risk of equipment failure due to overloads.

MWC 48 – **Electric Distribution Substation Replace Other 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. This program relates to safety and reliability because it targets proactive replacement of substation equipment that is crucial to maintaining substation reliability.

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. This program relates to safety, reliability, or maintenance because it directly supports the implementation of targeted capital projects designed to improve electric service reliability and address customer outage complaints.

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 spare transformers for emergency response. This program relates to reliability because it involves the proactive planned replacement of substation transformers in order to improve substation reliability and prevent transformer failures.

MWC 56 – **Electric Distribution UG Asset Replacements** – Includes reliability related replacement of primary electric distribution cables (includes tie-cables), primary and secondary Network Cables, non-emergency related failed primary electric 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 electric distribution cables. Program also includes performing cable rejuvenation (injection) and testing. This program relates to safety, reliability, or maintenance because it addresses assets that have deteriorated and/or are experiencing failures, some of which may pose safety risk to employees and public if they fail.

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). This program relates to safety and reliability because it targets work that prevents potential hazards within the substation.

MWC 59 – **Electric Distribution Substation Emergency Replacements** – 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. This program relates to reliability because it targets the replacement of failed or Just-In-Time (JIT) substation assets.

MWC 63 – **Electric Operations Control Center Facility and Operations Technology** – Covers ongoing capital improvements and enhancements to the consolidated control centers, the Fresno Dispatch Facility, and technology and systems for these facilities, including IGP applications such as the ADMS. This includes operational technology costs to design, develop and enhance applications, system and infrastructure technology solutions. This program relates to reliability because it enables advanced outage management applications including instantaneous fault location and automated switching recommendations and relates to safety because it enhances cybersecurity and promotes operator awareness of real-time circuit conditions.

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. This program relates to safety, reliability, or maintenance because customer usage data must be recorded and delivered to the PG&E billing systems on a reliable and timely basis.

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. These costs are included in the MEBA. This program relates to safety, reliability, or maintenance because the costs are incurred for timely response to and restoration following power outages.

G. MAT Code Descriptions – Expense

MAT AB6 – **EP&R** – Emergency Preparedness and Response expense cost. This program relates to safety, reliability, or maintenance because this work drives the company emergency response plan for customer safety, and timely outage restoration.

MAT BAF – **General Operations** – Distribution Operators manage and control the electric distribution system. Their activities include: monitoring the distribution system; performing system configuration changes, such as switching and circuit reconfiguration; and processing switching applications for work that enables construction to maintain and improve electric distribution system infrastructure. This program relates to safety, reliability, or maintenance because the costs are incurred for timely response and restoration during emergencies and power outages.

MAT BAH – **FLISR Maintenance** – Includes testing, installation and maintenance of the FLISR control systems and services associated with the Distribution Control Center operations and DA. Beginning in 2017, this work was moved to MWC HG. This program relates to safety, reliability, or maintenance because the costs are incurred for timely response and restoration during emergencies and power outages.

MAT BF3 – **UG Bay Area Rapid Transit (BART) Cable Testing/Inspections** – Annual UG inspections/testing of 34.5 kilovolts (kV) BART Cable for compliance with Utility Standard TD-2302S. This program relates to safety, reliability, or maintenance because the costs are incurred to proactively identify underground BART cable assets needing repair or replacement and generates corrective work orders for future work planning.

MAT BF4 – **UG Auto Transfer Switch Testing/Inspections** – Annual UG inspections/testing of individual electronic-component style and microprocessor style Auto-Transfer Switches (ATS) for compliance with Utility Standard TD-2302S. This program relates to safety, reliability, or maintenance because it proactively identifies underground ATS assets needing repair or replacement and generates corrective work orders for future work planning.

MAT BFA – **OH Poles Patrolled** – Visual patrol of OH electric distribution facilities to identify obvious structural problems or hazards for compliance with GO 165 and the 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 electric 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. This program relates to safety, reliability, or maintenance

because it proactively identifies overhead assets needing repair or replacement and generates corrective work orders for future work planning.

MAT BFB – **OH Poles Inspected** – Detailed inspection of OH electric 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 electric distribution under build; electric distribution towers and lattices; streetlights on PG&E solely owned or joint poles; and primary metering. Units measured: Number of poles inspected. This program relates to safety, reliability, or maintenance because it proactively identifies overhead assets needing repair or replacement and generates corrective work orders for future work planning.

MAT BFC – **OH Infrared Inspections** – Infrared inspection of OH electric distribution facilities to identify pending failure of equipment. Work includes contractor-performed reliability work and internal-performed ad hoc requests. This program relates to safety, reliability, or maintenance because it proactively identifies underground assets needing repair or replacement and generates corrective work orders for future work planning.

MAT BFD – **UG Enclosures Patrolled** – Visual patrol of UG electric 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. This program relates to safety, reliability, or maintenance because it proactively identifies underground assets needing repair or replacement and generates corrective work orders for future work planning.

MAT BFE – **UG Infrared Inspections** – Detailed inspection of UG electric 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. This program relates to safety, reliability, or maintenance because it proactively identifies underground assets needing repair or replacement and generates corrective work orders for future work planning.

MAT BFF – **UG Line Equipment Inspected and Tested** – Annual inspections of UG electric 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 ATS Inspections are performed and tracked in MATs BF3 and BF4, respectively. Units measured: Number of UG line equipment inspected and tested. This program relates to safety, reliability, or maintenance because it proactively identifies assets needing repair or replacement and generates corrective work orders for future work planning.

MAT BFG – **OH Line Equipment Inspected and Tested** – Annual inspections/testing of OH, pad-mounted, and UG electric 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. This program relates to safety, reliability, or maintenance because it proactively identifies assets needing repair or replacement and generates corrective work orders for future work planning.

MAT BFH – **CPUC Quality Assurance (QA) Electric Distribution Maintenance Audits** – Support of 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. Support costs for Wildfire Safety Inspection Program (WSIP) are included in this MAT for 2018 and 2019. Other funding in this MAT is related to UG inspection sticker costs required as

part of the UG inspections. This program relates to safety, reliability, or maintenance because it proactively identifies assets needing repair or replacement and generates corrective work orders for future work planning.

MAT BFJ – **OH Patrol Outage Review Team (ORT) Post Outage** – For requested post-outage patrols as an action from an 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. This program relates to safety, reliability, or maintenance because it identifies assets needing repair or replacement and generates corrective work orders for future work planning.

MAT BFL – **Santa Barbara Wildfire Poles Patrolled** – Annual patrols of OH electric 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. This program relates to safety, reliability, or maintenance because the costs are incurred to patrol specific areas within Santa Barbara Wildfire areas, now managed as part of BFA.

MAT BFM – **Urban and Other Wildfire (OWF) Poles Inspected** – Annual inspection of OH electric distribution facilities in the designated Urban and OWF 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. This program relates to safety, reliability, or maintenance because the costs are incurred to inspect specific areas within historical wildfire areas, now managed as part of BFB.

MAT BFO – **Santa Barbara Wildfire Poles Inspected** - Annual inspections of OH electric 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 inspected. This program relates to safety, reliability, or maintenance because the costs were incurred for inspecting specific areas within Santa Barbara Wildfire areas, now managed as part of BFB.

MAT BKA – **Line Equipment Overhauls (Emeryville)** – For Emeryville's use only of scheduled transformer repair. Units measured: Number of equipment overhauls. This program relates to safety, reliability, or maintenance

because of the overhaul, repair, and testing of all distribution line equipment at the Emeryville Repair facility.

MAT BKJ – **Line Equipment Overhauls (Division Up/Down Labor) (Emeryville) -** For Emeryville's use only of scheduled equipment overhauls. Overhaul of electrical distribution equipment: regulators, auto boosters, and reclosers. Units measured: Number of equipment overhauls. This program relates to safety, reliability, or maintenance because of the overhaul, repair, and testing of all distribution line equipment at the Emeryville Repair facility.

MAT BKK – **Equipment Warranty Repair (Emeryville)** – For Emeryville's use only of scheduled equipment warranty repairs. This program relates to safety, reliability, or maintenance because the equipment is repaired or replaced under the manufacturer's warranty period, at the Emeryville Repair facility.

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. This program relates to safety, reliability, or maintenance as the costs are incurred for timely response, repair, and service per customer requests.

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. This program relates to safety, reliability, or maintenance because electric service is either established or terminated based on customer request.

MAT DDH – **Electric Trouble 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. This program relates to safety, reliability, or maintenance because the costs are incurred for timely response, repair, and service per customer requests.

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. This program relates to safety, reliability, or maintenance because the costs are incurred for timely response, repair, and service per customer requests.

MAT FZA – **General Engineering** – Work primarily covers electric distribution engineering and planning services labor, which includes wires down investigations. This program relates to safety, reliability, or maintenance because it directly provides funding to support the electrical engineering work necessary to create the various capital and expense related improvement projects.

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. This program relates to safety, reliability, or maintenance because it directly provides funding to address voltage issues on distribution circuits to support safe and reliable operation of customer equipment.

MAT FZC – **Transformer Reports Manage** – Used for investigating overloaded and idle transformers. This program relates to safety, reliability, or maintenance because it directly provides funding to address overloaded transformers and mitigate risks of equipment failure caused by overloads.

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. This program relates to safety, reliability, or maintenance because it directly provides funding to support the field work necessary to solve overload and imbalance issues, thereby mitigating equipment failure caused by overloads and outages caused by load imbalance.

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. This program relates to safety, reliability, or maintenance because it directly provides funding to support the field work necessary to resolve voltage issues and provide proper device protection for reliability.

MAT GAA – **Intrusive Inspection Program** - Intrusive testing and treatment of wood poles. Compliance inspection program for GO 95 and GO 165. Units measured: Number of inspections. This program relates to safety, reliability, or maintenance because the costs are incurred to determine that poles are in good condition and prevents premature failure. In addition, this program satisfies the safety and maintenance requirements of the GOs.

MAT GAB – **Pole Joint Utilities Maintenance Reimbursement** – Engineer review of pole attachment requests submitted by third party utilities. Units Measured: Number of poles. This program relates to safety, reliability, or maintenance because it actively works to determine that poles are in good condition and prevents premature failure. In addition, this program satisfies the safety requirements by ensuring poles meet the strength and loading requirements of GO 95.

MAT GAC – **Pole Analyze Loading** – Engineer review and analysis of distribution wood pole loading for an overload condition. If the pole is determined to not be overloaded, then assessment and analysis remains in MAT GAC. However, if the pole is determined to be overloaded, then the MAT changes to 07O to replace the pole. Units Measured: Number of poles. This program relates to safety, reliability, or maintenance because it actively works to determine that poles are in good condition and prevents premature failure. In addition, this program satisfies the safety requirements by ensuring poles meet the strength and loading requirements of GO 95.

MAT GAD – **Pole Restoration Program** – 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. This program relates to safety, reliability, or maintenance because the costs are incurred to determine that poles are in good condition and prevent premature failure. In addition, this

program satisfies the safety and maintenance requirements of the GOs 95 and 165.

MAT GAF – **Joint Utilities Telecom Engineer Review Non-reimbursed** – Telecommunications engineer pole attachment request review for jointly owned wood poles. Units Measured: Number of poles. This program relates to safety, reliability, or maintenance because it actively works to determine that poles are in good condition and prevents premature failure. In addition, this program satisfies the safety requirements by ensuring poles meet the strength and loading requirements of GO 95.

MAT GAH – **Joint Utilities Maintenance Non-reimbursed** – Includes PG&E's membership share of the operating costs and participation in the Northern California Joint Pole Association and the Joint Pole Database maintenance costs for continued operation. This program relates to safety, reliability, or maintenance because the costs are incurred to determine that poles are in good condition and prevents premature failure. In addition, this program enables communication with other utilities, to determine that poles meet the safety, strength and loading requirements of GO 95.

MAT GAI – **Pole Evaluations** – Pole evaluation program to better prioritize pole replacement and reinforcement work. Beginning in 2019, this MAT was no longer used because of implementation of a process change utilizing pole strength software in the test and treat program, MWC GA, which eliminated the need to evaluate poles as previously performed. Units measured: Number of evaluations. This program relates to safety, reliability, or maintenance because the costs are incurred to determine that poles are in good condition and prevent premature failure.

MAT GC1 – **Electric Distribution Substation**: **Engineering Maintenance Support** – Distribution substation costs in engineering and other maintenance support. This program relates to safety, reliability, or maintenance because it includes substation support activities for the maintenance and operation of substation equipment.

MAT GC2 – **Electric Distribution Substation**: **Major Emergency Corrective Maintenance** – Distribution substation costs from major emergencies and emergent work. This program relates to safety, reliability, or

maintenance because it addresses emergent maintenance work to prevent imminent failures.

MAT GCA – **Electric Distribution Substation**: **Transformer Preventive Maintenance** – Distribution substation costs for transformers, regulators, and Load Tap Changer (LTC) Oil Tests. Units measured: Number of transformers. This program relates to safety, reliability, or maintenance because it monitors transformer condition and identifies any abnormalities that may lead to a potential mis-operation of the transformer.

MAT GCB – **Electric Distribution Substation**: **Circuit Breaker Preventive Maintenance** – Distribution substation costs for breaker exercises. Units measured: Number of circuit breakers. This program relates to safety, reliability, or maintenance because it analyzes the condition of the circuit breaker.

MAT GCC – **Electric Distribution Substation**: **Relay Preventive Maintenance** – Distribution substation costs for relay functional tests. Units measured: Number of substation tests. This program relates to safety, reliability, or maintenance because it inspects the relay schemes and tests the condition of the relay to prevent mis-operation.

MAT GCD – **Electric Distribution Substation**: **Inspections** – Distribution substation costs for recurring station inspection of equipment. Units measured: Number of substation inspections. This program relates to safety, reliability, or maintenance because inspections such as EI, Security Check, Environmental Check, and Load Data Collection are performed within the substation.

MAT GCE – **Electric Distribution Substation**: **General Station Preventive Maintenance** – Distribution substation costs for preventive maintenance tasks on variety of other types of substation equipment. Units measured: Number of tasks. This program relates to safety, reliability, or maintenance because tests are performed on minor substation equipment (e.g., spare transformers, fire system tests, etc.) not specifically captured under other specified maintenance programs to inspect and identify any abnormalities.

MAT GCF – **Electric Distribution Substation**: **Battery Preventive Maintenance** – Distribution substation costs for battery tests. Units measured: Number of batteries. This program relates to safety, reliability, or maintenance because inspections, tests (e.g., resistance and discharge tests) are performed

on batteries to identify any abnormalities and determine the batteries can perform as designed.

MAT GCG – **Electric Distribution Substation**: **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. This program relates to safety, reliability, or maintenance because it involves maintaining vegetation in and around the substation property and pest control.

MAT GCH – **Electric Distribution Substation**: **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. This program relates to safety, reliability, or maintenance because it involves maintaining substation facilities and buildings.

MAT GCI – **Electric Distribution Substation**: **Switch Preventive Maintenance** – Distribution substation costs for switch diagnostic/performance tests. Units measured: Number of switches. This program relates to safety, reliability, or maintenance because diagnostic testing and infrared inspections are performed on switches to identify any abnormal conditions.

MAT GCJ – **Electric Distribution Substation**: **Corrective (T80)** – Distribution substation costs for various substation equipment corrective repair work. This program relates to safety, reliability, or maintenance because it involves the corrective repairs of substation equipment that are identified during inspections or test of substation equipment.

MAT GCM – **Electric Distribution Substation**: **Circuit Breaker Mechanism Services** – Distribution substation costs for breaker mechanism services, including required breaker oil analysis. Units measured: Number of breakers. This program relates to safety, reliability, or maintenance because it involves the mechanism service of the circuit breaker to determine whether it is operating as needed.

MAT GCO – **Electric Distribution Substation**: **Transformer Overhaul Inspections** – Distribution substation costs for transformer/regulator LTC overhaul inspections. Units measured: Number of transformer overhaul

inspections. This program relates to safety, reliability, or maintenance because it involves the overhaul inspection of transformer and regulator LTC to detect deterioration or abnormal conditions.

MAT GCS – **Electric Distribution Substation**: **Circuit Switcher & Motor-Operated Air Switch (MOAS) Mechanism Services** – Distribution substation costs for circuit switcher and MOAS mechanism services. Units measured: Number of services. This program relates to safety, reliability, or maintenance because it involves mechanism service related specifically to the performance of circuit switches and MOAS (e.g., performing open and closing operations manually and/or under remote test conditions).

MAT GCV – **Electric Distribution Substation**: **Circuit Breaker Overhauls** – Distribution substation costs for circuit breaker overhauls. Units measured: Number of circuit breaker overhauls. This program relates to safety, reliability, or maintenance because it involves the circuit breaker overhaul which includes a detailed list of maintenance tasks to determine the circuit breaker is operating as intended.

MAT GCW – **Electric Distribution Substation**: **Station Washes** – Distribution substation costs for station insulator washing. This program relates to safety, reliability, or maintenance because it involves washing insulators to prevent contamination accumulation that may result in a flashover.

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 Enterprise Records and Information Management (ERIM) work described in MAT GEP. This program relates to safety, reliability, or maintenance because the costs are incurred for the accurate collection of records related to field assets. These records are necessary to determine that field assets are safely, and reliably operated and necessary maintenance is performed in a timely fashion.

MAT GEP – **Records Management** – Records and Information Management labor for full-time employees 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 ERIM Program

policies and standards. This program relates to safety, reliability, or maintenance because this work involves a detailed review and validation of Electric field asset data. This information is critical to informing risk-reduction planning activities and safely operating the system on a day-to-day basis.

MAT KAA – **OH General CM Tag** – Repair OH 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. This program relates to safety, reliability, or maintenance because it addresses a non-conformance identified by preventative maintenance programs such as inspections and patrols, as well as internal operational processes.

MAT KAB – Regulators/Reclosers CM Tag – Regulator and recloser equipment repairs. This program relates to safety, reliability, or maintenance because historically regulators and recloser required oil replacement to check proper working condition. Regulator and recloser equipment are no longer being refurbished, and instead being replaced with vacuum technology, so this MAT is no longer in active use

MAT KAC – **Bird Safe Retrofit** – 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. This program relates to safety and reliability by mitigating outages due to bird incidents.

MAT KAD – **Bird Safe Retrofit Annual** – 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. This program relates to safety, reliability, or maintenance due to PG&E's commitment made to USFWS to retrofit poles in raptor concentration zones to mitigate bird related outages.

MAT KAF – **OH COE Corrective Maintenance Tag** – Also includes ordering batteries for work in MAT BFG. Units measured: Number of

notifications. This program relates to safety, reliability, or maintenance because it addresses a non-conformance identified by preventative maintenance programs such as battery and equipment testing, as well as internal operational processes.

MAT KAH – **Streetlight Replace 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 UG failure, the time and material to make the repair is charged to 2BA. Units measured: Number of burnout repairs. This program relates to safety, reliability, or maintenance because it addresses a non-conformance identified by preventative maintenance programs such as Troublemen patrols and customer call-ins.

MAT KAK – **RTVI Investigations/Repairs** – Investigation of RTVI where cause is linked to Company equipment. Units measured: Number of investigations. This program relates to safety because it addresses potential non-conformances identified by customers.

MAT KAM – **Insulator Washing** – Washing pole-mounted insulators. This program relates to safety, reliability, or maintenance because it prevents pole top ignitions.

MAT KAO – **Idle Facilities Investigations Service Planning** – Investigation by Service planning as to whether identified idle facilities have a foreseeable future use. This program relates to safety and maintenance because it identifies whether idle facilities should be removed. If an idle facility is confirmed, the removal work will fall under MAT codes 2AF and 2BF.

MAT KAP – **OH Expense Projects** – Projects for the replacement of OH electric facilities that are not an imminent hazard and have not caused an outage. Includes pre-planned projects such as actuator board replacements. This program relates to safety and reliability because it mitigates the risk of equipment failure from identified Material Problem Reporting, i.e., all material and/or equipment found to have a problem such as defect, failure, or not meeting PG&E requirements.

MAT KAQ – **Wood Pole Bridge Bonding -** Wood Pole Bonding maintenance activity where an existing wood pole supporting both electric transmission and distribution line facilities is retrofitted with grounding protection

to prevent fires which can occur at the location on the pole where the electric distribution cross arm is bolted to the pole. This program relates to safety, reliability, or maintenance because it serves to prevent ignitions.

MAT KAR – **Surge Arrester Grounding** – Prior to 2017, installation of a separate ground for surge arresters installed in the same location as electric 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 2AR. Units measured: Number of surge arresters. This program relates to safety, reliability, or maintenance because the common ground poses a safety risk and does not comply with current regulatory guidance.

MAT KAS – **FAS OH Expense** – FAS OH expense is work that is identified during a field job and completed by a single Troubleman. This program relates to safety, reliability, or maintenance because it addresses a non-conformance identified by preventative maintenance programs such as Troublemen patrols.

MAT KB# – **Not assigned** – 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 UG jobs. This MAT is used for compliance with GAAP (Generally Accepted Accounting Principles) standards and is not directly related to safety, reliability or maintenance.

MAT KBA – **UG General CM Tag** – Repair UG facilities (including UG infrared 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. This program relates to safety, reliability, or maintenance because it addresses a non-conformance identified by preventative maintenance programs such as inspections and patrols, as well as internal operational processes.

MAT KBC – **UG COE Corrective Maintenance Tag** – Repair of UG COE. This program relates to reliability and maintenance because it identifies certain asset life replacements (e.g., UG Cable Testing).

MAT KBD – **Nitrogen Cylinders CM** – Replacement of Nitrogen Cylinders-San Francisco and East Bay division only-annual nitrogen cylinder replacements. This program relates to safety, reliability, and maintenance to maintain sufficient nitrogen levels in cables where leaking naturally occurs.

MAT KBE – **BART Cable Repair** – Repair of 34.5 kV BART Cable issues identified during annual inspections/testing performed under MAT BF3. This program relates to safety, reliability, and maintenance because it checks whether cables are in proper operating condition such as remediating leaks, corrosion, movement of support tracks, gas pressure, etc.

MAT KBP – **UG Expense Projects** –Projects for the replacement of UG electric facilities that are not an imminent hazard and have not caused an outage. This program relates to safety because it addresses WYE (three-phase star configuration) transformer grounding configurations.

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. This program relates to reliability and maintenance because it addresses frequent cable outages to major customers.

MAT KCA – **Network Equipment CM Notifications** – Repairs related to network transformers and NPs. Does not include oil replacement work. Units measured: Number of notifications. This program relates to safety, reliability, or maintenance because it addresses troubles found on the network equipment and repairs made to correct the problems to maintain a safe and reliable distribution network system.

MAT KCB – **Network Transformer Oil Replacement & 60-Day Follow Up Notifications** – Replacement of oil in network primary termination chambers or network ground switches. Includes resample of network transformer oil. Units measured: Number of oil replacements. This program relates to safety, reliability, or maintenance because it addresses the issues identified on the sample oil from laboratory testing. The replacement of the oil at the network transformer chamber is needed to maintain safe operation.

MAT KCC – **Network Vault CM Notifications** – Vault environmental cleanup. Excludes work associated with network transformers and NPs. Units measured: Number of vault cleanups. This program relates to safety, reliability, or maintenance because it addresses any hazardous conditions identified in the

vaults where the network equipment resides. The cleanup is for the safety and health of personnel working inside the vault.

MAT KCD – **Network Transformer Preventive Maintenance/Restore Notifications** – 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. This program relates to safety, reliability, or maintenance because it addresses the maintenance of network transformers for safe and reliable operation.

MAT KCE – **NP Preventive Maintenance Notifications** – Routine maintenance of NPs 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. This program relates to safety, reliability, or maintenance because it addresses the maintenance of NPs for safe and reliable operation.

MAT KCF – **Fiber Optic/SCADA Communications Repair Notifications** – Repair of existing network SCADA and fiber optics systems. Includes communication. This program relates to safety, reliability, or maintenance because it addresses the problems found on the existing network SCADA and fiber optics systems and repairs made to correct the problems as needed for safe and reliable operation.

H. MAT Code Descriptions – Capital

MAT 06# – **Line Voltage Regulator Revolving Stock** – Purchase of Line Voltage Regulator Revolving Stock. This program relates to safety, reliability, or maintenance because it corrects voltage issues on distribution circuits to support safe and reliable operation of customer equipment.

MAT 06A – **Feeder Projects Associated with Substation Capacity** – Includes installation and replacement of UG cable and OH conductor associated with a new substation transformer and feeder. This program relates to safety, reliability, or maintenance because it prevents overloads on substation equipment, mitigating the risk of equipment failure due to overloads.

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. This program relates to safety, reliability, or maintenance by replacing transformers identified as overloaded, thereby mitigating the risk of transformer failure due to overloads.

MAT 06D – **Circuits Reinforce – Distribution Planning (DP) Managed** – Installation of new OH and UG 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 DP. This program relates to safety, reliability, or maintenance by replacing distribution equipment that is either presently overloaded or forecast to be overloaded, mitigating the risk of equipment failure due to overloads.

MAT 06E – **Circuits Reinforce – Project Services (PS) Managed** – Installation of new OH and UG 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 PS. This program relates to safety, reliability, or maintenance by correcting overloads on distribution equipment caused by load growth, mitigating the risk of equipment failure due to overloads.

MAT 06G – **Voltage Correct Secondary** – Includes adding or upgrading: (1) existing transformers; (2) secondary distribution conductors; and/or (3) secondary service wires to comply with the voltage requirements of Electric Rule 2. This program relates to safety, reliability, or maintenance by correcting secondary voltage issues to support safe and reliable operation of customer equipment.

MAT 06H – **Electric Distribution Line New Business Performance** – Includes projects identified to address capacity deficiencies for a specific New Business customer(s) demand increase. This program relates to safety, reliability, or maintenance by correcting overloads on distribution equipment

caused by addition of new customer loads, mitigating the risk of equipment failure due to overloads.

MAT 06I – **Electric Distribution Line Operational Capacity Projects** – Includes OH or UG new facilities or reconductoring of existing facilities with large wire to improve reliability, as well as increase emergency and operational capability of the system. This program relates to safety, reliability, or maintenance because it improves the ability to reconfigure the distribution system, reducing the number of customers impacted by outages and reducing outage restoration times.

MAT 06K – **Power Factor Management** – Includes installing SCADA controls on strategically located electric 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. This program relates to safety, reliability, or maintenance by enabling real-time control over power factor correction equipment, and real-time solving of voltage issues in order to support safe and reliable operation of customer equipment.

MAT 06P – **Enable Distributed Generation Electric Distribution Line** — Includes installing SCADA controls on strategically located electric distribution regulator banks to allow control setting changes remotely for better control of two-way power flow. This program relates to safety, reliability, or maintenance by enabling real-time control over voltage correction equipment, and real-time solving of voltage issues in order to support safe and reliable operation of customer equipment.

MAT 07C – **Special Criteria Pole Replacement** – Replace all wooden center-bore poles in the system. Units measured: Number of poles. This program relates to safety, reliability, or maintenance because it actively works to determine whether poles are in good condition and prevents premature failure. In addition, this program enhances overall system safety by replacing poles identified to be nearing the end of their service life, prior to failure.

MAT 07D – **Pole Replacement** – Replace poles identified as deteriorated/damaged and in need of replacement. Units measured: Number of poles. This program relates to safety, reliability, or maintenance because it actively works to determine whether poles are in good condition and prevents premature failure. In addition, this program enhances overall system safety by

replacing poles identified to be nearing the end of their service life, prior to premature failure.

MAT 07G – **Pole Joint Utility Telecommunications 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 telecommunications cable attachment project manager. Project Manager must obtain tenant approval prior to creation of an 07G order. Units Measured: Number of poles. This program relates to safety, reliability, or maintenance because it actively works to determine whether poles are in good condition and prevents premature failure. In addition, this program enhances overall system safety by replacing poles identified as overloaded, prior to premature failure. The program satisfies the safety requirements by determining poles meet the strength and loading requirements of GO 95.

MAT 07L – **Steel Lattice Structures** – Replacement or repair of steel lattice structures that carry electric 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 structures. This program relates to safety, reliability, or maintenance because it actively works to determine whether structures are in good condition and prevents premature failure. In addition, this program enhances overall system safety by replacing structures identified to be nearing the end of their service life, prior to premature failure.

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. This program relates to safety, reliability, or maintenance because it actively works to determine whether poles are in good condition and prevents premature failure. In addition, this program enhances overall system safety by replacing poles identified as overloaded, prior to premature failure. The program satisfies the safety requirements by ensuring poles meet the strength and loading requirements of GO 95.

MAT 08J – **Replace Deteriorated OH Conductor** – Targeted replacement of primary OH conductor in non-HFTDs deemed deteriorated through processes:

(1) post wire-down investigation, (2) outage review/safety team recommendation, or (3) input from the system risk model. 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. This program relates to safety, reliability, or maintenance because it mitigates the risk of primary OH conductor failure resulting in a potential wire-down event.

MAT 08S – **Replace Obsolete OH Switches** – Replace "grasshopper" OH 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. This program relates to safety, reliability, or maintenance because it replaces obsolete switches that have limited to load-break capabilities.

MAT 08W – Wires Down Generated Projects and System Hardening Wildfire Resiliency Projects – Performing targeted HFTDs site specific primary conductor replacement, secondary conductor replacement, replacement of non-exempt equipment, replacement of OH electric 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. Prior to 2018, this MAT was used for overhead conductor replacements associated with PG&E's wires-down program; this work has been moved to MAT 08J. Units measured: Number of circuit miles. This program relates directly to safety, reliability, and maintenance because the work can be initiated based on: (1) deteriorated conductor identification, (2) fire-risk ignition modeling, (3) bundling of electric corrective tags identified as part of the WSIP, or (4) PSPS mitigation; and is completed in compliance with PG&E's Fire Rebuild Design Guidance for System Hardening.

MAT 09A – **Electric Distribution Line SCADA Install/Replace** – This includes the DA Initiative, installing new RTUs to improve visibility, reliability, and operations, and continuing to upgrade and replace obsolete, deficient, and failed automation and protection equipment. This program relates to safety, reliability, or maintenance because it supports the installation of electric distribution line

equipment to remotely isolate electric lines and quickly de-energize facilities to address urgent safety issues such as wire down events.

MAT 09B – **Electric Distribution Substation SCADA/RTU** Replace – Replace outmoded SCADA/RTU in electric distribution substations to provide visibility and remote controllability to Operations. This program relates to safety, reliability, or maintenance because the work targets replacements of SCADA systems in distribution substations that possess obsolete SCADA and protective relay assets, which, if failed, would jeopardize PG&E's ability to operate the electric facility remotely and properly gather data for system operators.

MAT 09D – **Electric Distribution Substation SCADA/RTU Install** – Install additional SCADA/RTU in electric distribution substations to provide visibility and remote controllability to Operations. This program relates to safety, reliability, or maintenance because SCADA technology provides the ability for remote distribution operators to operate relays and quickly de-energize downed lines and equipment in support of wildfire risk management. In addition, operational improvements are gained through remotely switching substation equipment, obtaining real-time information about the condition of the system, and providing historical data to examine line loading trends, forecast future loading, and perform outage investigations.

MAT 09E – **Electric Distribution Substation Protective Relay Install/Replace** – Install and replace protective relays in electric distribution substations to maintain optimal system protection and reliability. This program relates to safety, reliability, or maintenance because it covers the proactive replacement of aging substation protective relays. These relays serve the purpose of tripping substation circuit breakers when faults are detected, such as in cases of wires down resulting in over-current events protecting from catastrophic failure of power equipment and increase public safety.

MAT 09F – **Electric Distribution Substation SCADA Emergency Replace** – Miscellaneous and emergency replacement projects initiated and funded by System Automation & Protection program. This program relates to safety, reliability, or maintenance because it covers in-service failures of substation SCADA equipment, as well as emergency replacements of equipment whose risk of failure is imminent, which, if failed, would jeopardize PG&E's ability to remotely operate the electric facility safely.

MAT 2AA – **OH General Replacement** – Replace deteriorated OH facilities that are not an imminent hazard and have not caused an outage. Facilities include crossarms, leaking transformers, and conductor. Units measured: Number of notifications. This program relates to safety, reliability, or maintenance because it addresses a non-conformance identified by preventative maintenance programs such as inspections and patrols, as well as internal operational processes.

MAT 2AB – **Bird Safe Install/Replacement** – Capital modifications to bird-safe incident and/or adjacent poles in response to a bird electrocution, per USFWS requirements and Utility Operating Standard S2321. Units measured: Number of notifications. This program relates to safety and reliability by mitigating outages due to bird incidents.

MAT 2AC – Bird Safe Install/Replacement Annual – Capital work performed as part of annual pole retrofit program to prevent bird electrocutions, per USFWS requirements and Utility Operating Standard S2321. Units measured: Number of notifications. This program relates to safety, reliability, or maintenance due to PG&E's commitment made to USFWS to retrofit poles in raptor concentration zones to mitigate bird related outages.

MAT 2AE – **OH COE Replacement** – Replace OH equipment classified as COE. Units measured: Number of notifications. This program relates to safety, reliability, or maintenance because it addresses a non-conformance identified by preventative maintenance programs such as equipment testing, as well as internal operational processes.

MAT 2AF – **OH Idle Facility Remove** – Removal of OH Idle Facilities that have been determined to have no likely foreseeable future use. Units measured: Number of facilities. This program relates to safety and maintenance because it removes equipment no longer in use.

MAT 2AG – **San Francisco Series Streetlights** – Replacement of the 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 is PG&E's system. This program relates to safety and maintenance because it provides illumination for pedestrian and vehicular traffic.

MAT 2AH – **LED Streetlights** – Replacement of PG&E LS-1 non-decorative streetlight with LED fixtures and new photocells. Units measured: Number of streetlights. This program relates to safety and maintenance because it provides illumination for pedestrian and vehicular traffic.

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. This program relates to safety and maintenance because it provides illumination for pedestrian and vehicular traffic.

MAT 2AP – **OH Capital Projects** – Major OH projects, defined as jobs costing more than $100,000 per location. This program relates to safety and maintenance because it includes replacement of non-exempt fuses with exempt equipment types which is a wildfire mitigation.

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. This program relates to safety, reliability, and maintenance because it replaces ceramic post insulators prior to failure.

MAT 2AR – **Surge Arrester Replacement** – Replacement of current (non-exempt) surge arresters with exempt surge arresters to reduce fire risk from electric distribution operations. Non-exempt surge arresters are OH electric distribution equipment that have the potential to expel hot or molten material upon normal operation, leading to an increased risk of wildfire. Units measured: Number of replacements. This program relates to safety and maintenance because it includes replacement of non-exempt surge arresters with exempt equipment types which is a wildfire mitigation in addition to correcting the common grounding which poses a safety risk.

MAT 2AS – **FAS OH Capital** – FAS OH 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. This program relates to safety, reliability, or maintenance because it addresses a non-conformance identified by Troublemen.

MAT 2B# – **Not assigned** - Sand, gravel, spoils and oil-filled equipment used on a variety of UG jobs. This program relates to safety, reliability, or maintenance because this material is used on UG work associated with safety, reliability and maintenance.

MAT 2BA – **UG General Replacement** – Replace deteriorated UG 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. This program relates to safety, reliability, or maintenance because it addresses a non-conformance identified by preventative maintenance programs such as inspections and patrols, as well as internal operational processes.

MAT 2BB – **Fault Indicator Replacements** – Replace deteriorated fault indicators that are not an imminent hazard and have not caused an outage. Units measured: Number of fault indicators. This program relates to reliability because in the event of an outage it helps sectionalize the outage area.

MAT 2BD – **UG COE Replacement** – Replace UG equipment determined COE by the division operators, Maintenance and Construction, and restoration, and validated by Distribution Engineers. Units measured: Number of notifications. This program relates to reliability and maintenance because it identifies certain asset replacements.

MAT 2BF – **UG Idle Facility Remove** – Removal of UG Idle Facilities that have been determined not to have a likely use in the foreseeable future. This program relates to safety and maintenance because it removes equipment no longer in use and therefore will no longer require maintenance.

MAT 2BP – **UG Capital Projects** – Major UG projects, defined as jobs costing more than $100,000 per location. This program relates to safety, reliability, or maintenance because it addresses a non-conformance identified by preventative maintenance programs such as inspections and patrols, as well as internal operational processes.

MAT 2CA – **NP Relay Replacement** – Replacement of individual NP or replacement of NPs as part of planned replacement program. Units measured: Number of replacements. This program relates to safety, reliability, or maintenance because it addresses the replacement of any inoperable NP relays to maintain a safe and reliable distribution network system.

MAT 2CB – **Fiber/SCADA Communication Replace** – Installation of new network monitoring systems for the distribution networks including sensor installation, communications, fiber optic replacement and programming activities. 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). This program relates to safety, reliability, or maintenance because it addresses the replacement of any inoperable existing SCADA system and related components including fiber optics to maintain a safe and reliable distribution network system.

MAT 2CC – **Network Transformer & Protector Replace** – Planned replacement of electric distribution network transformers including deteriorated, oil related or high rise. Units measured: Number of replacements. This program relates to safety, reliability, or maintenance because it addresses the replacement of both network transformer and NP including high rise location to maintain a safe and reliable distribution network system.

MAT 2CD – **Venting Manhole Covers Replacement** – Replacement of existing manhole covers on the electric distribution network and distribution radial systems with venting manhole covers. Units measured: Number of replacements. This program relates to safety, reliability, or maintenance because it addresses public safety in the event of an electrical failure in an underground vault and the possible ejection of the manhole cover.

MAT 2CE – **Network SCADA Communications Upgrade** – Installation of new network SCADA monitoring systems for the electric distribution networks including sensor installation, communications, fiber optic replacement and programming activities. This program relates to safety, reliability, or maintenance because the new safety monitoring system provides information to help prevent in-service failure of the monitored equipment in the distribution network system.

MAT 46A – **Electric Distribution Substation General Install/Replace** – Projects to support general electric distribution substation capacity increases for banks, bus, feeders, or other substation components that do not fall into one of the other MWC 46 MATs. This program relates to safety, reliability, or maintenance because it creates additional substation capacity in order to

prevent overloads on substation equipment, mitigating the risk of equipment failure due to overloads.

MAT 46F – **Electric Distribution Substation Emergency and Operational Capacity** – Projects identified in this MAT increase the electric 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. This program relates to safety, reliability, or maintenance because it improves the ability to reconfigure the distribution system, reducing the number of customers impacted by outages and reducing outage restoration times.

MAT 46H – **Electric Distribution Substation New Business Related Capacity** – These projects are like other projects under MWC 46, however these projects have been identified to address capacity deficiencies for specific New Business customers' demand increase. This program relates to safety, reliability, or maintenance because it creates additional substation capacity in order to serve new customer loads, mitigating the risk of equipment failure due to overloads.

MAT 46N – **Electric Distribution Substation Land Purchase New Substation** – Includes projects to increase area electric distribution substation capacity by siting, permitting, and constructing new substations. This program relates to safety, reliability, or maintenance because it works towards siting a new substation that adds additional substation capacity in order to prevent overloads on substation equipment, mitigating the risk of equipment failure due to overloads.

MAT 46T – **Electric Distribution Substation Support Transmission or Substation Related Work** – Projects identified in this MAT replace or relocate electric distribution substation equipment to support a related Transmission bus reconfiguration or voltage conversion or Substation condition-based replacement projects. This program relates to safety, reliability, or maintenance because it supports work that creates additional transmission capacity in order to mitigate the risk of equipment failure due to overloads. It also supports proactive substation replacement work intended to prevent failures and maintain reliability.

MAT 48A – **Replace Electric Distribution Substation Other Equipment** – Replace other electric 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. This program relates to safety and reliability because it involves the replacement of various substation equipment (e.g., ancillary equipment, ground grid upgrade, etc.) not specifically captured under other specified programs under MWC 48 to maintain reliability.

MAT 48B – **Replace Electric Distribution Substation Regulators** – Replace regulators that are electric distribution substation assets, mainly electric distribution class (less than 50 kV), single-phase or three-phase. This program relates to reliability because it involves the proactive planned replacement of substation regulators aimed to prevent regulator failures and to maintain reliability.

MAT 48C – **Replace Electric Distribution Substation Batteries** – Replace battery system at electric distribution substation. Units measured: Number of batteries. This program relates to reliability because it targets the replacement of substation batteries to minimize reliability risk due to battery failures.

MAT 48D – **Replace Electric Distribution Substation Breakers** – Replace electric distribution substation circuit breakers. This program relates to reliability because it involves the proactive planned replacement of circuit breakers aimed to prevent failures and maintain reliability.

MAT 48E – **Replace Electric Distribution Substation Switches** – Replace electric distribution substation disconnect switches. This program relates to reliability because it targets the replacement of switches to maintain reliability.

MAT 48F – **Replace Electric Distribution Substation Switchgear** – Replace electric distribution substation switchgear equipment. This program relates to reliability because it targets the replacement of switchgear to improve reliability.

MAT 48H – **Replace Electric Distribution Substation Civil Structures** – Replace civil structures (structures, foundation, etc.) that are electric distribution substation assets. This program relates to safety and reliability because it replaces civil structures to prevent interruption of service and to mitigate safety hazard to personnel.

MAT 48L – **Electric Distribution Line Work Support Substation** – Includes work required on electric distribution lines associated with substation

equipment replacement work. This program relates to reliability because it retrofits distribution lines and associated equipment work in conjunction with distribution work (e.g., cutovers – 4 kV to 12 kV, switchgear and transformer replacement, etc.).

MAT 48N – **Electric Distribution Substation Insulators** – Replacement of electric distribution insulators that have reached end-of-life. This program relates to reliability because it targets the replacement of insulators to minimize equipment damages leading to sustained outages.

MAT 48R – **Electric Distribution Substation Reactors** – Replacement of electric distribution reactors that have reached end-of-life. This program relates to reliability because it replaces reactors to maintain reliability.

MAT 48X – **Electric Distribution Substation Animal Abatement** – Animal abatement program retroactively mitigates substations to prevent animal contacts. Units measured: Number of locations. This program relates to reliability because it involves the abatement of substation assets to prevent equipment damage and customer outages due to animal contacts.

MAT 49# – **Line Reclosers Revolving Stock** – Purchase Line Reclosers Revolving Stock. This program relates to safety, reliability, or maintenance because it provides a centralized inventory of equipment to support various safety and reliability programs such as PG&E's PSPS Program, targeted electric reliability improvements, and distribution line automation.

MAT 49B – **Recloser Control Install/Replace** – 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. This program relates to safety, reliability, or maintenance because it provides replacement electronic recloser controls to improve the functionality of distribution line protective devices.

MAT 49C – **OH Fuses Install/Replace** – Install New OH Fuses to improve reliability. Units measured: Number of fuses. This program relates to safety, reliability, or maintenance because it provides funding to support the installation of devices to quickly de-energize faulted lines and improve electric reliability to customers.

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. This program relates to safety, reliability, or maintenance because it directly funds the installation of electrical equipment designed to isolate faulted lines and improve electric service reliability to customers.

MAT 49E – **General Installations/Replace Circuits/Zone** – 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. This program relates to safety, reliability, or maintenance because it directly funds the installation of various electrical equipment designed to isolate faulted lines, prevent electrical outages, and improve electric service reliability to customers.

MAT 49F – **UG Fuses Install/Replace** – Install or replace UG fuses to improve reliability. Units measured: Number of fuses. This program relates to safety, reliability, or maintenance because it directly funds the installation of various electrical underground equipment designed to isolate faulted lines, limit the scope of electrical outages, and improve electric service reliability to customers.

MAT 49G – **UG Recloser/Sectionalizers/Switch Install/Replace** – Install or replace UG interrupters to improve reliability. Units measured: Number of devices. This program relates to safety, reliability, or maintenance because it directly funds the installation of various electrical underground equipment designed to isolate faulted lines, limit the scope of electrical outages, and improve electric service reliability to customers.

MAT 49H – **PSPS Sectionalizer Device Install/Replace** – Install or replace UG fault indicators to improve reliability. Units measured: Number of indicators. This program relates to safety, reliability, or maintenance because it directly funds the installation of automated electrical equipment designed to isolate faulted lines, limit line reclosing, and facilitate the remote opening and closing of switches necessary efficiently implement PSPS.

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

Number of devices. This program relates to safety, reliability, or maintenance because it provides funding to support the installation of devices which assist with quickly identifying faulted lines leading to improved electric reliability to customers.

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 electric 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. This program relates to safety and reliability because it improves public safety through wildfire prevention, limits the number of customers impacted by PSPS outage events, and reduces the unplanned outage frequency and duration.

MAT 49S – **Electric Reliability Install 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. This program relates to safety, reliability, or maintenance because it directly funds the installation of various electrical equipment designed to isolate faulted lines, limit the scope of electrical outages, and improve electric service reliability.

MAT 49T – **Electric Distribution Trip Saver II Cutout Mounted Line Recloser** – Install new TripSaver equipment. Units measured: Number of devices. This program relates to safety, reliability, or maintenance because it directly funds the installation of electrical overhead equipment designed to isolate faulted lines, limit the scope of electrical outages, and improve electric service reliability.

MAT 49X – **Emerging Electric Distribution Reliability Improvements** – Emergent Reliability projects focused on addressing localized reliability issues not covered by broad, system-wide reliability programs. This program relates to safety, reliability, or maintenance because it directly funds the installation of various electrical equipment designed to isolate faulted lines, limit the scope of electrical outages, and improve electric service reliability.

MAT 54A – **Electric Distribution Substation – Replace Transformer** – Replace Electric Distribution Substation Transformers to maintain and improve substation reliability. This program relates to reliability, because it involves the proactive planned replacement of substation transformers in order to improve substation reliability and prevent transformer failures.

MAT 56A – **UG Cable Other Replace** – Capital work associated with UG primary cable systems, including replacement of underground cables and associated components. Units measured: Number of miles. This program relates to safety, reliability, or maintenance because it replaces cables in areas that have experienced two or more cable failures within five years. Many of these cables are unjacketed High Molecular Weight Polyethene (HMWPE) or Cross-Linked Polyethylene (XLPE) cables that have been evaluated through cable testing or cable rejuvenation (MAT 56B program) and showed signs of insulation and/or concentric neutral deterioration, some of which had complete neutral breaks.

MAT 56B – **UG Cable Rejuvenation and Testing** – Rejuvenation (injection) of primary UG cables to restore insulation integrity, or partial discharge testing of primary underground cables, for targeted replacement work performed under MAT 56A. This program relates to safety, reliability, or maintenance because it evaluates the condition of HMWPE and XLPE cables in areas that have experienced two or more failures within five years. The program evaluates and identifies sections of cables that have severe insulation and/or concentric neutral deterioration, which are then prioritized for replacement under MAT 56A.

MAT 56C – **UG Cable COE Replace** – Primary UG cable replacement required to address failed primary cable sections noted on the COE list. Units measured: Number of projects. This program relates to safety, reliability, or maintenance because it replaces sections of cables that have failed and are out of operation.

MAT 56D – **TGRAM/TGRAL Switch Replacement** – Replacement of UG TGRAM/TGRAL switches. Units measured: Number of replacements. This program relates to safety because it replaces switches that have been in service since the 1950’s and 1960’s, and for which the insulating oil to make or break load cannot be properly tested and is considered suspect.

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. This program relates to safety, reliability, or maintenance because the network cable system is in an urban where the public is in close proximity to energized equipment. This necessitates a safety driver to minimize in-service failure; a reliability driver to minimize service outages disrupting customer business and life; and a maintenance driver to execute a consistent asset management strategy for the safety and operating performance of the system to balance risk, performance, and cost.

MAT 56S – **Replace Obsolete UG Switches** – Proactive replacement of UG oil-filled switches whose condition warrants replacement in order to avoid potential failures. Units measured: Number of replacements. This program relates to safety because it focuses on the replacement of subsurface switches that have been in service for more than 45 years, and for which the quality of the insulating oil is considered suspect.

MAT 56T – **Install Temperature Indicator** – Install Distribution Temperature Monitor, otherwise known as Temperature Alarm Devices, for Subsurface Distribution Assets (Subsurface Transformers, LBOR Switches and 600 ampere Mainline Switches). This program relates to safety because it installs temperature indicators to safely and proactively replace underground assets, that are continuously running above allowable temperature, or that are exhibiting thermal runaway conditions (very quick temperature rises).

MAT 58A – **Electric Distribution Substation Safety, Environmental, Fire Protection** – Replace or install fire protection in electric distribution substation assets. This program relates to safety and reliability because it involves the installation and/or upgrades of fire suppression systems which minimizes the probability of fire occurrences that could lead to interruption of service and/or property loss.

MAT 58B – **Replace Electric Distribution Substation Civil Structures** – Replace civil structures in electric distribution substation assets. This program relates to safety and reliability because it replaces or retrofits civil structures to prevent safety risk to employees or public, and/or interruption of service.

MAT 58S – **Electric Distribution Substation Security Upgrades** – Replace or install security in electric distribution substation assets. This program relates to safety and reliability because it installs or replaces security systems (physical or technology) to provide safety to employees and prevent vandalism.

I. Variance Explanations – Expense

MWC AB, Support, MAT N/A – Program expenses exceeded imputed adopted amounts due to the addition of costs, such as outside services to support business objectives, federal land authorizations, uncleared Standard Cost Variance, and higher interdepartmental 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. By letter to PG&E dated November 6, 2019, Energy Division provided its review of PG&E's 2018 Risk Spending Accounting Report (RSAR). In this letter Energy Division recommended for MWC AB – " that PG&E explain the differences between testimony and the report." The 2018 recorded costs for this MWC in the 2020 GRC were slightly different than the 2018 recorded costs for this MWC that were included in the 2018 State Agency Relations. As the 2020 GRC includes a forecast for 2019 activities, reconciliation of 2019 recorded costs between the 2020 GRC and 2019 RSAR is not applicable. Energy Division also recommended that "PG&E should provide a description of the "Miscellaneous Expenses" Maintenance Activity Type program along with the other Maintenance Activity Types."[1] In response to this recommendation PG&E has included a description of these miscellaneous expenses in the description for MWC AB in Section D above; MAT code is not applicable for this work.

MWC AR, Read & Investigate Meters, MAT N/A – Program expenses exceeded imputed adopted amounts due to transfer of this program from Customer Care to Electric Distribution in 2018.

MWC BA, MAT BAF, General Operations – Program expenses were below imputed adopted amounts due to organizational change moving costs

[1] Letter from Energy Division "Review of the Pacific Gas and Electric Company 2016 Budget Report and 2017-2018 Spending Accountability Reports," dated November 6, 2019, p. A-5.

related to customer initiated electric turn-on/shut-offs to Customer Field Service Work (MAT DD#).

MWC BF, MAT BFA – OH Poles Patrolled – Program actual units were higher than imputed adopted units due to inspections of padmount units being moved from MAT BFD.

MWC BF, MAT BFB – OH Poles Inspected – Program expenses exceeded imputed adopted amounts due to significant increase in contract labor and costs incurred as a result of enhanced inspections from WSIP. Program actual units were higher than imputed adopted units due to implementation of WSIP enhanced inspections on all Tier 2 and Tier 3 HFTD area assets. WSIP enhanced inspections were not forecast in the 2017 GRC.

MWC BF, MAT BFD – UG Enclosures Patrolled – Program actual units were lower than imputed adopted units due to inspections of pad mount units being moved to MAT BFA.

MWC BF, MAT BFE – UG Infrared Inspections – Program expenses were below imputed adopted amounts due to majority of work being completed by internal resources rather than contract. Program actual units were below imputed adopted units due to moving pad mount inspections to MAT BFB. Additionally, forecast inspections of primary splice boxes and empty enclosures included in the 2017 GRC were not required (New rules beginning January 1, 2018 through 2019).

MWC BF, MAT BFF – UG Line Equipment Inspected and Tested – Program actual units were below imputed adopted units due to including manhole inspections with GO 165 underground inspections which is captured in MAT BFE.

MWC BF, MAT BFH – CPUC Quality Assurance (QA) Electric Distribution Maintenance Audits – Program expenses exceeded imputed adopted amounts due to implementation of WSIP. Support costs for WSIP program were captured in MAT BFH.

MWC BF, MAT BFL – Santa Barbara Wildfire Poles Patrolled – Program actual units were below imputed adopted units due to units captured within MAT BFA.

MWC BF, MAT BFM – Urban and Other Wildfire (OWF) Poles Inspected – Program actual units were below imputed adopted units due to units captured within MAT BFB.

MWC BH – Electric Distribution Routine Emergency, MAT N/A – Program expenditures exceeded imputed values due to higher spending in overall contract and material costs, increased overtime, and work needed to address higher priority tags resulting from the WSIP inspections.

MWC BK, MAT BKA – Line Equipment Overhauls (Emeryville) – Program actual units were lower than imputed adopted units due to shift in work to field repairs and scrapping caused by storm and wildfire recovery activities.

MWC BK, MAT BKJ – Line Equipment Overhauls (Division Up/Down Labor) (Emeryville) – Program actual units were below imputed adopted units due to shift in work to field repairs and scrapping caused by storm and wildfire damage.

MWC DD, MAT # – Customer Field Service Work – Program expenses exceeded imputed adopted amounts due to organizational change moving costs related to customer initiated electric turn-on/shut-offs to Customer Field Service Work (MAT #). Actual includes the realignment of the schedule and dispatch operators that was not part of the imputed amount.

MWC DN – Develop and Provide Training, MAT N/A – Program expenses were below imputed adopted amounts due to movement of training work to the Human Resources organization.

MWC EY – Change/Maintenance Used Electric Meter , MAT N/A – Program expenditures exceeded imputed values due to transfer of the Field Meter Operations from Customer Care to Electric Operations and Gas Operations in 2018. See Section 6.

MWC GA, MAT GAD – Pole Restoration Program – Program actual units exceeded imputed adopted units due to workplan re-prioritization of HFTDs Pole Reinforcements and work carried over from 2018.

MWC GA, MAT GAI – Pole Evaluations – Program actual units were below imputed adopted units due to process change requiring the pole loading evaluation work to be completed as part of the test and treat program, which in turn eliminated the separate evaluation process.

MWC GC, MAT GC2 – Electric Distribution Substation: **Major Emergency Corrective Maintenance** – Program expenses exceeded imputed adopted amounts due to more emergent and complex corrective work than forecast, and cost incurred from enhanced inspection and repair of substation equipment as part of the WSIP.

MWC GC, MAT GCB – Electric Distribution Substation: **Circuit Breaker Preventive Maintenance** – Program actual units were below imputed adopted units due to post-2017 GRC filing breaker maintenance plan adjustments reflecting equipment operations; breaker exercises are not required if a breaker operates in service, confirming its operability.

MWC GC, MAT GCE – Electric Distribution Substation: **General Station Preventive Maintenance** – Program actual units exceeded imputed adopted units due to a change in the way the volume range of hot sticks (a live-line tool) are categorized and accounted for to align with a company-wide process improvement initiative started in 2018.

MWC GC, MAT GCF – Electric Distribution Substation: **Battery Preventive Maintenance** – Program actual units exceeded imputed adopted units due to changes in the station battery maintenance practice plan (e.g., DC undervoltage maintenance plan was added).

MWC GC, MAT GCI – Electric Distribution Substation: **Switch Preventive Maintenance** – Program actual units exceeded imputed units due to accelerating maintenance of majority of switches from future years to align with clearances and other work.

MWC GC, MAT GCM – Electric Distribution Substation: **Circuit Breaker Mechanism Services** – Program actual units were below imputed adopted units due to breaker maintenance plan adjustments that extended the frequency of breaker mechanism service from four to eight years

MWC GC, MAT GCO – Electric Distribution Substation: **Transformer Overhaul Inspections** – Program actual units were below imputed adopted units due to fewer transformer LTCs meeting their overhaul threshold based on capacity history.

MWC GC, MAT GCV – Electric Distribution Substation: **Circuit Breaker Overhauls** – Program actual units were below imputed adopted units due to fewer breakers reaching their overhaul threshold in accumulated critical current.

MWC GC, MAT GCW – Electric Distribution Substation: **Station Washes** – Program actual units exceeded 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.

MWC HN – Vegetation Management Balancing Account, MAT N/A – Program expenses exceeded imputed adopted amounts due to higher than forecast volume of trees requiring work, higher contracting costs, and the increased demand for tree workers due to wildfire risk reduction work being performed statewide.

MWC IF – Electric Distribution Major Emergency, MAT N/A – Program expenditures exceeded the imputed value in 2019 as the result of 2019 storms and wildfire events.

MWC IG – FRMMA, WMPMA, MAT N/A – Program expenses exceeded imputed adopted amounts due to wildfire mitigation work, including enhanced vegetation management, situational awareness initiatives, and PSPS spend of approximately $197 million, which includes Event and Non-Event work. “Event” response work such as ground and air field patrols, de-energization, re-energization, standby time; customer support such as notifications, door knocks, call center operations; community resource centers which allow customers to rest, charge devices, and obtain information on outages; and other spend such as EOC activation, temporary power generation, and IT support. Event response leverages internal crews, contract crews, and Mutual Aid crews when necessary. PSPS spend is mainly driven by the number of PSPS events, which varies each year. PG&E had eight PSPS events in 2019. Recorded amounts include “non-event” programs such as mass media and direct to customer communications to build customer awareness, obtain updated contact information, and drive PSPS readiness by leveraging a variety of channels such as media outlets and print, direct to customer mailings & voice calls, online webinars and regionally based Open Houses, partnering with Community Based Organizations to amplify the preparedness message, particularly to the Access and Functional Needs (AFN) population, and participating in Community Events and AFN targeted conferences.

MWC KA, MAT KAA – OH General CM Tag – Program expenses exceeded imputed adopted amounts due to higher contract use due to higher demand (Tier 2 and Tier 3 HFTD area tag volume) than resources available, and higher volume of maintenance tags resulting from the WSIP inspections. Program actual units were higher than imputed adopted units due to higher volume of Tier 2 and Tier 3 HFTD area maintenance tags that resulted from 2019 WSIP incremental inspections.

MWC KA, MAT KAC – Bird Safe Retrofit – Program actual units were below imputed adopted units due to fewer bird incidents than forecasted.

MWC KA, MAT KAD – Bird Safe Retrofit Annual – Program actual units were below imputed adopted units due to fewer units required due to work completed in other programs that included bird mitigation, such as system hardening, including tree wire projects, and pole replacement in raptor concentration zones.

MWC KA, MAT KAF – OH COE Corrective Maintenance Tag – Program actual units were below imputed adopted units due to prioritization of resources to Tier 2 and Tier 3 HFTD area repairs and replacement work.

MWC KA, MAT KAH – Streetlight Replace Burnouts – Program actual units were below imputed adopted units due to benefits from conversion of streetlights to LEDs.

MWC KA, MAT KAK – RTVI Investigations/Repairs – Program actual units were below imputed adopted units due to few customer complaints than historical volumes.

MWC KA, MAT KAP – OH Expense Projects – Program expenses exceeded imputed adopted amounts due to emergent work related to replacing Line Recloser actuator circuit boards, which were identified in 2019 as a safety issue.

MWC KA, MAT KAR – Surge Arrester Grounding – Program expenses were below imputed adopted amounts due to performing surge arrester grounding work in conjunction with replacement of surge arresters. The combined program is accounted for in MAT 2AR. Program units were below imputed adopted units due to performing surge arrester grounding work in conjunction with replacement of surge arresters. The combined program is accounted for in MAT 2AR.

MWC KB, MAT KBC – UG COE Corrective Maintenance Tag – Program actual units were below imputed adopted units due to prioritization of resources to Tier 2 and Tier 3 HFTD area repairs and replacement work.

MWC KC, MAT KCA – Network Equipment CM Notifications – Program actual units were below imputed adopted units due to a lower overall number of problems discovered with the network equipment in 2019. As both annual maintenance and capital project work continue with network equipment, issues continue to decline and less repairs are needed.

MWC KC, MAT KCB – Network Transformer Oil Replacement & 60-Day Follow Up Notifications – Program actual units exceeded imputed adopted units due to more oil retests and oil replacements at various transformer chambers done in 2019 than the forecast, reflecting that as network transformers age, oil replacement becomes necessary to maintain the transformer.

MWC KC, MAT KCC – Network Vault CM Notifications – Program actual units were below imputed adopted units due to a decline of issues found in the Network vaults. The trend shows that as this program matures, less issues found resulting in fewer vault repairs and cleanups.

MWC KC, MAT KCE – NP Preventive Maintenance Notifications – Program actual units exceeded imputed adopted units due to a higher overall number of NP maintenance and repair completed in 2019 than forecast. The 2019 forecast of imputed adopted units was calculated for four different circuit groups than those scheduled and completed in 2019.

J. Variance Explanations – Capital

MWC 05– Tools & Equipment, MAT N/A – Program expenditures exceeded imputed adopted amounts due to the inclusion of capital efficiencies in MWC 05 in the 2017 GRC filing resulting in a negative imputed value. Any efficiencies achieved would be captured in the areas impacted by the process change and would not materialize in MWC 05. The recorded costs in MWC 05 represent the cost for tools and equipment and federal land authorizations for electric distribution in 2019.

MWC 06, MAT 06B – Transformer Replace Overloaded – Program actual units were below imputed adopted units due to less overhead transformer replacement work due to resource constraints and focus on higher priority work

in other programs such as major emergency, wildfire system hardening within Tier 2 and 3 HFTDs, pole replacement, and overhead maintenance.

MWC 06, MAT 06E – Circuits Reinforce – Project Services (PS) Managed – Program expenditures were below imputed adopted amounts due to resource constraints and focus on higher priority work in other programs such as major emergency, wildfire system hardening within Tier 2 and 3 HFTDs, pole replacement, and overhead maintenance.

MWC 07, MAT 07D – Pole Replacement – Program expenditures exceeded imputed adopted amounts due to workplan re-prioritization of HFTDs pole replacements, higher volume of deteriorated units identified in higher cost divisions, higher cost construction labor, and accelerated pole retirements. Program actual units were higher than imputed adopted units due to workplan re-prioritization of HFTD pole replacements, higher volume of deteriorated poles and accelerated pole retirements.

MWC 07, MAT 07L – Steel Lattice Structures – Program actual units exceeded imputed adopted 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.

MWC 07, MAT 07O – Overloaded Pole Replacements – Program actual units exceeded imputed adopted units due to transfer of Overloaded Pole Replacements from MAT 2AA to new MAT 07O.

MWC 08, MAT 08J – Replace Deteriorated OH Conductor – Program expenditures were below imputed adopted amounts due to resource constraints and focus on higher priority work in other programs such as major emergency, wildfire system hardening within Tier 2 and 3 HFTDs, pole replacements, and overhead maintenance. Program actual units were below imputed adopted units due to resource constraints and focus on higher priority work in other programs such as major emergency, wildfire system hardening within Tier 2 and 3 HFTDs, pole replacements, and overhead maintenance.

MWC 08, MAT 08S – Replace Obsolete OH Switches – Program actual units were below imputed adopted units due to switches replaced under other MAT codes, and units deferred due to prioritization.

MWC 08, MAT 08W – Wires Down Generated Projects – Program expenditures were below imputed adopted amounts due to transfer of program to MAT 08J. Program actual units were below imputed adopted units due to transfer of program to MAT 08J.

MWC 08, MAT 08W –System Hardening: Wildfire Resiliency Projects – Program expenditures exceeded imputed adopted amounts due to a shift in strategy to support wildfire system hardening within Tier 2 and 3 HFTDs following the 2017 wildfires by starting this new program in 2018. Program actual units exceeded imputed adopted units due to a shift in strategy to support wildfire system hardening within Tier 2 and 3 HFTDs following the 2017 wildfires by starting this new program in 2018.

MWC 17 – Electric Distribution Routine Emergency, MAT N/A – Program expenditures exceeded imputed values due to higher spending in overall contract and material costs, increased overtime, and work needed to address high priority tags resulting from the WSIP inspections.

MWC 25 – Install New Electric Meters, MAT N/A – Program expenditures exceeded imputed adopted amounts due to transfer of the Field Meter Operations from Customer Care to Electric Operations and Gas Operations in 2018. See Section 6.

MWC 2A, MAT 2AA – OH General Replacement – Program expenditures exceeded imputed adopted amounts due to higher contract use due to higher demand (Tier 2 and Tier 3 HFTD area tag volume) than resources available. Program actual units exceeded imputed adopted units due to higher volume of Tier 2 and Tier 3 HFTD area tags that resulted from 2019 WSIP incremental inspections.

MWC 2A, MAT 2AB – Bird Safe Install/Replacement – Program actual units were below imputed adopted units due to fewer bird incidents than forecasted.

MWC 2A, MAT 2AC – Bird Safe Install/Replacement Annual – Program actual units were below imputed adopted units due to fewer units required due to work completed in other programs that included bird mitigation, such as system hardening, including tree wire projects, and pole replacement in raptor concentration zones.

MWC 2A, MAT 2AE – OH COE Replacement – Program expenditures exceeded imputed adopted amounts due to higher contract use. Program actual units exceeded imputed adopted units due to 2018 delays as a result of major emergency response that resulted in higher volume required to be completed in 2019.

MWC 2A, MAT 2AF – OH Idle Facility Remove – Program actual units exceeded imputed adopted units due to higher volume of Tier 2 and Tier 3 HFTD area locations that resulted from 2019 WSIP incremental inspections.

MWC 2A, MAT 2AH – LED Streetlights – Program expenditures were below imputed adopted amounts because the majority of LED streetlight retrofits were completed in 2017 and 2018. Additional 2019 spend was for decorative streetlight conversions to LED which were not part of the program forecast in the 2017 GRC. Program actual units were below imputed adopted units for the same reason. Additional 2019 spend was for decorative streetlight conversions to LED which were not part of the program forecast in the 2017 GRC.

MWC 2A, MAT 2AP –OH Capital Projects – Program actual units exceeded imputed adopted units due to replacement of non-exempt fuses in HFTD areas and replacement of non-wood streetlight poles, not included in the 2017 GRC forecast.

MWC 2A, MAT 2AR – Surge Arrester Replacement – Program expenditures exceeded imputed adopted amounts due to change in scope to add replacement of surge arresters with non-exempt equipment in addition to the corrective grounding work forecast in the 2017 GRC. Program actual units were higher than imputed adopted units due to change in scope to add replacement of surge arresters with non-exempt equipment in addition to corrective grounding work.

MWC 2B, MAT 2BA – UG General Replacement – Program expenditures exceeded imputed adopted amounts due to higher use of contracting resources and replacement of primary enclosures which have higher unit costs. Program actual units were below imputed adopted units due to recategorization of fault indicators to MAT 2BB.

MWC 2B, MAT 2BB – Fault Indicator Replacements – Program actual units exceeded imputed adopted units due to recategorization of fault indicators from MAT 2BA.

MWC 2B, MAT 2BF – UG Idle Facility Remove – Program actual units exceeded imputed adopted units due to idle facility removal projects not included in the 2017 GRC forecast. The 2017 GRC forecast did not include a unitized forecast.

MWC 2C, MAT 2CA – NP Relay Replacement – Program actual units were below imputed adopted units due to less NP relays were found malfunctioning in 2019 than the forecast. The relay replacement is condition-based driven, and with many completed SCADA Safety Monitoring and Upgrade capital projects in recent years replacing the legacy mechanical relays, this has resulted an overall improved system reliability and less malfunction relays.

MWC 2C, MAT 2CC – Network Transformer & Protector Replace – Program actual units exceeded imputed adopted units due to more condition-based transformer replacements being completed in 2019 than the forecast. The transformers in need of a replacement were identified through the transformer maintenance program (MAT KCD), i.e., oil samplings and analyses.

MWC 2C, MAT 2CD – Venting Manhole Covers Replacement – Program actual units were below imputed adopted units due to the program moving to locations with non-standard covers which are more complex. A greater majority of the manhole covers replaced in 2019 required excavation and local government agency permits such as the Excavation Permit, Night Noise Permit, and the Special Traffic Permit. The acquisition of these permits delayed construction significantly. Additionally, a typical installation involving civil construction would take about five days to complete instead of a few hours at a standard location without any civil work.

MWC 46, MAT 46H – Electric Distribution Substation New Business Related Capacity – Program expenditures were below imputed adopted amounts due to resource constraints and focus on higher priority work in other programs such as System Hardening and WSIP maintenance tags. There has also been a lower-than-forecast need for drought-related agricultural pumping and a relatively flat growth rate has persisted in many parts of the system.

MWC 46, MAT 46T –Electric Distribution Substation Support Transmission or Substation Related Work– Program expenditures were below imputed adopted amounts due to less than forecast distribution substation

work to support Transmission projects and Substation Condition based replacement projects.

MWC 48, MAT 48C – Replace Electric Distribution Substation Batteries – Program actual units were below imputed adopted units due to the changes in the battery replacement strategy from proactive replacement to a Just-In-Time strategy. The majority of the batteries were installed under emergency work and/or included as part of other major planned projects.

MWC 48, MAT 48F – Replace Electric Distribution Substation Switchgear – Program expenditures were below imputed adopted amounts due to large switchgear projects being rescheduled due to pending execution decisions and resolving vendor delivery issues of switchgear.

MWC 48, MAT 48L – Electric Distribution Line Work Support Substation – Program expenditures exceeded imputed adopted amounts 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 were included in the forecast for other projects in MWC 48.

MWC 48, MAT 48X – Electric Distribution Substation Animal Abatement – Program actual units were below imputed adopted units due to temporary delay of proactive animal abatement projects to support higher priority work such as safety and compliance related work.

MWC 49, MAT # – Line Reclosers Revolving Stock – Program actual units were below imputed adopted units due to resources allocated to higher priority work such as System Hardening, WSIP tags, and PSPS.

MWC 49, MAT 49B – Recloser Control Install/Replace – Program actual units were below imputed adopted units due to resources allocated to higher priority work such as System Hardening, WSIP tags, and PSPS.

MWC 49, MAT 49C – OH Fuses Install/Replace– Program actual units were below imputed adopted units due to resources allocated to higher priority work such as System Hardening, WSIP tags, and PSPS.

MWC 49, MAT 49D – OH Recloser/Sectionalizer/Switch Install/Replace – Program actual units were below imputed adopted units due to the reallocation of resources to higher priority work such as System Hardening, WSIP tags, and PSPS.

MWC 49, MAT 49E –General Installations/Replace Circuits/Zone – Program expenditures were below imputed adopted amounts due to the reallocation of resources to higher priority work such as System Hardening, WSIP tags, and PSPS. Program actual units were below imputed adopted units due to resources allocated to higher priority work such as System Hardening, WSIP tags, and PSPS.

MWC 49, MAT 49F – UG Fuses Install/Replace – Program actual units were below imputed adopted units due to the reallocation of resources to higher priority work such as System Hardening, WSIP tags, and PSPS.

MWC 49, MAT 49G – UG Recloser/Sectionalizer/Switch Install/Replace – Program actual units were below imputed adopted units due to the reallocation of resources to higher priority work such as System Hardening, WSIP tags, and PSPS.

MWC 49, MAT 49H – PSPS Sectionalizer Device Install/Replace – Program expenditures exceeded imputed adopted amounts due to the introduction of the PSPS Granular Sectionalizing program in 2019, which was not included in the 2017 GRC forecast. Program actual units exceeded imputed adopted units for the same reason.

MWC 49, MAT 49I – OH Fault Indicators/Line Sensors Install/Replace – Program actual units were below imputed adopted units due to project re-design to consider additional capabilities of next generation sensors to predict and prevent hazard conditions with a focus in Tier 2 and Tier 3 HFTDs.

MWC 49, MAT 49M – Resilience Zones– Program actual units were below imputed adopted units due to the reallocation of resources to higher priority work such as System Hardening, WSIP tags, and PSPS.

MWC 49, MAT 49S – Electric Reliability Install FLISR Systems – Program expenditures were below imputed adopted amounts due to the reallocation of resources to higher priority work such as System Hardening, WSIP tags, and PSPS. Program actual units were below imputed adopted units due to the reallocation of resources to higher priority work such as System Hardening, WSIP tags, and PSPS.

MWC 49, MAT 49T – Electric Distribution Trip Saver II Cutout Mounted Line Recloser – Program actual units exceeded imputed adopted units due to implementation of new TripSaver program not included in the 2017 GRC.

MWC 56 – Electric Distribution UG Asset Replacements, MAT # – Program expenditures were below imputed adopted amounts due to standard cost variance credit on under clearing of costs.

MWC 56, MAT 56A –UG Cable Other Replace – Program actual units were below imputed adopted units due to the reallocation of resources to higher priority work such as System Hardening, WSIP tags, and PSPS.

MWC 56, MAT 56C – UG COE Replace– Program actual units were below imputed adopted units due to the reallocation of resources to higher priority work such as System Hardening, WSIP tags, and PSPS.

MWC 56, MAT 56S – Replace Obsolete UG Switches – Program actual units were below imputed adopted units due to the reallocation of resources to higher priority work such as System Hardening, WSIP tags, and PSPS.

MWC 59 – Electric Distribution Substation Emergency Replacements, MAT N/A – Program expenditures exceeded imputed adopted amounts due to unanticipated increase in Just-In-Time (JIT) and/or in-service failures at various substations and cost incurred from replacing substation equipment identified though the WSIP.

MWC 63 – Electric Operations Control Center Facility and Operations Technology, MAT N/A – Spending exceeded imputed adopted amounts due to the recategorization of cost associated with control center application upgrades from MWC 2F to MWC 63. A significant portion of these additional costs are related to SCADA replacement and ADMS implementation.

MWC 74 – Install New Gas Meters, MAT N/A – Program expenses exceeded imputed adopted amounts due to transfer of this Customer Care program to Electric Distribution in 2018.

MWC 95 – Electric Distribution Major Emergency, MAT N/A – Program expenditures exceeded the imputed value in 2019 as the result of 2019 storms and wildfire events.

TABLE 3-5
ELECTRIC DISTRIBUTION 2019 UNIT REPORT

Line No.	Description	2019 Actual Units
1	Wood Poles replaced through Pole Replacement and other Company programs	23,837
2	Stand-alone circuit breakers replaced or installed across all Company programs	45
3	Miles of Paper Insulated Lead Cable replaced across all Company programs	9.75
4	Miles of HMWPE cable, respectively, replaced across all Company programs	30.64
5	Miles of HMWPE cable, respectively, rejuvenated across all Company programs	1.49
6	Miles of OH conductor replaced or installed across all Company programs	310.13
7	Grasshopper switches replaced across all Company programs	13
8	FLISR installations in the Reliability Program	25
9	Overhead fuse installations across all Company programs	2,950

TABLE 3-6
ELECTRIC DISTRIBUTION 2019 SURGE ARRESTER PROGRESS REPORT
(THOUSANDS OF NOMINAL DOLLARS)

Line No.	Description	Amount
1	Expense (MAT KAR)	$(432)
2	Capital (MAT 2AR)	$21,767
3	Total Program Spend:	$21,335
4	Units Completed	4,611
5	Locations in PG&E's survey identified as not requiring work:	1,056

By letter dated November 6, 2019 referenced above, Energy Division stated that is was "unable to verify the actual recorded costs for Electric Distribution Maintenance because of the diversion of unspent funds. Staff recommends PG&E improve its explanation by incorporating information about the status of the program and the nature of recorded costs that were carried over."[2] In response to this recommendation, PG&E has included the current status of the

[2] Letter from Energy Division "Review of the Pacific Gas and Electric Company 2016 Budget Report and 2017-2018 Spending Accountability Reports," dated November 6, 2019, p. A-5

Surge Arrester program in Table 3-6, immediately above. PG&E's 2020 GRC testimony, Exhibit (PG&E-4), Chapter 6, provides a description of the evolution of program on pages 6-43 to 6-46, including how the Surge Arrester Grounding expense program described in the 2017 GRC was put on hold in 2015 to address non-compliance with engineering standards, then resumed in late 2016, correcting grounding on approximately 1,400 locations in 2016. In 2017, PG&E discontinued the Surge Arrester Grounding expense program, and began the new Non-Exempt Surge Arrester Replacement Program, which combines the corrective grounding work with the replacement of non-exempt surge arresters. This work is recorded in MAT 2AR. Residual charges for the expense grounding program in MAT KAR in years 2017-2019 reflect the settling of contractor invoices.

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	94,023
2	6-10	106,603
3	11-15	73,756
4	16-20	90,586
5	21-25	139,173
6	26-30	118,401
7	31-35	169,938
8	36-40	154,885
9	41-45	198,814
10	46-50	184,473
11	51-55	146,279
12	56-60	195,528
13	61-65	180,703
14	66-70	167,099
15	71-75	112,156
16	76-80	15,290
17	81-85	9,780
18	86-90	3,803
19	91-95	3,458
20	96-100	231
21	Unavailable	112,134
22	Total	2,277,113

K. 2019 Accelerated Retirement Pole Population

PG&E continued to focus on reducing wildfire drivers and limited the 2019 accelerated retirement population to HFTDs. As per CPUC D.17-12-024 (Fire Safety Rulemaking), assets in Tier 3 and Tier 2 areas are required to be remediated within 6 months and 12 months, respectively, of the inspection date, which accelerates PG&E's remediation timeframe.

In 2019, PG&E initiated the WSIP, which performed detailed inspections on all poles in Tiers 3 and 2 areas. These additional detailed inspections identified

poles to be replaced on an accelerated timeframe to meet the regulation requirements.

PG&E performed the following pole replacements in 2019, compared to the GRC imputed adopted amounts:

TABLE 3-8
2019 POLE REPLACEMENT IMPUTED AMOUNTS VERSUS ACTUAL

Line No.		2019 Imputed Adopted Amounts	2019 Actuals	Percent Increase
1	Units	7,327	14,250	94%
2	Spend	$76.5M	$346.8M	353%

PG&E performed the following pole replacements in 2019 in Tier 3 and 2 areas:

TABLE 3-9
2019 POLE REPLACEMENTS UNITS, TIER 2 AND TIER 3

Line No.		Tier 3	Tier 2	Total
1	Units	1,516	4,611	6,127

The following subset of pole replacements occurred in 2019 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 2019.

TABLE 3-10
2019 ACCELERATED RETIREMENT POLE REPLACEMENTS TIER 2 AND TIER 3

Line No.		Tier 3	Tier 2	Total
1	Units	919	1,216	2,135
2	Spend	$38.7M	$56.3M	$95.0M

Due to the extenuating circumstances and heightened focus on continuing to reduce wildfire risk, PG&E accelerated the retirement of 2,135 pole replacements in 2019, spending $95.0 million.

PACIFIC GAS AND ELECTRIC COMPANY

SECTION 4

ENERGY SUPPLY IMPUTED ADOPTED VS. RECORDED COMPARISON

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ENERGY SUPPLY IMPUTED ADOPTED VS.
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ENERGY SUPPLY IMPUTED ADOPTED VS. RECORDED COMPARISON

A. Introduction

This section includes the following information for the Nuclear Generation and Power Generation portions of the Energy Supply line of business: a comparison of the total 2019 imputed adopted spend vs. the actual spend and for those programs that are related to safety, reliability, or maintenance the Major Work Category (MWC) descriptions, imputed adopted vs. actuals comparison details and variance explanations. The MWC descriptions are consistent with the 2018 Spending Accountability Report. In addition, per Decision (D.) 19-04-020, the MWC descriptions include an explanation of how each program/project relates to safety, reliability, or maintenance.

B. Nuclear Generation Comparison Summary Tables

TABLE 4-1
NUCLEAR GENERATION 2019 EXPENSE COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)
1	Misc Expense	AB	20,563.6	(67.3)	(20,630.9)
2	Manage Environmental Oper	AK	3,082.2	1,861.6	(1,220.7)
3	Manage DCPP Business	BP	12,281.6	11,358.1	(923.5)
4	DCPP Support Services	BQ	41,727.2	52,006.7	10,279.5
5	Operate DCPP Plant	BR	78,386.7	83,475.8	5,089.1
6	Maintain DCPP Plant Assets	BS	125,924.4	135,924.9	10,000.5
7	Nuclear Generation Fees	BT	19,032.3	15,894.0	(3,138.4)
8	Procure DCPP Materials & Svcs	BU	0.0	66.0	66.0
9	Maintain DCPP Plant Configurtn	BV	44,152.8	35,400.6	(8,752.1)
10	Mnge Waste Disp & Transp	CR	118.9	0.0	(118.9)
11	Provide Nuclear Support	EO	193.5	(27.2)	(220.6)
12	Maintain IT Apps & Infra	JV	2,314.4	542.3	(1,772.0)
13	Operational Management	OM	11,703.3	7,539.3	(4,163.9)
14	Operational Support	OS	25,182.5	16,115.4	(9,067.2)
15	Manage Var Bal Acct Processes	IG	10,336.5	8,313.9	(2,022.6)
16	**Total**		**394,999.9**	**368,404.1**	**26,595.8**

TABLE 4-2
NUCLEAR GENERATION 2019 CAPITAL COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)
1	Office Furniture & Equipment	03	219.3	18.0	(201.2)
2	Fleet / Auto Equip	04	795.5	0.0	(795.5)
3	Tools & Equipment	05	1,265.3	2,058.8	793.5
4	Build IT Apps & Infra	2F	13,193.5	6,378.0	(6,815.5)
5	DCPP Capital	20	135,004.8	105,727.7	(29,277.0)
6	Nuclear Safety and Security	3I	12,727.7	690.0	(12,037.7)
7	**Total**		**163,206.1**	**114,872.6**	**(48,333.5)**

C. Nuclear Generation Comparison by MWC Code for Safety, Reliability, and Maintenance Work Tables

TABLE 4-3
NUCLEAR GENERATION 2019 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)
1	AB	Misc Expense	Exhibit (PG&E-5), p. 3-32	Exhibit (PG&E-5), pp. 3-56 to 3-57	20,563.6	(67.3)	(20,630.9)	-100.3%	YES	YES
2	BQ	DCPP Support Services	Exhibit (PG&E-5), pp. 3-34 to 3-35	Exhibit (PG&E-5), pp. 3-59 to 3-60	41,727.2	52,006.7	10,279.5	24.6%	YES	YES
3	BP	Manage DCPP Business	Exhibit (PG&E-5), p. 3-34	Exhibit (PG&E-5), pp. 3-58 to 3-59	12,281.6	11,358.1	(923.5)	-7.5%	NO	NO
4	BR	Operate DCPP Plant	Exhibit (PG&E-5), pp. 3-36 to 3-37	Exhibit (PG&E-5), pp. 3-60 to 3-61	78,386.7	83,475.8	5,089.1	6.5%	NO	NO
5	BS	Maintain DCPP Plant Assets	Exhibit (PG&E-5), pp. 3-37 to 3-39	Exhibit (PG&E-5), pp. 3-62 to 3-64	125,924.4	135,924.9	10,000.5	7.9%	YES	NO
6	BV	Maintain DCPP Plant Configurtn	Exhibit (PG&E-5), p. 3-41	Exhibit (PG&E-5), pp. 3-65 to 3-66	44,152.8	35,400.6	(8,752.1)	-19.8%	NO	NO
7	IG	Manage Var Bal Acct Processes	Exhibit (PG&E-5), pp. 3-42 to 3-43	Exhibit (PG&E-5), pp. 3-68 to 3-70	10,336.5	8,313.9	(2,022.6)	-19.6%	NO	NO

TABLE 4-4
NUCLEAR GENERATION 2019 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)
1	20	DCPP Capital	Exhibit (PG&E-5), pp. 3-29 to 3-31	Exhibit (PG&E-5), pp. 3-49 to 3-56	135,004.8	105,727.7	(29,277.0)	-21.7%	YES	YES
2	3I	Nuclear Safety and Security	Exhibit (PG&E-5), pp. 3-29 to 3-31	Exhibit (PG&E-5), pp. 3-49 to 3-56	12,727.7	690.0	(12,037.7)	-94.6%	NO	YES

D. Nuclear Generation MWC Descriptions – Expense

MWC AB – Support – Includes miscellaneous support cost from both within and outside of Nuclear Generation. Also, used for General Rate Case (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. This MWC relates to safety, reliability, or maintenance because the costs are associated with levelizing the cost of nuclear refueling outages when two outages are forecast to occur in a single year, consistent with keeping the generation facilities reliable.

MWC AK – Manage Environmental Operations – Includes managing the environmental protection programs mandated by federal, state, and local regulations. This MWC is not related to safety, reliability, and/or maintenance.

MWC BP – Manage DCPP Business – Includes: (1) all activities associated with representing Pacific Gas & Electric Company (PG&E) 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. This MWC relates to safety, reliability, or maintenance because the costs are associated with the above programs, consistent with keeping the generation facility safe and reliable.

MWC BQ – DCPP Loss Prevention – Includes support for the management and implementation of the Security, Industrial Safety and Health, Emergency Preparedness and Fire Protection programs. This MWC relates to safety, reliability, or maintenance because the costs are associated with Security, Industrial Safety and Health, Emergency Preparedness and Fire Protection programs, consistent with keeping the generation facility safe.

MWC BR – Operate DCPP 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. This MWC relates to safety, reliability, or maintenance because the costs are associated with the above programs, consistent with keeping the generation facility safe and reliable.

MWC BS – Maintain DCPP Plant Assets – Includes all preventative and corrective maintenance activities for systems, structures, and components at the plant. This MWC relates to safety, reliability, or maintenance because the costs are associated with maintaining generation equipment.

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. This MWC is not related to safety, reliability, and/or maintenance.

MWC BU – Procure DCPP Materials & Services – Includes cost for under/over clearing of material burden. This MWC is not related to safety, reliability, and/or maintenance.

MWC BV – Maintain DCPP Plant Configuration – Includes design engineering, system engineering, component engineering, reactor engineering, in service testing and inspection, reliability engineering, and fire protection engineering. This MWC relates to safety, reliability, or maintenance because the costs are associated with the above programs, consistent with keeping the generation facility safe and reliable.

MWC CR – Manage Waste Disposal and Transportation – Includes cost for disposal and transportation of site hazardous waste. This MWC is not related to safety, reliability, and/or maintenance.

MWC EO – Provide Nuclear Support – Includes cost for plant support provided by PG&E's Corporate Support organizations such as security and communications. This MWC is not related to safety, reliability, and/or maintenance.

MWC IG – Manage Balancing Account Processes – Includes costs subject to the 2-way balancing account established for Nuclear Safety and Security regulatory mandated projects. This MWC relates to safety, reliability, or maintenance because the costs are associated with nuclear safety and security, consistent with keeping the generation facility safe.

MWC JV – Maintain Applications and Infrastructure – Includes costs for ongoing maintenance, operations and repair for PG&E's IT applications, systems and infrastructure. This MWC is not related to safety, reliability, and/or maintenance.

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. This MWC is not related to safety, reliability, and/or maintenance.

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. This MWC is not related to safety, reliability, and/or maintenance.

E. Nuclear Generation MWC Descriptions – Capital

MWC 03 – Office Furniture and Equipment – Includes capital costs to replace office furniture and equipment. This MWC is not related to safety, reliability, and/or maintenance.

MWC 04 – Fleet/Auto Equipment – Includes replacement of station fleet/auto equipment which has been in use longer than their useful life. This MWC is not related to safety, reliability, and/or maintenance.

MWC 05 – Tools and Equipment – Includes replacement of tools and shop equipment. This MWC is not related to safety, reliability, and/or maintenance.

MWC 20 – DCPP 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. This MWC relates to safety, reliability, or maintenance because the costs are associated with the replacement of capital structures, systems and components that no longer can be maintained to safely and reliably operate and protect the plant.

MWC 2F – Build Applications and Infrastructure – Includes the costs to design, develop and enhance applications, systems and infrastructure technology solutions. This MWC is not related to safety, reliability, and/or maintenance.

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

Security regulatory-mandated projects. This MWC relates to safety, reliability, or maintenance because the costs are associated with Nuclear Safety and Security regulatory-mandated projects.

F. Nuclear Generation Variance Explanations – Expense

MWC AB – Misc Expense – Actual expenditures were below imputed adopted 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 incurred in 2019 in MWCs BQ, BR, BS, BV.

MWC BQ – DCPP Support Services – Actual expenditures exceeded imputed adopted values due to the cost of the second refueling outage and regulatory required force-on-force security drill not being included in the 2019 MWC BQ imputed adopted value. In addition, some dry fuel storage security requirements shifted from MWC BR to MWC BQ.

MWC BS – Manage DCPP Business – Actual expenditures exceeded imputed adopted values due to the cost of the second refueling outage not being included in the 2019 MWC BS imputed adopted value.

G. Nuclear Generation Variance Explanations – Capital

MWC 3I – DCPP Capital – Actual expenditures were below imputed adopted values primarily due to planned capital projects no longer required as a result of PG&E's decision to retire Diablo Canyon at the end of its current licenses.

MWC 20 – Nuclear Safety and Security – Actual expenditures were below imputed adopted values primarily due to planned capital projects no longer required as a result of PG&E's decision to retire Diablo Canyon at the end of its current licenses.Power Generation Comparison Summary Tables

TABLE 4-5
POWER GENERATION 2019 EXPENSE COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)
1	Misc Expense (Hydro)	AB	2,309.4	3,142.1	832.7
2	Manage Environmental Oper (Hydro)	AK	1,155.6	586.4	(569.2)
3	Manage Environmental Oper (Fossil)	AK	3,013.9	2,266.0	(747.9)
4	Maint Resv,Dams&Waterways (Hydro)	AX	26,408.6	24,426.2	(1,982.4)
5	Habitat and Species Protection (Hydro)	AY	172.5	130.3	(42.1)
6	Perf Reimburs Wk for Oth (Hydro)	BC	0.0	(163.0)	(163.0)
7	Manage Property & Bldgs (Hydro)	EP	1,545.3	1,094.9	(450.3)
8	Implement Environment Projects (Hydro)	ES	116.9	4.2	(112.7)
9	Manage Var Bal Acct Processes (Hydro)	IG	3,881.0	3,074.2	(806.8)
10	Maintain IT Apps & Infra (Hydro)	JV	2,644.8	573.8	(2,071.0)
11	Maintain IT Apps & Infra (Fossil)	JV	0.0	(5.6)	(5.6)
12	Operate Hydro Generation (Hydro)	KG	40,069.6	30,304.8	(9,764.8)
13	Maint Hydro Generating Equip (Hydro)	KH	26,273.6	21,537.1	(4,736.5)
14	Maint Hydro Bldg,Grnd,Infrast (Hydro)	KI	12,423.7	7,931.9	(4,491.8)
15	License Compliance Hydro Gen (Hydro)	KJ	37,671.8	30,851.4	(6,820.4)
16	Operate Fossil Generation (Fossil)	KK	14,627.9	12,496.6	(2,131.2)
17	Maint Fossil Generating Equip (Fossil)	KL	37,992.7	14,380.9	(23,611.8)
18	Maint Fossil Bldg,Grnd,Infrast (Fossil)	KM	3,096.0	2,397.3	(698.7)
19	Operate Alternative Gen (Fossil)	KQ	673.8	986.1	312.3
20	Maint AltGen Generating Equip (Fossil)	KR	3,174.8	1,404.3	(1,770.5)
21	Maint AltGen Bldg,Grnd,Infrast (Fossil)	KS	691.3	91.9	(599.4)
22	Operational Management (Hydro)	OM	4,969.1	1,631.4	(3,337.7)
23	Operational Management (Fossil)	OM	351.0	242.5	(108.5)
24	Operational Support (Hydro)	OS	2,150.6	3,846.1	1,695.5
25	Operational Support (Fossil)	OS	1,030.5	216.8	(813.7)
26	Corporate Items (Hydro)	ZC	0.0	1,721.5	1,721.5
27	**Total**		**226,444.3**	**165,170.3**	**(61,274.0)**

TABLE 4-6
POWER GENERATION 2019 CAPITAL COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)
1	IT - Desktop Computers	01	0.0	4.7	4.7
2	Office Furniture & Equipment	03	45.1	155.7	110.6
3	Instl/Rpl for AltGen Safty&Reg	03A	27.8	0.0	(27.8)
4	Tools & Equipment	05	317.8	1,411.1	1,093.3
5	Relicensing Hydro Gen	11	703.4	472.3	(231.2)
6	Implement Environment Projects	12	3,713.8	132.7	(3,581.1)
7	Build IT Apps & Infra	2F	18,452.3	2,959.8	(15,492.5)
8	Instl/Rpl for Hydro Safety&Reg	2L	34,894.0	23,818.8	(11,075.2)
9	Instal/Repl Hydro Gneratng Eqp	2M	96,586.1	81,416.9	(15,169.1)
10	Instal/Repl Resv,Dams&Waterway	2N	61,606.3	42,951.1	(18,655.2)
11	Instl/Repl Hydr BldgGrndInfrst	2P	11,756.0	21,890.2	10,134.2
12	Instl/Rpl for Fosil Safety&Reg	2R	2,737.4	29.6	(2,707.8)
13	Instal/Repl Fosil Gneratng Eqp	2S	10,328.5	4,252.1	(6,076.4)
14	Instl/Repl Fosl BldgGrndInfrst	2T	139.6	980.5	840.9
15	Instl/Rpl for AltGen Safty&Reg	3A	27.8	0.0	(27.8)
16	Instal/Repl AltGen GneratngEqp	3B	264.9	236.1	(28.8)
17	Hydroelec Lic & Lic Conditions	3H	24,920.2	19,259.0	(5,661.2)
18	**Total**		**266,521.1**	**199,970.6**	**(66,550.5)**

H. Power Generation Comparison by MWC Code for Safety, Reliability, and Maintenance Work Tables

TABLE 4-7
POWER GENERATION 2019 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	Spending Variance Explanation Required (Y/N)	Unit Variance Explanation Required (Y/N)
1	AX	Maint Resv,Dams&Waterways (Hydro)	Exhibit (PG&E-5), p. 4-64	Exhibit (PG&E-5), pp. 4-84	26,408.6	24,426.2	(1,982.4)	-7.5%	NO	NO
2	BC	Perf Reimburs Wk for Oth (Hydro)	Exhibit (PG&E-5), p. 4-65	Exhibit (PG&E-5), pp. 4-85	0.0	(163.0)	(163.0)		NO	NO
3	IG	Manage Var Bal Acct Processes (Hydro)	Exhibit (PG&E-5), p. 4-66	Exhibit (PG&E-5), pp. 4-86 to 4-87	3,881.0	3,074.2	(806.8)	-20.8%	NO	NO
4	KG	Operate Hydro Generation (Hydro)	Exhibit (PG&E-5), p. 4-67	Exhibit (PG&E-5), pp. 4-87 to 4-88	40,069.6	30,304.8	(9,764.8)	-24.4%	NO	YES
5	KH	Maint Hydro Generating Equip (Hydro)	Exhibit (PG&E-5), pp. 4-67 to 4-68	Exhibit (PG&E-5), pp. 4-88 to 4-89	26,273.6	21,537.1	(4,736.5)	-18.0%	NO	NO
6	KI	Maint Hydro Bldg,Grnd,Infrast (Hydro)	Exhibit (PG&E-5), pp. 4-68 to 4-69	Exhibit (PG&E-5), pp. 4-89 to 4-90	12,423.7	7,931.9	(4,491.8)	-36.2%	NO	NO
7	KJ	License Compliance Hydro Gen	Exhibit (PG&E-5), pp. 4-69 to 4-70	Exhibit (PG&E-5), p. 4-90	37,671.8	30,851.4	(6,820.4)	-18.1%	NO	NO
8	KK	Operate Fossil Generation (Fossil)	Exhibit (PG&E-5), p. 5-38	Exhibit (PG&E-5), pp. 5-43 to 5-44	14,627.9	12,496.6	(2,131.2)	-14.6%	NO	NO
9	KL	Maint Fossil Generating Equip (Fossil)	Exhibit (PG&E-5), pp. 5-39 to 5-43	Exhibit (PG&E-5), pp. 5-45 to 5-48	37,992.7	14,380.9	(23,611.8)	-62.1%	YES	YES
10	KM	Maint Fossil Bldg,Grnd,Infrast (Fossil)	Exhibit (PG&E-5), p. 5-43	Exhibit (PG&E-5), pp. 5-48 to 5-49	3,096.0	2,397.3	(698.7)	-22.6%	NO	NO
11	KQ	Operate Alternative Gen (Fossil)	Exhibit (PG&E-5), pp. 5-38 to 5-39	Exhibit (PG&E-5), p. 5-44	673.8	986.1	312.3	46.3%	NO	NO
12	KR	Maint AltGen Generating Equip (Fossil)	Exhibit (PG&E-5), p. 5-44	Exhibit (PG&E-5), pp. 5-49 to 5-50	3,174.8	1,404.3	(1,770.5)	-55.8%	NO	NO
13	KS	Maint AltGen Bldg,Grnd,Infrast (Fossil)	Exhibit (PG&E-5), pp. 5-44 to 5-45	Exhibit (PG&E-5), p. 5-50	691.3	91.9	(599.4)	-86.7%	NO	NO

TABLE 4-8
POWER GENERATION 2019 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	Spending Variance Explanation Required (Y/N)	Unit Variance Explanation Required (Y/N)
1	2L	Instl/Rpl for Hydro Safety&Reg	Exhibit (PG&E-5), p. 4-72	Exhibit (PG&E-5), pp. 4-93 to 4-94	34,894.0	23,818.8	(11,075.2)	-31.7%	NO	YES
2	2M	Instal/Repl Hydro Gneratng Eqp	Exhibit (PG&E-5), pp. 4-72 to 4-73	Exhibit (PG&E-5), pp. 4-94 to 4-95	96,586.1	81,416.9	(15,169.1)	-15.7%	NO	NO
3	2N	Instal/Repl Resv,Dams&Waterway	Exhibit (PG&E-5), p. 4-73	Exhibit (PG&E-5), p. 4-95	61,606.3	42,951.1	(18,655.2)	-30.3%	NO	YES
4	2P	Instl/Repl Hydr BldgGrndInfrst	Exhibit (PG&E-5), pp. 4-73 to 4-74	Exhibit (PG&E-5), pp. 4-95 to 4-96	11,756.0	21,890.2	10,134.2	86.2%	NO	YES
5	2R	Instl/Rpl for Fosil Safety&Reg	Exhibit (PG&E-5), pp. 5-47 to 5-52	Exhibit (PG&E-5), p. 5-55	2,737.4	29.6	(2,707.8)	-98.9%	NO	NO
6	2S	Instal/Repl Fosil Gneratng Eqp	Exhibit (PG&E-5), pp. 5-47 to 5-52	Exhibit (PG&E-5), p. 5-53	10,328.5	4,252.1	(6,076.4)	-58.8%	NO	NO
7	2T	Instl/Repl Fosl BldgGrndInfrst	Exhibit (PG&E-5), p. 5-53	Exhibit (PG&E-5), p. 5-57	139.6	980.5	840.9	602.3%	NO	NO
8	3A	Instl/Rpl for AltGen Safty&Reg	Exhibit (PG&E-5), p. 5-54	Exhibit (PG&E-5), pp. 5-55 to 5-56	27.8	0.0	(27.8)	-100.0%	NO	NO
9	3B	Instal/Repl AltGen GneratngEqp	Exhibit (PG&E-5), p. 5-54	Exhibit (PG&E-5), pp. 5-54 to 5-55	264.9	236.1	(28.8)	-10.9%	NO	NO

I. Power Generation 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. This MWC is not related to safety, reliability, and/or maintenance.

MWC AK – Manage Environmental Operations – Includes costs associated with managing environmental operations. This MWC is not related to safety, reliability, and/or maintenance.

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. This MWC relates to safety, reliability, or maintenance because the costs are associated with maintaining the hydro dams and water conveyance systems.

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. This MWC is not related to safety, reliability, and/or maintenance.

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. This MWC relates to safety, reliability, or maintenance because the costs are associated with performing maintenance work for 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. This MWC is not related to safety, reliability, and/or maintenance.

MWC ES – Implement Environmental Projects – Includes costs associated with the implementing environmental projects and programs. This MWC is not related to safety, reliability, and/or maintenance.

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. This MWC relates to safety, reliability, or maintenance because the costs are

associated with regulatory compliance that often includes safety and/or reliability related expenditures.

MWC IG – Wildfire Mitigation Plan Memorandum Account (WMPMA) – Includes costs for which PG&E is seeking recovery through WMPMA. This MWC relates to safety, reliability, or maintenance because the costs are associated with clearing a defensible space around the generation facilities.

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. This MWC is not related to safety, reliability, and/or maintenance.

MWC JV – Maintain Applications and Infrastructure – Includes costs for ongoing maintenance, operations and repair for PG&E's Information Technology (IT) applications, systems and infrastructure. This MWC is not related to safety, reliability, and/or maintenance.

MWC KG – Operate Hydro Electric Generation – Includes costs to operate hydroelectric power generating stations and associated facilities. This MWC relates to safety, reliability, or maintenance because the costs are associated with operating the hydro facilities safely and reliably.

MWC KH – Maintain Hydro Electric Generating Equipment – Includes costs to maintain generating equipment or components to support hydroelectric generation activities. This MWC relates to safety, reliability, or maintenance because the costs are associated with maintaining generation equipment.

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. This MWC relates to safety, reliability, or maintenance because the costs are associated with maintaining buildings, grounds and infrastructure.

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. This MWC relates to safety, reliability, or maintenance

because the costs are associated with regulatory compliance that often includes safety and/or reliability related expenditures.

MWC KK – Operate Fossil Generation – Includes costs to operate fossil power generating stations. This MWC relates to safety, reliability, or maintenance because the costs are associated with operating the fossil facilities safely and reliably.

MWC KL – Maintain Fossil Generating Equipment – Includes costs to maintain fossil power generating station equipment. This MWC relates to safety, reliability, or maintenance because the costs are associated with maintaining generation 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. This MWC relates to safety, reliability, or maintenance because the costs are associated with maintaining buildings, grounds and infrastructure.

MWC KQ – Operate Alternative Generation – Includes costs to operate alternative generation sites. This MWC relates to safety, reliability, or maintenance because the costs are associated with safely and reliably operating the other generation facilities.

MWC KR – Maintain Alternative Generation Generating Equipment – Includes costs to maintain alternative power generating station equipment. This MWC relates to safety, reliability, or maintenance because the costs are associated with maintaining generation equipment.

MWC KS – Maintain Alternative Generation Building, Ground, Infrastructure – Includes costs to maintain photovoltaic and fuel cell generation common facilities. This MWC relates to safety, reliability, or maintenance because the costs are associated with maintaining buildings, grounds 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. This MWC is not related to safety, reliability, and/or maintenance.

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. This MWC is not related to safety, reliability, and/or maintenance.

MWC ZC – Corporate Items – Includes enterprise-level expenses and revenues that are planned and managed separately from Business Unit budgets. Examples include environmental liabilities, insurance, workers' compensation. This MWC is not related to safety, reliability, and/or maintenance.

J. Power Generation MWC Descriptions – Capital

MWC 01 – IT Computing Equipment – Includes capital costs to replace computing equipment. This MWC is not related to safety, reliability, and/or maintenance.

MWC 03 – Office Furniture & Equipment – Includes capital costs to replace office furniture and equipment. This MWC is not related to safety, reliability, and/or maintenance.

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. This MWC is not related to safety, reliability, and/or maintenance.

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. This MWC is not related to safety, reliability, and/or maintenance.

MWC 12 – Implement Environmental Projects – Includes costs for capital projects to comply with water and air quality regulations and various oil spill prevention projects. This MWC is not related to safety, reliability, and/or maintenance.

MWC 2F – Build Applications and Infrastructure – Includes the costs to design, develop and enhance applications, systems and infrastructure technology solutions. This MWC is not related to safety, reliability, and/or maintenance.

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. This MWC relates to safety, reliability, or maintenance because the costs are associated with hydro safety.

MWC 2M – Install/Replace Hydro Electric Generating Equipment – Includes capital costs to install/replace generating equipment or components to support hydroelectric generation activities. This MWC relates to safety, reliability, or maintenance because the costs are associated with installing/replacing generating equipment that is consistent with keeping the generation facilities reliable.

MWC 2N – Install/Replace Reservoirs, Dams & Waterways – Includes capital costs to support the operation of reservoirs, dams and waterways. This MWC relates to safety, reliability, or maintenance because the costs are associated with installing/replacing equipment related to dams and water conveyance systems for safe and reliable operations.

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. This MWC relates to safety, reliability, or maintenance because the costs are associated with installing/replacing hydro buildings, grounds, and infrastructure to operate the generation facilities in a safe and reliable manner.

MWC 2R – Install/Replace Fossil Generating Safety & Regulatory Requirements – Includes capital costs primarily related to employee safety or regulatory requirements for fossil generation. This MWC relates to safety, reliability, or maintenance because the costs are associated with fossil safety.

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. This MWC relates to safety, reliability, or maintenance because the costs are associated with installing/replacing generating equipment that is consistent with keeping the generation facilities reliable.

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. This MWC relates to safety, reliability, or maintenance because the costs are associated with installing/replacing fossil buildings, grounds, and infrastructure to operate the generation facilities in a safe and reliable manner.

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. This MWC relates to safety, reliability, or maintenance because the costs are associated with alternative generation safety.

MWC 3B – Install/Replace Alternative Generation Equipment – Includes capital costs associated with the installation of solar photovoltaic generation equipment. This MWC relates to safety, reliability, or maintenance because the costs are associated with installing/replacing generating equipment that is consistent with keeping the generation facilities reliable.

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. This MWC is not related to safety, reliability, and/or maintenance.

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. This MWC is not related to safety, reliability, and/or maintenance.

K. Power Generation Variance Explanations – Expense

MWC KG – Operate Hydro Generation (Hydro) – Program expenses were below imputed adopted values due to the 2017 and 2018 affordability effort, which yielded year-over-year savings extending into 2019. The savings effort was intended to reduce spending without negatively impacting public or employee safety.

MWC KL – Maint Fossil Generating Equip (Fossil) – Program expenses were below imputed adopted values due to the Long-Term Service Agreement costs, which are levelized in the imputed regulatory value; 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 2019.

L. Power Generation Variance Explanations – Capital

MWC 2L – Instl/Rpl for Hydro Safety&Reg – Program expenses were below imputed adopted values due to the 2017 to 2019 imputed amounts being based on the 2017 GRC capital forecast for 2017 and not the 2018 and 2019 capital forecasts. MWC 2L had a much higher 2017 GRC forecast ($37.7 million) in 2017 than in 2018 ($25.0 million) and 2019 ($7.0 million). Additionally, 2017 actual spend was above imputed due to emergent 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. Some of the emergent replacement projects completed in 2017 eliminated the need to complete previously planned projects intending to be completed in 2018 or 2019.

MWC 2N – Instal/Repl Resv,Dams&Waterway – Program expenses were below imputed adopted values due to a reduction in programmatic spend for penstocks and water conveyance programs, which were largely completed by 2019. Reductions were used to fund emergent priority work discussed below in MWC 2P.

MWC 2P – Instl/Repl Hydr BldgGrndInfrst – Program expenses exceeded imputed adopted values due to the implementation of crane modernization work at several powerhouses that were not included in the imputed adopted values. This work is being completed in advance of major asset replacements in the near term.

PACIFIC GAS AND ELECTRIC COMPANY

SECTION 5

CUSTOMER CARE

IMPUTED ADOPTED VS.

RECORDED COMPARISON

PACIFIC GAS AND ELECTRIC COMPANY
SECTION 5
CUSTOMER CARE
IMPUTED ADOPTED VS.
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PACIFIC GAS AND ELECTRIC COMPANY
SECTION 5
CUSTOMER CARE
IMPUTED ADOPTED VS.
RECORDED COMPARISON

A. Introduction

This section includes the following information for the Customer Care line of business: a comparison of the total 2019 imputed adopted spend vs. the actual spend and for those programs that are related to safety, reliability, or maintenance the Major Work Category (MWC) descriptions, imputed adopted vs. actuals comparison details and variance explanations. The MWC descriptions are based on Pacific Gas and Electric Company's (PG&E or the Company) 2018 Spending Accountability Report. In addition, per Decision (D.) 19-04-020 the MWC descriptions include how each program/project relates to safety, reliability, or maintenance.

B. Comparison Summary Tables

TABLE 5-1
CUSTOMER CARE 2019 EXPENSE COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)
1	Misc Expense	AB	0.0	(7.6)	(7.6)
2	Read & Investigate Meters[(a)]	AR	16,607.2	(2,444.2)	(19,051.4)
3	Provide Field Service[(a)]	DD	1,232.8	0.0	(1,232.8)
4	Manage Customer Inquiries	DK	76,620.9	60,336.9	(16,284.0)
5	Develop New Revenue	EL	21,601.9	40,868.2	19,266.3
6	Change/Maint Used Elec Meter[(a)]	EY	13,749.1	773.2	(12,975.8)
7	Manage Var Cust Care Processes	EZ	30,120.3	27,128.1	(2,992.3)
8	Retain & Grow Customers	FK	629.2	646.2	17.1
9	Manage Energy Efficiency-NonBA	GM	6,970.1	7,731.8	761.7
10	Change/Maint Used Gas Meters[(a)]	HY	6,858.4	7,172.3	314.0
11	Manage Var Bal Acct Processes[(b)]	IG	4,560.9	689.6	(3,871.3)
12	Bill Customers	IS	60,249.7	44,939.7	(15,310.0)
13	Manage Credit	IT	15,477.1	12,880.7	(2,596.3)
14	Collect Revenue	IU	24,355.4	17,173.9	(7,181.4)
15	Provide Account Services	IV	17,452.8	14,760.0	(2,692.8)
16	Maintain IT Apps & Infra	JV	5,487.3	10,235.9	4,748.6
17	Operational Management	OM	6,562.6	4,469.4	(2,093.2)
18	Operational Support	OS	9,472.7	(238.5)	(9,711.2)
19	**Total**		**318,008.2**	**247,115.7**	**(70,892.5)**

(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 2019 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). These activities are now tracked entirely in MWC AR within Electric Operations. 2019 recorded costs represent Fire Risk Mitigation Memorandum Account (FRMMA) spend to address automating billing exception procedures for major events such as PSPS, minor improvements on the billing system with respect to data access, and minor improvements on the PGE.com web portal and related customer notification functions.

TABLE 5-2
CUSTOMER CARE 2019 CAPITAL COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)
1	IT - Desktop Computers	01	476.8	0.0	(476.8)
2	Tools & Equipment	05	2,487.7	3.1	(2,484.6)
3	Misc Capital	21	6,758.0	204.7	(6,553.3)
4	Install New Electric Meters[(a)]	25	41,968.0	40,355.4	(1,612.6)
5	EV - Station Infrastructure	28	0.0	404.1	404.1
6	Build IT Apps & Infra[(b)]	2F	37,270.9	22,366.5	(14,904.4)
7	Install New Gas Meters[(a)]	74	77,464.1	64,088.5	(13,375.6)
8	Smart Meter Opt Out[(c)]	3J	353.4	0.0	(353.4)
9	**Total**		**166,778.9**	**127,422.1**	**(39,356.7)**

(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 2019 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.

(c) 2019 recorded costs include Fire Risk Mitigation Memorandum Account (FRMMA) spend to address automating billing exception procedures for major events such as PSPS; minor improvements on the billing system with respect to data access; and minor improvements on the PGE.com web portal and related customer notification functions.

C. Comparison by MWC for Safety, Reliability, and Maintenance Work

TABLE 5-3
CUSTOMER CARE 2019 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)
1	AR[(a)]	Read & Investigate Meters	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	14,511.0	44.0	(14,467.0)	-99.7%	YES	YES
2	DD[(a)]	Provide Field Service	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	1,232.8	0.0	(1,232.8)	-100.0%	NO	NO
3	DK	Manage Customer Inquiries	Exhibit (PG&E-6), Chapter 4	Exhibit (PG&E-6), Chapter 4	68,392.0	57,785.0	(10,607.0)	-15.5%	YES	NO
4	EY[(a)]	Change/Maint Used Elec Meter	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	13,749.0	773.2	(12,975.8)	-94.4%	YES	YES
5	EZ	Manage Var Cust Care Processes	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	0.0	107.0	107.0	100.0%	NO	NO
6	GM	Manage Energy Efficiency-NonBA	Exhibit (PG&E-6), Chapter 3	Exhibit (PG&E-6), Chapter 3	3,963.0	7,170.0	3,207.0	80.9%	NO	NO
7	HY[(a)]	Change/Maint Used Gas Meters	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	6,858.4	7,172.3	314.0	4.6%	NO	NO
8	IG[(b)]	Manage Var Bal Acct Processes	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	4,353.0	0.0	(4,353.0)	-100.0%	NO	NO
9	IG[(c)]	Manage Var Bal Acct Processes	N/A--FRMMA	N/A--FRMMA	0.0	689.6	689.6	100.0%	NO	NO
10	JV[(d)]	Maintain IT Apps & Infra	Exhibit (PG&E-6), Chapter 10	None	0.0	0.0	0.0	-	NO	NO
11	**Total**				113,059.1	73,741.2	(39,318.0)	-34.8%		

(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 2019 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). These activities are now tracked in MWC AR within Electric Operations.

(c) 2019 recorded costs represent Fire Risk Mitigation Memorandum Account (FRMMA) spend to address automating billing exception procedures for major events such as PSPS, minor improvements on the billing system with respect to data access, and minor improvements on the PGE.com web portal and related customer notification functions.

(d) Imputed adopted 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). PG&E requested funding for the project for 2017 and 2018, but not 2019. 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 when the Field Asset Management System project was reduced in scope.

TABLE 5-4
CUSTOMER CARE 2019 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)
1	05	Tools & Equipment	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	2,487.7	3.1	(2,484.6)	-99.9%	NO	NO
2	25[(a)]	Install New Electric Meters	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	41,968.0	40,355.4	(1,612.6)	-3.8%	NO	NO
3	74[(a)]	Install New Gas Meters	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	77,464.1	64,088.5	(13,375.6)	-17.3%	NO	NO
4	2F[(b)]	Build IT Apps & Infra	Exhibit (PG&E-6), Chapter 10	None	0.0	0.0	0.0	-	NO	NO
5	2F[(c)]	Build IT Apps & Infra	N/A--FRMMA	N/A--FRMMA	0.0	1,118.0	1,118.0	100.0%	NO	NO
6	3J[(d)]	Smart Meter Opt Out	Exhibit (PG&E-6), Chapter 7	Exhibit (PG&E-6), Chapter 6	353.4	0.0	(353.4)	-100.0%	NO	NO
7	**Total**				122,273.2	105,564.9	(16,708.3)	-13.7%		

(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 2019 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. PG&E requested funding for the project for 2017 and 2018, but not 2019. 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) 2019 recorded costs also represent Fire Risk Mitigation Memorandum Account (FRMMA) spend to address automating billing exception procedures for major events such as PSPS; minor improvements on the billing system with respect to data access; and minor improvements on the PGE.com web portal and related customer notification functions.

(d) 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 C

D. MWC Descriptions – Expense

MWC AB – Miscellaneous Expense – Includes costs associated with work considered administrative and general in nature (i.e., benefiting the entire corporation and not just one functional area). This program does not relate to safety, reliability, or maintenance.

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. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

MWC DD – Provide Field Services – Includes customer generated requests for service that require site visit by field technician, such as investigating reports of possible gas leaks, carbon monoxide monitoring, customer requests for stop/starts of gas service, appliance pilot relights, and appliance adjustment and safety checks. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

MWC DK – Manage Customer Inquiries – Includes expenses incurred in operating the Company's four Contact Centers (CC), 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. This program relates to safety, reliability, or maintenance in PG&E's CCs because the CCs support customer calls on safety and reliability issues.

MWC EL – Develop New Revenue – Covers work in support of the New Revenue Development team on streetlight light emitting diode turnkey work, wireless telecommunications and fiber optics attachments on PG&E assets, and various other services based on secondary use of PG&E assets. This program does not relate to safety, reliability, or maintenance.

MWC EY – Change/Maint 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. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

MWC EZ – Manage Var Cust 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, and tariff, risk, compliance, and privacy support. Also includes activities primarily associated with SmartMeter Opt-Out Program oversight and supplemental utility meter engineering support.[1] This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

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. This program does not relate to safety, reliability, or maintenance.

MWC GM – Manage Energy Efficiency-NonBA – Covers required safety and compliance work associated with Low Income Energy Efficiency direct installation measures, including Natural Gas Appliance Testing. 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. This program relates to safety, reliability, or maintenance because it involves in-home appliance safety checks.

MWC HY – Change/Maint 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. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

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[1] This is a new MWC for Metering that was not included in the 2017 General Rate Case.

MWC IG – Manage Var Bal Acct Processes – Covers expenses pertaining to Smart Meter Opt-Out including expenses related to manual meter reading, billing, customer notifications, program administration, regulatory reporting, and related activities. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

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/investigations situations of metered commodity usage with no customer service agreement (e.g., broken lock). This program does not relate to safety, reliability, or maintenance.

MWC IT – Manage Credit – Covers expenses incurred to perform credit risk management for retail customers; delinquent account follow-ups 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. This program does not relate to safety, reliability, or maintenance.

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 online energy payments. MWC IU also includes expenses to manage customer payment inquiries and cash refunds. This program does not relate to safety, reliability, or maintenance.

MWC IV – Provide Account Services – Covers the costs 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 outage information; providing retail interconnection information; and responding to customer needs of Energy Service Providers and Core Transport Agents. This program does not relate to safety, reliability, or maintenance.

MWC JV – Maintain Information Technology (IT) Apps & Infra – Includes costs for ongoing maintenance, operations, and repair for PG&E's IT applications, systems, and infrastructure. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering 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. This program does not relate to safety, reliability, or maintenance.

MWC OS – Operational Support – Includes labor and employee related costs to provide services and support that are unrelated to supervision and management. This program does not relate to safety, reliability, or maintenance.

E. MWC Descriptions – Capital

MWC 01 – IT – Desktop Computers – Includes costs associated with the purchase of mobile laptops used by field technicians to manage and record work activities. This program does not relate to safety, reliability, or maintenance.

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. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

MWC 21 – Miscellaneous Capital – Includes various capital equipment. This program does not relate to safety, reliability, or maintenance.

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. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

MWC 28 – EV – Station Infrastructure – Includes the cost of electric vehicle charging infrastructure for PG&E-owned vehicles. This program does not relate to safety, reliability, or maintenance.

MWC 2F – Build IT Apps & Infra – Includes the costs to design, develop, and enhance applications, systems, and IT solutions. This program relates to

safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

MWC 3J – Smart Meter 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. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

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. This program relates to safety, reliability, or maintenance because it supports the proper functioning of PG&E's metering infrastructure.

F. Variance Explanations – Expense

MWC AR – Read & Investigate Meters – Program expenses/expenditures were below imputed adopted costs due to the transfer of Field Meter Operations (FMO) to Electric Operations (EO) and Gas Operations (GO) in 2018.

MWC DK – Manage Customer Inquiries – Program expenses/expenditures were below imputed adopted costs due to achieving operational efficiencies and affordability savings at CCs. Also, CC resources provided customer outreach and support during Public Safety Power Shutoff events. PG&E charged these activities to MWC IG (Fire Risk Mitigation Memorandum Account and Wildfire Mitigation Plan Memorandum Account) instead of MWC DK.

MWC EY – Change/Maint Used Elec Meter – Program expenses/expenditures were below imputed adopted costs due to the transfer of FMO to EO and GO in 2018.

PACIFIC GAS AND ELECTRIC COMPANY

SECTION 6

SHARED SERVICES/INFORMATION TECHNOLOGY IMPUTED

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SHARED SERVICES/INFORMATION TECHNOLOGY IMPUTED ADOPTED VS. RECORDED COMPARISON

A. Introduction

This section includes the following information for the Shared Services/ Information Technology (IT) lines of business: a comparison of the total 2019 imputed adopted spend vs. the actual spend and for those programs that are related to safety, reliability, or maintenance the Major Work Category (MWC) descriptions, imputed adopted vs. actuals comparison details and variance explanations. The MWC descriptions are based on Pacific Gas and Electric Company's (PG&E or the Company) 2018 Spending Accountability Report. In addition, per Decision 19-04-020 the MWC descriptions include how each program/project relates to safety, reliability, or maintenance.

B. Comparison Summary Tables

TABLE 6-1
SHARED SERVICES/IT 2019 EXPENSE COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)
1	Misc Expense	AB	207,661.1	234,865.3	27,204.2
2	Manage Environmental Oper	AK	9,046.3	8,911.0	(135.2)
3	Habitat and Species Protection	AY	266.8	261.1	(5.7)
4	Maint Buildings	BI	19,159.9	3,575.3	(15,584.6)
5	Manage DCPP Business	BP	3,607.9	4,532.5	924.6
6	Mnge Waste Disp & Transp	CR	2,854.5	1,904.8	(949.7)
7	Manage Property & Bldgs	EP	134,089.2	109,634.9	(24,454.3)
8	Implement Environment Projects	ES	1,392.2	718.1	(674.1)
9	Spc A&G/Oth Csts-Bud Dept	FA	3,348.7	242.1	(3,106.6)
10	Safety Engineering & OSHA Cmpl	FL	25,134.5	16,180.1	(8,954.4)
11	Manage Land Services	JE	4,244.9	3,823.2	(421.7)
12	Implement RealEstate Strategy	JH	5,684.4	1,275.6	(4,408.8)
13	Manage Environ Remed (Earning)	JK	5,043.8	2,973.1	(2,070.7)
14	Procure Materials & Services	JL	21,218.4	15,526.0	(5,692.4)
15	Manage Var Bal Acct Processes	IG	0.0	0.0	0.0
16	Maintain IT Apps & Infra	JV	16,066.8	3,369.3	(12,697.5)
17	Prov Human Resource Svcs	KX	0.0	7,383.7	7,383.7
18	Prov Regulation Svcs	KY	0.0	1,358.4	1,358.4
19	Corp A&G Allocation - ATL	LO	0.0	1,912.2	1,912.2
20	Operational Management	OM	(355.0)	246.8	601.8
21	Operational Support	OS	9,093.3	7,150.9	(1,942.5)
22	Corporate Items	ZC	0.0	0.0	0.0
23	**Shared Services Sub-Total**		**467,557.8**	**425,844.4**	**(41,713.4)**
24	Fleet Capitalization	AB	(119,380.7)	(112,958.6)	6,422.1
25	Building Services Capitalization	EP	(73,035.1)	(73,859.5)	(824.3)
26	**Shared Services Total**		**275,142.0**	**239,026.3**	**(36,115.6)**
27	Misc Expense	AB	51,424.8	(188.8)	(51,613.6)
28	Maintain IT Apps & Infra	JV	305,256.3	307,812.5	2,556.2
29	Charges from Affiliates	LL	0.0	0.0	0.0
30	Corp A&G Allocation - ATL	LO	0.0	169.6	169.6
31	Operational Management	OM	4,488.8	608.2	(3,880.6)
32	Operational Support	OS	0.0	6,408.5	6,408.5
33	**Information Technology Sub-Total**		**361,169.9**	**314,810.0**	**(46,360.0)**
34	End User Services Capitalization	AB	(51,424.8)	(39,470.1)	11,954.8
35	**Information Technology Total**		**309,745.1**	**275,339.9**	**(34,405.2)**
36	**Shared Services/Information Technology Total**		**584,887.1**	**514,366.2**	**(70,520.8)**

TABLE 6-2
SHARED SERVICES/IT 2019 CAPITAL COMPARISON SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	MWC Description	MWC	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)
1	Fleet / Auto Equip	04	97,633.8	40,732.2	(56,901.6)
2	Tools & Equipment	05	1,712.3	3,212.5	1,500.3
3	Implement Environment Projects	12	5,482.2	9,384.4	3,902.2
4	Misc Capital	21	602.6	774.9	172.3
5	Maintain Buildings	22	44,091.6	55,087.8	10,996.2
6	Implement RealEstate Strategy	23	97,474.0	101,052.1	3,578.1
7	EV - Station Infrastructure	28	2,776.5	0.0	(2,776.5)
8	Manage Buildings	78	0.0	3.7	3.7
9	Security Install/Replace	3N	0.0	0.0	0.0
10	Build IT Apps & Infra	2F	12,399.0	4,526.8	(7,872.2)
11	**Shared Services Total**		**262,172.0**	**214,774.5**	**(47,397.5)**
12	Build IT Apps & Infra	2F	184,541.8	107,428.7	(77,113.1)
13	**Information Technology Total**		**184,541.8**	**107,428.7**	**(77,113.1)**
14	**Shared Services/Information Technology Total**		**446,713.8**	**322,203.2**	**(124,510.6)**

C. Comparison by MWC for Safety, Reliability, and Maintenance Work Tables

TABLE 6-3
SHARED SERVICES/IT 2019 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)
1	BI	Maint Buildings	Exhibit (PG&E-7), Chapter 6	Exhibit (PG&E-7), Chapter 5	19,159.9	3,575.3	(15,584.6)	-81.3%	YES	YES
2	JH	Implement RealEstate Strategy	Exhibit (PG&E-7), Chapter 6	Exhibit (PG&E-7), Chapter 5	5,684.4	1,275.6	(4,408.8)	-77.6%	NO	NO

TABLE 6-4
SHARED SERVICES/IT 2019 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	2019 Imputed Adopted Costs ($000) (A)	2019 Actual Costs ($000) (B)	2019 Cost Difference ($000) (B-A)	2019 Cost Percent Change (%) (B-A)/A	Spending Variance Explanation Required (Y/N)	Percentage Variance Explanation Required (Y/N)
1	22	Maintain Buildings	Exhibit (PG&E-7), Chapter 6	Exhibit (PG&E-7), Chapter 5	44,091.6	55,087.8	10,996.2	24.9%	NO	YES
2	23	Implement RealEstate Strategy	Exhibit (PG&E-7), Chapter 6	Exhibit (PG&E-7), Chapter 5	97,474.0	101,052.1	3,578.1	3.7%	NO	NO

D. MWC Descriptions – Expense

MWC AB – Support – includes costs associated with climate protection and other environmental leadership initiatives. This program does not relate to safety, reliability, or maintenance. MWC AB also includes standard cost variances for Shared Services departments that charge out their costs to other organizations and miscellaneous support costs. This program does not relate to safety, reliability, or maintenance.

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). This program does not relate to safety, reliability, or 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. 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. This program does not relate to safety, reliability, or maintenance.

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. This program relates to safety, reliability, or maintenance because the facilities are required to support PG&E's safe and reliable delivery of energy and the funding is for maintenance of the buildings and related seismic safety.

MWC BP – Manage DCPP Business – includes costs of aircraft services that have been moved from the Nuclear Generation line of business. This program does not relate to safety, reliability, or maintenance.

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. This program does not relate to safety, reliability, or maintenance.

MWC EP – Manage Property and Buildings – includes costs to operate, maintain, and repair PG&E's facilities and shared conference center space. This program does not relate to safety, reliability, or maintenance.

MWC ES – Implement Environment Projects – includes costs associated with repairing, replacing, or upgrading equipment to comply with environmental regulations. This program does not relate to safety, reliability, or maintenance.

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. This program is for employee safety.

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. This program does not relate to safety, reliability, or maintenance.

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. This program relates to safety, reliability, or maintenance because it supports seismic safety as it relates to Customer Service Office (CSO) relocations.

MWC JK – Manage Environmental Remediation-Earnings – includes costs for the clean-up of contaminated sites which are not recovered through the Hazardous Substance Mechanism, 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. This program does not relate to safety, reliability, or maintenance.

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. This program does not relate to safety, reliability, or maintenance.

MWC JV – Maintain Applications and Infrastructure – includes costs for ongoing maintenance, operations and repair for PG&E's IT applications, systems and infrastructure. This program does not relate to safety, reliability, or maintenance.

MWC KX – Provide Human Resource Services – represents services provided by Human Resources. This program does not relate to safety, reliability, or maintenance.

MWC KY – Provide Regulations Services – includes costs for regulatory services and support. This program does not relate to safety, reliability, or maintenance.

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. This program does not relate to safety, reliability, or maintenance.

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. This program does not relate to safety, reliability, or maintenance.

E. 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. This program does not relate to safety, reliability, or maintenance.

MWC 05 – Tools & Equipment – includes purchase of tools and equipment required to perform various functions, including fleet repairs, warehouse operations, etc. This program does not relate to safety, reliability, or maintenance.

MWC 12 – Implement Environment Projects – includes costs associated with repairing, replacing, or upgrading equipment and facilities to comply with environmental regulations. This program does not relate to safety, reliability, or maintenance.

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. This program does not relate to safety, reliability, or maintenance.

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. This program relates to safety, reliability, or maintenance because the facilities are required to support PG&E's safe and reliable delivery of energy and the funding is for maintenance of the buildings and related seismic safety.

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 program relates to safety, reliability, or maintenance because it supports seismic safety as it relates to CSO relocations.

MWC 28 – EV-Station Infrastructure – includes the cost of electric vehicle charging infrastructure for PG&E's owned vehicles. This program does not relate to safety, reliability, or maintenance.

MWC 2F – Build Applications and Infrastructure – includes the costs to design, develop and enhance applications, systems and infrastructure technology solutions. This program does not relate to safety, reliability, or maintenance.

F. Variance Explanations – Expense

MWC BI – Maint Buildings – Decrease due to enterprise-wide budget reprioritization to fund higher priority safety-related work, limiting ability to work through the Facility Asset Upkeep Program. The reductions were confined to parts of the program that did not have a direct impact on safety, e.g. Interiors and Exteriors.

G. Variance Explanations – Capital

MWC 22 – Maintain Buildings – Increase due to enterprise-wide budget reprioritization to fund higher priority safety-related work, providing more ability to work capital investments in the Facility Asset Upkeep Program. The additions were focused on investments in the program that have a direct impact on safety, e.g., Service Center Renovation and 77 Beale Mechanical Upgrades.

PACIFIC GAS AND ELECTRIC COMPANY

SECTION 7

COST RECOVERY:

BALANCING AND MEMORANDUM ACCOUNTS

PACIFIC GAS AND ELECTRIC COMPANY
SECTION 7
COST RECOVERY:
BALANCING AND MEMORANDUM ACCOUNTS

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PACIFIC GAS AND ELECTRIC COMPANY
SECTION 7
COST RECOVERY:
BALANCING AND MEMORANDUM ACCOUNTS

A. Introduction

This section includes the balancing and memorandum accounts associated with actual expenditures for programs identified as related to safety, reliability, or maintenance in Pacific Gas and Electric Company's (PG&E) 2019 Risk Spending Accountability Report "where any portion of the program was tracked in a balancing account or memorandum account."[1] The tables below identify which of these programs had expenditures that were recorded to a balancing or memorandum account by Major Work Category (MWC), the name of the account, the purpose of that account from the Preliminary Statement, and the year-end balance.[2]

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1 D.19-04-020, p. 37.

2 As noted in the Introduction Section 1, Information Technology (IT) and Corporate Real Estate (CRE) costs attributable to the Lines of Business (LOB) at issue in this report are presented in a decentralized fashion, meaning LOB specific IT and CRE program costs are included within the LOBs that initiated the programs.

B. Gas Distribution

TABLE 7-1
BALANCING AND MEMORANDUM ACCOUNTS INCLUDED IN 2019 RSAR FOR GAS DISTRIBUTION

Line No.	MWC	MWC Name	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request	Preliminary Statement Name & Purpose	2019 Actuals (thousands of dollars)
1	Expense: MWC IG	Manage Var Bal Acct Processes	Fire Risk Mitigation Memorandum Account (FRMMA)	Disposition Letter Dated March 12, 2019	HQ: The purpose of the Fire Risk Mitigation Memorandum Account (FRMMA) is to record, pursuant to Public Utilities Code Section 8386.4 (b)(1), incremental costs of fire risk mitigation work that is not otherwise recovered in PG&E's adopted revenue requirements. Such costs shall include, but are not limited to, expense and capital expenditures for: advanced system hardening and resiliency; expanded automation and protection; improved wildfire detection; enhanced event response capacity, and vegetation management activities. Costs recorded to the FRMMA will not include costs approved for recovery in PG&E General Rate Cases (GRCs) or recovered through PG&E's Catastrophic Event Memorandum Account (CEMA), Fire Hazard Prevention Memorandum Account (FHPMA) or other cost recovery mechanisms including the memorandum account approved as part of PG&E's Wildfire Mitigation Plan (Public Utilities Code Section 8386.4 (a)).	IT: ($25.2)

C. Electric Distribution

TABLE 7-2
BALANCING AND MEMORANDUM ACCOUNTS INCLUDED IN 2019 RSAR FOR ELECTRIC DISTRIBUTION

Line No.	MWC	MWC Name	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request	Preliminary Statement Name & Purpose	2019 Actuals (thousands of dollars)
1	Expense: MWC HN	Vegetation Management Balancing Account (VMBA)	VMBA	Decision (D.) 17-05-013	BU: The purpose of the VMBA is to record the difference between the vegetation management expense adopted in PG&E's General Rate Case (GRC) or other base revenue proceeding, and PG&E's recorded vegetation management expense. The VMBA was created in compliance with Decision 00-02-046 to record the differences between revenues and expenses beginning January 1, 1999. The incremental inspection and removal costs tracking account was created in compliance with D.07-03-044 and will record costs of incremental work required by the California Department of Forestry and Fire Protection (CDF).	$363,266.6
2	Expense: MWC IF	Electric Distribution Major Emergency	Major Emergency Balancing Account	D.17-05-013	GJ: The purpose of the MEBA is to recover actual expenses and capital revenue requirements resulting from responding to major emergencies and catastrophic events not eligible for recovery through the Catastrophic Event Memorandum Account (CEMA). In some cases, costs relating to major emergencies that are found by the Commission not to be eligible for recovery through the CEMA process may be recoverable through the MEBA. The MEBA is a two-way balancing account in which PG&E records the difference between actual and adopted expenses and capital revenue requirements.	$120,589.6
3	Capital: MWC 95	Electric Distribution Major Emergency				$72,594.5

TABLE 7-2
BALANCING AND MEMORANDUM ACCOUNTS INCLUDED IN 2019 RSAR FOR ELECTRIC DISTRIBUTION
(CONTINUED)

4	Expense:		FRMMA	Disposition Letter Dated March 12, 2019	HQ: The purpose of the Fire Risk Mitigation Memorandum Account (FRMMA) is to record, pursuant to Public Utilities Code Section 8386.4 (b)(1), incremental costs of fire risk mitigation work that is not otherwise recovered in PG&E's adopted revenue requirements. Such costs shall include, but are not limited to, expense and capital expenditures for: advanced system hardening and resiliency; expanded automation and protection; improved wildfire detection; enhanced event response capacity, and vegetation management activities. Costs recorded to the FRMMA will not include costs approved for recovery in PG&E General Rate Cases (GRCs) or recovered through PG&E's Catastrophic Event Memorandum Account (CEMA), Fire Hazard Prevention Memorandum Account (FHPMA) or other cost recovery mechanisms including the memorandum account approved as part of PG&E's Wildfire Mitigation Plan (Public Utilities Code Section 8386.4 (a))..	
5	AB	Support and Emergency Preparedness and Response - FRMMA Non-Incremental				$0
6	BF	Electric Operations Patrols/Inspections				$159,836.8
7	BH	Electric Distribution Routine Emergency				$2512.2
8	GA	Poles – Intrusive Inspection/Test and Treat Program				$854.5
9	GC	Electric Distribution Substations Operate and Maintain Assets				$13337.5
10	IF	Electric Distribution Major Emergency				$1042.6
11	IG	FRMMA, Wildfire Mitigation Plan Memorandum Account (WMPMA)				$668,362.9 IT and Shared Services MWC IG: $8,314.3
12	KA	Preventive Maintenance and Equipment Repair, Overhead (OH)				$42,364.8
13	Capital:					
14	07	Electric Distribution Install/Replace OH Poles				$107,942.6

TABLE 7-2
BALANCING AND MEMORANDUM ACCOUNTS INCLUDED IN 2019 RSAR FOR ELECTRIC DISTRIBUTION
(CONTINUED)

15	08	Electric Distribution Reliability Base - OH Asset Replacement				$256,237.8
16	09	Electric Distribution Automation and Protection				$7046.4
17	17	Electric Distribution Routine Emergency				$4925.5
18	21	Miscellaneous Capital and Emergency Preparedness & Response				$18533 Shared Services: $3,725.8
19	23	Implement Real Estate Strategy				Shared Services: $6,542.2
20	2A	Electric Distribution Preventive Maintenance, OH				147,954.3
21	2F	Build IT Applications & Infrastructure				IT: $17,792.4
22	49	Electric Distribution Circuit/Zone Reliability Program				$57,184.6
23	59	Electric Distribution Substation Emergency Replacements				$9,476.6

D. Energy Supply: Nuclear Generation

TABLE 7-3
BALANCING AND MEMORANDUM ACCOUNTS INCLUDED IN 2019 RSAR FOR NUCLEAR GENAERATION

Line No.	MWC	MWC Name	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request	Preliminary Statement	2019 Actuals (thousands of dollars)
1	Expense: MWC IG	Manage Var Bal Acct Processes	Nuclear Regulatory Commission Rulemaking Balancing Account	D.14-08-032	GM: The purpose of the Nuclear Regulatory Commission (NRC) Rulemaking Balancing Account is to recover actual expenses and capital revenue requirements for complying with existing, emerging or evolving NRC regulations, rulemakings, orders, bulletins and/or generic letters, and the Code of Federal Regulation 10-50-54F – Conditions of Licenses at Diablo Canyon. Specifically, the NRCRBA tracks and adjusts for the difference in expenses and capital revenue requirements based on actual versus adopted costs. These costs include, but are not limited to, the following four major NRC rulemaking processes currently in progress: Fukushima Daiichi Rulemaking, Cyber- Security Rulemaking, Emergency Planning Rulemaking, and the new National Fire Protection Standard (NFPA) 805 Rulemaking.	$8,313
2	Capital: MWC 03	Office Furniture & Equipment	Diablo Canyon Retirement Balancing Account (DCRBA)	D.18-01-022	HK: The purpose of the Diablo Canyon Retirement Balancing Account (DCRBA) is to track actual expenses and capital revenue requirements based on actual capital expenditures compared to authorized expense budgets and/or capital revenue requirements and to assure recovery of incurred amounts for the following activities: (1) Diablo Canyon Power Plant's (DCPP or Diablo Canyon) full book value by the time the units cease operations; (2) PG&E's Employee Retention Program for Diablo Canyon employees; and (3) PG&E's Employee Retraining Program for Diablo Canyon employees.	$18.0

TABLE 7-3
BALANCING AND MEMORANDUM ACCOUNTS INCLUDED IN 2019 RSAR FOR NUCLEAR GENEARATION
(CONTINUED)

3	Capital: MWCH 05	Tools & Equipment	DCRBA	D.18-01-022	HK: see above.	$2,058.8
4	Capital: MWC 2F	Build IT Apps & Infra	DCRBA	D.18-01-022	HK: see above.	$6,378.0
5	Capital: MWC 20	Diablo Canyon Power Plant Capital	DCRBA	D.18-01-022	HK: see above.	$105,727.7
6	Capital: MWC 3I	Nuclear Safety and Security	DCRBA	D.18-01-022	HK: see above.	$690.0

E. Energy Supply: Power Generation

TABLE 7-4
BALANCING AND MEMORANDUM ACCOUNTS INCLUDED IN 2019 RSAR FOR POWER GENERATION

Line No.	MWC	MWC Name	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request	Preliminary Statement	2019 Actuals (thousands of dollars)
1	Expense: MWC IG	Manage Var Bal Acct Processes	Hydro Licensing Balancing Account (HLBA)		GL: The purpose of the HLBA is to recover actual expenses and capital revenue requirements based on actual capital expenditures related to Federal Energy Regulatory Commission (FERC) hydro licensing activities, which include, but are not limited to, renewing, amending, surrendering, decommissioning, and compliance requirements. Specifically, the HLBA tracks and adjusts for the difference in actual and adopted expenses and capital revenue requirements associated with relicensing and amending/modifying licenses issued on or after January 1, 2012, including costs associated with implementing and complying with new license conditions or requirements resulting from renewed, modified, or amended licenses.	$874.7
2	Expense: MWC IG	Manage Var Bal Acct Processes	FRMMA and WMPMA		HQ: The purpose of the Fire Risk Mitigation Memorandum Account (FRMMA) is to record, pursuant to Public Utilities Code Section 8386.4 (b)(1) incremental cost of fire risk mitigation work that is not otherwise recovered in PG&E's adopted revenue requirements. Such costs shall include, but are not limited to, expense and capital expenditures for: advanced system hardening and resiliency; expanded automation and protection; improved wildfire detection; enhanced event response capacity, and vegetation management activities. Costs recorded to the FRMMA will not include costs approved for recovery in PG&E General Rate Cases (GRCs) or recovered through	$2,199.5 IT: ($25.1)

TABLE 7-4
BALANCING AND MEMORANDUM ACCOUNTS INCLUDED IN 2019 RSAR FOR POWER GENERATION
(CONTINUED)

3					PG&E's Catastrophic Event Memorandum Account (CEMA), Fire Hazard Prevention Memorandum Account (FHPMA) or other cost recovery mechanisms including the memorandum account approved as part of PG&E's annual Wildfire Mitigation Plan, as set forth in Public Utilities Code Section 8386.4 (a). HX: The purpose of the Wildfire Mitigation Plan Memorandum Account (WMPMA) is to record, pursuant to Public Utilities Code Section 8386.4 (a) and the Wildfire Mitigation Plan approved by the Commission, incremental costs incurred to implement an approved wildfire mitigation plan that are not otherwise recovered in PG&E's adopted revenue requirements. Such costs may include expense and capital expenditures for activities including but not limited to: operational practices, inspection programs, system hardening, enhanced vegetation management, enhanced situational awareness, public safety power shutoffs, and alternative technologies. Costs recorded to the WMPMA will not include costs approved for recovery in PG&E General Rate Cases (GRCs) or recovered through PG&E's Catastrophic Event Memorandum Account (CEMA), Fire Hazard Prevention Memorandum Account (FHPMA), Fire Risk Mitigation Memorandum Account (FRMMA), or other cost recovery mechanisms.	

TABLE 7-4
BALANCING AND MEMORANDUM ACCOUNTS INCLUDED IN 2019 RSAR FOR POWER GENERATION
(CONTINUED)

4	Capital: MWC 3H	Hydroelectric License and License Conditions	HLBA		GL: The purpose of the HLBA is to recover actual expenses and capital revenue requirements based on actual capital expenditures related to Federal Energy Regulatory Commission (FERC) hydro licensing activities, which include, but are not limited to, renewing, amending, surrendering, decommissioning, and compliance requirements. Specifically, the HLBA tracks and adjusts for the difference in actual and adopted expenses and capital revenue requirements associated with relicensing and amending/modifying licenses issued on or after January 1, 2012, including costs associated with implementing and complying with new license conditions or requirements resulting from renewed, modified, or amended licenses.	$19,259.0

F. Customer Care

TABLE 7-5
BALANCING AND MEMORANDUM ACCOUNTS INCLUDED IN 2019 RSAR FOR CUSTOMER CARE

Line No.	MWC	MWC Name	Balancing/Memorandum Account Name	Disposition of Cost Recovery Request	Preliminary Statement	2019 Actuals (thousands of dollars)
1	Expense: MWC IG	Manage Var Bal Acct Processes	FRMMA	Disposition Letter Dated March 12, 2019	HQ: The purpose of the Fire Risk Mitigation Memorandum Account (FRMMA) is to record, pursuant to Public Utilities Code Section 8386.4 (b)(1), incremental costs of fire risk mitigation work that is not otherwise recovered in PG&E's adopted revenue requirements. Such costs shall include, but are not limited to, expense and capital expenditures for: advanced system hardening and resiliency; expanded automation and protection; improved wildfire detection; enhanced event response capacity, and vegetation management activities. Costs recorded to the FRMMA will not include costs approved for recovery in PG&E General Rate Cases (GRCs) or recovered through PG&E's Catastrophic Event Memorandum Account (CEMA), Fire Hazard Prevention Memorandum Account (FHPMA) or other cost recovery mechanisms including the memorandum account approved as part of PG&E's Wildfire Mitigation Plan (Public Utilities Code Section 8386.4 (a)).	IT: $689.6

TABLE 7-5
BALANCING AND MEMORANDUM ACCOUNTS INCLUDED IN 2019 RSAR FOR CUSTOMER CARE
(CONTINUED)

2	Capital: MWC 2F	Build IT Apps & Infra	FRMMA	Disposition Letter Dated March 12, 2019	HQ: The purpose of the Fire Risk Mitigation Memorandum Account (FRMMA) is to record, pursuant to Senate Bill (SB) 901 (Public Utilities Code Section 8386.4 (b)(1), incremental costs of fire risk mitigation work that is not otherwise recovered in PG&E's adopted revenue requirement. Such costs shall include, but are not limited to, expense and capital expenditures for: advanced system hardening and resiliency; expanded automation and protection; improved wildfire detection; enhanced event response capacity, and vegetation management activities. Costs recorded to the FRMMA will not include costs approved for recovery in PG&E General Rate Cases (GRCs) or recovered through PG&E's Catastrophic Event Memorandum Account (CEMA), Fire Hazard Prevention Memorandum Account (FHPMA) or other cost recovery mechanisms including the memorandum account approved as part of PG&E's Wildfire Mitigation Plan (Public Utilities Code Section 8386.4 (a))..	IT: $1,118.3

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

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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 DCPP Business	10,913	11,708	12,282	55
56	5	3	BQ	DCPP Support Services	37,299	39,843	41,727	56
57	5	3	BR	Operate DCPP Plant	70,002	74,828	78,387	57
58	5	3	BS	Maintain DCPP 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 DCPP 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 DCPP 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 Eneterprise 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 Fosil Safety&Reg	2,977	2,790	2,737	64
65	5	5	2S	Instal/Repl Fosil 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 Safty&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	Install/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	Install/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