

Application: 22-12-009
(U 39 M)
Exhibit No.: _____
Date: June 23, 2023
Witness(es): Various

PACIFIC GAS AND ELECTRIC COMPANY
2022 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
ERRATA TESTIMONY



PACIFIC GAS AND ELECTRIC COMPANY
2022 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
ERRATA TESTIMONY

TABLE OF CONTENTS

Chapter	Title	Witness
1	INTRODUCTION AND OVERVIEW	Peter Kenny
2	WILDFIRE MITIGATION BALANCING ACCOUNT	Shawn Holder Scott Strenfel
3	VEGETATION MANAGEMENT BALANCING ACCOUNT	Kamran Rasheed
4	ELECTRIC DISTRIBUTION: CEMA	Angelina M. Gibson Marcus J. Wendler
Attachment A	ELECTRIC EMERGENCY RESPONSE ACTIVITIES	Marcus J. Wendler
5	POWER GENERATION: CEMA	Aaron R. Cortes
6	COVID-19 PANDEMIC: CEMA	Angelina M. Gibson
7	CUSTOMER CARE MEMORANDUM ACCOUNTS	Lauren Cunningham Whitnay Peck La Keisha Stewart
8	MICROGRIDS	Joseph Metcalf
9	TRANSMISSION REVENUE REQUIREMENT RECLASSIFICATION MEMORANDUM ACCOUNT	George Kataoka
10	DEMONSTRATION OF INCREMENTALITY	Todd B. Mintzer
11	ACCOUNTING ADJUSTMENTS TO RECORDED COSTS	Bryan G. Wong Leo Yang
12	REVENUE REQUIREMENT	Annette G. Quon
Appendix A	ERNST AND YOUNG WILDFIRE MITIGATION AND CATASTROPHIC EVENTS COST ANALYSIS	Bryan G. Wong Leo Yang

PACIFIC GAS AND ELECTRIC COMPANY
2022 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
ERRATA TESTIMONY

TABLE OF CONTENTS
(CONTINUED)

Chapter	Title	Witness
Appendix B	STATEMENTS OF QUALIFICATIONS	Aaron R. Cortes Lauren Cunningham Angelina M. Gibson Shawn Holder George Kataoka Peter Kenny Joseph Metcalf Todd B. Mintzer Whitnay Peck Annette G. Quon Kamran Rasheed La Keisha Stewart Scott Strenfel Marcus J. Wendler Bryan G. Wong Leo Yang

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 1

INTRODUCTION AND OVERVIEW

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 1
INTRODUCTION AND OVERVIEW

TABLE OF CONTENTS

A. Introduction.....	1-1
B. Overview	1-1
1. Wildfire Risk Mitigation and Vegetation Management Activities	1-1
2. Catastrophic Event Response.....	1-2
a. Wildfire and Weather-Related Events.....	1-2
b. COVID-19 Pandemic	1-3
3. Customer Care Initiatives	1-4
C. Summary of Accounts in This Application	1-4
D. Summary of Request.....	1-6
E. Activities, Costs, and Reductions	1-11
1. Activities and Recorded Costs	1-11
a. Wildfire Mitigation Balancing Account.....	1-11
b. Vegetation Management Balancing Account.....	1-13
c. Catastrophic Event Memorandum Account - Wildfire and Weather-Related Events.....	1-15
d. Catastrophic Event Memorandum Account - COVID-19 Pandemic...	1-18
e. Other Memorandum Accounts.....	1-19
2. Exclusions and Reductions	1-21
a. Ernst & Young Audit	1-21
F. Ratemaking and Customer Impacts	1-21
G. Organization of Remainder of Testimony	1-22
H. Conclusion.....	1-23

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **CHAPTER 1**
3 **INTRODUCTION AND OVERVIEW**

4 **A. Introduction**

5 Pacific Gas and Electric Company (PG&E or the Company) respectfully
6 requests authorization from the California Public Utilities Commission (CPUC or
7 Commission) to recover costs recorded in various balancing and memorandum
8 accounts requiring reasonableness review. In accordance with applicable law
9 and policy, this application seeks recovery for incremental costs we have
10 incurred for activities performed in response to extraordinary events in our
11 service area over the past several years, and to make the customers we serve
12 and our employees safer. As discussed below, these activities include:
13 (1) completing certain wildfire risk mitigation work in accordance with our
14 approved annual Wildfire Mitigation Plan (WMP); (2) responding to
15 government-declared catastrophic events to repair damaged facilities, restore
16 utility services, and protect our employees and customers; and (3) implementing
17 various other customer-focused initiatives. The work covered by this application
18 mostly spans the years 2020-2021, although a relatively small portion of work
19 dates back to 2019.

20 **B. Overview**

21 **1. Wildfire Risk Mitigation and Vegetation Management Activities**

22 The risk of wildfire and the rate of catastrophic wildfire events continues
23 to be heightened across California. Our state continues to experience
24 extreme climate change, resulting in increased temperatures, drought,
25 increasingly dry conditions, high winds, and longer and more destructive
26 wildfire seasons.

27 PG&E is committed to reducing wildfire risk to keep customers and
28 communities safe. In 2021, PG&E completed several important
29 wildfire-related safety enhancements and investments in accordance with
30 our WMP to continue progress toward these vital objectives, consistent with
31 state policy. The wildfire mitigation work under review in this proceeding
32 includes:

- 1 • **Enhanced Vegetation Management (VM), Routine Vegetation**
2 **Management, and Tree Mortality** – We continued to trim or remove
3 trees with a higher potential for wildfire risk along distribution lines in
4 HFTD areas, in addition to our Routine VM activities; we also continued
5 to remove dead or dying hazard trees that may pose a public safety or
6 wildfire threat or risk to our electric and power generation (PG)
7 infrastructure;
- 8 • **Advanced Fire Modeling** – We advanced our fire modeling capabilities
9 to more precisely forecast conditions necessitating Public Safety Power
10 Shutoff (PSPS) events;
- 11 • **Safety Infrastructure Protection Teams (SIPT)** - We strategically
12 placed teams with fire service training and experience, EMT response,
13 and incident command to focus on fire prevention and protecting PG&E
14 assets and infrastructure in high fire-threat areas;
- 15 • **Storm Outage Prediction Project (SOPP)** – We improved the
16 granularity of weather modeling tools that enhanced our forecasts to
17 predict outages and PSPS events using higher resolution data with a
18 longer forecast horizon;
- 19 • **Improved PSPS** – We reduced the number of customers impacted by
20 each PSPS, and enhanced operations, communication, and
21 coordination before, during and after PSPS events; and
- 22 • **Microgrids** – We installed facilities in connection with microgrids to
23 mitigate the impact of PSPS events on customers.

24 PG&E's proactive measures serve the important purposes of reducing
25 fire risk, improving the safety of PG&E's electric system, and protecting
26 customers and the public.

27 **2. Catastrophic Event Response**

28 **a. Wildfire and Weather-Related Events**

29 Our proactive work to reduce wildfire risks posed by our facilities
30 could not eliminate the threat of wildfire altogether. 2021 was

1 California's second driest water year in the last century.¹ PG&E's entire
2 service area experienced severe drought conditions through much of
3 2021, until the rainstorms that occurred in the latter part of the year.
4 Large wildfires caused by lightning and other sources continued to occur
5 throughout our service territory in 2021. We responded to these events
6 with urgency to repair damaged electrical, gas, and PG facilities, and
7 restore utility services to customers as expeditiously as possible. We
8 completed these activities safely and reliably, with a focus on serving
9 our customers, consistent with sound utility practices.

10 **b. COVID-19 Pandemic**

11 In 2021, the Coronavirus (COVID-19) pandemic continued to
12 present significant challenges. PG&E incurred costs to comply with
13 various public health measures to protect our customers, contractors,
14 and employees, while continuing to maintain the safe, uninterrupted
15 operation of our systems. PG&E incurred incremental costs for various
16 lines of business responding to the COVID-19 pandemic in 2021,
17 including, among other things: (1) supporting employees in a remote
18 work environment; (2) modifying facilities to comply with state and
19 county health orders; (3) sequestering critical employees to maintain
20 utility operations; and (4) purchasing cleaning supplies and other
21 equipment (masks, shields, etc.) to protect employees from exposure to
22 the virus.

23 PG&E's response to catastrophic wildfires, weather-related events,
24 and COVID-19 involved various lines of business and resulted in
25 incremental costs beyond those recovered in PG&E's 2020 General
26 Rate Case (GRC) and 2019 Gas Transmission and Storage (GT&S)
27 proceedings.

¹ Water years run from October 1 to September 30. California Department of Waterworks, Water Year 2021: The Suspense Continues (Feb. 24, 2021) <https://water.ca.gov/News/Blog/2021/February/Water-Year-2021-The-Suspense-Continues> (as of Nov. 23, 2022).

3. Customer Care Initiatives

Consistent with our objective of placing customers at the center of our operations, PG&E continued various customer-focused initiatives in 2021, including: (1) protecting customers' private information in compliance with the California Consumer Privacy Act; (2) implementing emergency consumer protections during a government-declared emergency event that has resulted in a loss, disruption, or degradation of utility services; and (3) implementing billing-related protections for residential and small business customers impacted by the COVID-19 pandemic. These activities were largely conducted in response to various legislative or regulatory requirements enacted after PG&E's 2020 GRC, and are incremental to costs recovered in PG&E's base rates.

C. Summary of Accounts in This Application

We acknowledge the significance of the cost-recovery request in this application and its impact on customer rates if approved. It is important, however, to measure these costs against the substantial customer benefits delivered, including, among other things, reduced wildfire risks, increased public safety, and the continued safe and reliable operation of the electric system, in compliance with state and Commission policy objectives. The costs we present in this application are for activities that are critically necessary to improve and maintain our system and provide safe, continuous quality and reliable service to our customers.

The balancing and memorandum accounts covered by this application are:

- Wildfire Mitigation Balancing Account (WMBA) – The work recorded to this account was performed to mitigate the risk and impact of catastrophic wildfires, increase public and customer safety and awareness, and more accurately predict the potential and spread of wildfire to inform our future mitigation plans and activities. Specifically, in this application, we seek recovery of \$101 million, subject to reasonableness review, for expenses recorded to the WMBA in 2021 that are in excess of the reasonableness review threshold of \$59.6 million. These expenses were incurred for the following activities: PSPS events and preparation; AFM and the projects and programs that AFM supports, including foundational programs such as

SOPP; and the SIPT program.² The work recorded to this account is a necessary component of PG&E's commitment to reduce the risk and impact of catastrophic wildfires and increase public and customer safety and awareness.

- Vegetation Management Balancing Account (VMBA) – The work recorded to this account was performed to mitigate the risk of ignition caused by vegetation contacting electrical lines and components. In this application, we seek approximately \$815 million for expenses recorded to the VMBA in 2021 that are in excess of the reasonableness review threshold of \$723.4 million for four categories of work: (1) Routine VM activities; (2) Enhanced VM activities; (3) Tree Mortality VM activities (previously recorded to CEMA); and (4) PG VM activities.³ Our VM work involves inspecting our lines for potential vegetation contacts and trimming/removing vegetation in compliance with regulatory requirements.⁴ The work completed under these VM programs in 2021 supports public safety, service reliability, and regulatory compliance of PG&E's electric distribution facilities.
- CEMA – In addition to the wildfire mitigation and VM work, we also seek recovery for incremental costs resulting from PG&E's response to various government-declared catastrophic events, including weather-related events, wildfires, and the COVID-19 pandemic. In this application, we seek recovery of incremental costs recorded in the CEMA totaling \$321 million for

² The 2020 GRC Decision authorizes PG&E to recover WMBA expenses up to 115 percent of the adopted values through a Tier 2 advice letter (AL). PG&E must file a reasonableness review application to recover WMBA costs exceeding 115 percent of the GRC authorized amount for Community Wildfire Safety Program (CWSP) activities or if PG&E's recorded average per mile unit costs for system hardening exceed 115 percent of the authorized unit costs. (D.20-12-005, p. 410, Ordering Paragraph (OP) 1.) Costs up to 115 percent of the GRC authorized amount are considered just and reasonable and are not included in PG&E's request. Under this review framework, this application seeks reasonableness reviews of recorded costs for four CWSP wildfire mitigation activities (PSPS, AFM, SOPP, and SIPT) that caused PG&E to exceed the WMBA's 115 percent reasonableness review threshold.

³ Costs recorded to the VMBA are presumed to be reasonable up to 120 percent of the authorized amount, after which PG&E is required to file an application to allow for a reasonableness review of the amount exceeding that threshold. (D.20-12-005, p. 395, Conclusion of Law 17.)

⁴ Enhanced VM overhang clearing and radial clearance work often exceeds regulatory requirements under General Order (GO) 95 Rule 35 and Public Resources Code (CPRC) Section 4293.

wildfires and weather-related events. The majority of the CEMA costs in this application pertain to the following events: the 2021 Caldor Fire, the October 2021 Northeast Pacific Bomb Cycle, the 2021 Atmospheric River, the 2021 Wind Event, and the 2021 December Storms. In addition, we have performed activities to mitigate the health and safety risks to employees, contractors, and the public from the COVID-19 pandemic. We seek to recover an additional \$6 million in incremental costs, adjusted for avoided costs, to respond to the COVID-19 pandemic during 2021. The work associated with PG&E's response included coordination, employee support, transition to remote work, protective equipment, facility modifications, vehicle rentals and inspections, sequestration of critical employees, and cleaning.

- Other Memorandum Accounts – Finally, this application includes a request to recover \$120 million in incremental costs related to several additional memorandum accounts: COVID-19 Pandemic Protections Memorandum Account (CPPMA); Disconnections Memorandum Account (DMA); Emergency Consumer Protections Memorandum Account (ECPMA); California Consumer Privacy Act Memorandum Account (CCPAMA); Microgrids Memorandum Account (MGMA); and Transmission Revenue Requirement Reclassification Memorandum Account (TRRRMA). TRRRMA proposes a customer refund of (\$4.7) million in revenue requirement.

D. Summary of Request

In the tables below, PG&E summarizes its cost-recovery request by applicable memorandum or balancing account, PG&E organization, and the cost categories within each account.

Table 1-1 summarizes the costs requested in this application by account.

**TABLE 1-1
SUMMARY OF REQUEST
(THOUSANDS OF DOLLARS)**

Line No.	Chapter	Account	Expense	Capital	Total
1	Chapter 2: Wildfire Mitigation	WMBA	\$101,457	–	\$101,457
2	Chapter 3: Vegetation Management	VMBA	814,724	–	814,724
3	Chapter 4: ED – CEMA	CEMA	184,826	\$130,070	314,896
4	Chapter 5: PG – CEMA	CEMA	4,856	1,180	6,036
5	Chapter 6: PG&E – COVID-19: CEMA	CEMA	5,810	–	5,810
6	Chapter 7: CC – Other Memorandum Accounts	CPPMA	11,571	–	11,571
7		DMA	8,175	–	8,175
8		ECPMA	2,214	–	2,214
9		CCPAMA	5,937	2,381	8,318
10	Chapter 8: ED – Microgrids	MGMA	87,213	2,853	90,066
11	Grand Total		\$1,226,784	\$136,483	\$1,363,268

- (a) TRRRMA is calculated based on Plant and Reserve balances for Capital and derived from a factor based on Plant for Operations and Maintenance Expense. Not reflected in the total costs above is the proposed customer refund of a \$4.7 million revenue requirement associated with California Independent System Operator (CAISO) operational control designation changes in 2021 and plant activity from assets that changed CAISO operational control in 2020 that were recorded from January 1, 2021 through December 31, 2021 in the TRRRMA.
- (b) Costs reflected in Table 1-1 are adjusted costs. Please see Chapter 11 for details regarding the adjustments.

1 Table 1-2 summarizes requested costs by PG&E organizational unit. As
2 shown in the table, the majority of our request involves expenditures in Electric
3 Operations (EO).

**TABLE 1-2
SUMMARY OF REQUEST BY ORGANIZATION
(THOUSANDS OF DOLLARS)**

Line No.	Electric Operations	Customer Care	Other	Total
1	\$1,325,032	\$30,279	\$7,957	\$1,363,268

Note: Other costs consists of Shared Services and PG costs.

4 Table 1-3 shows a cost breakdown within EO (distribution) for each account.
5 Costs recorded to the WMBA, VMBA, CEMA, and MGMA comprise most of our
6 request. These costs are described in Chapters 2 through 6 and Chapter 8 of
7 this testimony.

**TABLE 1-3
ELECTRIC DISTRIBUTION REQUEST BY ACCOUNT
(THOUSANDS OF DOLLARS)**

Line No.	WMBA	VMBA	CEMA	MGMA	Total
1	\$101,457	\$814,724	\$318,785	\$90,066	\$1,325,032

1 Table 1-4 identifies the total costs recorded in the WMBA. This application
2 focuses on work categories contributing to costs above 115 percent of adopted
3 amounts in the WMBA (PSPS, AFM, SOPP, and SIPT), which are the costs for
4 which we seek recovery. The activities associated with these costs are
5 discussed in further detail in Chapter 2 of this testimony.

**TABLE 1-4
ELECTRIC DISTRIBUTION – WMBA
(THOUSANDS OF DOLLARS)**

Line No.	2021 Total Spend	2021 WMBA Adopted Expense	115 percent of Adopted	Total WMBA Request
1	\$161,104	\$51,867	\$59,647	\$101,457

Note: Amounts above reflect adjustments to exclude electric transmission costs. Please see Chapter 11 for details.

6 Table 1-5 identifies the total costs recorded in the VMBA. This application
7 focuses on work categories contributing to costs above 120 percent of adopted
8 amounts in the VMBA (Routine VM, Enhanced VM, Tree Mortality VM, and PG
9 VM work), which are the costs for which we seek recovery. The activities
10 associated with these costs are discussed in further detail in Chapter 3 of this
11 testimony.

**TABLE 1-5
ELECTRIC DISTRIBUTION AND POWER GEN – VMBA
(THOUSANDS OF DOLLARS)**

Line No.	2021 Total Spend	2021 VMBA Adopted	120 percent Adopted	Total VMBA Request
1	\$1,538,101	\$602,814	\$723,377	\$814,724

12 Table 1-6 summarizes incremental CEMA costs by PG&E organizational
13 unit. As shown in the table, the majority of costs recorded to CEMA are

1 attributable to EO (distribution). The activities associated with these costs are
2 discussed in further detail in Chapters 4 and 5 of this testimony.

TABLE 1-6
CEMA
(THOUSANDS OF DOLLARS)

<u>Line No.</u>	<u>Electric Operations</u>	<u>Power Generation</u>	<u>Other</u>	<u>Total</u>
1	\$314,896	\$6,036	–	\$320,932

3 Table 1-7 summarizes COVID-19 CEMA costs by PG&E organizational unit.
4 As shown in the table, the majority of incremental costs recorded to CEMA are
5 attributable to EO (distribution), Corporate Real Estate Strategy and Services
6 (CRESS), Transportation, and Human Resources (HR). The activities
7 associated with these costs are discussed in further detail in Chapter 6.

**TABLE 1-7
COVID-19 PANDEMIC
(THOUSANDS OF DOLLARS)**

Line No.		EO	CRESS	IT	Gas	Transportation	Generation	Customer & Comms	EHS & HR	CEMA-Eligible Total Expense
1	COVID-19 Pandemic CEMA Eligible Recorded Costs	\$3,889	\$3,521	\$768	\$1,014	\$2,434	\$1,695	\$854	\$1,825	\$16,000
2	Less: Company Avoided Costs	–	(4,400)	(300)	(1,500)	–	(1,600)	(2,390)	–	(10,190)
3	Total CEMA Ask	\$3,889	(\$879)	\$468	(\$486)	\$2,434	\$95	(\$1,536)	\$1,825	\$5,810

Costs recorded in the CPPMA, DMA, ECPMA, CCPAMA, and MGMA are summarized in Table 1-8. As shown in the table, all MGMA costs are attributable to electric distribution, while CPPMA, DMA, ECPMA, and CCPAMA costs are attributable to Customer Care. The activities associated with these accounts are discussed in further detail in Chapters 7 and 8.

**TABLE 1-8
OTHER MEMORANDUM ACCOUNTS
(THOUSANDS OF DOLLARS)**

Line No.	Memo Account	ED Capital	ED Expense	CC Capital	CC Expense	Total
1	CPPMA	–	–	–	\$11,571	\$11,571
2	DMA	–	–	–	8,175	8,175
3	ECPMA	–	–	–	2,214	2,214
4	CCPAMA	–	–	\$2,381	5,937	8,318
5	MGMA	\$2,853	\$87,213	–	–	90,066
6	Total	\$2,853	\$87,213	\$2,381	\$27,897	\$120,344

E. Activities, Costs, and Reductions

The activities covered by this application fall into five general areas: (1) wildfire mitigation activities; (2) VM activities; (3) COVID-19 response activities; (4) catastrophic event (not related to -COVID-19) response activities; and (5) miscellaneous other customer-focused activities. In Chapters 2 through 9, we summarize the activities in our request. In Chapter 11, we describe certain exclusions and reductions we have made prior to calculating the revenue requirement, which is set forth in Chapter 12 along with our ratemaking proposal.

1. Activities and Recorded Costs

a. Wildfire Mitigation Balancing Account

PG&E seeks recovery of WMBA recorded expense costs that exceed the reasonableness review threshold specified by D.20-12-005 (2020 GRC Decision). As noted above, the wildfire mitigation activities described in this application can be separated into four categories: (1) PSPS, comprised of PSPS Event costs and PSPS Program costs; (2) AFM; (3) SOPP; and (4) SIPT.

The costs associated with these activities are summarized in the table below:

TABLE 1-9
WMBA – COSTS SUBJECT TO REASONABLENESS REVIEW
(THOUSANDS OF DOLLARS)

Line No.	WMBA Activity	2021 Recorded Expenses	Adopted Amount	Adopted at 115 percent	Subject to Review ^(a)
1	PSPS Events	\$35,301	–	–	\$35,301
2	PSPS Program	66,762	\$6,314	\$7,261	59,501
3	AFM	4,833	1,196	1,375	3,458
4	SOPP	1,977	303	349	1,628
5	SIPT	17,112	13,806	15,877	1,235
6	Total	\$125,985	\$21,619	\$24,862	\$101,123

(a) PG&E's total expenses of \$101.1 million for PSPS, AFM, SOPP, and SIPT activities reflect 99 percent of the total WMBA costs subject to reasonableness review.

PSPS Events are the activities directly associated with PG&E proactively de-energizing electric transmission and/or distribution lines following a determination of a weather-related imminent threat to power line assets and increased catastrophic wildfire risk. PSPS Program activities support PSPS events but are not associated with a specific PSPS event. Examples include helicopter contracts, advance preparation of Community Resource Centers, and customer education initiatives.

AFM activities enhance and operationalize models used to understand fire risk and spread, and inform PG&E's decision-making process for PSPS, including when to initiate and end a PSPS event. The AFM program is comprised of three primary projects: (1) Technosylva Fire Spread Modeling; (2) Live Fuel Moisture Sampling and Observation Program; and (3) Wildfire Safety Operations Center Support.

The SOPP Model is a storm damage prediction system that takes meteorological inputs and empirically predicts potential outages within our electric and gas systems based as a function of forecasted weather.

1 The SOPP model informs when and where PG&E crews may be needed
2 to restore power outages and where PSPS may be necessary.

3 PG&E's SIPT crews provide direct defense of utility infrastructure
4 and conduct safety and prevention, mitigation, and maintenance
5 activities on company properties or rights of way.

6 PG&E's PSPS, AFM, SOPP, and SIPT activities further our
7 commitment to make our customers and communities safer. Our efforts
8 include ongoing expansion and refinement of our weather and fire
9 modeling capabilities which support the PSPS program and bolster our
10 situational awareness. In addition to our investment in modeling,
11 increased focus on PSPS operations and community resources also
12 contribute to our goal of initiating fewer events with smaller scopes and
13 shorter durations. Finally, our SIPT teams protect critical infrastructure
14 from wildfires and conserve valuable resources. These WMBA
15 programs are discussed further in Chapter 2.

16 **b. Vegetation Management Balancing Account**

17 The VMBA is a two-way balancing account created pursuant to the
18 2020 GRC decision. PG&E records in the VMBA costs for Routine VM
19 and Enhanced VM activities previously recorded in the
20 FRMMA/WMPMA, and Tree Mortality and Fire Risk Reduction work
21 previously recorded in the CEMA.^{5,6} PG&E also records costs for PG
22 VM activities in the VMBA.

23 PG&E's VM activities and associated costs include four categories
24 of work: (1) Routine VM activities; (2) Enhanced VM activities; (3) Tree
25 Mortality VM activities; and (4) PG VM.

26 The costs related to these activities are summarized in Table 1-10
27 below:

⁵ Starting in 2020, PG&E recovers costs for the CEMA/Tree Mortality work in the VMBA. (D.20-12-005, p. 67, Section 7.2.2.2).

⁶ On December 22, 2020, PG&E filed a Tier 1 AL 4344-G/6032-E to modify the new VMBA effective January 1, 2020.

TABLE 1-10
VMBA - COSTS SUBJECT TO REASONABLENESS REVIEW
(THOUSANDS OF DOLLARS)

Line No.	Program	2021 Recorded Adj. Expenses	Imputed Adopted Amount	Adopted at 120 percent	Subject to Review
1	Routine VM	\$682,525	\$252,198	\$302,638	\$379,887
2	Enhanced VM	770,435	350,616	420,739	349,696
3	Tree Mortality	87,022	—	—	87,022
4	PG	844	—	—	844
5	Sub Total	\$1,540,825	\$602,814	\$723,377	\$817,448
6	<i>EY adjustment</i>	<i>(2,724)</i>	<i>—</i>	<i>—</i>	<i>(2,724)</i>
7	Total	\$1,538,101	\$602,814	\$723,377	\$814,724

PG&E recorded costs of \$380 million above the 120 percent reasonableness review threshold for Routine VM work, encompassing patrols, inspections, and maintaining clearances for trees along PG&E's approximately 81,000 miles of overhead high voltage distribution lines in High Fire Threat District (HFTD) areas and non-HFTD areas. PG&E's Routine VM program supports public and employee safety, wildfire risk reduction, electric system reliability, and compliance with applicable regulatory standards including CPUC's GO 95 Rules 35 and CPRC Sections 4292 and 4293.

PG&E recorded costs of \$350 million above the 120 percent reasonableness review threshold for Enhanced VM activities, which focus on addressing vegetation in Tier 2 HFTD and Tier 3 HFTD areas posing a higher potential for wildfire risk. Enhanced VM work includes radial clearances, overhang trimming, tree assessment for strike potential, fuel reduction, and wood management and safety oversight. Enhanced VM work is based on the commitments and activities approved in PG&E's 2021 WMP that support Public Utilities Code (Pub. Util. Code) 8386.

PG&E recorded costs of \$87 million for PG&E's Tree Mortality program activities, which mitigate risk associated with dead or dying trees' contact with utility facilities per Commission Resolution (Res.) ESRB-4 (Electric Safety and Reliability Branch). These remedial measures include, but are not limited to, "increasing vegetation

1 inspections and removing hazardous, dead and sick trees and other
2 vegetation near the Investor-Owned Utilities (IOU) electric power lines
3 and poles.”⁷ Due to the ongoing drought and bark beetle infestation,
4 dead, dying, or diseased trees are targeted for removal so that they no
5 longer pose a threat to overhead electric facilities or to PG&E’s critical
6 hydroelectric generation facilities and public recreational areas.⁸

7 PG&E recorded \$0.8 million for PG VM activities. PG&E’s PG VM
8 program includes the work associated with identifying, abating, and
9 cleaning up dead trees in the areas surrounding PG&E’s
10 67 powerhouses and associated equipment.

11 The sizeable investment PG&E continues to make in our VM
12 programs directly supports public safety, service reliability, and
13 regulatory compliance through management of vegetation near PG&E’s
14 electric distribution facilities. As our service territory continues to
15 experience extreme climate change, resulting in increased
16 temperatures, drought, high winds, and longer fire seasons, these
17 proactive measures serve the important purposes of reducing fire risk,
18 improving the safety of PG&E’s electric system, and protecting
19 customers and the public. Our VMBA programs are discussed further in
20 Chapter 3.

21 **c. Catastrophic Event Memorandum Account - Wildfire and** 22 **Weather-Related Events**

23 PG&E’s CEMA costs are recorded pursuant to Pub. Util. Code
24 Section 454.9, which authorizes utilities to record costs of “restoring
25 utility service to customers,” “repairing, replacing, or restoring damaged

7 Res.ESRB-4, p. 14, OP 2. Investor Owned Electric Utilities must take practicable measures necessary to reduce the likelihood of fires associated with their facilities. These measures include increasing vegetation inspections and removing hazardous, dead, and sick trees, and other vegetation near the IOUs’ electric power lines and poles; sharing resources with the California Department of Forestry and Fire Protection to staff lookouts adjacent to the IOUs’ property; and clearing access roads under power lines for fire truck access.

8 In order to reduce instances of vegetation contacting hydro facilities, PG&E conducts annual ground inspections of all of PG&E’s Hydroelectric Generation System. Through the annual inspections, inspectors look for vegetation that could impact hydro facilities and abate when discovered. Expenses for this work are included in PG&E’s Tree Mortality program costs.

1 utility facilities,” and “complying with governmental agency orders” in
2 connection with declared disasters. The wildfire and weather-related
3 CEMA work described in this application pertains to fifteen events in
4 2021, and also includes work in 2021 related to prior CEMA events in
5 2019 and 2020. PG&E’s Electric Distribution Line of Business recorded
6 approximately \$185 million in expense and \$130 million in capital to
7 CEMA for these events. See Chapter 4 for more detail on the events
8 and costs included in this application.

9 Incremental costs related to these CEMA events are summarized in
10 Table 1-11 below:

TABLE 1-11
CEMA-ELIGIBLE INCREMENTAL EXPENDITURES
(THOUSAND OF DOLLARS)

Line No.	Event by Year	Electric Expense	Electric Capital	Power Gen Expense	Power Gen Capital	Grand Total
1	2021 January Wind Event	\$11,631	\$18,160	-	-	\$29,791
2	2021 January Atmospheric River	14,278	15,684	-	-	29,962
3	2021 June Extreme Heat Event	1,148	2,757	-	-	3,905
4	2021 July Extreme Heat Event	1,051	1,245	-	-	2,296
5	2021 August McFarland Fire Event	32	-	-	-	32
6	2021 August Monument Fire Event	3,636	1,144	-	-	4,780
7	2021 August Caldor Fire Event	32,251	48,611	-	-	80,862
8	2021 August Cache Fire Event	2,296	465	-	-	2,761
9	2021 August River Fire Event	2,810	7,869	\$4,518	-	15,197
10	2021 August Washington Fire Event	103	868	-	-	971
11	2021 September Hopkins Fire Event	52	860	-	-	912
12	2021 September KNP CPX Fire Events	77	42	-	-	119
13	2021 Fawn Fire	5,125	3,406	-	-	8,531
14	2021 October Northeast Pacific Bomb Cycle	13,554	16,493	-	-	30,047
15	2021 December Storms	14,747	10,052	111	-	24,910
16	2021 Costs for Prior CEMA Events	82,093	5,643	228	\$1,180	\$89,144
17	Subtotal 2021 Costs	\$184,884	\$133,299	\$4,857	\$1,180	\$324,220
18	EY, OH, and A&G Adjustments	(59)	(3,229)	-	-	(3,288)
19	Grand Total	\$184,825	\$130,070	\$4,857	\$1,180	\$320,932

1 **d. Catastrophic Event Memorandum Account - COVID-19 Pandemic**

2 In 2021, the ongoing COVID-19 pandemic continued to require
3 enhanced health and safety precautions to protect employees. Activities
4 related to PG&E's response to the COVID-19 pandemic can be
5 categorized into four areas: (1) Continued Response Coordination and
6 Employee Support, (2) Sequestration, (3) Protective Equipment, Facility
7 Modifications, Vehicle Rentals, and Inspections to Comply with Health
8 Orders, and (4) Enhanced Cleaning.

9 PG&E's COVID-19 Policy Committee continued to monitor the
10 COVID-19 situation in California and guide PG&E's overall response
11 coordination and employee support, including establishing prudent,
12 health-protective policies for employees and work activities and clear
13 communications with all employees regarding COVID-19 risks and best
14 work practices. PG&E continued sequestration planning and
15 implementation to ensure that certain essential PG&E functions, staffed
16 by a small number of personnel with highly specialized qualifications,
17 continued unimpacted by the pandemic. PG&E continued to comply
18 with numerous state and county health orders, and emergency
19 regulations promulgated by the California Occupational Safety and
20 Health Administration. This required, among other things, the purchase
21 of personal protection equipment specific to the COVID-19 pandemic to
22 protect critical infrastructure workers exempted from the stay-at-home
23 orders, and compliance with significant additional inspection
24 requirements.

25 The investment in these COVID-19 response activities directly
26 contributed, and continues to contribute, to the health and safety of
27 PG&E employees, contractors, and the public. The steps taken to
28 provide remote workers with the tools they require, sequester
29 system-critical employees, and maintain clean and hospitable working
30 conditions helped ensure continuous and safe operations during the
31 pandemic.

32 Incremental costs related to these COVID-19 pandemic activities
33 are summarized in Table 1-12 below:

TABLE 1-12
SUMMARY OF CEMA-ELIGIBLE COVID-19 RECORDED INCREMENTAL EXPENDITURES BY
WORKSTREAM
(THOUSANDS OF DOLLARS)

Line No.	Workstream	CEMA – Eligible Incremental Expense
1	Response Coordination and Employee Support	\$3,480
2	Sequestration	5,769
3	Protective Equipment Facility Modifications, Vehicle Rentals, and Inspections to Comply with Health Orders	4,147
4	Cleaning Due to COVID-19 Cases	2,604
5	Sub-Total	\$16,000
6	Less: Avoided Cost Savings	(\$10,190)
7	Total	\$5,810

1 See Chapter 6 for a detailed discussion of these activities.

2 **e. Other Memorandum Accounts**

3 This application also addresses five other memorandum accounts in
4 which PG&E recorded 2021 costs.

5 The MGMA records costs to develop and support PG&E's microgrid
6 solutions focused on building grid resilience and keeping the power on
7 for customers in communities with a high likelihood of experiencing a
8 future PSPS event. PG&E recorded approximately \$90 million to the
9 MGMA in 2021 for various microgrid-related programs: (1) the
10 Make-Ready Program; (2) Temporary Generation Program; and
11 (3) Community Microgrid Enablement Program. These microgrid
12 solutions are discussed in further detail in Chapter 8.

13 MGMA incremental costs were born by electric distribution and are
14 highlighted by program in Table 1-13 below:

TABLE 1-13
MGMA INCREMENTAL EXPENDITURES
(THOUSANDS OF DOLLARS)

Line No.	Program	Expense	Capital	Total
1	Make-Ready Program	\$7	\$2,853	\$2,860
2	Temporary Generation Program	85,817	—	85,817
3	Community Microgrid Enablement Program	860	—	860
4	Program Management	529	—	529
5	Total	\$87,213	\$2,853	\$90,066

1 PG&E also incurred approximately \$30 million in incremental costs
2 in 2021 for customer support and assistance activities recorded in the
3 CPPMA, DMA, ECPMA, and the CCPAMA. These recorded costs were
4 borne by the Customer Care organization. 2021 recorded costs and
5 associated activities for each of these accounts are summarized in
6 Table 1-14 below.

TABLE 1-14
CUSTOMER CARE INCREMENTAL EXPENDITURES
(THOUSANDS OF DOLLARS)

Line No.	Account	Activity	Expense	Capital	Total
1	CPPMA	Providing temporary service and billing support for customers impacted by disasters	\$11,571	—	\$11,571
2	DMA	Implementing policies that aim to mitigate residential disconnections pursuant to D.20-06-003	8,175	—	8,175
3	ECPMA	Extending emergency customer protections to customers impacted by the COVID-19 pandemic	2,214	—	2,214
4	CCPAMA	Implementing the California Consumer Privacy Act of 2018	5,938	\$2,381	8,318
5	Total		\$27,898	\$2,381	\$30,279

7 The remaining account is the TRRRMA, which provides a customer
8 refund of \$4.7 million in revenue requirement. The TRRRMA was
9 established to record a CPUC revenue requirement associated with the
10 costs requested by PG&E for recovery in transmission rates that are no
11 longer deemed to be network transmission-related costs and, as such,

may not be included in Federal Energy Regulatory Commission transmission rates. Please see Chapter 9 for details.

2. Exclusions and Reductions

a. Ernst & Young Audit

As shown in Appendix A, EY performed an analysis of 2021 costs recorded in the WMBA, VMBA, and CEMA accounts. These accounts are hereinafter collectively referred to as the “WMCE Accounts.” The analysis was to confirm that the costs recorded to the WMCE Accounts, as captured in PG&E’s financial systems, were sufficiently supported, reasonable, and directly attributable to the WMCE Accounts.

To date, EY has analyzed approximately \$4.6 billion of wildfire mitigation program costs. In addition to the analytical procedures and transaction testing, EY tested the incrementality of the CEMA costs compared to the last approved GRC and other rate recovery mechanisms. EY obtained the last GRC filing with supporting schedules to gain an understanding of the type and nature of costs included within current base rates.

EY prepared findings and observations regarding the costs in the balancing and memorandum accounts based on their testing and analysis. EY found no material evidence that would raise questions relating to management’s conclusions that: (1) costs were incurred for the activities set forth in the corresponding relevant CPUC-approved Accounts; (2) costs were accurately recorded; and (3) there is no evidence of costs recorded to more than one account. Further, EY found that any observations of possible deviations within the cost data provided were not material to the overall costs incurred.

EY identified items totaling approximately \$1.4 million (extrapolated to approximately \$3.15 million) that it recommended be removed from this application. PG&E accepted EY’s recommendation and reduced the cost request accordingly.

F. Ratemaking and Customer Impacts

In a separate motion filed with PG&E’s application, PG&E seeks interim rate relief of 85 percent of the \$1.3 billion total revenue requirement, or

1 \$1,104.1 million, to be recovered over 12 months beginning June 1, 2023
2 (Electric Distribution only), and the remaining 15 percent, or \$224.4 million, to be
3 recovered over the subsequent 12 months, with the exception of the capital
4 revenue requirement which would extend through 2026. For details, please see
5 Chapter 12, Table 12-5.

6 If the Commission grants PG&E's revenue requirement proposal without
7 any reductions, the typical Non-Care residential electric customer would see
8 their bill increase by approximately \$8.67 per month compared to present bills in
9 the first year, \$1.49 per month compared to present bills in the second year, and
10 \$0.12 per month compared to present bills in the third year. The typical
11 Non-Care residential gas customer would see their bill increase by
12 approximately \$0.08 per month in the second year compared to present bills.

13 **G. Organization of Remainder of Testimony**

14 The remainder of the testimony in support of this application is organized as
15 follows:

- 16 • Chapter 2 – Presents electric distribution wildfire mitigation work recorded to
17 the WMBA.
- 18 • Chapter 3 – Presents electric distribution and PG VM work recorded to the
19 VMBA.
- 20 • Chapter 4 – Presents electric distribution response and recovery work
21 recorded to CEMA.
- 22 • Chapter 5 – Presents PG response and recovery work recorded to CEMA.
- 23 • Chapter 6 – Presents costs related to the Company's COVID-19 response
24 recorded to CEMA.
- 25 • Chapter 7 – Presents customer care costs recorded to CPPMA, DMA,
26 ECPMA, and CCPAMA.
- 27 • Chapter 8 – Presents electric distribution costs related to Microgrids
28 recorded to MGMA.
- 29 • Chapter 9 – Presents the rate base components related to the TRRRMA
30 revenue requirement request.
- 31 • Chapter 10 – Demonstrates that the costs included in this application are
32 incremental and not recovered elsewhere in rates.
- 33 • Chapter 11 – Describes the proposed ratemaking for the costs included in
34 this application.

- 1 • Chapter 12 – Presents the revenue requirement associated with the
2 incremental costs in this application.

3 **H. Conclusion**

4 The costs we present in this application are for activities that are necessary
5 to improve and maintain the safety and reliability of our system, and are
6 consistent with the policies underlying the establishment of the aforementioned
7 memorandum and balancing accounts and with the requirements of Pub. Util.
8 Code Section 454.9.

9 We are proud of what our employees and contractors have accomplished
10 with this work. It has made our service area safer for the people that live and
11 work here.

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 2
WILDFIRE MITIGATION BALANCING ACCOUNT

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 2
WILDFIRE MITIGATION BALANCING ACCOUNT

TABLE OF CONTENTS

A. Introduction.....	2-1
B. Overview	2-1
1. Wildfire Mitigation Balancing Account	2-1
2. Activities and Recorded Amounts Subject to Reasonableness Review	2-2
3. Ernst & Young’s Independent Audit Report	2-3
C. Public Safety Power Shutoff Activities	2-4
1. PSPS Events	2-7
a. Nature of Activity	2-7
b. Summary of Costs	2-10
1) Electric Distribution Field Resources and Aviation	2-11
2) Community Resource Centers	2-11
3) EOC Support.....	2-12
4) Customer Communications	2-12
5) In-Event Vegetation Management.....	2-13
6) Information Technology.....	2-14
7) Other	2-14
c. Reason for Activity.....	2-14
2. PSPS Program.....	2-15
a. Nature of Activity	2-15
b. Summary of Costs	2-16
1) PG&E Event Readiness	2-16
2) Customer Event Readiness.....	2-21
c. Reason for Activity.....	2-32
3. PSPS – Conclusion.....	2-33

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 2
WILDFIRE MITIGATION BALANCING ACCOUNT

TABLE OF CONTENTS
(CONTINUED)

D. Advanced Fire Modeling.....	2-33
1. Technosylva Fire Spread Modeling.....	2-34
a. Nature of Activity	2-34
b. Summary of Costs	2-35
c. Reason for Activity.....	2-35
2. Meteorology Weather Station Monitoring	2-36
a. Nature of Activity	2-36
b. Summary of Costs	2-36
c. Reason for Activity.....	2-36
3. Wildfire Safety Operations Center Support	2-37
a. Nature of Activity	2-37
b. Summary of Costs	2-37
c. Reason for Activity.....	2-38
4. Live Fuel Moisture Sampling and Observation Program	2-38
a. Nature of Activity	2-38
b. Summary of Costs	2-38
c. Reason for Activity.....	2-38
5. AFM Conclusion.....	2-39
E. Storm Outage Prediction Project Automation and Numerical Weather Prediction	2-39
1. Nature of Activity	2-39
2. Summary of Costs.....	2-40
3. Reason for Activity	2-40
4. SOPP Conclusion	2-40

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 2
WILDFIRE MITIGATION BALANCING ACCOUNT

TABLE OF CONTENTS
(CONTINUED)

F. Safety and Infrastructure Protection Teams	2-41
1. Nature of Activity	2-41
2. Summary of Costs.....	2-41
3. Reason for Activity	2-42
4. SIPT Conclusion	2-42
G. WMBA Reasonableness – Conclusion	2-42

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 2
WILDFIRE MITIGATION BALANCING ACCOUNT

A. Introduction

This chapter presents Pacific Gas and Electric Company's (PG&E or the Company) 2021 Wildfire Mitigation Balancing Account (WMBA) costs and explains the primary drivers of costs exceeding the General Rate Case (GRC) 115 percent reasonableness review threshold set for the WMBA: (1) Public Safety Power Shutoff (PSPS) activities, (2) Advanced Fire Modeling (AFM), (3) Storm Outage Prediction Project (SOPP), and (4) Safety and Infrastructure Protection Teams (SIPT). This chapter demonstrates that costs incurred for these four activities beyond the 115 percent reasonableness review threshold are reasonable and should be authorized by the California Public Utilities Commission (CPUC or Commission).

B. Overview

1. Wildfire Mitigation Balancing Account

The Commission authorized the WMBA in Decision (D.) 20-12-005¹ (2020 GRC Decision). The WMBA is a two-way balancing account used to track costs for PG&E's Community Wildfire Safety Program (CWSP) and associated programs and activities. The CWSP costs recorded to the WMBA include both operations and maintenance (O&M) expenses and capital expenditures incurred for certain wildfire mitigation activities outlined in PG&E's GRC and annual Wildfire Mitigation Plan (WMP).² These wildfire mitigation activities include: (1) system hardening; (2) enhanced situational awareness initiatives, including AFM; (3) enhanced operational practices, including PSPS; and (4) support programs. The activities are critically

¹ D.20-12-005, p. 396, Conclusion of Law (COL) 29 ("Authority to establish a two-way WMBA to record CWSP O&M and capital expenditures is supported by the record and should be authorized.")

² The WMP is updated and submitted annually to the California Office of Energy Infrastructure Safety. The WMP comprehensively addresses PG&E's activities to reduce wildfire risk. See PG&E's 2021 WMP – Revised Report, Rulemaking (R.) 18-10-007 (June 3, 2021) (Revised 2021 WMP), www.pge.com/wildfiremitigationplan (as of Nov. 18, 2022)).

important for PG&E to comply with state policy under Senate Bill (SB) 901 and Assembly Bill (AB) 1054 to mitigate the increasing risk of wildfire caused by climate change and drought conditions across California.³

The 2020 GRC Decision authorizes PG&E to recover WMBA expenses exceeding the GRC authorized amount by up to 115 percent, through a Tier 2 advice letter.⁴ This application seeks reasonableness reviews of recorded expense costs for four CWSP wildfire mitigation activities (PSPS, AFM, SOPP, and SIPT) that caused PG&E to exceed the WMBA's 115 percent reasonableness review threshold.⁵

2. Activities and Recorded Amounts Subject to Reasonableness Review

As shown in Table 2-1 below, the GRC-authorized (adopted) amount for 2021 CWSP O&M expenses is \$51.9 million,⁶ and the 115 percent reasonableness review threshold is \$59.7 million. PG&E's 2021 recorded CWSP O&M expenses totaled \$161.1 million, which is \$101.5 million over the reasonableness review threshold.

**TABLE 2-1
WMBA EXPENSE REQUEST
(THOUSANDS OF DOLLARS)**

Line No.	Account	Adopted Amount	Adopted at 115%	2021 Recorded	Subject to Review
1	WMBA	\$51,867	\$59,647	\$161,104	\$101,457

Note: The adopted amount has been adjusted from \$55.3 million to remove Transmission Owner (TO). See Chapter 11 for more details.

³ See also D.20-12-005, pp. 119-120 ("We generally find the five main programs under CWSP as well as specific programs and projects proposed under the five main programs reasonable and necessary.").

⁴ D.20-12-005, p. 410, Ordering Paragraph (OP) 1.b.

⁵ Advice Letter 4392-G/6100-E was approved on March 25, 2021 without changes. In accordance with OP 9 of D.20-12-005, PG&E submitted a Tier 2 advice letter to seek recovery of an expense under-collection of \$7.6 million for CWSP wildfire mitigation activities recorded to the WMBA—the costs exceeding the GRC authorized amount up to 115 percent, or reasonableness review threshold.

⁶ D.20-12-005, p. 119.

PG&E's recorded WMBA O&M expenses exceeded adopted amounts primarily due to four wildfire mitigation programs: (1) PSPS, which includes costs to execute PSPS events in 2021 (PSPS Events) and general PSPS program costs (PSPS Program); (2) AFM; (3) SOPP; and (4) SIPT. Table 2-2 below presents 2021 recorded costs for PSPS, AFM, SOPP, and SIPT activities and associated amounts presented for reasonableness review.

**TABLE 2-2
WMBA EXPENSES BY ACTIVITY
(THOUSANDS OF DOLLARS)**

Line No.	WMBA Activity	Adopted Amount	Adopted at 115%	2021 Recorded Expenses	Subject to Review
1	PSPS Events	—	—	\$35,301	\$35,301
2	PSPS Program	\$6,314	\$7,261	66,762	59,501
3	SOPP	303	349	1,977	1,628
4	AFM	1,196	1,375	4,833	3,458
5	SIPT	13,806	15,877	17,112	1,235
6	Total	\$21,619	\$24,862	\$125,985	\$101,123

Note: Table 2-2 reflects the four programs presented for reasonableness review: PSPS, AFM, SOPP, and SIPT. These program expenses are a subset of the total recorded WMBA costs shown in Table 2-1 above for 2021.

The expenses of \$101.1 million for these programs comprise 99.7 percent of the total WMBA costs subject to reasonableness review.

In the testimony that follows, PG&E will demonstrate that \$101.1 million in expense recorded to the WMBA for PSPS, SOPP, AFM and SIPT activities in 2021 was reasonably incurred and should be authorized for recovery by the Commission.

3. Ernst & Young's Independent Audit Report

As shown in Appendix A, Ernst & Young (EY) performed an analysis of 2021 costs from the WMBA, Vegetation Management Balancing Account (VMBA), and Catastrophic Event Memorandum Account (CEMA) accounts to confirm that the costs incurred were sufficiently supported, reasonable, and directly attributable to the balancing and memorandum accounts as they are captured in PG&E's financial systems. EY performed analytics across each population and developed specific testing procedures tailored to each

category of cost based on its unique nature and associated risks. The combination of analytical procedures, statistical sampling, and transaction testing is designed to provide adequate coverage across all cost categories within the scope of these accounts. Approximately \$419 million, or 20 percent of the total costs incurred, was tested.

EY prepared findings and observations regarding the costs in the Wildfire Mitigation and Catastrophic Events (WMCE) Accounts based on their testing and analysis. EY found no material evidence that would raise questions relating to management's conclusions that: (1) costs were incurred for the activities set forth in the corresponding relevant CPUC-approved Accounts; (2) costs were accurately recorded; and (3) there is no evidence of costs recorded to more than one account.

EY identified items totaling approximately \$1.4 million (extrapolated to approximately \$3.15 million) that it recommended be removed from this application. PG&E accepted this recommendation, and reduced the amounts requested in the application accordingly.⁷ Of the \$3.15 million reduction, \$246 thousand concern costs recorded in the WMBA.

Chapter 11 provides a description of the EY audit in greater detail.

C. Public Safety Power Shutoff Activities

Public Safety Power Shutoff costs are divided into two categories of activities; (1) PSPS Events and (2) PSPS Program.

The PSPS Events category includes activities directly associated with: (1) proactively de-energizing our electric transmission or distribution lines following a determination of weather-related imminent threats to power line assets and increased risk of catastrophic wildfire, and (2) re-energizing those lines following an "all-clear" determination. This includes a sequence of activities beginning with activation of the Emergency Operations Center (EOC) and ending with line re-energization. These activities are discussed in Section C.1 below.

The PSPS Program category includes activities that support the PSPS program but are not associated with a specific PSPS event, such as exclusive

⁷ PG&E provides a high-level overview of EY's independent audit in this chapter only for background. Refer to Appendix A for EY's complete audit report and a detailed description of EY's methodology and findings.

use helicopter contracts and our Community Resource Center (CRC) Preparedness Program. These activities are discussed in Section C.2 below.

As shown in Table 2-4, PG&E recorded \$102.1 million in expense for both categories of PSPS activities in 2021, compared to \$158.2 million in 2020. PSPS Event costs declined substantially from \$80.7 million in 2020 to \$35.3 million in 2021. This was attributable to the significantly smaller scope of PSPS Events in 2021, compared to 2020. Similarly, PSPS Program costs decreased from \$77.5 million in 2020 to \$66.8 million in 2021.

TABLE 2-4
PUBLIC SAFETY POWER SHUTOFF EXPENSE COSTS
(THOUSANDS OF DOLLARS)

Line No.	Activity	2020 Recorded	2021 Recorded
1	PSPS Events	\$80,708	\$35,301
2	PSPS Program	77,499	66,762
3	Total	\$158,207	\$102,063

The costs for these activities exceeded the 2020 GRC adopted imputed amount of \$6.3 million, and the 115 percent reasonableness review threshold of \$7.3 million. (See Table 2-2 above.)

PG&E's 2020 GRC forecast did not include costs to implement PSPS events (i.e., costs to de-energize and re-energize lines). When the 2020 forecast was developed, PG&E had never executed a PSPS event and did not have a historical basis to forecast the cost per event nor the number of events per year. As such, there is no adopted amount for PSPS Events in the 2020 GRC.

While PG&E did not have a historical basis to forecast PSPS event costs, PG&E's 2020 GRC forecast contained costs for certain PSPS Program activities, including the development of a multi-channel customer-outreach strategy to raise awareness and prepare potential PG&E customers for PSPS across all customer segments.⁸ To drive awareness, PG&E developed educational materials and disseminated content including press releases, direct mailings, automated and live call outs, and social media posts, based on each

⁸ PG&E's customers segments are: Residential, Medical Baseline (MBL), Small and Medium Sized Businesses, Large Commercial, Industrial, and Agricultural.

1 segment's needs. PG&E also trained several customer-facing teams, developed
2 operational processes, and hosted community workshops and customer open
3 houses across potentially impacted areas.

4 Since PG&E developed the 2020 GRC forecast, changing climate conditions
5 in California have forced the California investor-owned utilities (IOUs) to rely on
6 PSPS as a mitigation measure of last resort. In response, the Commission has
7 imposed a series of requirements to lessen the impact to customers and
8 communities. For example, the Phase 1 PSPS Guidelines required IOUs to
9 conduct enhanced statewide PSPS public education and outreach tailored to the
10 needs of different stakeholders, including Access and Functional Needs (AFN)
11 populations.⁹ The guidelines set forth specific requirements for this outreach,
12 including, among other things, different modes of communication and language
13 requirements.¹⁰ The Phase 2 PSPS Guidelines required IOUs, among other
14 requirements, to: (1) establish working groups and advisory boards; (2) further
15 refine their de-energization protocols; (3) perform simulation exercises; and
16 (4) establish CRC plans in preparation for PSPS events.¹¹ The Phase 3 PSPS
17 Guidelines¹² required IOUs, among other requirements, to: (1) continue
18 preparation for CRCs; (2) create a webpage accessible from their respective
19 PSPS main webpage that includes information on critical facilities and
20 infrastructure; (3) file and serve the pre-season and post-season reports
21 following the template provided by the Commission's SED (Safety and
22 Enforcement Division); and (4) develop the AFN Plan adhering to Federal
23 Emergency Management Agency (FEMA) preparedness guidelines. PG&E's
24 2020 GRC forecast was developed before PG&E had executed its first PSPS
25 event and could not have anticipated the extent of these activities and the
26 associated costs.

27 PG&E's PSPS activities and their cost drivers in 2021 are described in
28 further detail below.

⁹ D.19-05-042, Appendix A, pp. A1-A3, A14.

¹⁰ *Id.*

¹¹ D.20-05-051, Appendix A, pp. 1-2, 5-6.

¹² D.21-06-034, Appendix A, pp. A1-A4, A7-A10.

1. PSPS Events

Table 2-5 below shows PG&E's 2021 expenses for PSPS Events.

**TABLE 2-5
PUBLIC SAFETY POWER SHUTOFF EVENTS EXPENSES
(THOUSANDS OF DOLLARS)**

Line No.	Activity	2021 Recorded	2021 Adopted	2021 Adopted at 115%	Subject to Review
1	PSPS Events	\$35,301	–	–	\$35,301

a. Nature of Activity

California has experienced dramatic environmental changes in recent years, including strong wind events, tree mortality, record rainfall, heat waves, and drought, which have increased the frequency and scope of wildfires. PG&E's PSPS program evaluates whether to proactively de-energize a portion of our electric system as a public safety measure of last resort to prevent an ignition during extreme fire weather patterns. De-energization may be necessary when a combination of winds and location-specific factors, such as vegetation dryness, are forecast to present a statistically high likelihood of damage or disruption to above-ground power lines, suggesting a heightened risk of catastrophic wildfire.

The PSPS program encompasses both distribution and transmission lines. The most common electric lines to be considered for de-energization are those that pass through designated Tier 2 (elevated risk) and Tier 3 (extreme risk) fire threat areas according to the CPUC's High Fire Threat District (HFTD) map, and additional high-risk areas that PG&E has independently identified. While customers in these areas are more likely to be affected by a PSPS event, any customer could lose power if their community relies upon a line that passes through a high-risk fire area.

To ensure that our PSPS program is appropriately scoped to capture all areas of our service territory presenting catastrophic wildfire risk, PG&E developed a High Fire Risk Area (HFRA) map in 2020. The HFRA map includes areas with high risk for potential catastrophic fire

1 that are not captured on the CPUC's HFTD map. Many of these areas
2 do not contain a large number of customers or PG&E assets and are in
3 rural, hard-to-access locations where a wildfire could grow and spread
4 rapidly. The initial version of PG&E's HFRA map identified
5 approximately 115 additional HFRA that were included in our PSPS
6 program scope in 2020. In 2021, PG&E continued to develop our HFRA
7 map. This was completed by removing areas from the HFRA map
8 where we concluded that an ignition during an offshore wind event either
9 would not occur or otherwise would not lead to a catastrophic wildfire.

10 We predict the scope and duration of a potential PSPS event using
11 near-term forecasts of weather and vegetation fire potential. The
12 models used to forecast outage producing winds and fire potential
13 calculate near-term forecasts four times daily. Results from these
14 models, in conjunction with global and local forecasts from external
15 agencies, are evaluated by members of our Fire Science and
16 Meteorology team to determine if there is a concurrence of heightened
17 outage risk from a wind event and potential for large wildfires to occur.
18 If severe weather conditions exist, we determine the potential scope of a
19 PSPS event by identifying which, if any, facilities are within the area
20 forecast to be impacted by the weather event and would require
21 de-energization to protect public safety.

22 Our Meteorology team closely monitors forecasts and conditions,
23 updating the PSPS Incident Command team of any changes and
24 continually revising the scope and timing of the possible event to reflect
25 the latest forecast conditions. Areas may be added to or removed from
26 the PSPS event scope based on these ongoing forecast updates.

27 PG&E's process for executing PSPS events includes the following
28 steps: (1) monitoring weather before the EOC is activated;
29 (2) activating the EOC if necessary based on weather conditions;
30 (3) identifying and approving the initial scope of the potential
31 de-energization event and notifying public safety partners
32 (e.g., governmental agencies, emergency responders) and impacted
33 customers; (4) making the final decision to de-energize based on
34 updated weather forecasts, situational intelligence, and other

1 information; (5) sending final warning notifications to impacted public
2 safety partners and customers; (6) de-energizing assets identified to be
3 in scope; and (7) making the weather all-clear determination to begin
4 patrolling affected circuits and re-energizing the power grid when it is
5 safe to do so.

6 In 2021, our customers were less impacted by PSPS events due to
7 a combination of relatively favorable weather conditions, our continuing
8 efforts to listen to our customers and communities to find ways to reduce
9 the impact of PSPS outages without compromising safety, and
10 continuous improvements based on lessons learned from past PSPS
11 events. PG&E has learned and improved significantly since we
12 executed our first PSPS event in 2018, and we continue to evolve and
13 improve this critical wildfire risk mitigation program. Improvements to
14 our PSPS program have included enhanced operations, communication,
15 and coordination before, during, and after PSPS events. Together,
16 these improvements have reduced risk and resulted in more targeted,
17 smaller, and shorter PSPS events. Indeed, in 2021, PG&E reduced the
18 number of customers impacted by each PSPS event by approximately
19 88 percent when compared to the number of customers impacted in
20 2020.

21 Details about our 2021 PSPS events are shown in the table
22 below.¹³

¹³ See the PSPS workpapers for additional details on the weather patterns underlying each event and the specific factors we considered when deciding to de-energize. Complete Post Event reports, https://www.pge.com/en_US/residential/outages/public-safety-power-shutoff/pmps-reports.page (as of Dec. 1, 2022).

**TABLE 2-6
2021 PSPS EVENT DETAILS**

	2021 Event	Jan 19-21	Aug 17-19	Sep 20-21	Oct 11-12	Oct 14-16	Total
Event	Event Days	3	3	2	2	3	13
	Max Wind Gust	83 mph	56 mph	48 mph	102 mph	47 mph	
	Damages/Hazards	423	10	0	8	1	442
	First out-to-last restored Duration	194 hrs	69 hrs	34 hrs	85 hrs	39 hrs	
	Counties Impacted	7	13	8	23	1	52
	Avg. Restore Dur. (CAIDI from all clear)	62 hrs	9 hrs	3 hrs	9 hrs	4 hrs	
	Avg. Outage Duration (CAIDI)	83 hrs	29 hrs	13 hrs	28 hrs	16 hrs	
Customer	Customers Impacted	5,099	48,155	2,968	23,504	666	80,392
	Total In-Person Visits / Doorbell Rings	5		137	194	111	447
	CRCs Open	7	34	9	24	11	85
Operations	Distribution Circuits	18	96	16	95	6	231
	Distribution Miles (Tier 2/3)	418	4,155	262	1,974	52	6,861
	Distribution Miles (Total)	425	4,858	300	2,650	61	8,294
	Restoration Helicopters	11	33	9	35	1	89

Note: Damages/Hazards are identified during patrol prior to re-energization. "Damages" are instances of damage to our assets. "Hazards" are conditions that could have sparked an ignition had the lines remained energized, like a tree limb found suspended in electrical wires.

b. Summary of Costs

PG&E incurred \$35.3 million to execute five PSPS events in 2021.

A breakdown of the costs for each event by activity is provided in

Table 2-7 below, followed by a description of each activity.

**TABLE 2-7
2021 PSPS EVENT EXPENSE COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Activity	PSPS Event 1/18/21	PSPS Event 8/17/21	PSPS Event 9/20/21	PSPS Event 10/11/21	PSPS Event 10/14/21	Other Event Costs	2021 Recorded
1	Electric Dis. Field Resources and Aviation	\$1,894	\$7,016	\$1,168	\$3,043	\$539	\$6,837	\$20,497
2	Community Resource Centers	692	1,832	510	1,708	746	31	5,519
3	EOC Support	715	1,107	186	204	86	(864)	1,434
4	Customer Communications	488	694	418	552	456	284	2,892
5	In-Event Vegetation Management	10	176	20	229	—	4,108	4,543
6	Information Technology (IT)	87	12	2	42	6	10	159
7	Other	86	41	35	95	—	—	257
8	Grand Total	\$3,971	\$10,876	\$2,340	\$5,873	\$1,833	\$10,409	\$35,303

Note: Other Event Costs mainly include: (1) costs incurred for 2021 events that were not allocated to specific event orders due to timing, and (2) prior year event cost adjustments and corrections.

1 We provide additional details about each activity below.

2 **1) Electric Distribution Field Resources and Aviation**

3 PG&E incurred \$20.5 million for electric distribution field
4 resources in connection with our 2021 PSPS events, including flight
5 costs for aviation and helicopter services, and Other Event Costs.

6 Electric distribution field resources are internal and contract
7 crews that patrol and inspect the de-energized lines during a PSPS
8 event to ensure it is safe to re-energize the lines and restore power
9 to customers. PG&E used aerial patrols of de-energized distribution
10 lines to ensure it was safe to re-energize the lines. Use of aerial
11 patrols significantly shortens the patrol time for circuits following an
12 all-clear, thereby reducing the duration of a PSPS event.

13 In 2021, nearly 7,000 distribution lines miles had to be patrolled
14 prior to re-energization.¹⁴ Although helicopters greatly assist in this
15 effort, field crews also play a vital role as not all locations are visible
16 from the air.

17 **2) Community Resource Centers**

18 To minimize the impact of PSPS events on our customers,
19 PG&E incurred \$5.5 million for 85 CRCs in impacted counties in
20 2021, and for Other Event Costs. Approximately 10,800 customers
21 used our 41 indoor and 44 outdoor CRCs in 2021. The CRCs
22 provided safe and accessible locations where impacted customers
23 could charge medical devices and personal electronics, obtain
24 PSPS event information and use restrooms, hand-washing stations,
25 tables, chairs, Wi-Fi, and cellular service. The CRC sites were
26 typically open from 8 a.m. to 10 p.m. for the duration of the PSPS
27 event, although two closed early due to wildfire evacuations.

28 Due to ongoing COVID-19 concerns in 2021, PG&E's CRC
29 approach reflected appropriate public health considerations. PG&E
30 continued to use a combination of indoor and outdoor CRCs to
31 accommodate physical distancing and COVID-19 public health

¹⁴ Transmission patrol costs are funded through the Transmission Owner rate case and are not included in this cost-recovery request.

guidelines. In addition, all CRCs followed federal, state, and county COVID-19 public health guidelines in effect at the time:

- Facial coverings were required regardless of vaccination status, and physical distancing was encouraged indoors;
- Supplies were handed out so customers could choose “grab and go” items such as blankets, non-perishable food, water, etc.;
- Surfaces were regularly sanitized; and
- For the health and safety of the greater community, we asked customers not to visit a CRC if they were exhibiting symptoms of illness.

3) EOC Support

PG&E incurred \$1.4 million for the EOC during 2021 PSPS events and Other Event Costs. The EOC is activated during PSPS events and is comprised of a multi-disciplinary team of PG&E employees who assume emergency response positions consistent with the Incident Command System (ICS). Each member of the Command and General Staffs have specific responsibilities when the EOC is activated for a PSPS event.

The EOC costs were incurred primarily for employee labor and other employee related expenses (e.g., lodging and travel) when working in or supporting the EOC, as well as security services and other miscellaneous expenses.

4) Customer Communications

PG&E incurred \$2.9 million for Customer Communications during 2021 PSPS events and Other Event Costs. PG&E’s Customer Communications teams provided key support and notifications to customers and partner agencies during PSPS events in accordance with PSPS Guidelines.¹⁵

During the five PSPS events in 2021, PG&E notified customers prior to de-energization. These notifications included improved content such as improved wording and translations based on

¹⁵ See D.19-05-042 and D.20-05-051.

1 feedback from agencies and customers following the 2020 PSPS
2 events. Notifications were also tested for usability and accessibility
3 and included improved content to provide simple and straightforward
4 messaging on relevant event information (e.g., location of impact(s),
5 estimated time of shutoff, and restoration). PG&E provided in-event
6 communications in 15 non-English languages.¹⁶

7 To ensure that MBL customers had time to prepare, PG&E sent
8 automated notifications via phone, text, and email every hour until
9 the customer confirmed receipt. If an MBL customer did not confirm
10 receipt, PG&E conducted door-bell rings prior to de-energization.

11 PG&E also provided proactive notifications and information
12 about impacted zip codes to paratransit agencies serving known
13 transit- or paratransit-dependent persons who may need access to a
14 CRC during PSPS events.¹⁷

15 In 2021, PG&E also launched PSPS Address Alerts for
16 non-PG&E account holders so that any individual served by PG&E
17 or with interest in a location served by PG&E can sign up for PSPS
18 event notifications in any of 16 languages delivered via phone call or
19 SMS text. Address Alerts replaced the previously available option of
20 zip code alerts.

21 In addition to proactive direct communications to potentially
22 impacted customers, PG&E conducted event-related public
23 awareness campaigns and coordinated with third party agencies,
24 media, and local organizations that shared event information
25 through their respective networks.

26 **5) In-Event Vegetation Management**

27 In 2021, PG&E incurred \$4.5 million to conduct expedited
28 vegetation work with the goal of reducing vegetation impacts and
29 potentially averting the need to de-energize certain lines, and for
30 Other Event Costs. PG&E mitigated high risk trees and addressed

¹⁶ Spanish, Chinese (Mandarin and Cantonese), Vietnamese, Tagalog, Korean, Russian, Arabic, Punjabi, Farsi, Japanese, Khmer, Hmong, Thai, Hindi, and Portuguese.

¹⁷ D.21-06-034, Appendix A, pp. A9-A10.

1 outstanding vegetation tags that could be completed prior to the
2 start of a given weather event to reduce the risk of vegetation
3 failures and to avoid shutoff for particular lines.

4 These costs are recorded to the WMBA as opposed to the
5 VMBA because in-event vegetation management work directly
6 relates to PSPS event scoping in that it can eliminate the need to
7 de-energize circuit(s) near the vegetation impact.

8 **6) Information Technology**

9 PG&E incurred \$0.2 million to coordinate the response of our IT
10 resources and systems in support of all stages of PSPS and for
11 Other Event Costs.

12 **7) Other**

13 Other Costs of \$0.3 million include other small workstreams
14 such as Hydro Support to identify potentially impacted PG&E Power
15 Generation managed facilities and business continuity plans.

16 **c. Reason for Activity**

17 The Commission has affirmed that Public Utilities Code
18 (Pub. Util. Code) Sections 451 and 399.2 authorize regulated utilities to
19 shut off electric service when necessary to protect public safety.¹⁸ That
20 is, when utilities “reasonably believe that there is an imminent and
21 significant risk that strong winds will topple its power lines onto tinder dry
22 vegetation or will cause major vegetation-related impacts on its facilities
23 during periods of extreme fire hazard,” they may exercise their statutory
24 authority to de-energize.¹⁹

25 PG&E’s 2021 PSPS event costs reflect our efforts to maintain public
26 safety during dangerous fire weather while minimizing the scope and
27 impact of de-energization on our customers in compliance with
28 Commission guidelines. Our spending on electric distribution field
29 resources and aerial patrols, for example, shortened restoration times
30 during the 2021 PSPS events. CRCs and customer communication

¹⁸ See, e.g., D.19-05-042, p. 7.

¹⁹ Electric Safety and Reliability Branch Resolution 8 (Res.ESRB-8), p. 4 (emphasis omitted).

activities reduced the impact to customers by providing necessary resources and information during de-energization. Our expedited in-event vegetation management strategy sought to avoid de-energization on certain lines to minimize the scope of PSPS and ensure PSPS was deployed only as a measure of last resort, as required by the Commission.

2. PSPS Program

Table 2-8 below shows PG&E's 2021 expenses for PSPS Program.

**TABLE 2-8
PUBLIC SAFETY POWER SHUTOFF PROGRAM EXPENSE COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Activity	2021 Adopted	2021 Adopted at 115%	2021 Recorded	Subject to Review
1	PSPS Program	\$6,314	\$7,261	\$66,762	\$59,501

a. Nature of Activity

PG&E recognizes that PSPS events cause significant disruption to the public and can themselves present risks to public safety. In accordance with the Commission's PSPS Guidelines, our PSPS Program activities reflect efforts to minimize the impact of PSPS events on customers by strengthening our overall event response, ensuring PG&E and our customers are prepared, and improving the tools and technologies we rely on to scope and manage PSPS events.

We communicated extensively with customers and communities in 2021 regarding our PSPS program. Our outreach and education efforts included direct communications, in person events, listening session meetings with county and tribal officials, and meetings and communications with Public Safety Partners and large/critical customers. We translated critical PSPS and wildfire safety communications into 15 non-English languages, coordinated with community-based organizations (CBO) and AFN organizations, prepared digital channels and notification systems for use during PSPS events, and trained Contact Center and Customer Service Office

1 personnel to field customer inquiries. We also focused on data
2 collection improvements to update customer contact information,
3 particularly for vulnerable customers.

4 Our PSPS Program activities can be generally grouped into
5 two categories: PG&E Event Readiness and Customer Event
6 Readiness. PG&E Event Readiness activities, which included
7 establishing a PSPS Program Team and conducting field exercises,
8 helped prepare PG&E personnel and contractors to respond safely and
9 efficiently during PSPS events. Customer Event Readiness activities
10 included public education campaigns and community workshops that
11 helped to prepare customers for fire season and potential PSPS events.

12 Each category of activities and their associated costs are described
13 in more detail below.

14 **b. Summary of Costs**

15 PG&E incurred \$66.8 million in expense for PSPS Program activities
16 in 2021. A breakdown of costs by each category of activity is provided
17 in Table 2-9 below, followed by a description of the individual activities
18 within each category.

TABLE 2-9
PUBLIC SAFETY POWER SHUTOFF PROGRAM EXPENSES
(THOUSANDS OF DOLLARS)

Line No.	Activity	2021 Recorded
1	PG&E Event Readiness	\$42,640
2	Customer Event Readiness	24,122
3	Total	\$66,762

19 **1) PG&E Event Readiness**

20 The Aviation Program, CRC Preparedness Program,
21 Emergency Preparedness and Response (EP&R) Field Operations,
22 PSPS Program Team, PSPS Project, Field Exercises and Training,
23 and Wildfire Safety Public Engagement Team helped prepare PG&E
24 personnel and contractors to respond safely and efficiently during

PSPS events. The 2021 recorded expenses for each of these activities are shown in the table below.

TABLE 2-10
PG&E EVENT READINESS EXPENSE COSTS
(THOUSANDS OF DOLLARS)

Line No.	Activity	2021 Recorded
1	Aviation Program	\$16,467
2	CRC Preparedness Program	10,795
3	EP&R Field Operations	8,869
4	PSPS Program Team	3,775
5	PSPS Project	1,336
6	Field Exercise and Training	729
7	Wildfire Safety Public Engagement Team	669
8	Total	\$42,640

Aviation Program

PG&E incurred \$16.5 million for the PSPS Aviation Program in 2021. This program is made up of exclusive use helicopter contracts that ensure access of up to 65 helicopters during the peak PSPS season. Access to these helicopters allows PG&E to significantly shorten the patrol time for circuits leading to an all-clear, thereby reducing the duration of a PSPS event.

Aviation Program costs also include helicopter “pre-flights,” which are part of preparation and planning for potential PSPS events. Since 2019, PG&E has been conducting pre-flights on distribution circuits with assets located in HFRA to:

- Obtain critical information to develop effective plans for air and ground resource needs during PSPS events, including identifying circuits that require either ground or air patrols to ensure that the necessary resources are appropriately staged during PSPS events;
- Improve planning capabilities by gathering patrol time data to ensure more accurate estimated restoration times; and
- Identify potential hazards on circuits and take appropriate action.

CRC Preparedness Program

As discussed in Section C.1.b.2 above, PG&E opens CRCs during PSPS events to provide a safe, energized space for impacted customers and residents experiencing a PSPS-related outage. In 2021, we spent \$10.8 million on the CRC Preparedness Program to ensure that CRCs were ready to be activated quickly during PSPS events. These costs include construction to ensure all indoor sites comply with the Americans with Disabilities Act (ADA), upgrading electrical components where needed for temporary generating units, obtaining CRC materials and supplies (printed materials, face masks and face shields, battery packs, blankets, ice, etc.), key third party vendor contracts, and a small project management team.

In 2021, PG&E continued efforts to ensure ADA compliance and accessibility at CRCs. Any building improvements required to make an indoor CRC facility compliant, such as repairing cracks in the path of travel or restriping ADA parking, were completed in advance of the fire season. Indoor CRC sites were also equipped with an automatic transfer switch so that the PG&E-provided or site-owned generator²⁰ would activate automatically during an outage. By the end of 2021, PG&E had completed this work at 112 indoor CRC sites.

The CRC Preparedness Program includes costs for third-party providers to prepare in advance for PSPS events. This includes work by a professional staffing agency to recruit and train Customer Service Leads (CSL) and Customer Service Support (CSS) staff to operate CRCs. The agency hires and trains 850 to 1,000 CSL and CSS personnel in advance so they are ready to deploy during PSPS season. The cost also includes the retainers for emergency service providers who set up the CRC sites during activations.²¹

²⁰ The cost of renting temporary generators is discussed in Chapter 8, Microgrids.

²¹ The actual costs of staff time during events are not included in this program but are included in the PSPS Event Costs. If a PSPS event is initiated, the costs of the emergency service providers are recorded as PSPS Event Costs.

1 CRC Preparedness Program costs include logistics support,
2 which consists primarily of costs to acquire supplies such as
3 batteries and blankets for CRC visitors to use. The logistics support
4 also includes expenses associated with updating signage and
5 replenishing other supplies. Other costs for the program include the
6 internal project management work conducted by a dedicated team,
7 and time from supporting departments such as land, logistics, IT,
8 and materials.

9 PG&E engaged with counties and tribal communities on a plan
10 for both indoor and outdoor CRC locations to meet their respective
11 needs. By December 2021, PG&E had secured 112 indoor and
12 282 outdoor event-ready locations with site agreements executed
13 between PG&E and landowners.

14 **Emergency Preparedness and Response Field Operations**

15 In 2021, PG&E incurred \$8.9 million for EP&R Field Operations.
16 This includes the Public Safety Specialist (PSS) team that maintains
17 established relationships with external agency partners and
18 supports emergency planning and information sharing during
19 emergencies. The PSS team serves as the PG&E Agency
20 Representative to coordinate and integrate PG&E's response with
21 jurisdictional authorities during active PSPS events.

22 The work also includes PSPS Collateral and Segmentation
23 Creation, which enhanced PG&E's Segment Guides for distribution
24 circuits. These guides are the primary reference documents that
25 Distribution Control Centers and field patrol personnel use when
26 executing "step-restoration" efforts during PSPS restoration.
27 Step-restoration is the breaking up of a given distribution circuit into
28 incremental "segments" that, once patrolled, are energized
29 individually rather than waiting until the entire circuit has been
30 patrolled (and then energizing all customers at once).
31 Step-restoration provides for safer and more efficient customer
32 restoration.

PSPS Program Team

PG&E incurred \$3.8 million for the PSPS Program Team in 2021. The PSPS Program Team includes costs for PSPS Operations and the PSPS Program Management Office. Primary functions of the PSPS Program Team in 2021 included:

- Building a cross-functional process by collaborating with various line-of-business teams to build end-to-end PSPS execution process, including gathering and prioritizing requirements, establishing process handoffs, and conducting exercises;
- Establishing and evolving the PSPS decision-making process by working closely with Meteorology and Electric Asset Management to develop and operationalize PSPS thresholds and Officer in Charge decisions to support successful execution;
- Leading the development of the HFRA effort and determining program scope by identifying areas at risk of catastrophic fire risk during high-wind events;
- Driving and tracking execution against PSPS regulatory requirements;
- Managing PSPS event data including design control, system, and reporting for key PSPS data;
- Developing and leading PSPS training; and
- Preparing post-de-energization reports for submission to the CPUC.

The team's responsibilities also included supporting the development and implementation of various processes and models needed to execute PSPS events; developing processes for transmission PSPS scoping in partnership with Meteorology and Asset Strategy; improving the overall PSPS event scoping process by minimizing manual process steps; ensuring timely and accurate data reporting; and managing PSPS Process Documentation.

PSPS Project

PG&E incurred \$1.3 million for the PSPS Project in 2021.

PSPS Project costs relate to a series of projects that improve the execution of PSPS. These projects include:

- 1) PwC Support – PG&E hired PwC consultants to provide general support to the PSPS Program Team, including with respect to post de-energization and post-season reports.
- 2) Continued development of the HFRA and determining program scope by identifying areas at risk of catastrophic fire during high wind events.
- 3) PSPS Training Development – This project entailed developing web-based PSPS training for employees supporting the EOC.
- 4) Butte County Radio Program – PG&E provided radios to customers affected by PSPS.

Field Exercises and Training

In 2021, we invested \$0.7 million to train our crews to quickly restore power during a PSPS event while maintaining public and employee safety. Our crews conducted field exercises to prepare for restoration services after emergencies. These efforts focused on practicing the coordination of emergency response teams, inspecting lines for damage, and quickly restoring power. These full-scale drills helped our personnel and contractors prepare for the challenges they faced during actual PSPS events.

Wildfire Safety Public Engagement Team

We incurred \$0.7 million in 2021 for the Wildfire Safety Public Engagement Team. This team focused on increasing the transparency of PG&E's wildfire safety and PSPS programs with local and tribal governments, public agencies, and other external stakeholders to increase mutual trust and cooperation.

2) Customer Event Readiness

PG&E incurred \$24.1 million on customer preparedness outreach initiatives in 2021 to educate and prepare our customers

1 for PSPS events in accordance with Commission guidance.²²

2 Outreach activities included:

- 3 • Community Events and Workshops;
- 4 • Translated Outreach Materials;
- 5 • Community Board Organization Engagement;
- 6 • Advisory Boards;
- 7 • Direct Business Customer Engagement;
- 8 • Research and Customer Insights; and
- 9 • Media Engagement.

10 Each activity is described below.

11 **Community Events and Workshops**

12 In 2021, PG&E hosted 20 regional working groups,
13 three systemwide virtual open houses, and 10 town halls to provide
14 localized updates on wildfire safety work happening in respective
15 communities and answer customer questions; held 35 listening
16 sessions with cities, counties, tribes, and customers (e.g., telecom
17 providers) to better understand their 2020 PSPS experiences and
18 identify key areas for improvements; and hosted more than nine
19 PSPS Portal trainings with public safety partners.

20 Through a series of workshops, webinars, meetings, and
21 presentations throughout 2021, we also briefed the public and the
22 CPUC, California Department of Forestry and Fire Protection
23 (CAL FIRE), California Governor’s Office of Emergency Services
24 (Cal OES), and other entities throughout the state on our PSPS
25 approach and analysis, including our criteria and data analytics for
26 PSPS events.

27 In addition to these efforts, California’s large electric IOUs –
28 PG&E, Southern California Edison (SCE) and San Diego Gas &
29 Electric (SDG&E) (collectively the “joint IOUs”) – worked together to
30 coordinate statewide outreach for PSPS education and awareness.

²² See, e.g., D.19-05-042, D.20-05-051, D.20-03-004, and R.18-10-007.

Translated Outreach Materials

PG&E is committed to providing preparedness education, improved notifications, and additional services and resources to AFN customers in advance of and during PSPS events.

Through new and continued partnerships with multicultural media organizations and in-language CBOs, PG&E shared PSPS preparedness, awareness, and status information broadly across PSPS-affected areas in 15 non-English languages²³ and American Sign Language (ASL), using a variety of social media, news, and written materials. PG&E also contracted with five CBOs to provide in-language PSPS preparedness communications to customers in a variety of indigenous languages.²⁴ These CBOs provide in-language outreach using social media, in-person communications, and one-on-one phone calls in the indigenous languages.

To support customers who are deaf or have hearing impairments, PG&E published a video in ASL explaining the PSPS process. PG&E collaborates with NorCal Services for Deaf and Hard of Hearing to record in ASL PG&E's PSPS event notifications and messaging directing customers to pge.com for a current list of affected counties. A PSPS overview video recorded in ASL also directs customers to PG&E's address look-up tool during PSPS events. PG&E shares these PSPS ASL recordings on our social media channels (e.g., Facebook and Twitter). PG&E also includes NorCal Services for Deaf and Hard of Hearing and similar agencies in PSPS CBO communications so that the information and links can be shared within the Deaf community.

²³ Spanish, Chinese, Tagalog, Russian, Vietnamese, Korean, Farsi, Arabic, Hmong, Khmer, Punjabi, Japanese, Thai, Portuguese, and Hindi.

²⁴ Mixteco, Tlapaneco, Triqui, Zapoteco, Maya, Nahuatl, Chatino, Chinanteca, and Katz el.

Community Based Organization Engagement

Throughout 2021, PG&E had a dedicated CBO Liaison team to maintain ongoing communications with CBOs before, during, and after PSPS. This team also maintains engagement with resource providers (e.g., California Foundation for Independent Living Centers (CFILC), food banks, Meals on Wheels, and CBOs that provide translations in indigenous languages), as well as information-only CBOs, to manage two-way communication leading up to and during each PSPS event. To ensure CBO Resource Partners are prepared to support PG&E customers during an event, they are sent PSPS advance/priority notifications to prepare resources for deployment. PG&E hosts a CBO Resource Partner coordination call which allows resource CBOs supporting the PSPS event to ask questions and share best practices.

In 2021, PG&E held contracts with five CBOs and 38 multicultural media partners to provide in-language communication support before and during PSPS events to support customers from indigenous communities that occupy significant roles in California's agricultural economy.

PG&E developed partnerships with 61 Resource Partner CBOs to help support AFN customers with resources before, during, and after PSPS events or wildfires. These partnerships included 23 food banks, 25 Meals on Wheels organizations, and community support providers. Together, PG&E provided over 9,500 food boxes to vulnerable customers, conducted more than 9,900 customer energy assessments for backup power support, and delivered approximately 6,500 batteries to qualifying customers through the Portable Battery Program (PBP) and the DDAR Program combined. Additional PSPS resources provided by DDAR included approximately 350 food vouchers, 40 gas vouchers, 270 hotel stays, and accessible transportation.

Advisory Boards

In 2021, PG&E engaged with interested parties and advisory councils to gain feedback on our approach to serving customers before, during, and after PSPS events.

PG&E continued to host an AFN-focused regional advisory council called People with Disabilities and Aging Advisory Council (PWDAAC). The PWDAAC is a diverse group of recognized CBO leaders supporting people with developmental or intellectual disabilities, physical disabilities, chronic conditions, injuries, and older adult communities, as well as advocates from within these communities. The PWDAAC's role includes actively identifying issues, opportunities, and challenges related to PG&E's ability to minimize the impacts of PSPS and other wildfire risk mitigation measures and emergencies to Northern and Central California over the long term; serving as a sounding board and offering insights, feedback, and direction on PG&E's customer strategy, programs, and priorities; and sharing experiences, perspectives, and best practices for improving PG&E's customer performance. In 2021, PG&E met with PWDAAC quarterly to gather feedback and provide information on resources, services, and programs. Virtual meetings were held on February 26, March 19, June 11, September 17, and December 17, 2021.

PG&E also continued to partner with the other California electric IOUs on the Joint IOU Statewide AFN Council established in 2020. The Statewide AFN Council's scope includes the following: helping to identify the needs of the various AFN constituents in connection with PSPS events and wildfire emergencies; actively identifying issues, opportunities, and challenges related to the joint IOUs' ability to minimize the impacts of wildfire safety strategies like PSPS throughout California over the long term; and identifying opportunities for partnerships with participating organizations to provide additional resources to the most vulnerable customers impacted by PSPS. Meetings were held January 22, January 29, February 2, February 12, February 17, March 5, March 12, April 30,

1 May 21, June 25, July 30, August 26, September 9, September 24,
2 and December 16, 2021.

3 On March 29, 2021, PG&E participated in an AFN Panel
4 Discussion at the CPUC Joint IOU PSPS Workshop. As a
5 continuation of the AFN Panel Discussion, PG&E, SCE, and
6 SDG&E, together with state and local agency and community AFN
7 leaders, established regular meetings. The group discussed how
8 IOUs can better identify and target AFN customers to ensure unmet
9 needs of AFN customers are addressed during PSPS events. In
10 addition to the IOU Senior Executives, attendees included leaders
11 from State Council on Developmental Disabilities, Disability Rights
12 California, CFILC, Disability Rights Education and Defense Fund,
13 Cal OES, CPUC, Liberty Utilities, Bear Valley Electric, and Pacific
14 Corp. Meetings were held on April 30, June 16, September 2,
15 October 11, October 26, and November 15, 2021.

16 In 2021, PG&E also established the Statewide Collaborative
17 Planning Team to develop the 2022 AFN Plan in accordance with
18 the FEMA Comprehensive Preparedness Guide as adopted by the
19 Phase 3 revised guidelines for PSPS. On September 2, 2021, at
20 the AFN IOU Leadership Meeting, the IOU Senior Executive team
21 briefed the stakeholders identified in D.21-06-034 to initiate the
22 collaborative planning team discussions and propose a schedule.
23 On September 24, 2021, the IOUs introduced this effort at the
24 broader Joint IOU Statewide AFN Advisory Council meeting and
25 invited participation, and subsequently held a kick-off meeting with
26 Core Planning Team members October 29, 2021. Approximately
27 20 organizations representing the diverse needs of the AFN
28 community volunteered to participate in the 2022 Core Planning
29 Team.²⁵

30 Throughout 2021, PG&E also continued to engage with and
31 solicit feedback from other existing advisory groups, including:

25 For additional details on the Statewide Collaborative Planning Team, see PG&E's 2022 AFN Plan.

1 Disadvantaged Communities Advisory Group; Low Income
2 Oversight Board; Local Government Advisory Councils and Working
3 Groups; and Communities of Color Advisory Group.

4 Additional details on PG&E's outreach and engagement with
5 AFN and medically sensitive customers can be found in PG&E's
6 2021 AFN Plan and PG&E's 2021 Quarterly AFN Progress
7 Reports.²⁶

8 **Direct Business Customer Engagement**

9 PG&E supports the unique and complex needs of its large
10 commercial and industrial customers with a dedicated team of over
11 60 customer relationship managers supporting over 3,500 business
12 customers.

13 In 2021, PG&E met with nearly 300 key customer stakeholders
14 to provide information about emergency preparedness, local
15 progress on wildfire safety measures, and expanded resources
16 available to prepare for PSPS events. PG&E met with all assigned
17 large commercial and industrial customers, including critical facilities
18 served by lines that traverse Tier 2 and Tier 3 HFTD areas, to share
19 PSPS and emergency preparedness information and update
20 customer PSPS contact information.

21 Throughout 2021, PG&E met with the California Hospital
22 Association, Hospital Council Board of Directors of Northern and
23 Central California, California Association of Medical Product
24 Providers, telecommunications and broadband providers, water
25 agency members of the Association of California Water Agencies
26 (ACWA), and industrial and commercial members of the California
27 Large Energy Consumers Association and the Small Business Utility
28 Advocates.

29 PG&E continued the Telecommunications Resiliency
30 Collaborative, a forum for communication providers to provide
31 feedback on PG&E's current PSPS implementation protocols and to
32 coordinate engagement before and during PSPS events, as well as

26 R.18-12-005.

1 to enhance collaboration and coordination during emergency
2 response generally. This forum helped PG&E set realistic service
3 expectations and planning needs, better coordinate during
4 emergency and disaster events, and promote overall resiliency with
5 telecommunication providers in support of mutual communities
6 served. Attendees included representatives from AT&T, Verizon
7 Wireless, Comcast, Charter Communications, Frontier
8 Communications, U.S. Cellular, Sierra Telephone, and Cellular
9 Telecommunications and Industry Association. PG&E also
10 continued to build our partnership with the Hospital Council of
11 Northern and Central California in 2021. The Council is a member
12 organization comprised of approximately 150 Hospitals in Northern
13 and Central California. Given the vital role hospitals serve in the
14 community, and especially in light of the COVID-19 pandemic,
15 PG&E made a commitment to identify the PSPS risk for each
16 hospital and support the development of customized solutions for
17 those most likely to experience a PSPS event. Through this
18 partnership, PG&E formulated the energy resiliency project to
19 support fire season readiness and explore longer term grid-based,
20 single site, and microgrid resiliency solutions.

21 Building on the successful engagement in 2020 where PG&E
22 supported EPA Region 9's development of PSPS Standard
23 Operating Procedures with a particular focus on small and tribal
24 water systems, PG&E engaged with multiple individual water
25 agencies, with a particular focus in Q1 2021 on eight water agencies
26 who had requested back up generation in multiple PSPS events to
27 provide resources and encourage resiliency planning. We
28 continued collaboration with ACWA's Energy Committee and
29 individual water agency engagement through the remainder of 2021.

30 As part of PG&E's efforts to provide additional support to
31 customers more likely to be impacted by a PSPS event, PG&E
32 identified approximately 2,300 critical customers and large
33 commercial customer accounts that received more intensive
34 outreach and engagement, beginning in Q2 2021. These customers

1 were identified based on current PSPS criteria, modeling, grid
2 configuration, and high fire-threat areas as defined by the CPUC
3 HFTD Map. Additional proactive outreach initiatives in 2021
4 included:

- 5 • Customer Information Validation: Between June 16 and July 15,
6 2021, PG&E reached out to critical customers to confirm their
7 contact information is up to date for PSPS notifications, validate
8 support for regular and safe operation of critical facilities and
9 service points, and confirm their backup power capabilities.
- 10 • Proactive PSPS Communication: Before and during a PSPS
11 event, critical customers were proactively contacted if they did
12 not confirm receipt of at least one PSPS notification, and were
13 assigned a 24-hour contact that will be accessible and
14 responsive throughout the duration of the event.
- 15 • Resiliency Planning Assistance: PG&E conducted intensive
16 outreach to customers to support them in creating an
17 emergency plan for PSPS events, and provided PSPS planning
18 data for specific locations (i.e., historical PSPS data, simulated
19 10-year PSPS distribution and transmission event lookback, and
20 mitigation data).
- 21 • In-event CBO Support Survey: Water agencies and
22 telecommunications Public Safety Partners were sent a survey
23 on how they engage CBO partners for in-language emergency
24 communications, and were provided information on how PG&E
25 plans to coordinate and share information during a PSPS event.
26 Public Safety Partners were also informed on the process for
27 requesting a seat in our EOC.
- 28 • Annual Primary Voltage Customer Letter: On June 16, 2021,
29 PG&E sent a letter to Primary Voltage Customers informing
30 them of their maintenance and repair responsibilities and
31 encouraging them to have liability insurance. The letter
32 included the following topics: annual inspection reminder;
33 performing necessary vegetation management work; fault duty
34 awareness; and responsibilities following a PSPS shutoff. On

1 April 15 and April 20, PG&E hosted internal outreach and
2 engagement trainings for the Local Customer Experience
3 representatives and Business Energy Solutions assigned
4 account managers. Outreach for the program began on April 16
5 and was completed by May 7, 2021.

6 **Research and Customer Insights**

7 In accordance with D.20-03-004 and R.18-10-007, PG&E
8 conducted three waves of surveys: a “baseline” (i.e., prior to most
9 outreach) in May/June; a “Pre-Season” survey in
10 August/September, the beginning of peak fire season; and a
11 Post-Season survey in December/January, conducted after the
12 primary threat of PSPS had passed. Please refer to Appendix A:
13 PG&E 2021 Wildfire Preparedness and PSPS Outreach Evaluation
14 Results for results of these education and outreach surveys. For
15 more information on additional quantitative and qualitative outreach
16 PG&E conducts, see WMP Section 7.3.10.1 and Section 4.6
17 Issue 5.9A.

18 **Media Engagement**

19 PG&E engages media to educate and better prepare customers
20 for PSPS and wildfire season. PG&E works closely with external
21 media outlets to provide broad awareness to Californians to share
22 tips related to wildfire and PSPS preparedness, socialize available
23 resources, and communicate PSPS event information. PG&E is
24 also focused on enhancing and formalizing coordination with
25 multicultural media organizations for both preparedness outreach
26 and in-event communications. Traditional messaging campaigns,
27 direct-to-customer mailings, social-media posts, and earned media
28 outreach help to break through and motivate customers to be ready
29 for the height of wildfire and PSPS season. Campaigns were
30 distributed broadly, with increased weight and emphasis targeted to
31 high fire threat regions and optimized for effectiveness.

32 In 2021, PG&E placed PSPS and emergency preparedness
33 education messaging on a variety of paid media channels including:
34 digital display, video, radio (traditional and online), interactive

1 channels, and social platforms. PG&E also used Search Engine
2 Marketing to deliver over 122 million average monthly impressions
3 (i.e., the number of times content is displayed) in advance of and
4 during the months with the highest likelihood of wildfire and PSPS
5 events (July-October). PG&E purchased a combination of English
6 and in-language radio ads, as well as digital banners in English and
7 multiple languages based on targeted ZIP codes.

8 We developed and distributed 40 customer email outreach
9 campaigns, 21 different types of direct mail pieces to customers,
10 and five bill inserts to encourage customers to update their contact
11 information and/or provide PSPS readiness information and safety
12 tips.

13 We also distributed PSPS preparedness tips and information on
14 social platforms (e.g., Facebook, Twitter, Instagram and NextDoor)
15 in up to 15 languages, including videos in ASL.²⁷ In 2021, we
16 placed over 220 posts on PG&E's social media channels. We
17 continued to work with 38 multi-cultural media organizations and five
18 CBOs to assist with in-language communications and sharing our
19 social media posts before and during PSPS events. We also
20 developed a three-minute YouTube video on safety tips for
21 individuals with medical needs.

22 In 2021, we identified 38 multicultural media outlet partners who
23 helped to ensure customers and communities, regardless of
24 potential language and other cultural barriers, were prepared for

²⁷ See Examples of translated social media posts:

- PSPS Alert Banner: <https://twitter.com/PGE4Me/status/1321169776014667779> (as of Nov. 22, 2022).
- PSPS Event Update in Chinese: <https://twitter.com/PGE4Me/status/1321220048791334912?s=20> (as of Nov. 22, 2022).
- PSPS Update in Spanish: <https://twitter.com/PGE4Me/status/1321219692392968193?s=20> (as of Nov. 22, 2022).
- PSPS Warning Alert in ASL: <https://twitter.com/PGE4Me/status/1320423102866542593?s=20> (as of Nov. 22, 2022).

1 PSPS, including both planned and unplanned outages. Additional
2 details on PG&E's customer preparedness outreach can be found in
3 PG&E's 2021 WMP²⁸ Quarterly Conditions Reports.

4 **c. Reason for Activity**

5 Pub. Util. Code Sections 451 and 399.2(a) authorize utilities to shut
6 off power when necessary for public safety to prevent wildfires caused
7 by utility equipment under hazardous fire weather conditions.²⁹ At the
8 same time, PSPS events cause significant disruption to the public and
9 can themselves present risks to public safety. In accordance with the
10 Commission's Phase 1 and Phase 2 PSPS Guidelines, our PSPS
11 Program activities minimized the impact of PSPS events on customers
12 by educating them about PSPS events and strengthening our overall
13 event response to make our PSPS events safer, shorter, and more
14 targeted.

15 As the Commission has advised, "[i]ncreased coordination,
16 communication and public education can be effective measures to
17 increase public safety and minimize adverse impact from
18 de-energization."³⁰ Accordingly, the Commission has imposed specific
19 requirements related to customer outreach, education, and coordination,
20 both prior to and during PSPS events.³¹ For example, the Commission
21 has directed IOUs to "utilize all reasonable channels of communication
22 to all populations potentially affected by a de-energization event."³² In
23 the Phase 2 PSPS Guidelines, the Commission also directed utilities to
24 conduct PSPS exercises in preparation for PSPS events, plan for the
25 provision of CRCs, refine PSPS protocols, and establish working groups
26 and advisory boards, among other things.³³

²⁸ R.18-10-007, PG&E's 2021 WMP, https://www.pge.com/en_US/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan.page?WT.mc_id=Vanity_wildfiremitigationplan (as of Nov. 22, 2022).

²⁹ D.12-04-024, pp. 24-25; Res. ESRB-8, p.1; D.19-05-042, p. 7.

³⁰ Res.ESRB-8, p. 6.

³¹ D.19-05-042, p. A3; D.20-05-051, Appendix A, pp. 3-4.

³² D.20-05-051, Appendix A, p. 3.

³³ D.20-05-051, Appendix A, pp. 1-2, 5-6.

Our customer communication activities, improved PSPS processes, and the technologies we developed to support them are crucial to minimizing the impact of de-energization on our customers.

3. PSPS – Conclusion

Our most important responsibility is protecting the health, welfare, and safety of our customers and the communities we serve. When severe weather or other circumstances threaten the ability to provide electricity safely, we must take the steps necessary to protect the public. In addition to executing five PSPS events in 2021, we took necessary and prudent steps to prepare for PSPS events and improve the process overall.

D. Advanced Fire Modeling

PG&E recorded \$4.8 million in expense for AFM in 2021 and exceeded 115% of the adopted amount for these activities, as shown in Table 2-12 below.

**TABLE 2-12
ADVANCED FIRE MODELING 2021 RECORDED EXPENSE COSTS**

Line No.	Activity	2021 Recorded	2021 Adopted	2021 Adopted at 115%	Subject to Review
1	AFM	\$4,833	\$1,196	\$1,375	\$3,458

PG&E established the AFM program to enhance and operationalize models that are used to understand fire risk and spread, and to inform PSPS assessments. The AFM program is comprised of the following projects:

- 1) Technosylva Fire Spread Modeling (7.3.1.5);³⁴
- 2) Meteorology Weather Station Monitoring;
- 3) Wildfire Safety Operations Center (WSOC) Support; and
- 4) Live Fuel Moisture Sampling and Observation Program (7.3.2.1.2).

PG&E's 2021 recorded costs for these AFM activities are shown in Table 2-13 below.

³⁴ Parenthetical references are to the 2021 WMP, which describes these projects based on 2020 work and 2021 commitments.

TABLE 2-13
AFM RECORDED COSTS BY ACTIVITY
(THOUSANDS OF DOLLARS)

Line No.	Advanced Fire Modeling Activity	2021 Recorded Expenses
1	Technosylva Fire Spread Modeling	\$3,934
2	Meteorology Weather Station Monitoring	586
3	WSOC Support	216
4	Fuel Moisture Sampling	97
5	Total AFM	\$4,833

PG&E's 2021 AFM expenses exceeded the 115 percent reasonableness review threshold by \$3.5 million. The primary driver for the increased AFM costs was the continued use and implementation of Technosylva's new and emerging fire modeling technologies.

PG&E's 2021 AFM activities and their cost drivers in 2021 are described in more detail below.

1. Technosylva Fire Spread Modeling

a. Nature of Activity

Beginning in 2019, as part of our effort to better understand the impact of ignitions on surrounding areas and communities, PG&E partnered with Technosylva to develop cloud-based wildfire spread model capabilities. In 2020 and 2021, we continued to use and work with Technosylva to enhance the model. We incorporated model outputs into our PSPS decision-making criteria.

Fire-spread modeling technology, like Technosylva's, has advanced in recent years to the point that millions of fire-spread simulations can be conducted virtually instantaneously to estimate the impact and potential consequences of an ignition. Some ignitions may have minimal impact on the surrounding area and communities, while other ignitions could create significant risks, including potential loss of life, property damage, and air quality impacts. Information regarding the potential consequences of an ignition provides a fuller picture of wildfire risk than risk of ignition alone. To make full use of the technology, PG&E incurred costs for annual subscription fees for high performance computing, fuel model updates, and access to wildfire analyses and

1 output from millions of simulations run daily. Our adaption of proven
2 wildfire simulation technology from Technosylva is the main driver of
3 2021 AFM costs. Technosylva is used by CAL FIRE and several IOUs
4 in California, including PacificCorp, SCE, and SDG&E.

5 **b. Summary of Costs**

6 PG&E recorded \$4.8 million for its AFM activities in 2021, exceeding
7 115 percent of the 2020 GRC forecast of \$1.2 million for 2021 AFM
8 expenses related to modeling. PG&E exceeded 115 percent of the
9 adopted amount by \$3.5 million in 2021, the majority of which is
10 attributed to Technosylva.³⁵

11 **c. Reason for Activity**

12 The technology delivered by Technosylva improves PG&E's
13 understanding of the risk of catastrophic wildfires in our service territory
14 and is integrated into many aspects of our operations and
15 decision-making, including PSPS. Technosylva performs over
16 100 million fire-spread simulations each day. These simulations provide
17 fire-spread outputs (e.g., potential number of acres burned, and
18 population impacted) and can be visualized every three hours to
19 determine the highest risk circuits.

20 PG&E can also simulate fires on demand using a Technosylva
21 application called Wildfire Analyst. This involves selecting a location on
22 a map and inputting the start time of ignition and the simulation duration
23 in hours. The Technosylva wildfire spread model uses the dynamic
24 weather forecast of wind and fuel moisture to model how the wildfire
25 may spread. This technology allows PG&E, and the other California
26 IOUs and agencies who employ it, to forecast approximately 100 million
27 virtual fires daily across our territory, simulate fires on demand, simulate
28 hypothetical fires based on PSPS damage and hazard reports, and
29 simulate fires in past weather scenarios.

30 PG&E has also developed a Wildfire Consequence Model using the
31 Technosylva fire simulations. This model is used in the 2021 Wildfire
32 Distribution Risk Model for producing Multi-Attribute Value Function–

35 See Workpapers supporting this chapter.

1 calibrated risk scores. These scores are used to inform initiatives such
2 as Enhanced Vegetation Management and System Hardening.

3 **2. Meteorology Weather Station Monitoring**

4 **a. Nature of Activity**

5 PG&E recorded \$0.6 million for Meteorology weather station
6 monitoring in 2021 (see Table 2-13). These costs supported work
7 performed by Western Weather Group to provide weather station
8 support services and access to weather data via an Application
9 Programming Interface (API). The costs outlined in this section are
10 associated with weather station data collection and data quality control
11 activities and do not cover the physical weather station installation or
12 maintenance costs. The majority of this work is performed by Western
13 Weather Group, providing technical support for weather stations via
14 email and telephone, data collection, processing and quality control;
15 data storage services and data distribution; customer dashboards to
16 view data, weather alerts based on specific parameters and real time
17 data views (data updates every 30 seconds.)

18 **b. Summary of Costs**

19 Meteorology weather station monitoring recorded \$0.6 million in
20 2021. Recorded dollars were tied to internal labor costs.

21 **c. Reason for Activity**

22 There is high wildfire risk across many remote areas within PG&E's
23 70,000 square mile service territory. Additionally, California
24 contains thousands of microclimates in which wind patterns differ based
25 on location and topography (e.g., on a ridge, in a canyon, or on a valley
26 floor). As weather events unfold, the complex dynamics of wind and
27 terrain alignment, as well as boundary layer height, may result in
28 downslope windstorms where wind speeds accelerate down mountain
29 ranges and topographic features. Although there are hundreds of
30 Remote Automatic Weather Station and National Weather Service
31 Weather Stations in remote areas of California, there are still many
32 locations where micro-scale effects occur and go undetected, leading to
33 devastating consequences. The data collected every ten minutes as

part of PG&E's Meteorology Weather Station Monitoring helps to identify these locations, and provides additional data to verify weather conditions and build datasets to improve future weather models. These weather stations are also used during PSPS events to support de-energization and re-energization efforts.

3. Wildfire Safety Operations Center Support

a. Nature of Activity

PG&E recorded \$0.2 million for Meteorology support for the WSOC in 2021. (See Table 2-13.) The WSOC serves as a physical hub for coordinating and facilitating PG&E's wildfire-response activities. With support from the Meteorology team, the WSOC monitors for fire ignitions across PG&E's service area 24-hours a day, seven days a week, leveraging internal and publicly available weather information, wildfire camera data, and first responder (local and state) data in order to provide wildfire prevention and response efforts throughout PG&E's service territory. The WSOC also interfaces and collaborates with various PG&E lines of business (including Meteorology) to assist in deploying technology and processes and procedures for wildfire prevention, response, and recovery.

In support of these efforts, the Meteorology team provided the following support to the WSOC in 2021:

- Daily operational support, including weather briefings;
- Integration with WSOC systems (weather and fire detection);
- Meteorology training development and execution;
- Fire Index review and seasonal briefings for operational decisions (e.g., reclosure decisions, support, and staffing needs);
- Assistance via the use of Technosylva spot fire modeling for incidents; and
- Other ad-hoc requests and support.

b. Summary of Costs

WSOC Meteorology Support recorded \$0.2 million in 2021. Recorded dollars were tied to internal labor costs.

1 **c. Reason for Activity**

2 Meteorology support for the WSOC plays an important role in
3 PG&E's efforts to ensure customer and community safety while
4 addressing the challenges of climate-driven extreme weather events like
5 wildfires. Meteorology provided management and technical services for
6 the WSOC that aided in operational decision-making, including during
7 PSPS events.

8 **4. Live Fuel Moisture Sampling and Observation Program**

9 **a. Nature of Activity**

10 In 2020, PG&E established an internal Live Fuel Moisture (LFM)
11 sampling program to complement samples collected by state and
12 federal agencies across northern and central California, and specifically
13 across PG&E territory. PG&E continued these efforts in 2021.

14 Site locations were selected and scouted by PG&E meteorologists
15 and Safety and Infrastructure Protection Teams personnel. As of
16 January 1, 2021, this network consisted of greater than 30 locations
17 where plant species, such as Chamise and Manzanita, were sampled to
18 measure the amount of fuel moisture in them throughout the seasonal
19 cycle. The results of all measurements are uploaded and made publicly
20 available via the National Fuel Moisture Database. These observations
21 are critical to train and validate high-resolution LFM models and
22 satellite-derived LFM products, and will assist PG&E and other agencies
23 to train the next generation of LFM models.

24 **b. Summary of Costs**

25 Fuel Moisture Sampling recorded \$0.1 million in 2021. The primary
26 driver of recorded costs was technical and managerial services related
27 to Dead Fuel Moisture (DFM) and LFM sampling provided by
28 Meteorologists and Engineering Technicians.

29 **c. Reason for Activity**

30 The sampling program provides critical data on the state of
31 live-fuels, which is necessary to create better live fuel moisture models
32 in the future.

5. AFM Conclusion

The AFM projects discussed above are important components of PG&E's commitment to reducing wildfire risk and increasing public and customer safety and awareness. The ability to more accurately predict fire spread and fire potential are crucial to making the most informed decisions regarding PSPS events (start, end, and duration times) as well as other wildfire mitigation efforts. Gathering information about current weather and vegetation-dryness conditions across PG&E's service territory highlights areas where potential ignitions may occur and spread, and strengthens initiatives across the Company to reduce wildfire risk.

E. Storm Outage Prediction Project Automation and Numerical Weather Prediction

1. Nature of Activity

PG&E recorded \$2.0 million for the SOPP and Numerical Weather Prediction efforts in 2021, \$1.6 million of which is subject to reasonableness review. (See Table 2-2.) Numerical Weather Prediction (NWP) is a foundational program for PG&E in that the outputs from our high-resolution weather model (PG&E Operational Mesoscale Model or POMMS), provide data needed to drive our Dead and Live Fuel Moisture (DFM, LFM) models, PG&E's FPI, Outage Probability Weather and Ignition Probability Weather (OPW/IPW) models, and fire spread simulations. The NWP and OPW data are used to predict the volume of escalated outage activity in the SOPP.

In 2021, we continued to operate and enhance the POMMS, a version of the Weather Research and Forecast. These efforts are discussed at length in our 2022 WMP. The forecasts provide higher resolution data with a longer forecast horizon than data publicly available and is the foundation upon which our prediction of outages and PSPS are built.

In 2021, the POMMS/NWP project consisted of the following activities:

The deterministic 2x2 km weather model that provided weather forecasts (e.g., wind, temperature, RH) was run four times per day and the forecast horizon was increased to provide additional lead time for PSPS event forecasting, from 105 hours to 129 hours. In total, over 1,400 deterministic forecasts were produced and processed. The POMMS

1 Ensemble Prediction Systems (EPS) continued to run twice per day,
2 providing additional forecast data, consisting of eight forecast model
3 members. Over 700 EPS forecasts were produced and processed. We
4 utilized AWS cloud computing infrastructure to automatically post-process
5 weather model data.

6 We expanded our historical climatology of hourly weather data at 2x2
7 km resolution to include all of 2021 to help train new outage and fire models
8 with the latest data. This historical data was used to train new Outage
9 Probability Weather (OPW) and Ignition Probability Weather (IPW) models,
10 which estimate the probability of an outage and ignition, respectively.

11 The OPW model is used year-round to assess the probability of outages
12 on the distribution system from any weather event. For the PSPS
13 application, we transform the outage probability data into an ignition
14 probability called the IPW model. The IPW Model is used in conjunction
15 with the FPI Model to assess the need for a PSPS event.

16 **2. Summary of Costs**

17 The 2021 forecast for SOPP/NWP support was \$0.3 million. In 2021,
18 we recorded \$2.0 million for external contract and internal labor costs. The
19 primary driver of the cost variance was \$0.82 million for a contract with DTN.
20 DTN is an external expert that builds, operates, and maintains the
21 high-resolution weather model and provides modeling output for PG&E.
22 Internal labor costs included data scientists' time to develop and deploy the
23 OPW/IPW model.

24 **3. Reason for Activity**

25 Accurate and granular historical and forecast weather data is
26 foundational to building and running outage and ignition models. These
27 models inform when and where PG&E crews may be needed to restore
28 power outages and where PSPS may need to be executed.

29 **4. SOPP Conclusion**

30 SOPP is a foundational wildfire mitigation initiative that furthers PG&E's
31 commitment to reducing wildfire risk by increasing situational awareness
32 and public safety.

F. Safety and Infrastructure Protection Teams

1. Nature of Activity

PG&E recorded \$17.1 million in 2021 for the SIPT program. The SIPT was developed in compliance with SB 901 and with support from California Professional Firefighters, the statewide organization representing California's 30,000 frontline firefighters. Today, the SIPT program consists of 45 two-person crews, placed strategically in high fire-threat areas throughout PG&E's service territory to focus on fire prevention and protecting PG&E assets and infrastructure. The teams consist of full time PG&E employees with fire service training and experience, EMT response, and incident command. SIPT crews operate ICS Type 6 engines equipped with a pump, fire retardant application capability, and standard wildland firefighting tools.

SIPT crews work year-round, providing direct defense of utility infrastructure and conducting safety and prevention, mitigation, and maintenance activities on company properties or rights of way. In addition, SIPT teams provide fire and life safety standby services to PG&E employees performing routine and emergency work activities.

During the 2021 fire season, in addition to routine responses, SIPT teams pre-treated 14,289 poles. Approximately 2,200 poles were impacted by fire, and of this population, 84 percent or 1,848 poles were saved, representing a replacement cost savings of \$38.8 million. SIPT teams also protected many other company facilities including Telecom, Hydro, PG&E offices, historical structures, and camps.

2. Summary of Costs

The 2021 forecast for SIPT (formerly known as Wildfire Infrastructure and Protection Teams (WIPT)), was \$13.8 million. PG&E recorded \$17.1 million due to program expansion.

TABLE 2-14
SIPT 2021 RECORDED EXPENSE COSTS

Line No.	Activity	2021 Recorded	2021 Adopted	2021 Adopted at 115%	Subject to Review
1	SIPT	\$17,112	\$13,806	\$15,877	\$1,235

3. Reason for Activity

The work performed by PG&E's SIPT teams protects critical infrastructure from wildfires and benefits our customers by, among other things:

- Enhancing first responder and public safety;
- Reducing the disruption of energy services;
- Accelerating community wildfire recovery; and
- Minimizing repair costs, thereby keeping rates lower.

4. SIPT Conclusion

The SIPT program is an important means to protect critical PG&E infrastructure, including poles, power lines, and other electrical equipment in the event of a wildland fire and they promote safe work practices among utility crews, especially in high fire danger areas during fire season.

G. WMBA Reasonableness – Conclusion

The PSPS, AFM, SOPP, and SIPT activities discussed above are important components of, and foundational to, PG&E's commitment to reducing wildfire risk and increasing public and customer safety and awareness. Our PSPS activities protect the public when severe weather or other circumstances threaten the ability to provide electricity safely. The ability to more accurately predict fire spread and fire potential is critical to making the most informed decisions regarding PSPS events (start, end, and duration times), as well as other wildfire mitigations efforts. Gathering intelligence about current conditions across PG&E's service territory highlights areas where potential ignitions may occur and spread and strengthens initiatives across the Company. From system hardening to vegetation management work, running models and simulations using data gathered in the field and beyond allows PG&E to work smarter and faster. This in turn reduces adverse impacts to customers and communities and

- 1 provides PG&E with the necessary tools and intelligence to complete needed
- 2 work in a safer and more efficient manner.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 3

VEGETATION MANAGEMENT BALANCING ACCOUNT

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 3
VEGETATION MANAGEMENT BALANCING ACCOUNT

TABLE OF CONTENTS

A. Introduction.....	3-1
B. Overview	3-1
1. VMBA.....	3-1
2. Cost Analysis	3-1
3. Ernst & Young’s Independent Audit Report	3-3
a. Description of Audit	3-3
b. Review Methodology and Observations.....	3-4
c. Additional Testing of VM Costs Under Defined Scope Contracts	3-4
d. Findings and Conclusions.....	3-5
C. Program Scope Overview.....	3-5
1. Routine VM	3-7
a. Nature of and Reason for Activity	3-7
1) Routine Regulatory Compliance.....	3-8
2) Vegetation Control – CPRC Section 4292.....	3-9
3) Contractor Safety	3-11
4) Safety Oversight, QV, and QA	3-12
5) Public Education	3-13
6) Environmental Compliance	3-14
b. Summary of Costs	3-14
1) Costs for Additional Units Worked.....	3-15
2) Defined Scope Increased Rates.....	3-18
3) Exception Tree Work Paid at Increased Rates.....	3-19
4) Additional Non-Tree Costs	3-22
c. Location and Timing of Activity	3-23

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 3
VEGETATION MANAGEMENT BALANCING ACCOUNT

TABLE OF CONTENTS
(CONTINUED)

2. EVM	3-23
a. Nature of and Reason for Activity	3-24
1) Overhang Clearing, Tree Removals, and Radial Clearance.....	3-26
2) Evaluating the Condition of Trees	3-27
3) Fuel Reduction	3-27
4) Wood Management.....	3-28
5) Safety Oversight, WV, QV.....	3-28
b. Summary of Costs	3-28
1) Increased Average Costs.....	3-29
2) Increased Volume of Trees Worked	3-30
3) Additional Costs for Non-Tree Work.....	3-30
4) Reduced Costs for Non-Tree Work	3-32
c. Location and Timing of Activity	3-33
3. Tree Mortality VM Activities.....	3-33
a. Nature of and Reason for Activity	3-33
1) Enhanced Vegetation Inspection and Mitigation Initiative	3-34
2) Wood Management.....	3-36
3) Wildland Urban Interface Protection.....	3-36
4) Fuel Reduction and Emergency Response Access	3-36
5) Safety Oversight and QV.....	3-37
b. Summary of Costs	3-37
c. Location and Timing of Activity	3-37
4. PG Tree Mortality Activities.....	3-38

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 3
VEGETATION MANAGEMENT BALANCING ACCOUNT

TABLE OF CONTENTS
(CONTINUED)

a. Nature and Reason for Activity	3-38
b. Summary of Costs	3-39
c. Location and Timing of Activity	3-39
D. Conclusion.....	3-39

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 3
VEGETATION MANAGEMENT BALANCING ACCOUNT

A. Introduction

This testimony demonstrates that Pacific Gas and Electric Company's (PG&E or the Company) 2021 costs for vegetation management (VM) activities recorded in its Vegetation Management Balancing Account (VMBA) are reasonable.

B. Overview

1. VMBA

PG&E's 2020 General Rate Case (GRC) decision¹ modified PG&E's VMBA. Starting in 2020, the VMBA became a two-way balancing account that records all of PG&E's VM costs for: (1) Routine VM, (2) Enhanced Vegetation Management (EVM), (3) Tree Mortality, which was formerly recorded to the Catastrophic Event Memorandum Account (CEMA), and (4) PG Tree Mortality, which was also formerly recorded to CEMA.² PG&E can recover up to 120 percent of the authorized amount, after which PG&E is required to file an application to allow for a reasonableness review of the amount exceeding that threshold.³

2. Cost Analysis

This chapter addresses the reasonableness of the costs booked to the VMBA exceeding the 120 percent reasonableness review threshold. PG&E's VM costs recorded in the VMBA and discussed herein are summarized in Table 3-1 below.⁴

The sizeable investment PG&E continues to make in its VM activities directly supports public and employee safety, wildfire mitigation, service reliability, and regulatory compliance through management of vegetation

¹ D.20-12-005.

² D.20-12-005, Section 14.1.5, p. 318.

³ D.20-12-005, Conclusion of Law, 17, p. 395.

⁴ Tree Mortality activities, historically recorded to the CEMA, were not included in the 2020 GRC's adopted imputed amount of \$602.8 million for 2021 VM activities.

near PG&E's electric distribution facilities. As California continues to experience extreme climate change, resulting in increased temperatures, drought, high winds, and longer, more destructive wildfire seasons, PG&E's proactive VM measures serve the important purpose of reducing the wildfire risk, improving the safety of PG&E's electric system, and protecting customers and the public.

**TABLE 3-1
2021 RECORDED VMBA EXPENSE
(THOUSANDS OF DOLLARS)**

Line No.	Program	Imputed Adopted Amount ^(a)	Adopted at 120%	2021 Recorded Adj. Expenses ^(b)	EY Adjustment ^(d)	2021 Rec. Adj. Expenses Less EY Adjustment	Subject to Review ^(b)
1	Routine VM	\$252,198	\$302,638	\$682,525	\$(1,337)	\$681,188	\$378,550
2	EVM	350,616	420,739	770,435	(608)	769,827	349,087
3	Tree Mortality	—	—	87,022	(779)	86,243	86,243
4	PG	—	—	844	-	844	844
5	Total ^(c)	\$602,814	\$723,377	\$1,540,825	\$(2,724)	\$1,538,101	\$814,724

(a) Decision (D.) 20-12-005, Section 7.2.5.1, p. 74 for Routine VM; Section 7.2.5.3, p. 77 for EVM.

(b) See Section C below.

(c) Differences due to rounding.

(d) The EY adjustment set forth in Appendix A is provided in total. PG&E has further divided the adjustment into the individual programs.

In 2021, PG&E recorded expenditures of \$1,540.8 million in the VMBA for its combined electric distribution overhead facilities and Power Generation (PG) VM activities. PG&E seeks to recover \$814.7 million of 2021 recorded VMBA costs in excess of the 120 percent reasonableness review threshold of \$723.4 million. PG&E will demonstrate that these costs were reasonably incurred, and that recovery is appropriate, and asks that these costs be approved by the California Public Utilities Commission (CPUC or Commission).

In this chapter, PG&E describes its Routine VM, EVM, Tree Mortality, and PG Tree Mortality activities. The chapter then explains and justifies the VMBA costs exceeding the 120 percent threshold.

Each program section is structured as follows:

- a) Nature of and Reason for Activity;
- b) Summary of Costs; and

1 c) Location and Timing of Activity.

2 **3. Ernst & Young's Independent Audit Report**

3 As shown in Appendix A, Ernst & Young (EY) performed an independent
4 analysis of 2021 costs recorded in the VMBA, the Wildfire Mitigation
5 Balancing Account (WMBA), and the Catastrophic Events Memorandum
6 Account (CEMA) (collectively referred to as the WMCE Accounts) to confirm
7 that the costs are directly attributable to the WMCE Accounts and properly
8 tracked in PG&E's financial systems.⁵

9 **a. Description of Audit**

10 PG&E proactively engaged EY to review the wildfire mitigation and
11 VM costs in this Application. EY reviewed costs booked to the VMBA
12 and WMBA from January 1, 2021 through December 31, 2021.
13 Specifically, EY evaluated whether the costs were appropriately booked
14 to the "WMCE Accounts and that any observations of possible
15 deviations within the cost data provided (within the scope of [the]
16 analysis) were not material to the overall costs incurred."⁶

17 EY considered legislation in California Senate Bill (SB) 901, which
18 mandates activities to strengthen California's ability to prevent and
19 recover from catastrophic wildfires. EY embedded requirements from
20 SB 901 and the Company's guidance on costs related to the WMCE
21 Accounts within its testing steps and used this guidance to inform its
22 conclusions.⁷

23 EY conducted its analysis in accordance with consulting standards
24 established by the American Institute of Certified Public Accountants.
25 EY's approach was designed to achieve "the principles of the National
26 Association of Regulatory Utility Commissioners" audit manual.⁸

5 PG&E provides a high-level overview of EY's independent audit in this chapter for background purposes only. Refer to Appendix A for EY's complete audit report and a detailed description of EY's methodology and findings.

6 Appendix A, p. 3.

7 Appendix A, p. 3.

8 Appendix A, p. 3.

1 **b. Review Methodology and Observations**

2 EY segregated the costs within the WMCE Accounts by cost
3 category and developed testing procedures for each category of costs
4 based on the unique nature and risks of each cost category.
5 Approximately \$419.5 million, totaling 20 percent of total costs incurred,
6 were tested. “In addition to detailed transaction testing, [EY] held
7 multiple discussions across the organization with the Finance,
8 Regulatory Affairs, and [VM] Departments. The combination of
9 analytical procedures, statistical sampling, and transaction testing is
10 designed to provide adequate coverage across all cost categories within
11 the scope of these accounts.”⁹

12 **c. Additional Testing of VM Costs Under Defined Scope Contracts**

13 At the request of PG&E, EY conducted additional analysis of the
14 VMBA to determine if there were “routine VM costs recorded within the
15 VMBA [that were] not sufficiently evidenced for inclusion in the WMCE
16 filing. During the period under review, PG&E began transitioning certain
17 vendors to defined scope contracts with fixed prices (lump sum). These
18 vendors were previously contracted under time and material (T&M) or
19 unit price contract frameworks.”¹⁰

20 PG&E management performed an initial analysis of costs related to
21 the defined scope contract pricing to determine whether transactions
22 were within the defined scope of the relevant contracts and
23 therefore not eligible for T&M invoicing. EY then independently
24 analyzed transactions and their associated supporting documents
25 including work requests, vendor contracts, invoices, T&M
26 justification forms and timesheets. [EY used] PG&E’s VM Time and
27 Materials Overview and Vegetation Management Defined Scope
28 Contract Guide and engaged in follow-up discussions with
29 management for further clarity.

30 EY agreed with management’s conclusions that there was no
31 evidence of systemic errors or omissions within the defined scope
32 population and determined that the majority of costs were correctly
33 billed in addition to the defined scope fixed price payments.
34 However, management’s analysis did identify costs which were
35 incorrectly billed, and EY agreed with management’s conclusions
36 regarding these transactions. ¶ EY did not agree with

9 Appendix A, p. 5.

10 Appendix A, p. 13.

management's quantification of the error and management's extrapolation methodology applied to those transactions. EY independently performed a statistical error calculation using industry standard (i.e., mean per unit method). ¶ As a result, [EY] identified and recommend for exclusion items totaling approximately \$687K (extrapolated to \$2.1M) that were not properly evidenced for inclusion in the WMCE Accounts. This represents an approximately \$824K increase from management's calculated amounts.¹¹

d. Findings and Conclusions

EY prepared findings and observations regarding the costs in the WMCE Accounts based on their testing and analysis. EY's full report can be found as Appendix A. In summary, EY found no evidence of systemic errors or omissions that would raise questions relating to management's conclusions that: (1) costs were incurred for the activities set forth in the corresponding relevant CPUC-approved Accounts; (2) costs were accurately recorded; and (3) there is no evidence of costs recorded to more than one account.¹²

EY identified items totaling approximately \$1.4 million (extrapolated to approximately \$3.15 million) that it recommended be removed from this application. PG&E accepted this recommendation, and reduced the amounts requested in the application accordingly.¹³ Of the \$3.15 million reduction, \$2.72 million was excluded from the VMBA.

C. Program Scope Overview

PG&E's electric distribution VM programs support employee and public safety, electric system reliability, wildfire risk reduction, and compliance with applicable regulatory standards. As described in the sections that follow, PG&E's programs are differentiated by the nature and scope of the activity, reason for the activity, and location of the activity.

PG&E's Routine VM program consists of an annual patrol of all PG&E distribution lines to support compliance with the CPUC's General Order (GO) 95 Rule 35 and California Public Resource Code (CPRC) Sections 4292 and 4293.

¹¹ Appendix A, p. 15.

¹² Appendix A, p. 6.

¹³ PG&E provides a high-level overview of EY's independent audit in this chapter only for background. Refer to Appendix A for EY's complete audit report and a detailed description of EY's methodology and findings.

1 PG&E complies with these regulations by maintaining a year-round 4-foot radial
2 clearance within High Fire Threat District (HFTD) areas and 18-inch radial
3 conductor clearance in non-HFTD areas. Within the HFTD, PG&E trims to the
4 CPUC recommended minimum 12-foot clearance at the time of trim in order to
5 maintain the required 4-foot clearance. During the declared fire season,¹⁴
6 4-foot radial clearance is required as well as 10-foot firebreak maintenance
7 around subject poles within the State Responsibility Area (SRA) and Federal
8 Responsibility Area (FRA).

9 The EVM program targets approximately 1,800 overhead distribution line
10 miles within Tier 2 and Tier 3 HFTD areas annually. The program is based on
11 the commitments and activities approved in PG&E's 2021 Wildfire Mitigation
12 Plan (WMP) pursuant to Public Utilities Code (Pub. Util. Code) Section 8386.
13 The EVM program is designed to exceed the annual Routine VM work in
14 HFTDs. EVM work includes greater radial clearances than Routine VM,
15 overhang trimming, tree assessment for strike potential, tree removals, fuel
16 reduction, and the use of Light Detection and Ranging (LiDAR) to strategically
17 deploy resources where vegetation is near the electrical assets.

18 The Tree Mortality program targets dead, dying, or diseased trees that
19 threaten overhead electric facilities. Tree Mortality activities are designed to
20 mitigate the effects of drought-caused tree mortality and to reduce fire risk from
21 contact with utility facilities per Commission Resolution (Res.) Electric Safety
22 and Reliability Branch (ESRB)-4. This work includes: additional targeted,
23 redundant vegetation inspections and removal of hazardous, dead, and

¹⁴ Cal. Code Regs. tit. 14, § 1253, Time When CPRC 4292-4296 Apply: "The minimum firebreak and clearance provisions of PRC 4292-4296 are applicable during the declared California Department of Forestry and Fire Protection fire season for a respective county. The Director shall post the declaration on the official Department web site."

diseased trees and other vegetation near PG&E's electric power lines, poles, and hydro facilities.¹⁵

PG&E's PG Tree Mortality program includes the work associated with identifying, abating, and cleaning up dead trees in the areas surrounding PG&E's 63 powerhouses and associated equipment.

1. Routine VM

PG&E's 2021 Routine VM costs were \$682.5 million, exceeding the reasonableness review threshold of \$302.6 million by \$378.6 million, as shown in Table 3-3 below.

**TABLE 3-3
ROUTINE VEGETATION MANAGEMENT
2021 RECORDED COSTS COMPARED TO ADOPTED AMOUNTS
(THOUSANDS OF DOLLARS)**

Line No.	Program	Adopted	Adopted at 120%	2021 Expenses	Subject to Review
1	Routine VM	\$252,198	\$302,638	\$682,525	\$378,550

a. Nature of and Reason for Activity

PG&E's Routine Regulatory Compliance work is based on an annual patrol of all PG&E distribution lines to support compliance with GO 95 Rule 35 and CPRC Sections 4292 and 4293. PG&E annually inspects trees along approximately 81,000 miles of high voltage distribution lines in both HFTD and non-HFTD areas. For those trees identified for work (trimming and hazard trees for mitigation) during the inspections, PG&E's contractors perform work to ensure adequate clearances between vegetation and conductor.

The goal of the tree trimming program is to achieve an optimum clearance such that the tree does not need to be trimmed again for two

¹⁵ See Res.ESRB-4, p. 14, Ordering Paragraph (OP) 2 ("Investor Owned Electric Utilities must take practicable measures necessary to reduce the likelihood of fires associated with their facilities. These measures include: increasing vegetation inspections and removing hazardous, dead, and sick trees, and other vegetation near the Investor-Owned Utility (IOU) electric power lines and poles; sharing resources with the California Department of Forestry and Fire Protection (CAL FIRE) to staff lookouts adjacent to the IOUs' property; and clearing access roads under power lines for fire truck access.").

1 to three years. In certain cases, PG&E may not achieve this optimum
2 clearance because of the tree's health or response to pruning.

3 The individual activities that make up the Routine VM program are
4 described below.

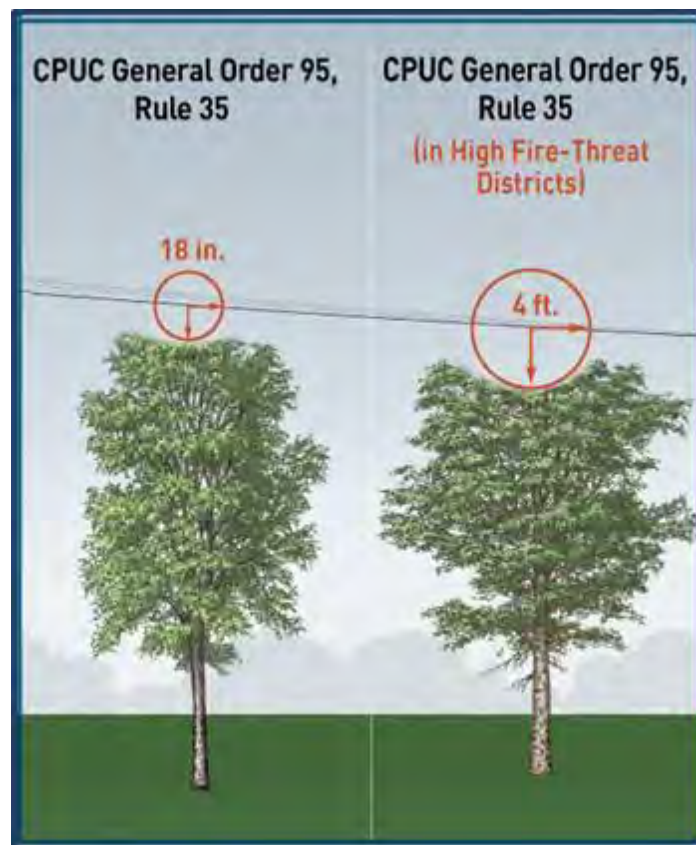
5 **1) Routine Regulatory Compliance**

6 Routine VM starts with pre-inspection of vegetation near the
7 conductor and consists of the following steps:

- 8 • Step 1 – PG&E determines when a circuit or project will be
9 inspected and worked. PG&E schedules routine VM work
10 based on a number of factors that may include: the number and
11 species of trees on a given circuit or project, the last patrol date,
12 the criticality of the circuit, regulatory jurisdiction, tag and outage
13 information, weather access concerns, property owner
14 concerns, and input from other departments and external
15 agencies. PG&E then enters the schedule and estimated scope
16 of work by circuit or project into the Project Management
17 Database.
- 18 • Step 2 – Each distribution circuit or project is inspected via
19 ground or aerial patrols for compliance with GO 95 Rule 35 and
20 CPRC 4293. Pre-Inspectors carry hand-held computers to input
21 information on trees that need to be pruned or removed while on
22 patrol. The information includes tree species, tree size, trim
23 type, clearance required, notifications of intended tree work
24 provided to the property owner, and location of the tree. The
25 information collected during the pre-inspection process is critical
26 for determining what work needs to be performed that year.
27 The inspection information is input into the VM Database (VMD)
28 and a systematic inventory of vegetation requiring mitigation is
29 maintained.
- 30 • Step 3 – A different contractor performs quality verification (QV)
31 reviews by randomly sampling pre-inspection records to ensure
32 that work is identified and prescribed according to PG&E's
33 specifications.

- Step 4 – Work requests are generated from the VMD defining the scope of work for tree contractors to perform.
- Step 5 – Tree contractors perform the prescribed pruning and removal work. To comply with regulations, contractors prune or remove vegetation to maintain a year-round 4-foot radial clearance within HFTD areas and an 18-inch radial conductor clearance in non-HFTD areas as shown in Figure 3-1 below. During the declared fire season, 4-foot radial clearance within SRA/FRA is required.
- Step 6 – A QV contractor reviews a random sampling of the tree work performed to ensure compliance with PG&E’s procedures.

**FIGURE 3-1
ROUTINE VM SCOPE MINIMUM CLEARANCES**



2) Vegetation Control – CPRC Section 4292

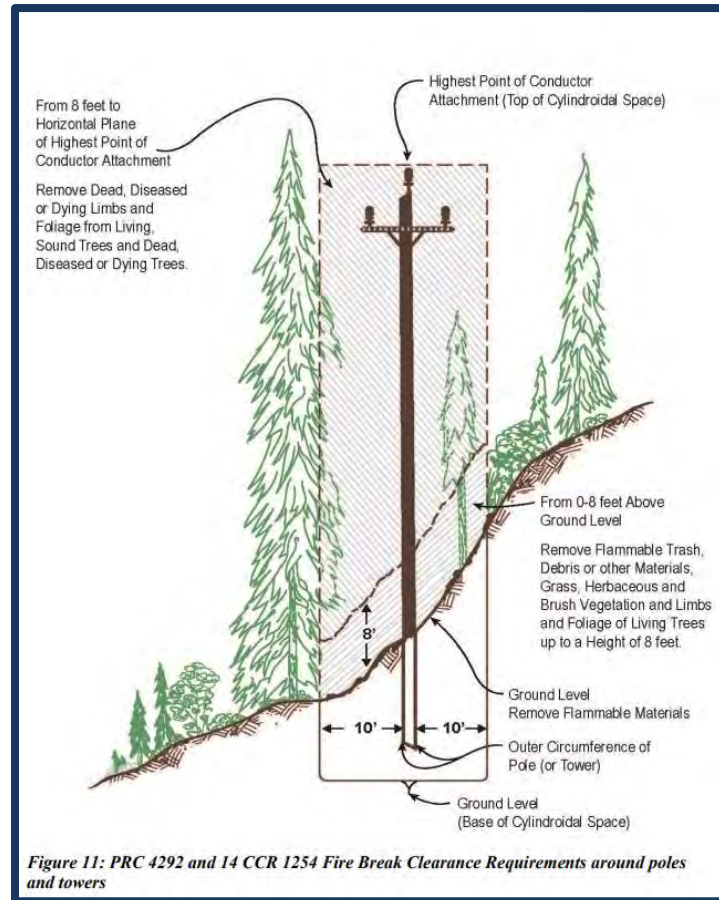
In 2021, PG&E cleared vegetation around the base of approximately 102,000 “subject poles” in its service territory.

1 Subject poles are either subject to CPRC Section 4292 or local
2 requirements or are located in non-SRA portions of the HFTD that
3 meet specific risk criteria.

4 A subject pole has certain equipment attached to it (e.g., a
5 surge arrester or fuse) which, upon normal operation, may drop hot
6 or molten material that could ignite surrounding fuels. CPRC
7 Section 4292 requires utilities to maintain a firebreak of at least
8 10 feet in each direction from the outer circumference of the base of
9 subject poles and up to 8 feet to prevent the spread of fire, as
10 shown in Figure 3-2 below.

11 PG&E inspects and clears the vegetation around all
12 102,000 subject poles at least once per year. Most locations require
13 more frequent visits to maintain compliance, resulting in more than
14 300,000 pole visits per year. PG&E uses contractors that perform
15 the inspections and clearing. PG&E monitors the Vegetation
16 Clearing work by means of QV reviews and quality assurance (QA)
17 audits.

**FIGURE 3-2
VEGETATION CONTROL SCOPE**



3) Contractor Safety

All contractors and subcontractors working for PG&E must meet the Contractor Safety program requirements in PG&E's Utility Standard SAFE-3001S (SAFE-3001S), which outlines the minimum requirements for contractor safety management and PG&E's health and safety expectations for work performed on behalf of PG&E.¹⁶ Utility vegetation work is classified as high-risk work as described in the PG&E Contractor Safety Program Risk Matrix. This work is aligned to SAFE-3001S and, as such, requires completion of additional Occupational Safety and Health Administration (OSHA) programs and training to mitigate task and location-specific hazards.

¹⁶ A copy of Utility Standard SAFE-3001S is available upon request.

1 Starting in 2020, all Pre-Inspector contractors were required to
2 complete the Structured Learning Path Program, a nine-course
3 comprehensive training program featuring web-based training,
4 scenario-based skills assessments, and on-the-job training (OJT).
5 Pre-Inspectors must pass scenario-based skills assessments that
6 test key concepts covered in the training program, and experienced
7 Pre-Inspectors are paired with new Pre-Inspectors to provide OJT
8 and serve as mentors during the Pre-Inspectors' first year of
9 training.

10 All tree crew vendor personnel are trained on PG&E SAFE-0101
11 (Contractor Safety Program Requirements) before starting work.
12 Beginning in August 2020, PG&E tracked all OSHA requirements in
13 a third-party tracking program known as ISNetWorld.

14 PG&E also contracted with North American Training Solutions
15 (NATS) to provide further safety education to VM personnel
16 following a contractor "stand down" order. PG&E directs contractors
17 to stand down – or cease work – following line strikes or
18 safety-related incidents. When a contractor is in stand down, it must
19 provide a corrective action plan detailing the action it will take to
20 return to work safely and correct any deficiencies that resulted in the
21 stand down order. NATS supported the reassessment and return to
22 work requirements for each contractor and sub-contractor working
23 on PG&E's VM programs.

24 **4) Safety Oversight, QV, and QA**

25 PG&E performs QA audits of VM defined scope work to confirm
26 that the work complies with standards and regulations and to drive
27 continuous improvement. In late 2020, PG&E entered into defined
28 scope service agreements with contractors conducting routine tree
29 work. The work included in the defined scope contracts is subject to
30 the QA audits.

31 An annual QA plan is created to ensure that each VM program
32 manager area is audited at least once per year. The methodology
33 for each individual audit is based on using randomly selected
34 distribution line segments. QA audits confirm compliance with GO

95 Rule 35 and CPRC Sections 4292 and 4293. The QA auditors help identify the cause of the non-compliance if issues are identified. If a recurring or systemic issue is identified, VM Operations develops action plans for its personnel and contractors to prevent a reoccurrence.

PG&E also performs QV audits of VM Defined Scope work. QV audits are conducted after the completion of annual pre-inspection and tree work projects. An annual QV plan is created to ensure that defined scope bundle circuit areas¹⁷ are audited monthly.

Randomly selected portions of PG&E's electric distribution facilities in HFTDs are audited in between routine cycles (5-7 months after the completion of a project). For CPRC Section 4292, QV conducts monthly compliance and work quality audits on the Vegetation Control program. Short-term and long-term corrective actions are automatically generated for VM operations based on the type and severity of any findings. VM operations develops action plans for its personnel and contractors to implement the corrective actions.

5) Public Education

In coordination with PG&E's Community Wildfire Safety Program, public education is an integral part of PG&E's VM program and helps to mitigate risks associated with third-party contacts with electric lines. Public education and outreach efforts include: (1) educating third-party tree workers and customers about tree and power line safety; (2) creating communication materials such as brochures, "right tree right place" posters, door hangers, and websites; (3) outreach efforts, such as representation at local Fire Safe Councils (FSC) and forestry committees, and booths at fairs, garden shows, and tree planting events; (4) support and maintenance of "Tree Line USA"; and (6) the automated customer notification system.

¹⁷ Bundled circuit areas refer to an area of work assigned to a PG&E contractor. A bundle is defined as an assigned number of overhead electric distribution circuit(s) spanning PG&E regions and includes approximately 43,000 trees per bundle.

6) Environmental Compliance

All VM work is performed in compliance with environmental laws and regulations. Contractors attend training so they can identify when they are working in environmentally sensitive areas and know the requirements for protective practices associated with sensitive habitats, threatened/endangered species, soil conservation and prevention of stormwater pollution. These protective practices can require workers to stop, assess, and take additional mitigation actions to maintain environmental compliance.

b. Summary of Costs

The costs for Routine VM work exceeded the 120 percent reasonableness review threshold because: (1) the volume of work exceeded the forecast amount; (2) the cost for completing each unit of work was higher than forecast; and (3) the work included items that were not anticipated when PG&E filed its 2020 GRC.

Table 3-4 below shows the areas of work driving the differences in cost between the forecast and recorded amounts.

TABLE 3-4
ROUTINE VM (MWC HN) – SUMMARY OF COST CHANGES
(THOUSANDS OF DOLLARS)

Line No.	Description	Approx. Recorded Costs ^(a)
1	Costs for Additional Units Worked	\$25,900
2	Defined Scope Increased Rates	222,000
3	Exception Tree Work Increased Rates	102,300
4	Additional Non-Tree Costs	41,700
5	Total Costs	\$379,900

(a) Differences due to rounding.

PG&E's recorded costs for Routine VM tree work were approximately \$378.6 million higher than the reasonableness review threshold due to: additional costs for complying with new legislation; increased costs per unit of work; and increased volume of work. PG&E discusses each of these contributing factors below.

1) Costs for Additional Units Worked

The number of trees trimmed and removed in 2021 exceeded the number of trees assumed to be approved at 120 percent in the 2020 GRC by approximately 151,100 trees. This additional volume of work resulted in approximately \$25.9 million of costs greater than the 120 percent forecast for Routine VM tree work.¹⁸ Table 3-5 below shows the forecast and recorded units and unit costs for routine tree work. The recorded costs reflect the increased volume of work and the higher unit costs. The fully loaded unit cost is calculated by dividing the total Routine VM costs (e.g., inspections, tree trimming and removal, contractor safety, environmental compliance, etc.) by the number of units, whereas the unit cost for tree work only includes routine regulatory compliance and legacy Public Safety and Reliability (PS&R) costs divided by the number of units.

¹⁸ In the 2020 GRC, PG&E forecast 1,125,826 Routine VM units for 2020, the test year (A.18-12-009, Hearing Exhibit (HE) 18: Exhibit (PG&E-4), WP 7-14, line 6.). PG&E did not forecast units of work for 2021. PG&E assumes that the forecast units for 2020 applies to 2021 as well. For the purposes of this reasonableness review which requires PG&E to demonstrate the reasonableness of costs incurred above 120 percent, PG&E calculated the number of trees forecast plus 20 percent: $1,125,826 \times 1.20 = 1,350,991$. The difference between the total trees forecast plus 20 percent and the trees associated with PG&E's approved forecast is 151,080 trees ($1,350,991 - 1,125,826 = 151,080$).

**TABLE 3-5
ROUTINE VM UNIT COST COMPARISON**

Line No.	Description	2021 GRC Forecast ^(a)	2021 GRC Approved Trees and Tree Costs at 120%	2021 Recorded Adjusted	Difference: 2021 Rec. Adj. – 2021 Approved at 120%	Percent Increase:
1	Total Tree Units	1,125,826	1,350,991	1,502,071	151,080	11%
2	Total Cost	\$229,286,000	\$301,268,400	\$682,524,803	\$367,356,403	
3	Fully Loaded Cost per Tree – Calculated (line 2 divided by line 1)	\$204	\$223	\$477	–	
4	Incremental Difference – Cost per Tree	–	–	–	\$254	114%
5	Cost for Tree Work Only	\$192,700,000	\$243,184,554	\$579,333,844	\$336,149,291	
6	Unit Cost for Tree Work Only – Calculated (line 5 divided by line 1)	\$171	180	\$386	–	
7	Incremental Difference – Cost per Tree	–	–	–	\$206	125%

(a) In the 2020 GRC, PG&E forecast Routine VM units for 2020, the test year. PG&E did not forecast units of work for 2021. PG&E assumes that the forecast units for 2020 applies to 2021. A.18-12-009, HE 18: Exhibit (PG&E-4), Workpaper (WP) 7-14, line 6 (total units); WP 7-15, line 1 (total cost); WP 7-15, sum of lines 4 and 6 (cost for tree work only).

1 The unit cost per tree increased by approximately 125 percent,
2 contributing to the increased costs for Routine VM work. In 2021,
3 PG&E worked approximately 1.5 million trees, approximately
4 151,100 more trees than anticipated in the 2020 GRC forecast (see
5 Table 3-5 above).

6 PG&E worked more trees than forecast in 2021 primarily due to:
7 (1) carry-over work from 2020; and (2) a culture change that
8 resulted in the identification of more trees that needed to be worked.
9 These issues are addressed in more detail below.

10 Carry-over Work

11 Some work identified in 2020 was carried over to 2021 primarily
12 due to PG&E's continued focus on EVM work. Work in the HFTD
13 was PG&E's priority in 2020 and, as a result, not all Routine VM
14 work identified in 2020 was completed in that calendar year.
15 Delaying certain work in 2020 and completing it in 2021 was
16 reasonable because work completed in the HFTD reduces the most
17 wildfire risk. PG&E discusses work completed in 2021 in the HFTD
18 in Section C.2.b below.

19 Overall, there was a high volume of VM work in 2020, which,
20 when combined with practical limitations due to VM contracting
21 resources and logistical constraints, required that PG&E balance its
22 VM resources for the year. PG&E focused on directing resources to
23 work that reduced greater risk, which resulted in carrying over
24 certain lower risk, routine work activities into 2021.

25 Every year, PG&E completes the initial inspections before any
26 tree work is carried over from one year to the next. Any priority
27 trees that pose an imminent threat (priority 1 trees) or that are very
28 close to electric lines (priority 2 trees) are mitigated within required
29 timelines (see Section C.1.b below) and are not carried over to the
30 following year. The work carried over from 2020 to 2021, in other
31 words, was work on comparatively low risk trees that fell into neither
32 of these categories.

1 Cultural Change and Identification of More Trees

2 PG&E's Routine VM inspection processes identified
3 comparatively more trees in 2021 because of a process
4 improvement resulting in a cultural change in the program. This
5 change stemmed from the on-boarding of new internal inspectors
6 and implementation of the work verification (WV) program, which,
7 along with the experience of the 2020 wildfire season, contributed to
8 a more conservative approach to the identification of trees to be
9 trimmed or removed.

10 On-boarding new VM inspectors and implementing the WV
11 program required calibration among the inspectors, work verifiers,
12 QV, and QA teams to ensure that these groups used the same
13 approach for identifying trees that required work. This alignment,
14 which was informed by the 2020 season, resulted in a more
15 conservative approach to listing trees that needed work.

16 **2) Defined Scope Increased Rates**

17 **a) Increased Labor Costs Due to SB 247**

18 PG&E incurred approximately \$164.8 million in labor costs
19 in 2021 due to SB 247 that were not forecast in the 2020 GRC.

20 The Legislature amended California Pub. Util. Code
21 Section 8386.3(d) through SB 247 in October 2019 to establish
22 qualifications for line clearance tree trimmers and a prevailing
23 wage requirement. As amended, Section 8386.3(d) requires all
24 qualified line clearance tree trimmers to be paid no less than the
25 prevailing wage rate for a first period apprentice electrical utility
26 lineman.

27 PG&E's 2020 GRC forecast did not account for the costs
28 required to comply with this new legislation, and PG&E did not
29 recover costs for this increased labor in any other proceeding.

30 **b) Changes to Climbing Crew Requirements**

31 PG&E incurred approximately \$46.2 million in additional
32 costs due to a change in contractor safety requirements.
33 Starting in mid-2021, contractors were required to transition

1 from a two-man climbing crew to a three-man climbing crew
2 following increased safety incidents during the first four months
3 of 2021. These safety incidents led to an increase in line strikes
4 during VM activities and an increase in worker injuries. To
5 address these safety issues, PG&E required VM teams to add
6 an extra crew member to the climbing team to assist with
7 spotting, moving wood on the ground, carrying gear to the work
8 site, and providing other support for this physically challenging
9 work.

10 **c) Pass-Through Costs for Defined Scope Work**

11 In 2021, PG&E incurred approximately \$10.9 million of
12 additional costs for pass-through costs related to defined scope
13 work. In late 2020, PG&E finalized the Routine (Defined Scope)
14 Request for Proposal, which established a five-year Master
15 Service Agreement (MSA) for Routine Tree Work. The Defined
16 Scope MSAs are based on lump sum pricing, but also include
17 an allowance of 10 percent for pass-through costs not otherwise
18 covered in the lump sum pricing. This includes items such as
19 excess traffic control, permitting, and anticipated change orders.
20 The additional cost incurred in 2021 was for excess traffic
21 control.

22 **3) Exception Tree Work Paid at Increased Rates**

23 **a) Higher Rate Unit Costs for Non-Defined Scope Carryover**
24 **Work and Defined Scope Exceptions**

25 PG&E incurred approximately \$57.2 million in 2021 for 2020
26 non-defined scope carryover work and defined scope
27 exceptions. This includes work that was initially included in the
28 2020 defined scope contracts but was determined to be outside
29 of (i.e., an exception to) the defined scope agreement and
30 executed in 2021 on a T&M basis.

31 Certain work in 2021 was delayed due to shifting priorities in
32 2020. As discussed in Section C.1 above, in 2020, resources
33 were focused on completing the high-risk reduction work in the

1 HFTD first, and Routine VM work was carried over until 2021 as
2 needed. In 2021, PG&E completed the 2020 Routine VM work
3 and incurred additional costs for work that was conducted on
4 time and equipment rates and per diem amounts.

5 Along with prioritizing EVM work, there was significant
6 market demand for qualified tree contractors in California in
7 2020, thereby limiting the volume of work that could be
8 completed and resulting in higher costs for all VM work.

9 The changes in culture related to inspection, WV, and QV
10 and assurance discussed in Section C.1 above also contributed
11 to increased costs for non-defined scope and defined-scope
12 exception work.

13 Finally, work that is considered an exception to the defined
14 scope agreements and resulted in higher costs for tree work
15 includes: permitting delays that lead to 2020 work being
16 performed in 2021; tree work that required special equipment
17 such as cranes or all-terrain vehicles and/or additional T&M for
18 climb-only trees; customer refusals that required multiple trips to
19 the same location to complete tree work; and the need to work
20 trees on EVM circuits that failed because of EVM work.¹⁹ In
21 some areas, PG&E trimmed Routine VM trees to EVM
22 standards at the request of customers following the 2020 fires.
23 This additional work occurred predominantly in areas adjacent
24 to an EVM boundary to address customers' heightened
25 concerns about fire risk.

26 **b) Completing Priority 1 and Priority 2 Tags**

27 PG&E incurred approximately \$18.7 million of additional
28 costs for P1/P2 tag work. PG&E completed approximately
29 20,000 priority 1 and priority 2 tags. Priority 1 tags are issued
30 when vegetation poses an imminent threat and must be

¹⁹ For example, if there is a stand of eight trees that grew up together and six trees are trimmed or removed under the EVM program, the two remaining trees may require work under the Routine VM program because they could become unstable when the surrounding trees are removed or trimmed.

1 mitigated within 24 hours. Priority 2 tags are issued for
2 vegetation that are very close to electric lines and must be
3 mitigated within 20 days. The number of priority 1 and priority 2
4 tags in 2021 was driven by the program's response to
5 abnormally dry water years as described in Section 2.a below,
6 and a more conservative approach to listing priority trees
7 identified during work verification. Additionally, work verification
8 drove behavioral change, i.e. a more conservative approach to
9 listing trees, for vegetation management inspectors as well.

10 Priority 1 tag work may require a highly skilled work force,
11 shutting off power to the line impacted by the vegetation, and
12 often an inspector who remains on standby to monitor the
13 vegetation from the time the priority 1 tag is issued until the
14 crew arrives on-site to remediate it. Priority 1 remediation is
15 off-cycle work, and/or emergency work paid at premium rates.
16 Remediating priority 2 tags also requires a skilled workforce, is
17 off-cycle work, and is often paid at premium rates.

18 **c) Increased Costs for Vegetation Control**

19 PG&E incurred approximately \$8.4 million more than
20 forecast for Vegetation Control work in 2021.

21 In 2021, PG&E's VM teams worked through more customer
22 challenges and customer refusals due to stricter enforcement of
23 clearing required per CPRC Section 4292. PG&E worked
24 aggressively to address non-conformance on fire break
25 requirements at locations where owners had previously
26 accepted responsibility for fire-safe maintenance.

27 **d) Emergent VM Work**

28 PG&E incurred approximately \$5.9 million of additional
29 costs for emergent VM work. Emergent work is unplanned,
30 off-cycle work that occurs when an issue occurs that must be
31 addressed immediately because it represents a significant
32 safety risk. Emergent work includes conditions such as a tree
33 that has fallen into a line or a car knocking a tree into a line that

1 has either caused or is likely to cause an outage. PG&E
2 immediately responds to these emergent safety issues, often
3 paying premium rates for the work.

4 **4) Additional Non-Tree Costs**

5 **a) Additional Costs for Safety Oversight, QV, and QA**

6 PG&E incurred approximately \$13.9 million more than
7 forecast in the 2020 GRC for safety oversight, QV, and QA.

8 In 2021 PG&E incurred additional costs as safety and
9 quality oversight team members transitioned from contract
10 employees to internal employees. These internal team
11 members provided safety oversight and conducted
12 pre-inspections, WV, and quality control reviews.

13 In 2021, PG&E incurred additional costs for contract
14 workers performing pre-inspections. PG&E signed an
15 agreement unionizing Pre-Inspectors and paying them the
16 prevailing wage.

17 PG&E performed QV audits of VM Defined Scope work.
18 The costs for this work were not included in the 2020 GRC
19 forecast.

20 **b) Unionizing Pre-Inspectors**

21 In May 2021, PG&E incurred approximately \$8.6 million in
22 costs associated with an agreement converting PG&E
23 non-union vegetation Pre-Inspectors to a new International
24 Brotherhood of Electrical Workers (IBEW) union classification,
25 VM Inspector. The agreement with the IBEW resulted in
26 increased costs as PG&E was required to pay the new IBEW
27 VM Inspectors the prevailing union wage. The costs for
28 unionizing Pre-Inspectors were not accounted for in the
29 2020 GRC.

30 **c) Increased Costs for Environmental Reviews**

31 PG&E incurred \$4.1 million more than forecast in the
32 2020 GRC for environmental work. The increased costs were
33 due to conducting more environmental reviews than planned.

1 Environmental reviews are generally required in areas
2 designated for tree work that are near creeks, water courses,
3 migratory bird nests, and other environmentally sensitive areas.

4 **d) Other Routine VM Costs**

5 PG&E incurred \$1.3 million more in costs than forecast in
6 the 2020 GRC for information technology (IT) and LiDAR
7 surveys. These increased costs were off-set by recorded costs
8 that were \$1.0 million less than forecast for public education.

9 **e) Conclusion**

10 The higher than forecast costs for completing the Routine
11 VM work are reasonable because they: (1) reduce risk by
12 addressing high priority tree work, improving contractor safety,
13 providing additional QV, and addressing non-conformance
14 issues; (2) reflect regulatory changes, emergent work, and
15 additional units of work that PG&E could not have forecast;
16 (3) include additional costs for work that was more difficult to
17 complete due to customer refusals, was delayed due to
18 permitting issues, and/or required specialized equipment; and
19 (4) reflect a culture shift within VM and address heightened
20 customer concerns related to fire risk.

21 **c. Location and Timing of Activity**

22 PG&E's Routine VM program is a year-round program. It
23 encompasses an annual patrol of approximately 81,000 miles of high
24 voltage distribution lines in both HFTD and non-HFTD areas to support
25 compliance with GO 95 Rule 35 and CPRC Sections 4292 and 4293.

26 **2. EVM**

27 PG&E's 2021 EVM costs were \$770.4 million, exceeding the
28 reasonableness review threshold of \$420.7 million by \$349.1 million.

**TABLE 3-6
ENHANCED VEGETATION MANAGEMENT
2021 RECORDED COSTS COMPARED TO ADOPTED AMOUNTS
(THOUSANDS OF DOLLARS)**

Line No.	Program	Adopted	Adopted at 120%	2021 Expenses	Subject to Review
1	EVM	\$350,616	\$420,739	\$770,435	\$349,087

a. Nature of and Reason for Activity

PG&E's EVM program encompasses overhead distribution lines within Tier 2 and Tier 3 HFTD areas. It is based on the commitments and activities approved in PG&E's 2021 WMP that support Pub. Util. Code Section 8386 and is designed to exceed annual Routine VM work and comply with CPUC mandated clearances (GO 95 Rule 35) as described below. PG&E performs targeted work, primarily in Tier 2 and Tier 3 HFTD areas, to further mitigate the possibility of wildfire ignitions and downed wires due to vegetation-conductor contact. This work includes establishing greater conductor-to-vegetation clearances and removing overhanging vegetation from distribution lines.

PG&E developed its 2021 EVM as part of its 2020 GRC filed in December 2018. Between the time PG&E developed the 2021 EVM plan and executed it, PG&E significantly revised its approach to reducing vegetation risk in the HFTD. In the 2020 GRC, the EVM scope of work was based on identifying ten species of trees that drove 75 percent of vegetation-caused fire ignitions and removed high risk species trees that were tall enough to strike power lines, had a clear path to strike power lines, or exhibited other potential risk factors.²⁰ After filing the 2020 GRC, PG&E changed its EVM approach from targeted tree species to a risk-based prioritization supported by quantitative risk modeling. The risk model identified the highest risk miles in the HFTD regardless of tree species. The highest risk miles in the HFTD are correlated with increased tree density. Higher tree density is correlated with higher risk for wildfire and wildfire spread.

²⁰ A.18-12-009, HE 16: Exhibit (PG&E-4), p.7-25, line 20 to p. 7-26, line 5.

1 Wildfire risk in California continued to increase through 2021
2 because of California's unprecedented drought. In 2020 and 2021,
3 California had its fifth and second driest water years in the last century,
4 respectively.²¹ Climate scientists at the University of California,
5 Los Angeles recently concluded that, for the Western United States
6 "2000-2021 [was] the driest 22-year period since 800 A.D., which is as
7 far as the data goes back."²² PG&E's entire service area experienced
8 extreme and severe drought conditions through much of 2021 prior to
9 the rainstorms that occurred in the latter part of the year. California
10 experienced unprecedented increases in the wildfire risk as a result of
11 drought and the ongoing impacts of climate change. For example, on
12 non-Red Flag Warning (RFW)²³ days in 2021, there was more than a
13 500 percent increase in acreage burned as compared to the prior four
14 years.

15 Given the significant increase in wildfire risk, PG&E's EVM program
16 prioritized reducing vegetation risk in the HFTD in 2021. In 2021, PG&E
17 committed to performing 80 percent of its EVM work on the highest
18 20 percent of risk ranked miles and to perform 1,800 miles of EVM work
19 by the end of the calendar year. PG&E exceeded both commitments by
20 performing 98 percent of the EVM work on the top 20 percent of risk
21 ranked miles and completing 1,983 miles of EVM work.²⁴

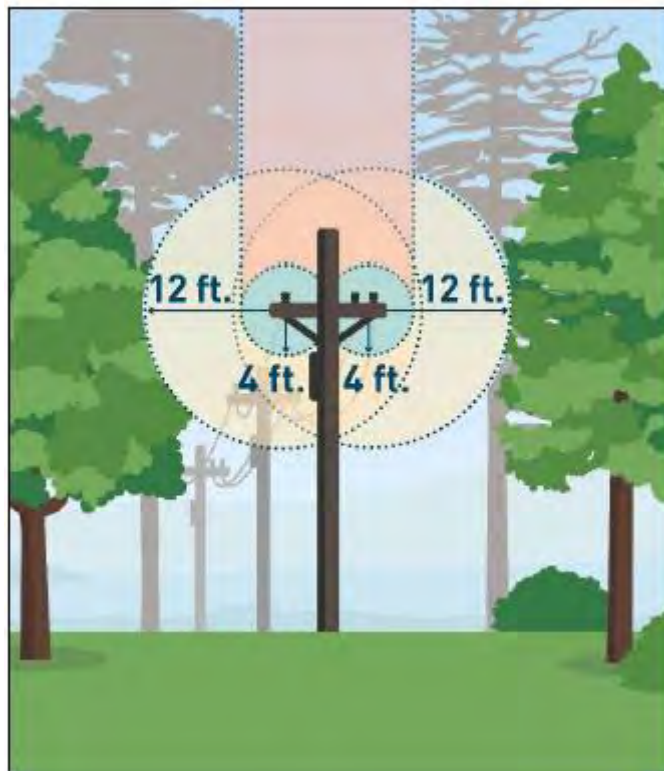
22 PG&E's EVM activities consist of the following categories of work:

-
- ²¹ Water years run from October 1 to September 30. See California Department of Water Resources, California Natural Resources Agency, Water Year 2021: An Extreme Year (Sept. 2021), https://water.ca.gov/-/media/DWR-Website/Web-Pages/Water-Basics/Drought/Files/Publications-And-Reports/091521-Water-Year-2021-broch_v2.pdf (as of Nov. 30, 2022).
- ²² Navarro, Drought plaguing American West worst in 1,200 years, new study finds (Updated Feb. 17, 2022), <https://www.accuweather.com/en/climate/mega-drought-plaguing-american-west-worst-in-1200-years/1142459#:~:text=After%20%22exceptional%20drought%20severity%22%20in%202021%2C%20about%2019%25,to%202021%20was%208.3%25%20below%20the%201950-1999%20average> (as of Dec. 1, 2022).
- ²³ A RFW indicates a level of wildfire risk from weather conditions, as declared by the National Weather Service.
- ²⁴ R.18-10-007, PG&E Enhanced Oversight and Enforcement Process Corrective Action Plan, 90-Day Report, Pursuant to Res.M-4852 (Feb. 2, 2022), p. 1.

1) Overhang Clearing, Tree Removals, and Radial Clearance

Overhang clearing and radial clearance work includes removing all branches that directly overhang or reach within four horizontal feet of electric distribution lines. Removing overhanging branches and keeping the area above and immediately adjacent to distribution lines clear further reduces the wildfire, public safety, and reliability impacts of vegetation falling into power lines. Under PG&E's EVM standards, trees must have a minimum 12-foot radial clearance around the primary conductor at the time of tree work to ensure no encroachment within a 4-foot radius of primary conductor prior to the next routine patrol cycle. This work also provides additional support for compliance with GO 95 Rule 35 and CPRC Section 4293. Figure 3-3 depicts the EVM scope of work.

**FIGURE 3-3
ENHANCED VEGETATION MANAGEMENT SCOPE**



2) Evaluating the Condition of Trees

Under the EVM program, PG&E Pre-Inspectors use the PG&E Tree Assessment Tool (TAT) to determine if a strike tree (a tree tall enough to strike electrical facilities if it falls) should be abated (in the case of a hazard strike tree) or inventoried (in the case of a healthy strike tree). The TAT relies on region-specific risk data, including the species' likelihood of igniting a wildfire. The tool has various data inputs that inform the assessment, such as historical data and statistics on tree failures, species, lean, health, terrain, slope, and local wind gusts. Inspectors use the TAT in the field on a per-tree basis to document abatement decisions. PG&E's EVM program assesses all strike trees regardless of species, but only removes trees that get an abate score by TAT. When the Pre-Inspector identifies a tree that needs to be abated, it is assigned to a tree crew.

3) Fuel Reduction

The Fuel Reduction program (also referred to as the Utility Defensible Space (UDS) program) reduces vegetative fuels under and adjacent to power lines located mainly within Tier 2 and Tier 3 HFTD areas to create "Fire Defense Zones" that help to:

- Protect critical operating equipment from wildfire, regardless of origin;
- Create safe space between power lines and vegetation that can act as fuel for wildfires;
- Slow the spread of fires and improve access for first responders in the event of a wildfire; and
- Enhance defensible space around homes, businesses, and properties, improving safety.

When permissible, work in this program includes the use of herbicides to minimize regrowth of combustible vegetation around PG&E facilities.

PG&E coordinates Fuel Reduction work with property owners.

1 **4) Wood Management**

2 PG&E initiated a Wood Management program in 2016 because
3 of drought induced tree mortality. The intent of the program was to
4 ensure that work performed to mitigate dead or dying trees could be
5 conducted safely and that property owners could safely use their
6 properties. Occasionally, wood management is also necessary for
7 environmental and safety reasons.

8 PG&E accommodates property owners' requests, where
9 feasible, by either relocating the wood from VM activities on-site,
10 cutting to the requested length, or removing it from the property.
11 Where wood must be hauled off-site and disposed, PG&E delivers
12 the material to various locations that accept the material and legally
13 dispose of it. In certain areas with a high volume of dead or dying
14 trees, PG&E contracts with a vendor that establishes a delivery
15 location near where the work is being conducted.

16 **5) Safety Oversight, WV, QV**

17 The contractor safety requirements for the EVM program are the
18 same as the requirements for Routine VM described in Section C.1
19 above.

20 PG&E performs WV on 100 percent of EVM work. WV is an
21 independent review of all EVM work to verify that: (1) the
22 Pre-Inspector prescribed tree work that was necessary per PG&E's
23 EVM procedures; (2) the work was completed as prescribed; and
24 (3) specific to EVM, the Pre-Inspector has inspected all strike trees.
25 Additionally, the QV team samples segments that "passed"²⁵ WV
26 for Quality Review.

27 **b. Summary of Costs**

28 PG&E's recorded unit costs for EVM work were higher than forecast
29 because of costs incurred to comply with new legislation; increased
30 volume of tree removals; higher costs due to the mix of work; and costs

²⁵ Passing WV indicates that: (1) the Pre-Inspector prescribed tree work that was necessary per PG&E's EVM procedures; (2) the work was completed as prescribed; and (3) specific to EVM, the Pre-Inspector has inspected all strike trees.

for work not forecast in the 2020 GRC. Increased costs are off-set by reduced costs for activities forecast in the 2020 GRC but not performed in 2021.

Table 3-7 shows the areas of work driving the differences in cost between the 2021 reasonableness review threshold and 2021 recorded amounts. PG&E describes each of these contributing factors below.

TABLE 3-7
EVM (MAT IGJ) – SUMMARY OF COST CHANGES
(THOUSANDS OF DOLLARS)

Line No.	Description	Approx. Recorded Costs
1	Increased Average Cost	\$190,500
2	Increased Volume of Work	162,800
3	Additional Costs for Non-Tree Work	22,200
4	Reduced Costs for Non-Tree Work	(25,800)
5	Total Costs MAT IGJ	\$349,700

1) Increased Average Costs

PG&E incurred approximately \$190.5 million in additional costs due to increased labor costs to comply with SB 247 as described in Section C.1 above and the actual number of trees removed to trees trimmed versus the expected ratio as reflected in the 2020 GRC forecast. In the 2020 GRC, PG&E planned to remove approximately 1 tree for every 9 trees trimmed.²⁶ The recorded 2021 data indicates that the ratio of trees removed to trees trimmed was significantly higher than forecast: PG&E removed more than 4 trees for every 1 tree trimmed.²⁷ The forecast cost for tree removal is three times higher than the forecast cost for tree trimming, contributing to the increased costs for EVM.²⁸

²⁶ PG&E's forecast assumed it would trim approximately 67.7 trees per mile and remove approximately 7.5 trees per mile, a ratio of approximately 9 to 1: $67.7/7.5 = 9.02$. See A.18-12-009, HE 18: Exhibit (PG&E-4), WP 7-12, lines 2 and 3.

²⁷ 2021 recorded data for EVM indicates that PG&E removed approximately 278,800 trees and trimmed (includes trimming and overhang removal) approximately 57,800 trees, a ratio of approximately 4:1: $278.8/57.8 = 4.8$.

²⁸ A.18-12-009, HE 18: Exhibit (PG&E-4), WP 7-13, fn. 5.

1 Three factors drove the change in the mix of work as discussed
2 in Section 2.a above. First, PG&E's approach to EVM changed
3 between 2018, the time it filed the 2020 GRC, and 2021. The
4 criteria for assessing which trees should be removed was very
5 different in 2018 than in 2021. In 2018, PG&E's approach focused
6 on specific tree species exhibiting certain risk characteristics,
7 whereas in 2021, PG&E had moved away from the tree species
8 approach and instead relied on the output from its TAT. Second, in
9 2021, PG&E completed its EVM work based on the results of its risk
10 prioritization model. The 1-N risk ranked list of trees resulted in
11 work in dense forests that drove more tree removals than forecast in
12 the 2020 GRC. Lastly, PG&E issued new guidance in October 2021
13 that required crews to remove a tree if the tree being worked was
14 within 12 feet of the line. Previously these trees would have been
15 trimmed, but more trees were ultimately removed as a result of the
16 new guidance.

17 **2) Increased Volume of Trees Worked**

18 PG&E incurred approximately \$162,800 million more than
19 forecast because of increased tree density—that is, the number of
20 trees worked per mile exceeded the forecast amount. PG&E
21 forecast working approximately 219,700²⁹ trees and ultimately
22 worked approximately 335,800 trees, a difference of approximately
23 116,100 trees.

24 **3) Additional Costs for Non-Tree Work**

25 PG&E incurred approximately \$22.2 million more than forecast
26 for non-tree work, described in detail below.

²⁹ PG&E forecasts its EVM work on a per mile basis, not number of trees. However, in the WPs supporting the EVM forecast, PG&E estimates the number of tree removals and tree trims per miles. For 2021, PG&E forecast 2,922 miles of EVM work which included an estimated 7.5 removals per mile and 67.7 trims per mile: $(7.5 \times 2,922) + (67.7 \times 2,922) = 21,915$ removals + $197,819$ trims = $219,734$ total trees worked. A.18-12-009, HE 18: Exhibit (PG&E-4), WP 7-12, lines 1 (miles), 2 (removals per mile) and 3 (trims per mile).

1 **a) Increased Costs for Wood Management**

2 PG&E incurred approximately \$57.3 million for wood
3 management in 2021, approximately \$6.9 million more than
4 forecast. Costs incurred for wood management are off-set by
5 approximately \$50.6 million for debris management forecast in
6 the 2020 GRC.³⁰

7 In addition to removing a potential fuel source, PG&E's
8 Wood Management program ensures that work performed to
9 mitigate dead or dying trees can be conducted safely, and that
10 property owners can safely use their properties.

11 In 2021, PG&E relocated and disposed of approximately
12 103,900 trees for property owners. This work included
13 relocating the wood from EVM activities on-site, cutting to the
14 requested length, or hauling off-site to various locations for
15 disposal. Many of the trees that were relocated and disposed of
16 were large trees measuring more than 23 inches in diameter.

17 **b) Additional Costs for Safety Oversight, WV, and QV**

18 PG&E incurred approximately \$2.7 million more than
19 forecast for safety oversight and QV work in 2021.

20 The additional costs for safety oversight and QV work
21 included amounts for on-boarding Pre-Inspectors, Senior
22 Inspectors, Safety Inspectors, and Work Verifiers who were
23 responsible for reviewing 100 percent of EVM pre-inspection
24 work and confirming that EVM tree work was completed as
25 prescribed, with all abate trees mitigated or removed. Safety
26 oversight and QV are critical elements to ensuring that EVM
27 work is performed according to PG&E standards and regulatory
28 requirements.

30 The forecast costs for debris management are embedded in the 2020 GRC forecast for EVM. A.18-12-009, HE 18: Exhibit (PG&E-4), WP 7-13, Table "2018 Activity Based Forecast for EVM Work," line "Debris Management."

1 **c) Additional Costs for Environmental Costs**

2 PG&E incurred approximately \$5.7 million for environmental
3 reviews conducted in 2021.

4 All VM work is performed in compliance with environmental
5 laws and regulations, and PG&E conducts environmental
6 reviews in potentially environmentally sensitive areas to
7 maintain environmental compliance. Environmental reviews are
8 generally required in areas designated for tree work that are
9 near creeks, water courses, migratory bird nests, and other
10 environmentally sensitive areas.

11 **d) Additional IT Costs**

12 PG&E incurred approximately \$6.9 million for IT costs in
13 2021, approximately \$5.9 million more than forecast. Incurred
14 costs are off-set by approximately \$0.98 million forecast for IT in
15 the 2020 GRC.³¹

16 PG&E incurred costs for its One VM Solution in 2021. The
17 One VM tool is a mobile data platform and back-office
18 functionality. Using the new tool, work can be dispatched to
19 individual VM resources without using paper requests. Tree
20 crews can enter completed work into the tool while in the field.
21 The costs for this VM-specific technology are accounted for at
22 the line of business level and are not included in PG&E's
23 general IT forecast or adopted amounts in the GRC.

24 **4) Reduced Costs for Non-Tree Work**

25 PG&E's recorded costs for UDS/Fuel Reduction and LiDAR
26 were approximately \$25.8 million less than the forecast amount.

27 In 2021, PG&E completed less fuel reduction work than
28 forecast. During the first half of 2021, PG&E was standing-up its
29 fuel reduction program, developing processes, procedures and
30 standards. Execution work did not begin until later in the year.

³¹ The forecast costs for debris management are embedded in the 2020 GRC forecast for EVM. A.18-12-009, HE 18: Exhibit (PG&E-4), WP 7-13, Table "2018 Activity Based Forecast for EVM Work," line "IT."

1 PG&E did not complete LiDAR collections in 2021 and instead
2 leveraged the LiDAR collections from previous years.

3 **c. Location and Timing of Activity**

4 PG&E created the EVM program in December 2018. EVM activities
5 occur year-round to complete the planned mileage by the end of each
6 year. In 2021, PG&E completed 1,953 miles of EVM work across
7 PG&E's Tier 2 and Tier 3 HFTD areas.³²

8 **3. Tree Mortality VM Activities**

9 In D.20-12-005, the Commission directed PG&E to record costs to the
10 VMBA for VM-related to tree mortality work that PG&E previously recorded
11 to CEMA. PG&E began recording Tree Mortality VM costs to the VMBA on
12 February 16, 2020.

13 PG&E did not forecast tree mortality work in the 2020 GRC, and
14 therefore seeks full recovery of these costs in this application. PG&E
15 recorded 2021 Tree Mortality VM costs of \$87.0 million as shown in
16 Table 3-8 below.

TABLE 3-8
TREE MORTALITY VEGETATION MANAGEMENT
2021 RECORDED COSTS COMPARED TO ADOPTED AMOUNTS
(THOUSANDS OF DOLLARS)

Line No.	Program	Adopted	Adopted at 120%	2021 Recorded Expenses	Subject to Review
1	Tree Mortality	—	—	\$87,022	\$86,243

17 **a. Nature of and Reason for Activity**

18 PG&E's Tree Mortality program removes dead or dying hazard trees
19 that may pose a public safety or wildfire threat or risk to PG&E
20 infrastructure. PG&E implemented the Tree Mortality program in
21 response to the 2014 proclamation of a drought emergency in
22 Commission Res.ESRB-4, OP 2, the Governor's October 30, 2015 Bark

³² Work occurs outside the geospatial delineated Tier 2 and Tier 3 areas. When work is completed in the field, there is no specific delineation and tree crews and Pre-Inspectors typically complete work on an entire conductor span (pole-to-pole).

1 Beetle Tree Mortality Emergency Proclamation, and the February 18,
2 2014 letter from the CPUC Safety and Enforcement Division, each of
3 which relates to mitigating the effects of drought on tree mortality to
4 reduce wildfire risk.

5 ESRB-4 directs IOUs to take specific remedial measures to reduce
6 the likelihood of fires started by or threatening utility facilities. These
7 remedial measures include: “increasing vegetation inspections and
8 removing hazardous, dead and sick trees and other vegetation near the
9 IOUs’ electric power lines and poles; sharing resources with the
10 CAL FIRE to staff lookouts adjacent to the IOUs property; and clearing
11 access roads under power lines for fire truck access.” These proactive
12 measures serve the important purposes of reducing wildfire risk in
13 California, improving the safety and reliability of PG&E’s system, and
14 protecting customers.

15 Five initiatives make up the Tree Mortality program: (1) Enhanced
16 Vegetation Inspections and Mitigation;³³ (2) Wood Management;
17 (3) Wildland Urban Interface (WUI) Protection; (4) Fuel Reduction and
18 Emergency Response Access; and (5) Safety Oversight and QV.

19 These work categories are discussed in more detail below.

20 **1) Enhanced Vegetation Inspection and Mitigation Initiative**

21 The purpose of the Enhanced Vegetation Inspection and
22 Mitigation initiative is to implement a series of supplemental
23 enhanced vegetation patrols and associated tree work in
24 SRA/FRA³⁴ and HFTD areas. This allows PG&E to address the
25 rapidly changing forest conditions resulting from the drought and

33 Despite the similar names, there is no relationship between the EVM program and the Tree Mortality initiative referred to as Enhanced Vegetation Inspection and Mitigation.

34 In SRAs, CAL FIRE has delegated its responsibility as the primary responder to fires to a “co-operator,” such as a countywide fire district (i.e., Kern, Marin, and Santa Barbara counties), that acts on behalf of, and in concert with, CAL FIRE. SRAs are usually in wildland areas and comprise about 60 percent of PG&E’s service territory. Since SRAs are usually remote, CAL FIRE or the co-operator may not be located nearby, and response times may be significantly longer. As a result, there is an increased risk that a fire started in an SRA could spread quickly.

1 bark beetle infestations to prevent dead or dying vegetation from
2 contacting power lines.

3 All portions of a line within HFTD and SRA/FRA areas are
4 patrolled once per year by PG&E's VM teams to identify dead or
5 dying trees requiring abatement work. PG&E's VM teams issue the
6 work to PG&E's tree contracting work force, which conducts the
7 abatement work. See Figure 3-4 below illustrating a tree that would
8 be abated within the Tree Mortality Scope of work.

**FIGURE 3-4
TREE MORTALITY SCOPE**



9 PG&E also conducts ad-hoc patrols of areas subject to "Red
10 Flag" warnings. The red flag patrols are conducted to identify dead
11 trees or specific trees at risk of failure due to extraordinary wind
12 conditions that could significantly compromise tree stability.

2) Wood Management

The Tree Mortality Wood Management program is the same as the EVM Wood Management program described in Section C.2.a above.

3) Wildland Urban Interface Protection

The WUI represents areas around the urban environment where conditions in the field, like slopes and vegetation, closely resemble rural areas. These areas, also referred to as Local Responsibility Areas, are usually moderately to densely-developed, and local agencies (local fire district, county, or municipal fire services) are responsible for fire suppression. All portions of lines within WUI areas are patrolled once per year. During the patrols, PG&E VM teams identify trees requiring abatement work and issue the work to PG&E's tree contracting work force, which conducts the abatement work. These additional inspections are focused on reducing risk by increasing the frequency of inspections to be able to identify and mitigate dead or dying vegetation.

4) Fuel Reduction and Emergency Response Access

PG&E supports local grassroots FSCs. Local FSCs, largely found in SRAs, are community-based, self-governed groups that focus on fire safety by:

- Distributing fire safety materials;
- Teaching fire-safe home construction techniques;
- Coordinating fire safety workshops with insurance companies and home builders;
- Conducting fuel reduction projects;
- Funding escape route and defensible space projects around homes as required by CPRC Section 4291;³⁵
- Sponsoring lookout towers; and
- Forming community safety networks.

³⁵ CPRC § 4291(a)(1) requires homeowners in SRAs to clear fuels from around their homes and outbuildings to form fuel-free, "defensible space" near them.

PG&E works with local FSCs to implement these safety efforts and funds other community programs such as fuel reduction, chipper programs, and escape route improvements. Physical work in the field is conducted by private contractors employed by the FSC, private party volunteers, homeowners, FSC members, and the like.

5) Safety Oversight and QV

PG&E describes its Safety Oversight and QV program for EVM in Section C.2.a above. PG&E performs those same activities for tree work performed under the Tree Mortality program.

b. Summary of Costs

Table 3-9 shows the 2021 Tree Mortality VM recorded costs by activity. PG&E did not forecast tree mortality work in the 2020 GRC, and therefore seeks full recovery of these costs in this application.

TABLE 3-9
TREE MORTALITY VM (MAT IGI) – 2021 ANNUAL SPEND
(THOUSANDS OF DOLLARS)

Line No.	Activity	MAT	2021 Expense ^(a)
1	Enhanced Vegetation Inspections and Mitigation Initiative		\$71,600
2	Wood Management		3,600
3	WUI Protection		5,800
4	Fuel Reduction and Emergency Response Access		2,100
5	Safety Oversight and QV		3,200
6	Total Tree Mortality	IGI	\$86,200

(a) Differences due to rounding.

c. Location and Timing of Activity

PG&E's Tree Mortality Program is a year-round program that performs scheduled patrols approximately six months before or after the Routine VM patrol for a particular area. The Tree Mortality program patrol is conducted on all overhead primary and secondary distribution facilities within HFTD, SRA/FRA, and WUI areas. Tree work identified from the patrols is conducted year-round.

4. PG Tree Mortality Activities

In D.20-12-005, the Commission directed PG&E to record all VM costs to the VMBA. PG&E began recording PG VM costs to the VMBA in February 2020.

PG&E did not forecast PG Tree Mortality work in the 2020 GRC,³⁶ and therefore seeks full recovery of these costs here. PG&E recorded 2021 PG VM costs of \$0.8 million, as shown in Table 3-10 below.

**TABLE 3-10
PG TREE MORTALITY
2021 RECORDED COSTS COMPARED TO ADOPTED AMOUNTS
(THOUSANDS OF DOLLARS)**

Line No.	Program	Adopted	Adopted at 120%	2021 Expenses	Subject to Review
1	PG Tree Mortality	–	–	\$0.8	\$0.8

a. Nature and Reason for Activity

PG&E's hydro-generating portfolio consists of 63 powerhouses with 102 generating units. Many of PG&E's hydro facilities are located in wildland areas—from the foothills to high mountain elevations ranging from Burney in the north to Auberry in the south. Contacts between vegetation and hydro facilities pose significant life and property impact risk and environmental risks of impacts to water quality, forest resources and habitats. Costs associated with recovering damaged natural resources like timber, wildlife habitat, water quality and quantity, assuming it is even possible, can be significant.

The 2021 PG Tree Mortality costs were incurred for work associated with identifying, abating, and cleaning up dead trees. Abatement and wood management comprise most of the recorded costs.

PG Tree Mortality work activities include inspections and patrols, tree abatement, and wood management. PG patrols and inspects 100 percent of the hydro system to promote facility protection and public safety. Typically, this can be accomplished with one to two inspections per year for normal year conditions. However, due to the magnitude of

³⁶ A.18-12-009, HE 146: Exhibit (PG&E-5).

1 recent drought mortality, PG implemented a continuous inspection
2 system in 2016 to abate hazards as they developed.

3 Wood management activities are designed to mitigate the inherent
4 risk of debris falling into the conveyance system. As wood decays, it
5 breaks apart and can fall into a canal. Debris fall-in can cause
6 uncontrolled water release by damming and overtopping the
7 conveyance system which directly impacts public safety and facility
8 operations. In addition to fall-in risk, PG wood management work also
9 addresses fuel buildup to reduce the risk of wildfire.

10 PG&E abated 1,862 trees for PG in 2021.

11 **b. Summary of Costs**

12 PG&E did not forecast PG Tree Mortality work in the 2020 GRC and
13 therefore seeks full recovery of these 2021 costs here. PG&E recorded
14 \$0.8 million in 2021 for PG Tree Mortality (see Table 3-10 above).

15 **c. Location and Timing of Activity**

16 PG Tree Mortality is a year-round program encompassing the area
17 surrounding PG&E's 63 powerhouses and associated equipment.
18 PG&E's 63 hydro powerhouses are located on 13 rivers and 4 tributaries
19 flowing from the Sierra Nevada, Cascade, and coastal mountain ranges.
20 The system collectively includes ancillary support facilities consisting of
21 the following: 97 reservoirs, 72 diversions, 167 dams, over 400 miles of
22 water conveyance (canals, flumes, penstocks, siphons, tunnels, low
23 head pipes, and natural waterways), access roads, campgrounds, and
24 over 100,000 acres of fee owned land that is readily accessible to the
25 public.

26 **D. Conclusion**

27 The substantial investment PG&E continues to make in its VM activities is
28 reasonable because it directly supports public safety, service reliability, and
29 regulatory compliance through management of vegetation near PG&E's electric
30 distribution and PG facilities. These proactive measures serve the important
31 purpose of reducing wildfire risk, improving the safety of PG&E's electric and PG
32 systems, and protecting customers and the public especially in this time of
33 extreme climate change.

1 This testimony demonstrates that the authorized 2021 costs and the costs
2 above the reasonableness review threshold recorded in the VMBA for electric
3 distribution and PG VM activities are reasonable.

4 PG&E seeks to recover \$814.7 million for 2021 expense amounts recorded
5 to the VMBA in excess of the 120 percent reasonableness review threshold.

6 PG&E seeks a determination that these costs were reasonably incurred, and
7 that recovery of these costs is appropriate. PG&E asks that these costs be
8 authorized by the CPUC.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 4

ELECTRIC DISTRIBUTION: CEMA

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 4
ELECTRIC DISTRIBUTION: CEMA

TABLE OF CONTENTS

A. Introduction.....	4-1
B. Summary of Request.....	4-2
C. Damages to PG&E's Electric Distribution Facilities and Restoration Activities	4-4
1. 2021 Costs Related to Prior CEMA Events	4-5
a. Events Prior to 2020	4-5
b. 2020 August and September Events	4-5
c. 2020 Glass Fire	4-5
2. 2021 CEMA Events.....	4-6
a. 2021 January Wind Event.....	4-6
1) Damaged Facilities.....	4-7
2) Restoration Activities.....	4-7
b. 2021 January Atmospheric Event.....	4-7
1) Damaged Facilities.....	4-8
2) Restoration Activities.....	4-8
c. 2021 June Extended Heat Event	4-9
1) Damaged Facilities.....	4-9
2) Restoration Activities.....	4-9
d. 2021 July Extended Heat Event	4-10
1) Damaged Facilities.....	4-10
2) Restoration Activities.....	4-10
e. 2021 McFarland Fire	4-11
1) Damaged Facilities.....	4-12
2) Restoration Activities.....	4-12

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 4
ELECTRIC DISTRIBUTION: CEMA

TABLE OF CONTENTS
(CONTINUED)

f.	2021 Monument Fire	4-12
	1) Damaged Facilities.....	4-13
	2) Restoration Activities.....	4-13
g.	2021 Caldor Fire.....	4-14
	1) Damaged Facilities.....	4-15
	2) Restoration Activities.....	4-15
h.	2021 Cache Fire	4-16
	1) Damaged Facilities.....	4-17
	2) Restoration Activities.....	4-17
i.	2021 River Fire	4-17
	1) Damaged Facilities.....	4-18
	2) Restoration Activities.....	4-18
j.	2021 Washington Fire	4-19
	1) Damaged Facilities.....	4-20
	2) Restoration Activities.....	4-20
k.	2021 Hopkins Fire	4-20
	1) Damaged Facilities.....	4-21
	2) Restoration Activities.....	4-21
l.	2021 KNP Complex Incident.....	4-22
	1) Damaged Facilities.....	4-23
	2) Restoration Activities.....	4-23
m.	2021 Fawn Fire.....	4-23
	1) Damaged Facilities.....	4-24
	2) Restoration Activities.....	4-24

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 4
ELECTRIC DISTRIBUTION: CEMA

TABLE OF CONTENTS
(CONTINUED)

- n. 2021 October Northeast Pacific Bomb Cycle..... 4-25
 - 1) Damaged Facilities..... 4-26
 - 2) Restoration Activities..... 4-26
- o. 2021 December Storms..... 4-27
 - 1) Damaged Facilities..... 4-28
 - 2) Restoration Activities..... 4-28
- D. Conclusion..... 4-28

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 4
ELECTRIC DISTRIBUTION: CEMA

A. Introduction

This chapter describes Pacific Gas and Electric Company's (PG&E) response to the following catastrophic events:

- 2021 Costs Related to Prior Catastrophic Event Memorandum Account (CEMA) Events;
- 2021 January Wind Event;
- 2021 January Atmospheric Event;
- 2021 June Extended Heat Event;
- 2021 July Extended Heat Event;
- 2021 McFarland Fire;
- 2021 Monument Fire;
- 2021 Caldor Fire;
- 2021 Cache Fire;
- 2021 River Fire Incident;
- 2021 Washington Fire;
- 2021 Hopkins Fire;
- 2021 KNP Complex Fire;
- 2021 Fawn Fire;
- 2021 October Northeast Pacific Bomb Cycle; and
- 2021 December Storms.

This chapter demonstrates the necessity and reasonableness of the steps PG&E took to: (i) repair the electric distribution facilities damaged and (ii) restore service to customers during these catastrophic events. PG&E's responses to these events were coordinated and managed so that service could be restored to PG&E customers as quickly and efficiently as possible. The steps PG&E took were necessary and reasonable to eliminate potentially hazardous conditions, communicate with customers, repair or replace damaged facilities, and restore vital electric service.

The remainder of this chapter is organized as follows:

- Section B provides a summary of the cost-recovery request;

- Section C explains the costs incurred by PG&E in response to these catastrophic events; and
- Section D provides a brief conclusion.

B. Summary of Request

PG&E incurred \$133.2 million in capital expenditures and \$185 million in expenses for its electric distribution costs related to these catastrophic events through December 31, 2021. Of those totals incurred, PG&E seeks recovery of only those CEMA—eligible incremental capital and expense costs.

Table 4-1 provides a detailed breakdown of the CEMA-eligible costs by: CEMA Event; Major Work Category (MWC) 95 (Capital); and MWC IF (Expense).

TABLE 4-1
CEMA-ELIGIBLE ELECTRIC DISTRIBUTION BREAKDOWN OF
EXPENDITURES FOR CEMA EVENTS
(THOUSAND OF DOLLARS)

Line No.	Event by Year	Capital MWC 95	Expense MWC IF	Total Spend
1	Events Prior to 2020	—	\$15	\$15
2	2020 August and September Events	\$(417)	44,038	43,620
3	2020 September Glass Fire	6,061	38,039	44,100
4	Prior Events Subtotal	\$5,643	\$82,093	\$87,736
5	2021 January Wind Event	18,160	11,631	29,791
6	2021 January Atmospheric	15,684	14,278	29,962
7	2021 June Extreme Heat Event	2,757	1,148	3,905
8	2021 July Extreme Heat Event	1,245	1,051	2,296
9	2021 August McFarland Fire Event	—	32	32
10	2021 August Monument Fire Event	1,144	3,363	4,780
11	2021 August Caldor Fire Event	48,611	32,251	80,862
12	2021 August Cache Fire Event	465	2,296	2,760
13	2021 August River Fire Event	7,869	2,810	10,680
14	2021 August Washington Fire Event	868	103	971
15	2021 September Hopkins Fire Event	860	52	912
16	2021 September KNP CPX Fire Events	42	77	120
17	2021 Fawn Fire	3,406	5,125	8,531
18	2021 October Northeast Pacific Bomb Cycle	16,493	13,554	30,047
19	2021 December Storms	10,052	14,747	24,799
20	Sub Total	\$133,299	\$184,896	\$318,184
21	Less: EY adjustment	\$(121)	\$(59)	\$(180)
22	Less: Overheads and A&G adjustment	\$(3,109)		\$(3,109)
23	Grand Total	\$130,070	\$184,826	\$314,896

The amounts referenced above are the amounts incurred in counties in which a state of emergency was declared by a competent state or federal authority.

Occasionally, PG&E incurred costs related to these events outside of the declared counties. Table 4-2 below shows the systemwide costs incurred relating to these events, which total \$398.9 million in expense and capital expenditures. PG&E is not seeking recovery through CEMA of the costs incurred outside of the declared counties.

**TABLE 4-2
SYSTEMWIDE ELECTRIC DISTRIBUTION BREAKDOWN FOR CEMA EVENTS
(THOUSAND OF DOLLARS)**

Line No.	Event by Year	Capital MWC 95	Expense MWC IF	Total Spend
1	Events Prior to 2020	—	\$15	\$15
2	2020 August and September Events	\$(417)	44,038	43,621
3	2020 September Glass Fire	6,061	38,039	44,100
4	Prior Events Subtotal	\$5,643	\$82,093	\$87,736
5	2021 January Wind Event	18,160	11,631	29,791
6	2021 January Atmospheric	62,805	47,808	110,613
7	2021 June Extreme Heat Event	2,757	1,148	3,905
8	2021 July Extreme Heat Event	1,245	1,051	2,296
9	2021 August McFarland Fire Event		32	32
10	2021 August Monument Fire Event	1,144	3,636	4,780
11	2021 August Caldor Fire Event	48,611	32,251	80,862
12	2021 August Cache Fire Event	465	2,296	2,760
13	2021 August River Fire Event	7,869	2,810	10,680
14	2021 August Washington Fire Event	868	103	971
15	2021 September Hopkins Fire Event	860	52	912
16	2021 September KNP CPX Fire Events	42	77	120
17	2021 Fawn Fire	3,406	5,125	8,531
18	2021 October Northeast Pacific Bomb Cycle	16,493	13,554	30,047
19	2021 December Storms	10,052	14,747	24,799
20	2021 Subtotal	\$174,777	\$136,322	\$311,099
21	EY adjustment	(121)	(59)	(180)
22	Grand Total	\$180,299	\$218,356	\$398,655

Note: The majority of costs incurred in a non CEMA-Eligible Division was in the 2021 January Atmospheric Event.

C. Damages to PG&E's Electric Distribution Facilities and Restoration Activities

The activities described in this chapter represent PG&E's response to both extreme weather events and wildfires declared by the state as catastrophic events.

Wildfires are different from winter storms in terms of their impact on assets. Winter storms cause damage to electric distribution facilities that is often widespread, involves large portions of the service territory simultaneously, and can be comparatively short in duration. A winter storm passes through the service territory, damaging facilities and sometimes causing a large volume of outages to customers. For winter storms, PG&E is the response owner and manages the pace of restoration.

In contrast, wildfires are concentrated in a specific geographic area and can be far more dynamic. Wildfires can last for an hour or weeks. Influenced by factors such as humidity, wind speed and direction, available fuel, and topography, fires can change direction or rate of spread, making them challenging to predict. Response to wildfires is led by the jurisdictional fire agency, usually California Department of Forestry and Fire Protection or the United States Forest Service. Access to infrastructure impacted by the fire is granted by the fire Incident Commander (IC). This increases the level of coordination required between PG&E and the IC and may involve an extended response based on the activity, fire ground safety and/or the level of complexity of the incident.

Damage to the electric distribution system is also different in a winter storm than in a wildfire. Winter storms may break poles, cross arms, spans of wire, or other facilities at intermittent locations within the impacted division, and generally involve a large, widespread volume of outage location. In contrast, a wildfire may destroy electric distribution facilities in its path. Depending on the geographic concentration of a wildfire, the outage scope may be smaller than during a winter storm. In some instances, circuits can be de-energized in advance of the wildfire spread to protect firefighters and the public from exposure to energized distribution conductors. Restoration activities during a fire often involve replacing all the assets and components in the wildfire's path,

rather than portions of assets or components such as a cross arms or a broken pole. The following events are described in detail below:

1. 2021 Costs Related to Prior CEMA Events

a. Events Prior to 2020

In Application (A.) 21-09-08, PG&E requested cost recovery for 2019 January February Severe Storms; these events incurred additional costs through December 31, 2021. These costs included an additional \$0.015 million in Expense.

b. 2020 August and September Events

In A.21-09-008, PG&E requested cost recovery for the 2020 August Fires and the September Extreme Heat Event. These events included the August complex fires, with many other smaller fires during August, combined with the September Extreme Heat event, and incurred additional costs through December 31, 2021. These costs included a credit of \$0.4 million in Capital and \$44.038 million in Expense.

TABLE 4-3
2020 AUGUST AND SEPTEMBER EVENTS
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$8,139	\$43,189	\$51,328
2	Labor	(551)	1,347	796
3	Materials	(1,214)	116	(1,098)
4	Other	(6,791)	(614)	(7,405)
5	Total	\$(417)	\$44,038	\$43,621

Continued restoration activities are ongoing as customers return and rebuild. During 2021, PG&E continued to restore damaged distribution infrastructure in response to customer requests. These activities included installing 187 poles, 72 transformers, 2 cross arms and 126 spans of distribution conductor.

c. 2020 Glass Fire

In A.21-09-008, PG&E requested cost recovery for the Glass Fire (Sonoma and Napa County) that began September 27, 2020. Additional

costs have been incurred for restoration activities related to the Glass Fire continuing through December 31, 2021.

The Glass Fire (Sonoma and Napa Counties) Costs incurred in 2021 are summarized below:

TABLE 4-4
2020 GLASS FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$8,802	\$35,741	\$44,543
2	Labor	166	880	1,046
3	Materials	(980)	(2)	(982)
4	Other	(1,927)	1,420	(507)
5	Total	\$6,061	\$38,039	\$44,100

Additional information on the Glass Fire can be found in PG&E's opening testimony in A.21-09-008.¹

Continued restoration activities are ongoing as customers return and rebuild. During 2021, PG&E continued to restore damaged distribution infrastructure in response to customer requests. These activities included installing 13 poles, 27 transformers, and 59 spans of distribution conductor.

2. 2021 CEMA Events

a. 2021 January Wind Event

The 2021 January Wind Event began with an upper-level disturbance which initially crossed over the territory January 17-18, and resulted in a tightening of an offshore pressure gradient. A second and stronger upper-level disturbance on January 18-19 helped further increase the offshore pressure gradient. Strong winds resulted in tree damage, downed trees, and downed powerlines resulting in power outages. High Wind Warnings were issued for the event across Madera and Mariposa Counties where wind speeds in excess of 80 miles per

¹ A.21-09-008, Prepared Testimony, pp. 4-13, line 7 to 4-14, line 24.

hour (mph) were observed. Later in the year, Governor Gavin Newsom declared a State of Emergency for both counties to assist communities still recovering from the extreme winds more than 5 months later that caused significant damage to critical infrastructure including powerlines and roads.

PG&E incurred \$29.8 million systemwide responding to this wind event of which \$29.8 is related to the declared emergency in CEMA-eligible counties. The \$29.8 million can be broken down as follows:

**TABLE 4-5
2021 JANUARY WIND EVENT
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)**

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$12,124	\$8,888	\$21,012
2	Labor	2,636	2,784	5,421
3	Materials	2,233	57	2,290
4	Other	1,167	(98)	1,068
5	Total	\$18,160	\$11,631	\$29,791

1) Damaged Facilities

The January Wind Event destroyed or damaged following number of PG&E facilities: 378 poles, 162 crossarms, 51 transformers and 334 spans of distribution conductor.

2) Restoration Activities

The damaged items referenced above were repaired or replaced to restore power to customers.

b. 2021 January Atmospheric Event

An extreme atmospheric event took place on January 26 through January 29 which was a result of tropical moisture from over the Pacific that moved eastward and set up along the Central Coast. Rain began over the North Bay and San Francisco Bay Area on January 26 while some higher peaks around the Bay Area received snowfall due to low snow levels. High Wind Warnings for higher elevations and a Wind

Advisory for valley locations were issued while gusts in the valleys reached 25-35 mph with higher peaks reaching gusts 60-80 mph from the evening of January 26 through the morning of the 27th. The rain band then began to shift southward and slow down over the Central Coast. The main band of the precipitation was focused over Big Sur to Santa Cruz on the 27th and 28th. As the area of low pressure moved further south along the coast, the strong moisture band flowed inland to the Central Valley bringing snow to the high Sierra. The most rain fell over the Central Coast. Monterey Valleys received between 3 to 4.5 inches, Big Sur Coast received between 10 and 13 inches, and the higher elevations of the Santa Lucia Range received between 15 and 20 inches of rainfall.

PG&E incurred \$110 million systemwide responding to this Atmospheric Event of which \$30 is related to the declared emergency in CEMA-eligible counties. The \$30 million can be broken down as follows:

**TABLE 4-6
2021 JANUARY ATMOSPHERIC RIVER
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)**

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$9,840	\$9,239	\$19,079
2	Labor	3,130	4,804	7,934
3	Materials	1,727	235	1,963
4	Other	987	—	987
5	Total	\$15,684	\$14,278	\$29,962

1) Damaged Facilities

The 2021 January Atmospheric Event destroyed or damaged the following number of PG&E facilities: 746 poles, 622 crossarms, 394 transformers and 2,255 spans of distribution conductor.

2) Restoration Activities

The damaged items referenced above were repaired or replaced to restore power to customers.

c. 2021 June Extended Heat Event

On June 16 through June 19, 2021, an early summer heatwave impacted northern California and broke all-time records. A strong ridge of high pressure remained over the western United States, causing temperatures to rise to very high levels and not leave much room for recovery during the overnight hours. As a result, much of the power grid was overwhelmed and caused many power outages. Excessive Heat Warnings were issued by the National Weather Service from June 16 through June 19 with each day expecting triple-digit heat in many locations. Downtown Sacramento temperatures rose to 110 degrees while Santa Rosa broke the old record of 101 and rose to 104 degrees.

PG&E incurred \$3.9 million systemwide responding to this extended heat event of which \$3.9 is related to the declared emergency in CEMA-eligible counties. The \$3.9 million can be broken down as follows:

**TABLE 4-7
2021 JUNE EXTENDED HEAT EVENT
COST ELEMENT BREAKDOWN OF COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$1,213	\$194	\$1,408
2	Labor	1,074	1,036	2110
3	Materials	345	4	349
4	Other	124	(86)	38
5	Total	\$2,757	\$1,148	\$3,905

1) Damaged Facilities

The June Extended Heat event destroyed or damaged following number of PG&E facilities: 4 poles, 5 crossarms, 121 transformers and 37 spans of distribution conductor.

2) Restoration Activities

The damaged items referenced above were repaired or replaced to restore power to customers.

d. 2021 July Extended Heat Event

The July extended heat event took place around July 8 and lasted through July 19, and set record breaking temperatures across the state. July 10th was the third consecutive day of heat across the Interior, with hot temperatures continuing through July 12th. During this period most of the locations that experienced impact saw temperatures rise to 105-115 degrees for high temperatures, with low temperatures only dropping into the mid-70s to mid-80s during the overnight hours. Triple-digit heat was observed through much of the Central Valley, with Redding rising to 114 degrees and Sacramento rising to 111 degrees.

PG&E incurred \$2.3 million systemwide responding to this extended heat event of which \$2.3 is related to the declared emergency in CEMA-eligible counties. The \$2.3 million can be broken down as follows:

**TABLE 4-8
2021 JULY EXTENDED HEAT EVENT
COST ELEMENT BREAKDOWN OF COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$325	\$285	\$610
2	Labor	639	858	1,497
3	Materials	214		214
4	Other	67	(92)	(24)
5	Total	\$1,245	\$1,051	\$2,296

1) Damaged Facilities

The July Extended Heat event destroyed or damaged following number of PG&E facilities: 6 poles, 7 crossarms, 76 transformers and 32 spans of distribution conductor.

2) Restoration Activities

The damaged items referenced above were repaired or replaced to restore power to customers.

1 **e. 2021 McFarland Fire**

2 The McFarland Fire was started by lightning on July 29th near
3 McFarland Ridge, south of Highway 36 near Wildwood, California. The
4 fire is currently mapped at 122,653 acres with 100 percent containment
5 on September 16, 2021 (47 days).

6 Sufficient moisture was carried over the region via southerly flow
7 and the combination of heat and moisture was able to result in isolated
8 thunderstorms across the area. The day started off warm with
9 temperatures already rising above 90°F before 1100 hour. Dry surface
10 conditions were also present with relative humidity values reaching the
11 teens during peak heating hours of the afternoon. Observation site
12 YOBC1 located approximately 1.88 miles southwest of the ignition area
13 observed a maximum temperature of 94°F at 1235 hour and 1735 hour
14 while the lowest relative humidity recorded for the day was 18 percent
15 observed at 1335 hour.² Winds were light for the day with sustained
16 winds ranging between 0-3 mph and gusting to a maximum of 13 mph
17 from the west at 1835 hour. The approximate time of ignition was
18 1844 hour and weather conditions were indeed present for fire spread.
19 The National Weather Service in Eureka highlighted the concerns of
20 new fire starts in the Red Flag Warning that was issued for the area.

21 PG&E incurred \$0.03 million systemwide responding to this fire of
22 which \$0.03 is related to the declared emergency in CEMA-eligible
23 counties. The \$0.03 million can be broken down as follows:

2 MESOWEST, Weather Conditions for YOBC1, <https://mesowest.utah.edu/cgi-bin/droman/meso_base_dyn.cgi?product=&past=1&stn=YOBC1&unit=0&time=LOCAL&day1=30&month1=07&year1=2021&hour1=0> (as of Nov. 18, 2022).

TABLE 4-9
2021 MCFARLAND FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	—	\$30	\$30
2	Labor	—	2	2
3	Materials	—	—	—
4	Other	—	—	—
5	Total	—	\$32	\$32

1) Damaged Facilities

The fire burned across three counties (Shasta, Trinity, and Tehama) totaling of 122,653 acres and was contained September 16 (47 days).

2) Restoration Activities

PG&E's response to the event and the costs that were incurred were largely driven by the removal of trees, brush, and other vegetation. This included the removal of hazards within the impacted area.

f. 2021 Monument Fire

The Monument Fire was caused by lightning in the evening of July 30th, 2021, at approximately 1800 hour. Monsoonal moisture was present over the region via southerly flow where heat and dry conditions existed at the surface. The combination of heat and moisture available with unstable conditions and atmospheric disturbances ultimately resulted in thunderstorms to form over the area. Observation site UDWC1³ located approximately 8.58 miles southwest of the ignition area shows data of just how hot and dry it was that day. Temperatures warmed into the 90s before noon and the relative humidity lowered into the teens throughout much of the afternoon and evening. The maximum temperature was 101.0°F at 1524 hour and the minimum temperature

³ MESOWEST, Weather Conditions for UDWC1, <https://mesowest.utah.edu/cgi-bin/droman/meso_base_dyn.cgi?product=&past=1&stn=UDWC1&unit=0&time=LOCAL&day1=31&month1=07&year1=2021&hour1=0> (as of Nov. 18, 2022).

was 68.0°F at 0724 hour. The relative humidity was the highest of 43 percent at 0842 hour and lowered to the minimum of 15 percent at 1624 hour. Sustained winds that day were light and varied between 0-4 mph while the maximum gust was 13 mph from the south-southwest at 1824 hour. However, in the Red Flag Warning that was issued by the National Weather Service in Eureka, the message of erratic thunderstorm winds gusting over 40 mph was highlighted.

PG&E incurred \$4.8 million systemwide responding to this fire of which \$4.8 is related to the declared emergency in CEMA-eligible counties. The \$4.8 million can be broken down as follows:

**TABLE 4-10
2021 MONUMENT FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$1,000	\$1,996	\$2,995
2	Labor	84	742	826
3	Materials	56	42	97
4	Other	5	856	861
5	Total	\$1,144	\$3,636	\$4,780

1) Damaged Facilities

The fire burned a total of 223,124 acres and was contained October 26 (88 days). The fire also destroyed or damaged the following number of PG&E facilities: 4 poles, and 1 spans of distribution conductor.

2) Restoration Activities

PG&E focused initial efforts on assessment and identification of damaged facilities. The information gathered during the damage assessment phase was used to determine the number of crew resources needed and materials required to quickly restore services to customers. Information was also gathered to help determine ways to temporarily reconfigure the system to restore service to the greatest number of customers possible prior to the completion of the major repairs.

1 PG&E's response to the event and the costs that were incurred
2 were largely driven by the removal of trees, brush, and other
3 vegetation. This included the removal of hazards within the
4 impacted area. Other activities including but not limited to were
5 traffic control, security services, and necessary restoration activities
6 to restore power.

7 Additional costs in response to the restoration effort are taking
8 place in 2022 and recovery of those costs will be sought in future
9 applications.

10 **g. 2021 Caldor Fire**

11 Hot and dry conditions existed on the ignition day of August 14th,
12 2021. According to the data of observation site GZFC1,⁴ which is
13 located approximately 2.81 miles north-northeast of the approximate
14 ignition site, temperatures had reached the 90s before noon and relative
15 humidity values lowered from the 30s in the early morning to the teens
16 by early afternoon. The maximum temperature observed was 99.0°F at
17 1317 hour and the minimum temperature reached was 73.0°F at
18 2317 hour. The maximum relative humidity value was 47 percent at
19 2217 hour and the minimum value was 16 percent at 1317 hour. Winds
20 were relatively light that day with the maximum sustained wind occurring
21 at 1517 hour of 4.0 mph from the west-northwest and the maximum
22 wind gust was 11 mph from the west at 1717 hour. The fire initially
23 burned slowly but rapidly spread on August 16th due to strong winds
24 and abundant low fuel moisture in the area.

25 PG&E incurred \$80.9 million systemwide responding to this fire of
26 which \$80.9 is related to the declared emergency in CEMA-eligible
27 counties. The \$80.9 million can be broken down as follows:

4 MESOWEST, Weather Conditions for GZFC1, <https://mesowest.utah.edu/cgi-bin/droman/meso_base_dyn.cgi?product=&past=1&stn=GZFC1&unit=0&time=LOCAL&day1=15&month1=08&year1=2021&hour1=0> (as of Nov. 18, 2022).

TABLE 4-11
2021 CALDOR FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$43,707	\$21,656	\$65,363
2	Labor	2,840	3,181	6,021
3	Materials	1,311	81	1,392
4	Other	753	7,334	8,086
5	Total	\$48,611	\$32,251	\$80,862

1) Damaged Facilities

The fire burned a total of 221,835 acres and was contained October 21 (67 days). The fire also destroyed 1,003 structures and the following number of PG&E facilities: 82 poles, 7 Transformers, 6 crossarms, and 23 spans of distribution conductor.

2) Restoration Activities

PG&E focused initial efforts on assessment and identification of damaged facilities. The information gathered during the damage assessment phase was used to determine the number of crew resources needed and materials required to quickly restore services to customers. Information was also gathered to help determine ways to temporarily reconfigure the system to restore service to the greatest number of customers possible prior to the completion of the major repairs.

Temporary repairs were made in certain situations to eliminate unsafe conditions and help restore services more quickly. Permanent repairs and replacements were then made, and normal operating system configuration was restored via field switching as soon as resources were available and could be efficiently used to do so.

Crews worked within the fire footprint which includes identifying and felling trees, and other debris that are either an immediate hazard to either our personnel or our infrastructure.

Additional costs in response to the restoration effort are taking place in 2022 and recovery of those costs will be sought in future applications.

h. 2021 Cache Fire

It was hot, dry, and windy day of August 18th, 2021, near the ignition site of the Cache Fire. The PG&E observation site PG097⁵ located approximately 1,778 feet southeast of the ignition site recorded a maximum temperature of 88.6°F at 1610 hour and a minimum temperature of 63.4°F at 0550 hour. The minimum relative humidity recorded was 12 percent at 1520 hour. Gusty winds were present that day with the maximum sustained wind at 13.8 mph and the maximum wind gust observed was 31.7 mph from the north. The National Weather Service in Eureka extended a Red Flag Warning in duration the early morning of the 18th of August. The mention of 10 to 20 mph winds with gusts to 30 mph and relative humidity values in the teens were within the warning.

PG&E incurred \$2.7 million systemwide responding to this fire of which \$2.7 is related to the declared emergency in CEMA-eligible counties. The \$2.7 million can be broken down as follows:

**TABLE 4-12
2021 CACHE FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$114	\$2,136	\$2,250
2	Labor	229	148	377
3	Materials	51	21	71
4	Other	71	(9)	62
5	Total	\$465	\$2,296	\$2,760

⁵ MESOWEST, Weather Conditions for PG097, <https://mesowest.utah.edu/cgi-bin/droman/meso_base_dyn.cgi?product=&past=1&stn=PG097&unit=0&time=LOCAL&day1=19&month1=08&year1=2021&hour1=0> (as of Nov. 18, 2022).

1 **1) Damaged Facilities**

2 The fire burned a total of 83 acres in Lake County and was
3 contained August 23 (4 days). The fire also destroyed or damaged
4 the following number of PG&E facilities: 18 poles, and 2 crossarms.

5 **2) Restoration Activities**

6 PG&E's response to the event and the costs that were incurred
7 were largely driven by the removal of trees, brush, and other
8 vegetation. This included the removal of hazards within the
9 impacted area. Other activities including but not limited to were
10 traffic control, security services, and necessary restoration activities
11 to restore power.

12 **i. 2021 River Fire**

13 It was a hot and breezy summer day of August 4th, 2021, near the
14 ignition area. According to PG&E's observation site PG377⁶ located
15 approximately 3,847 feet east-northeast of the ignition site,
16 temperatures rose to the 90s by the late morning and the relative
17 humidity had lowered to below 10 percent shortly after noon. The
18 maximum temperature reached was 95.2°F at 1350 hour and the lowest
19 temperature recorded was 67.9°F at 0530 hour. The maximum relative
20 humidity of the day was only 33 percent at 0610 hour and lowered to a
21 very dry 8 percent at 1210 hour. The winds were blowing primarily
22 between the south and west. The maximum sustained wind speed
23 observed was 9.1 mph at 1530 hour from the west and the maximum
24 wind gust was 17.0 mph at 1540 hour from the south. Several favorable
25 elements were present and resulted in the issuance of a Red Flag
26 Warning near the ignition site from the National Weather Service in
27 Sacramento. The warning mentioned the gusty winds in combination of
28 very low humidity and extremely dry fuels would bring elevated to locally
29 critical fire weather conditions around the region. Although the fire was

6 MESOWEST, Weather Conditions for PG377, <https://mesowest.utah.edu/cgi-bin/droman/meso_base_dyn.cgi?product=&past=1&stn=PG377&unit=0&time=LOCAL&day1=5&month1=08&year1=2021&hour1=0> (as of Nov. 18, 2022).

active for 9 days, it was the 5th most destructive fire in California of 2021.

PG&E incurred \$10.6 million systemwide responding to this fire of which \$10.6 is related to the declared emergency in CEMA-eligible counties. The \$10.6 million can be broken down as follows:

TABLE 4-13
2021 RIVER FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$6,682	\$1,368	\$8,051
2	Labor	284	315	1,599
3	Materials	695	4	699
4	Other	207	123	331
5	Total	\$7,869	\$2,810	\$10,680

1) Damaged Facilities

The fire burned a total of 2,619 acres in Nevada and Placer counties, with was contained August 13 (9 days). The fire also destroyed or damaged the following number of PG&E facilities: 12 poles, 3 transformers and one crossarms.

2) Restoration Activities

PG&E focused initial efforts on assessment and identification of damaged facilities. The information gathered during the damage assessment phase was used to determine the number of crew resources needed and materials required to quickly restore services to customers. Information was also gathered to help determine ways to temporarily reconfigure the system to restore service to the greatest number of customers possible prior to the completion of the major repairs.

Temporary repairs were made in certain situations to eliminate unsafe conditions and help restore services more quickly.

Permanent repairs and replacements were then made, and normal operating system configuration was restored via field switching as

1 soon as resources were available and could be efficiently used to
2 do so.

3 Crews worked within the fire footprint which includes identifying
4 and felling trees, and other debris that are either an immediate
5 hazard to either our personnel or our infrastructure.

6 Additional costs in response to the restoration effort are taking
7 place in 2022 and recovery of those costs will be sought in future
8 applications.

9 **j. 2021 Washington Fire**

10 The Washington Fire started on August 26, 2021, around Gold Links
11 Road and Highway 108, West of Sonora in Tuolumne county. It was a
12 hot, dry, and breezy day was observed on the 26th of August 2021. The
13 weather conditions helped spread the fire to 100 acres. The PG&E
14 observation site PG167 is situated approximately 1.10 miles southeast
15 of the approximate ignition site and recorded a maximum temperature of
16 89.8°F at 1800 hour and a minimum temperature of 60.5 degrees at
17 0640 hour.⁷ Dry conditions were present with relative humidity values
18 lowering to the teens as early as 0940 hour. The minimum relative
19 humidity reached was 14 percent at 1820 hour and the maximum value
20 was 49 percent at 0150 hour. Breezy conditions were present
21 throughout the afternoon as the maximum sustained wind speed was
22 10.5 mph from the south-southwest at 1320 hour and a maximum wind
23 gust of 17.7 mph was observed from the south-southwest at 1640 hour.

24 PG&E incurred \$1 million systemwide responding to this fire of
25 which \$1 million is related to the declared emergency in CEMA-eligible
26 counties. The \$1 million can be broken down as follows:

7 MESOWEST, Weather Conditions for PG167, <https://mesowest.utah.edu/cgi-bin/droman/meso_base_dyn.cgi?product=&past=1&stn=PG167&unit=0&time=LOCAL&day1=27&month1=08&year1=2021&hour1=0> (as of Nov. 18, 2022).

TABLE 4-14
2021 WASHINGTON FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$632	\$39	\$671
2	Labor	132	61	193
3	Materials	89	0	89
4	Other	15	2	17
5	Total	\$868	\$103	\$971

1) Damaged Facilities

The Washington Fire burned for six days and a total of 100 acres and destroyed 18 non-PG&E structures. The fire also destroyed or damaged the following number of PG&E facilities: 17 poles, one transformer and two spans of distribution conductor.

2) Restoration Activities

The damaged items referenced above were repaired or replaced to restore power to customers.

k. 2021 Hopkins Fire

Hopkins Fire started (Arson) September 12, 2021, between Hopkins Street and North State Street, near Calpella in Mendocino County.

The Hopkins Fire burned 257 acres, and was 100 percent contained September 20, 2021, (8 days).

Hot, dry, and windy conditions resulted in the spread of this fire to 257 acres that was caused by arson. The observation site 118PG situated approximately 3,185 feet southwest of the ignition site recorded temperatures rising from the 50s in the morning to 90s by the afternoon on the day of the ignition.⁸ Relative humidity values deteriorated from the 60s to the teens during peak heating hours. In addition, sustained winds 5-10 mph and gusts to around 20 mph were also present. The maximum temperature was 93.5°F at 1350 hour and the minimum temperature was 55.9°F degrees at 0650 hour. The maximum relative

⁸ MESOWEST, Weather Conditions for 118PG, <https://mesowest.utah.edu/cgi-bin/droman/meso_base_dyn.cgi?product=&past=1&stn=118PG&unit=0&time=LOCAL&day1=13&month1=09&year1=2021&hour1=0> (as of Nov. 18, 2022).

humidity was 65 percent at 0650 hour before dropping to 19 percent at 1600 hour. Winds increased by the afternoon and the maximum sustained wind was 9.9 mph from the west-northwest at 1530 while the maximum wind gust was 20.1 mph from the west-northwest at 1540 hour.

PG&E incurred \$1 million systemwide responding to this fire of which \$1 million is related to the declared emergency in CEMA-eligible counties. The \$1 million can be broken down as follows:

TABLE 4-15
2021 HOPKINS FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$436	\$18	\$454
2	Labor	266	38	304
3	Materials	109	—	109
4	Other	49	(4)	45
5	Total	\$860	\$52	\$912

1) Damaged Facilities

The Hopkins Fire burned a total of 257 acres and destroyed 46 non-PG&E structures. The fire also destroyed or damaged the following number of PG&E facilities: 24 poles and one crossarm.

2) Restoration Activities

The damaged items referenced above were repaired or replaced to restore power to customers. Crews worked within the fire footprint which includes identifying and felling trees, and other debris that are either an immediate hazard to either our personnel or our infrastructure.

Additional costs in response to the restoration effort are taking place in 2022 and recovery of those costs will be sought in future applications.

1 **I. 2021 KNP Complex Incident**

2 KNP Complex Incident (Sequoia National Park) started
3 September 10, 2021.

4 An area of thunderstorms moved across the region on
5 September 9th, 2021, and two fires were identified the next day as the
6 Colony fire and Paradise Fire. These two fires merged later on to
7 become the KNP Complex. Observation site TSHC1⁹ located
8 approximately 5.26 miles south-southwest of the ignition location shows
9 that hot temperatures, dry, and breezy conditions were present that day.
10 At 1404 hour, the temperature reached the maximum of 98.0°F and at
11 0704 hour, the minimum temperature was reached of 77.0 °F. Relative
12 humidity values dropped to the 20s and a minimum of 22 percent was
13 observed at 1704 hour while a maximum of 54 percent was recorded at
14 0204 hour. Winds stayed out of the southwest direction during peak
15 heating hours and the maximum sustained wind speed was 11.0 mph at
16 1504 hour from the southwest while the maximum wind gust was
17 19.0 mph at 1504 hour from the southwest. Multiple days of prime
18 weather conditions caused the fire to spread to a total of 88,307 acres
19 within the Sequoia National Park.

20 PG&E incurred \$0.12 million systemwide responding to the KNP
21 Complex Incident of which \$0.1 million is related to the declared
22 emergency in CEMA-eligible counties. The \$0.1 million can be broken
23 down as follows:

9 MESOWEST, Weather Conditions for TSHC1, <https://mesowest.utah.edu/cgi-bin/droman/meso_base_dyn.cgi?product=&past=1&stn=TSHC1&unit=0&time=LOCAL&day1=11&month1=09&year1=2021&hour1=0>.

TABLE 4-16
2021 KNP COMPLEX INCIDENT
COST ELEMENT BREAKDOWN OF COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$3	\$24	\$27
2	Labor	28	53	82
3	Materials	5	—	5
4	Other	6	0	6
5	Total	\$42	\$77	\$120

1) Damaged Facilities

The KNP Complex Incident Fire burned a total of 88,307 acres. The fire also destroyed or damaged the following number of PG&E facilities 6 poles, 1 crossarms and 1 spans of distribution conductor.

2) Restoration Activities

Damaged items referenced above were repaired or replaced to restore power to customers.

Additional costs in response to the restoration effort are taking place in 2022 and recovery of those costs will be sought in future applications.

m. 2021 Fawn Fire

The Fawn Fire (Shasta County) began September 22, 2021 between Fawndale Road and Radcliff Road about 5 miles northeast of Shasta Lake.

Weather conditions began to deteriorate into the afternoon hours on the day of September 22, 2021. Hot, dry, and breezy conditions were observed by the PG&E sensor PG526 located approximately 3.47 miles southeast of the ignition site.¹⁰ Temperatures steadily rose from the 50s in the morning to the low 90s by late afternoon and it remained at least 90°F until 1840 hour. Relative humidity values dropped from the 60s that morning to upper teens during peak heating hours of the day.

¹⁰ MESOWEST, Weather Conditions for PG526, <https://mesowest.utah.edu/cgi-bin/droman/meso_base_dyn.cgi?product=&past=1&stn=PG526&unit=0&time=LOCAL&day1=23&month1=09&year1=2021&hour1=0> (as of Nov. 18, 2022).

The maximum temperature observed was 91.9°F at 1710 hour and the minimum temperature was 58.6°F at 0730 hour. The maximum relative humidity was reached at 0810 hour of 62 percent before reaching the minimum value of 18 percent at 1720 hour. Sustained winds were light and varied between 0-5 mph while gusts ranged out to near 11 mph. The maximum wind gust occurred at 1550 hour from south-southwest of 10.9 mph. The cause of this incident was determined to be arson and the fire spread rapidly due to adverse weather conditions.

PG&E incurred \$8.5 million systemwide responding to this fire of which \$8.5 million is related to the declared emergency in CEMA-eligible counties. The \$8.5 million can be broken down as follows:

TABLE 4-17
2021 FAWN FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$209	\$3,748	\$3,957
2	Labor	671	1,008	1,679
3	Materials	2,185	8	2,193
4	Other	341	362	703
5	Total	\$3,406	\$5,125	\$8,531

1) Damaged Facilities

The Fawn Fire burned 10 days totaling 8,578 acres and destroyed 185 non-PG&E structures. The fire also destroyed or damaged the following number of PG&E facilities: 72 poles, 2 crossarms and 7 spans of distribution conductor.

2) Restoration Activities

PG&E's response to the event and the costs that were incurred were largely driven by the removal of trees, brush, and other vegetation. This included the removal of hazards within the impacted area. Other activities including but not limited to were traffic control, security services, and necessary restoration activities to restore power.

1 Additional costs in response to the restoration effort are taking
2 place in 2022 and recovery of those costs will be sought in future
3 applications.

4 **n. 2021 October Northeast Pacific Bomb Cycle**

5 A series of weather systems impacted the territory early in the wet
6 season bringing historic heavy rain and strong winds to parts of
7 California. Light rain began Sunday October 17, 2021, as the first of
8 many storm systems began to impact portions of the northern half of the
9 territory. Several storms throughout the next 5 days brought waves of
10 much needed rain and snow across the mountains. However, it wasn't
11 until October 24-25 that a strong low-pressure system approaching the
12 Pacific Northwest was able to provide an enhanced atmospheric river
13 over Northern and Central California that brought record rainfall in many
14 locations. Moderate to heavy rainfall began over the Bay Area region on
15 the 24th. Winds were increasing from the southwest and resulted in a
16 Wind Advisory issued for the entire Bay Area by the National Weather
17 Service located in Monterey. At higher elevations, winds were observed
18 between 50 and 60 mph with peak gusts between 70 and 80 mph.
19 Winds at San Francisco gusted to 50 mph. Flood Warning and Flood
20 Advisories were issued throughout the day from the North Bay, down to
21 the San Mateo coastline. Santa Rosa broke the record for daily
22 precipitation as well as a single day daily record with 7.83 inches of rain
23 recorded on October 24. Other daily precipitation records for the 24th
24 include Napa with 5.35 inches, San Francisco Downtown with
25 4.02 inches, and Oakland Downtown with 4.28 inches. The atmospheric
26 river impacted parts of the interior as well. Sacramento earlier in the
27 month had broken the record of 212 days without rain. Then on
28 October 24, the city had set a record with more than 5 inches in a single
29 day. In a span of 72 hours, more than a foot of rain occurred over Grass
30 Valley while Colfax had over 11 inches. Winter Storm Warnings were in
31 effect over the Sierra with the Donner Pass area receiving more than
32 2 feet of snow. Storm reports throughout the region included flooding,
33 downed trees, power outages, and minor mud slides. October 24, 2021
34 was the wettest day for many cities around the Bay Area.

PG&E incurred \$30 million systemwide responding to this storm of which \$30 million is related to the declared emergency in CEMA-eligible counties. The \$30 million can be broken down as follows:

TABLE 4-18
2021 OCTOBER STORMS
COST ELEMENT BREAKDOWN BY COSTS
(THOUSAND OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$6,242	\$6,540	\$12,782
2	Labor	4,824	6,832	11,656
3	Materials	2,107	8	2,115
4	Other	3,320	173	3,493
5	Total	\$16,493	\$13,554	\$30,047

1) Damaged Facilities

The storms destroyed or damaged the following number of PG&E facilities: 147 poles, 139 crossarms, 112 transformers and 580 spans of distribution conductor.

2) Restoration Activities

PG&E focused initial efforts on assessment and identification of damaged facilities. The information gathered during the damage assessment phase was used to determine the number of crew resources needed and materials required to quickly restore services to customers. Information was also gathered to help determine ways to temporarily reconfigure the system to restore service to the greatest number of customers possible prior to the completion of the major repairs.

Temporary repairs were made in certain situations to eliminate unsafe conditions and help restore services more quickly. Permanent repairs and replacements were then made, and normal operating system configuration was restored via field switching as soon as resources were available and could be efficiently used to do so.

PG&E's response to the event and the costs that were incurred the removal of trees, brush, and other vegetation. This included the

1 removal of hazards within the impacted area. Other activities
2 including but not limited to were traffic control, and necessary
3 restoration activities to restore power.

4 Additional costs in response to the restoration effort are taking
5 place in 2022 and recovery of those costs will be sought in future
6 applications.

7 **o. 2021 December Storms**

8 A storm system began to move onshore across the northern territory
9 on December 11, 2021. It then spread southward the next day into the
10 Bay Area and other Central California locations before moving to the
11 southern part of the territory on December 13. Periods of gusty winds
12 and moderate to heavy rainfall were observed throughout many
13 locations. Heavy mountain snow in the Sierra, mostly above 4,500 feet
14 in elevation, occurred with several feet or more. A more widespread
15 and colder weather system moved across the state from north to south
16 beginning December 15 through December 16. The winter storm
17 resulted in low snow levels beginning with 500 to 1,500 feet across the
18 North while central and parts of the southern Sierra ranged between
19 2,000 and 3,500 feet. Up to 2 feet of snow with locally higher amounts
20 fell across the Sierra. Southerly wind gusts around 50 mph were
21 observed along parts of the Humboldt Coast while gusts 30-45 mph
22 were common across the rest of the northern part of the territory. Peak
23 gusts 30-45 mph also expanded southward toward the Santa Cruz
24 Range and Merced County. Over a span of 3 days at Mount Tamalpais,
25 more than 11 inches of rain fell. More than 4.6 inches of rain fell within
26 a day in Orange County's Silverado Canyon. Some locations along
27 Highway 1 received more than a foot of rain in 24 hours.

28 PG&E incurred \$24.8 million systemwide responding to this storm of
29 which \$24.8 million is related to the declared emergency in
30 CEMA-eligible counties. The \$24.8 million can be broken down as
31 follows:

TABLE 4-19
2021 DECEMBER STORMS
COST ELEMENT BREAKDOWN BY COSTS
(THOUSAND OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$2,282	\$4,607	\$6,889
2	Labor	3,557	8,549	12,106
3	Materials	2,393	5	2,398
4	Other	1,820	1,586	3,406
5	Total	\$10,052	\$14,747	\$24,799

1) Damaged Facilities

The storm destroyed or damaged the following number of PG&E facilities: 723 poles, 545 crossarms, 276 transformers and 1,846 spans of distribution conductor.

2) Restoration Activities

The damaged items referenced above were repaired or replaced to restore power to customers.

Additional costs in response to the restoration effort are taking place in 2022 and recovery of those costs will be sought in future applications.

D. Conclusion

This chapter describes PG&E's electric distribution restoration activities associated with the CEMA Events that occurred between 2017 and 2021 with costs ending December 31, 2021. As discussed in this chapter, PG&E's costs incurred responding to these events were reasonable and therefore should be approved in their entirety.

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 4
ATTACHMENT A
ELECTRIC EMERGENCY RESPONSE ACTIVITIES

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 4
ATTACHMENT A
ELECTRIC EMERGENCY RESPONSE ACTIVITIES

TABLE OF CONTENTS

A. Introduction.....	4-1
B. Incident Levels	4-5
C. Outage Communication.....	4-7
D. Emergency Recovery Cost Management	4-9
E. Incrementality	4-10
F. Cost Reasonableness	4-13
1. PG&E's Response Was Driven by the Requirements of GO 166	4-14
2. Performance Metrics Demonstrate the Effectiveness of PG&E's Response.....	4-15

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 4
ATTACHMENT A
ELECTRIC EMERGENCY RESPONSE ACTIVITIES

A. Introduction

This attachment provides an overview of Pacific Gas and Electric Company's (PG&E or the Company) electric emergency response process.¹

PG&E's response to electric emergencies is designed to comply with the regulatory expectations contained in General Order (GO) 166, "Standards for Operation, Reliability, and Safety During Emergencies and Disasters." The purpose of these standards is to ensure that jurisdictional electric utilities are prepared for emergencies and disasters in order to minimize damage and inconvenience to the public which may occur as a result of electric system failures, major outages, or hazards posed by damage to electric distribution facilities. These standards will facilitate the California Public Utilities Commission's (CPUC or Commission) investigations into the reasonableness of the utility's response to emergencies and major outages. Such investigations will be conducted following every major outage, pursuant to and consistent with Public Utilities Code Section 364(c) and Commission policy.

- Standard 1 – Prepare an emergency response plan and update the plan annually;
- Standard 2 – Enter into mutual assistance agreements with other utilities.
- Standard 3 – Conduct annual emergency training and exercises using the utilities emergency response plan;
- Standard 4 – Develop a strategy for informing the public and relevant agencies of a major outage;
- Standard 5 – Coordinate internal activities during a major outage in a timely manner;
- Standard 6 – Notify relevant individuals and agencies of an emergency or major outage in a timely manner;

¹ Similar information was included in PG&E's 2016 Catastrophic Event Memorandum Account (CEMA) filing (Application 16-10-019) and is provided again here for reference.

- 1 • Standard 7 – Evaluate the need for mutual assistance during a
- 2 major outage;
- 3 • Standard 8 – Inform the public and relevant public safety agencies of the
- 4 estimated time for restoring power during a major outage;
- 5 • Standard 9 – Train additional personnel to assist with emergency activities;
- 6 • Standard 10 – Coordinate emergency plans with state and local public
- 7 safety agencies;
- 8 • Standard 11 – File an annual report describing compliance with these
- 9 standards;
- 10 • Standard 12 – Be subject to a restoration performance benchmark for
- 11 major outages; and
- 12 • Standard 13 – Be subject to a call center performance benchmark for
- 13 major outages.

14 In compliance with GO 166 Standard 1, PG&E has created the Company
15 Emergency Response Plan (CERP). The purpose of CERP is to assist PG&E
16 personnel with safe, efficient and coordinated response to an emergency
17 incident affecting gas or electric generation, distribution, storage and/or
18 transmission systems within the PG&E service territory or the people who work
19 in these systems.

20 The CERP provides a number of functions including:

- 21 • Providing a broad outline of PG&E's organizational structure;
- 22 • Describing actions undertaken in response to emergency situations;
- 23 • Presenting a response structure that clearly defined roles and
- 24 responsibilities; and
- 25 • Identifying coordination efforts with outside organizations (e.g., government,
- 26 media, other gas and electric utilities, essential community services,
- 27 vendors, public agencies, first responders and contractors).

28 The Electric Annex, one of the many line of business (LOB) and
29 hazard-specific annexes within the CERP provides an outline of PG&E's electric
30 Emergency Management Organizational (EMO) structure, roles and
31 responsibilities, and describes the activities undertaken in response to electric
32 emergency outage situations.

33 The Electric Annex is a key element to ensure the Company is prepared for
34 emergencies in order to minimize damage and inconvenience to the public,

1 which may occur as a result of electric system failures, major outages, or
2 hazards posed by damage to electric facilities.

3 The Electric Annex's purpose is to serve as:

- 4 • The recovery and response plan to govern electric operations during
5 emergency events;
- 6 • A guide to develop an overall strategy for managing a response to
7 specific disaster;
- 8 • A tool to educate and train the Electric EMO and key stakeholders on how to
9 execute the plan;
- 10 • The basis for developing annual drills and exercises to test the
11 organization's ability to execute emergency response procedures; and
- 12 • The repository for capturing how continuous improvement efforts impact the
13 Electric EMO emergency operations efforts.

14 The processes and procedures contained in both the CERP and Electric
15 Annex drive the response strategies and tactics used by PG&E to safely and
16 efficiently restore service during emergency situations, such as a CEMA event.

17 PG&E's service territory is divided into four regions. These regions, in turn,
18 are divided into 19 divisions. PG&E's electric system consists of approximately
19 80,390 primary circuit miles of overhead distribution lines, approximately
20 26,980 primary circuit miles of underground lines, and approximately
21 907,830 distribution transformers. The overhead lines, supported by
22 approximately 2.3 million poles, are particularly susceptible to damage from
23 catastrophic events like storms and fires. PG&E's Distribution System
24 Operations (DSO) monitors the distribution grid to identify outages and directs
25 the scheduling and dispatch of field personnel to address identified abnormal
26 conditions. PG&E typically identifies outages through alarms from field devices
27 such as circuit breakers or reclosers, SmartMeter™ data, notifications from
28 police and fire departments, preventive maintenance patrols and inspections,
29 and/or by telephone calls from customers who are experiencing an outage.
30 Once outages have been identified, personnel are directed to address the
31 issues.

32 Part of PG&E's proactive approach to anticipate events is the use of the
33 DSO Storm Outage Prediction Project (SOPP) model. This model evaluates
34 potential impacts to the electric system from forecast adverse weather,

1 translates this into expected outage activity, and estimates the resources
2 required to respond effectively. The model has evolved into a key component of
3 the PG&E Electric Emergency Recovery Program (ERP). Using the detailed
4 information that the DSO SOPP model provides, PG&E can preschedule
5 resources several days in advance of an anticipated major adverse weather
6 event. DSO SOPP model improvements have enabled PG&E to become more
7 effective in preparing for emergency outages in support of public and system
8 safety and work efficiency, for major events, and for smaller and more frequent
9 day-to-day weather challenges.

10 PG&E follows a defined process to ensure appropriate objectives are
11 addressed in the following priority:

- 12 1) Make Safe – Field personnel act to address hazardous conditions to support
13 public and employee safety;
- 14 2) Assess – Field personnel assess the outage location to identify the outage
15 cause (if possible), determine the necessary resources to address the
16 situation (material, equipment, and personnel) and estimate the time
17 necessary to make repairs;
- 18 3) Communicate – Field personnel and system operators (located in PG&E's
19 distribution control centers) work together using various technologies to
20 provide customers and public agencies with outage information, such as the
21 cause of an outage and Estimated Time of Restoration (ETOR); and
- 22 4) Restore – After making the conditions safe, assessing the situation, and
23 beginning the communication process, field personnel and system operators
24 work together to restore service. This occurs through a combination of
25 reconfiguring the distribution grid and repairing damaged facilities,
26 depending on the nature of the event.

27 PG&E's CERP provides the framework for PG&E's response to gas and
28 electric emergency situations. Emergency situations range from routine outages
29 (e.g., dig-ins to electric facilities) to major natural disasters (e.g., earthquakes
30 and major storms). Local control and management may be sufficient to respond
31 to routine outages. Natural disasters, however, may require a larger coordinated
32 response of resources.

B. Incident Levels

PG&E has five incident levels, which are described below. PG&E's incident levels function as a decision-support tool that helps determine the actions PG&E may need to employ. Level 1 emergencies are classified as routine. Level 2 emergencies may be classified as routine if the local Operational Emergency Center (OEC) is not activated or is activated for communications only. OEC communications-only activations are used for pre-staging of resources, resource support for other affected OECs, significant media impacts, large non-incident major events (e.g., conventions or major sporting events), or outages requiring significant environmental impact. These activities are all considered Routine Emergency.

Major Emergencies are typically Level 2 through 5 emergencies. A Level 2 emergency would be considered major if an OEC is activated. OECs are positioned within each region and are activated separately in individual division locations. OECs can be activated when a division exceeds the total number of outages (transformer level and above outages) noted in Table 2A-1 below and field resources (i.e., Troublemakers and crews) to sufficiently support outage activity have been exhausted. The outage numbers vary by division due to differences in geographical size, electric infrastructure design (e.g., overhead versus underground, urban versus rural), outage history, and resource availability. Occasionally, OECs will activate based on anticipated outage activity determined by the DSO SOPP model to support public safety and outage restoration.

**TABLE 4A-1
OEC ACTIVATION CRITERIA BY DIVISION**

Line No.	Division	Number of Transformer Level and Above Outages Required for OEC Activation
1	Central Coast	9
2	De Anza	5
3	Diablo	5
4	East Bay	5
5	Fresno	8
6	Kern	5
7	Los Padres	6
8	Mission	5
9	North Bay	5
10	Humboldt	7
11	Sonoma	5
12	North Valley	8
13	Peninsula	5
14	Sacramento	6
15	San Francisco	5
16	San Jose	5
17	Sierra	9
18	Stockton	6
19	Yosemite	8

PG&E Incident Levels:

- **Level 1 – Routine:** A Level 1 emergency is typically at the local level, involving a limited number of customers with an anticipated restoration response time within 24 hours. In a Level 1 emergency, PG&E can respond sufficiently using its standard operating mode and local resources. The local operating departments coordinate resource deployment in a Level 1 emergency. This level does not require the activation of an emergency center;
- **Level 2 – Elevated:** Level 2 emergencies are defined as a pending potential incident or a local emergency that may require more than routine operations response. Resources are mainly local, but there is a possibility that resources may need to move within the region. For Level 2 emergencies, an OEC may be activated for communications only or fully activated to provide oversight and support at a divisional level;
- **Level 3 – Serious:** Level 3 emergencies are serious incidents involving large numbers of customers. Resources mainly move within the region, but may need to move between regions. In Level 3 emergencies, OECs are activated to direct and coordinate the personnel necessary to assess

1 damages, secure hazardous situations, restore service, and communicate
2 status information internally and externally. Regional Emergency Center
3 (REC) and Emergency Operations Center (EOC) activation is possible. The
4 REC provides oversight and support to the OEC(s) at a region level. As an
5 event escalates, the REC becomes the point of contact for information and
6 managing escalated OEC issues;

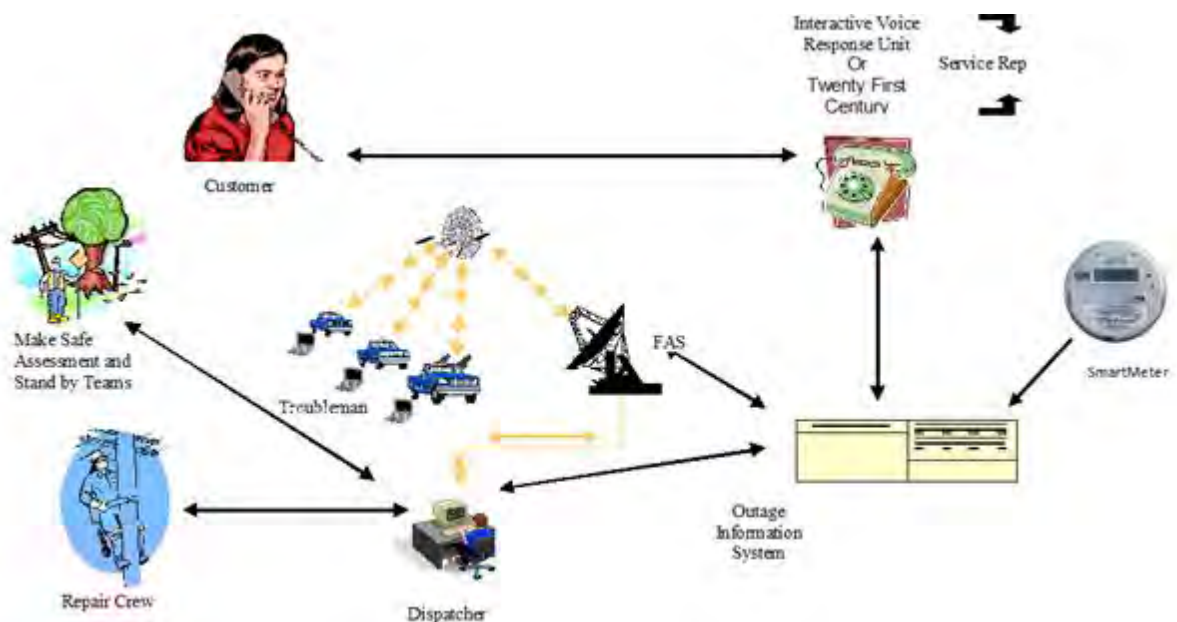
- 7 • Level 4 – Severe: Level 4 is an escalating incident with companywide
8 impact or extended multiple emergency incidents that impact a large number
9 of customers. Resources move between regions, general contractors are
10 utilized, and mutual aid may be needed. During a Level 4 emergency, the
11 OEC, REC and EOC are activated. Additionally, the Emergency
12 Preparedness and Response (EP&R) team assumes incident command;
13 and
- 14 • Level 5 – Catastrophic: Level 5 is a catastrophic event that includes multiple
15 emergency incidents, impacts a large number of customers, has a
16 significant cost, and significant infrastructure risk/damage. This level of
17 emergency affects the entire Company and the ability to conduct business
18 operations. The full mobilization of Company resources is needed to
19 respond, and mutual aid resources are needed. During a Level 5 event, all
20 emergency centers are activated, and the EP&R team assumes incident
21 command.

22 **C. Outage Communication**

23 PG&E relies on a series of interconnected systems, well-defined work
24 processes, and well-trained personnel to provide outage information to
25 customers. PG&E's Outage Information System (OIS) is the key "operational"
26 system that links field information (e.g., outage locations, causes, resource
27 assignments, and estimates of restoration) to PG&E's Customer Information
28 System, which is used in the call centers to relay this information to customers.
29 This system addresses outages affecting all customers including single
30 customer outages.

31 PG&E uses the OIS to assist in deploying resources to address outages and
32 to provide outage information to customers. Figure 4A-1 depicts the outage
33 communication system.

**FIGURE 4A-1
OUTAGE COMMUNICATION SYSTEM**



The OIS uses outage information from the field to generate information to manage resources and communicate outage information. These inputs can take the form of:

- Customer telephone calls to report an outage;
- Outage information from automatic system devices located on PG&E's facilities;
- Reports from field personnel during their storm response activities; or
- Reports from emergency agencies.

After entering outage information from these sources into the OIS, system operators can identify and locate the equipment involved in the outage by using detailed information on the circuit and the equipment information stored in a database.² Customer calls produce outage locations in the OIS through the customers' telephone numbers. The OIS is able to associate each customer call with a specific service transformer, based on the phone number or service account identifiers provided by the customer. With this data, the OIS can identify the operating device (e.g., a circuit breaker, based on the pattern of service transformers receiving trouble calls) that serves the affected area.

² It is unnecessary to input information from field devices connected to a distribution automation system, as information from these devices populates the OIS automatically.

1 As information is recorded in the OIS, it becomes accessible to customers
2 through PG&E's call center resources. These resources include Customer
3 Service Representatives, as well as PG&E's high-volume Interactive Voice
4 Response Units. As the outage progresses and more information becomes
5 available, PG&E can provide customers with increasing amounts of information,
6 such as an estimated time of arrival for field response personnel
7 (e.g., Troublemakers and construction crews), the outage cause (if known), and
8 ETOR when available.

9 **D. Emergency Recovery Cost Management**

10 PG&E divisions follow specific procedures for recording expenditures
11 associated with the response and repair of damage to Company facilities.
12 During the occurrence of a major event, affected divisions are instructed to
13 separately track and report the costs incurred for restoring utility service and
14 repairing damaged facilities associated with that event. The divisions segregate
15 these costs by creating "specific orders"³ to capture repair, replacement, and
16 service restoration costs. These specific orders are created for both capital and
17 expense and for both overhead and underground restoration work, by county
18 within each division. The orders are created using a specific naming convention
19 to identify the business region, division, county, and event for which the order
20 is created.

21 The role of the Finance Section Chief within the OEC or the Incident
22 Management Team is responsible for monitoring costs, developing financial
23 accounting strategy and providing charging guidance during the incident. Costs
24 are closely monitored and reviewed to ensure they are recorded in the correct
25 major work category (MWC) and aligned with the correct LOB. Where an event
26 affects a number of PG&E facilities across wide geographic regions, multiple
27 specific orders are used to ensure the proper reporting and control of system
28 repairs and restoration work. PG&E's Business Finance Department, ERP
29 Manager, and the affected divisions review the orders to ensure that the costs

3 A "specific order" is a term used in PG&E's SAP accounting system to refer to orders established to record costs related to particular tasks or given scope of work. Once the tasks or projects are complete, the specific orders are closed. These specific orders differ from "standing orders." Standing orders are used to record costs for day-to-day ongoing utility operations and are not closed following completion of specific tasks or projects.

1 charged to the specific orders occurred within the timeframes of the event, are in
2 accordance with the major event charging guidelines, and were in the counties
3 covered by the orders.

4 **E. Incrementality**

5 CEMA event costs are explicitly removed from Electric Distribution's
6 historical spending when the Electric Distribution's General Rate Case (GRC)
7 forecast is developed. In the GRC, PG&E forecasts and records in MWCs IF
8 (Expense)⁴ and 95 (Capital)⁵ all costs associated with electric distribution major
9 emergency response that are not declared disasters (i.e., non-CEMA events).⁶
10 The MWC IF and MWC 95 forecast in the GRC are typically developed by taking
11 an average of historical spending.

12 PG&E operating departments plan their labor by month, and specifically plan
13 a set amount of units of work for normal business operations to respond to
14 day-to-day emergencies and for restoration work associated with a major
15 emergency.⁷ A unit of work is a Priority-A Electric Corrective (EC) tag.⁸ As with

4 Major emergency expense work captured in MWC IF can involve, but is not limited to, splicing conductor, replacing insulators, re-sagging conductor, pre-treating poles or basically any work that involves a repair.

5 Major emergency capital work captured in MWC 95 involves the replacement of a capital plant asset, such as a pole, cross arm, or a piece of line equipment.

6 Beginning in 2014, PG&E began using the Major Emergency Balancing Account (MEBA), as authorized by the CPUC in D.14-08-032. With the introduction of the MEBA, all non-CEMA MWC 95 and MWC IF major emergency activities are recorded to the MEBA. In a given year where PG&E incurs a lesser amount of costs relative to the authorized revenues for responding to major emergencies for that year, the difference is returned to customers the following year. If PG&E incurs a greater amount of costs responding to major emergencies in a given year relative to the authorized revenues for responding to major emergencies during that year, the difference is recovered from customers the following year.

7 A "major emergency" is any event that results in PG&E activating one of the Company's OECs.

8 A unit of work in the ERP is a Priority A EC Notification. A unit of work is synonymous with a work location as defined by the Electric Distribution Preventative Maintenance Manual. Expense work locations are specific to the item repaired. For example, where multiple spans of wire are down, each span is considered a work location and an EC notification is generated for each. Capital work locations are specific to the pole (all assets inclusive) and a span of wire on either side. For example, in the case of one pole, the two contiguous spans of wire down and requiring replacement; the downed pole/span combination is considered one work location. Therefore, only one EC notification is required for the pole and the wire.

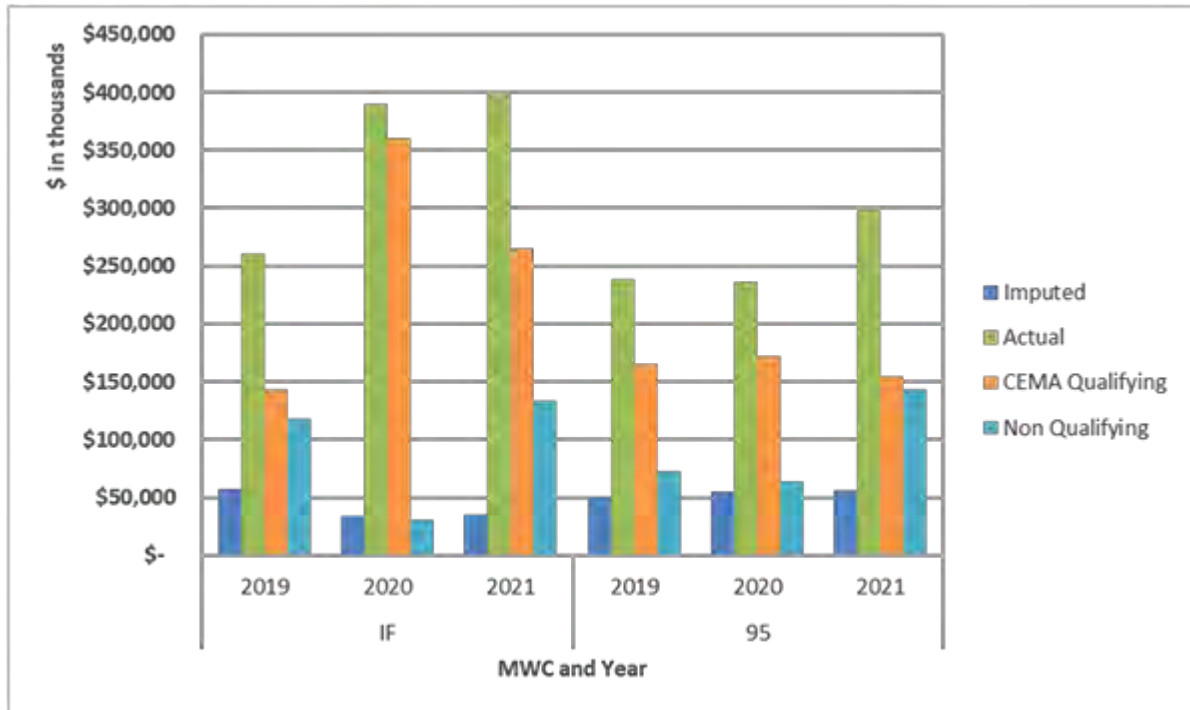
1 costs, units of work are forecasted by both capital and expense. All emergency
2 repairs performed on the distribution system are also captured in the form of
3 units. Operating departments' planned units of work for responding to
4 emergencies are based on historical recorded expenditures and unit volume.

5 Responding to emergency situations is one of PG&E's highest priorities.
6 When a major event impacts the service territory, scheduled work is put on hold,
7 and resources are re-deployed to the higher priority work of restoring customers.
8 Thus, in an emergency, planned units of work for normal day-to-day business
9 operations may be displaced by the units of work for responding to the
10 emergency.

11 The planned work displaced by emergency work must still be completed.
12 This work is re-prioritized and re-scheduled, potentially causing other scheduled
13 work to also be moved farther out in time. It can take from a few months to a
14 year or more, depending on the magnitude of the emergency and other factors,
15 such as the use of overtime, to make up the work in the schedule.

16 PG&E uses a 5-year average to calculate Major Emergency planned hours,
17 units and costs, Major Emergency work in 2019 and 2021 was significantly over
18 plan due to the higher-than-forecasted storm and fire activity. Figure 4-4 shows
19 the Major Emergency planned versus actual costs, as well as the costs of CEMA
20 qualifying events within the date range of 2019-2021.

FIGURE 4A-2
ELECTRIC DISTRIBUTION PLANNED VERSUS ACTUAL COSTS
(MWC IF AND MWC 95) JANUARY 2019 THROUGH DECEMBER 2021
(THOUSANDS OF DOLLARS)



1 Figure 4A-2 shows that actual expenditures exceeded the budget in
2 expense and capital between 2019 and 2021. This reflects the significant
3 impact the volatile climate had on PG&E's infrastructure.

4 Figure 4A-3 shows the planned, actual, and CEMA-qualifying units from
5 2019 through 2021.

**FIGURE 4A-3
ELECTRIC DISTRIBUTION PLANNED VERSUS ACTUAL UNITS
(MWC IF AND MWC 95) JANUARY 2019 THROUGH DECEMBER 2021**

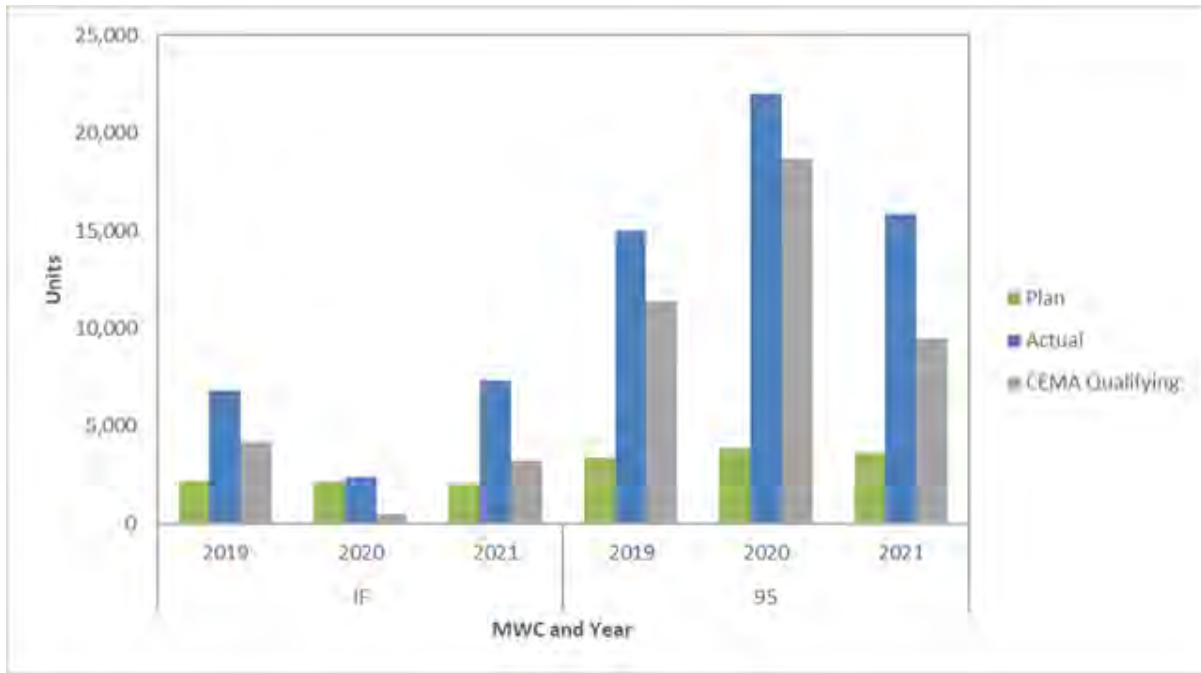


Figure 4A-3 shows the magnitude and the severity of the 2019 storms and wildfires.

The actual and CEMA qualifying are significantly over plan. In 2019 the CEMA-qualifying events were 61 percent of total spend and 190 percent over planned. 2020 the variance was significantly smaller with 22 percent being CEMA-qualifying events and 25 percent over planned units. 2021 expenses were 44 percent CEMA-qualifying events and 153 percent over plan.

Capital units between 2019 through 2021 CEMA-qualifying events were 75 percent, 85 percent, and 60 percent of actual units respectively. Compared to plan 2019 through 2021, were 335 percent, 481 percent, and 262 percent respectively.

Incrementality is discussed in greater detail in Chapter 10 of this application.

F. Cost Reasonableness

The costs PG&E incurred in responding to the catastrophic events described above are reasonable as described in this section. First, the activities PG&E performed are in accordance with GO 166 requirements, as described in Attachment 4A to this Chapter. Second, PG&E tracks a number of performance metrics for each event which illustrate the reasonableness of the response.

1 These metrics are reviewed after the events to drive continuous improvement
2 and efficiency in PG&E's emergency response.

3 **1. PG&E's Response Was Driven by the Requirements of GO 166⁹**

4 There are many factors that will drive the strategy and tactics of PG&E's
5 response to a catastrophic event including; incident complexity, volume of
6 damage, and duration of customer impact. All of these then drive the
7 resources required to respond and restore customers as quickly as possible.
8 The expectation of the CPUC, as provided in the Standards within GO 166,
9 is to safely and quickly restore service to customers. PG&E's CERP¹⁰ and
10 Annexes, as required by Standard 1, contain processes, procedures and
11 guidelines to facilitate compliance with the ten sections of the standard.

12 As discussed in Section D of this testimony with respect to each of the
13 individual incidents, PG&E's response actions were consistent with those
14 requirements and the costs it incurred were in support of achieving those
15 objectives. For example, as contemplated by Standard 1, PG&E has
16 coordinated internally in the gathering and dissemination of information,
17 established response priorities, implemented proactive deployment and
18 allocation of resources from across the service territory and coordinated
19 activities to restore service to impacted customers.

20 PG&E has further demonstrated the focus on public and employee
21 safety through: (1) the use of 911 Standby resources to relieve public safety
22 agencies within 60 minutes and the use of base camps to get crews and
23 material closer to the work, limiting driving risk exposure; (2) the execution
24 of dynamic damage assessment strategies to assess infrastructure damage
25 and mobilize additional resources in the form of Rapid Assessment Teams
26 to expedite assessment and restoration of service; (3) development and
27 communication of restoration priorities during each incident both internally

9 Attachment 4A contains a detailed discussion of GO 166 requirements which drive the response efforts made by PG&E during these CEMA events.

10 In compliance with GO 166 Standard 1, PG&E has created the CERP. The purpose of CERP is to assist PG&E personnel with safe, efficient and coordinated response to an emergency incident affecting gas or electric generation, distribution, storage and/or transmission systems within PG&E's service territory or the people who work in these systems. See Attachment 4A for more information.

and externally during wildland fire situations; and (4) using mutual assistance to reduce outage duration.

2. Performance Metrics Demonstrate the Effectiveness of PG&E's Response

PG&E's top priorities when responding to catastrophic events is the safety of the public, first responders, and employees, and the timely restoration of service to customers. In a catastrophic emergency response setting, costs are affected by many different factors depending on the nature of the event and response. Therefore, it is not appropriate to judge the reasonableness of costs incurred on a per unit basis as may be done in other circumstances. Rather, it is appropriate to look to the activities undertaken given the circumstances and the overall level of success of the response.

Response to a catastrophic event differs in many ways compared to work performed in a "normal" setting. PG&E may incur additional costs during these types of events, such as warehouse and telecom services, base camp setup and operational costs, standby labor, overheads, and others. Total costs for catastrophic events vary widely due to severity, resource requirements, type of event and many other factors. As described above, PG&E's SOPP model outputs add visibility to the potential complexity of the incident, area of greatest impact and resource and material needs. This information is used to assist PG&E in executing an efficient response. PG&E's three warehouse facilities contain stores of material and their strategic placement in the service territory support rapid mobilization of materials to service centers and lay down yards during response. During a catastrophic event, PG&E uses the standards set forth in GO 166 and the CERP in order to appropriately and reasonably respond. For example, PG&E's Resource teams monitor assessment and restoration rates to help identify how many and where crews are needed and if contract or Mutual Assistance resources will need to be requested. Operational calls are held with OEC and REC Commanders to validate the resource plan and identify unique needs for specialize equipment to mitigate access or geographic challenges and improve restoration performance. The development of a common operating picture confirms the number of

resources required and ensures we are not moving resources unnecessarily or bringing on additional external resources that are not required for restoration.

In accordance with the 2016 CEMA settlement, to help better understand PG&E's emergency response performance across CEMA events, Tables 4-13 and 4-14 below provides a comparative perspective of the metrics used to measure response performance for the winter storms and wildland fires included in this application. PG&E reviews its performance with the IMT and responders within the LOB after the fact in an effort to continually work on improving the effectiveness and efficiency of response efforts.

Among all the performance metrics provided in Tables 4-13 and 4-14, PG&E highlights the following five metrics as key measures of performance, which illustrates the complexity during response and compliance with the expectations outlined in GO 166 Standard 1.

- 1) CAIDI – Customer Average Interruption Duration Index – CAIDI measures average outage duration per customer and is identified in Standard 12 of GO166 to be a benchmark for the reasonableness of PG&E's response;
- 2) Productivity – measured in labor hours per unit and quantifies the efficiency of the crews and resources directly supporting response in the field;
- 3) Straight Time, Over Time and Double Time – measured in hours worked in each category. This is a direct component of productivity and measures performance to the established 16/8-hour work schedule utilized to help manage employee fatigue;
- 4) 911 Standby Response – measured as a percentage of calls responded to within 60 minutes made by public safety agencies requesting response by PG&E; and
- 5) Customers restored within 24 hours – measured as a percentage of the total customers restored within 24 hours of the first call reporting the outage. This quantifies the efficiency of the response and directly impacts CAIDI.

**TABLE 4A-3
EMERGENCY RESPONSE
EVENT LEVEL PERFORMANCE METRICS FOR FIRE EVENTS**

Event		2021 McFarland Fire	2021 Monument Fire	2021 Caldor Fire	2021 Cache Fire	2021 River Fire Event	2021 Washington Fire	2021 Hopkings Fire	2021 KNP Complex Fire	2021 Fawn Fire
Spend	Cap \$	\$ -	\$ 1,144,147	\$ 48,610,942	\$ 464,579	\$ 7,869,378	\$ 867,887	\$ 860,253	\$ 42,364	\$ 3,405,811
	Exp \$	\$ 32,305	\$ 3,636,155	\$ 32,251,111	\$ 2,295,694	\$ 3,068,420	\$ 102,786	\$ 51,949	\$ 77,182	\$ 5,125,381
	Total	\$ 32,305	\$ 4,780,302	\$ 80,862,053	\$ 2,760,274	\$ 10,937,797	\$ 970,673	\$ 912,202	\$ 119,545	\$ 8,531,192
	Labor	\$ 2,118	\$ 826,461	\$ 6,020,475	\$ 376,544	\$ 1,598,997	\$ 193,078	\$ 304,072	\$ 81,791	\$ 1,678,758
	Materials		\$ 97,488	\$ 1,392,036	\$ 71,403	\$ 699,495	\$ 88,987	\$ 108,800	\$ 4,672	\$ 2,192,657
	Contracts	\$ 30,348	\$ 2,995,120	\$ 65,363,436	\$ 2,250,446	\$ 8,308,629	\$ 671,410	\$ 454,412	\$ 27,212	\$ 3,957,040
	Other	\$ (161)	\$ 861,233	\$ 8,086,105	\$ 61,881	\$ 330,676	\$ 17,197	\$ 44,918	\$ 5,870	\$ 702,736
	Total	\$ 32,305	\$ 4,780,302	\$ 80,862,053	\$ 2,760,274	\$ 10,937,797	\$ 970,673	\$ 912,202	\$ 119,545	\$ 8,531,192
Productivity	Cap Hrs		510	24,028	1,811	1,536	850	2,051	269	5,229
	Exp Hrs	15	6,322	32,349	503	13,419	524	307	500	9,688
	Total Hrs	15	6,832	56,377	2,314	14,955	1,374	2,358	768	14,917
	ST HRS	4	2,736	23,723	635	5,512	238	1,400	531	6,000
	OT HRS	11	499	2,087	32	429	435	66	76	585
	DT HRS		3,597	30,567	1,647	9,014	702	892	161	8,332
	Cap HRS/Unit	#DIV/0!	102.00	186.26	90.53	76.78	38.63	82.03	29.83	62.99
	Exp Hrs/Unit	#DIV/0!	6,321.75	3,234.90	503.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	293.58
	Total Hrs / Unit	#DIV/0!	1,138.63	405.59	110.18	747.74	62.44	94.30	85.36	128.59
Units	Cap Units		5	129	20	20	22	25	9	83
	Exp Units		1	10	1					33
	Total Units	-	6	139	21	20	22	25	9	116
	Poles		4	82	18	12	17	24	6	72
	Conductor		1	23			2		1	7
	Transformers			7		3	1		-	-
	Cross Arms			6	1	1		1	1	2
	Other		1	21	2	4	2		1	35
Outage and Customer Impact	Duration	47 Days	88 Days	67 Days	4 Days	87 Days	6 Days	8 Days	102 Days	10 Days
	CAIDI	1,008	477	311	473	282	295	225	234	173
	3rd Party	-	-	-	-	-	-	-	-	-
	Animal	-	-	-	-	-	-	-	-	-
	Environmental /External	8	2	30	1	33	16	2	5	20
	Equipment Failure/ Involved	59	8	115	9	120	3	3	44	4
	Unknown Cause	-	-	-	-	-	-	-	-	-
	Vegetation	-	-	-	-	-	-	-	-	-
	Total Outages	529	48	2,498	92	1,269	35	28	175	63
	Customers Impacted	75,170	21,249	152,353	12,125	130,462	37,796	4,938	21,054	7,051
	% Cust Restored within 12Hrs	43.75%	75.51%	85.87%	57.03%	93.06%	33.19%	88.81%	89.97%	75.07%
	% Cust Restored within 24Hrs	47.20%	86.63%	96.78%	99.98%	96.78%	33.19%	92.58%	93.80%	75.07%
911 Standby	# of 911 Standby Requests	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	% 911 Requests responded to within 60 mins	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

1 Tables 4A-3 above shows spending, productivity and performance
2 metrics of the fire events included in this CEMA filing. While fire events last
3 longer and require extensive response to protect our facilities from fire
4 damage, they have fewer outages and safety incidents such as wire down
5 events. In addition, PG&E's response can be significantly longer due to the
6 dynamic changing environment associated with an active fire, as well as
7 PG&E's ability to gain safe access to the area as provided by the fire agency
8 in charge such as California Department of Forestry and Fire Protection or
9 the United States Forest Service.

10 Table 4-14 shows spending, productivity and performance metrics of the
11 2021 storm event included in this CEMA filing. The storms from PG&E's
12 2020 CEMA filing are including to provide context of the 2020 Storms metric
13 results. PG&E had a very strong safety performance, relieving 911 standby
14 responders within 60 minutes at least 93 percent of the time during storm
15 events. (excluding the PSPS event). Doing so promotes public safety,
16 effectively freeing up first responders to attend to other life safety calls.
17 PG&E's reliability performance was very strong and in line with CAIDI of a
18 non-storm day. This shows the effectiveness of PG&E's response to restore
19 customers quickly, in line with Standard 12 of GO 166.

**TABLE 4A-4
EMERGENCY RESPONSE
EVENT LEVEL PERFORMANCE METRICS FOR STORM EVENTS**

Event		2020 August Extreme Heat Event	2021 January Wind Event	2021 January Atmospheric River	2021 June Extended Heat Event	2021 July Extended Heat Event	2021 October Northeast Pacific Bomb Cycle	2021 December Storms
Spend	Cap \$	\$ 21,074,778	\$ 18,160,086	\$ 15,683,750	\$ 2,757,346	\$ 1,244,700	\$ 16,493,068	\$ 10,051,517
	Exp \$	\$ 8,977,394	\$ 11,630,986	\$ 14,277,801	\$ 1,147,637	\$ 1,050,857	\$ 13,554,175	\$ 14,747,439
	Total	\$ 30,052,172	\$ 29,791,072	\$ 29,961,551	\$ 3,904,983	\$ 2,295,557	\$ 30,047,243	\$ 24,798,956
	Labor	\$ 12,714,549	\$ 5,420,855	\$ 7,933,644	\$ 2,110,104	\$ 1,496,505	\$ 11,656,065	\$ 12,105,817
	Materials	\$ 3,989,709	\$ 2,289,679	\$ 1,962,510	\$ 348,976	\$ 213,870	\$ 2,115,472	\$ 2,398,138
	Contracts	\$ 10,280,701	\$ 21,012,443	\$ 19,078,696	\$ 1,407,545	\$ 609,513	\$ 12,782,271	\$ 6,889,008
	Other	\$ 3,067,213	\$ 1,068,094	\$ 986,700	\$ 38,358	\$ (24,331)	\$ 3,493,436	\$ 3,405,994
	Total	\$ 30,052,172	\$ 29,791,072	\$ 29,961,551	\$ 3,904,983	\$ 2,295,557	\$ 30,047,243	\$ 24,798,956
Productivity	Cap Hrs	53,720	19,090	85,111	7,239	4,309	23,461	33,891
	Exp Hrs	40,781	22,192	134,017	8,705	5,601	39,204	80,919
	Total Hrs	94,501	41,282	219,128	15,944	9,910	62,665	114,809
	ST HRS	32,253	15,582	85,622	5,501	2,666	19,999	50,852
	OT HRS	2,172	961	9,831	666	421	3,383	3,557
	DT HRS	60,076	24,739	123,675	9,777	6,824	39,283	60,400
	Cap HRS/Unit	39.44	23.80	30.98	44.41	40.65	32.77	39.73
	Exp Hrs/Unit	141.60	111.52	61.53	-	175.04	91.60	102.69
	Total Hrs / Unit	57.27	41.24	44.49	79.32	71.81	54.78	69.96
Units	Cap Units	1,362	802	2,747	163	106	716	853
	Exp Units	288	199	2,178	38	32	428	788
	Total Units	1,650	1,001	4,925	201	138	1,144	1,641
	Poles	51	378	746	4	6	147	209
	Conductor	323	334	2,255	37	32	580	707
	Transformers	1,059	51	394	121	76	112	169
	Cross Arms	44	162	622	5	7	139	238
	Other	173	76	908	34	17	166	318
Outage and Customer Impact	Duration	6 Days	2 Days	3 Days	3 Days	11 Days	9 Days	29 Days
	CAIDi	176	3,653	301	136	227	264	171
	3rd Party	77	2	4	47	125	38	4
	Animal	39	1	2	28	94	26	4
	Environmental /External	805	4	1	8	29	9	1
	Equipment Failure/ Involved	1,003	49	69	328	561	440	66
	Unknown Cause	415	32	52	113	289	254	30
	Vegetation	254	73	79	43	85	418	38
	Total Outages	3,288	203	210	1,260	2,990	1,398	274
	Customers Impacted	1,334,210	19,082	67,174	249,639	289,105	452,264	23,750
	% Cust Restored within 12Hrs	85.77%	15.29%	91.88%	98.94%	97.07%	84.74%	96.83%
	% Cust Restored within 24Hrs	93.57%	33.16%	97.85%	99.80%	99.57%	93.21%	99.40%
911 Standby	# of 911 Standby Requests	422	399	690	148	279	1,042	1,028
	% 911 Requests responded to within 60 mins	92.89%	94.99%	94.49%	99.32%	99.28%	93.96%	95.33%

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 5

POWER GENERATION: CEMA

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 5
POWER GENERATION: CEMA

TABLE OF CONTENTS

A. Introduction.....	5-1
B. Summary of Request.....	5-1
C. Damages to PG&E's Power Generation Facilities and Restoration Activities	5-2
1. 2021 December Storms	5-3
a. Damaged Facilities	5-3
b. Restoration Activities	5-3
2. 2021 River Fire Incident.....	5-3
a. Damaged Facilities	5-5
b. Restoration Activities	5-5
3. 2021 Costs Related to Prior Filings.....	5-5
a. North Complex Fire	5-5
1) Description of Event	5-5
2) Costs	5-5
3) Damaged Facilities and Prevention Activities.....	5-6
b. 2019 January-February Storms	5-6
1) Description of Event	5-6
2) Costs	5-6
3) Damaged Facilities.....	5-7
4) Restoration Activities.....	5-8
D. Conclusion.....	5-8

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 5
POWER GENERATION: CEMA

A. Introduction

This chapter describes certain costs for Pacific Gas and Electric Company's (PG&E) Power Generation (PG) facilities that were recorded during 2021 in its Catastrophic Events Memorandum Account (CEMA).

With respect to the CEMA costs, this chapter demonstrates the necessity and reasonableness of the steps PG&E took to protect, rebuild, and restore service to PG facilities damaged during December 2021 storms, 2021 River Complex, 2020 North Complex Fire (NCF) and 2019 January-February Storm events. PG&E's response to these events was coordinated and managed so that the PG facilities could be restored as quickly and efficiently as possible. The steps PG&E took were necessary and reasonable to eliminate potentially hazardous conditions, rebuild or replace damaged facilities, and restore to service PG&E's flexible and clean source of hydroelectric energy. PG&E's responses to these events were coordinated and managed so that service could be restored to PG&E customers as quickly and efficiently as possible. The steps PG&E took were necessary and reasonable to eliminate potentially hazardous conditions, communicate with customers, repair or replace damaged facilities, and restore vital electric service.

The remainder of this chapter is organized as follows:

- Section B provides a summary of the cost-recovery request;
- Section C explains the costs incurred by PG&E in response to these catastrophic events; and
- Section D provides a brief conclusion.

B. Summary of Request

PG&E recorded PG expenses of \$4.9 million and capital expenditures of \$1.2 million as shown in Table 6-1 below.

TABLE 5-1
POWER GENERATION CEMA COSTS
(THOUSAND OF DOLLARS)

Line No.	Accounts and Events	Expense	Capital	Total
1	2021 December Storms	\$111	—	\$111
2	2021 River Fire Incident	4,518	—	4,518
3	2020 North Complex Fires	239	—	239
4	2019 Jan/Feb Storm	(12)	\$1,180	1,168
5	Total	\$4,856	\$1,180	\$6,036

C. Damages to PG&E's Power Generation Facilities and Restoration Activities

PG forecasts its routine emergency and maintenance costs in the General Rate Case (GRC), based upon the trend for the normal routine emergency work. These forecasts do not include or reflect CEMA costs incurred during or following major storm or fire events that have been declared as a catastrophic event by a state or federal governmental agency. CEMA allows PG&E to recover from customers the incremental costs associated with response and restoration activities for a government-declared catastrophic event, subject to a California Public Utilities Commission (CPUC) reasonableness review proceeding.

Costs for routine operations, maintenance, and compliance for PG&E's hydro generation facilities are primarily based upon labor and other recurring costs and are typically consistent year over year. The costs of the individual projects included in the Hydro forecast are estimated on a project-specific basis. PG&E's forecast is based on a bottom-up calculation of the expected costs for the projects and programs to be implemented in the forecast year.

Costs for CEMA are based on actual dollars spent on rebuilding or restoring the existing facilities damaged due to a fire or storm event. These costs are tracked and accounted for separately from the routine operation and are not recovered from the GRC.

The CEMA events described in this chapter affected or threatened to affect PG facilities. PG&E's actions in response to these incidents were necessary and reasonable given the extensive damage the emergency events caused and the further damage they threatened to cause.

1. 2021 December Storms

On December 30, 2021, the Governor of the state of California, Gavin Newsom, issued a State of Emergency Proclamation as a result of the 2021 December Winter Storms. The State of Emergency Proclamation was issued under the California Emergency Services Act and Section 8625 of the California Government Code and applies to Alameda, Amador, Calaveras, El Dorado, Humboldt, Lake, Los Angeles, Marin, Monterey, Napa, Nevada, Orange, Placer, Sacramento, San Bernardino, San Luis Obispo, San Mateo, Santa Cruz, Sierra, and Yuba counties on January 8, 2022, Governor Newsom issued another State of Emergency Proclamation expanding the impacted counties to Trinity County due to the 2021 December Winter Storms.

a. Damaged Facilities

The 2021 December Winter Storms is estimated to have damaged approximately 4,053 Electric Distribution facilities and approximately two Electric Generation facilities. As of January 11, 2022, the 2021 December Winter Storms is estimated to have disrupted service to about 315,141 electric customers across PG&E's service territory.

b. Restoration Activities

In 2021, restoration activities included work to clear debris from the area for employees and contractor's safe access to perform site visits and collect data for restoration work. Restoration work also included clearing debris from the waterways to prevent damage to the powerhouse and the canal system.

2. 2021 River Fire Incident

The River Fire Incident is comprised of the Haystack, Summer and Cornan fires located on both the Klamath National Forest, and the Shasta-Trinity National Forest. The incident started July 30, 2021 by multiple lightning fires impacting Siskiyou and Trinity counties.

Warm and dry conditions were observed near the ignition site on July 30, 2021. Gusty and the driest conditions were felt in the late afternoon through the evening, which combined to cause dangerous fire weather conditions. Temperatures started the day near 70°F and rose to the 80s by

the early afternoon. Maximum temperatures rose into the upper 80s while winds gusted into the upper 20 miles per hour (mph) range. The relative humidity was the lowest during the peak heating hours in the afternoon. Observation site BUGC1 located approximately nine miles southwest of the approximate ignition site measured a maximum temperature of 88°F at 1351 hours while the relative humidity was reduced to as low as 25 percent at the same time.¹ In addition, a maximum wind gust of 28 mph from the northeast was observed at 1751 hours. The cause of this fire was due to multiple lightning strikes. Sufficient southerly flow brought moisture to the area. The heat and moisture combined to support isolated to scattered thunderstorms over a wider area where critically dry fuels were present. The National Weather Service in Medford issued a Red Flag Warning for abundant lightning on dry fuels for the area highlighting the fact that lightning on dry vegetation will result in fire starts and any gusty thunderstorm could contribute to fire spread.

PG incurred \$4.5 million systemwide in 2021 responding to this fire all of which is related to the declared emergency in CEMA-eligible counties. The \$4.5 million can be broken down as follows:

**TABLE 5-2
2021 RIVER FIRE INCIDENT
COST ELEMENT BREAKDOWN OF COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Cost Category	Capital	Expense	Total
1	Contract	—	\$4,379	\$4,379
2	Labor	—	125	125
3	Materials	—	13	13
4	Other	—	—	—
5	Total	—	\$4,518	\$4,518

¹ MESOWEST, Weather Conditions for BUGCI, https://mesowest.utah.edu/cgi-bin/droman/meso_base_dyn.cgi?product=&past=1&stn=BUGC1&unit=0&time=LOCAL&day1=31&month1=07&year1=2021&hour1=0 (as of Nov. 18, 2022).

1 **a. Damaged Facilities**

2 The fire burned a total of 199,359 acres and was contained
3 October 26 (87 days). The fire also destroyed or damaged the following
4 number of PG&E facilities: 12 poles, three transformers, and
5 one crossarm.

6 **b. Restoration Activities**

7 PG&E's response to the event and the costs that were incurred
8 were largely driven by the removal of trees, brush, and other vegetation.
9 This included the removal of hazards within the impacted area. Other
10 activities including but not limited to were traffic control, security
11 services, and necessary restoration activities to restore power.

12 **3. 2021 Costs Related to Prior Filings**

13 **a. North Complex Fire**

14 **1) Description of Event**

15 The NCF was a massive wildfire complex that burned in the
16 Plumas National Forest in Northern California in Plumas and Butte
17 counties. 21 fires were started by lightning on August 17, 2020. By
18 September 5, most of the individual fires had been contained with
19 the exception of the Claremont and Bear Fires, which merged on
20 that date, and the Sheep Fire, which was then designated as a
21 separate incident. On September 8, strong winds caused the Bear
22 and Claremont Fires to explode in size, rapidly spreading to the
23 southwest.

24 The NCF was 100 percent contained on December 3. The fire
25 was managed by the United States Forest Service in conjunction
26 with Cal Fire. At that time the NCF was the sixth largest in
27 California's modern history.

28 **2) Costs**

29 PG spent \$0.2 million in 2020 responding to this fire. The
30 \$0.2 million is itemized in Table 5-3.

TABLE 5-3
2020 NCF
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

Line No.	Cost Category	Capital	Expense	Total
1	Contract	—	\$239	\$239
2	Labor	—	—	—
3	Materials	—	—	—
4	Other	—	—	—
5	Total	—	\$239	\$239

3) Damaged Facilities and Prevention Activities

The fire burned a total of 318,935 acres, and 2,455 structures were destroyed. During the course of the fire, PG&E personnel and contractors performed fire mitigation measures to protect PG assets. These activities included brush removal for fuel reduction, as well as application of fire retardant and blankets on equipment. As a result of this proactive response, PG facilities did not incur significant damages. Following the fire, PG sent teams for damage assessment, hazard tree/fire debris removal, and minor repairs to roads and the Butte canal.

b. 2019 January-February Storms

1) Description of Event

The January-February Severe Storms began on January 5 and continued through February 27, 2019. This series of rainstorms swept across California bringing high winds, substantial precipitation, snow, and lightning.

2) Costs

Table 5-4 provides a summary of PG costs for these storms incurred in 2020.

TABLE 5-4
2019 JANUARY-FEBRUARY STORM
COST ELEMENT BREAKDOWN OF 2020 COSTS
(THOUSAND OF DOLLARS)

Line No.	Cost Category	Capital	Expense	Total
1	Contract	\$697	—	\$697
2	Labor	279	\$(7)	272
3	Materials	73	—	73
4	Other	131	(4)	126
5	Total	\$1,180	\$(12)	\$1,168

3) Damaged Facilities

a) Tiger Creek Area

The facilities damaged during the 2019 January and February storms include River Road, Mill Creek Crossing, and Tiger Creek Road area in Amador County near Highway 88. There was significant damage along a 2.3-mile section of the River Road. In some cases, the road section was completely destroyed. Subsequent to these storm events on February 14, 2019, multiple sections along River Road from Tiger Creek Road to the Tiger Creek Afterbay Dam suffered substantial damages that required reinforcement using rock rip-rap revetment installations.

The storm also washed out Mill Creek Crossing and Tiger Creek Road, resulting in zero access to and from Tiger Creek Powerhouse. There were multiple sections along Tiger Creek Road from the Tiger Creek Powerhouse to the regulator bridge that suffered substantial damage and needed reinforcement using rock rip-rap revetment installations. Also, to reestablish the powerhouse access, replacement of the culvert (bridge) was essential.

b) Motherlode Area

The 2019 storms flooded waterways and clogged culverts with debris. While the culverts were not damaged and did not

1 require replacement, the debris needed to be removed to avoid
2 future flash floods and protect public safety.

3 **4) Restoration Activities**

4 **a) Tiger Creek Area**

5 In 2020, restoration activities for storm damage at the
6 Tiger Creek facility included work to clear debris from the area
7 for employees and contractor's safe access to perform site visits
8 and collect data for restoration work. Details collected during
9 these visits would be used to design and prepare for the actual
10 restoration activities to be performed in 2021.

11 **b) Motherlode Area**

12 Work in the Motherlode area mainly consisted of cleaning
13 out culverts that had become clogged due to debris from the
14 storm. These culverts were not damaged and did not need to
15 be replaced and was hence deemed as expense work. In
16 addition to cleaning out culverts, signage was posted to alert the
17 public of possible flash flooding in this area.

18 **D. Conclusion**

19 The incremental recorded activities described in this chapter were
20 necessary to mitigate the effects of fire and storm related emergencies, to
21 reduce the likelihood and impact of fires and storm related damages on PG&E's
22 facilities. The costs incurred performing those activities were reasonable, and
23 the CPUC should authorize PG&E to recover them in this application.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 6

COVID-19 PANDEMIC: CEMA

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 6
COVID-19 PANDEMIC: CEMA

TABLE OF CONTENTS

A. Introduction.....	6-1
B. Electric Distribution.....	6-1
1. Response Coordination and Employee Support	6-3
2. Sequestration.....	6-3
3. Personal Protective Equipment.....	6-4
C. Customer and Communications	6-5
D. Information Technology	6-6
E. Shared Services	6-6
1. CRESS.....	6-6
2. Enterprise Health and Safety	6-6
3. Transportation	6-7
F. Gas Operations	6-8
G. Generation.....	6-9
H. Avoided Costs	6-9
I. Conclusion.....	6-11

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 6
COVID-19 PANDEMIC: CEMA

A. Introduction

In 2021, the Coronavirus (COVID-19) pandemic continued, requiring Pacific Gas and Electric Company (PG&E) to implement various enhanced health and safety precautions to protect the customers, public, employees, and contractors. This consisted of the following activities: (1) continued response coordination and employee support, (2) preparations to sequester critical employees to ensure minimal staffing requirements could be met for critical functions; (3) Personal Protective Equipment (PPE), facility modifications, vehicle rentals, and inspections; and (4) enhanced cleaning as necessary.

These costs were necessary to comply with Executive Orders (EO) issued by the Governor during the COVID-19 pandemic, various public health orders issued by state and county health officers, and to meet other operational requirements (e.g., maintaining sufficient workforce levels and work schedules to maintain reliable service).

The following sections of testimony discuss costs incurred by various organizations within PG&E for responding to the COVID-19 pandemic in 2021.

B. Electric Distribution

The 2021 costs incurred from the 2020 COVID-19 pandemic are summarized below (by organization):

TABLE 6-1
SUMMARY OF RECORDED EXPENSE COSTS BY LOB^(a)
(THOUSANDS OF DOLLARS)

Line No.	Category	Electric Ops	Corporate Real Estate Strategy and Services (CRESS)	IT	Gas	Transportation Services	Generation ^(b)	Customer & Comms	Enterprise Health & Safety and Human Resources (HR)	CEMA – Eligible Expense Total ^(a)
1	Response Coordination and Employee Support	\$1,858	–	\$768	–	–	–	\$854	–	\$3,480
2	Sequestration	1,115	\$340	–	\$804	\$2,270	\$1,240	–	–	5,769
3	Protective Equipment, Facility Modifications, Vehicle Rentals, and Inspections to Comply with Health Orders	916	741	–	210	–	455	–	1,825	4,147
4	Cleaning Due to COVID-19 Cases	–	2,440	–	–	164	–	–	–	2,604
5	Total	\$3,889	\$3,521	\$768	\$1,014	\$2,434	\$1,695	\$854	\$1,825	\$16,000

(a) These numbers do not include the avoided costs adjustments, see Table 6-2 and Chapter 12 for details.

(b) This category of costs includes Nuclear and Power.

1. Response Coordination and Employee Support

PG&E continued to manage its COVID-19 response through the COVID-19 Policy Committee (Committee), as the pandemic continued to evolve with multiple variants of the virus emerging. The Committee was initially established in February, 2020, as a planning group to monitor the developing COVID-19 pandemic situation in California, and to identify potential impacts to the utility, as well as customers, the public, employees, and contractors. The committee is led by the Senior Vice President of HR, leadership from PG&E's operations and support organizations, as well as internal subject matter experts in epidemiology/public health, safety, emergency response and business continuity, HR, benefits, facilities, and technology. The Committee is advised by a contract Medical Director and a pandemic/business-continuity expert.

The Committee's role is to guide PG&E's overall response, including establishing: (1) prudent, health-protective policies for employees and work activities; and (2) clear communications with all employees regarding COVID-19 risks and best work practices. PG&E's primary objective in its COVID-19 Pandemic response is to maintain the safety and health of customers, the public, employees, and contractors, while assuring that PG&E meets all applicable regulatory requirements and maintains reliable service for customers. The Committee met several times per week through the duration of 2021.

2. Sequestration

Beginning in April 2020, PG&E prepared to implement a business continuity process called "sequestration." Sequestration involves isolating a group of personnel who are known to be uninfected in an environment where their only contact is with other uninfected personnel. The uninfected personnel remain in a single location and do not leave at any time or interact in-person with anyone outside the sequestration "bubble." These locations are the San Ramon Valley Conference Center (SRVCC), the Humboldt Bay Generating Station (HBGS), and the Hinkley Compressor Station. Certain essential jobs at PG&E, such as Operators in controls rooms, are staffed by a small number of personnel with highly specialized qualifications. Assuring

continuity in staffing these positions is vital to maintaining the safe and reliable provision of gas and electric service. Staffing of these duties under normal circumstances allows for occasional absences due to sick leave, vacation, and other reasons. However, there would be insufficient personnel qualified to perform these functions if COVID-19 suddenly made several of these workers unavailable simultaneously, whether due to actual infection or due to being quarantined for exposure. This work cannot be performed remotely, and mutual aid or temporary staffing alternatives are not possible or practical. Sequestration planning and implementation was conducted to assure these essential functions continued unimpacted by the pandemic.

3. Personal Protective Equipment

Numerous state and county health orders issued in 2020, as well as an Emergency Regulation promulgated by the California Occupational Safety and Health Administration (Cal/OSHA),¹ required the purchase of PPE specifically for the COVID-19 Pandemic in order to protect those critical infrastructure workers exempted from the stay-at-home orders. A related, fundamental health control measure required by Centers for Disease Control and Prevention (CDC) guidance, health orders, Governor Newsom's EO, and the emergency Cal/OSHA regulation, was a requirement for personnel to remain at least six feet from others, unless close contact was necessary to perform a specific task. This "social distancing" requirement necessitated use of separate vehicles, closing, or reconfiguring various indoor facilities and performing work outdoors, and other measures to facilitate maximal distance between working personnel. Expansive additional COVID-19 pandemic related inspection requirements, including inspection by a third party for construction work in certain counties and facility inspection in response to specified Cal/OSHA criteria, were also required.

¹ Cal. Code Regs., title 8, § 3205 et seq., *COVID-19 Prevention*, Emergency order effective November 30, 2020, expiration extended to October 2021 by EOs N-40-20 and N-71-20.

1 **C. Customer and Communications**

2 The Customer Care organization incurred COVID-19 Pandemic costs for
3 2021 totaled \$854 thousand. These costs were to ensure customer services
4 could be maintained in a remote environment and were primarily for employee
5 COVID-19 education and outreach, internet/cell phone reimbursements, and
6 some ergonomic equipment.

7 Customer Care workers who interfaced daily with customers were required
8 to use their own home internet service to connect to the PG&E network and
9 conduct Company business. To help defray the cost of establishing and
10 maintaining a reliable high-speed internet connection for these customer
11 services, a temporary monthly \$35 reimbursement per home worker was
12 established in March 2020. This reimbursement was provided to
13 customer-facing employees and representatives of the Contact Centers and
14 Customer Service Offices. The reimbursement continued through 2021 and will
15 terminate when these Customer Care employees return to the office
16 environment.

17 Customer Care employees interfacing with customers were required to use
18 their own mobile phones to conduct company business. Many of these
19 employees were not previously eligible for PG&E's "Bring Your Own Device"
20 (BYOD) initiative. The BYOD initiative pays a flat \$45 reimbursement each
21 month to employees who agree to use their own mobile phones, instead of
22 having a company-provided device, thereby reducing the number of deployed
23 company-owned mobile devices. The initiative was extended on an emergency
24 basis to employees who normally are in the office and ineligible for a company
25 mobile phone or the BYOD initiative. The monthly reimbursement continued
26 through 2021 and will terminate for those employees who receive it as part of
27 COVID-19 pandemic related costs when they return to the office environment.
28 Note that employees who were already receiving this reimbursement were not
29 eligible for the COVID-19 pandemic related BYOD Program and the cost of their
30 reimbursement is not included in this filing.

D. Information Technology

The Information Technology (IT) organization incurred COVID-19 pandemic costs for 2021 totaled \$768 thousand. The costs include incremental internal labor from the Telecommunications/Network and Cybersecurity IT Teams in support of executing solutions that address required changes in workflows due to the COVID-19 pandemic. Specific efforts include modifying employee workstations in PG&E's data centers at the SRVCC, increasing cybersecurity protocols, and providing additional support for remote users.

The IT organization also incurred both incremental internal and external labor and contract costs resulting from the company's remote working environment, including increased licensing subscriptions, training, and support for remote-enabling communications and security software applications.

E. Shared Services

The Shared Services organization includes CRESS, HR, Safety & Health, and Transportation with their COVID-19 pandemic costs totaled at \$3.5 million, \$1.8 million, and \$2.4 million, respectively.

1. CRESS

The CRESS costs fall within three categories: COVID-19 Janitorial and Cleaning, COVID-19 Facility Structures, and COVID-19 SRVCC Sequestration. The Janitorial and Cleaning includes disinfection cleaning and management fees, totaling \$2.4 million. Facility Structures incurred costs for renovation and reconfiguration of office space for safety protocols, totaling \$0.7 million. The remaining costs incurred was for SRVCC Sequestration totaling \$0.34 million mainly for building project management fees.

2. Enterprise Health and Safety

The HR and Safety and Health organizations incurred COVID-19 pandemic costs to comply with standard and employee safety. The costs included overtime for the training staff to come in early and stay behind to clean the classroom, reconfigure classrooms, purchase additional cleaning supplies and PPE, temporary staff as hydration specialists, contract tracing and reporting and lastly, the employee Help Line for COVID-19.

1 The COVID-19 Pandemic Help Line was established due to the state of
2 California, Cal/OSHA and the California Department of Health requirements.
3 PG&E is required to have employees report when they test positive for
4 COVID-19 and is also required to conduct contact tracing to identify
5 employees, contractors and customers who may have been exposed to the
6 virus through close contact. The COVID-19 Pandemic Help Line is the
7 central point of contact and support for PG&E employees, leaders, and
8 suppliers to report COVID-19 positives and record all critical information
9 associated with the positive case. The data gathered is critical for required
10 notifications and outbreak determinations (Assembly Bill 685, Cal/OSHA),
11 workforce business continuity, and service delivery. The COVID-19
12 Pandemic Help Line provides clear direction to employees and leaders on
13 isolation and quarantine requirements, testing, notifications and return to
14 work guidelines. The COVID-19 Pandemic Help Line also answers
15 questions about PG&E's COVID-19 pandemic protocols, company and state
16 of California time off options, and policies implemented specifically for the
17 pandemic. This work was not planned and was over and above existing
18 workload and staffing resources.

19 **3. Transportation**

20 The Transportation organization incurred COVID-19 pandemic costs
21 that fall into three categories: Trailers and Equipment Rental Sequestration,
22 Vehicle Rentals, and Vehicle Cleaning.

23 The Trailers and Equipment Rental Sequestration totaled \$2 million and
24 are associated with office trailer rentals to comply with social distancing
25 requirements imposed by the July 21, 2021 state of California and local
26 health orders. Sequestration means that employees would live and work at
27 one of our facilities 24 hours per day for an extended period of time. To
28 ensure that they remained healthy and safe, PG&E ensured that basic
29 necessities were provided. These items included food, travel trailers,
30 generators, lighting, portable restrooms, washers and dryers, office
31 equipment, bedding, and towels. Most of the trailers and associated
32 equipment were deployed in response to sequestration needs defined by
33 Power Generation and Gas Transmission organizations.

1 The Vehicle Rentals incurred costs totaled \$220 thousand. Various
2 county health orders and guidance from the CDC and state of California
3 identified the sharing of vehicles by employees as a high-risk activity to be
4 avoided if possible. Traveling for extended periods in the same vehicle with
5 someone who is COVID-19 positive has been a significant source of
6 workplace transmission, both at PG&E and other companies. On April 10,
7 2020, to adhere to CDC recommendations for social distancing and
8 minimize the spread of COVID-19, PG&E published guidance to employees
9 regarding vehicle use. The PG&E guidance directed employees to avoid
10 operating vehicles with a passenger and avoid riding as a passenger. To
11 enable employees to follow social distancing guidelines and meet the
12 demand for additional fleet resources, PG&E re-purposed a small group of
13 30 vehicles that were previously planned to be retired from the fleet and
14 began using 103 temporary rental vehicles, and 72 rental travel trailers.

15 The Vehicle Cleaning incurred costs totaled \$164 thousand. PG&E
16 implemented cleaning services to disinfect vehicles due to confirmed and
17 possible COVID-19 exposure, consistent with CDC, state, and Cal/OSHA
18 requirements. PG&E's HR organization instituted a process to identify and
19 issue out-of-service notifications for employees who tested positive for
20 COVID-19 and were in possession of a PG&E vehicle. When there was a
21 positive COVID-19 test, Transportation Services engaged a third-party
22 service to conduct a specialized COVID-19 disinfection process.

23 **F. Gas Operations**

24 In the continued response to the COVID-19 pandemic, PG&E recorded Gas
25 Operations expenses of \$1.0 million through December 31, 2021. Gas
26 Operations costs consisted of labor, security services, PPE and COVID-19
27 testing and supplies, materials, and other employee expenses. Sequestration
28 for key personnel such as compressor station operators at the Hinkley
29 Compressor Station was required because if too many operators became ill and
30 unable to work such that minimum staffing requirements could not be met, our
31 ability to provide safe and reliable gas service to customers could be
32 jeopardized. For sequestered work, PG&E tested employees for COVID-19 and
33 provided necessary PPE to mitigate a potential outbreak among employees.

Further information on cost details is set forth in the workpapers supporting this chapter.

G. Generation

PG&E Generation 2021 COVID-19 pandemic costs totaled \$1,696 thousand with \$1,381 thousand of that total attributable to Power Generation and \$315 thousand attributable to Nuclear Generation.

The primary contributor to the Power Generation costs was labor costs for employees sequestering at HBGS, totaling \$1,240 thousand. The remaining \$140 thousand in Power Generation costs incurred was a combination of COVID-19 testing at HBGS and costs incurred at various other powerhouses/facilities, including for PPE. For Nuclear Generation, most costs were associated with contracting Care Onsite to perform COVID-19 testing and janitorial services for enhanced cleaning, totaling \$325 thousand. Additional Nuclear Generation costs incurred included material costs for disinfecting wipes and hand sanitizer, totaling \$23 thousand, and the cost of renting a tent for a safe location to perform COVID-19 testing, totaling \$22 thousand.

H. Avoided Costs

For description of the costs that were removed see Chapter 11.

TABLE 6-2
SUMMARY OF ADJUSTED COVID-19 COST RECOVERY REQUEST BY LOB
(THOUSANDS OF DOLLARS)

Line No.	Category	Electric Ops	CRESS	IT	Gas	Transportation Services	Generation	Customer & Comms	Enterprise Health & Safety and HR	COVID-19 Cost Recovery Request
1	Total Recorded Costs	\$3,889	\$3,521	\$768	\$1,014	\$2,434	\$1,695	\$854	\$1,825	\$16,000
2	Less: Avoided Costs resulting from the COVID-19 Pandemic	—	(4,400)	(300)	(1,500)	—	(1,600)	(2,390)	—	(10,190)
3	COVID-19 Pandemic Cost Recovery Request	\$3,889	\$(879)	\$468	\$(486)	\$2,434	\$95	\$(1,536)	\$1,825	\$5,810

1 **I. Conclusion**

2 This chapter describes PG&E's activities associated with responding to the
3 COVID-19 pandemic that began in February 2020 and continued through 2021.
4 As demonstrated throughout this chapter, the costs PG&E incurred responding
5 to this unprecedented national emergency were reasonable and should be
6 approved in their entirety.

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 7
CUSTOMER CARE MEMORANDUM ACCOUNTS

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 7
CUSTOMER CARE MEMORANDUM ACCOUNTS

TABLE OF CONTENTS

A. Introduction.....	7-1
B. California Consumer Privacy Act Memorandum Account.....	7-2
1. Background.....	7-2
2. Summary of Program Activities.....	7-3
a. 2021 Expense.....	7-6
1) Labor and Contracts.....	7-6
2) Hardware and Software	7-10
3) 2021 Capital	7-10
C. Emergency Consumer Protections Memorandum Account.....	7-11
1. Background.....	7-11
2. Summary of Program Activities.....	7-13
a. Temporary Services	7-13
b. Billing Support	7-13
c. Customer Outreach	7-14
D. COVID-19 Pandemic Protections Memorandum Account.....	7-15
1. Background.....	7-15
2. Summary of Program Activities.....	7-16
a. Accounts Receivables Financing Costs.....	7-17
b. Credit and Billing Support.....	7-17
c. Outreach and Communications	7-18
d. COVID-19 Pay Plan Implementation	7-19
e. Contact Center Support.....	7-20
f. Leverage Federal and State Funding	7-20
g. Reporting	7-21

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 7
CUSTOMER CARE MEMORANDUM ACCOUNTS

TABLE OF CONTENTS
(CONTINUED)

h. Small Business Pilot	7-21
E. Disconnections Memorandum Account	7-22
1. Background	7-22
2. Summary of Program Activities	7-23
a. Arrearage Management Plan.....	7-24
b. Removing Interim Policy Prohibiting Disconnections for Customers Aged 65+	7-26
c. Eliminating Deposits and Reconnection Fees	7-26
d. Offering Applicable Benefit Programs Prior to Disconnection.....	7-26
e. Tracking for Disconnection Caps	7-27
f. Updating 48-Hour Notices	7-27
g. 12-Month Default Pay Plans	7-28
h. Percentage of Income Payment Plan	7-28
F. Conclusion.....	7-29

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 7
CUSTOMER CARE MEMORANDUM ACCOUNTS

A. Introduction

This chapter demonstrates the reasonableness of Pacific Gas and Electric Company's (PG&E) request to recover incremental costs incurred in 2021 for customer support and assistance activities. Table 7-1 summarizes the activities and their associated memorandum accounts. In total, PG&E requests to recover \$2.4 million in capital expenditures and \$27.9 million in Operations and Maintenance (O&M) expenses for 2021 activities.

TABLE 7-1
OVERVIEW OF MEMORANDUM ACCOUNTS
(THOUSANDS OF DOLLARS)

Line No.	Memo Account	Activity	2021 Capital Recorded Costs	2021 Expense Recorded Costs	Total
1	California Consumer Privacy Act (CCPA) Memorandum Account (CCPAMA)	Implementing the CCPA of 2018	\$2,381	\$5,938	\$8,318
2	Emergency Consumer Protections Memorandum Account (ECPMA)	Extending emergency customer protections to customers impacted by wildfires and other emergencies, pursuant to Decision (D.) 18-08-004 and D.19-07-015	—	2,214	2,214
3	Coronavirus (COVID-19) Pandemic Protections Memorandum Account (CPPMA)	Extending emergency customer protections to customers impacted by the COVID-19 pandemic, pursuant to Resolution (Res.) M-4842	—	11,571	11,571
4	Disconnections Memorandum Account (DMA)	Implementing policies that aim to mitigate residential disconnections pursuant to D.20-06-003	—	8,180	8,180
5	Total		\$2,381	\$27,897	\$30,279

B. California Consumer Privacy Act Memorandum Account

1. Background

The CCPA was enacted by Assembly Bill (AB) 375 and Senate Bill (SB) 1121 and signed into law by Governor Brown on June 28, 2018.¹ The CCPA became effective on January 1, 2020 and affects virtually all California businesses with annual revenue greater than \$25 million. The CCPA significantly expanded the definition of personal data (i.e., personal information) protected under California law. It requires PG&E,

on the consumer's request, to disclose what data they collect with respect to them, furnish that data to the consumer upon request, permit the consumer to opt out from the transfer of that data, inform the [customer] as to whom their data was disclosed, and delete that data (subject to exceptions) ...²

PG&E is required to respond to CCPA consumer requests within 45 days and may receive an extension for an additional 45 days, provided it notifies customers within the first 45-day period.³ Additionally, the CCPA limits the sale of personal data, requires new disclosures at the time of data collection, and adds new training requirements.

PG&E submitted Application (A.) 19-03-020⁴ to establish a memorandum account to record and track incremental costs associated with CCPA compliance. In D.19-09-026,⁵ the California Public Utilities Commission (CPUC or Commission) approved A.19-03-020. The Commission then subsequently approved PG&E's Advice Letter (AL) 4160-E/5657-E requesting to establish the CCPAMA, effective October 11, 2019.

In November 2020, California voters voted in favor of the California Privacy Rights Acts (CPRA), a ballot initiative that amends the CCPA and includes additional privacy protections for consumers. The majority of the

¹ Civil Code §§ 1798.100 et seq.; AB 375 (2017-2018 Reg. Sess.), Chapter 55; SB 1121 (2017-2018, Reg. Sess.), Chapter 735.

² D.19-09-026, pp. 2-3.

³ Civil Code §§ 1798.130 (a)(2).

⁴ A.19-03-020, Application of PG&E for Approval of Memorandum Account to Record and Track Incremental Costs of Implementing CCPA of 2018.

⁵ D.19-09-026, p. 14, Ordering Paragraph (OP) 1.

CPRA's provisions will begin January 1, 2023, with a look-back to January 2022. The following CCPA provisions, among others, were amended: (1) right to access personal information; (2) right to delete personal information; (3) notice of collection; and (4) right to opt out. Provisions regarding consumers' right to access their personal information now includes information collected, directly or indirectly, including through or by a service provider or contractor, plus active and former employees. Provisions regarding individuals' right to delete their personal information now includes all third parties to whom PG&E has sold or shared the information with. Notice-of-collection provisions now include disclosures about whether PG&E shares personal information, processing, and disclosure of sensitive personal information and the length of time PG&E retains each category of personal information. Provisions regarding right to opt-out of the sale of personal information now include right to opt-out of "Sale or Sharing" of Personal Information (PI) and requires updates to PG&E's opt-out implementation with global opt-out.

PG&E submitted Tier 2 AL 4476-G/6293-E to modify the preliminary statement for the CCPAMA to allow for the recording of incremental costs to comply with new privacy provisions contained in the CCPA, as updated by the CPRA. Because the CPRA was passed on November 3, 2020, and PG&E began working on CPRA implementation in January 2021, PG&E requested that the Tier 2 AL request become effective January 1, 2021, to reflect PG&E's work recorded to the CCPAMA to comply with the new provisions. The Commission approved PG&E's AL request on September 8, 2021.

2. Summary of Program Activities

The CCPA required PG&E to work cross-functionally across the enterprise starting in 2019 in order to comply by January 1, 2020 with the four major customer rights provided in the CCPA, including: (1) the right to receive notice of personal data possessed in a company's records; (2) the right to access personal data possessed by a company; (3) the right to delete personal data processed by a company; and (4) the right to opt-out of the sale of personal data by a company to third parties. PG&E focused on building sustainable solutions to meet CCPA requirements, including:

1 (1) expanding current programs; (2) operationalizing and automating
2 business processes and tools; (3) piloting new technology solutions; and
3 (4) establishing overall governance across PG&E. PG&E established seven
4 workstreams supported by internal resources and external consultants to
5 design, develop, and implement CCPA requirements (see Table 7-2).

**TABLE 7-2
OVERVIEW OF CCPA WORKSTREAMS**

Line No.	Workstream	Objective(s)
1	Data Discovery	Identify consumer related personal information data in PG&E systems.
2	Data Inventory	- Identify and classify personal data stored in PG&E systems; - Develop personal data inventory to document data elements, storage locations, retention periods, and use cases; - Identify which data meets definition of personal information and which do not; - Identify which data can/cannot be deleted/de-identified upon request, consistent with PG&E's Enterprise Records Retention Schedule; and - Develop data disposition framework.
3	Data Subject Requests	Process Data Subject Requests and supporting systems that receive and respond to: - Data Subject Requests for access (Intelligent Privacy Automation (IPA)); - Requests to delete (IPA); - Consent and preference of marketing materials; - Opt-out selling of information (One Trust); and - Corresponding documentation.
4	Policy and Governance	- Update or develop PG&E privacy policies to comply with CCPA; and - Understand where PG&E is collecting information and ensure the privacy policy is provided at time of data collection.
5	Third -Party Management	Ensure that there are processes, contract language, and systems in place so that third parties act in compliance with CCPA.
6	IPA	Maintain IPA Data Subject Access Request (DSAR) and Privacy Software and upgrade technology solution to be ready for CPRA, January 2023 regulations modules Consumer Request Portal: allows consumers to submit requests to exercise their rights under CCPA and manages workflow for these requests: - Use Case Management (UCM): questionnaires that document the personal information collected, used, stored, or shared as part of a business process. It facilitates initiation, data collection, review, and approvals UCM requests; supports fulfillment of data subject requests; - Privacy Impact Assessment (PIA): streamlines the process for initiation, execution, completion, and review of PIAs, which are used to conduct risk assessments and track any issues or findings associated with the collection and processing of data; - Breach Response: automates the workflow for responding to data privacy incidents and reporting data breaches; and - Third Party Vendor Management: Ensure assessment automation of third-party agreements comply and maintain privacy protection for customers and employees.
7	Communications and Change Management	- Ensure impacted employees have the tools they need to meet CCPA/CPRA requirements by supporting workstreams develop and execute targeted change plans; and. - Cultivate a culture of personal information custodianship by driving program -level communications and training initiatives

Tables 7-3 and 7-4 identify the activities and associated costs for PG&E to continue the seven workstreams in 2021. PG&E describes these activities and how they supported the workstreams in further detail below.

**TABLE 7-3
SUMMARY OF 2021 RECORDED EXPENSE TO
CCPAMA BY ACTIVITY
(THOUSANDS OF DOLLARS)**

Line No.	Activity	2021 Recorded Costs
1	Labor and Contracts	\$5,043
2	Hardware and Software	895
3	Total	\$5,938

**TABLE 7-4
SUMMARY OF 2021 RECORDED CAPITAL TO
CCPAMA BY ACTIVITY
(THOUSANDS OF DOLLARS)**

Line No.	Activity	2021 Recorded Costs
1	Labor and Contracts	\$2,381

a. 2021 Expense

PG&E recorded approximately \$5.9 million (Table 7-3, line 3) in expense to the CCPAMA in 2021. As shown in Table 7-5, this includes approximately \$5 million in labor and contracts and \$895,000 in hardware and software. These activities primarily supported CCPA/CPRA compliance processes, including the testing of processes and solutions necessary to comply with new CPRA requirements by 2023, as described in further detail below.

1) Labor and Contracts

Table 7-5 provides an overview of the four categories of labor and contracts associated with implementing CCPA/CPRA requirements in 2021.

TABLE 7-5
OVERVIEW OF LABOR AND CONTRACT COSTS BY LABOR TYPE EXPENSE
(THOUSANDS OF DOLLARS)

Line No.	Activity	2021 Recorded Costs
1	Consulting Labor and Contracts	\$1,461
2	Information Technology (IT) Labor	1,981
3	Privacy Labor	1,097
4	Contact Center Labor	503
5	Total	\$5,043

a) Consulting Labor and Contracts

PG&E recorded approximately \$1.46 million (Table 7-5, line 1) for incremental consulting labor and contracts. Following the adoption of the CPRA and in connection with PG&E's ongoing efforts to comply with the CCPA, PG&E engaged a consulting firm to design a project plan and help project manage ongoing CCPA and new CPRA workstreams across the enterprise. This involved implementing the seven workstreams identified in Table 7-2; establishing a project management office structure; and verifying adopted compliance efforts. As an example, PG&E's computer/software platforms prior to the CCPA/CPRA were not readily adaptable to the changing privacy regulations. Therefore, PG&E sought alternative new privacy solutions and engaged consultants with privacy expertise to research and assist in PG&E's transition to new privacy platforms that would allow PG&E to comply fully with CCPA/CPRA requirements.

In 2021, PG&E's consultants also continued to support the seven workstreams outlined in Table 7-2 by:

- Co-leading the "Data Discovery" workstream by deploying software and finetuning configurations to map and validate search results;
- Supporting the "Data Inventory" workstream by deploying UCM questionnaires across the enterprise to better

1 understand the purpose of customer data collection for
2 various activities;

- 3 • Assisting the “Policy and Governance” workstream by
4 evaluating existing PG&E policies, procedures, notices,
5 mapping these items to new CPRA and existing CCPA
6 requirements, and recommending items that required
7 updates;
- 8 • Leading the “IPA Tool” and conversion of technology,
9 including documenting business requirements building,
10 customizing, and deploying the tool in PG&E’s environment;
11 and
- 12 • Leading the “Communications and Change Management”
13 workstream, including conducting a change management
14 needs assessment, developing a change management plan,
15 and coordinating with PG&E staff on recommended
16 communications and training to PG&E employees.

17 **b) Customer Care IT Labor**

18 PG&E recorded approximately \$1.98 million (Table 7-5,
19 line 2) for incremental O&M IT labor. PG&E’s IT team
20 supported the implementation of the CCPA/CPRA in 2021 by:

- 21 • Supporting responses to customer requests to access and
22 delete their personal information data using the IPA system.
23 Contract labor incurred in connection with consumer
24 requests, including contract labor cost for fulfilling IT’s
25 support of DSAR. This included scanning the systems
26 using BIG ID, pulling data through user interface (UI)
27 searches, and using queries of CCPA and outside vendor;
- 28 • Conducting ongoing O&M of the Big ID tool to identify the
29 location of customer personal information data;
- 30 • Continuing to update PG&E’s data inventory/catalogue with
31 new systems scanned and relevant personal information
32 data identified;

- Updating PG&E's data deletion framework as needed to account for newly discovered data elements, legal changes, records retention schedules, etc.);
- Providing IPA system support, which also included contracted IT labor supporting upgrades and servicing of IPA system;
- Co-leading the "Data Discovery" and "Data Inventory" workstreams refining the machine learning based tool (Big ID) to scan various databases and highlight the location of personal information data, including employee; and
- Supporting the "Data Subject Requests" workstream by integrating the OneTrust cookie management module with its customer facing websites, including all microsites. The OneTrust platform enables PG&E to scan its websites for cookie collection and to provide a banner on these websites that allows customers to learn about the cookies that PG&E collects (e.g., performance cookies, functional cookies, marketing cookies, social media cookies) and optout of specific cookies as desired.

c) Privacy Labor

PG&E recorded approximately \$1.1 million (Table 7-5, line 3) for incremental O&M Privacy team labor. PG&E's Privacy team supported the implementation of the CCPA/CPRA in 2021 by:

- Responding to customer requests to access and delete their personal information data. In 2021, PG&E received 982 requests from customers to access their personal information data and 1,113 requests to delete their personal information data;
- Reviewing and changing PG&E's policies and processes based on new CPRA regulations;
- Continuing to monitor workstream progress, managing dependencies, and identifying potential issues;

- Leading the entire lifecycle for non-IT enabled work in all workstreams; and
- Managing a long-term strategic roadmap for CCPA/CPRA implementation.

d) Contact Center Labor

PG&E recorded approximately \$503,000 (Table 7-5, line 4) for incremental O&M Contact Center support to educate customers on their privacy rights and to answer customers' questions regarding the CCPA process at PG&E. PG&E's Contact Center customer service representatives (CSR) also processed data subject requests and deletion requests using the IPA intake form. In 2021, PG&E responded to approximately 21,500 customer calls related to CCPA.

2) Hardware and Software

PG&E recorded approximately \$895 thousand (Table 7-5, line 2) for hardware and software costs in 2021. These costs relate to ongoing hardware and software support for the Big ID tool, One Trust cookie management and upgrade of assessment automation tools, and the Service Now platform to intake and process customers' data access and deletion requests.

3) 2021 Capital

PG&E recorded approximately \$2.4 million (Table 7-4, line 1) in 2021. The IT capital costs to install scanners and correlators,⁶ which were needed to support the Big ID tool's ability to scan PG&E's systems for personal information data for employee and vendor systems. Consulting costs are broken down below for software/hardware configurations: The costs relate to:

- Consulting services provided support of the new Big ID Privacy Portal and One Trust assessment modules to meet CCPA and new CPRA regulations;

⁶ Correlator: Big ID leverages machine learning applied to a customer's existing data sets to determine how personal information looks in a given enterprise, and how such personal data is connected to an identity.

- Consulting Services created configuration and system requirements for integrations to comply with IT standards, this included Single Sign-On and My Electronic Access for One-Trust and Big ID privacy portal. Integration, configuration, documentation created for One-Trust and Ariba to enable automated flow of contract vendor and data into One Trust module;
- Consulting services created system configuration documentation for Big ID software, documenting new workflow to process new consent and preference rights, expand additional rights for correction, limiting sensitive personal information and opting out of sharing and sale. The configuration included the addition of B2B and employee data;
- Consulting services also created configurations for the One-Trust software platform. This included process and assessments for vendor risk management as well as PIAs, Data Loss investigations and data mapping to understand PI data flows; and
- Consulting Services created configurations for Big ID data discovery of employee data on prioritized systems.

C. Emergency Consumer Protections Memorandum Account

1. Background

The purpose of the ECPMA is to record incremental costs associated with PG&E's implementation of its Emergency Consumer Protection Plan. PG&E implements this plan when the California Governor's Office or the President of the United States declares a state of emergency due to a disaster that has either resulted in the loss or disruption of the delivery or receipt of utility service and/or resulted in the degradation of the quality of utility service as defined in D.19-07-015.⁷

PG&E established the ECPMA in accordance with D.18-08-004, which authorized a temporary emergency disaster relief program and directed PG&E to re-name its existing Wildfires Customer Protections Memorandum

⁷ D.19-07-015, p. 16.

1 Account to the ECPMA to reflect the fact that D.18-08-004 extended the
2 applicability of emergency customer protections for other disasters, not only
3 wildfires.⁸ In September 2018, PG&E submitted a Tier 2 AL 4014-G/5378-E
4 to establish the ECPMA. In this AL, PG&E proposed recording to the
5 ECPMA all incremental expenses incurred by PG&E associated with the
6 protection measures in PG&E's Emergency Consumer Protection Plan,
7 including expenses associated with the waiving of fees for temporary
8 service.⁹ The Commission approved AL 4014-G/5378-E effective
9 October 7, 2018.

10 Subsequent to this approval, the Commission established a permanent
11 emergency disaster relief program in D.19-07-015, which affirmed that
12 PG&E should continue to use the ECPMA to track costs associated with
13 implementing its Emergency Consumer Protections Plan.¹⁰ Pursuant to
14 D.19-07-015, OP 2, within 15 days of a declaration of a state of emergency
15 for a qualifying disaster, PG&E submits a Tier 1 AL to report its compliance
16 with implementing emergency customer protections. In each AL, PG&E
17 confirms that it will record to the ECPMA incremental costs associated with
18 implementing the plan's customer protections.¹¹

19 Under Electric Rule 13.A.1, customers who need temporary service
20 would be required to pay the estimated cost for installation and removal of
21 facilities needed to furnish temporary service. PG&E records the actual
22 costs of furnishing temporary service to customers affected by wildfires in
23 CEMA. However, only the Rule 13 waiver costs related to the October 2017
24 fires is tracked for recovery in CEMA. Rule 13 waiver costs for other,
25 non-October 2017 wildfires and declared events will be tracked and
26 recovered through the ECPMA, which was approved through
27 AL 4014-G/5378-E.

⁸ D.18-08-004, p. 22, OP 3.

⁹ PG&E AL 4014-G/5378-E, p. 11.

¹⁰ D.19-07-015, p. 27.

¹¹ For more information, see Electric Preliminary Statement Part HG and Gas Preliminary Statement Part EC. PG&E submits revised preliminary statements with each Tier 1 AL to confirm that it will track incremental costs associated with implementing its Emergency Consumer Protection Plan for each qualifying disaster.

On May 20, 2021, Res.E-5148 was approved to further the extension date to December 31, 2022.

2. Summary of Program Activities

In 2021, PG&E recorded to the ECPMA incremental costs for providing temporary services, discontinuing billing and stopping estimated usage (i.e., customer billing support), and providing outreach to customers impacted by disasters. Table 7-6 below summarizes the 2021 costs recorded in the ECPMA for these activities.

TABLE 7-6
SUMMARY OF 2021 ECPMA COST BY ACTIVITY EXPENSE
(THOUSANDS OF DOLLARS)

Line No.	Activity	2021 Recorded Costs
1	Temporary Services	\$2,065
2	Customer Billing Support	\$136
3	Customer Outreach	\$14
4	Total ECPMA ^(a)	\$2,214

(a) Sum of lines 1 through 3 do not add to the total reflected in line 4 due to rounding.

a. Temporary Services

Pursuant to Res.E-4899, E-4968, and E-5023, PG&E waived Electric Rule 13 for applicants affected by declared emergencies and recorded the costs of furnishing temporary service for customers affected by emergency disasters in its ECPMA. This includes approximately \$2.1- million (Table 7-6, line 1) in 2021 for the 2018 Carr Fire, 2019 Kincade Fire, 2020 Creek Fire, 2020 Zogg Fire, August 2020 Wildfires, August 2021 Caldor Fire, August 2021 Monument-McFarland Fires, August 2021 River Fire, January 2021 Mud Slides Monterey-SLO, July 2021 Dixie-Fly Fire, October 2021 Washington-KNP-Hopkins Fire, and September 2021 Fawn Fire.

b. Billing Support

To support customers impacted by a wildfire or other emergency, the Commission requires PG&E in D.19-07-015 to discontinue billing

1 and stop estimated usage for billing attributed to the time period when
2 a home/unit was unoccupied as a result of the emergency and
3 discontinue billing.

4 In 2021, PG&E recorded approximately \$0.14- million (Table 7-6,
5 line 2) to the ECPMA to provide these services in response to the
6 following declared emergencies: 2018 Carr Fire, 2019 Kincade Fire,
7 2020 Creek Fire, 2020 Zogg Fire, August 2020 Wildfires, August 2021
8 Caldor Fire, August 2021 Monument-McFarland Fires, August 2021
9 River Fire, January 2021 Mud Slides Monterey-SLO, January 2021
10 Wind Storms Mariposa Madera, July 2021 Dixie-Fly Fire, October 2021
11 Washington-KNP-Hopkins, and September 2021 Fawn Fire.

12 For each of these events, PG&E deployed resources to identify the
13 premises of impacted customers that were not capable of receiving
14 utilities services, discontinued billing these premises without assessing a
15 disconnect charge or using estimated data, and dispatched field
16 resources to verify the status of impacted premises.

17 **c. Customer Outreach**

18 In 2021, PG&E recorded approximately \$0.014- million (Table 7-6,
19 line 3) in incremental costs to the ECPMA in support of activities to
20 communicate the availability of emergency customer protections,
21 particularly to those who may have been displaced from their homes
22 during a qualifying disaster.

23 This included outreach to customers impacted by the following
24 declared emergencies: 2018 Carr Fire, 2019 Kincade Fire, 2020 Creek
25 Fire, 2020 Zogg Fire, August 2020 Wildfires, August 2021 Caldor Fire,
26 August 2021 Monument-McFarland Fires, August 2021 River Fire,
27 January 2021 Mud Slides Monterey-SLO, January 2021 Wind Storms
28 Mariposa Madera, July 2021 Dixie-Fly Fire, October 2021
29 Washington-KNP-Hopkins Fire and September 2021 Fawn Fire.

30 For each of these events, PG&E deployed resources to increase
31 awareness of balance payment plans, and other programs which
32 provide financial relief for wildfire victims.

D. COVID-19 Pandemic Protections Memorandum Account

1. Background

The purpose of the CPPMA is to record and track incremental costs associated with implementing billing-related, emergency customer protections for residential and small business customers related to the COVID-19 pandemic.

On March 4, 2020, Governor Newsom declared a statewide emergency due to the COVID-19 pandemic. On March 19, 2020, PG&E submitted a Tier 1 AL (AL 4227-G/5784-E) pursuant to OP 1 of D.19-07-015 to implement the following billing-related, emergency customer protections for residential and small business customers: (1) suspending service disconnections for non-payment and waiving security deposits; (2) implementing flexible payment plan options; and (3) providing additional support for low-income and medical baseline (MBL) customers.

On April 3, 2020, PG&E submitted a supplemental Tier 1 AL (AL 4227-G-A/5784-E-A) to suspend customer removals from the MBL program and allow new applicants to enroll without a signed authorization from their medical practitioners due to COVID-19's impact on customers' ability to see their doctors.¹²

On April 16, 2020, the Commission adopted Res.M-4842, which directed PG&E to offer applicable emergency customer protections to residential and small business customers through April 16, 2021.¹³ Res.M-4842 also directed PG&E to establish the CPPMA to record incremental costs associated with implementing the emergency customer protections and to submit a Tier 2 AL to establish the account and describe the protections it would offer to customers.¹⁴

On May 1, 2020, PG&E submitted AL 4244-G/5816-E to describe its implementation of the emergency customer protections and to establish the CPPMA. PG&E submitted two supplemental ALs to incorporate feedback

¹² PG&E also submitted a clarifying second supplemental AL (AL 4227-G-B/5784-E-B) on May 21, 2020 at the request of the Energy Division to clarify that customers do not need to self-certify that they are impacted by COVID-19 to receive customer protections.

¹³ Resolution (Res.) M-4842, p. 12, OP 5.

¹⁴ Res.M-4842, p. 12, OPs 2 and 4.

1 from the CPUC's Energy Division and the Commission approved
2 AL 4244-G/5816-E and supplements effective March 4, 2020.

3 On February 11, 2021, the Commission adopted Res.M-4849, which
4 directed PG&E to extend the provision of applicable emergency customer
5 protections through June 30, 2021.¹⁵ PG&E submitted AL 4388-G/6092-E
6 on February 22, 2021 to update its tariffs to reflect this extension of the
7 emergency customer protections.

8 On June 24, 2021, the Commission adopted D.21-06-036, which
9 directed PG&E to extend the moratorium on disconnections through
10 September 30, 2021, and to automatically enroll eligible residential and
11 small business customers in long duration payment plans.¹⁶ The
12 Commission also clarified that PG&E could record incremental costs to the
13 CPPMA to implement the orders from D.21-06-036.¹⁷

14 Ultimately, the Commission authorized PG&E to track and record the
15 following costs to the CPPMA:¹⁸

- 16 • Incremental expenses associated with implementing the emergency
17 customer protections;¹⁹
- 18 • Incremental uncollectibles expense during the COVID-19 pandemic
19 period for residential and small business customers; and
- 20 • The costs of using a short-term revolving credit facility for purposes of
21 financing residential and small business cash flow shortfalls resulting
22 from the implementation of the emergency customer protections.

23 **2. Summary of Program Activities**

24 As a result of the COVID-19 pandemic, PG&E recorded approximately
25 \$11.3 million to the CPPMA in 2021. This includes costs associated with
26 financing accounts receivables as well as incremental costs incurred to

¹⁵ Res.M-4849, p. 33, OP 1.

¹⁶ D.21-06-036, p. 50, OPs 1-2.

¹⁷ D.21-06-036, p. 51, OP 7.

¹⁸ For more information, see PG&E Electric Preliminary Statement Part ID and Gas Preliminary Statement Part FF.

¹⁹ This includes the protections that the Commission directed to implement in Res.M-4842 and those authorized in AL 4227-G/5784-E and supplements and AL 4244-G/5816-E and supplements.

implement COVID-19 emergency customer protections as required by Res.M-4842. PG&E is not seeking recovery of incremental uncollectibles because the Commission has authorized other mechanisms for PG&E to recover these costs (e.g., the Residential Uncollectibles Balancing Account adopted in AL 4334-G/6001-E, effective June 11, 2020) Table 7-7 identifies incremental costs that PG&E recorded to the CPPMA. PG&E describes these activities in further detail below.

**TABLE 7-7
SUMMARY OF 2021 RECORDED COSTS TO CPPMA BY ACTIVITY
(THOUSANDS OF DOLLARS)**

Line No.	Activity	2021 Recorded Costs
1	Accounts Receivables Financing Costs	\$6,226
2	Credit and Billing Support	1,371
3	Outreach and Communications	1,618
4	COVID-19 Pay Plan Implementation	705
5	Contact Center Support	730
6	Leverage Federal and State Funding	512
7	COVID-19 Reporting	407
8	Small Business Pilot	2
9	Total	\$11,571

a. Accounts Receivables Financing Costs

In 2021, PG&E recorded approximately \$6.2 million (Table 7-7, line 1) in incremental financing costs beyond the commercial paper rates typically applied to revenue under-collections. Due to the COVID-19 pandemic, PG&E borrowed against its short-term revolver credit facility to cover cash flow shortfalls (i.e., accounts receivables greater than 30 days past due). The costs of using this credit facility included the upfront costs to establish it, as well as monthly interest expense on amounts borrowed.

b. Credit and Billing Support

In 2021, PG&E recorded approximately \$1.4 million (Table 7-7, line 2) in incremental costs to provide credit and billing support associated with implementing the COVID-19 emergency customer protections. The primary driver of these costs was approximately

1 153,000 outbound calls that CSRs in PG&E's Credit Center made to
2 customers with past due balances to offer flexible payment
3 arrangements, provide financial assistance agency information for the
4 Low-Income Home Energy Assistance Program (LIHEAP) and Relief for
5 Energy Assistance through Community Help (REACH) Program, enroll
6 customers in California Alternate Rates Energy (CARE)/Family Electric
7 Rate Assistance (FERA) if eligible, and review their account to ensure
8 they were enrolled in the optimal rate to help manage future bills.

9 PG&E incurred approximately \$43,000 in incremental IT labor and
10 overheads to extend the moratorium date and postpone any collection
11 activities on residential and small business accounts from June 30, 2021
12 to September 30, 2021 as described in D.21-06-036 and to reimplement
13 reconnection fees for non-residential customers and reinstate the return
14 to maker fees into our billing system once COVID-19 protections
15 expired. The costs were necessary to develop and implement required
16 updates and test the billing system changes.

17 **c. Outreach and Communications**

18 In 2021, PG&E recorded approximately \$1.6 million (Table 7-7,
19 line 3) in incremental costs to conduct community awareness and public
20 outreach pursuant to Res.M-4842, OP 6 to help raise awareness of the
21 COVID-19 emergency customer protections and inform customers of
22 available assistance²⁰ and to send communications for customers
23 enrolled in the COVID-19 Debt Relief Pay Plans as ordered through
24 D.21-06-036.

25 The primary driver of outreach and communications costs was
26 approximately \$0.98 million that PG&E recorded to the CPPMA for costs
27 related to the development and design of media campaigns, collateral
28 and customer letters and postage related to the COVID-19 Debt Relief
29 Pay Plans.

²⁰ PG&E describes its customer communication plan and compliance with D.19-07-015 and D.20-03-004 in AL 4244-G/5816-E and supplements and our tactics to inform customers of the support available to them due to the COVID-19 pandemic in AL 4227-G/5784-E and supplements.

1 The secondary driver of outreach and communications costs was
2 approximately \$0.6 million that PG&E recorded to the CPPMA for costs
3 related to promoting awareness of customer protections and support
4 programs via television, radio, other digital channels, and through mailer
5 campaigns for customers with past due arrearages. PG&E sent letters
6 to both residential and small business customers to promote flexible
7 payment arrangements, assistance agency information and other
8 support services to help customers manage their monthly energy bills.

9 In addition, PG&E recorded approximately \$22 thousand to the
10 CPPMA in 2020 to develop and execute an online campaign to promote
11 LIHEAP²¹ and drive increased program participation. This includes
12 developing and placing targeted advertising that promoted LIHEAP as a
13 source of financial assistance to customers impacted by the COVID-19
14 pandemic.

15 PG&E also recorded approximately \$16 thousand to develop
16 materials to promote the Emergency Rental Assistance Program
17 (ERAP). PG&E left behind collateral in the homes of ESA treated
18 customers who were renters for them to take advantage of the program.

19 **d. COVID-19 Pay Plan Implementation**

20 In 2021, PG&E recorded approximately \$0.705 million (Table 7-7,
21 line 4) in incremental costs to provide implement the COVID-19 Debt
22 Relief Pay Plans and revise and develop reporting associated with the
23 COVID-19 emergency customer protections.

24 As part of the COVID-19 Consumer Protections, the Commission
25 ordered utilities to auto-enroll residential and small business customers
26 into a COVID-19 Debt Relief Pay Plan. To implement this order, PG&E
27 updated its billing system to automatically default residential customers
28 into a 24-month payment plan and small business customers into a pay
29 plan where the installments are no more than 10 percent of their
30 average 12-month bill or 5 no more than 5 percent for small businesses
31 in disadvantaged communities. Changes were made to add the

21 LIHEAP is a federally funded program that is overseen by the California Department of Community Services and Development and provides financial assistance to help income-qualified customers pay their electric and gas bills.

1 payment plan information to the customers' energy statements and
2 prepare letters to be sent notifying customers that they were being
3 defaulted into the COVID-19 payment plans if they missed an
4 installment or if they are removed due to missing multiple payments.
5 There was \$0.400 million incremental spend necessary to develop,
6 design, build, test, and implement these changes to our billing system.
7 There was \$0.305 million incremental spend for the postage costs
8 related to the letters to customers notifying them of their
9 auto-enrollment, any missed payments or if the account was unenrolled
10 due to multiple missed payments.

11 **e. Contact Center Support**

12 In 2020, PG&E recorded approximately \$0.730 million (Table 7-7,
13 line 5) in incremental labor costs for CSRs to handle approximately
14 79,000 incoming calls from customers who were inquiring about their
15 accounts that were auto-enrolled in pay plans. During these calls,
16 PG&E's CSR employees educated customers on their auto enrolled pay
17 plans, continued to offer available assistance programs (e.g., CARE,
18 FERA, LIHEAP, REACH), and assisted customers with the past due
19 arrearages.

20 **f. Leverage Federal and State Funding**

21 In 2021, PG&E recorded approximately \$0.512 million (Table 7-7,
22 line 6) in incremental costs to leverage federal and state funding.

23 As a result of the pandemic, the Commission established
24 Rulemaking (R.) 21-02-014 directing utilities to leverage federal and
25 state funding available to assist with utility arrearages. PG&E recorded
26 approximately \$0.512 million to leverage funding through the ERAP and
27 the California Arrearage Payment Program (CAPP).

28 There was approximately \$0.319 million to develop, design,
29 implement, manage and report out on the ERAP pilot program outlined
30 in R.21-02-014 which provided case management for customers. The
31 \$0.319 million consisted of approximately: (1) \$0.260 million in labor for
32 CSRs to perform the outreach and case management of the program,
33 (2) \$0.030 million in labor costs to develop reporting for the pilot and to

1 validate receivables and share data with cities and counties
2 administering ERAP funds; and (3) \$0.029 million in labor and
3 overheads for program management. Costs associated with program
4 collateral was addressed in Section C under communications.

5 In addition, PG&E recorded approximately \$0.193 million in labor
6 costs to administer the CAPP funding provided under AB 135. In
7 particular, PG&E updated its billing system to create a new CAPP
8 adjustment type and messaging regarding the CAPP on the customer's
9 energy statement. PG&E also modified the billing process for
10 customers enrolled in the Arrearage Management Program (AMP) to
11 recalculate monthly forgiveness amounts once CAPP funds were
12 applied. Postage and material costs associated with the CAPP letters
13 will be recorded in 2022.

14 **g. Reporting**

15 In 2021, PG&E recorded approximately \$0.407 million (Table 7-7,
16 line 7) in incremental costs to revise and develop reporting associated
17 with the COVID-19 emergency customer protections. Dedicated
18 resources were established to provide reporting for new data requests
19 associated with the pandemic; develop reporting to identify CAPP
20 eligible population; develop reporting for ERAP; and update the Monthly
21 Disconnection Order Instituting Rulemaking (OIR) report to add
22 COVID-19-specific reporting, as required under Res.M-4849 to help
23 assess the impacts from the various Commission rulings associated with
24 COVID-19 pandemic. In 2021, PG&E received approximately 40 sets of
25 data requests associated with the COVID-19 pandemic.

26 **h. Small Business Pilot**

27 In 2021, PG&E recorded approximately \$2 thousand (Table 7-7,
28 line 9) in incremental labor costs to develop a pilot proposal resulting
29 from D.21-06-036, which ordered the joint Investor-Owned Utilities to
30 submit a Tier 2 AL containing a pilot plan proposal for outreach and
31 verbal counseling to Small Business Customers in disadvantaged
32 communities on appropriate programs, incentives, and rates available to

1 help the customer lower their energy bills. Additional costs will be
2 recorded through 2024 as outlined in the decision.

3 **E. Disconnections Memorandum Account**

4 **1. Background**

5 The purpose of the DMA is to track incremental costs associated with
6 implementing the requirements of D.20-06-003.

7 On June 11, 2020, the Commission adopted D.20-06-003, which
8 includes rules and other changes designed to reduce the number of
9 residential customer disconnections and improve reconnection processes
10 for disconnected customers.²² D.20-06-003 supports SB 598's directive for
11 the Commission to, among other things, develop rules, policies, or
12 regulations with a goal of reducing the statewide disconnection rate of gas
13 and electric utility customers by January 1, 2024.²³

14 In support of these objectives, D.20-06-003 directs PG&E to implement
15 policies and programs, including:

- 16 • Launching the Arrearage Management Plan (AMP), which allows
17 CARE/FERA customers with at least \$500 in past due balances that are
18 at least 90 days old to receive forgiveness of 1/12th of their past due
19 balance with each timely payment of their current monthly charges, up
20 to \$8,000 per calendar year;²⁴
- 21 • Modifying its 48-hour disconnection notice to clarify the assistance
22 programs that are available to support customers;²⁵
- 23 • Adopting annual residential disconnection caps that limit disconnections
24 to 2017 recorded levels (4 percent annually, with a reduction to
25 3.5 percent annually starting January 2023);²⁶
- 26 • Requiring PG&E to not exceed a residential disconnection rate of
27 30 percent in any zip code;²⁷

22 D.20-06-003, p. 2.

23 D.20-06-003, p. 5.

24 See D.20-06-003, pp. 156-159, OPs 52-69 for information on the AMP.

25 D.20-06-003, p. 147, OP 10 and p. 148, OP 13.

26 D.20-06-003, p. 145, OP 1a.

27 D.20-06-03, p. 36.

- Eliminating deposits and reconnection fees for residential customers;²⁸
- Requiring PG&E to inquire whether residential customers are interested in learning about applicable benefit programs prior to disconnection;²⁹ and
- Removing an interim policy adopted in D.18-12-013³⁰ that prevented PG&E from disconnecting residential customers that were 65 years or older.³¹

2. Summary of Program Activities

In March 2020, PG&E implemented a moratorium on disconnections in response to the COVID-19 pandemic. Consistent with Res.M-4842, Res.M-4849, and D.21-06-036, PG&E did not disconnect any customers for non-payment in 2021. Throughout 2021, PG&E recorded incremental costs to the DMA to complete modifications to its systems that it began in 2020 to comply with the directives in D.20-06-003. Table 7-8 identifies activities that PG&E implemented in 2021 pursuant to D.20-06-003 that are associated with incremental costs. PG&E describes these activities in further detail below.

TABLE 7-8
SUMMARY OF 2021 RECORDED COSTS TO DMA BY ACTIVITY
(THOUSANDS OF DOLLARS)

Line No.	Activity	2021 Recorded Costs
1	AMP	\$7,024
2	Removing 65+ disconnection policy	57
3	Eliminating deposits and reconnection fees	140
4	Offering applicable benefit programs prior to disconnection	342
5	Tracking for disconnection caps	331
6	Updating 48-Hour notices	166
7	12-Month Default Pay Plans	79
8	Percentage of Income Payment Plan (PIPP)-	41
9	Total	\$8,180

²⁸ D.20-06-003, p. 147, OPs 8-9, and p. 148, OP 16.

²⁹ D.20-06-003, p. 145, OP 1c.

³⁰ D.18-12-013, pp. 21-22.

³¹ D.20-06-003, p. 14.

1 **a. Arrearage Management Plan**

2 Pursuant to D.20-06-003, OPs 52-69 and Res.E-5114, PG&E
3 launched the AMP in February 2021 to help low-income customers
4 reduce their arrears and develop plans that would enable them to timely
5 pay their bills. Following the issuance of D.20-06-003, PG&E recorded
6 approximately \$7.3 million (Table 7-8, line 1 and Table 7-9) in 2021 to
7 develop the AMP.

TABLE 7-9
SUMMARY OF 2021 RECORDED COSTS TO DMA BY ACTIVITY
(THOUSANDS OF DOLLARS)

Line No.	Activity	2021 Recorded Costs
1	Labor and overheads for AMP IT and program implementation	\$6,195
2	Postage	136
3	Consulting Services	329
4	Reporting	229
5	Contracts for AMP marketing and collateral	135
6	Total	\$7,329

8 These costs consist of charges for AMP IT project enhancements
9 involving multiple design, develop, build, test and implementation
10 phases, incremental labor to build design, develop, build and test the
11 various implementation phases. Of note, PG&E has been making
12 updates to the process and program to help increase customer success
13 and automate the process. PG&E made updates our customer
14 information systems to be able to calculate the monthly forgiveness
15 balances. The calculations included multiple service agreements
16 depending on if the customer was a gas, electric, dual commodity
17 customer and whether the customer was a bundled service customer or
18 was a community choice aggregated customer. Updates were made to
19 calculate 1/12th of the arrearages per service agreement for forgiveness
20 and to know the total cumulative forgiveness amount per month. Scripts
21 were created in our customer information system for our CSRs to enroll
22 customers into AMP through an automated script. AMP specific
23 customer contacts were established for enrollment and unenrollment.
24 The customer contact provides detailed AMP information including

1 arrearage balances, forgiveness balance information, number of months
2 remaining, etc. PG&E added bill messages to customer bills to advise
3 they were enrolled in AMP and bill messages to provide updates at the
4 3-month, 6-month, 9-month and completion success milestones. PG&E
5 also updated its interactive voice response (IVR) system to allow
6 customers to enroll via phone. In addition, PG&E recorded for postage
7 costs for the marketing materials sent to AMP eligible customers to
8 promote the AMP program and the milestone success letters outlined in
9 the decision. The majority of the charges were labor hours tied to the
10 management of the program, website updates, marketing campaigns
11 and customers support associated with AMP. Our contact center
12 received 76 thousand incoming calls from customers in 2021 related to
13 the AMP program. In 2021, PG&E's Credit department made 60,000
14 outbound calls to AMP eligible customers to get them to sign up for the
15 program. They made 145 thousand outbound calls when customers
16 missed payments. In addition, there were costs for postage tied to AMP
17 letters, computer consulting fees and contracts associated with AMP.

18 PG&E sent mandated enrollment, success, and un-enrollment
19 letters. In 2021, PG&E sent 110,000 enrollment letters; 74,000 3-month
20 success letters; 58,000 6-month success letters; 17,000 9-month
21 success letters; and 33,000 unenrollment letters to customers.

22 Contracts includes Yates Advertising for email creation and video
23 creation where they created an AMP educational video that is online for
24 customers to walk through the program and enrollment process.

25 Studio 19 for to develop new inserts for that go with the CARE and
26 FERA Recertification packages for customers who may be eligible for
27 AMP. M/A/R/C for email campaigns data preparation costs tied to the
28 e-mail and direct mail AMP marketing campaigns.³² Tealium which is a
29 vendor that tags ads and links through digital tracking to see campaign
30 success and track performance.

31 PG&E developed reporting tied to AMP this reporting includes
32 updates to the monthly OIR reporting to the commission, AMP annual

³² M/A/R/C is the vendor that supported the e-mail campaign.

1 reporting as required in D.20-06-003 and reporting to capture
2 enrollments, un-enrollments and eligible accounts. The reporting also
3 captures the dollars forgiven, dollars enrolled and dollars eligible dollars.

4 **b. Removing Interim Policy Prohibiting Disconnections for Customers**
5 **Aged 65+**

6 In compliance with D.20-06-003,³³ PG&E is removing an interim
7 rule adopted in D.18-12-013 that prohibited PG&E from disconnecting
8 any residential customers aged 65 years or older.³⁴ In 2021, PG&E
9 recorded approximately \$0.057 million (Table 7-8, line 2) in labor to
10 build, test and implement the required changes to its billing system to
11 remove this requirement.

12 **c. Eliminating Deposits and Reconnection Fees**

13 As required by D.20-06-003, OPs 8, 9, and 16, PG&E is updating its
14 billing system to no longer charge reconnection fees or deposits. In
15 2020, PG&E recorded approximately \$0.140 million (Table 7-8, line 3) in
16 labor to the DMA to develop an estimate to build, test and implement
17 updates to eliminate these processes. PG&E had to make changes to
18 the start service process, reconnection process and stop action for the
19 in-lieu of deposit process since deposits are no longer charged on
20 residential accounts. Changes were made to our billing system and our
21 integrated voice response (IVR) system and to pge.com for the start
22 service processes.

23 **d. Offering Applicable Benefit Programs Prior to Disconnection**

24 Pursuant to D.20-06-003, OP 1c, PG&E is required to offer all
25 applicable benefit programs to customers prior to disconnection. In
26 support of this requirement, PG&E is updating its billing and IVR system
27 to create new alerts, reporting, messaging, and communications to
28 customers. In 2021, PG&E recorded approximately \$0.342 million
29 (Table 7-11, line 4) in labor to design, develop, test and implement these
30 changes.

³³ D.20-06-003, p. 14.

³⁴ D.18-12-013, pp. 21-22.

1 **e. Tracking for Disconnection Caps**

2 In accordance with D.20-06-003,³⁵ PG&E is modifying its systems
3 to track, monitor, and report on its compliance with the annual
4 disconnection caps and zip code level disconnection cap. To develop
5 this system, PG&E recorded approximately \$0.331 million (Table 7-11,
6 line 5) in labor costs to design, build, implement and test the new
7 requirements. Of this amount, PG&E recorded: (1) approximately
8 \$0.198 million to update our remote connect disconnect application UI
9 that manages the remote disconnection process;³⁶ (2) \$0.112 million to
10 change the transmission of data that is sent between our billing system
11 to our remote connect disconnect system to add additional data fields to
12 adhere to the 72-hour extreme weather look-ahead and include zip code
13 level details to adhere to the zip code level disconnection rate; and
14 (3) approximately \$0.020 million to update the reporting tied to
15 disconnections and reconnections associated with the Monthly
16 Disconnection OIR report.

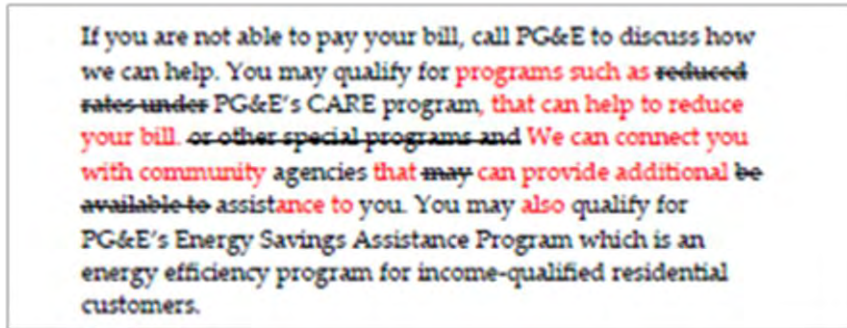
17 **f. Updating 48-Hour Notices**

18 Pursuant to D.20-06-003, OPs 10 and 13, PG&E modified its
19 48-hour disconnection notices to provide additional information to
20 customers about available assistance programs. Figure 7-1 identifies
21 the changes to PG&E's 48-hour notices (deletions in strikethrough,
22 additions in red):

³⁵ D.20-06-003, p. 145, OP 1a and p. 36.

³⁶ These changes were made to manage the daily disconnection volumes by zip code.

**FIGURE 7-1
MODIFICATIONS TO PG&E'S 48-HOUR NOTICES**



1 In 2021, PG&E incurred \$0.166 million (Table 7-11, line 6) in
2 connection with the initial building, implementation and testing required
3 to implement the modified 48-hour notices and allow customers to
4 receive electronic 48Hour notices. The approximately \$166 thousand
5 consisted of: (1) approximately \$0.083 million in incremental labor costs
6 to develop, build, implement and test the changes to the 48-Hour
7 notices which included changes to our billing system and on pge.com.
8 PG&E recorded approximately \$0.083 million for engineering and
9 consulting services with an external vendor to be able to provide the
10 notices electronically.

11 **g. 12-Month Default Pay Plans**

12 In accordance with D.20-06-003,³⁷ PG&E is modifying its systems
13 to automatically offer 12 month pay plans to residential customers prior
14 to disconnection. To make these changes, PG&E recorded
15 approximately \$0.079 million (Table 7-11, line 7) in labor costs to build
16 implement and test the changes to their billing system to allow
17 customers to be able to default customers in pay plans for up to
18 12-months. Customers have the ability to make pay plans in the IVR
19 system, on pge.com and through CSRs. Testing was conducted
20 amongst all systems to ensure channel parity.

21 **h. Percentage of Income Payment Plan**

22 In 2021, PG&E recorded approximately \$0.041 million, (Table 7-8,
23 line 8) in incremental labor costs to develop a pilot proposal resulting

³⁷ D.20-06-003, pp. 145-146, OP 1d.

1 from D.20-06-003 which ordered the joint IOUs to submit a pilot plan
2 proposal for the PIPP to determine if levelized monthly bills that are
3 capped based on a percentage of income can reduce the number of low
4 income households that are at risk for disconnection. Additional costs
5 will continue to be recorded annually through 2026 in alignment with the
6 decision.

7 **F. Conclusion**

8 This chapter describes incremental costs that PG&E recorded to implement
9 required activities in the CCPAMA, ECPMA, CPPMA, and DMA. As discussed
10 in this chapter, the costs that PG&E incurred to comply were reasonable and
11 should be approved in their entirety.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 8

MICROGRIDS

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 8
MICROGRIDS

TABLE OF CONTENTS

A. Introduction.....	8-1
B. Summary of Request.....	8-1
C. Nature and Reason for Activity	8-2
1. 2021 PSPS Season	8-3
2. PSPS Scoping and Modeling Revisions.....	8-4
D. PG&E’s Make-Ready Program	8-5
E. Use of Temporary Generation During 2021 PSPS Events	8-6
1. Substation Microgrids.....	8-7
2. Distribution Microgrids.....	8-8
3. Community Resource Centers	8-10
4. Critical Customer BUPS.....	8-12
F. Community Microgrid Enablement Program.....	8-15
1. Program Overview	8-16
2. Program Recorded Costs.....	8-17
a. Program Development and Management.....	8-17
b. Community Microgrid Enablement Tariff and Microgrid Operating Agreement.....	8-18
c. Project Engagement	8-18
G. Program Management Expenses	8-19
1. Electric Operations Temporary Generation Program Management Office.....	8-19
2. Energy Policy and Procurement DGEMS PMO	8-19
H. Conclusion.....	8-19

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 8
MICROGRIDS

A. Introduction

This chapter demonstrates the reasonableness of approximately \$87.2 million in expense and \$2.9 million in capital costs recorded in the Microgrids Memorandum Account (MGMA) for various microgrid-related programs in 2021. As further discussed below, Decision (D.) 20-06-017 authorized PG&E to record the costs for microgrid-related programs in the MGMA for subsequent reasonableness review and cost recovery. Specifically, this chapter demonstrates the reasonableness of costs incurred in 2021¹ for Pacific Gas and Electric Company's (PG&E) Make-Ready Program, Temporary Generation Program, Community Microgrid Enablement Program (CMEP), and associated program management expenses.

B. Summary of Request

A summary of the 2021 costs for microgrid-related programs recorded in MGMA is presented in Table 8-1 below. This section provides a high-level description of the costs, while further details on the work can be found in the sections that follow.

- Make-Ready Program – Work performed and equipment installed to safely connect temporary generation to substations. Section D discusses recorded costs for the Make Ready Program.
- Temporary Generation Program – Generator rental costs and other rental related costs (e.g., environmental fees, sales tax, ancillary equipment rentals) along with costs incurred during Public Safety Power Shutoff

¹ PG&E is seeking cost recovery of microgrid-related costs incurred during the calendar year for 2020 and 2021 Public Safety Power Shut Off (PSPS) events that occurred during the later PSPS season of 2020, did not have financial data available for the Wildfire Mitigation and Catastrophic Events filing of 2021. Any financial data for the 2021 PSPS filing that was not included in the 2021 filing is included in this filing for cost recovery. There are ongoing programs and costs that continue to be recorded after December 31, 2021. PG&E plans to present these ongoing costs incurred in a future cost recovery application.

- 1 (PSPS) events (e.g., fuel, labor, freight). Section E discusses recorded
2 costs for the Temporary Generation Program.
- 3 • CMEP – Cost related to program design and development activities.
4 Section F discusses recorded costs for the CMEP.
 - 5 • Program Management – Costs to implement the Temporary Generation
6 Program, including coordination of regulatory, project development, finance,
7 site selection, construction, and permitting. Section G discusses recorded
8 costs for Program Management.

TABLE 8-1
SUMMARY OF 2021 MICROGRID PROGRAM COSTS
(THOUSANDS OF DOLLARS)

Line No.	Description	Capital	Expense	Total
1	Make-Ready Program	\$2,853	\$7	\$2,860
2	Temporary Generation Program	–	85,817	85,817
3	CMEP	–	860	860
4	Program Management	–	529	529
5	Total	\$2,853	\$87,213	\$90,066

9 This chapter describes the evolution of these microgrid programs, the costs
10 incurred for them in 2021, and why those costs are reasonable and should be
11 recovered. The Temporary Generation Program, along with the Make-Ready
12 Program to prepare substations to use locally-sited generation and the CMEP,
13 were key components of PG&E's strategy in 2021 to reduce the impact of PSPS
14 events on customers.

15 **C. Nature and Reason for Activity**

16 In 2021, PG&E focused on further developing various microgrid solutions to
17 build grid resilience and allow PG&E to maintain electric service for customers in
18 communities that have a high likelihood of experiencing a PSPS outage. These
19 microgrid solutions included: (1) the Make-Ready Program; (2) Temporary
20 Generation Program; and (3) CMEP.

21 In 2021, PG&E reserved approximately 283 megawatts (MW) of temporary
22 mobile generation to mitigate the impacts of PSPS outages. The mobile
23 generators were used in four PSPS mitigation workstreams within PG&E's 2021
24 Temporary Generation Program, which was approved as an incremental

1 program with costs to be recorded into a new MGMA in D.20-06-017, the
2 Commission's Track 1 Decision for Rulemaking (R.) 19-09-009 (Microgrids and
3 Resiliency Strategies).² The four workstreams in the 2021 Temporary
4 Generation Program are described in more detail below.

5 Additionally, within the same Track 1 Decision, the Commission approved
6 PG&E's Make-Ready Program,³ to prepare substations to receive generation
7 and to create microgrids during broader grid outages, and PG&E's CMEP, to
8 support community-proposed microgrids for resiliency, with the costs for these
9 programs to be recorded in the MGMA for review prior to cost-recovery being
10 authorized.⁴ These programs are also described in more detail below.

11 In D.21-01-018 (Track 2 Decision), the Commission directed PG&E to
12 recover the costs for the 2020 Temporary Generation and Make-Ready
13 Programs through an application filed by September 30, 2021.⁵ PG&E filed
14 Application (A.) 21-09-008 for recovery of 2020 costs, in compliance with the
15 Track 2 Decision. A.21-09-008 remains pending, and there is no specified
16 timing requirement for future cost-recovery applications. Consistent with the
17 direction in the Track 2 Decision for PG&E to submit an application for recovery
18 of costs recorded to the MGMA, this application and supporting testimony is an
19 appropriate mechanism for seeking recovery of 2021 microgrid costs.

20 **1. 2021 PSPS Season**

21 Following the 2020 PSPS season, PG&E adjusted its 2021 temporary
22 generation program for PSPS mitigation to reflect evolving circumstances
23 and information obtained from technical and feasibility studies, as well as
24 input from stakeholders, including customers, communities, and parties to
25 the Microgrids Rulemaking proceeding. PG&E subsequently revised the
26 Distributed Generation-Enabled Microgrid Services (DGEMS) Program
27 based on:

2 D.20-06-017, p. 129, Ordering Paragraphs (OP) 13 and 14 (approving the Temporary
Generation Program and authorizing the creation of the MGMA to record its costs).

3 *Id.*, pp. 128-129, OP 12.

4 *Id.*, pp. 130-131, OP 16.

5 D.21-01-018, p. 121, OP 18 ("Pacific Gas and Electric Company shall file an
application, by September 30, 2021, if it intends to request cost recovery for its 2020
Temporary Generation Program and/or Make-Ready Program expenditures, as
authorized in D.20-06-017.").

- Additional feasibility analysis regarding the ability to construct and operate new permanent generation;
- New information concerning indirect impacts at certain substations on the DGEMS Program priority list; and
- Additional technical analysis of wires-based and other generation alternatives at prioritized substations.

Through this process, PG&E was able to decrease the amount of temporary generation reserved to support customers during the 2021 PSPS season. Additionally, some of the substations made-ready from the 2020 PSPS season also reserved generation for the 2021 PSPS season, which decreased the cost of the Make-Ready Program. PG&E ultimately reserved approximately 283 MW of temporary generation to support four workstreams:

a) Substation Microgrids: 170 MW

b) Distribution Microgrids (Formerly Labeled Temporary Microgrids or Resiliency Zones): 60MW

- Purpose – Keep safe-to-energize “main street” commercial corridors with shared community services energized.

c) Community Resource Centers (CRC): 12MW

- Purpose – Provide a safe location where community members can access electricity, basic resources and up-to-date information.

d) Critical Customer Back-Up Power Support (BUPS): 41MW

- Purpose – Support emergent needs to protect public safety, stand up emergency operations, avert environmental hazards.

2. PSPS Scoping and Modeling Revisions

Following the development and procurement of the 2021 Temporary Generation and Make-Ready Programs, improvements in PG&E’s PSPS risk modeling capabilities led to a decrease in transmission line de-energization during actual PSPS events, relative to what would have occurred under prior modeling and operational protocols. The smaller size of the PSPS events reduced the amount of temporary generation needed at substations. Given that the largest cost of the temporary generation program is the reservation cost, the reduced amount of reserved temporary

1 generation greatly reduced the total cost of the temporary generation
2 program.

3 In particular, PG&E Meteorology improved the granularity of both its
4 Utility Fire Potential Index and Outage Producing Wind PSPS weather
5 modeling tools. These enhancements allowed the models to predict severe
6 fire weather risks in more focused (smaller) areas and to identify those
7 areas that exceeded distribution risk guidance with increased geographic
8 precision. Because the weather predictions were more precise and applied
9 to smaller areas, the scope of a potential PSPS event was reduced
10 compared to what would have occurred had a similar weather event
11 occurred in the same general area in 2020. This led to a decrease in the
12 mobilization cost of the temporary generation program.

13 In addition, transmission line scoping for 2021 PSPS events used
14 transmission-specific thresholds for determining asset health and outage
15 likelihood based upon the transmission Operability Assessment model. The
16 transmission asset analysis was more granular than 2020, with assets
17 analyzed at the structure level. The combined result of these more granular
18 and improved modeling tools was a reduction in the scope of 2021 PSPS
19 events compared to the year 2020. The reduced scope decreased the
20 operational costs for reserved temporary generation.

21 PG&E views its Temporary Generation Program for PSPS Mitigation as
22 similar to an insurance policy: That is, while it is prudent and reasonable to
23 have insurance to reduce the impact of reasonably foreseeable major
24 events, the preferred outcome is that the insurance is never utilized because
25 those low-frequency high-impact major events or risks do not materialize. In
26 the same way, PG&E views the reservation of temporary generation and the
27 preparation of substations and other locations for the use of that temporary
28 generation during PSPS events as reasonable and necessary, even if that
29 temporary generation does not end up being used at certain locations.

30 **D. PG&E's Make-Ready Program**

31 PG&E's Make-Ready Program was utilized to make infrastructure upgrades
32 at various substations necessary to prepare the substations for energization
33 from temporary generation facilities during a PSPS event. These upgrades
34 largely included developing pre-installed interconnection hubs (PIH) for

1 interconnecting generation in order to ensure that the microgrid could be
2 connected to temporary generation at or near the substation and safe to
3 energize during a PSPS event, if needed. PG&E successfully prepared
4 12 substations to receive temporary generation in 2021. The costs PG&E
5 incurred in connection with the DGEMS and Make-Ready programs were
6 reasonable and prudent given the operational flexibility and optionality those
7 programs preserved. PG&E recorded approximately \$2.9 million in capital and
8 \$0.007 million in expense in the MGMA in 2021 for Make-Ready Program costs
9 incurred for the DGEMS Program, as shown in the table below.

TABLE 8-2
2021 MAKE READY PROGRAM COSTS
(THOUSANDS OF DOLLARS)

Line No.	Description	Capital	Expense	Total
1	Make-Ready Program	\$2,853	\$7	\$2,860

10 PG&E acted expeditiously to update its plans as it received new information
11 from feasibility studies and input from stakeholders. The various updates
12 resulted in a decrease in the capital investments necessary for the Make-Ready
13 Program. Additionally, several substations in the Make-Ready Program were
14 carried over from 2020, with the necessary upgrades for 2021 generation
15 staging already completed in 2020. PG&E continues to evaluate the long-term
16 role of permanent generation in mitigating the impacts of future PSPS events.
17 Much of the information gathered, analyzed, and evaluated by PG&E continues
18 to provide meaningful insight. Accordingly, Make-Ready Program costs incurred
19 for the DGEMS Program of \$2.9 million in capital and \$0.007 million in expense
20 recorded in MGMA are reasonable.

21 **E. Use of Temporary Generation During 2021 PSPS Events**

22 As previously mentioned, and discussed in further detail below, PG&E
23 utilized temporary generation in four main workstreams during 2021:
24 (1) substation microgrids; (2) distribution microgrids; (3) CRCs; and (4) back-up
25 support for individual critical customers. These costs include reservation,
26 mobilization and demobilization, and operations when necessary.

TABLE 8-3
2021 RECORDED EXPENSES
TEMPORARY GENERATION EXPENSES BY WORKSTREAM
(THOUSANDS OF DOLLARS)

Line No.	Description	Total Expense
1	Substation Microgrids	\$72,682
2	Distribution Microgrids	341
3	CRCs	2,735
4	Critical Customer Backup Power Support	10,059
5	Total	\$85,817

1. Substation Microgrids

Since designing its 2020 temporary generation program, PG&E has improved its weather and transmission operability modeling, grid operations, and system resiliency. For the 2021 PSPS season, 12 substations were prepared for temporary generation into two preparation types: (1) ready-to-energize; (2) energization plan only.

Nine substations were prepared as ready-to-energize with temporary generation pre-interconnected and tested, for a total of 120 MW. The remaining three substations were under an energization-only plan for 26 MWs of reserved temporary generation facilities, intended to be stored at or near substations that were expected to be the next-most-frequently impacted by a PSPS event. The storage of the facilities also provided PG&E flexibility to re-deploy the units to other substations, depending upon particular outage event requirements. These substations are summarized in Table 8-4.

TABLE 8-4
2021 TEMPORARY SUBSTATION PREPARED MICROGRIDS

Line No.	Substation	Energization Plan Only or Operationalized	MW Reserved
1	Big Basin	Energization	10
2	Brunswick	Operationalized	22
3	Clear Lake	Operationalized	16
4	Cloverdale	Operationalized	17
5	Dobbins	Energization	4
6	Hartley	Operationalized	18
7	Hoopa	Operationalized	6
8	Konocti	Operationalized	18
9	Low Gap	Operationalized	2
10	Point Moretti	Operationalized	4
11	Weimar	Energization	12
12	Willow Creek	Operationalized	10
13	Plainfield	N/A	29

PG&E identified the listed 12 stations, based upon an analysis of 10-year historical data to determine the substations most likely to be impacted by potential PSPS events using 10+ events and 100+ customers criteria—the CPUC’s general criteria in determining what substations will get temporary generation. PG&E did not need to activate temporary generation at these substations to mitigate the effects of PSPS events during 2021. The reservation of temporary generation at these substations was nevertheless prudent and reasonable, and a risk mitigation measure to minimize the impact of a PSPS event, had the temporary generation been needed. As such, this program was successful in deploying substation temporary generation in the event it was needed to mitigate customer impacts caused by a PSPS event.

2. Distribution Microgrids

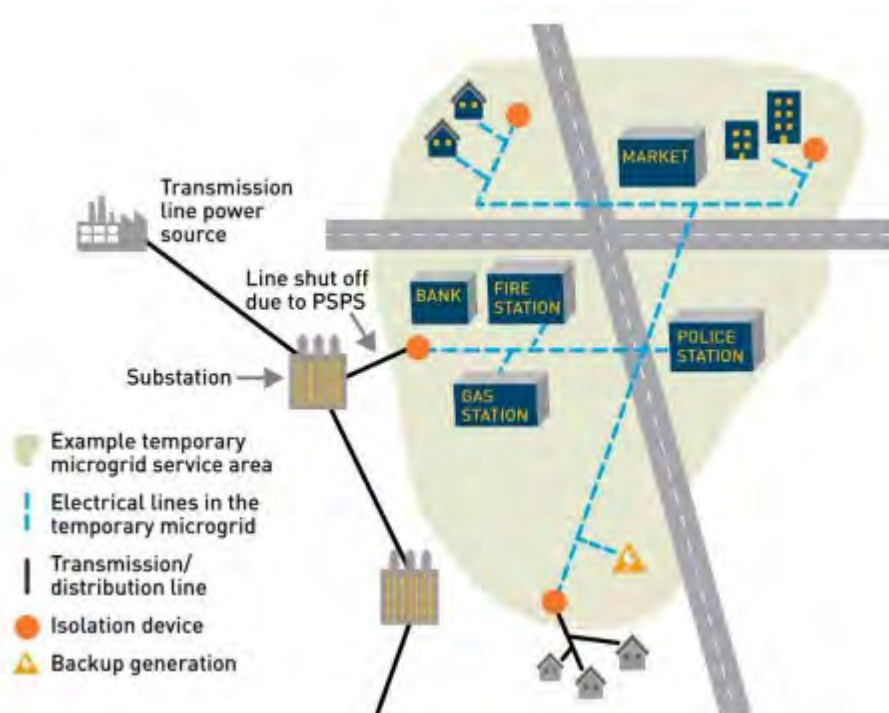
Temporary distribution microgrids support communities by energizing “main street corridors” with clusters of shared services and critical facilities when the distribution line serving these areas are de-energized as a result of a PSPS event. Although each temporary distribution microgrid varies in scale and scope, they generally share the following design features:

- Devices used to disconnect the distribution microgrid from the larger electrical grid;
- A pre-determined space for generation and ancillary equipment to allow for rapid and safe connections (e.g., PIH); and

- Use of temporary mobile generators allowing PG&E to shorten the design and construction time typically required to ready a permanent microgrid for operation.

Figure 8-1 below illustrates an approximate layout of a temporary distribution microgrid. With safety being the most critical design factor, each temporary microgrid is unique and is designed based on different variables that dictate the size of the microgrid, what community services are served and what elements are included in the design. The layout and dimensions below are approximate and for illustrative purposes only.

**FIGURE 8-1
TEMPORARY MICROGRID ILLUSTRATION**



PG&E determined the locations for temporary distribution microgrids by: (1) identifying distribution circuits most likely to be impacted by potential PSPS events based on a 10-year lookback; (2) reviewing those circuits to identify communities with clusters of shared services (i.e., those involving food, fuel, healthcare and shelter); and (3) assessing which circuits with clusters of shared services are served by electrical infrastructure that would likely be safe to energize during a PSPS event. PG&E determined whether proposed temporary distribution microgrids presented viable, effective

near-term mitigation measures for a particular location, by reviewing them for implementation feasibility (i.e., land availability and construction complexity) and the potential to be served by alternative grid solutions in the near-term.

In 2021, four fully constructed temporary distribution microgrids with PIHs operated during one PSPS event, supporting critical and shared services such as: fire stations, medical facilities, grocery stores, and cellular towers as indicated in Table 8-5 below.

**TABLE 8-5
2021 DISTRIBUTION MICROGRIDS**

Line No.	Site	County	Year PIH Constructed	Approx. Qty of Service Points	Qty of 2021 PSPS Events Supported
1	Shingletown PIH	Shasta	2020	83	1
2	Magalia	Butte	2021	34	1
3	Calistoga PIH	Napa	2020	1556	1
4	Angwin PIH	Napa	2019 Pilot	48	1

The incremental costs presented in this application for recovery related to distribution microgrids are for the generation aspects of the microgrids only. The infrastructure costs to develop the PIHs for interconnecting the generation to distribution microgrids and to ensure that the microgrid would be safe to energize were authorized as part of PG&E's 2020 General Rate Case (GRC).⁶

3. Community Resource Centers

Per R.18-12-005, PG&E opened CRCs to support impacted customers and communities during PSPS events. CRCs provide a safe location where customers can meet basic power needs, such as charging medical devices or other electronics. CRC visitors can also obtain up-to-date information about the PSPS event, along with other basic resources like: WiFi, cellular signal, water, and snacks.

⁶ Note that distribution microgrids were referred to as Resilience Zones in the 2020 GRC Application. See A.18-12-009, PG&E's 2020 GRC, Hearing Exhibit (HE)-16: Exhibit (PG&E-4), p. 9-3.

1 In early 2021, PG&E secured 104 temporary generation units—ranging
2 in size from 50 kilowatts (kW) to 300 kW—for temporary generation to
3 pre-stage at indoor CRC locations. The intent was to ensure these locations
4 could be opened as soon as they were needed, rather than having to wait
5 for a generator to be moved during an event to the location and then set up.
6 Though 2021 PSPS events were generally smaller than 2020's events,
7 PG&E opened 34 total CRCs during one 2021 event. Without pre-staged
8 generators, the CRC openings would likely have been delayed due to
9 constraints in the availability of electrical contractors to deploy and connect
10 generators at CRC sites, which can be many hours away from each other,
11 and many hours away from where generators are stored.

12 PG&E opened 41 indoor CRCs in 16 counties during five 2021 PSPS
13 events. Of these, 32 had PG&E-acquired pre-staged temporary generators
14 on site, ready to power the building if needed. The remaining nine sites
15 either possessed their own generators or have modified agreements in
16 which they host CRCs only when energized. Note that some sites were
17 opened multiple times to support different PSPS events; each opening is
18 counted separately.

19 This count includes CRCs that were activated for the January 2021
20 PSPS event. Those CRCs utilized temporary generators that had been
21 deployed for the 2020 PSPS season but were still in the field.

22 CRC sites were open from 8 a.m. to 10 p.m., while customers in the
23 area remained impacted by the PSPS event. Sites were open from 2 to
24 63 total hours.

25 Table 8-6 summarizes the CRC locations at which temporary generation
26 was deployed in 2021. The largest associated cost for the CRC Program is
27 the reservation cost, followed by mobilization. Operation of the temporary
28 generation accounts for the smallest cost of the CRC Program. Some CRC
29 locations with pre-staged temporary generation were not activated due to
30 the relatively short and small PSPS season in 2021.

**TABLE 8-6
2021 CRC LOCATIONS – TEMPORARY GENERATION**

Line No	Location	MW	Jan 19	Aug 17	Sept 20	Oct 11	Oct 14
1	Anderson Frontier Senior Center	.15		X		X	
2	Auberry Library	.15	X				
3	Bear Mountain Branch Library	.15	X				
4	Cloverdale Citrus Fairgrounds	.125		X			
5	Crosswalk Community Church	.05		X			
6	El Tejon Unified School	.08			X		
7	Happy Valley Community Center	.05		X	X		
8	Harwood Hall	.05		X			
9	Lakehead Lions Hall	.05		X			
10	Lower Alleghany Volunteer Fire Department	.04		X			
11	New Life Christian Fellowship Church	.15	X				
12	North Fork Elementary School	.125	X				
13	Paradise Parks and Recreation Center	.35		X		X	X
14	Presbyterian Church of the Roses	.1		X			
15	Quincy Elks Lodge	.04		X		X	
16	Salinas Valley Fairgrounds	.15				X	
17	Solano Community College – Vacaville	.15		X		X	X
18	Southside Oroville Community Center	.2		X			X
19	Stonyford Community Center	.04		X	X	X	X
20	Yosemite High School	.2	X				

4. Critical Customer BUPS

As a general policy, PG&E does not offer backup generation to individual facilities. However, PG&E's policy allows for granting exceptions for critical facilities when a prolonged outage could have a significant adverse impact to public health or safety. PG&E supported single-site customers to provide back-up power to critical customers. These sites provided critical services in their communities such as COVID-19 pandemic response (pre-identified most likely to be impacted hospitals in coordination with the California Hospital Association and Hospital Council of

Northern and Central California), water agencies, and firefighting command support.

As shown in Table 8-7 below, PG&E energized 13 sites at least once during four PSPS events during 2021 as part of the Critical Customer BUPS Program. The length of time that each site was energized by backup generation ranged between 4 and 60 hours.

**TABLE 8-7
CRITICAL CUSTOMER BUPS**

Line No	Event Start Date	Circuit	County	Site Name	Deployed Generation (kw)	Duration of Operations (hrs.)	Reason Deployed
1	08/17/21	Volta 1102	Tehema	Water District	200	56	High Risk to Environment
2	09/20/21	Tejon 1102	Kern	Water District	36	28	High Risk to Environment
3	09/20/21	Cortina 1101	Colusa	Tribal Health	20	44	Risk to Public Safety
4	10/11/21	Middletown 1102	Lake	Water District	400	60	High Risk to Environment
5	10/11/21	Middletown 1102	Lake	Water District	200	58	High Risk to Environment
6	10/11/21	Highlands 1103	Lake	Water District	200	60	High Risk to Environment
7	10/11/21	Middletown 1102	Lake	Elementary School	125	59	Risk to Public Safety
8	10/11/21	Tejon 1102	Kern	Water District	200	45	High Risk to Environment
9	10/11/21	Tejon 1102	Kern	Water District	50	44	High Risk to Environment
10	10/14/21	Coming 1102	Tehema	Communications	150	4	Risk to Public Safety
11	10/14/21	Elk Creek 1101	Glenn	Community Center	56	22	Risk to Public Safety
12	10/14/21	Tejon 1102	Kern	Water District	200	25	High Risk to Environment
13	10/14/21	Tejon 1102	Kern	Water District	50	44	High Risk to Environment

1 PG&E's provision of backup power to individual customers in
2 extraordinary circumstances is subject to a policy on cost reimbursement.
3 That policy was described in Advice Letter (AL) 5883-E, establishing the
4 MGMA, as follows:

5 Pursuant to PG&E's Backup Power Supply Policy, PG&E may agree to
6 provide mobile power generators through arrangements with external
7 contractors for deployment at customer sites, as designated by PG&E,
8 to provide short-term power supply during PSPS events. In such cases,
9 PG&E will endeavor to provide back-up power support where it is
10 operationally feasible and safe to do so in accordance with PG&E's
11 policies and operating standards and solely in PG&E's discretion.
12 Mobile generator deployments are subject to availability of resources
13 and are prioritized based on public safety and criticality.

14 Where PG&E agrees to deploy mobile generators behind a customer's
15 meter pursuant to this policy, PG&E will seek cost reimbursement from
16 the customer in some cases. Because energization of certain facilities
17 are in the public interest to mitigate the potential for broad impacts to
18 public safety or societal continuity that may otherwise arise as a result of
19 a PSPS, PG&E will not seek reimbursement from the following
20 categories of customers: ICU Hospitals identified by the California
21 Hospital Association and Hospital Council of Northern and Central
22 California (HC); Pandemic Response (PR-1) sites classified as medical
23 stations and shelters; and vote tabulations centers (during
24 October-December months only).

25 For any other deployments of mobile generation behind a customer's
26 meter, PG&E will seek reimbursement of costs associated with that
27 deployment from the customer if the customer is legally obligated to
28 have its own back-up power supply to maintain energization of all or a
29 portion of its facility for any period of time during grid outages. Where
30 PG&E seeks reimbursement, it will require that the customer reimburse
31 PG&E for all charges invoiced by PG&E's external contractor and
32 incurred by PG&E associated with the deployment of the back-up
33 generation to that customer's premises, excluding any fixed reservation
34 cost that PG&E incurs that is not specific to the deployment to that
35 customer.

36 Any deployment of mobile generators for connection to PG&E-owned
37 infrastructure, in front of customer meters, will provide electric service to
38 one or more customers under existing tariff terms and conditions, and
39 PG&E will not seek to recover costs from individual customers for the
40 backup power support in excess of the normal tariffed rates for those
41 customers.

1 To the extent that PG&E is reimbursed costs pursuant to this policy, it
2 will record those reimbursements as offsetting revenues in the
3 Temporary Generation subaccount of the MGMA.⁷

4 During 2021, none of the 13 deployments of backup power support to
5 individual critical customers required reimbursement from the customer
6 under this policy.⁸

7 **F. Community Microgrid Enablement Program**

8 PG&E proposed the CMEP as one component of its Track 1 Proposal⁹
9 submitted in January 2020 in the Microgrid and Resilience Strategies
10 Rulemaking. CMEP is part of PG&E's plan to mitigate the impact of PSPS
11 events and to support energy resilience for our customers and communities.
12 The program complements other parts of PG&E's resilience plans by providing
13 support for community-driven microgrids. The program helps communities
14 design permanent, multi-customer microgrids by providing incremental technical
15 and financial support on a prioritized basis to qualifying projects in areas with the
16 greatest resilience needs. This includes dedicated funding to help meet the
17 resilience needs of disadvantaged and vulnerable communities. The program
18 also provides the tariffs and agreements necessary to define the operating
19 relationships among the parties.

20 The program helps communities overcome the technical, financial, legal,
21 and regulatory challenges inherent in deploying novel microgrid technology
22 deployments. While CMEP provides tools and information for all forms of
23 resilience solutions, the focus of the program is to facilitate the development of
24 complex, front-of-the-meter, multi-customer microgrids.

25 The CPUC approved the CMEP framework in Track 1 of the Microgrid Order
26 Instituting Rulemaking in D.20-06-017,¹⁰ and approved PG&E's implementation
27 plans for the program on March 18, 2021, in Resolution (Res.) E-5127, with

7 AL 5883-E, July 17, 2020, pp. 3-4. The AL was approved via a non-standard disposition letter issued on December 21, 2020.

8 This is consistent with Electric Preliminary Statement Part IG, establishing the MGMA, as approved in AL 5883-E.

9 The Track 1 Proposal is further described in Section B of this chapter.

10 D.20-06-017, pp. 130-131, OP 16.

costs to be recorded to the MGMA, and subject to review and authorization by the Commission for cost-recovery

In 2021, PG&E incurred \$0.860 million to develop and implement the CMEP as shown in Table 8-8 and described further below.

**TABLE 8-8
COMMUNITY MICROGRID ENABLEMENT PROGRAM
(THOUSANDS OF DOLLARS)**

Line No.	Description	Expense Total
1	CMEP	\$860

1. Program Overview

The CMEP consists of four elements:

- a) Web-Based Tools and Information – PG&E provides comprehensive self-service information on customer-sited and community microgrid implementations, including a Resilience Planning Guide, a Community Microgrid Technical Best Practices Guide, resources for interconnection planning, grid maps and tools, and financial resources.
- b) Enhanced Utility Technical Support – PG&E has staff dedicated to providing technical support for eligible CMEP projects. The support is structured in three stages (vetting, solution assessment, and solution execution), each with distinct objectives, and serves to facilitate the development of a project from initial concept exploration, through solution assessment, and finally, for certain types of resilience solutions, through project completion.
- c) Pro Forma Tariff and Agreements – Multi-customer community microgrids are complex, and involve novel technical, financial, and operational considerations amongst multiple parties. In order to surmount these challenges and facilitate their development, PG&E has developed a pro forma Community Microgrid Enablement Tariff (CMET), which defines the eligibility and development of community microgrids, as well as their relationship to existing tariffs. PG&E has also developed a Microgrid Operating Agreement (MOA), which defines the roles and

responsibilities in the development and operation of a community microgrid.

- d) Cost Offsets – CMEP will offset the cost of certain PG&E equipment necessary to enable the safe islanding of an eligible community microgrid, up to a cap of \$3 million per project. This may include equipment such as isolation devices, PG&E's microgrid controller, and equipment to ensure that the microgrid is safe to operate. The cost offsets do not cover the cost of distributed generation or energy storage.

2. Program Recorded Costs

PG&E recorded costs of \$0.860 million in 2021 for CMEP development and management, the finalization of the CMET and CMET MOA, and for engagement with and technical support for communities considering resilience solutions. This work can be broken down into three main categories.

a. Program Development and Management

PG&E launched the CMEP on April 13, 2021, with a news release and website launch. In preparation for program launch, PG&E developed external facing tools and resources, as described in the Program Overview section, to support community resilience planning. These resources were made available both through both the CMEP website and also the Community Resilience website www.pge.com/resilience. PG&E developed internal processes, policies, and document repositories to support all aspects of the program, including development and ongoing refinement of CMEP's 3-stage, 11-step process workflow to handle inquiries from initial concept exploration through solution assessment and solution execution. This category of work also included internal planning and resource coordination in support of the program.

PG&E also prepared and executed program outreach through coordination with our: Local Public Affairs, Tribal Relations, Division Leadership, Local Customer Relationship, and Community Choice Aggregator (CCA) relations teams. PG&E developed program materials and discussed the program with communities through multiple Regional

1 Working Groups, and through the various channels described above,
2 with a particular emphasis on outreach to disadvantaged and vulnerable
3 communities.

4 **b. Community Microgrid Enablement Tariff and Microgrid Operating**
5 **Agreement**

6 PG&E developed the CMET, a novel and highly-innovative tariff
7 structure necessary to enable multi-customer microgrids, including:
8 applicability, eligibility criteria, financial responsibilities, relation to
9 existing tariffs, community microgrid development and operation, roles
10 and responsibilities, and required studies including the Microgrid
11 Islanding Study. PG&E also developed the CMEP MOA, which defines
12 the roles and responsibilities in the development and operation of a
13 community microgrid.

14 PG&E filed AL 6168-E on April 19, 2021, to comply with CPUC
15 Res.E-5127 OPs 2 and 3, providing the CMET in final tariff form, and the
16 pro forma MOA. The Commission approved the AL on July 12, 2021.
17 On August 5, 2021, PG&E filed AL 6283-E, to modify the CMET by
18 distinguishing eligibility from the CMEP and removing certain eligibility
19 restrictions. The Commission approved this AL in a disposition letter on
20 October 5, 2021.

21 **c. Project Engagement**

22 PG&E engaged with local community and tribal leaders, CCAs, and
23 vendors in the exploration and development of specific resilience
24 projects. This included managing inquiries from project intake, through
25 resilience solution evaluation, and for those projects seeking a
26 multi-customer front-of-the-meter microgrid, through a series of detailed
27 community microgrid technical consultations with a Grid Innovation
28 Engineer and Distribution Planning Engineer as appropriate. This
29 category of work included technical support, analysis, engineering, and
30 related work in support of community resilience solution assessment
31 and execution.

G. Program Management Expenses

Table 8-9 summarizes the program management support expenses for the Temporary Generation Program Management Office (PMO) and DGEMS PMO.

TABLE 8-9
2021 RECORDED PROGRAM MANAGEMENT EXPENSES
(THOUSANDS OF DOLLARS)

Line No.	Description	Total Expense
1	Electric Operations Temp Gen PMO ^(a)	\$(129)
2	Energy Policy and Procurement DGEMS PMO	658
3	Total	\$529

(a) Total Temporary Generation PMO costs were offset by an accrual reversal that occurred later than expected due to the Bankruptcy process.

1. Electric Operations Temporary Generation Program Management Office

The Temporary Generation PMO coordinates and directs the operational readiness of the temporary generation workstreams. The team also coordinates cross-workstream needs, including prioritization policy guidance, communications, staffing and training the Emergency Operation Center Temporary Generation Branch, and change management.

2. Energy Policy and Procurement DGEMS PMO

The DGEMS PMO coordinated all permanent and temporary generation workstreams for substation microgrids, including regulatory, project development, finance, site selection, construction, and permitting. The team also coordinated procurement activities for permanent and temporary generation across all four temporary generation workstreams (substations, distribution microgrids, BUPS, and CRCs).

H. Conclusion

Based on continuous improvements in PG&E's planning processes, PG&E was able to prudently deploy its 2021 temporary generation program. PG&E was able to keep electricity flowing in safe-to-energize areas and in unique ways through its four microgrid work streams. PG&E continues to further develop programs, such as the CMEP, and explore permanent generation to assist

1 customers and communities in efforts to become more resilient. In conclusion,
2 PG&E requests that all costs incurred during 2021 and recorded to the MGMA
3 be found reasonable and approved in full for cost recovery.

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 9
TRANSMISSION REVENUE REQUIREMENT
RECLASSIFICATION MEMORANDUM ACCOUNT

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 9
TRANSMISSION REVENUE REQUIREMENT RECLASSIFICATION
MEMORANDUM ACCOUNT

TABLE OF CONTENTS

A. Introduction.....	9-1
B. CAISO Register Updates and PG&E's TO20 Rate Case	9-1
1. Background.....	9-1
2. Revenue Requirements From CAISO Operational Control Changes.....	9-3
a. 2021 CAISO Operational Control Changes	9-3
b. Plant Activity From 2020 CAISO Operational Control Changes	9-4
c. O&M Expense	9-5
3. Discussion of Recorded Costs	9-5
4. Discussion of Reasonableness	9-7
C. Conclusion.....	9-9

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **CHAPTER 9**
3 **TRANSMISSION REVENUE REQUIREMENT RECLASSIFICATION**
4 **MEMORANDUM ACCOUNT**

5 **A. Introduction**

6 This chapter proposes an incremental customer refund of a (\$4.7) million
7 revenue requirement to credit costs recorded from January 1, 2021 through
8 December 31, 2021 in the Transmission Revenue Requirement Reclassification
9 Memorandum Account (TRRRMA).

10 The California Public Utilities Commission (CPUC or Commission) approved
11 the TRRRMA in Resolution (Res.) E-3574 in connection with various electric
12 industry restructuring initiatives. More recently, tariff changes proposed in Tier 2
13 Advice Letter (AL) 6007-E (filed November 18, 2020) updated the use of the
14 TRRRMA to: (1) record a CPUC revenue requirement associated with the costs
15 requested by Pacific Gas and Electric Company (PG&E) for recovery in
16 transmission rates that are no longer deemed to be network transmission-related
17 costs and, as such, are not allowed to be included in Federal Energy Regulatory
18 Commission (FERC) transmission rates; (2) record, as a credit to the TRRRMA,
19 any revenue requirement associated with costs already included in CPUC
20 electric distribution rates, but subsequently included in FERC transmission rates;
21 and (3) include an allowance for Revenue Fees and Uncollectibles (RF&U)¹
22 accounts expense. Under General Order (GO) 96-B, AL 6007-E became
23 effective on December 18, 2020.

24 **B. CAISO Register Updates and PG&E's TO20 Rate Case**

25 **1. Background**

26 The California Independent System Operator (CAISO) maintains the
27 "CAISO Register" to designate and track transmission assets that have been
28 turned over to the CAISO's operational control.² Under the Transmission

1 Refer to Chapter 12 Revenue Requirement. The revenue amount in this application
excludes RF&U. When this application is approved by the Commission, PG&E will
update the revenue requirement to include RF&U in accordance with the Commission-
approved preliminary statement discussed in Chapter 12.

2 CAISO Tariff, § 7.5.1.1.

1 Owner (TO) Tariff, PG&E is able to recover in FERC-jurisdictional rates³
2 costs associated with certain assets that are subject to the CAISO's
3 operational control. In a Partial Settlement approved by the FERC in the
4 Twentieth Transmission Owner Rate Case (TO20) in Docket No. ER19-13,
5 PG&E agreed to reconcile its transmission rate base records and the CAISO
6 Register so that any changes to the CAISO Register would be properly
7 reflected in the assets included in PG&E's FERC-jurisdictional rates. The
8 reconciliation applied to asset records became effective as of May 1, 2019
9 (the rate effective date of TO20), and was updated in FERC rates on
10 January 1, 2021. The reclassification of assets from FERC rates triggered a
11 need to record revenue requirements in the TRRRMA for the CPUC's review
12 and approval. Additionally, the reconciliation involved transferring assets
13 from CPUC-jurisdictional rates to FERC-jurisdictional rates, triggering a
14 need to record a credit in the TRRRMA.

15 Separately, based upon information provided by PG&E, the CAISO
16 periodically updates its register to add new assets, remove assets that are
17 no longer in use for network transmission purposes, and update the status
18 of assets that may have changed purpose or function and are no longer
19 considered to be network transmission assets. As PG&E can only recover
20 costs in FERC-jurisdictional rates for assets subject to the CAISO's
21 operational control, ongoing and future changes to the CAISO Register
22 directly impact PG&E's ability to record and recover costs with the CPUC.

23 PG&E will record in the TRRRMA the revenue requirement (either as a
24 positive revenue requirement or as a credit) for costs associated with
25 changes to CAISO operational control designation, including as reflected in
26 the CAISO Register. PG&E will record a positive revenue requirement in
27 the TRRRMA for instances in which the CAISO updates the CAISO Register
28 or operational control designation by removing assets and reclassifying
29 them as non-network transmission in PG&E's asset records. PG&E will

3 For purposes of this testimony, PG&E refers to the costs for network electric transmission assets that are recovered through PG&E's TO Tariff as being included in "FERC-jurisdictional rates." Costs for non-network transmission electric assets that are recovered through electric generation and distribution rates are referred to as being included in "CPUC-jurisdictional rates."

1 record a credit to the TRRRMA if the CAISO adds assets to the CAISO
2 Register, which were previously included in CPUC-jurisdictional rates.

3 Consequently, the TRRRMA allows for the tracking and recording of
4 costs that are determined to be non-network transmission-related costs so
5 that these costs can be recovered in CPUC-jurisdictional rates.⁴ Under the
6 TRRRMA, customers only pay once for the costs associated with an asset,
7 avoiding any double-recovery, and PG&E receives the benefit of cost
8 recovery in CPUC-jurisdictional rates if assets are not subject to the
9 CAISO's operational control and thus cannot be included in
10 FERC-jurisdictional rates. Moreover, the TRRRMA provides that it "shall
11 only include costs...not disallowed by FERC or the Commission."

12 **2. Revenue Requirements From CAISO Operational Control Changes**

13 **a. 2021 CAISO Operational Control Changes**

14 In 2021, the CAISO updated its register based on information
15 provided by PG&E to add new assets, remove assets that are no longer
16 in use for network transmission purposes, and update operational
17 control designation of assets that may have changed purpose or
18 function and are no longer or newly classified as network transmission
19 assets. All proposed changes are independently reviewed by the
20 CAISO to ensure the reasonableness and accuracy of such changes.
21 For costs related to assets that changed CAISO operational control
22 designation in 2021, PG&E will ensure cost recovery is adjusted
23 accordingly to both FERC-jurisdictional rates through the TO rate case
24 and true-up mechanism and CPUC-jurisdictional rates through the
25 TRRRMA. For the latter, the revenue requirement up to December 31,
26 2026 derived from capital expenditures⁵ will be recorded in the
27 TRRRMA, which is the last date before the 2027 General Rate Case
28 (GRC) will reflect updated asset records.

4 Res.E-3574 (June 24, 1999), p. 7, Finding 12.

5 The associated revenue requirement for O&M Expense will only apply for the period up to December 31, 2021.

PG&E will continue to record revenue requirements for costs in the TRRRMA for assets that changed CAISO operational control designation each calendar year.

b. Plant Activity From 2020 CAISO Operational Control Changes

In Application (A.) 21-09-008 (referred to as the 2021 Wildfire Mitigation and Catastrophic Events (WMCE) cost-recovery proceeding), PG&E requested a revenue requirement to account for applicable changes in CAISO operational control designation in 2020. However, for those identified assets, revenue requirements from Plant activity (i.e., Plant additions and retirements) in 2021 have not yet been requested. Hence, for Plant activity in 2021 for identified assets that changed CAISO operational control designation in 2020, PG&E will also ensure cost recovery (or a refund) is adjusted accordingly to both FERC-jurisdictional rates through the TO rate case and true-up mechanism, and CPUC-jurisdictional rates through the TRRRMA. For the latter, the revenue requirement (or refund) up to December 31, 2022 derived from capital expenditures⁶ will be recorded in the TRRRMA, which is the last date before the 2023 GRC will reflect updated asset records.

For this mentioned Plant activity in 2021 (in reference to the 2022 WMCE proceeding), the Plant activity results in a refund (i.e., a credit to the TRRRMA). This is primarily due to 2021 Plant additions for assets that changed from non-CAISO controlled to CAISO controlled in 2020, and 2021 retirements for assets that changed from CAISO controlled to non-CAISO controlled in 2020. A refund is a reasonable result from this Plant activity. Note, however, that future years as will be filed in future WMCE proceedings may instead result in a positive revenue requirement. Both a refund or positive revenue requirement can be a reasonable result, depending upon the amount of Plant activity and the jurisdictional changes for the given assets.

⁶ The associated revenue requirement for Operations & Maintenance (O&M) Expense will only apply for the period up to December 31, 2021.

1 **c. O&M Expense**

2 PG&E requests the revenue requirement (or refund to customers)
3 associated with Operations & Maintenance (O&M) expense costs that
4 are directly impacted from changes in CAISO operational control
5 designations. These costs are associated with operating and
6 maintaining the electric transmission system, which includes
7 transmission assets that are subject to CAISO operational control. The
8 O&M expense revenue requirement included in the TRRRMA is an
9 allocated portion of the total electric transmission O&M expense
10 revenue requirement as presented in PG&E's TO rate case.⁷

11 PG&E's TO20 Formula Rate models allocate total O&M expense
12 revenue requirement to network transmission by calculating the
13 proportion of Network Electric Transmission Plant (Functional Plant
14 only) divided by the Total Electric Transmission Plant (Functional Plant
15 only).⁸ Thus, PG&E can accurately calculate the amount of O&M
16 expense revenue requirement that was excluded from or included in the
17 transmission revenue requirement directly due to the changes in CAISO
18 operational control designations by replacing the end of year TRRRMA
19 Plant balances with the Network Electric Transmission Plant balances in
20 the TO20 formula rate models.

21 **3. Discussion of Recorded Costs**

22 Table 9-1 summarizes the rate base components for transmission
23 assets that changed CAISO operational control designation that are
24 included in PG&E's rate base for purposes of recovery or refund in the
25 TRRRMA as of December 31, 2021. These balances are for both the
26 balances associated with assets that changed CAISO operational control
27 designation in 2021 and total Plant activity in 2021 associated with assets
28 that changed CAISO operational control in 2020. The table presents the
29 inputs for calculation of the capital revenue requirement (i.e., refund).

7 Specifically, the TO20-RY2023 July 2022 Draft Posting.

8 Refer to Schedule "24-Allocators", Lines 120-122 and Schedule "18-OandM", Col 12 in the TO20 Formula Models.

TABLE 9-1
SUMMARY OF RATE BASE COMPONENTS FOR TRRRMA
AS OF DECEMBER 31, 2021
(MILLIONS OF DOLLARS)

Line No.	Description	Assets that changed CAISO control in 2021	Assets that changed CAISO control in 2020	Total
1	Plant-in-Service	\$(7.0)	\$(0.5)	\$(7.5)
2	Less: Accumulated Depreciation	(0.8)	(0.2)	(1.0)
3	Less: Accumulated Deferred Income Taxes	(0.6)	(0.0)	(0.6)
4	Total Rate Base	\$(5.6)	\$(0.3)	\$(5.9)

1 Table 9-2 summarizes the O&M expense associated with transmission
2 assets that changed CAISO operational control designation that have been
3 identified for refund in the TRRRMA for the period from January 1, 2021 to
4 December 31, 2021. This presents the inputs for calculation of the expense
5 revenue requirement (i.e., refund).

TABLE 9-2
SUMMARY OF O&M EXPENSE FOR TRRRMA
JANUARY 1, 2021 THROUGH DECEMBER 31, 2021
(MILLIONS OF DOLLARS)

Line No.	Description	Assets that changed CAISO control in 2021	Assets that changed CAISO control in 2020	Total
1	O&M Expense	\$(0.3)	\$(0.0)	\$(0.3)

6 The rate base components and O&M expense presented in Table 9-1
7 and Table 9-2, respectively, are run through a results of operation model
8 and result in a total revenue requirement (i.e., refund) of (\$4.7) million to be
9 recorded as a credit in the TRRRMA as shown in Table 9-3 below.

TABLE 9-3
REVENUE REQUIREMENT FOR TRRRMA
(MILLIONS OF DOLLARS)

Line No.	Description	Revenue Requirement
1	Depreciation Expense	\$(1.0)
2	Cost of Capital	(2.2)
3	Property Tax	(0.5)
4	State Corporation Franchise Tax	(0.2)
5	Federal Income Tax	(0.5)
6	O&M Expense	(0.3)
7	Total	\$(4.7)

4. Discussion of Reasonableness

Per the Partial Settlement approved by the FERC in TO20 in Docket No. ER19-13, PG&E agreed to reconcile its transmission rate base records and the CAISO Register so that any changes to the CAISO Register would be properly reflected in the assets included in PG&E's FERC-jurisdictional rates. This required PG&E to update its asset records to reconcile against the CAISO Register and adjust its FERC-jurisdictional revenue requirement for rates starting May 1, 2019. It is reasonable to record an adjustment amount for the portion that should be recovered in CPUC-jurisdictional rates in the TRRRMA to either be refunded to or recovered from CPUC-jurisdictional rates based on the net amount of rate base being reclassified from the jurisdiction of the CPUC to FERC and vice versa. This was recorded in the TRRRMA and presented in the 2021 WMCE. This is consistent with AL 6007-E (effective December 18, 2020 under GO 96-B), which states that:

PG&E would record both the debits and the credits related to these reconciliations [referring to PG&E's CAISO Reconciliation, TO Formula Rate, and FERC review] as required by the Partial Settlement in the updated TRRRMA and would later seek recovery from or refund to customers in a CPUC application.⁹

It is reasonable for PG&E to track plant and rate base changes for any assets that changed CAISO operational control designation between January 1, 2021 and December 31, 2021. These changes could not have

⁹ AL 6007-E, pp. 4-5.

1 been incorporated in neither the 2020 GRC nor 2023 GRC. It is also
2 reasonable for PG&E to track Plant activity in 2021 for any assets that
3 changed CAISO operational control designation between January 1, 2020
4 and December 31, 2020. This activity could not have been incorporated in
5 the 2020 GRC and was not forecasted in the 2021 WMCE. Note, however,
6 that since the CAISO operational control change occurred in 2020, the
7 associated revenue requirement should only go up to December 31, 2022,
8 which is the last date before the 2023 GRC reflects updated asset records.

9 For the 2022 WMCE, PG&E requests to provide a customer refund in
10 CPUC-jurisdictional rates for these costs via the TRRRMA, as they could
11 otherwise be double-recovered by PG&E. However, as mentioned in
12 Section 2.b of this testimony, future years may result in a positive revenue
13 requirement, which would be reasonable in that cost recovery would be
14 removed from FERC-jurisdictional rates and require recovery in
15 CPUC-jurisdictional rates. PG&E will continue to track and report applicable
16 costs in the TRRRMA moving forward for any major reconciliation efforts
17 and CAISO operational control designation changes.

18 It is also reasonable for PG&E to record an adjustment amount for the
19 portion of O&M expense revenue requirement that should be refunded or
20 recovered in CPUC-jurisdictional rates in the TRRRMA that was directly
21 impacted from the changes in CAISO operational control designation. Since
22 PG&E's TO20 formula rate model derives the portion of O&M expense
23 revenue requirement that should be in FERC-jurisdictional rates based on
24 network electric transmission plant balances, the changes in CAISO
25 operational control designations impact O&M expense in the transmission
26 revenue requirement that would have otherwise been recovered in
27 FERC-jurisdictional rates (or CPUC-jurisdictional rates if a credit to
28 TRRRMA) if not for the CAISO operational control changes. PG&E can
29 accurately identify the amount of this impact by replacing the TRRRMA
30 Plant balances with the Network Electric Transmission Plant¹⁰ in the TO20
31 Formula Model.

¹⁰ Refer to Schedule "24-Allocators," Lines 120-122 and Schedule "18-OandM," Col 12 in the TO20 Formula Model.

1 **C. Conclusion**

2 As demonstrated in this chapter, the Commission should approve an
3 incremental customer refund of a (\$4.7) million revenue requirement associated
4 with CAISO operational control designation changes in 2021 and plant activity
5 from assets that changed CAISO operational control designation in 2020 that
6 were recorded from January 1, 2021 through December 31, 2021 in the
7 TRRRMA.

PACIFIC GAS AND ELECTRIC COMPANY
2022 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 10
DEMONSTRATION OF INCREMENTALITY

PACIFIC GAS AND ELECTRIC COMPANY
2022 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 10
DEMONSTRATION OF INCREMENTALITY

TABLE OF CONTENTS

A. Introduction.....	10-1
B. The Costs for Which PG&E Seeks Recovery Are Incremental.....	10-3
1. Overview of PG&E’s Activity-Based Forecasting	10-3
2. Incrementality of CEMA Costs	10-5
a. Costs Exceeded Imputed Adopted Amounts for the 2020 GRC Major Emergency Balancing Account (MEBA)	10-6
b. Labor Cost Elements Support Incrementality of CEMA Request.....	10-7
3. VMBA and WMBA Costs.....	10-8
4. Incrementality of Other Accounts: CPPMA, DMA, ECPMA, CCPAMA, and MGMA.....	10-9
a. COVID-19 Pandemic Protections Memorandum Account	10-10
b. Disconnections Memorandum Account	10-10
c. Emergency Consumer Protections Memorandum Account	10-11
d. California Consumer Privacy Act Memorandum Account	10-11
e. Microgrids Memorandum Account	10-12
C. Incrementality Standards - Orders and Financial Tracking.....	10-12
D. Application of Overheads to Incremental Costs.....	10-13
E. Ernst & Young Audit	10-15
1. Ernst & Young’s Independent Audit Report	10-15
2. EY’s Review Methodology.....	10-16
3. Results of EY’s Review	10-16
F. Intervenor’s Historic Concerns About Incrementality	10-17
1. CEMA Straight-Time Labor	10-17
2. The GRC Does Not Adopt an Imputed Labor Cost	10-19

PACIFIC GAS AND ELECTRIC COMPANY
2022 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 10
DEMONSTRATION OF INCREMENTALITY

TABLE OF CONTENTS
(CONTINUED)

3. Materials	10-20
G. Conclusion.....	10-20

PACIFIC GAS AND ELECTRIC COMPANY
2022 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 10
DEMONSTRATION OF INCREMENTALITY

A. Introduction

In this application, Pacific Gas and Electric Company (PG&E or the Company) is requesting reasonableness review of costs incremental to authorized amounts in PG&E's 2020 General Rate Case (GRC)¹ and 2019 Gas Transmission and Storage (GT&S)² for the following balancing and memorandum accounts: (1) the Wildfire Mitigation Balancing Account (WMBA); (2) the Vegetation Management Balancing Account (VMBA); (3) the Catastrophic Event Memorandum Account (CEMA); (4) the Coronavirus (COVID-19) Pandemic Protections Memorandum Account (CPPMA); (5) the Disconnections Memorandum Account (DMA); (6) the Emergency Consumer Protections Memorandum Account (ECPMA); (7) the California Consumer Privacy Act Memorandum Account (CCPAMA); and (8) the Microgrids Memorandum Account (MGMA). This chapter demonstrates the incrementality of the costs requested in this application.

"Incremental" costs are those labor, equipment, material, contract, and other support costs associated with work that is not included in PG&E's GRC or other cost-recovery mechanisms. Costs in this application are included because PG&E has determined that they are incremental using the following criteria:

- The request is for California Public Utilities Commission (CPUC or Commission) jurisdictional work;
- The costs are incremental to amounts authorized in PG&E's 2020 GRC and 2019 GT&S;
- For CEMA, the costs would not have been incurred if not for a CEMA-eligible catastrophic event; and

¹ A.18-21-009 and D.20-12-005.

² A.17-11-009 and D.19-09-025.

- For CPPMA, DMA, ECPMA, CCPAMA, and MGMA, the costs would not have been incurred if not for state law and/or a Commission order to conduct work and track the costs in these accounts.

In addition, for WMBA and VMBA amounts requested in this application, the recorded costs have exceeded the reasonableness review thresholds adopted in Decision (D.) 20-12-005 (the 2020 GRC Decision).

The memorandum account costs included in this application relate to work that is new, or in addition to, what was contemplated by PG&E's existing authorized base rates in the GRC and GT&S. As described in Section C, costs associated with this incremental work are tracked in the appropriate memorandum accounts, separate from the accounts used to track costs in PG&E's authorized rates. In addition, the costs are tied to specific work orders to ensure that costs have not already been recovered through existing rates, other proceedings, or any other cost-recovery mechanism.

According to the guidelines for the balancing accounts adopted in the 2020 GRC Decision, PG&E records all costs for WMBA and VMBA activities to these accounts. The purpose of including the WMBA and VMBA in this application is to obtain reasonableness review of costs exceeding thresholds of 115 percent for the WMBA and 120 percent for the VMBA.³ Specifically, for the WMBA and the VMBA, the Commission authorized funding in the 2020 GRC Decision for the wildfire mitigation and vegetation management activities included in PG&E's submission in that proceeding.⁴ The Commission approved the WMBA and VMBA as two-way balancing accounts with reasonableness review thresholds. In this application, PG&E must demonstrate the reasonableness of costs exceeding the reasonableness threshold established for these accounts.

³ Although PG&E is reporting in testimony the total costs recorded in each respective balancing account, the amounts subject to review and requested for recovery reflect only the costs above the reasonableness review thresholds set in D.20-12-005 for these accounts. All amounts below the thresholds were authorized for recovery in rates in accordance with D.20-12-005.

⁴ D.20-12-005.

B. The Costs for Which PG&E Seeks Recovery Are Incremental

In this section, PG&E provides an overview of its activity-based forecasting methodology, as well as the incrementality of costs recorded to each account requested in this application.⁵

1. Overview of PG&E's Activity-Based Forecasting

The CEMA and other memorandum account costs for which we seek recovery in this application were not included in PG&E's 2020 GRC or 2019 GT&S. This section describes PG&E's activity-based methodology for forecasting and recording costs for recovery through rates in the GRC and GT&S, which is foundational to the incrementality of the activities and costs we seek to recover in this application.

Activity-based forecasts consist of cost estimates based upon planned scopes and schedules for work that are not tied to particular staffing levels and other resources.⁶ As an example, for Electric Operations, PG&E develops its GRC forecast based on the anticipated volume and complexity of work that is required to operate and maintain a safe and reliable electric system, in compliance with established policies and requirements. At the time a GRC forecast is developed, the staffing levels and resources to execute work activities are not specified because they are not yet fully determined. Ultimately, the activities will be completed with internal PG&E employees or contracted vendors, but the GRC forecast does not include the specific internal employees or contractors that will be assigned to the work. The specific resources to complete the work are assigned closer in time to the execution of the work. When the work is executed, employees record their time to the orders, contract and material costs are applied, and additional costs are allocated to the orders in the form of overheads as applicable to the type of work.

PG&E's GRC and GT&S forecasts typically present an aggregate cost for an activity without capturing the specific cost components, such as labor

⁵ See Chapter 1 for a summary of costs requested in this application. The TRRRMA does not involve incrementality issues and is not discussed in this chapter.

⁶ For repeatable types of work, this forecasting process is tied to projecting total unit volumes and using a unit cost estimate to develop the financial forecast. The forecast typically does not specify whether internal or external resources will execute the work.

costs (salaries and benefits), applicable overheads, materials, etc. For this reason, PG&E does not forecast specific labor or overhead costs in its GRC. In addition, PG&E's headcount and support functions are not forecasted directly. Moreover, PG&E's methodology for forecasting is not so granular that materials or distinct allocations are explicitly identified in the forecast.

In sum, PG&E's activity-based forecasts are based upon volume and complexity of the work, regardless of how the work is executed or by whom. The 2020 GRC and 2019 GT&S decisions do not adapt a specific labor component or specific staffing by project or work activity. PG&E does not forecast in the GRC or GT&S costs for its internal companywide labor force. PG&E forecasts costs for activities, regardless of how many employees it will have access to in any given rate case period. Further, given that the GRC forecast does not contain specific labor or overhead costs, when the Commission issues its GRC or GT&S decision, there is no imputed adopted costs for straight-time labor or overheads or any other cost component. Nor does the decision specify a number of employees or contractors associated with the approved forecast.

PG&E's activity-based forecasting (and the Commission's approval of this type of GRC forecast) provides PG&E flexibility to use internal and/or external resources as necessary to execute work. It further allows PG&E staff and organizations to support work across multiple rate cases and regulatory accounts and maximize productivity of its resources. Moreover, in allowing for workforce flexibility, activity-based planning and forecasting is more cost effective for customers as it allows for PG&E to deploy internal and external resources to work across multiple activities as necessary. As an example, PG&E can use internal and external resources to work on activities not contemplated (or funded) in the GRC that may arise due to emergencies, new laws or Commission decisions, and changing priorities after a GRC decision has been issued. If PG&E did not have this flexibility, PG&E would have a larger employee and contractor population—one group to work on GRC activities and a separate group to work on new work not included in a GRC. Overall productivity would decrease, and costs would increase.

1 For CEMA and the other memorandum accounts in this application,
2 none of the activities tracked in the accounts were forecasted in PG&E's
3 2020 GRC and the 2019 GT&S. Accordingly, the costs in these accounts
4 were not included in or recovered in authorized base rates and are
5 incremental to the GRC and GT&S.

6 **2. Incrementality of CEMA Costs**

7 In the GRC, PG&E recovers base operating costs needed to operate
8 and maintain our electric and gas system safely and reliably, in compliance
9 with regulatory requirements. These base operating costs include costs
10 necessary to respond to routine and major emergencies that are not eligible
11 for recovery through the established CEMA mechanism. The 2020 GRC
12 forecast does not include costs for responding to CEMA events⁷ and there
13 are no imputed adopted amounts for CEMA. Indeed, PG&E removed
14 historical CEMA costs, including straight-time labor costs, from its 2020
15 GRC forecast. Since CEMA costs were excluded from the GRC forecast,
16 balancing account true-up, and other recovery mechanisms, a CEMA
17 application represents the only mechanism for PG&E to collect costs
18 recorded in CEMA event response orders.

7 For discussion of the exclusion of CEMA costs from PG&E's 2020 GRC, see A.18-21-009, Hearing Exhibit (HE)-146: Exhibit (PG&E-5), Chapter 4, Section B.3.d. for Power Generation; HE-16: Exhibit (PG&E-4), Chapter 4, Section E.2 for Electric Distribution; and HE-10: Exhibit (PG&E-3), p. 2-13, Figure 2-5, which shows that the new Maintenance Activity Type (MAT) codes LXA and 3QA for Catastrophic Events are not forecasted in the 2020 GRC.

TABLE 10-1
SUMMARY OF INCREMENTAL CEMA COSTS
(THOUSANDS OF DOLLARS)

Line No.	Category	MWC	2021 Recorded Costs	2020 GRC Adopted	GRC Over/Under	Incremental Costs	Reference
1	Electric Distribution	95, IF	\$315,154	\$0	\$315,154	\$315,154	Table 4-1
2	Power Gen	3Q, LX	\$6,036	\$0	\$6,036	\$6,036	Table 5-1
3	COVID-19	Various	\$16,092	\$0	\$16,092	\$16,092	Table 6-1

Note: The reasonableness of incremental CEMA costs is detailed in Chapter 4 for Electric Distribution, Chapter 5 for Power Generation, and Chapter 6 for COVID-19. See also Chapter 4, Attachment A, Section E for a discussion of the Incrementality of Electric Distribution CEMA costs.

1 Note: The COVID-19 incremental costs shown above exclude avoided
2 cost savings. See Table 6-2 for details.

3 In addition to the fact that there are no 2020 GRC adopted amounts for
4 CEMA, incrementality is further demonstrated by the following: (1) PG&E
5 spent above imputed adopted amounts for Major Emergency in 2021; and
6 (2) contracts, overtime, and double-time costs comprise most of the total
7 labor costs for PG&E's CEMA event response.

8 **a. Costs Exceeded Imputed Adopted Amounts for the 2020 GRC**
9 **Major Emergency Balancing Account (MEBA)**

10 While there are no directly comparable programs to CEMA
11 forecasted in the 2020 GRC, PG&E examined adopted and recorded
12 amounts for Electric Distribution Major Emergency Balancing Account
13 (MEBA) as the closest proxy for further demonstrating incrementality.⁸
14 As reported in the 2021 Risk Spend Accountability Report (RSAR) and
15 shown in Table 10-2 below, PG&E exceeded the 2020 GRC imputed
16 amounts for MEBA for the year 2021.⁹

⁸ Power Generation does not forecast major emergencies in the GRC, so there are no imputed adopted amounts for any emergency-related work for Power Generation.

⁹ 2021 Risk Spend Accountability Report (March 31, 2022), for MWC 95, 17.

TABLE 10-2
ELECTRIC DISTRIBUTION MAJOR EMERGENCY (MEBA) IMPUTED VS ACTUAL
(THOUSANDS OF DOLLARS)

Line No.	MWC	MWC Name	2020 GRC Testimony Exhibit, Chapter Reference	2021 Imputed Adopted Costs (A)	2021 Recorded Costs (B)	2021 Cost Difference (B-A)	2021 Cost Change (%) (B-A)/A
1	IF	Major Emergency (exp)	Ex. 4 Ch. 4	\$34,648	\$146,946	\$112,298	324%
2	95	Major Emergency (cap)	Ex. 4 Ch. 4	\$56,557	\$159,627	\$103,071	182%

1 Major Emergency costs are tracked in the MEBA, which is a
2 two-way balancing account. If PG&E underspends or overspends the
3 adopted amounts, the difference is trued up in the Annual Electric
4 True-Up as opposed to our CEMA request.

b. Labor Cost Elements Support Incrementality of CEMA Request

6 The overwhelming majority (94 percent) of labor costs for the CEMA
7 request in this application are contract and external labor, double-time
8 (DT), and overtime (OT). Internal straight-time (ST) labor accounts for
9 only 6 percent. Tables 10-3 and 10-4 below break down the various
10 labor components for CEMA and COVID-19 CEMA.

TABLE 10-3
CEMA LABOR COMPATIBLE COST ELEMENTS
(THOUSANDS OF DOLLARS)

Line No.	CEMA Labor Types	Incremental Request 2021	% of Total Labor
1	Contract and External Labor	\$250,518	84%
2	Internal ST	19,121	6%
3	Internal Labor OT	1,987	1%
4	Internal Labor DT	26,499	9%
5	Total CEMA	\$298,124	100%

Note: Labor compatible cost elements in Tables 10-3 and 10-4 are Contract, External Labor, and Internal Labor. The total does not include Material and Other Cost Elements.

TABLE 10-4
COVID-19 CEMA LABOR COMPATIBLE COST ELEMENTS
(THOUSANDS OF DOLLARS)

Line	COVID-19 CEMA Labor Types	Incremental Request 2021	% of Total Labor
1	Contract and External Labor	\$9,682	82%
2	Internal ST	656	6%
3	Internal Labor OT	37	0%
4	Internal Labor DT	1,377	12%
5	Total CEMA	\$11,751	100%

PG&E did not forecast CEMA in the 2020 GRC, and overspent MEBA imputed amounts for 2021. In addition, as shown in Tables 10-3 and 10-4, only 6 percent of CEMA labor consists of PG&E internal straight-time labor. Taken together, this further demonstrates that the CEMA costs requested in this application are incremental, beyond the fact they were not forecast in the 2020 GRC.

3. VMBA and WMBA Costs

The scope and function of a two-way balancing account is to permit PG&E to recover or return costs recorded to the account, above or below the Commission's GRC adopted amount, for reasonable qualifying activities. The 2020 GRC decision authorized funding for PG&E's WMBA and VMBA activities but acknowledged that PG&E may record costs above or below this amount, with a reasonableness review required for costs above a certain threshold of the authorized amount. PG&E's 2021 WMBA and VMBA costs exceed the amount adopted by the Commission for activities tracked in the accounts.

As shown in Table 10-5 below, program expenses for both the WMBA and VMBA exceeded the 2020 GRC adopted amounts.

TABLE 10-5
SUMMARY OF WMBA AND VMBA COSTS
(THOUSANDS OF DOLLARS)

Line No.	Account	2021 Recorded Costs ^(a)	2020 GRC Adopted	Adopted at 115% (WMBA) or 120% (VMBA)	GRC Over/Under	Recorded Amount for Reasonableness Review	Reference
1	WMBA	\$161,104	\$51,867	\$59,647	\$101,457	\$101,457	Chapter 2, Table 2-1
2	VMBA	\$1,540,825	\$602,814	\$723,377	\$814,724	\$814,724	Chapter 3, Table 3-1

(a) Includes EY adjustments where applicable.

4. Incrementality of Other Accounts: CPPMA, DMA, ECPMA, CCPAMA, and MGMA

As with CEMA, costs for the CCPMA, DMA, ECPMA, CCPAMA and MGMA were not forecasted in the 2020 GRC or the 2019 GT&S. PG&E tracks costs for these activities in specific orders with specific identifiers to ensure that they are not recovered in other proceedings.

Most of these memorandum accounts¹⁰ were approved after the 2020 GRC forecast was finalized and/or filed on December 13, 2018, such that PG&E could not have incorporated the compliance activities into its 2020 GRC application. As a result, the 2020 GRC forecast did not include funding for the work associated with these accounts, including straight-time labor and overhead costs associated with completing the work. Indeed, PG&E's Customer Care forecast in the 2020 GRC would have been substantially higher had PG&E been able to include costs to complete the activities recorded in these memorandum accounts.

Importantly, the activities associated with the memorandum accounts requested in this application were not simply a matter of PG&E's internal decision-making to add work or change its GRC plan. Rather, as described below, these activities were implemented to meet the requirements of new

¹⁰ The Commission approved AL 4014-G/5378 for ECPMA in October of 2018, just before the 2020 GRC was filed in December of 2018.

1 legislation and/or CPUC orders that were not foreseeable when PG&E
2 created its 2020 GRC forecast.

3 **a. COVID-19 Pandemic Protections Memorandum Account**

4 On April 16, 2020, the Commission adopted Resolution M-4842,
5 which directed PG&E to offer applicable emergency customer
6 protections to residential and small business customers through
7 April 16, 2021. The purpose of the CPPMA is to record and track
8 incremental costs associated with implementing emergency customer
9 protections for residential and small business customers related to the
10 COVID-19 pandemic.

11 PG&E's 2021 CCPMA costs are incremental to base rates. This
12 memorandum account was created in response to the COVID-19
13 pandemic. Thus, CCPMA costs were not forecasted or authorized in the
14 2020 GRC, or the 2019 GT&S.

15 The CPPMA is further described in Chapter 7.

16 **b. Disconnections Memorandum Account**

17 The purpose of the DMA is to track incremental costs associated
18 with implementing the requirements of D.20-06-003, which includes
19 rules and other changes designed to reduce the number of residential
20 customer disconnections and improve reconnection processes for
21 disconnected customers.¹¹ D.20-06-003 supports Senate Bill (SB)
22 598's (2017-2018 Reg. Sess.) directive for the CPUC to, among other
23 things, develop rules, policies, or regulations with a goal of reducing the
24 statewide disconnection rate of gas and electric utility customers by
25 January 1, 2024.¹²

26 PG&E's 2021 DMA costs are incremental to base rates.
27 D.20-06-003 was issued in June 2020, and the DMA costs were not
28 forecasted or authorized in the 2020 GRC or 2019 GT&S. In addition,
29 PG&E transferred six employees to the Arrearage Management
30 Program (AMP) charged to the DMA and backfilled their previous
31 positions.

11 D.20-06-003, p. 2.

12 D.20-06-003, p. 5.

1 The DMA is further described in Chapter 7.

2 **c. Emergency Consumer Protections Memorandum Account**

3 The purpose of the ECPMA is to record incremental costs
4 associated with the implementation of PG&E's Emergency Consumer
5 Protection Plan. PG&E implements its Emergency Consumer Protection
6 Plan when the California Governor's Office or the President of the
7 United States proclaims a state of emergency due to a disaster that has
8 either resulted in the loss or disruption of the delivery or receipt of utility
9 service and/or resulted in the degradation of the quality of utility service,
10 as defined in D.19-07-015.¹³ PG&E records to the ECPMA incremental
11 costs for providing temporary service, discontinuing billing, and stopping
12 estimated usage for customers impacted by disasters.

13 PG&E's costs recorded to the ECPMA are separately tracked and
14 recorded for each qualifying disaster and are not forecasted in a
15 GRC.¹⁴ PG&E's 2021 ECPMA costs are incremental to base rates
16 because they were not forecasted or authorized in the 2020 GRC or the
17 2019 GT&S.

18 The ECPMA is further described in Chapter 7.

19 **d. California Consumer Privacy Act Memorandum Account**

20 The CCPAMA was promulgated by Assembly Bill (AB) 375 and
21 SB 1121 and signed into law by Governor Brown on June 28, 2018.¹⁵
22 The CCPAMA requires PG&E:

23 ...on the consumer's request, to disclose what data they collect with
24 respect to them, furnish that data to the consumer upon request,
25 permit the consumer to opt out from the transfer of that data, inform
26 the [customer] as to whom their data was disclosed, and delete that
27 data (subject to exceptions).¹⁶

28 Compliance with the CCPAMA required PG&E to work
29 cross-functionally across the enterprise starting in 2019 to comply with

13 D.19-07-015, p. 16.

14 D.18-08-004, p. 22, Ordering Paragraph 3.

15 Civil Code §§ 1798.100 et seq.; AB 375 (2017-2018 Reg. Sess.), Ch. 55; SB 1121 (2017-2018, Reg. Sess.), Ch. 735.

16 D.19-09-026, pp. 2-3.

1 the four major customer rights provided in the CCPAMA by January 1,
2 2020, including: (1) the right to receive notice of personal data
3 possessed in a company's records; (2) the right to access personal data
4 possessed by a company; (3) the right to delete personal data
5 processed by a company; and (4) the right to opt-out of the sale of
6 personal data by a company to third parties.

7 PG&E's 2021 CCPAMA costs are incremental to base rates. The
8 CCPAMA costs were not forecasted or authorized in the 2020 GRC or
9 the 2019 GT&S. PG&E hired two new full-time employees for CCPAMA
10 work and transferred five full-time employees from other roles that were
11 then backfilled. PG&E also used contractors for a significant portion of
12 the IT labor charged to CCPAMA.

13 The CCPAMA is further described in Chapter 7.

14 **e. Microgrids Memorandum Account**

15 Following the 2019 Public Safety Power Shutoff (PSPS) events,
16 PG&E heard the feedback from customers, regulators, and legislators
17 that we need to find better alternatives as compared to turning off
18 customer power. One of the ways we accomplish this is through
19 microgrids. In 2020, PG&E focused on developing various microgrid
20 solutions to build grid resilience and allow PG&E to maintain electric
21 service for customers in communities that have a high likelihood of
22 experiencing a PSPS outage.

23 PG&E's 2021 MGMA costs are incremental to base rates. The
24 MGMA costs were not forecasted or authorized in the 2020 GRC or the
25 2019 GT&S.

26 Additional details about the MGMA can be found in Chapter 8.

27 **C. Incrementality Standards - Orders and Financial Tracking**

28 All costs for which PG&E seeks recovery in this application were tracked in
29 distinct orders that were tagged with identifiers different from those that are
30 included in PG&E's GRC or other cost recovery mechanisms. PG&E uses
31 specific fields in its accounting software (SAP) to track order costs and direct
32 them into specific accounts for recovery.

1 SAP is PG&E's software solution for tracking costs and is a leader in
2 business applications. PG&E uses a field called Balancing Account Receiver
3 Cost Center (BARCC) that assigns each order to a specific account like CEMA,
4 WMBA, GRC and all other base, balancing, and memorandum accounts. Each
5 order can only be assigned to one account in the BARCC field, and each
6 account is recovered in a specific cost recovery proceeding. In addition to the
7 BARCC field, PG&E uses other fields to provide additional information about the
8 work and where the costs should be recovered. Examples of the additional
9 fields are Major Work Categories MWC and MAT, Program, and Project
10 Description.

11 In preparing a cost recovery application like this one, PG&E pulls the data
12 from SAP for costs associated with the rate case being prepared. PG&E then
13 conducts quality assurance at the order level to check the data set and assure
14 the work in each order is appropriate for the rate case being prepared. For
15 example, when preparing the 2022 Wildfire Mitigation and Catastrophic Events
16 (WMCE), subject matter experts (SME) reviewed the data to assure that the final
17 recorded cost data set did not contain orders for costs that are recovered in the
18 GRC.

19 The workpapers in this application present the costs associated with
20 planning orders that have been quality assured by PG&E SMEs for each
21 balancing and memorandum account requested. PG&E also retained Ernst &
22 Young to analyze the orders for certain accounts, and Ernst & Young found no
23 evidence of costs being recorded in more than one account. See Section E.
24 below and Chapter 11 for more information on Ernst & Young's analysis.
25 Accordingly, this application is the appropriate mechanism to recover costs
26 incurred for the events and work described herein. This is applicable to all costs
27 incurred, and, as such, all costs captured in these orders are incremental to
28 other recovery mechanisms' revenues.

29 **D. Application of Overheads to Incremental Costs**

30 In 2016, PG&E changed the way it reports Companywide and Business Unit
31 overhead costs. The "New Cost Model" change made in 2016 was used in the

1 2020 GRC.¹⁷ In the 2020 GRC, PG&E also made other changes to how
2 overheads apply to CEMA. CEMA expense does not receive overhead costs.
3 CEMA capital orders only receive the following overheads: fleet, payroll taxes,
4 and minor materials.¹⁸ No party objected to this approach in the 2020 GRC,
5 and PG&E has been applying overhead costs in this manner ever since.

6 Figure 10-1 depicts which overheads apply to which types of accounts in
7 this application: Overheads applied to the WMBA, VMBA, and non-CEMA memo
8 accounts are shown in columns B and D; overheads applied to CEMA are
9 shown in columns C and E.

¹⁷ The old and new Cost Model are discussed at length in the 2020 GRC Phase 1 testimony, Exhibit 12, Chapter 3.

¹⁸ See 2020 GRC Exhibit 4, Chapter 18, Section 4.a.1.f, Section 4.a.4, and Section 4.b.2.b.

**FIGURE 10-1
APPLICATION OF OVERHEADS TO MEMORANDUM AND BALANCING ACCOUNTS**

	A	B	C	D	E
		Expense		Capital	
Line #	Overheads	Non-CEMA Memo and Balancing Accounts Non-Earnings Expense	Non-Earning Expense CEMA	Non-CEMA Memo and Balancing Account Capital	Capital CEMA
1	Capitalized A&G			X	
2	Paid Time Off	X		X	
3	Indirect Labor	X		X	
4	Operational Management and Support			X	
5	Fleet			X	X
6	Material Burden	X		X	
7	Building Services			X	
8	IT Device Services			X	
9	Benefits			X	
10	Payroll Taxes			X	X
11	Minor Material	X		X	X

When PG&E requests funding in the GRC, the overhead amounts are embedded in the forecasts in accordance with Figure 10-1 above. This means that PG&E expects to recover funding for overheads in various accounts, whether base GRC expense, base GRC capital, or memorandum/balancing account programs. The overhead amounts included in cost recovery requests for the memorandum/balancing account programs are not inclusive of what was already forecast and authorized in the GRC. Accordingly, the overheads requested in this application are incremental to the 2020 GRC.

E. Ernst & Young Audit

1. Ernst & Young's Independent Audit Report

As shown in Appendix A, EY performed an analysis of 2021 costs recorded in the WMBA, VMBA, and CEMA accounts. These accounts are

hereinafter collectively referred to as the “WMCE Accounts.” The analysis was to confirm that costs recorded to the WMCE Accounts, as captured in PG&E’s financial systems, were sufficiently supported, reasonable, and directly attributable to the WMCE Accounts. To date, EY has analyzed approximately \$4.6 billion of wildfire mitigation program costs.

In addition to the analytical procedures and transaction testing, EY assessed the incrementality of the CEMA costs compared to the last approved GRC and other mechanisms, and found no evidence of double recording. EY obtained the last GRC filing with supporting schedules to gain an understanding of the type and nature of costs included within current base rates.

2. EY’s Review Methodology

EY segregated costs within the WMCE Accounts by cost category and performed analytics across each population. This allowed EY to develop testing procedures for each category based on the unique nature and risks of each cost category. The combination of analytical procedures, statistical sampling, and transaction testing is designed to provide adequate coverage across all cost categories within scope of these accounts. Approximately \$419 million of costs were tested totaling 20 percent of the total costs incurred. PG&E provided to EY available data and supporting documentation for each of these cost categories. EY reviewed the support for the cost categories.¹⁹

3. Results of EY’s Review

EY prepared findings and observations regarding the costs in the balancing accounts based on their testing and analysis. EY found no material evidence that would raise questions relating to management’s conclusions that: (1) costs were incurred for the activities set forth in the corresponding, relevant CPUC-approved WMCE Accounts; (2) costs were accurately recorded; and (3) there is no evidence of costs recorded in more than one account. EY also confirmed that any observations of possible

¹⁹ See Appendix A, Wildfire Mitigation & Catastrophic Events Cost Analysis, Ernst & Young (EY) Report (Nov. 2022), pp. 5-30 provides a complete breakdown of the review and approach.

1 deviations within the cost data provided were not material to the overall
2 costs incurred.

3 As a result of the procedures described above, EY identified
4 approximately \$1.4 million²⁰ (extrapolated to \$3.2 million) in costs that were
5 not properly evidenced for inclusion in the WMCE Accounts. The amounts
6 requested in the application have been reduced by the extrapolated amount
7 of approximately \$3.2 million. (See Tables 11-1 and 11-2 for details.)

8 **F. Intervenor's Historic Concerns About Incrementality**

9 In prior PG&E CEMA application proceedings, intervenors have raised
10 concerns about the incrementality of certain types of costs presented by PG&E.
11 Below PG&E addresses some of those concerns.

12 **1. CEMA Straight-Time Labor**

13 Historically, intervenors have argued against the recovery of
14 straight-time labor through the CEMA filing due to their incorrect assumption
15 that straight-time labor recorded to CEMA is already funded via base GRC
16 rates. This argument has persisted for several years, resulting in substantial
17 uncertainty for recovery of the straight-time labor costs associated with the
18 response to CEMA events. To avoid future misunderstandings around this
19 topic, PG&E forecasted CEMA straight-time labor in the 2023 GRC and
20 proposed the Catastrophic Event Straight-Time Labor Balancing Account
21 (CESTLBA), a two-way balancing account to be trued up annually in the
22 annual electric and annual gas true-up advice letters. If PG&E's proposal is
23 adopted in the 2023 GRC, CEMA straight-time labor will continue to be
24 recovered in a CEMA application through 2022, and then through the GRC
25 and the CESTLBA starting in 2023. If PG&E's proposal is denied, PG&E
26 should be allowed to recover CEMA straight-time labor in a CEMA
27 reasonableness review proceeding, given that CEMA straight-time labor
28 would have been excluded from the GRC.

29 As already noted in Section B above, the GRC includes forecast costs
30 based on activities, not specific resources. Those activity-based forecasts
31 for the 2020 GRC—which excluded the costs of CEMA activities—consider

20 Items not properly evidenced for inclusion in the WMCE Accounts total \$1,390,296 = Vendor \$1,027,729 + \$110,486 + Non -Vendor 252,080.

1 various cost components such as materials, contracts, and labor rates,
2 which include a combination of straight-time, overtime, and double-time
3 labor. Had CEMA activities been included, the 2020 GRC forecast would
4 have been higher. Accordingly, cost components associated with CEMA
5 activities, including CEMA straight-time labor costs sought in this
6 proceeding, are incremental to base rates approved in the 2020 GRC.

7 When a CEMA-eligible event occurs, for example, PG&E may need to
8 deprioritize non-event response work to devote as many resources as
9 possible to repair damaged electric and gas facilities and restore service as
10 quickly as possible. In performing this work, PG&E crews often work around
11 the clock, incurring not only straight-time, but also overtime and double-time
12 labor costs. These costs are booked to the specific CEMA orders using the
13 process described in the sections above.

14 Once the repair and restoration activities have concluded, PG&E crews
15 return to their routine duties, including activities that may have been
16 postponed due to the CEMA-eligible event. Completing the postponed
17 activities can require incremental overtime labor and significant incremental
18 contract resources to offset resources diverted to the event response
19 work.²¹ Yet, PG&E does not rely on a quantification of those incremental
20 costs to serve as a proxy for CEMA straight-time labor. They are not
21 charged to CEMA specific orders, but rather are incurred to replace the
22 labor (straight-time and overtime) originally intended for executing base
23 work.

24 Hence, the test of incrementality is not whether a cost is straight-time or
25 overtime. If that were the test, PG&E would book overtime costs to
26 CEMA-specific orders for work unrelated to the catastrophic event, such as
27 incremental overtime required for reprioritized base work interrupted by
28 CEMA work. Similarly, PG&E would exclude from CEMA-specific orders
29 costs directly related to a catastrophic event only because the costs were
30 incurred during normal working hours. PG&E does neither.

21 Major event response has a multitude of downstream ripple effects on displaced work that can be difficult and costly to track. For example, if a catastrophic storm pushes out a routine project by one week, that project will be rescheduled to the following available construction window. The project will then displace *other* work that will *itself* require rescheduling, potentially displacing additional work.

1 In summary, CEMA straight-time labor is incremental for the simple
2 reason that the GRC MEBA forecasts are reduced commensurate with the
3 cost of CEMA activities and therefore no CEMA straight-time labor costs
4 were adopted in those applications. Until another option for the recovery of
5 CEMA straight-time labor is adopted in a GRC, and because these costs
6 were not forecasted in the 2020 GRC, this CEMA application is the only
7 mechanism for recovery of the incremental CEMA straight-time labor costs
8 requested herein.

9 **2. The GRC Does Not Adopt an Imputed Labor Cost**

10 Along with the position that CEMA straight-time labor is not incremental,
11 intervenors have also argued that PG&E's use of existing labor resources to
12 support memorandum account activities is not incremental. Intervenors
13 claim that incrementality is only proven if new employees are hired to
14 conduct the memorandum account work. This argument ignores PG&E's
15 particular activity-based forecasting method and seems to assume that the
16 GRC adapts a forecast based on a specific number of employees; but
17 PG&E does not forecast the GRC request based on specific employee and
18 contractor headcounts. Intervenors argue that because PG&E has not
19 "quantifiably" proven that using existing employees to perform memorandum
20 account work is incremental, then certain labor and contract costs should be
21 disallowed from the WMCE application, but the analysis requested cannot
22 be done because it would require a GRC imputed adopted employee and
23 contractor count, a baseline that does not exist.

24 It is incorrect that the 2020 GRC forecast covers existing employee
25 contribution for all post-forecast activities, including those activities not in the
26 approved GRC forecast. If this were true and this reasoning was applied to
27 the 2023 GRC, PG&E would be substantially limited in adjusting forecast
28 costs in the 2023 GRC to account for additional labor to incorporate (and
29 close) memorandum account work or any other incremental activity arising
30 after the 2020 GRC, because the funding for labor adopted in the 2020 GRC
31 would cover the new or incremental work. This construction does not make
32 sense, as it would serve to deny PG&E reasonable cost recovery for the

labor and overhead costs for any new/incremental activities that PG&E is required to conduct between GRCs.²²

3. Materials

Similarly, some intervenors have historically argued for the exclusion of routine material costs. PG&E has two methods for accounting for what it spends on materials; these methods are used both for normal work and emergency response activities.

Small, common material items (e.g., small bolts, screws, nails) are kept as common stock in work locations and the cost for these materials are spread to orders through an allocation to work categories that use these materials. Major events do not receive the allocation for common stock items, so those material costs are not included in this application for cost recovery, though one could argue they should be as they are used during CEMA events.

Larger pieces of equipment (e.g., poles, transformers, and cable) are directly charged to specific work orders as that material is used on a given job. During major events, PG&E may proactively bring major materials to local yards or base camps that are temporarily established to facilitate restoration. The cost for these materials staged for major events are only charged to the emergency orders (including CEMA-specific orders) once a specific piece of material has been used on a specific job. The only material charges included in this application are directly tied to CEMA event response work. As such, any material used during event response is incremental to base material spends.

G. Conclusion

This chapter demonstrates that the costs requested in this application are incremental. The costs for which we seek recovery are for activities that are different from, and in addition to, those forecast in our 2020 GRC and 2019 GT&S. We have tracked these costs separately, and only those

²² It is also important to note that when PG&E uses existing employees for activities not forecast in a GRC, PG&E will often use contractors to complete the GRC activities. Therefore, GRC-approved funding that would have been allotted for internal resources is instead used on contractors.

- 1 incremental costs are requested in this application. The costs are therefore
- 2 eligible for recovery.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 11

ACCOUNTING ADJUSTMENTS TO RECORDED COSTS

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 11
ACCOUNTING ADJUSTMENTS TO RECORDED COSTS

TABLE OF CONTENTS

A. Introduction.....	11-1
B. Costs Already Excluded from Chapters 2-4.....	11-5
1. Ernst & Young’s Independent Audit Report	11-5
2. EY’s Review Methodology and Observations	11-6
3. Results of EY’s Review	11-7
4. CEMA Capitalized A&G	11-8
5. Avoided Costs	11-8
C. Conclusion.....	11-9

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 11
ACCOUNTING ADJUSTMENTS TO RECORDED COSTS

A. Introduction

This chapter presents adjustments to Pacific Gas and Electric Company's (PG&E) recorded costs incurred by Electric Distribution, Gas Transmission and Distribution, Power Generation, Shared Services, Corporate Services, Information Technology, and Customer Care. The recorded costs are presented in Chapters 2 through 8 of this testimony. Adjustments are made to the following memorandum accounts:

- 1) Wildfire Mitigation Balancing Account (WMBA);
- 2) Vegetation Management Balancing Account (VMBA);
- 3) Catastrophic Event Memorandum Account (CEMA); and
- 4) Coronavirus (COVID-19) CEMA.

Specifically, this chapter describes the following adjustments to recorded costs:

- 1) The removal of costs relating to Ernst & Young's (EY) recommendations that are already reflected in Chapters 2 through 4;
- 2) The removal of the CEMA capitalized administrative and general (A&G) costs; and
- 3) The COVID-19 Pandemic avoided costs.

The adjustments to recorded costs are shown in Tables 11-1 and 11-2 below and described more fully in Section B. The adjusted costs described in this chapter are used to calculate the corresponding revenue requirement shown in Chapter 12.

Table 11-1 below shows, by chapter, the total costs presented in the accompanying testimony (Chapters 2 through 8), as well as the adjustments made to these recorded costs. Subsequently, Table 11-2 shows the total costs by balancing and memorandum accounts. The adjusted recorded costs for which PG&E seeks recovery in this application are \$1.2 billion in expenses and \$0.1 billion in capital expenditures. These amounts include the 2021 spend above the 115 percentage of the authorized WMBA expense and the spend

- 1 above the 120 percentage of the authorized VMBA expense specified in the
- 2 2020 General Rate Case (GRC) Decision (D.) 20-12-005.

TABLE 11-1
TOTAL COSTS AND ADJUSTMENTS BY CHAPTER
(THOUSANDS OF DOLLARS)

Line No.	WMCE	Memo Accounts	Expense	Capital Expenditures	Total
1	Chapter 2: WMBA	Wildfire Mitigation Balancing Account	\$163,320	—	\$163,320
2		<i>Ernst & Young recommendations</i>	(246)	—	(246)
3		<i>Adjustment to Exclude Electric Transmission</i>	(1,970)	—	(1,970)
4		Subtotal	161,104	—	161,104
5		2021 Adopted	55,292	—	55,292
6		115 percent of 2021 Adopted	63,586	—	63,586
7		<i>Adjustment to Exclude Electric Transmission Adopted</i>	(3,939)	—	(3,939)
8		Revised 115 percent of 2021 Adopted	59,647	—	59,647
9		Spend Above 115 percent of 2021 Adopted	101,457	—	101,457
10	Chapter 3: VMBA	Vegetation Management Balancing Account	1,540,825	—	1,540,825
11	<i>Remove</i>	<i>Ernst & Young recommendations</i>	(2,724)	—	(2,724)
12		Subtotal	1,538,101	—	1,538,101
13		2021 Adopted	602,814	—	602,814
14		120 percent of 2021 Adopted	723,377	—	723,377
15		Spend Above 120 percent of 2021 Adopted	814,724	—	814,724
16	Chapter 4: ED: CEMA	CEMA	184,885	\$133,299	318,184
17	<i>Remove</i>	<i>Ernst & Young recommendations</i>	(59)	(120)	(179)
18	<i>Remove</i>	<i>Overheads and A&G</i>	—	(3,109)	(3,109)
19		Subtotal	184,826	130,070	314,896
20	Chapter 5: PG: CEMA	CEMA	4,856	1,180	6,036
21		Subtotal	\$4,856	1,180	\$6,036

TABLE 11-1
TOTAL COSTS AND ADJUSTMENTS BY CHAPTER
(THOUSANDS OF DOLLARS)
(CONTINUED)

Line No.	WMCE	Memo Accounts	Expense	Capital Expenditures	Total
22	Chapter 6: COVID-19 Pandemic: CEMA	CEMA	\$16,000	–	\$16,000
23	<i>Remove</i>	Cost Avoidance	(10,190)	–	(10,190)
24		Subtotal	5,902	–	5,902
25	Chapter 7: CC Memo. Accounts	COVID19 Pandemic Protections Memo Account	11,571	–	11,571
26		Disconnections Memo Account	8,175	–	8,175
27		Emergency Consumer Protections MA	2,214	–	2,214
28		California Consumer Privacy Act MA	5,937	\$2,381	8,318
29		Subtotal	27,898	2,381	30,279
30	Chapter 8: Microgrids	Microgrids Memorandum Account	87,213	2,853	90,066
31	Total Request		\$1,226,784	\$136,483	\$1,363,268

Note: TRRRMA is presented in RRQ and not reflected in costs above. There is no adjustment associated with TRRRMA. For details on TRRRMA see Chapters 9 and 12.

TABLE 11-2
TOTAL COSTS AND ADJUSTMENTS BY BALANCING AND MEMORANDUM ACCOUNT
(THOUSANDS OF DOLLARS)

Line No.	Account	Expense	Capital Expenditures	Total
1	Wildfire Mitigation Balancing Account Costs	\$163,320	—	\$163,320
2	<i>Exclude: Ernst & Young and ET</i>	(2,216)	—	(2,216)
3	Subtotal	161,104	—	161,104
4	2021 Adopted	55,292	—	55,292
5	115 percent of 2021 Adopted (ET Excluded)	59,647	—	59,647
6	Spend Above 115 percent of 2021 Adopted	101,457	—	101,457
7	Vegetation Management Balancing Account	1,540,825	—	1,540,825
8	<i>Ernst & Young recommendations</i>	(2,724)	—	(2,724)
9	Subtotal	1,538,101	—	1,538,101
10	2021 Adopted	602,814	—	602,814
11	120 percent of 2021 Adopted	723,377	—	723,377
12	Spend Above 120 percent of 2021 Adopted	814,724	—	814,724
13	CEMA Costs	189,999	\$134,479	324,478
14	CEMA Adjustments:	—	—	—
15	<i>Ernst & Young recommendations</i>	(59)	(120)	(179)
16	<i>Overheads and A&G</i>	—	(3,109)	(3,109)
17	CEMA Adjusted Costs	189,682	131,250	320,932
18	COVID-19 Pandemic CEMA Costs	16,092	—	16,092
19	CEMA Adjustments	—	—	—
20	<i>Cost Avoidance</i>	(10,190)	—	(10,190)
21	COVID-19 Pandemic CEMA Adjusted Costs	5,810	—	5,810
22	Other Memo Accounts	115,110	5,234	120,344
23	Grand Total	\$1,226,784	\$136,483	\$1,363,268

B. Costs Already Excluded from Chapters 2-4

The recorded amounts described below were already excluded from the costs presented in Chapters 2-4 of the testimony.

1. Ernst & Young's Independent Audit Report

As shown in Appendix A, EY performed an analysis of 2021 costs recorded in the WMBA, VMBA, and CEMA accounts. These accounts are hereinafter collectively referred to as the "WMCE Accounts." The analysis was to confirm that costs recorded to the Wildfire Mitigation and Catastrophic Events (WMCE) Accounts, as captured in PG&E's financial systems, were sufficiently supported, reasonable, and directly attributable to

the WMCE Accounts. To date, EY has analyzed approximately \$4.6 billion of wildfire mitigation program costs.

In addition to the analytical procedures and transaction testing, EY tested the incrementality of the CEMA costs compared to the last GRC and other rate recovery mechanisms. EY obtained the last GRC filing with supporting schedules to gain an understanding of the type and nature of costs included within current base rates.

2. EY's Review Methodology and Observations

EY segregated costs within the WMCE Accounts by cost category and performed analytics across each population. This allowed EY to develop testing procedures for each category based on its unique nature and risks. The combination of analytical procedures, statistical sampling, and transaction testing is designed to provide adequate coverage across all cost categories within the scope of these accounts. Approximately \$419 million of costs were tested, totaling 20 percent of the total costs incurred.

Table 11-3 below summarizes the costs within the WMCE Accounts provided by cost category:

TABLE 11-3
POPULATION OF WMCE ACCOUNTS BY COST CATEGORY
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	Amount	Selection Amount	Percentage Tested
1	Contract/External Labor	\$1,872,317	\$409,263	22%
2	Internal Labor	132,274	696	1%
3	Helicopter	19,361	5,336	28%
4	Materials	28,028	2,011	7%
5	Employee Expense	9,718	246	3%
6	AFUDC/Other	20,972	1,889	9%
7	Overheads	6,614	17	0%
8	Grand Total	\$2,089,284	\$419,458	20%

PG&E provided to EY available data and supporting documentation for each of these cost categories. EY reviewed the support for the cost categories.¹

¹ See Appendix A, WMCE Cost Analysis, EY Report (Nov. 2022), pp. 5-30, which provides a complete breakdown of EY's review and approach.

3. Results of EY's Review

EY prepared findings and observations regarding the costs in the memorandum and balancing accounts based on their testing and analysis. EY found no material evidence that would raise questions relating to management's conclusions that: (1) the costs were incurred for the activities set forth in the corresponding relevant CPUC-approved WMCE Accounts; (2) the costs were accurately recorded; and (3) there is no evidence of costs recorded to more than one account. Further, EY confirmed that any observations of possible deviations within the cost data provided were not material to the overall costs incurred.

The following section describes EY's observations for each category mentioned in Table 11-4 below.

**TABLE 11-4
OBSERVATIONS FOR POTENTIAL EXCLUSION
(THOUSANDS OF DOLLARS)**

Line No.	Cost Category	Statistical	Targeted	Total
1	Contract	\$110.5	\$1027.7	\$1,138.2
2	Transmission	—	100.1	100.0
3	Helicopter	—	49.1	49.1
4	Materials	—	42.1	42.1
5	Employee Expense	—	26.0	26.0
6	Internal Labor	—	34.9	34.9
7	Total	\$110.5	\$1,279.8	\$1,390.3
8	Extrapolated Amounts	\$1,870.3	\$1,279.8	\$3,150.1

- 1) **Contract Costs:** EY noted limited instances of vendors including expense amounts that were not properly evidenced within their invoice, the contract, or purchase order. These items contained unsubstantiated per diems, travel expenses, and unsubstantiated subcontractor expenses. EY noted limited instances of vendors marking up subcontractor charges which were prohibited in the contract, transactions recorded in the incorrect period or account, and limited instances of vendors billing on a time and materials basis without adequate justification for work included in defined scope contracts.

- 1 2) **Employee Expenses:** EY noted limited instances where the
2 transaction was related to unallowable expense types or where sufficient
3 evidence was not provided to support inclusion in the WMCE Accounts.
4 3) **Materials:** EY noted limited instances where sufficient evidence was
5 not provided to support inclusion in the WMCE Accounts or where
6 materials identified did not appear to fall within the scope of WMCE
7 activities.
8 4) **Helicopter:** EY noted one instance where helicopter cost included a
9 failed transaction amount which was not properly substantiated by the
10 supporting documentation. Within the same transaction, EY also noted
11 an additional immaterial reconciling difference between the underlying
12 documentation and the SAP transaction amount.
13 5) **Internal Labor:** EY noted limited instances of unexplained
14 overtime/double-time charges, unallowed cost types, and a reconciling
15 difference between underlying support to the SAP transaction amount.
16 EY observed one instance where call center calls were recorded on
17 days that did not align with PSPS events.

18 As a result of the procedures described above, EY identified
19 approximately \$1.4 million² (extrapolated to \$3.2 million) in costs that were
20 not properly evidenced for inclusion in the WMCE Accounts. Accordingly,
21 the amounts requested in the application have been reduced by the
22 extrapolated amount of approximately \$3.2 million as shown in Tables 11-1
23 and 11-2.

24 **4. CEMA Capitalized A&G**

25 In accordance with D.08-01-021, PG&E is removing all capitalized A&G
26 costs charged to the CEMA capital orders. Accordingly, PG&E has removed
27 \$3.1 million in CEMA capitalized overheads.

28 **5. Avoided Costs**

29 PG&E recognizes that due to the COVID-19 pandemic, certain costs
30 typically incurred for certain activities may have been avoided or
31 substantially reduced in comparison to prior years for the same activity. As

² Items not properly evidenced for inclusion in the WMCE Accounts total \$1,390,296 = Vendor \$1,027,729 + \$110,486 + Non -Vendor 252,080.

1 an example, PG&E recognizes that employee business travel expenses and
2 in-person training costs were less in 2021 than in prior years due to
3 COVID-19 travel and social distancing restrictions.

4 PG&E developed a mechanism for estimating those cost savings.
5 PG&E identified certain accounts impacted by the pandemic and did a
6 comparison of those costs in 2021 vs. those in 2019, the most-recent
7 pre-pandemic year. A total savings of \$10.2 million was identified and
8 applied as an offset to PG&E's incurred COVID-19 pandemic costs.

9 In addition, PG&E experienced savings in other areas. In the CRESS
10 Line of Business there were savings in conference centers, moves, utility
11 usage, and rent credits due to low utilization. In Customer Care there were
12 savings in collection agency fees, credit notices postage & materials, and in
13 SmartSafe/Payment courier fees.

14 **C. Conclusion**

15 As shown in this chapter, PG&E has removed from its cost recovery request
16 appropriate adjustments relating to recommendations from our external auditor,
17 CEMA capitalized A&G, and COVID-19 Pandemic avoided costs.

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 12
REVENUE REQUIREMENT

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 12
REVENUE REQUIREMENT

TABLE OF CONTENTS

A. Introduction.....	12-1
B. Summary of Request.....	12-1
C. Elements of the Results of Operations Calculation	12-3
1. Expense	12-4
2. Capital.....	12-4
a. Depreciation	12-5
b. Rate of Return on Rate Base.....	12-6
c. Income Tax and Depreciation Assumptions	12-6
d. Property Taxes	12-9
D. Common Cost allocation	12-9
E. Cost Recovery	12-10
F. Conclusion.....	12-11

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 12
REVENUE REQUIREMENT

A. Introduction

The purpose of this chapter is to present the revenue requirement associated with the incremental costs recorded in various balancing and memorandum accounts sought recovery in this application. These accounts are: (1) the Wildfire Mitigation Balancing Account (WMBA); (2) the Vegetation Management Balancing Account (VMBA); (3) the Catastrophic Event Memorandum Account (CEMA); (4) the Emergency Consumer Protections Memorandum Account (ECPMA); (5) the Disconnections Memorandum Account (DMA); (6) the coronavirus (COVID-19) Pandemic Protections Memorandum Account (CPPMA); (7) the California Consumer Privacy Act Memorandum Account (CCPAMA); (8) the Microgrids Memorandum Account (MGMA); and (9) the Transmission Revenue Requirement Reclassification Memorandum Account (TRRRMA). Pacific Gas and Electric Company (PG&E) calculates the revenue requirement using the Results of Operations (RO) model. The RO model compiles all capital costs and operating expenses to estimate the revenue that PG&E needs to recover for work presented in this application. The revenue requirement for these costs is described below in Section B and set forth in the tables at the end of this chapter. The revenue requirement for the final cost recovery approved by the California Public Utility Commission (CPUC or Commission) will be calculated using the same RO assumptions presented here, updated as appropriate for interest expense, Revenue Fees and Uncollectibles (RF&U), authorized Cost of Capital (COC), and tax parameters.¹

B. Summary of Request

In this application, PG&E seeks recovery of \$1,296.0 million in total revenue requirement excluding interest for the period of 2021 through 2026 except for TRRRMA 2021 activity capital revenue requirement.² Table 12-1 below

¹ A.20-02-003.

² In this Application, PG&E only seeks recovery of the 2021 and 2022 capital revenue requirement for TRRRMA 2021 activity.

presents the total revenue requirement by memorandum account and Table 12-2 presents revenue requirement by Electric Distribution, Gas Distribution (GD), Electric Generation (EG) and Gas Transmission and Storage (GT&S).

TABLE 12-1
2022 WMCE REVENUE REQUIREMENT SUMMARY
(THOUSANDS OF DOLLARS)

Line No.	Memorandum Account	Expense Revenue Requirement	Capital Revenue Requirement	Total Revenue Requirement
1	Total CEMA Events	\$192,661	\$71,704	\$264,366
2	VMBA	814,724	—	814,724
3	WMBA	101,457	—	101,457
4	CPPMA	11,266	—	11,266
5	DMA	8,480	—	8,480
6	ECPMA	2,214	—	2,214
7	CCPAMA	5,937	2,844	8,782
8	MGMA	87,213	2,170	89,383
9	TRRRMA	(330)	(4,340)	(4,669)
10	Subtotal without interest	\$1,223,623	\$72,379	\$1,296,002
11	Interest (2021-2023)	34,590	324	34,914
12	Total RRQ (including Interest)	\$1,258,213	\$72,704	\$1,330,916

The CEMA total revenue requirement of \$264.4 million is associated with \$195.8 million of expense and \$131.2 million in capital expenditures in response to certain CEMA events incurred in 2021, as presented in Chapter 4 through 6. As discussed in Chapter 11, the costs underlying the CEMA revenue requirement have been adjusted, in compliance with Public Utilities Code Section 454.9, Resolution (Res.) E-3238 (July 24, 1991), and Decision (D.) 08-01-021, to reflect only those costs not otherwise recovered through rates and incurred in counties that received a disaster declaration by a competent state or federal authority.

The WMBA and VMBA revenue requirement of \$916.2 million is associated with \$916.2 million of expense incurred in 2021 and recorded in the WMBA and VMBA, as presented in Chapter 2 and Chapter 3. As explained in Chapter 11, the VMBA amount of \$814.7 million is associated with the incremental spend above the 120 percent of the authorized VMBA activities specified in the 2020 General Rate Case (GRC) D.20-12-005. The WMBA amount of \$101.5 million is associated with the incremental expenses above the 115 percent of the authorized WMBA expenses specified in the 2020 GRC D.20-12-005.

1 The MGMA total revenue requirement of \$87.2 million is associated with
2 \$87.2 million of expense and \$2.8 million of capital expenditures through 2021,
3 as presented in Chapter 8.

4 The result of TRRRMA has a total negative revenue requirement of
5 (\$4.7) million, which is associated with (\$0.3) million of expense and
6 (\$7.5) million in plant that were transferred between CPUC jurisdiction and
7 Federal Energy Regulatory Commission (FERC) jurisdiction as explained in
8 Chapter 9.

9 The other revenue requirement of \$30.7 million is associated with
10 \$2.2 million of expense recorded to the ECPMA, \$8.5 million of expenses in the
11 DMA, \$11.3 million of expenses in the CPPMA, and \$5.9 million of expense and
12 \$2.8 million of capital expenditures recorded to the CCPAMA, as discussed in
13 Chapter 7.

14 Table 12-2 at the end of this chapter presents the revenue requirement by
15 balancing and memorandum account described above. The revenue amount in
16 this application excludes RF&U. When this application is approved by the
17 CPUC, PG&E will update the revenue requirement to include RF&U in
18 accordance with the Commission approved preliminary statement discussed in
19 Section D in this chapter.

20 PG&E proposes to record the appropriate revenue requirement presented in
21 this application into the Electric Distribution Revenue Adjustment Mechanism
22 (DRAM), Portfolio Allocation Balancing Account (PABA), Gas Core Cost
23 Subaccount of the Core Fixed Cost Account (CFCA), and Noncore Subaccount
24 of the Noncore Customer Class Charge Account (NCA).

25 **C. Elements of the Results of Operations Calculation**

26 Costs included in this application are based on the recorded amounts for
27 the Wildfire Risk Mitigation Programs, Catastrophic Events, and other
28 memorandum accounts summarized in Chapter 1. Chapters 2 through 11
29 testimony and workpapers provide detailed description of these costs.³

3 RO was not updated for errata identified from Chapter 2 to Chapter 9, PG&E will update the revenue requirement at a future date prior to hearings.

1. Expense

In this application, PG&E seeks to recover a total expense revenue requirement of \$1,223.6 million excluding interest. This amount is associated with the relevant expense of \$916.2 million recorded in the WMBA and the VMBA, \$192.7 million recorded in the CEMA for certain CEMA events included in this application, \$2.2 million recorded in the ECPMA, \$8.5 million recorded in the DMA, \$11.3 million recorded in the CPPMA, \$5.9 million in the CCPAMA, \$87.2 million recorded in the MGMA, and (\$0.3) million in the TRRRMA.

The expense-related revenue requirement is presented by year in Table 12-3 at the end of this chapter.

2. Capital

In this application, PG&E seeks to recover a total capital revenue requirement of \$72.4 million excluding interest. This capital-related revenue requirement is presented in Tables 12-1 and 12-2. The total capital revenue amount is associated with the incremental capital expenditures of \$131.2 million recorded in the CEMA for certain CEMA events and \$2.3 million in the CCPAMA, \$2.8 million in the MGMA and (\$8.5) million of net plant in the TRRRMA included in this application. There is no capital revenue requirement for the VMBA, the WMBA, the CPPMA, the DMA, and the ECPMA.

Capital revenue requirement of \$72.4 million represents: (1) revenue requirement from 2021-2022 for recorded costs in the TRRRMA 2021 activity; and (2) revenue requirement from 2021-2026 for recorded costs in the 2021 CEMA events and the prior 2021 CEMA events, the MGMA, the CCPAMA and the TRRRMA 2021 rate base. The capital-related revenue requirement is presented by year in Table 12-4 at the end of this chapter.

The capital revenue requirement is calculated based on the capital additions associated with the expenditures included in this application. Capital additions are incurred when PG&E spends funds on capital projects that are necessary to replace, augment or support its existing utility plant. In the case of the CEMA capital expenditures included in this filing, these expenditures were incurred to correct a loss of property or other damage to existing utility plant resulting from the identified Catastrophic Events. As

discussed in Chapter 11, PG&E has excluded capitalized Administrative and General (A&G) costs from the CEMA capital expenditures in this filing.

As capital work happens, the costs are accumulated and recorded to Construction Work in Progress (CWIP) until the project is operational and providing utility service. While in CWIP, projects that last over 30 days accrue an Allowance for Funds Used During Construction (AFUDC). Projects that last less than 30 days do not accrue AFUDC and are treated as “operative as installed.” When a specific capital project becomes operational, the CWIP balance is transferred to plant-in-service, and the capital expenditures and associated AFUDC become part of capital additions. Once a project is transferred to plant-in-service, it is included in rate base and a revenue requirement is calculated.

Res.E-3238 provides that “[i]n addition to direct expense, utilities could also book capital-related costs such as depreciation and return on capitalized additions.” Consistent with this resolution, PG&E’s capital-related revenue requirement includes depreciation expense, a return on rate base, related federal and state income taxes, and property taxes.

The various capital-related components of the RO calculation are discussed below.

a. Depreciation

Depreciation is included in the revenue requirement calculation as both depreciation expense and accumulated depreciation. Depreciation expense is calculated on a straight-line, remaining-life method (in accordance with the Commission Standard Practice U-4, Determination of Straight-Line Remaining Life Depreciation Accruals) using CPUC-approved rates from depreciation accrual rate schedules effective during the period for which the revenue requirement calculations are made. Depreciation expense is calculated by multiplying the weighted average plant in service by the corresponding book depreciation rates.

In this application, PG&E has used the 2020 GRC D.20-12-005 authorized depreciation rates for the years 2021-2026.

1 **b. Rate of Return on Rate Base**

2 Rate base is calculated using utility plant less adjustments for
3 deferred taxes and depreciation reserve. Utility plant consists of the
4 original cost of investment in plant and equipment that is used and
5 useful in rendering or restoring utility services. In developing the rate
6 base associated with that plant for purposes of this filing, certain
7 deductions are made. A reduction is made for the accumulated deferred
8 income taxes associated with these assets. These deferred income
9 taxes primarily result from following the Modified Accelerated Cost
10 Recovery System (MACRS) tax depreciation method and casualty loss
11 deductions for Federal Income Tax (FIT) purposes. Rate base is
12 reduced by the amount of depreciation reserve (i.e., the accumulated
13 depreciation already taken in prior years).

14 PG&E multiplies the currently adopted composite Rate of Return
15 (ROR) by the weighted average rate base for each year to calculate the
16 Net for Return. This calculation uses the ROR and capital structure
17 adopted in PG&E's 2020 authorized COC decision for years
18 2020-2026.⁴ On August 20, 2020, CPUC approved PG&E's Advice
19 Letter (AL) 4275-G/5887-E (Tier 2) to update its COC effective July 1,
20 2020. This application uses the updated cost of debt from this AL.
21 PG&E will update the return on rate base if the Commission authorizes
22 a new COC in a future COC proceeding.

23 **c. Income Tax and Depreciation Assumptions**

24 This section describes the assumptions and calculations used in the
25 revenue requirement calculation to estimate depreciation for income tax
26 purposes.

27 PG&E estimates current California Corporation Franchise Taxes
28 and FIT on net operating income before income taxes. PG&E follows
29 MACRS and Asset Depreciation Range⁵ guidelines for classifying
30 capital additions and calculating federal and state tax depreciation.
31 Current FIT expense is the product of the currently effective corporate

4 D.19-12-056.

5 Uses Sum of Years Digits method.

1 income tax rate (35 percent prior to 2018 and 21 percent commencing in
2 2018 and going forward), and federal taxable income. Likewise, current
3 state income tax expense is the product of the statutory rate
4 (8.84 percent) and the state taxable income. Both MACRS and federal
5 casualty loss tax deductions are computed on a normalized basis. This
6 allows PG&E to recognize the timing differences between book and
7 these federal tax deductions. This difference multiplied by the federal
8 tax rate is called deferred FITs and is included as an adjustment to
9 current federal tax expense and a credit to rate base. State income
10 taxes are calculated using flow-through treatment with exception of
11 TRRRMA. With a flow-through treatment, customers receive an
12 immediate benefit from use of accelerated state tax deductions, there is
13 no deferred state taxes and therefore no associated deduction to rate
14 base. However, for TRRRMA, a reclassification memorandum account
15 from FERC to CPUC, PG&E will continue the Federal and California
16 normalized treatment by FERC Order 144-A.

17 The 2017 Tax Cuts and Jobs Act (TCJA) reduced the FIT rate from
18 35 percent to 21 percent, which resulted in remeasurement of deferred
19 taxes associated with capital additions placed in service prior to 2018
20 from 35 percent to 21 percent as of December 31, 2017. The
21 14 percent excess will be refunded to ratepayers in accordance with
22 normalization requirements. Depreciation related tax timing differences
23 giving rise to excess tax reserves are required to be amortized using the
24 Average Rate Assumption Method (ARAM) under the normalization
25 rules. The ARAM requires that excess tax reserves be refunded to
26 customers over the regulatory book life of the underlying assets that
27 generated the original tax reserves. TCJA stipulates that the refund of
28 excess tax reserves will occur more rapidly or to a greater extent than
29 such reserve would be reduced under the ARAM results in a
30 normalization violation. PG&E proposes to use the ARAM to amortize
31 plant-related excess deferred taxes.

32 The CEMA capital expenditures included in this filing were incurred
33 to correct a loss of property or other damage to existing utility plant
34 resulting from an identified catastrophic event. Certain capital costs

1 qualify for casualty loss tax treatment. Internal Revenue Code
2 Section 165(a) allows a deduction for any loss sustained during the
3 taxable year that is not compensated for by insurance or otherwise. In
4 accordance with Revenue Ruling 87-117 and Chief Counsel
5 Advice 201145011, the potential recovery of storm and fire costs
6 requested in a filing with the CPUC is not considered compensation for
7 the casualty loss under Section 165(a) (however any potential recovery
8 will be included in gross income in the future if and when received).
9 Treas. Reg. Section 1.165-1(b) provides that to be allowable as a
10 deduction under Section 165(a), a loss must be evidenced by closed
11 and completed transactions, fixed by identifiable events, and related to
12 disaster losses actually sustained during the taxable year. The amount
13 of loss to be taken into account for purposes of Section 165(a) shall be
14 the lesser of either:

- 15 i) The amount which is equal to the fair market value of the property
16 immediately before the casualty reduced by the fair market value of
17 the property immediately after the casualty; or
- 18 ii) The amount of the adjusted basis prescribed in Treas. Reg.
19 Section 1.1011-1 for determining the loss from the sale or other
20 disposition of the property involved.

21 Under Treas. Reg. Section 1.165-7(a)(2)(ii), the cost of repairs (both
22 capital and expense) to the property damaged is acceptable as
23 evidence of the loss of value. However, Treas. Reg.
24 Section 1.263(a)-(3)(k)(1)(iii), requires the taxpayer to capitalize the
25 expense component resulting in net tax deduction of the capital
26 restoration costs. Since these Catastrophic Event costs are capitalized
27 for book purposes and deducted for tax purposes, a book to tax
28 adjustment is created. As described above, in this filing, federal book to
29 tax adjustments for depreciation and casualty loss deduction are
30 computed on a normalized basis, while state book to tax differences is
31 calculated on a flow-through basis.

32 Cost capitalized for book purposes that do not qualify for tax
33 casualty loss deductions may qualify for the tax repair deduction.
34 Federal and California tax repair deductions are treated on a

1 flow-through basis. PG&E applies Treasury Regulations under
2 Sections 162 and 263(a) to deduct costs attributable to repairs and
3 maintenance of GT and distribution lines. PG&E applies Internal
4 Revenue Service (IRS) Revenue Procedures 2011-43 and 2013-24 to
5 deduct costs attributable to repairs and maintenance of electric
6 distribution circuits and EG plants. The IRS guidance allows a more
7 expansive “unit of property” definition for tax purposes than for financial
8 reporting purposes. This allows PG&E to treat certain expenditures as a
9 current repair expense. For financial reporting purposes, these
10 expenditures are capitalized and depreciated. Thus, a tax and book
11 basis timing difference is created.

12 **d. Property Taxes**

13 Property tax calculations are determined by multiplying the taxable
14 Plant Less Depreciation (Net Plant) by the composite property tax factor
15 for 2020-2026 with the exception of the TRRRMA 2021 activity. The
16 composite property tax factor for the TRRRMA 2021 activity is
17 calculated using the 2020-2022 (Net Plant) composite property tax
18 factor. The property tax factor is comprised of the adjusted base year
19 market-to-cost ratio multiplied by the composite tax rate. The adjusted
20 market-to-cost ratio is the relationship between the most current
21 assessment (adjusted) and the taxable Net Plant.

22 **D. Common Cost allocation**

23 Certain CEMA costs presented in Chapter 4 and certain COVID-19
24 Pandemic costs presented in Chapter 6 relate to A&G costs and are shared
25 among all functional areas within PG&E. Similar to PG&E’s practice in its GRC,
26 these A&G costs are allocated to different functional areas (Electric Distribution,
27 GD, EG, GT&S and Electric Transmission) using 2021 recorded Operations &
28 Maintenance (O&M) labor allocation factors. The revenue requirement
29 presented in this chapter includes Electric Distribution, GD, EG, GT&S which are
30 under the CPUC jurisdiction.

1 **E. Cost Recovery**

2 PG&E is proposing to recover a total revenue requirement of \$1.3 billion in
3 this application. However, PG&E is seeking to recover \$1.104 billion or 85% of
4 \$1.3 billion in a separate interim rate motion.⁶

5 The separate interim rate motion will recover the \$1.104 billion or 85% of
6 \$1.3 billion over a 12-month period beginning June 1, 2023 (Electric Distribution
7 only), and the remaining 15 percent, or \$224.4 million, to be recovered over the
8 subsequent 12 months, with the exception of the capital revenue requirement for
9 which would extend through 2026.

10 Consistent with past practice, PG&E proposes to roll the 2021 capital
11 associated with 2021 CEMA events and prior 2021 CEMA Events into the
12 2027 GRC rate base. The revenue requirement associated with recorded costs
13 for 2021 CEMA Events and prior to 2021 CEMA Events, CCPAMA and MGMA
14 are not included in PG&E's 2023 GRC or in any other cost recovery mechanism
15 or otherwise adopted as part of current authorized rates.

16 In the final stages of preparing this case PG&E identified minor amounts that
17 needed to be reclassified between various Lines of Business. These reclassified
18 amounts will be captured in future runs of the RO model. Furthermore, future
19 adjustments that are discovered through the litigation of the case will be included
20 in the revenue requirement update, as appropriate.

21 The revenue requirement calculation in this filing excludes RF&U. Upon the
22 CPUC approval of the cost recovery in this application, the revenue requirement
23 associated with the approved costs in this filing will be posted monthly into the
24 specific memorandum accounts and will include interest and RF&U.

25 PG&E proposes to recover all approved incremental expenditures through
26 the DRAM, PABA, ERRRA, CFCA, and NCA rate mechanisms as part of the next
27 available rate change after the effective date of the decision in this proceeding.
28 Rates set to recover revenue requirements proposed in this application will be
29 determined using adopted methodologies for revenue allocation and rate design

6 Application No. 22-12-009 Motion of Pacific Gas and Electric Company (U 39 E) for Wildfire Mitigation and Catastrophic Events Interim Rates.

1 to recover the Electric Distribution, EG, GD, and GT&S costs.⁷ The change in
2 rates for approved recovery of recorded costs included in this application will
3 affect total charges for bundled service customers and for customers who
4 purchase energy from other suppliers (i.e., direct access and community choice
5 aggregation customers).

6 PG&E's final cost recovery will include the interest expense based on the
7 applicable interest rates, timing of the decision and the approved cost recovery.
8 PG&E will accrue interest associated with authorized revenue requirement
9 based on the latest available interest rates, consistent with the
10 Commission-approved preliminary statement, which states "interest rate on
11 three-month Commercial Paper for the previous month, as reported in the
12 Federal Reserve Statistical Release, G.13, or its successor."⁸

13 **F. Conclusion**

14 PG&E respectfully requests that the Commission adopt a total revenue
15 requirement of \$1,296.0 million (excluding interest). The revenue requirement
16 set forth in this filing is calculated using the RO model for separately funded rate
17 case applications and is based on the recorded costs presented and included in
18 other testimony submitted in this filing. The revenue requirement calculation is
19 provided in the workpapers supporting this chapter.

7 The current electric revenue allocation and rate design methods were approved by D.21-11-016 in PG&E's 2020 GRC Phase 2 proceeding. Recovery of the Electric Distribution revenue requirement requested in this Application would be allocated to customer classes using the allocation methodology for CEMA, Hazardous Substance Mechanism, and Wildfire Mitigation Costs as adopted by D.21-11-016.

8 Electric Preliminary Statement Part G, CEMA, https://www.pge.com/tariffs/assets/pdf/tariffbook/ELEC_PRELIM_G.pdf; Gas Preliminary Statement Part AC, CEMA, https://www.pge.com/tariffs/assets/pdf/tariffbook/GAS_PRELIM_AC.pdf (as of Nov. 21, 2022).

TABLE 12-2
REVENUE REQUIREMENT – SUMMATION OF ALL YEARS (2015-2026)
(THOUSANDS OF DOLLARS)

Line No.	Account	Electric Distribution			Electric Generation			Gas Distribution			Gas Transmission			Total Functional Areas		
		(2021-2026)			(2021-2026)			(2021-2026)			(2021-2026)			(2021-2026)		
		Expense	Capital	Total	Expens	Capital	Total	Expens	Capital	Total	Expens	Capita	Total	Expense	Capital	Total
1	Catastrophic Event Memorandum Account (CEMA)	170,650	70,942	241,592	9,613	762	10,375	4,851		4,851	2,313	-	2,313	187,427	71,704	259,131
2	COVID-19 Pandemic CEMA	2,696		2,696	1,356		1,356	670		670	513		513	5,234	-	5,234
3	Vegetation Management Balancing Account (VMBA)	814,545	-	814,545	180	-	180	-	-	-	-	-	-	814,724	-	814,724
4	Wildfire Management Balancing Account (WMBA)	111,745	-	111,745	(7,412)	-	(7,412)	373	-	373	(3,250)	-	(3,250)	101,457	-	101,457
5	Microgrids Memorandum Account (MGMA) ^(a)	86,871	2,170	89,041	342		342			-	-	-	-	87,213	2,170	89,383
6	COVID-19 Pandemic Protections Memo Account (CPPMA)	8,434	-	8,434			-	2,832	-	2,832	-		-	11,266	-	11,266
7	Disconnection Memo Account (DMA)	4,664		4,664			-	3,816		3,816			-	8,480	-	8,480
8	Emergency Consumer Protections MA (ECPMA)	1,218		1,218			-	997		997			-	2,214	-	2,214
9	California Consumer Privacy Act MA (CCPAMA)	3,266	2,844	6,110			-	2,672		2,672			-	5,937	2,844	8,782
10	Transmission Revenue Requirement Reclassification Memorandum Account (TRRRMA) ^(b)	(330)	(4,340)	(4,669)	-	-	-	-	-	-	-	-	-	(330)	(4,340)	(4,669)
11	Subtotal - Recorded without Interest	1,203,759	71,617	1,275,375	4,078	762	4,840	16,211	-	16,211	(425)	-	(425)	1,223,623	72,379	1,296,002
12	Interest (2021-2023) ^(c)	34,041	319	34,360	94	5	100	465	0	465	(11)	(0)	(11)	34,590	324	34,914
13	Total RRQ (including Interest)	1,237,800	71,936	1,309,736	4,172	768	4,940	16,676	0	16,676	(436)	(0)	(436)	1,258,213	72,704	1,330,916

(a) A total of \$89 million revenue requirement is included in Microgrids Memo Acct for years 2021–2026.

(b) TRRRMA is calculated based on Plant and Reserve balances for Capital and derived from a factor based on Plant for O&M Expense. The 2021 Plant is (\$7) million, and 2021 Reserve is (\$0.5) million. The total revenue requirement for TRRRMA is (\$4.7) million.

(c) Interest calculation is same as application. Upon the CPUC approval of the cost recovery, PG&E will accrue interest associated with authorized revenue requirement based on the latest available interest rates.

TABLE 12-3
EXPENSE REVENUE REQUIREMENT – SUMMARY BY YEAR (2021-2026)
(THOUSANDS OF DOLLARS)

Line No.	Annual RRQ and Interest	Electric		Electric		Gas		Total Functional Area Expense RRQ
		Distribution Expense RRQ	Generation Expense RRQ	Distribution Expense RRQ	Transmission Expense RRQ	Gas Expense RRQ	Transmission Expense RRQ	
1	2021	1,203,759	4,078	16,211	(425)			1,223,623
2	Interest (2021-2023)	34,041	94	465	(11)			34,590
3	Total	1,237,800	4,172	16,676	(436)			1,258,213

TABLE 12-4
CAPITAL REVENUE REQUIREMENT – SUMMARY BY YEAR (2021-2026)
(THOUSANDS OF DOLLARS)

Line No.	Annual RRQ and Interest	Electric Distribution Capital RRQ	Electric Generation Capital RRQ	Gas Distribution Capital RRQ	Gas Transmission Capital RRQ	Total Functional Area Capital RRQ
1	2021	(8,912)	64	-	-	(8,849)
2	2022	18,350	143	-	-	18,493
3	2023	15,778	142	-	-	15,920
4	2024	15,913	142	-	-	16,055
5	2025	15,468	138	-	-	15,606
6	2026	15,021	134	-	-	15,155
7	Interest (2021-2023)	319	5	0	(0)	324
8	Total	71,936	768	0	(0)	72,704

TABLE 12-5
TOTAL REVENUE REQUIREMENT – SUMMARY BY YEAR (2021-2026)
(THOUSANDS OF DOLLARS)

Line No.	Annual RRQ and Interest	Electric		Electric		Gas		Gas		Total Functional Area RRQ
		Distribution RRQ	Generation RRQ	Distribution RRQ	Generation RRQ	Distribution RRQ	Transmission RRQ	Distribution RRQ	Transmission RRQ	
1	2021	1,194,846	4,142	16,211	(425)					1,214,774
2	2022	18,350	143							18,493
3	2023	15,778	142							15,920
4	2024	15,913	142							16,055
5	2025	15,468	138							15,606
6	2026	15,021	134							15,155
7	Subtotal - Without Interest (2021-2026)	1,275,375	4,840	16,211	(425)					1,296,002
8	Interest (2021-2023)	34,360	100	465	(11)					34,914
9	Total RRQ	1,309,736	4,940	16,676	(436)					1,330,916

PACIFIC GAS AND ELECTRIC COMPANY
APPENDIX A
ERNST AND YOUNG WILDFIRE MITIGATION AND
CATASTROPHIC EVENTS COST ANALYSIS

Pacific Gas & Electric
Wildfire Mitigation & Catastrophic
Events Cost Analysis

December 2022



Table of Contents

Introduction.....	3
Executive summary	4
Procedures performed	6
Contract Costs	6
Internal Labor	14
Helicopter Charges	19
Materials	20
Employee Expense	23
Overheads	25
AFUDC/Other	26
Summary of findings and recommendations	28
Appendix A – Statistical sampling methodology	31
Appendix B – Company documentation received	38

Introduction

Pacific Gas & Electric Company (the "Company" or "PG&E") engaged Ernst & Young LLP ("EY") to conduct an analysis of electric costs included in PG&E's Wildfire Mitigation and Catastrophic Events Accounts ("WMCE") Cost Recovery Application. The accounts included within the scope of work for this analysis are the Vegetation Management Balancing Account ("VMBA") from January 1, 2021 through December 31, 2021, the Wildfire Mitigation Balancing Account ("WMBA") from January 1, 2021 through December 31, 2021 and the Catastrophic Events Memorandum Account ("CEMA") from January 1, 2021 through December 31, 2021. These accounts are hereinafter collectively referred to as the "WMCE Accounts."

The purpose of the analysis was to confirm that the costs included in the Company's cost recovery proceedings for the designated accounts, as captured in the Company's financial systems, reflected the costs directly attributable to the WMCE Accounts and that any observations of possible deviations within the cost data provided (within the scope of our analysis) were not material to the overall costs incurred. PG&E plans to use this analysis to support its WMCE application in a future proceeding.

Our analysis was conducted in accordance with the consulting professional standards in the Statement on Standards for Consulting Services ("SSCS") established by the American Institute of Certified Public Accountants. Furthermore, our approach is designed to achieve the principles of the National Association of Regulatory Utility Commissioners' ("NARUC") Rate Case and Audit Manual (2003) in an effective and efficient manner. As noted in the manual, we relied on the commonly understood concepts of "prudence" and "reasonableness" when reviewing expenses and corresponding adjustments proposed by PG&E. The manual states the purpose of applying these concepts is to "determine a revenue requirement and customer rates that are just, fair, reasonable, and sufficient."

We considered legislation in California Senate Bill ("SB") 901 and AB 1054, which mandates activities to strengthen California's ability to prevent and recover from catastrophic wildfires. This legislation contains additional requirements for utilities to address wildfire risks, including implementing a comprehensive fire prevention plan. We embedded relevant requirements and the Company's guidance on costs related to the WMCE Accounts within our testing steps and used this guidance to inform our conclusions.

We considered Resolution E-3238, dated July 24, 1991 which authorized utilities to establish Catastrophic Event Memorandum Accounts (CEMA) and to records costs of: (a) restoring utility service to its customers; (b) repairing, replacing or restoring damaged utility facilities; and (c) complying with government agency orders resulting from declared disasters. Resolution E-3238 required the utilities to notify the Commission's Executive Director by letter within 30 days after the catastrophic event, if possible, if it has started booking costs in the CEMA.

We also considered Resolution ESRB-4 from the CPUC's Safety and Enforcement Division, which mandates activities to strengthen California's ability to prevent and recover from catastrophic wildfires. This resolution contains additional requirements for utilities to address wildfire risks, including the ability to seek cost recovery through the CEMA Cost Recovery Application process. The resolution specifically notes recovered costs within CEMA must be "truly incremental" and avoid double collection of costs, which is prohibited. Additionally, the resolution requires independent, third-party review of the costs and explicitly states these provisions are meant to protect California

ratepayers. We embedded requirements from ESRB-4 and the Company's guidance on incremental costs related to the CEMA Accounts within our testing steps and used this guidance to inform our conclusions.

Our procedures do not constitute an audit of the Company's financial statements nor do we provide any form of assurance on the financial statements as a whole. Our procedures did not constitute an audit, review or compilation as those terms are defined by the American Institute of Certified Public Accountants.

Executive summary

Objective

Based on information provided by PG&E relating to the costs included in the Company's cost recovery proceedings for the WMCE Accounts, we prepared findings and observations regarding the inclusion of these costs in the WMCE Accounts based on our testing and analysis. This report summarizes our approach to the analysis and testing of the balances within the WMCE Accounts.

Over the 2020 GRC term, from 2020 through 2022, the VMBA was modified to be a two-way balancing account to record the difference between actual and adopted expenses resulting from its Routine Vegetation Management, Enhanced Vegetation Management ("EVM") activities previously recorded in FRMMA/WMPMA, and Tree Mortality and Fire Risk Reduction work previously recorded in the CEMA. Additionally, the WMBA was established as a new two-way balancing account to record the difference between actual and adopted expenses and capital revenue requirements resulting from certain wildfire mitigation activities related to the Community Wildfire Safety Program ("CWSP"). The CWSP programs to be included in the WMBA consist of costs such as Wildfire System Hardening, Enhanced Operational Practices, Enhanced Situational Awareness and Other Support Programs.

Our objectives were to:

- 1) Analyze whether the costs in the above referenced accounts were sufficiently supported, reasonable, and whether the costs incurred were directly attributable to the WMCE Accounts.
- 2) Develop observations relating to the costs and provide those observations to the Company.
- 3) Request additional supporting documentation from the Company, analyze the facts surrounding the charges, and verify that there were no other pertinent facts that would impact the allocation of the charges to the WMCE Accounts.
- 4) Prepare supporting workpaper documentation for all analyses, observations, and conclusions.

The table below summarizes the total costs within the WMCE Accounts provided to us by PG&E by cost category:

Table 1 – Population of WMCE Accounts by cost category¹

Cost Category	Amount	Selection Amount	% Tested
Contracts & External Labor	\$ 1,872,316,956	\$ 409,262,906	22%
Internal Labor	\$ 132,274,319	\$ 695,722	1%
Helicopter	\$ 19,360,510	\$ 5,335,571	28%
Materials	\$ 28,027,764	\$ 2,011,376	7%
Employee Expense	\$ 9,718,365	\$ 245,782	3%
Overheads	\$ 20,972,253	\$ 1,888,505	9%
AFUDC/Other	\$ 6,613,868	\$ 17,753	0%
Grand Total	\$ 2,089,284,034	\$ 419,457,615	20%

Approach

Our approach consisted of first segregating the costs within the WMCE Accounts by cost category. We performed analytics across each population and developed specific testing procedures² tailored to each category of cost based on its unique nature and associated risks. We tested approximately \$419M, totaling 20% of the total costs incurred. Amounts selected for detailed transaction testing vary based on the costs within each category. For example, certain categories have a low volume of transactions with a high dollar value, while other categories have a high volume of transactions with a low dollar value. In addition to our detailed transaction testing, we held multiple discussions across the organization with the Finance, Regulatory, and Vegetation Management Departments. The combination of analytical procedures, statistical sampling, and transaction testing is designed to provide adequate coverage across all cost categories within the scope of these accounts.

In addition to the analytical procedures and transaction testing, we also considered the incrementality of the CEMA costs compared to the last approved General Rate Case ("GRC") and other mechanisms. We obtained the last GRC filing with supporting schedules to gain an understanding of the type and nature of costs included within current base rates. Based on the information analyzed, the CEMA costs included in this application are incremental to base rates.

We performed additional analytics across the full population of all projects EY has performed for PG&E related to wildfire programs. EY had previously been engaged to analyze the Wildfire Mitigation Plan Memorandum Account (WMPMA), Fire Risk Mitigation Memorandum Account (FRMMA), Fire Hazard Prevention Memorandum Account (FHPMA), Wildfire Mitigation Balancing Account ("WMBA"), and Vegetation Management Balancing Account ("VMBA") and the CEMA Accounts included within the scope of this report. In total, we have analyzed approximately \$4.6 billion of wildfire program costs.

¹ Values within the tables throughout this report may not sum precisely due to rounding.

² Our tailored testing procedures are further described within the "Procedures Performed" section of this report below.

Over the course of these engagements, we have collected and retained transaction level detail for each account listed above. Our analysis was based on the Cost Element, Order and CO Document Numbers. To date we have not identified evidence of costs recorded on more than one account.

Findings and Conclusions

Based on our analysis, we found no evidence of systemic errors or omissions that would raise questions relating to management's conclusions that costs were: 1) incurred for the activities set forth in the corresponding relevant CPUC approved Accounts; 2) accurately recorded; and 3) there is no evidence of costs recorded on more than one account.

The amount of WMCE costs provided for our analysis totaled \$2,089,284,034. PG&E determined not to seek recovery for certain CEMA events within this application (\$93,170,444). This resulted in an adjusted WMCE population of \$1,996,113,590.

Among the population, we identified items totaling approximately \$1.4M (extrapolated to \$3,150,097) of expenditures that were not properly evidenced for inclusion in the WMCE accounts. These findings are described in further detail throughout our report.

These exclusions result in a total adjusted WMCE amount of \$1,992,963,493.

Procedures performed

The following section describes the detailed procedures performed for each category of cost mentioned above.

Contract Costs

Cost Category	Amount	Percent of Total Population
Contract	\$ 1,872,316,956	89.6%

Approach

Detailed transaction testing was performed on approximately \$409.3M of contract costs or approximately 22% of total contract costs from a starting population of approximately \$1.9B. To arrive at a starting population of \$1.9B for contract costs, we used cost guidance provided by PG&E to segregate data into cost categories using the "Cost Element" field in the SAP data provided to us. We segregated the identified contract transactions into two categories for specific testing procedures: targeted selections and a statistical sample.

Table 2 – Contract cost subcategories

Ref	Contract Cost - Subcategories	SAP Amount	Selected for Testing
A	Targeted	\$ 55,663,565	\$ 32,718,307
B	Statistical Sample	\$ 1,816,653,391	\$ 376,544,600
Total		\$ 1,872,316,956	\$ 409,262,907

Targeted³: We identified vendors with cumulative expense totals greater than \$100,000 from the \$1.9B of total contract costs and external labor costs. We analyzed this population of vendors using three different criteria: 1) Cost category: vendor cost versus external labor, 2) WMCE account: VMBA, WMBA, and CEMA costs and 3) expense type: capital versus expense. We judgmentally selected transactions based on the distribution percentage of each criteria to the total contract cost, dollar amount, and vendors with exclusions in prior filings. We tested approximately \$33M of targeted selections using this methodology. Our testing approach included analyzing invoices, contracts, purchase orders and other potentially relevant contemporaneous information.

Statistical Sample: From the remaining untested contract cost and external labor cost balance of approximately \$1.8B, we applied a statistical sampling methodology. The purpose of designing a stratified sample is to increase the efficiency and precision through a smaller sample compared to a simple random sample. During this process, the remaining population of \$1.8B is converted into the sampling population and then divided into groups called strata. The samples selected are weighted to reflect the sampling rates for each of the different strata. A statistical sampling report for the WMCE Accounts is included as Appendix A to this report. Our testing approach followed the same procedures applied to the targeted selections, which included analyzing invoices, contracts, purchase orders and other potentially relevant contemporaneous information.

The following steps were performed in the testing of contract costs

We created a testing survey to test contract costs at the transactional level. The results of the procedures performed, relevant observations, and suggested exclusions were recorded in the case files for each transaction.

The detailed testing steps were as follows:

- 1) Reconciliation of SAP data to supporting documentation
 - a) Analyzed the underlying documentation to determine whether an invoice from a third party was provided.
 - b) Upon receipt of an invoice, compared the invoice amount, vendor name, and other relevant identifiers to the relevant fields of SAP data to test whether vendor names were consistent and dollar amounts tied.

³ Additional events referenced in Table 1 above October 2021 Northeast Pacific Bomb Cycle and 2021 December Storms events were included in the Targeted Sampling methodology.

- c) If an invoice or the underlying support was lacking sufficient information or was illegible, it was noted that additional documents or confirmations were needed to support the transaction amount.
 - d) Analyzed the date or range for services provided within the invoice and documented whether the services took place during the applicable scope periods for the VMBA, WMBA, and CEMA Accounts.
- 2) Reasonableness testing:
- a) Performed analyses to determine if a transaction was reasonably and prudently incurred for the services provided by recalculating unit prices under each cost category (e.g., labor, equipment, materials, per diem, reimbursable expenses) and comparing those unit prices to prices charged by other vendors performing similar services. Where we did not have benchmarking data from other vendors performing similar services, other publicly available information including GSA Schedules, publications, public rate filings, etc. were considered. Where outliers were identified, additional documentation was requested. Additional procedures performed and the results of those procedures were documented within the relevant case files.
 - b) Analyzed the information provided in the invoice, contract, and other support to determine whether the services performed appear to be activities related to VMBA, WMBA and CEMA accounts to substantiate those costs were not being potentially recovered elsewhere through other mechanisms or trackers. Company policies and other guidance from PG&E described below were relied upon to help identify the nature and timing of the WMCE Account activities being sought for recovery in the GRC.
 - i) VMBA activities: As described in Decision 20-12-005, PG&E modified the current one-way VMBA account to become a two-way balancing account, which allows PG&E to return excess funds not used to its ratepayers. The revised VMBA will be used to track routine and EVM activities. Beginning in 2020, the CPUC requires PG&E to track all vegetation management costs including CEMA activities in the VMBA.
 - ii) WMBA activities: As described in Decision 20-12-005, this account establishes a two-way balancing account to track Electric Distribution costs including both Capital and Operations and Maintenance ("O&M") expense for the execution of PG&E's CWSP. The CWSP includes costs such as Wildfire System Hardening, Enhanced Operational Practices, Enhanced Situational Awareness and Other Support Programs. The Wildfire System Hardening program includes certain activities, such as pole replacements, insulated or covered conductor replacements, and line equipment replacements, which are meant to reduce the risk of potential ignitions associated with PG&E's equipment and facilities. Enhanced Operational Practices include special operational practices such as Public Safety Power Shut Offs ("PSPS"), reclose blocking, system automation, protection teams, and aviation resources. These operational procedures are meant to reduce the likelihood of wildfire ignitions to the electric power system during elevated fire conditions. Enhanced Situational Awareness includes programs that support active monitoring and modeling of potential wildfire occurrences. Finally, other support programs are comprised of employee engagement and training related to Community Wildfire Safety Program ("CWSP") and a project management oversight office used to coordinate with multiple lines of business responsible for implementing the CWSP. The costs at issue for our review included those incurred for PSPS activities, Advanced Fire Modeling, Storm Outage Prediction Project, and Safety and Infrastructure Protection Teams

- c) Analyzed invoices, receipts, and other third-party support to determine whether vendors billed for items that are prohibited by PG&E's employee expense policy, such as alcohol, tobacco, or personal products and services.
- 3) Incremental nature of the transaction (CEMA):
 - a) Analyzed the information provided in the invoice, contract, and other support to determine whether the activity recorded in CEMA accounts appear to be incremental activity. We relied on Company policies and other guidance from PG&E described below to help identify the nature and timing of various incremental activities in addition to what was included in prior GRC proceedings.
 - b) Evaluated guidance contained in Resolution E-3238, which authorized utilities to establish a Catastrophic Events Memorandum Account to record costs resulting from government agency declared disasters. The purpose of this account is to record costs associated with:
 - (1) Restoring utility service to its customers;
 - (2) Repairing, replacing or restoring damaged utility facilities; and
 - (3) Complying with government agency orders resulting from declared disasters.
 - c) For observations requiring further consideration, additional procedures were performed. In some instances, transactions can be either partially or fully unsupported. On a case-by-case basis, the dollar amount that did not fully meet the testing requirements was calculated and recommended for exclusion.

The following observations were identified in the testing of contract costs

As a result of the procedures described above, approximately \$801K⁴ of contract costs were not sufficiently supported or did not appear to be reasonably incurred. The exclusions identified within the testing were grouped into the following themes:

- 1) Incorrect Accounting Period: Noted one instance where a software license expense was acquired in 2021 for use in 2022. We recommend removing these costs from the 2021 filing and recording them in the 2022 period.
- 2) Incorrect Account: Noted one instance where a transaction was incorrectly recorded in CEMA. The transaction referenced activities that are not eligible for recovery under the CEMA guidelines. We recommended excluding this amount from this filing and recording a correcting entry to the appropriate account. We searched the population for similar transactions and did not note any other transactions incorrectly recorded in the WMCE Accounts.
- 3) Markups: Noted limited instances where a markup was applied for pass-through charges on vendor invoices which were not allowed under the contract.
- 4) Subcontracts: Noted one instance where an invoice contained subcontractor charges without supporting detail or documentation evidencing the work performed by the subcontractor.
- 5) Per diem: Noted limited instances where the count of per diems was not supported and/or calculated incorrectly.
- 6) Travel expenses: Noted limited instances where travel expense was lacking sufficient support.

Table 3 – Contract cost exclusions

⁴ Approximately \$452K of identified exclusions were extrapolated to the total amount of \$801K.

Exclusion Type	Statistical	Targeted	Total
Incorrect Accounting Period	\$ -	\$ 300,007	\$ 300,007
Incorrect Account	\$ -	\$ 88,146	\$ 88,146
Markup	\$ -	\$ 30,741	\$ 30,741
Subcontracts	\$ 4,664	\$ -	\$ 4,664
Per diem	\$ 5,399	\$ 2,000	\$ 7,399
Travel expense	\$ 20,568	\$ -	\$ 20,568
Subtotal	\$ 30,631	\$ 420,894	\$ 451,525
Extrapolated Total	\$ 380,252	\$ 420,894	\$ 801,146

Based on discussion with Management, we understand PG&E intends to reflect proposed contract cost exclusions within the WMCE Accounts and remove the proposed exclusions from the Application.

We performed additional testing of contract costs classified as capital expenditures

For transactions recorded as a capital expenditure, we performed additional testing procedures to understand whether a transaction appeared to be related to a capital project and therefore was accurately coded. Capital expenditures are eligible for recovery similar to other vendor costs; however, the amount recovered is calculated differently for capital expenditures.

Operating expenses are recovered at cost; whereas, capital expenditures are recovered using a cost-plus basis, which means capital expenditure are multiplied by an allowed rate of return. For this reason, we performed additional procedures to analyze the classification of selected transactions and applied additional scrutiny to our testing of capital expenditures.

PG&E classifies transactions by expense type using the SAP field "Major Work Category." We used PG&E's listing of expense types by Major Work Category to identify contract costs classified as "Capital" and "Operations and Maintenance" within SAP.

Table 4 – Contract costs classified as capital expenditures selected for testing

Expense Type	Amount	Selected for Testing
Capital	\$ 179,959,508	\$ 40,448,315
Operations and Maintenance	\$ 1,692,357,448	\$ 368,814,591
Total Contract Costs	\$ 1,872,316,956	\$ 409,262,906

We consulted the Company's capitalization policy and retirement unit guidelines to consider whether there was sufficient evidence for the capitalization of a transaction cost. We also considered the Order Description field in SAP to determine if expenses were properly capitalized.

At the transactional level, we performed capital expenditure testing using the third-party invoice we received and any additional supporting documents, such as the contract or purchase order, to validate that capitalization of the transaction adhered to the Company's internal guidance.

For capital expenditures requiring further analysis, we tagged the contract cost transactions for further investigation. We requested additional documentation and confirmation demonstrating support for the capitalization of the transaction.

We made the following observations in our testing of capital expenditures
Overall, capitalized expenditures appeared to be accurately recorded and costs were incurred for capital assets or in support of a capital program. The contract costs we tested within our sampling population appeared to be properly capitalized with no exceptions. We did note one capital expenditure which was incorrectly recorded in the CEMA (described above).

We performed additional testing of contract costs classified as accruals

PG&E records an estimated goods receipt ("EGR") to accrue for costs it believes to have been incurred but not yet invoiced. PG&E will reverse EGRs in a subsequent period and record the actual invoiced amount as a "true-up" entry. For transactions identified as accruals within our selections, we obtained a Purchase Order History demonstrating the transaction we sampled was an EGR, or net zero entry. We selected accrual transactions within our selections and performed the following additional procedures to test the timing of the accrual entry and reasonableness of the accrual estimate:

1) Reasonableness of estimate:

- i) We compared the accrual amount to the invoiced amount to assess the reasonableness of the estimate of services. A transaction was determined to be reasonable if the total accrued amount within the Purchase Order History was less than or approximately equal to the total invoiced amount for the relevant purchase order. The implication of an over accrual at year-end is that ratepayers may potentially pay for services that were performed in a period beyond the scope period.

2) Cut-off testing:

- ii) We conducted cut-off testing to determine if the timing of the accrual entry was properly evidenced compared to the date or range of dates the services were performed on the invoice and the date the transaction was recorded in SAP. A transaction was determined to be properly evidenced if the work was performed prior to the accrual date, an invoice was received and recorded subsequent to the accrual date, and the accrual amount was ultimately reversed.

We made the following observations in our testing of accruals

In aggregate, accrual transactions appeared to be recorded in the proper period and supported by invoices for services rendered. Based on our procedures described above, we did not identify any exclusions from the total population of contract costs related to accruals.

We performed additional testing of costs classified as transmission and distribution

We considered the distinction between transmission related activities compared to distribution related activities. We performed key word searches over the population and identified a population of costs that described "transmission" or some variation or abbreviation thereof. We sent this entire population to PG&E and requested evidence to demonstrate these amounts are allowable in WMCE accounts.

We made the following observations in our testing of transmission and distribution

Upon review of these transactions, PG&E confirmed and demonstrated that these costs were either 1) not true transmission references, for example, a portion of key words hit on the reference "tx" which was referring to a transformer rather than transmission or 2) it was confirmed that certain transmission business units were assisting on emergency events such as CEMA and/or PSPS events for electric type work. PG&E confirmed that one item recorded in the WMCE account of \$100K was related to transmission and should be removed from the filing. This item was a year-end accrual, and PG&E noted this likely would have been reversed after year-end and recorded in the correct account. Regardless, we have recommended excluding this item from the 2021 WMCE Application.

Table 5 – Transmission exclusions

Exclusion Type	Total Excluded Amount
Transmission	\$ 100,000

We performed additional testing of vegetation management costs under defined scope contracts

During the course of our analysis, PG&E Management brought to our attention that there may be routine vegetation management costs recorded within the VMBA which are not sufficiently evidenced for inclusion in this WMCE filing. During the period under review, PG&E began transitioning certain vendors to defined scope contracts with fixed prices (lump sum). These vendors were previously contracted under time and material or unit price contract frameworks. PG&E isolated this population of vendor costs with defined scope contracts and performed further analysis.

The population defined above fell into 3 categories:

- 1) CEMA First Patrol: Based on PG&E guidance related to the lump sum contracts, CEMA first patrol activities are included in the defined scope of activities performed by these vendors. As such, activities related to CEMA first patrol should be covered by lump sum payments and should not be billed separately on a time and material basis.
- 2) P1/P2 Tags: As vendors were transitioned from time and material contracts to defined scope contracts, Priority 1 ("P1") and Priority 2 ("P2") activities were billed separately from lump sum payments in Year 1 of the transition. The contracts stipulated that P1/P2 activities would be included in the lump sum payments starting in Year 2, therefore P1/P2 activities occurring beyond year 1 should not be billed on a time and material basis.

- 3) Permitting: Certain activities performed by the vendors within the defined scope work requires permitting. The vendors are allowed to pass through necessary permitting costs to PG&E. However, there is a specific documentation process that should be followed before reimbursement is issued for permitting costs to these vendors.

PG&E's Vegetation Management Defined Scope Contract Guide outlines the types of activities included in lump sum versus those activities not included in lump sum payments.

Work included in Lump Sum: Contractor's responsibility	Work not included in Lump Sum: Proper justification required for compensation
Pre-Inspection and identification of work	CEMA mid-cycle (second patrol)
Hazard tree identification and mitigation	EVM scope, including strike tree identification and removal and work generated through EVM inventory
EVM overhang maintenance	Pole clearing
CEMA first patrol	Excessive traffic control
Routine and CEMA trim and removals	WV findings exceeding Routine standard
Circuit compliance	Emergency work (e.g., EO or Fire)
Permits (direct passthrough at actual cost)	
EC tags	
Incidental traffic control	
Hazard notification	
Debris management	
Customer notifications, interactions and documented refusals	
Specialized equipment (i.e., cranes or TGs)	
Scoping for environmental permitting	
Warranty work	

PG&E management performed an initial analysis of costs related to the defined scope contract pricing to determine whether transactions were within the scope of the defined scope contracts and therefore not eligible for T&M invoicing. EY then independently analyzed transactions and their associated supporting documents including work requests, vendor contracts, invoices, T&M justification forms and timesheets. We utilized PG&E's VM Time and Materials Overview and Vegetation Management Defined Scope Contract Guide and engaged in follow-up discussions with management for further clarity.

We made the following observations of vegetation management costs under defined scope contracts

Upon completing the analysis of these transactions and the collection of supplemental evidence, EY agreed with management's conclusions that there was no evidence of systemic errors or omissions within the defined scope population and determined that the majority of costs were correctly billed in addition to the defined scope fixed price payments. However, management's analysis did identify costs which were incorrectly billed, and EY agreed with management's conclusions regarding these transactions.

Although EY agreed with management's conclusions regarding individual transactions, EY did not agree with management's quantification of the error and management's extrapolation methodology applied to those transactions. EY independently performed a statistical error calculation using industry standard (i.e., mean per unit method).

As a result, we identified and recommend for exclusion items totaling approximately \$687K (extrapolated to \$2.1M) that were not properly evidenced for inclusion in the WMCE Accounts. This represents an approximately \$824K increase from management's calculated amounts.

Table 6 – Vegetation Management Defined Scope exclusions

Exclusion Type	Total Amount Excluded
Incorrect Billing Exclusions	\$ 686,691
Extrapolated Exclusions Total	\$ 2,096,871

Internal Labor

Cost Category	Amount	Percent of Total Population
Internal Labor	\$ 132,274,319	6.3%

Approach

We performed an analysis of all internal labor charges. From this analysis, we selected and tested transactions totaling approximately \$696K from a starting population of approximately \$132M. Internal Labor is a cost category with a high volume of low dollar transactions. Therefore, obtaining substantial dollar coverage through sampling alone may be ineffective. As such, we relied on the data analytics described below to analyze the population and select items we believe to be higher risk. This testing methodology provides coverage which we believe is representative of the Internal Labor population.

To arrive at a starting population of \$132M for Internal Labor charges, we used cost guidance provided by PG&E to segregate data into cost categories using the "Cost Element" and "CE Description" fields.

We performed the following analytics on internal labor within the SAP data:

- A) High internal labor charges on specific posting dates: We analyzed the internal labor charges by amount and posting date to identify dates with high labor amounts. We performed this analysis by calculating the average and standard deviation amounts across the unique posting dates in the population. The z-score for each date was calculated by taking the sum of the amount for that day minus the average amount of all days divided by the standard deviation amount of all days. All line items associated with a Posting Date with a z-score greater than 2 were flagged for review by the team.

Unique posting dates with a z-score higher than 2 were compared to the list of PSPS events for 2021, the list of FEMA declared disasters for 2021, and the list of California State declared disasters. For those dates that did not align with an event declared among one of the three sources listed above, we confirmed that the activity was either driven by non-labor charges, including helicopter expenses for 2021, or related to Vegetation Management Inspections which increase around year-end. Accordingly, we did not identify any transactions, patterns or unusual labor trends requiring further detailed testing.

- B) Pre-2021 event references: We analyzed internal labor charges by posting date to determine if any dates fell out of the scope of the WMCE accounts. All posting dates occurred within the year 2021. Further, we analyzed order description fields to identify references to pre-2021 events for further testing to determine their applicability to the WMCE accounts.

We identified a portion of labor costs with a PO description or order description referencing events that occurred prior to 2021. We selected all identified occurrences to perform additional detailed testing.

- C) Key Word Analysis: We performed key word searches across the entire population of internal labor costs to identify labor charges that may be related to activities outside the scope of the WMCE accounts.

We identified a portion of labor costs which referenced activities such as: Hydro, Land Rights, Compensation, and Routine. Next, we analyzed key word hits by account. The majority of labor costs which hit on the above key words had references to "Routine" activities. We tested these

to understand the nature, timing and extent of charges. Specifically, we evaluated to understand if "Routine" activities were charged to CEMA, as the CEMA accounts are not intended for routine work. "Routine" activities were not identified in the population of internal labor costs charged to CEMA. We made targeted transaction selections from the remaining population of costs associated with Hydro, Land Rights, and Compensation, and requested supporting documentation including employee timecard data, description of the work performed and its applicability to the WMCE filing.

- D) High overtime and double time charges: We analyzed cost element description fields and posting dates to identify unusually high overtime and double-time charges during specific periods. Hours were not provided in the SAP data. To perform this analysis, we divided the total line-item amount by an average rate per hour based on benchmarking data collected while analyzing prior PG&E filings to approximate hours for each line item⁵.

We made targeted transaction selections from the labor charges with unusually high overtime or double-time hours and requested employee timecard data and a description of the work performed for each selection.

- E) Round dollar charges: We analyzed labor amounts to identify transactions with rounded dollar amounts to test in more detail. Rounded amounts would be unusual for labor charges given typical labor rates.

From the population of round dollar charges identified, we made targeted transaction selections and requested employee timecard data, description of work performed, and other relevant supporting documentation.

- F) Potentially duplicative charges: We analyzed transaction data with multiple data field matches to identify potentially duplicative transactions.

From the potentially duplicative transactions identified, we made targeted selections to perform further testing.

- G) Non-internal labor charges: We analyzed charges by the "CE mjr resource grp" to identify charges labeled as non-labor cost categories.

We identified a population of charges that either (1) did not appear to have similar attributes to employee time charges identified within the population, or (2) did not have a "CE Mjr. Resource group" related to Internal Labor. Of these transactions, we identified subsets of the labor population. We segregated these costs into the following categories, made targeted selections for each, and requested the relevant underlying documentation.

- a. Fleet
- b. Contact Center

⁵ As we understand one line item represents a single employee's time charges on a specific date.

c. Rent

We performed the following steps in our testing of internal labor

We requested supporting documentation for our targeted selections and performed the following additional procedures:

- A) Pre-2021 event references: We inquired with PG&E Management regarding the nature of the work performed related to events prior to 2021. Through this discussion we understand that some orders were opened in prior years and tagged as such in the order description. Many of these are multi-year projects that continue beyond the year defined in the order description. Therefore, although an order may note a prior year in its description, the expenses identified pertained to work completed in 2021. Further, EY analyzed prior years' transactional data and determined that the pre-2021 selections were not recovered in prior year filings.
- B) Key Word Analysis: We inquired with PG&E Management regarding the nature of the work performed related to the relevant key word hits. Through this discussion and as evidenced in prior CEMA testing, we understand that in emergency situations employees with non-electric job titles may assist on a case-by-case basis. In prior filings, we have reached out to employee's supervisors and confirmed that the employee was in fact assisting CEMA efforts and have identified no exclusions. We further inquired about the nature of the work defined in the transactional detail as "Land Rights." Management confirmed that the work was related to researching the Company's occupational rights which house facilities and communicating the results to the requestor. Through discussion with PG&E Management, it was confirmed that certain compensation types should not be included in this filing.
- C) High overtime and double time charges: We received and analyzed all underlying support. We identified instances where employees had high, unexplained overtime charges. We inquired with PG&E Management and understand that by contract, most employees are allowed rest time and a meal allowance that reflects in their labor charges. Further, it was confirmed that when an employee works an overnight shift, the hours from the duration of the shift, including the previous day and the day in which the employee finished their workday, will all be recorded on the day in which they finished their shift. The timecard data corroborated this in most instances. In limited instances, we were unable to confirm the pattern as described above. We recommended these for exclusion.
- D) Round dollar charges: We received and analyzed timecard data pertaining to employees with charges in round dollar amounts. The timecard data provided corroborated that these charges were related to contractor application/IT consulting. Further, the timecard data provided for the orders associated with these selections did not include overtime or double-time charges and consisted solely of standard-time charges. Due to a lack of abnormalities identified in the timecard data and nature of the charges, the round dollar charges appear to be appropriate and reasonable.
- E) Potentially duplicative charges: We inquired with PG&E as to whether these transactions were true duplicates and requested the underlying support for each. Upon receipt of the supporting documentation, it appears that the charges are related to different personnel based on

employee number. Further, the CE Description activities are not the same across the two transactions.

F) Non-internal labor charges:

- a. Fleet: We received and analyzed all relevant underlying support. The documentation provided indicated costs were related to (1) bucket truck and digger vehicle rentals used to support CEMA efforts, and (2) message board rentals for streets and highways for when crews are performing roadwork. Rental rates appeared to be in line with market expectations, and the business purpose aligned with the parameters of the WMCE filing.
- b. Contact Center: Through discussion with PG&E, we identified that during PSPS events there is an increased volume of customer calls. PG&E's call centers handle incoming calls from customers regarding billing, service initiation, service restoration, outage inquiry, and other customer service needs. Similarly, the contact center provides in-person services for these types of needs. The costs are recorded and charged per minute. For each of our selections, we were provided the number of calls, number of minutes, and the topic of the call. For each selection we determined that the topic of calls and number of minutes appeared to be properly evidenced as it relates to WMCE activities. We recalculated dollars per minute and compared the dates of the calls to the list of PSPS events.
- c. Rent: We received and analyzed all relevant underlying support. The documentation provided indicated costs were related to rent associated with a facility in Oroville, CA to support rebuild efforts. Base rent was \$1.50/sf/mo which is consistent with the market rate of \$1.51/sf/mo. As this is related to rebuild efforts, this appears to be appropriately recorded to CEMA. The second selection was related to the month of November's expenses for a facility in Red Bluff, CA, used to house Blackhawk helicopters. The charges appear to be reasonable and appropriately recorded.

We made the following observations in our testing of internal labor

As a result of the procedures described above, we identified immaterial amounts that were unexplained, or did not appear to be with the WMCE scope of activities totaling \$24,042.

- (1) High overtime and double-time charges: We identified overtime/double-time charges totaling approximately \$9.9K where the timecard support did not corroborate the fact pattern described above.
- (2) Compensation: We identified charges totaling \$10.4K referencing compensation types that are inconsistent with the other compensation types included in this filing. Per discussion with PG&E, this compensation type should not be funded by rate payers and therefore, we recommend excluding this amount from the filing.
- (3) Fleet: We identified a reconciling difference when comparing the invoiced amount to the underlying SAP data totaling \$3.5K. This amount was recommended for exclusion.
- (4) Contact Center: We identified \$241 of contact center costs that were for call center calls recorded on days that did not align with PSPS events. This amount is recommended for exclusion.

Table 7 – Internal Labor exclusions

Exclusion Type	Total Amount Excluded
Compensation	\$ 10,406
High OT/DT	\$ 9,895
Reconciling difference	\$ 3,500
Contact Center	\$ 241
Total	\$ 24,042

Helicopter Charges

Cost Category	Amount	Percent of Total Population
Helicopter Charges	\$ 19,360,510	0.9%

Approach

We performed an analysis over all Helicopter Charges. From this analysis we selected and tested transactions totaling approximately \$5.3M from a starting population of approximately \$19.4M. To arrive at a starting population of \$19.4M for Helicopter charges, we used cost guidance provided by PG&E to segregate data into cost categories using the "Cost Element Desc" field in SAP data provided to us.

Decision 20-12-005 lists aviation resources as one of 5 Enhanced Operational Practices. This decision describes a plan to purchase 4 additional heavy-lift helicopters which will be equipped with fire suppression tools to aid in wildfire suppression. This equipment will also be used for heavy lift maintenance and construction work of its infrastructure to enhance wildfire safety. The decision stated that PG&E's testimony and workpapers provide sufficiency regarding the purpose and necessity, which properly evidenced the purchase of 4 additional helicopters. The decision also states that authorization for this purchase also resolves the issue concerning the associated O&M costs for ongoing maintenance.

We performed walkthroughs in prior years with aviation specialists and understand that the costs reflected within our population are largely O&M costs associated with the ongoing maintenance and operation of the four Blackhawk helicopters. We made selections of transactions for further analysis based on expense type (capital or expense) and dollar amount.

We performed the following steps in our testing of helicopter charges

Helicopter charges selected were determined to be related to (1) pilot services, (2) daily aircraft availability for an October 2021 PSPS event and (3) Revenue credits. Pilot services transactions include the time and materials costs included in operating the helicopter. Daily availability charges are incurred to ensure that aircrafts are staffed and available for emergency response during wildfire season. PG&E utilizes a chargeback methodology for recording these costs to the appropriate line of business where availability costs are incurred, usage gets charged back to offset the scheduled

helicopter work and the delta is charged to a PSPS holding order. Revenue credits represent the receivable side of a bill to the State of California for costs incurred related to helicopter usage.

To test these transactions, we requested relevant supporting documentation and performed the following;

- Reconciled underlying documentation to transactional data
- Where multiple invoices make up one transaction line item, analyzed the date, amount, and nature of the invoices
- Compared daily rates/variable fuel charges to historically identified daily helicopter use costs
- Compared dates of use/availability to PSPS event dates
- Reconciled internal records including use logs, availability allocation, and applicable chargebacks
- Reconciled revenue credits to SAP transaction FBL5n - Line-Item Detail report for Customer account balances and compare to payments received from the customer

We made the following observations in our testing of helicopter charges

As a result of the procedures described above, we did not identify any amounts related to pilot services that appeared to be outside the scope of WMCE activities.

We were unable to reconcile a portion of a transaction related to aircraft availability. Per discussion with PG&E's Aviation Department, there was a failed transaction amount of \$48K that should have been charged back to the aircraft usage line of business, but the order failed in the system. This resulted in an over allocation of \$48K to the PSPS holding order. Further, we identified an additional \$1,099 which we were unable to reconcile to the allocation schedule. As a result, we recommend an exclusion in the amount of \$49,099.

Table 8 – Helicopter charges exclusions

Exclusion Type	Total Amount Excluded
Failed Transaction Charge	\$ 49,099
Total	\$ 49,099

Materials

Cost Category	Amount	Percent of Total Population
Materials	\$ 28,027,764	1.3%

Approach

We performed an analysis of all material charges. From this analysis we selected and tested transactions totaling approximately \$2M from a starting population of approximately \$28M. To arrive at a starting population of \$28M for materials charges, we used cost guidance provided by PG&E to segregate data into cost categories using the "Cost Element" and "CE Description" fields.

We then performed analytics on \$28M of material costs by analyzing cost element descriptions, balancing account, PO descriptions, material description, PO item text and high dollar transactions.

We performed the following analytics on materials data

We performed analytics on the population and identified the following categories for additional testing totaling \$2M:

- We analyzed materials by material description and balancing account to identify small, common material items allocated to CEMA. Per the 2018 CEMA Application, such materials are to be kept as common stock in work locations and the cost for these materials are spread to orders through an allocation to work categories that use these materials. Major events do not receive the allocation for common stock items, so those material costs are not included in this application for cost recovery. We identified a population allocated to CEMA that appeared to be related to small, common materials totaling approximately \$401K to inquire about the nature of these items and their inclusion in CEMA.
- We analyzed materials by description and unit cost to identify large or unusual items (i.e., items not commonly found within materials listing or in greater unit costs than commonly found in materials listings). We identified a category of materials related to gas & water specialties and engines, turbines & waterwheels totaling approximately \$180K.
- We performed key word searches to identify materials potentially outside the scope of the WMCE filing. We identified materials costs totaling approximately \$335K related to miscellaneous items such as headphones, USB-C cables and mobile chargers.
- We analyzed employee spend specific to materials by segregating costs with a vendor number beginning with "U" to determine the distribution of materials spending by employee. We identified three PG&E employees that made up 62% of the total materials spending by employees totaling approximately \$641K.
- We analyzed PO descriptions and order descriptions to identify transactions with references to pre-2021 events. We identified approximately \$454K of costs that appeared to reference pre-2021 events.

We performed the following steps in our testing of Materials

We requested supporting documentation for our selections and performed the following additional procedures:

Small, common materials: We requested an explanation from PG&E for the inclusion of seemingly small/common materials being included in CEMA.

Non-Electric Expenses: We inquired with PG&E regarding the nature of items referencing gas & water specialties and engines, turbines & waterwheels and their inclusion in this WMCE filing.

High Employee spend: Three employees were selected for follow-up to evaluate job title, spending authority, and business purpose to determine why these employees had high spending on this cost category.

Potentially disallowed material: We inquired with PG&E to understand how the identified materials are related to the relevant WMCE accounts.

Pre-2021 events: We inquired with PG&E regarding why the line item detail for these costs reference pre-2021 events and how they are related to this WMCE filing.

For materials costs, in some instances, there was a delay in submission/approval of expenses. Therefore, although an order may be tagged as 2020, the order was processed in 2021 and was not recovered in both periods.

We made the following observations in our testing of materials

As a result of the procedures described above, we identified immaterial amounts that did not appear to be within the WMCE scope of activities totaling \$55,295.

The following types of materials did not appear to be related to WMCE activities:

Small, common material items: PG&E provided additional guidance demonstrating that, starting in 2020, capitalized minor materials are eligible for recovery through CEMA. Minor materials in the expense category are not allowable for recovery through CEMA. As a result, we recommend for exclusion the expense portion of small/common materials identified within CEMA totaling \$6,393.

Non-electric expenses: Per discussion with PG&E the volume and variety of materials makes it impractical to assign a cost element to every material type. The SAP materials management module assigns materials to a material group. In some cases, a material that can be used for multiple lines of business may be classified as one over another. PG&E provided EY with a mapping file which provided further detail regarding the material description, use, and valuation class. We identified \$15,025 of gas & water specialties materials costs with the material group description that were not properly evidenced for inclusion in the WMCE Application. Further, we identified \$20,645 of costs related to engines, turbines and waterwheels materials which were not properly evidenced for inclusion in the WMCE Application. As a result, we recommend excluding the non-electric expenses detailed above totaling \$35,670.

Potentially disallowed material: PG&E explained that the largest line item identified as potentially unallowable, a \$320,896 expense for "Power Bank Mini Power", is related to mobile chargers for crews in the field to charge batteries on equipment necessary to perform work where other sources of power are not available. PG&E agreed that other items identified by EY should not be included in the filing. The recommended exclusion amount for unallowable items is \$13,231.

Table 9 – Material cost exclusions

Exclusion Type	Total Amount Excluded
Non-electric expenses	\$ 35,670
Unusual material items	\$ 13,231
Small, common material items	\$ 6,393
Total	\$ 55,295

Employee Expense

Cost Category	Amount	Percent of Total Population
Employee Expense	\$ 9,718,365	0.5%

Approach

We performed an analysis of all employee expense charges. From this analysis we selected and tested transactions totaling approximately \$246K from a starting population of approximately \$9.7M. To arrive at a starting population of \$9.7M for Employee Expense charges, we used cost guidance provided by PG&E to segregate data into cost categories.

We performed the following analytics on employee expenses

- We performed key word searches to identify non-electric expenses, general/non-specific expense descriptions, unusual vendors, or other expense types that may not fall within the parameters of the WMCE accounts.
- We analyzed employee expenses by cost element description, order description, dollar amount and date to identify large or unusual items.

We identified the following categories for additional testing totaling \$246K:

A) Key Words:

- Non-Cash Rewards: We identified two transactions related to non-cash rewards & recognition. We selected both transactions totaling approximately \$149 for further follow-up and testing.
- Other Expenses: We identified categories of expenses including "Other Expenses", "Other Employee Related Expenses", "Misc General Expense - Association Dues" and Misc. General Expense - Subscriptions" which did not have sufficient detail within SAP to analyze the nature of the transaction. We made one selection from each category totaling approximately \$21.8K and requested additional supporting documentation to determine the nature of the transactions.
- Building utilities: We identified a category of transactions related to building utilities. We selected one transaction totaling approximately \$3.1K for further follow-up and testing.

- Rent payments: We identified a category of expenses related to rent. We selected two transactions totaling approximately \$19.7K for further follow-up and testing.
 - Hydro: We identified a category of transactions related to hydro. We selected one transaction totaling approximately \$1.6K for further follow-up and testing.
- B) High employee spend: We made selections totaling \$134.6K to determine the nature of their spending and test for reasonableness.
- C) Pre-2021 activities: We identified orders with reference to pre-2021 events. We selected two transactions from these orders totaling \$64.8K to perform additional testing and determine how these costs are eligible for recovery in this WMCE filing.

We performed the following steps in our testing of employee expenses

For each employee expense selection, we requested supporting documentation (i.e., expense reimbursement forms, P-Card support, and itemized receipts) to perform the following tests:

- Compared supporting documentation to SAP fields to determine whether the descriptions, amounts, and dates tied.
- Considered the job title of the employee and the vendor to which the payment was made to determine reasonableness of employee spend and of the vendor being paid.
- Considered the transaction dates within the supporting documentation to determine whether expenses were made within the applicable scoping periods for this WMCE filing.
- Considered whether purchases were made within the applicable service territory.
- Leveraged Company guidance such as the "Employee Business Expenses and Travel Standard" policy to determine whether the transaction amount contains any potentially prohibited items such as alcohol, tobacco products, entertainment, personal items, etc.
- Analyzed the expense description and business purpose to determine whether the item appeared related to efforts pertaining to this WMCE filing.

EY engaged in discussion with PG&E to determine the permissibility of selections that could not be mitigated solely based on the provided supporting documentation. Discussions included pre-2021 activities, non-cash rewards and association dues. Through discussion with PG&E we understand that some orders are opened in prior years and tagged as such in the order description. Many of these are multi-year projects that continue beyond the year defined in the order description. Therefore, although an order may note a prior year in its description, the expenses identified pertained to work completed in 2021. Further, EY analyzed prior years' transactional data and determined that the pre-2021 selections were not recovered in prior year filings.

We made the following observations in our testing of employee expenses

As a result of the procedures described above, we identified immaterial amounts that did not appear to be within the WMCE scope of activities totaling \$23,645.

The following types of employee expenses did not appear to be related to WMCE activities:

Other Expenses: We identified one transaction totaling \$8,501 for charges related to fees paid in exchange for Facebook advertising campaigns. These charges were related to an advertising campaign

promoting energy trends and the promotion of California Arbor Day. Through discussion with PG&E and review of relevant filing parameters, it was determined that costs for Facebook advertising campaigns are out of scope of this WMCE filing. Further, we identified a transaction related to association dues totaling \$5K that was in the form of a \$4,150 donation and \$850 receipt of goods/services from the University of California Agriculture and Natural Resources department. Through discussion with PG&E, it was determined that the donation amount of \$4,150 is not within the scope of this WMCE filing. As a result, we recommend excluding \$12,651 of unsupported costs.

High dollar amount 1/01/2021 & pre-2021 activities: We identified high dollar transactions recorded on 1/01/2021 for expenses with orders referencing pre-2021 activities. The support for these transactions contained instances of duplicative receipts, or lack of supporting documentation. EY first analyzed prior years' transactional data and determined that the pre-2021 selections were not recovered in prior year filings. Upon further discussion with Management, PG&E was unable to provide the missing documentation and therefore we recommend excluding \$10,845 of unsupported costs.

Non-cash rewards: We identified two transactions totaling \$149 related to meals expense in the form of non-cash employee rewards. Through discussion with PG&E, it was determined that non-cash employee rewards fall outside the scope of this WMCE filing.

Table 10 – Employee expense cost exclusions

Exclusion Type	Total Amount Excluded
Other Expenses	\$ 12,651
High Dollar Amount 1/01/2021 & Pre-2021 Activities	\$ 10,845
Non-cash Rewards	\$ 149
Total	\$ 23,645

Overheads

Cost Category	Amount	Percent of Total Population
Overheads	\$ 20,972,253	1.0%

Approach

To arrive at a starting population of approximately \$21M for overhead charges, we used cost guidance provided by PG&E to segregate data into cost categories using the "Cost Element" field in SAP data provided to us. We performed analytics on the \$21M by analyzing amounts included in the cost pools, allocation percentages applied, and the type of charges included in the Balancing Accounts. We then

performed detailed transaction testing on approximately \$1.9M of Overhead costs or approximately 9% of total overhead charges.

We performed the following analytics on overhead data:

We analyzed the full overhead population to identify anomalies or abnormalities in types of overhead charged (electric vs non-electric), base for application, allocation percentage, and fluctuation in allocation percentage over the calendar year. We identified a portion of cost elements whose Cost Element descriptions referenced Nuclear Generation or power generation. Through discussions with PG&E and testing of internal labor, we identified that certain employees whose Line of Business may be generation, have the job title of Electrician and would have assisted with efforts specific to the relevant balancing accounts. Further, we compared the overheads charges included in the WMCE accounts to guidance included in PG&E's 2021 Wildfire Mitigation and Catastrophic Events Testimony⁶ to analyze whether the appropriate overhead costs categories had been excluded from this filing. Accordingly, we did not identify any patterns or unusual trends requiring further detailed testing.

We performed the following steps in our testing of overhead costs

For each of the largest categories of overhead cost, we selected an order number and specified time period for recalculation of the overhead amount. PG&E provided workbooks including basis amount, cost elements included in basis amount, and rate applied. We performed the following testing steps on the workbooks provided.

- Reconciliation of SAP data to supporting documentation
- Analyzed supporting documentation provided including the recalculation of overhead amounts, guidelines for each overhead cost category, and a rate file indicating the actual overhead rates by cost category for the year 2021
- Compared the overhead basis description provided in the recalculation to the description provided in the rate file for each applicable year and other general guidance provided by PG&E
- Compared the overhead rate applied to the basis amount in the recalculation to the rate provided in the rate file for each year
- Recalculated the basis amount within the underlying SAP data using order number, cost element, and applicable time period
- Recalculated the overhead amounts based on recalculated base amounts and actual overhead rates provided in the supporting documentation

We made the following observations in our testing of overhead costs

As a result of the procedures described above, we did not identify any amounts that did not appear to be within the scope of the WMCE filing.

AFUDC/Other

Cost Category	Amount	Percent of Total Population
---------------	--------	-----------------------------

⁶ Figure 11-1 <https://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A2109008/4145/407966979.pdf>

AFUDC/Other	\$ 6,613,868	0.3%
-------------	--------------	------

Approach

We performed an analysis of all charges that fell within the Cost Element category "Other". To arrive at a starting population of approximately \$6.6M we used cost guidance provided by PG&E to segregate data into cost categories using the "Cost Element" and "CE Description" fields.

We performed walkthroughs of the process to distribute and account for "Other costs". We performed analytics on \$6.6M of costs by analyzing cost element descriptions, order descriptions, and balances by Cost Element. Substantially all of the amounts contained within this category related to Allowance for Funds Used During Construction (AFUDC).

For the remaining population we performed the following additional procedures to analyze large debit or credit balances.

We performed the following analytics on other data:

We analyzed the full other population to identify anomalies or abnormalities in types of costs charged. In addition to AFUDC, we identified cost elements which carried high positive or negative balances. Through discussions with PG&E it was determined that these costs were manual journal entries. We analyzed each entry to understand the nature of the activity. We reallocated the balance of each entry to its applicable cost category as described above and applied the relevant testing procedures as described in each section above.

We performed the following steps in our testing of other costs

We identified the line items within the full population related to AFUDC entries. We then obtained the order number for each line item and compared these orders to a listing of capital project orders. This procedure was designed to test whether AFUDC was only being charged to capital projects. We did not identify any instances where AFUDC was applied to work orders other than capital projects. We then compared the AFUDC amounts per order to the total activity on the applicable capital work orders to analyze if any AFUDC amounts may be outside PG&E's typical range for these costs. We did not note any instances where the AFUDC amount, as compared to the total order expenditures, was large or unusual. The calculation of AFUDC follows a defined formula. As we did not identify any outliers within the analysis described above, we did not independently recalculate or confirm AFUDC balances.

We made the following observations in our testing of other costs

As a result of the procedures described above, we did not identify any amounts that did not appear to be within the WMCE scope of activities.

Summary of findings and recommendations

Conclusions

Based on our analysis, we found no evidence of systemic errors or omissions that would raise questions relating to management's conclusions that costs were: 1) incurred for the activities set forth in the corresponding, relevant CPUC approved Accounts; and 2) accurately recorded.

As a result of the procedures described above, we identified items totaling approximately \$1.4M⁷ (extrapolated to \$3.2M) that were not properly evidenced for inclusion in the WMCE Accounts.

⁷ Items not properly evidenced for inclusion in the WMCE Accounts total \$1,390,296 = Vendor \$1,027,729 + \$110,486 + Non-Vendor 252,080.

Table 11 – Observations for potential exclusion

Cost Cat.	Exclusion Type	Statistical	Targeted	Total
Contract	Incorrect Accounting Period	\$ -	\$ 300,007	\$ 300,007
Contract	Incorrect Account	\$ -	\$ 88,146	\$ 88,146
Contract	Markup	\$ -	\$ 30,741	\$ 30,741
Contract	Subcontracts	\$ 4,664	\$ -	\$ 4,664
Contract	Per diem	\$ 5,399	\$ 2,000	\$ 7,399
Contract	Travel expense	\$ 20,568	\$ -	\$ 20,568
Contract	VMBA Defined Scope	\$ 79,855	\$ 606,835	\$ 686,691
Transmission	Transmission	\$ -	\$ 100,000	\$ 100,000
Helicopter	Failed Transaction Charge	\$ -	\$ 49,099	\$ 49,099
Materials	Small, common material items	\$ -	\$ 6,393	\$ 6,393
Materials	Non-electric expenses	\$ -	\$ 35,670	\$ 35,670
Materials	Unusual material items	\$ -	\$ 13,231	\$ 13,231
Employee Expenses	Non-cash Rewards	\$ -	\$ 149	\$ 149
Employee Expenses	Other Expenses	\$ -	\$ 12,651	\$ 12,651
Employee Expenses	High Dollar Amount	\$ -	\$ 10,845	\$ 10,845
Internal Labor	High OT/DT	\$ -	\$ 9,895	\$ 9,895
Internal Labor	Compensation	\$ -	\$ 10,406	\$ 10,406
Internal Labor	Fleet	\$ -	\$ 3,500	\$ 3,500
Internal Labor	Contact Center	\$ -	\$ 241	\$ 241
Total		\$ 110,486	\$ 1,279,810	\$ 1,390,296

Extrapolated Total	\$ 1,870,288	\$ 1,279,810	\$3,150,097
--------------------	--------------	--------------	-------------

Contract Costs: We noted limited instances of vendors including expense amounts that were not properly evidenced within their invoice, the contract, or purchase order. These items contained unsubstantiated per diems, travel expenses, and unsubstantiated subcontractor expenses. We noted limited instances of vendors marking up subcontractor charges which were prohibited in the contract. We noted limited instances where a transaction was recorded in the incorrect period, or account. We noted limited instances of vendors billing on a time and materials basis without adequate justification for work included in defined scope contracts.

Employee Expenses: We noted limited instances where the transaction was related to unallowable expense types. We also noted limited instances where sufficient evidence was not provided to support inclusion in WMCE Balancing Accounts.

Materials: We noted limited instances where sufficient evidence was not provided to support inclusion in WMCE Balancing Accounts, or where the materials identified did not appear to fall within the scope of WMCE activities.

Helicopter: We noted one instance where helicopter cost included a failed transaction amount which was not properly substantiated by the supporting documentation. Within the same transaction we also noted an additional immaterial reconciling difference between the underlying documentation and the SAP transaction amount.

Internal Labor: We noted limited instances where we identified high unexplained overtime/double time charges. We identified certain cost types that are not allowable for recovery within this application. We also noted one immaterial reconciling difference when reconciling the underlying support to the SAP transaction amount. Finally, we identified one instance where call center calls were recorded on days that did not align with PSPS events.

Table 12 - WMCE filing total adjusted costs

Cost Population	Amount
Adjusted WMCE Population	\$ 1,996,113,591
Proposed Transaction Exclusions	\$ (3,150,098)
Adjusted Total	\$ 1,992,963,493

We understand PG&E intends to reflect proposed exclusions within the WMCE Accounts and remove the proposed exclusions from the 2022 GRC Application.

Appendix A – Statistical sampling methodology

Pacific Gas and Electric Company 2021

Wildfire mitigation and catastrophic events Sampling and estimation report

Prepared by
Siyu Qing and Ryan Petska

Ernst & Young LLP
1101 New York Avenue, NW
Washington, DC 20005

August 15, 2022

Contents

31

Introduction.....	33
Section I: Executive summary	33
Table 1. Estimation summary	33
Section II: Population.....	33
Population	33
Table 2. Population summary	34
Sampling unit	34
Sampling frame	34
Section III: Sample design.....	34
Stratification	34
Table 3. Sample design summary	35
Section IV: Sample selections and results	35
Source and seed of random numbers	35
Serialization of frame	35
Method of selection	35
Sample results	35
Table 4. Sample results summary	36
Section V: Estimation.....	36
The MPU estimator	36
Table 5. Estimation results summary	37
Credit adjustments	37

Introduction

The purpose of the Pacific Gas and Electric Company (PG&E) 2021 wildfire mitigation and catastrophic events (WMCE) study was to estimate the total error amount for the transactions incurred during 2021 by certain vendors in WMCE. This report focuses exclusively on the statistical sampling and estimation component of the study. Decisions about the review process and the sample determinations are not part of this report.

Questions regarding the sampling and estimation methodology can be directed to Siyu Qing at (202) 327-7210 or Ryan Petska at (202) 327-7245.

Section I: Executive summary

A stratified sample of 199 transactions was selected from a sampling population of 104,878 transactions in PG&E WMCE. Based on the results of the sample, it was estimated that the total error amount was \$380,252 with margins of error of \$441,628 and \$531,049 at 90 and 95 percent confidence levels respectively.

Table 1 summarizes the estimation results.

Table 1. Estimation summary

Estimation Category	Estimated Amount	Margin of Error at 90% Confidence Level	Margin of Error at 95% Confidence Level
Total Error Amount	\$ 380,252	\$ 441,628	\$ 531,049

Section II: Population

Population

The original population contained 122,955 transactions totaling \$1,816,653,391 in transaction costs (cost). After removing transactions with debit/credit matches based on the fields Order, DT EY and the absolute value of the cost when the document types of the transactions were either RR or SR, the final population consisted of 118,851 transactions totaling \$1,816,653,391 in cost. The final population also contained -\$530,182,176 in negative transactions (credits) which were set aside during sample design

and adjusted for during estimation via a credit adjustment. Thus, the resulting sampling population contained 104,878 transactions totaling \$2,346,835,566 in cost.

A summary of the population is provided in Table 2.

Table 2. Population summary

	Total Net		Positives (Debits)		Negatives (Credits)	
	Amount	Number of Records	Amount	Number of Records	Amount	Number of Records
Original Data	\$ 1,816,653,391	122,955	\$ 3,373,979,073	106,930	\$ (1,557,325,683)	16,025
- Debit/Credit Matches	\$ -	4,104	\$ 1,027,143,507	2,052	\$ (1,027,143,507)	2,052
Final Population	\$ 1,816,653,391	118,851	\$ 2,346,835,566	104,878	\$ (530,182,176)	13,973
Sampling Population	\$ 2,346,835,566	104,878	\$ 2,346,835,566	104,878	\$ -	-

Sampling unit

The sampling unit was an individual transaction.

Sampling frame

The sampling frame consisted of 104,878 transactions totaling \$2,346,835,566 in cost.

Section III: Sample design

Stratification

A stratified random sample design was used for the study. Stratified sample designs are highly efficient designs that often allow confidence and precision goals to be obtained with smaller samples than would be required with simple random samples. The population data was divided into groups, or strata, and each stratum was sampled separately, with different sampling rates to increase the efficiency of the design. During estimation, the sampled records were appropriately weighted to reflect the sampling rates for the different strata. In this study, the individual transaction's cost amount was used as the basis for stratification.

A certainty or take-all stratum was defined for transactions with large costs relative to the rest of the data (greater than or equal to \$2,500,000). Transactions in this stratum were sampled at a rate of 100 percent in an effort to improve the stability of the estimate. The remaining non-certainty stratum boundaries were initially determined to approximately equalize the population size (Nh) multiplied by the estimated standard deviation (Sh) and were then slightly modified to improve the efficiency of the design.

The sample design is shown below in Table 3.

Table 3. Sample design summary

Stratum Number	Stratum Definition	Population Size	Population Cost	Sample Size	Sample Cost
1	\$0 to \$14,449.99	84,197	\$ 248,199,829	30	\$ 85,567
2	\$14,450 to \$54,389.99	12,670	\$ 346,160,965	30	\$ 842,619
3	\$54,390 to \$134,569.99	4,246	\$ 360,100,826	30	\$ 2,598,915
4	\$134,570 to \$230,749.99	2,079	\$ 367,106,461	30	\$ 5,374,401
5	\$230,750 to \$433,999.99	1,183	\$ 359,935,024	30	\$ 9,054,663
6	\$434,000 to \$2,499,999.99	484	\$ 328,280,314	30	\$ 21,536,289
7	\$2,500,000 and above	19	\$ 337,052,147	19	\$ 337,052,147
Total		104,878	\$ 2,346,835,566	199	\$ 376,544,600

Section IV: Sample selections and results

Source and seed of random numbers

The function RANUNI in the statistical software, SAS, was used to generate the random numbers for sample selection. The seed used to generate the random numbers was 181665; it represented the total cost in the full population, prior to removing any out-of-scope transactions, divided by 10,000 and rounded to the nearest integer.

Serialization of frame

Prior to generating random numbers in SAS, the population was sorted by the fields, Order, CO Document Number, PO Item, Vendor, Purchasing Doc and Cost Element. The purpose of this sort was to place the file in a reproducible and verifiable order so the random number assignment was independent of an arbitrary frame sequence.

Method of selection

To select the sample, the sampling frame was sorted by stratum and the random numbers described above. Thus, the entire file was put into random order within a stratum. Then, the required number of transactions per stratum was selected according to this random order. For example, the first 30 transactions in this random order were selected for stratum one.

Sample results

The results of the sample review are available upon request. Table 4 provides a summary of the results by stratum.

Table 4. Sample results summary

Stratum Number	Stratum Definition	Population Size	Population Cost	Sample Size	Sample Cost	Sample Error Amount
1	\$0 to \$14,449.99	84,197	\$ 248,199,829	30	\$ 85,567	\$ -
2	\$14,450 to \$54,389.99	12,670	\$ 346,160,965	30	\$ 842,619	\$ 200
3	\$54,390 to \$134,569.99	4,246	\$ 360,100,826	30	\$ 2,598,915	\$ -
4	\$134,570 to \$230,749.99	2,079	\$ 367,106,461	30	\$ 5,374,401	\$ -
5	\$230,750 to \$433,999.99	1,183	\$ 359,935,024	30	\$ 9,054,663	\$ -
6	\$434,000 to \$2,499,999.99	484	\$ 328,280,314	30	\$ 21,536,289	\$ 24,868
7	\$2,500,000 and above	19	\$ 337,052,147	19	\$ 337,052,147	\$ 5,563
Total		104,878	\$ 2,346,835,566	199	\$ 376,544,600	\$ 30,631

Section V: Estimation

Standard statistical methods were used to produce the estimates from the stratified sample. Differences in the probabilities of selection among strata were properly accounted for by statistical weighting. The mean per unit (MPU) estimator⁸ was used to compute the estimated total error amount.

The MPU estimator

The MPU estimator is the weighted sum of the sample means of error amount over all strata. In stratified sampling with L strata, this can be represented as

$$\hat{Y}_{mpu} = \sum N_h \bar{y}_h$$

where

N_h is the number of transactions in stratum h,
 $\bar{y}_h$ is the sample mean of error amount and
h = 1 to L, the number of strata.

The standard error of the MPU estimate is given by

$$\hat{S}(\hat{Y}_{mpu}) = \sqrt{\sum N_h(N_h - n_h)S_{yh}^2/n_h}$$

where

$S_{yh}^2 = \sum \frac{(y_{hi} - \bar{y}_h)^2}{n_h - 1}$ is the sample variance of error amount in stratum h.

⁸ Roberts, D. M. (1978) Statistical Auditing, American Institute of Certified Public Accounts, Inc., New York.

Confidence limits were calculated from the estimate plus or minus its margin of error, where the margin of error is computed as the standard error times the Student's t-value with a 90 or 95 percent two-sided confidence.

The degrees of freedom for the t-value were approximated using the Satterthwaite formula as follows:

$$n_e = \left(\sum g_h s_{yh}^2 \right)^2 / \sum \frac{g_h^2 s_{yh}^4}{n_h - 1},$$

where

$$g_h = N_h(N_h - n_h)/n_h.$$

As a result of the Satterthwaite adjustment, the t-values used in estimation were 1.694 and 2.037 for 90 and 95 percent confidence levels, respectively.

Table 5 shows the estimated total error amount, its associated precision measures, as well as the breakouts by balancing accounts.

Table 5. Estimation results summary

Estimation Category	Estimated Amount	Standard Error	90% Two-sided Confidence Level			95% Two-sided Confidence Level		
			Margin of Error	Lower Bound	Upper Bound	Margin of Error	Lower Bound	Upper Bound
Total Error Amount	\$ 380,252	\$ 260,701	\$ 441,628	\$ (61,377)	\$ 821,880	\$ 531,049	\$ (150,797)	\$ 911,301
Catastrophic Event Memorandum Account	\$ 129,910							
Vegetation Management Balancing Account	\$ 194,552							
Wildfire Mitigation Balancing Account	\$ 55,790							

Credit adjustments

The estimated total error amount was adjusted to account for the -\$530,182,176 remaining credits. The overall estimated total error amount, determined from the sample (positive amounts only), was adjusted by applying the estimated error percentage of 0.02 percent to the unmatched credits (-\$530,182,176). Therefore, the adjusted estimated total error amount was calculated as follows:

$$\$491,226 + (0.02\% * (-\$530,182,176)) = \$380,252.$$

Appendix B – Company documentation received

We considered policies and procedures associated with the charging and/or allocation of charges related to the Balancing Accounts, as well as Company guidance and relevant documents related to state-wide emergency proclamations, SB 901, relevant CPUC filings (including applications, decisions, and advice letters), payment approval level or authorization, and employee expense reimbursements.

Document Title	Description
1. 2018 12 13_Test Year 2020 Rate Case Application_A18-12-009.pdf	2020 General Rate Case Application
2. 2020 01 14_Joint Settlement Agreement_A18-12-009.pdf	2020 Joint Settlement Agreement
3. 2021 04 12_Advice Letter_4344-G_6032_E.pdf	2021 Advice Letter
4. GRC-2020-PhI_Final-Dec_CPUC_20191107_D-19-11-004_585661.pdf	2020 General Rate Case Decision 19-11-004
5. GRC-2020-PhI_Final-Dec_CPUC_20201203_D-20-12-005_633375.pdf	2020 General Rate Case Decision 20-12-005
6. RegulatoryAccountingDocuments_Admin-Doc_PGE_20210218_638758.pdf	2020 General Rate Case: Two-Way Vegetation Management Balancing Account (VMBA)
7. RegulatoryAccountingDocuments_Admin-Doc_PGE_20210224_643320 (1).pdf	2020 General Rate Case (GRC): Wildfire Mitigation Balancing Account (WMBA)
8. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB901	California Senate Bill (SB) 901
9. 2020 Plan	2020 Wildfire Mitigation Plan per PG&E's website
10. Public Utilities Code Section 454.9	Public Utilities Code Section 454.9
11. NARUC-Ratecase-and-Audit-Manual-2003.pdf	NARUC Rate Case and Audit Manual 2003
12. FIN-2210S_FIN-2210S+Employee+Business+Expense+and+Travel+Standard.pdf	PG&E Employee Business Expenses and Travel Standard
13. ELEC_5976-E.pdf	Advice Letter 5976E to correct the reported amount to the VMBA for 2016, 2017, and 2018
14. ELEC_6032-E.pdf	Advice Letter 4344G/6032E to implement the tariff changes approved in 2020 General Rate Case (GRC) Decision (D.) 20-12-005
15. PGE AL 5873-E.pdf	Advice Letter 5873-E to submit for filing a summary of the entries made to the VMBA for 2019

16. Att 6 - DS Distribution Routine and CEMA First Patrol SOW.pdf	Defined Scope Contract template
17. Defined Scope Contract Guide_June 2022.pdf	Defined Scope Contract Guidelines
18. VM Time and Materials Guide_August 2022.pdf	Vegetation Management T&M Pricing Guide

PACIFIC GAS AND ELECTRIC COMPANY
APPENDIX B
STATEMENTS OF QUALIFICATIONS

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF AARON R. CORTES

Q 1 Please state your name and business address.

A 1 My name is Aaron R. Cortes, and my business address is Pacific Gas and Electric Company, 12840 Bill Clark Way, Auburn, California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 As a Director of Hydro Operations and Maintenance, I provide oversight to the Hydroelectric Operations and Maintenance team for the Southern region. I oversee the response to and recovery from operational emergencies within my geographic territory, approximately Truckee to Fresno. This includes water manipulations, power generation, and public safety mitigations during normal operations and emergency operations such as major storm events and fires.

Q 3 Please summarize your professional background.

A 3 I have been with PG&E for 15 years in the Nuclear Unit as a Senior Reactor Operator (10 years) and Mechanical Maintenance Manager (five years) before taking on my current assignment. I have been the Director of Hydro O&M for two years as of January 4, 2023.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following Testimony and Workpapers in PG&E's 2022 Wildfire Mitigation and Catastrophic Events Application:

- Chapter 5, "Power Generation: CEMA"; and
- Workpapers supporting Chapter 5, "Power Generation: CEMA."

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF LAUREN CUNNINGHAM

Q 1 Please state your name and business address.

A 1 My name is Lauren Cunningham, and I am currently working remotely as Pacific Gas and Electric Company (PG&E) transitions from its prior location at 77 Beale Street, San Francisco, California to 300 Lakeside Drive, Oakland, California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 I am the Senior Manager of Privacy. In this role, I shape privacy strategies across the enterprise to address the risks related to the unauthorized use or loss of customer information. My team seeks, builds, and maintains cooperative/new relationships with key stakeholders and leads partnership opportunities for benchmarking, outreach, sponsorships, engagement on business issues, and best practices. My team also directs development of the privacy framework to assure new legislation or regulations are appropriately addressed in risk controls, data governance, and reporting (California Consumer Privacy Act (CCPA)/California Privacy Rights Act (CPRA)). I have previously been a witness for a cost recovery proceeding for PG&E's customer care memorandum account costs.

Q 3 Please summarize your educational and professional background.

A 3 In 2009 I graduated from the University of California at Berkeley with a Bachelor of Arts Political Science. In 2021, I also received certification from the International Association of Privacy Professionals as a Certified Information Privacy Manager. I joined PG&E in 2009 and I have worked in several roles across Business Finance, Customer Care, and Ethics & Compliance. I am currently the Senior Manager of the Privacy team, managing the ongoing fulfillment of CCPA and implementation of CPRA.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following Testimony and Workpapers in PG&E's 2022 Wildfire Mitigation and Catastrophic Events Application:

- Chapter 7, "Customer Care Memorandum Accounts":
 - Section A, "California Consumer Privacy Act Memorandum Account"; and

- 1 • Workpapers supporting “California Consumer Privacy Act Memorandum
2 Account” discussed in Chapter 7.
- 3 Q 5 Does this conclude your statement of qualifications?
- 4 A 5 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF ANGELINA M. GIBSON

Q 1 Please state your name and business address.

A 1 My name is Angelina M. Gibson, and I am currently working remotely as Pacific Gas and Electric Company (PG&E) transitions from its prior location at 77 Beale Street, San Francisco, California to 300 Lakeside Drive, Oakland, California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 I am Vice President of Emergency Preparedness and Response (EP&R) in the Utility Operations organization. In this role, I oversee all areas of emergency management for the PG&E enterprise including mitigation, prevention, preparedness, response, and recovery. I have oversight of numerous departments including Geosciences, Coworker Preparedness, Hazard Awareness and Warning Center, Public Safety Specialists, and EP&R Strategy and Execution consisting of, Gas, Power Generation and Electric Emergency Management teams, Emergency Exercise and Training, Planning and Prevention, Business Continuity and Process Improvement.

Prior to my current role, I was the Director of EP&R Strategy and Execution.

I have 17 years' experience supporting regulatory proceedings as a witness and witness assistant in General Rate Case, Catastrophic Event Memorandum Account and Wildfire Mitigation and Catastrophic Event cost recovery applications.

Q 3 Please summarize your educational and professional background.

A 3 I received a Bachelor of Science degree in Public Safety Administration from Franklin University, Columbus, Ohio, in 2004. I am a California State certified Firefight I, Federal Emergency Management Agency certified Master Exercise Practitioner and a Disaster Science Fellow of the Academy of Emergency Management. I have held numerous positions within PG&E's emergency response process since 1995 and have been employed in a variety of bargaining unit and management positions at PG&E since 1988.

1 Q 4 What is the purpose of your testimony?
2 A 4 I am sponsoring the following Testimony and Workpapers in PG&E's
3 2022 Wildfire Mitigation and Catastrophic Events Application:
4 • Chapter 6, "COVID-19 Pandemic: CEMA"; and
5 • Workpapers supporting Chapter 6, "COVID-19 Pandemic: CEMA."
6 Q 5 Does this conclude your statement of qualifications?
7 A 5 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF SHAWN HOLDER

Q 1 Please state your name and business address.

A 1 My name is Shawn Holder, and I am currently working remotely as Pacific Gas and Electric Company (PG&E) transitions from its prior location at 77 Beale Street, San Francisco, California to 300 Lakeside Drive, Oakland, California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 I am the Interim Director of the Public Safety Power Shutoff (PSPS) Program Management within the Wildfire Risk organization. In this role I am responsible for developing processes and tools related to the scoping, execution, and restoration of PSPS events. I have previously sponsored testimony in support of a PG&E application for the recovery of PSPS-related wildfire mitigation costs.

Q 3 Please summarize your educational and professional background.

A 3 I received a Bachelor's and Master's degree in Electrical Engineering from University of Idaho. I am a registered Professional Engineer in the state of California. I have been working in the field of electric power engineering since 2003 and at PG&E since 2008. I was a system protection engineer at PG&E from 2008 to 2013, then in Electric Operations risk management from 2013 to 2018. Since 2018 I have been focused on PG&E PSPS program.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following Testimony and Workpapers in PG&E's 2022 Wildfire Mitigation and Catastrophic Events Application:

- Chapter 2, "Wildfire Mitigation Balancing Account":
 - Section C, "Public Safety Power Shutoff Activities"; and
- Workpapers regarding "Public Safety Power Shutoff Activities" discussed in Chapter 2.

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF GEORGE KATAOKA

Q 1 Please state your name and business address.

A 1 My name is George Kataoka, and I am currently working remotely as Pacific Gas and Electric Company (PG&E) transitions from its prior location at 77 Beale Street, San Francisco, California to 300 Lakeside Drive, Oakland, California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 I am an Expert Capital Recovery Financial Analyst in the Capital Recovery and Analysis Group in the Controller's Department at PG&E. In this role, I have worked on Allowance for Funds Used During Construction, Construction Work In Progress, capital additions, and depreciation expense forecasting. I have also developed business requirements and led the implementation for various accounting and forecasting systems. Additionally, I have been a witness for a prior Wildfire Mitigation and Catastrophic Events case and have assisted witnesses in numerous Transmission Owner cases and General Rate Cases.

Q 3 Please summarize your educational and professional background.

A 3 I earned my Master's degree in Environmental Management from Duke University in 2013 and my Bachelor of Arts degree in Liberal Arts from Soka University of America in 2010. I started my career at PG&E in 2016 in the Capital Recovery and Analysis group. Prior to joining PG&E, I worked for SolarCity in a product management team developing a billing and accounting system and for Booz Allen Hamilton as a Senior Consultant for energy, defense, and transportation clients.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following Testimony and Workpapers in PG&E's 2022 Wildfire Mitigation and Catastrophic Events Application:

- Chapter 9, "Transmission Revenue Requirement Reclassification Memorandum Account"; and
- Workpapers supporting Chapter 9.

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF PETER KENNY

Q 1 Please state your name and business address.

A 1 My name is Peter Kenny, and my principal work location is at 6121 Bollinger Canyon Road, San Ramon, California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 I am Senior Vice President (VP), Vegetation Management & Electric System Inspections in the Operations organization. In this role, I lead a large field-based organization made up of over 11,000 coworkers and contractors that ensure the safe and reliable delivery of electricity to approximately 16 million people throughout a 70,000 square-mile service area in northern and central California. I joined PG&E in 2012 and have held several leadership positions with increasing responsibility. Previously, I served as VP of Gas Transmission and Distribution Construction.

Q 3 Please summarize your educational and professional background.

A 3 I received a Bachelor's degree in Leadership and Organizational Studies from Saint Mary's College in Moraga, California. In addition, I completed the Tuck Advanced Management Program at Dartmouth College and Lean Management Program at INSEAD. I am also a member of the Board of Directors for the California Asian Pacific Chamber of Commerce. I have over 30 years of experience in the utility industry and throughout my career have been instrumental in leveraging lean operating systems to improve safety culture and performance by engaging those closest to the work.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following Testimony and Workpapers in PG&E's 2022 Wildfire Mitigation and Catastrophic Events Application:

- Chapter 1, "Introduction and Overview"; and
- Workpapers supporting Chapter 1.

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF JOSEPH METCALF

Q 1 Please state your name and business address.

A 1 My name is Joseph Metcalf, and I am currently working remotely as Pacific Gas and Electric Company (PG&E) transitions from its prior location at 77 Beale Street, San Francisco, California to 300 Lakeside Drive, Oakland, California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 I am a Business Analyst Principal for the Temporary Generation team within the Transmission Substation Maintenance and Construction group, Electric Operations. I am responsible for temporary generation contracts, negotiations, and procurements. My team operationalizes the Public Safety Power Shutoff (PSPS) selected sites prior to the PSPS season. I also support the Temporary Generation branch for the Emergency Operations Center that supports temporary generation deployments during PSPS events.

Q 3 Please summarize your educational and professional background.

A 3 I was a Licensed General Contractor, state of California from 1988 to 2011. I received a Certificate of Construction Management in 2012, and in Project Management in 2016, from California State University, East Bay. I was an Electric Distribution Superintendent at PG&E from 2011 to 2016; a PG&E Contract Management Manager from 2016 - 2018; and became a Program Manager in 2018.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following Testimony and Workpapers in PG&E's 2022 Wildfire Mitigation and Catastrophic Events Application:

- Chapter 8, "Microgrids"; and
- Workpapers supporting Chapter 8.

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF TODD B. MINTZER

Q 1 Please state your name and business address.

A 1 My name is Todd B. Mintzer, and I am currently working remotely as Pacific Gas and Electric Company (PG&E) transitions from its prior location at 77 Beale Street, San Francisco, California to 300 Lakeside Drive, Oakland, California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 Within Operations, I am a Director in the Business Operations and Process Improvement Department of the Operations Support organization. My responsibility is Program and Project Governance. My team's role is to support Operations by ensuring balanced work plans, efficient work progression, strategic change control, and best practices in the program and project management space. I previously sponsored testimony regarding incrementality in support of PG&E's 2021 Wildfire Mitigation and Catastrophic Event cost recovery application.

Q 3 Please summarize your educational and professional background.

A 3 I received both a Master of Business Administration (2008) and a Bachelor of Science in Engineering (1997) from the University of Michigan. Prior to joining PG&E, I spent the first part of my career working in the Iron and Steel Industry in various environmental consulting and management roles. After receiving my graduate degree in 2008, I joined PG&E in the Electric Engineering and Operations organization, focused on strategy and Electric Transmission capital project portfolio management. After a one-year rotation in Customer Care, I returned to the Engineering and Operations function, where I gradually increased my level of responsibility over time to include portfolio-level planning, reporting, change control, and governance functions for both the Gas and Electric organizations.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following Testimony in PG&E's 2022 Wildfire Mitigation and Catastrophic Events Application:

- Chapter 10, "Demonstration of Incrementality."

- 1 Q 5 Does this conclude your statement of qualifications?
- 2 A 5 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF WHITNAY PECK

Q 1 Please state your name and business address.

A 1 My name is Whitnay Peck, and my business address is Pacific Gas and Electric Company (PG&E), 3136 Boeing Way, Stockton, California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 I am the Credit Business Strategy Sr. Manager, in the Credit Policy and Operations department within the Communications and Customer Organization. As such, I oversee approximately seven management level staff tasked with data reporting and forecasting, as well as supporting operational and regulatory policies and programs. I was the witness for the COVID-19 Pandemic Protections Memorandum Account and Disconnect Memorandum Account for PG&E's 2021 Wildfire Mitigation and Catastrophic Events cost recovery application.

Q 3 Please summarize your educational and professional background.

A 3 I joined PG&E in 2006 as a Customer Service Representative, before moving to Customer Care Credit and Collections, where I have spent the past fifteen years. While in Credit, I assumed roles: of Analyst, Supervisor, Senior Analyst, Expert Analyst and Manager. I assumed my current role as Manager of Credit Business Strategy in 2019.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following Testimony and Workpapers in PG&E's 2022 Wildfire Mitigation and Catastrophic Events Application:

- Chapter 7, "Customer Care Memorandum Accounts":
 - Section D, "COVID-19 Pandemic Protections Memorandum Account";
 - Section E, "Disconnections Memorandum Account"; and
- Workpapers regarding the "COVID-19 Pandemic Protections Memorandum Account" and "Disconnections Memorandum Account" discussed in Chapter 7.

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF ANNETTE G. QUON**

3 Q 1 Please state your name and business address.

4 A 1 My name is Annette G. Quon, and I am currently working remotely as
5 Pacific Gas and Electric Company (PG&E) transitions from its prior location
6 at 77 Beale Street, San Francisco, California to 300 Lakeside Drive,
7 Oakland, California.

8 Q 2 Briefly describe your responsibilities at PG&E.

9 A 2 I am responsible for the financial analysis and modeling for incremental cost
10 recovery filings, including the development of the Results of Operations
11 models, along with supporting estimates and related testimony. I am a
12 Senior Analyst in the Capital Accounting and Regulatory Recovery section
13 of the Finance and Risk Department, where I am responsible for producing
14 and preparing the revenue requirement models and along with related
15 testimony. Additionally, I have been a witness assistant for a prior Wildfire
16 Mitigation and Catastrophic Events cases and have assisted witnesses in
17 numerous Transmission Owner cases and General Rate Cases (GRC).

18 Q 3 Please summarize your educational and professional background.

19 A 3 I received a Business Administration degree with a concentration in
20 Accounting from San Francisco State University in 2000. Since then, I have
21 worked for Certified Public Accountant firms, Arthur Andersen LLP and
22 Deloitte & Touche LLP, as a Senior Tax Associate, supporting their State
23 and Local tax groups. My primary responsibilities during my tenure at both
24 firms, include preparing and reviewing Federal and State tax returns, tax
25 research and correspondence with the IRS and state agencies concerning
26 client tax issues. I joined PG&E in 2005 as a Tax Analyst and was
27 promoted to a Senior Tax Analyst in 2007. During my tenure in the
28 Company's Tax Department, I supported Audit, Compliance, Regulatory and
29 Tax Accounting functions. From June 2018 to April 2020, I worked as a
30 Revenue Requirement Senior Analyst, supporting Federal Energy
31 Regulation Commission Transmission Owner Tariff rate cases and the
32 California Public Utilities Commission GRC as a witness assistant in the

1 Administrative and General Expenses area. In April 2020, I started my
2 current position as a Senior Regulatory Analyst.

3 Q 4 What is the purpose of your testimony?

4 A 4 I am sponsoring the following Testimony and Workpapers in PG&E's
5 2022 Wildfire Mitigation and Catastrophic Events Application:

- 6 • Chapter 12, "Revenue Requirement"; and
- 7 • Workpapers supporting Chapter 12.

8 Q 5 Does this conclude your statement of qualifications?

9 A 5 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF KAMRAN RASHEED

Q 1 Please state your name and business address.

A 1 My name is Kamran Rasheed, and my business address is Pacific Gas and Electric Company (PG&E), 55 East 10th Street, Tracy, California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 I am the acting Senior Manager of PG&E's Electric Vegetation Asset Management Strategy and Analytics within the Wildfire Risk Management Department. I oversee PG&E's Electric Vegetation Asset Management and Analytics team. My responsibilities are to formulate the 2023-2027 Vegetation Management (VM) Plan for all aspects of VM, participate in the improvement of the Distribution Wildfire Risk Model for VM by working closely with the System Risk Management and Analytics team. I partner with VM Tech Performance and Data Management team to initiate and drive improvements into the data and technologies utilized to prioritize and guide the selection of future work. I also participate in benchmarking activities with other utilities and sponsor research at California universities and/or other entities experts' in utility VM programs to gain a better understanding of where and what VM work should be performed in order to mitigate the risks that vegetation creates with our assets. I have also provided testimony and witness support for VM activities in PG&E rate cases, including PG&E's prior Wildfire Mitigation and Catastrophic Event applications.

Q 3 Please summarize your educational and professional background.

A 3 I have a Bachelor of Science degree in Forestry from the University of Peshawar and a Master's degree in Science in Forestry from the University of Peshawar. I am a Certified Arborist, Utility Specialist and a Certified Treecare Safety Professional, Certified Utility Safety Professional, Certified Worker Occupational Safety and Health Specialist – University of California, Berkeley, California Occupational Safety and Health Administration (OSHA) 30 and OSHA 10 Certified and Certified Project Manager – Stanford Center for Professional Development. I have worked in the utility VM field for 21 years, and have been with PG&E since 2008. I have held progressive responsibility and Management assignments in PG&E's VM Maintenance

1 programs. The management roles I have held include: Drought Emergency
2 Response and Routine Programs, Supervisor, Operation Manger, and
3 Senior Operations Manager. Additional roles include Senior Manager of
4 Field Safety in Electric Operations, leading to my current role.

5 Q 4 What is the purpose of your testimony?

6 A 4 I am sponsoring the following Testimony and Workpapers in PG&E's 2022
7 Wildfire Mitigation and Catastrophic Events Application:

- 8 • Chapter 3, "Vegetation Management Balancing Account"; and
- 9 • Workpapers supporting Chapter 3.

10 Q 5 Does this conclude your statement of qualifications?

11 A 5 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF LA KEISHA STEWART

Q 1 Please state your name and business address.

A 1 My name is La Keisha Stewart, and I am currently working remotely as Pacific Gas and Electric Company (PG&E) transitions from its prior location at 77 Beale Street, San Francisco, California to 300 Lakeside Drive, Oakland, California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 I lead the Community Rebuild and Resiliency Program as the Senior Manager responsible for managing the scope, schedule, budget, and community engagement.

Q 3 Please summarize your educational and professional background.

A 3 I have over 23 years of utility experience, including 15 years with PG&E. My PG&E experience includes providing administrative support to both Electric and Gas Operations in addition to supporting rate-payers in customer facing roles within Customer Care. I helped develop ERIM's Gas Operations records compliance team and I have held leadership roles in a variety of programs throughout my time with PG&E, most notably as the Manager of Transmission Operation's NERC CIP Audit Readiness team and as the Principal Outreach Specialist, leading customer relations for Camp Fire victims. I will complete my Bachelor's degree at Harvard University in 2023.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following Testimony and Workpapers in PG&E's 2022 Wildfire Mitigation and Catastrophic Events Application:

- Chapter 7, "Customer Care Memorandum Accounts"; and
- Workpapers supporting Chapter 7.

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF SCOTT STRENFEL

Q 1 Please state your name and business address.

A 1 My name is Scott Strenfel, and my business address is Pacific Gas and Electric Company (PG&E), 3400 Crow Canyon Road, San Ramon California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 I am the Director of Meteorology and Fire Science almost 2 years. Responsible for leading an operational and development team that produces daily forecasts for operational decision making. Since 2014, I have led the team that develops, operates, and maintains PG&E models used for Public Safety Power Shutoff decision making. Since 2020, I have also supported PG&E's preparation of its WMCE filings regarding meteorological-related issues and costs.

Q 3 Please summarize your educational and professional background.

A 3 I hold a Bachelor of Science degree and a Master's degree in Meteorology. Graduate of the San Jose State Fire Weather Research Laboratory. I have 10 plus years of tenure with PG&E in the Meteorology and Fire Science group and currently Director of Meteorology and Fire Science.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following Testimony and Workpapers in PG&E's 2022 Wildfire Mitigation and Catastrophic Events Application:

- Chapter 2, "Wildfire Mitigation Balancing Account":
 - Section D, "Advanced Fire Modeling";
 - Section E, "Storm Outage Prediction Project Automation"; and
- Workpapers regarding the "Advanced Fire Modeling" and "Storm Outage Prediction Project Automation"; discussed in Chapter 2.

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF MARCUS J. WENDLER

Q 1 Please state your name and business address.

A 1 My name is Marcus J. Wendler, and my business address is Pacific Gas and Electric Company (PG&E), 111 Stony Circle, Santa Rosa, California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 I am an Electric Program Manager, Principal, within the Emergency and Restoration in the Electric Distribution Operations organization. My primary function is the program management of the Catastrophic Event Memorandum Account electric distribution program. I have provided testimony in support of two prior PG&E cost recovery applications for Catastrophic Event Memorandum Account costs.

Q 3 Please summarize your educational and professional background.

A 3 I received a Bachelor of Science degree in Business Administration from the California State University Stanislaus in 1991, and a Master's of Business Administration from Golden Gate University in 1995. In 2011, I obtained my Project Management Certification from Project Management Institute. I have been a PG&E employee since 2012 working within the Electric and Gas Operations since that time.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following Testimony and Workpapers in PG&E's 2022 Wildfire Mitigation and Catastrophic Events Application:

- Chapter 4, "Electric Distribution: CEMA";
- Chapter 4 Attachment A, "Electric Emergency Response Activities"; and
- Workpapers supporting Chapter 4.

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF BRYAN G. WONG**

3 Q 1 Please state your name and business address.

4 A 1 My name is Bryan G. Wong, and I am currently working remotely as
5 Pacific Gas and Electric Company (PG&E) transitions from its prior location
6 at 77 Beale Street, San Francisco, California to 300 Lakeside Drive,
7 Oakland, California.

8 Q 2 Briefly describe your responsibilities at PG&E.

9 A 2 I am a Principal Analyst in the Revenue Requirements and Cost Analysis
10 section of the Finance and Risk Department, where I am responsible for the
11 analysis and preparation of electric and gas operations and maintenance
12 expenses, as well as estimates and studies required for PG&E's various
13 rate cases. I have previously provided testimony regarding accounting
14 adjustments in support of a PG&E application for the recovery of Wildfire
15 Mitigation and Catastrophic Events costs.

16 Q 3 Please summarize your educational and professional background.

17 A 3 I received a Bachelor of Science degree in Business Administration from the
18 University of California, Berkeley in 1990 and a Master of Business
19 Administration (MBA) degree from the University of Southern California in
20 2000.

21 In 1990, I joined Deloitte & Touche and worked in both the tax and audit
22 functions supporting various industries and clients from large corporations to
23 high-net worth individuals. In 1998, I left as a Tax Manager to pursue a
24 MBA degree.

25 In 2000, I joined Sun Microsystems as a Senior Financial Analyst
26 supporting the software division research and development until 2005.
27 From 2005 to 2008, I worked as a Senior Revenue Accounting Analyst
28 supporting United States domestic sales and specializing in software
29 revenue recognition.

30 In 2009, I joined PG&E as a Senior Financial Analyst in the Financial
31 Planning and Governance group responsible for enterprise-wide budget
32 governance of PG&E's lines of business.

1 In 2011, I moved to the Revenue Requirements Department. Since
2 2011, I've supported witnesses for major rates cases such as the 2014,
3 2017 and 2020 General Rate Cases (GRC), 2015 and 2019 Gas
4 Transmission and Storage Rate Case and various Federal Energy
5 Regulatory Commission (FERC) Transmission Owner Tariff cases. I was a
6 witness sponsoring the Accounting and Calculations of Catastrophic Event
7 Memorandum Account (CEMA) Eligible Costs in the 2016 CEMA
8 Application. For the 2017 GRC and 2020 GRC, I was the witness
9 sponsoring the SAP FERC Translation process and the presentation of the
10 operations and maintenance expense in the FERC view.

11 Q 4 What is the purpose of your testimony?

12 A 4 I am sponsoring the following Testimony and Workpapers in PG&E's
13 2022 Wildfire Mitigation and Catastrophic Events Application:

14 • Chapter 11, "Accounting Adjustments to Recorded Costs"; and
15 • Workpapers supporting Chapter 11.

16 Q 5 Does this conclude your statement of qualifications?

17 A 5 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF LEO YANG

Q 1 Please state your name and business address.

A 1 My name is Leo Yang, and I am currently working remotely as Pacific Gas and Electric Company (PG&E) transitions from its prior location at 77 Beale Street, San Francisco, California to 300 Lakeside Drive, Oakland, California.

Q 2 Briefly describe your responsibilities at PG&E.

A 2 I am an Expert Financial Analyst in the Revenue Requirements and Cost Analysis section of the Finance and Risk Department, where I am responsible for the analysis and preparation of electric and gas operations and maintenance and administrative and general expenses, as well as estimates and studies required for PG&E's various rate cases.

Q 3 Please summarize your educational and professional background.

A 3 I earned a Bachelor of Science in Accounting from San Jose State University in 2011 and a Master of Business Administration from San Francisco State University in 2016. From 2011-2013, I worked at Sony Interactive Entertainment (formerly Sony Computer Entertainment) in the Accounting Department. I started as an Accounting Intern and progressed to a Senior Accounting Analyst. From 2016-present, I work at PG&E. In 2016, I started as a Business Finance Analyst supporting Electric Operations in Budgeting and Forecasting. In 2018, I worked as a Senior Business Finance Analyst supporting Corporate Services in Budgeting, Forecasting and the 2020 GRC. Since 2020, I work as an Expert Financial Analyst for the Revenue Requirements team. I support the Administrative and General expenses for the 2023 GRC as a Witness Assistant and 2022 WMCE filing as a Witness Assistant/Co Witness.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following Testimony and Workpapers in PG&E's 2022 Wildfire Mitigation and Catastrophic Events Application:

- Chapter 11, "Accounting Adjustments to Recorded Costs"; and
- Workpapers supporting Chapter 11.

- 1 Q 5 Does this conclude your statement of qualifications?
- 2 A 5 Yes, it does.