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PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
PREPARED TESTIMONY



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TABLE OF CONTENTS

Chapter	Title	Witness
1	INTRODUCTION AND OVERVIEW	Debbie W. Powell
2	WILDFIRE MITIGATION BALANCING ACCOUNT	Shawn Holder Scott Strenfel
3	VEGETATION MANAGEMENT BALANCING ACCOUNT	Kamran Rasheed
4	ELECTRIC DISTRIBUTION: CEMA	Marcus J. Wendler
Attachment A	ELECTRIC EMERGENCY RESPONSE ACTIVITIES	
5	GAS: CEMA	Andrew Wells
Attachment A	ADDITIONAL MATERIAL	
6	POWER GENERATION: CEMA	Aaron R. Cortes
7	COVID-19 PANDEMIC: CEMA	Angelina M. Gibson
Attachment A	COVID-19 TIMELINE	
8	CUSTOMER CARE MEMORANDUM ACCOUNTS	Lauren Cunningham Charles Madison Whitnay Peck
9	MICROGRIDS	Arti Dave
10	TRANSMISSION REVENUE REQUIREMENT RECLASSIFICATION MEMORANDUM ACCOUNT	George Kataoka
11	DEMONSTRATION OF INCREMENTALITY	Todd B. Mintzer
12	ACCOUNTING ADJUSTMENTS TO RECORDED COSTS	Bryan G. Wong
13	REVENUE REQUIREMENT	Divya Raman

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TABLE OF CONTENTS
(CONTINUED)

Chapter	Title	Witness
Appendix A	ERNST AND YOUNG WILDFIRE MITIGATION AND CATASTROPHIC EVENTS COST ANALYSIS	Bryan G. Wong
Appendix B	STATEMENTS OF QUALIFICATIONS	Aaron R. Cortes Lauren Cunningham Arti Dave Angelina M. Gibson Shawn Holder George Kataoka Charles Madison Todd B. Mintzer Whitnay Peck Debbie W. Powell Divya Raman Kamran Rasheed Scott Strenfel Andrew Wells Marcus J. Wendler Bryan G. Wong

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 (VM) Activities	1-1
2. CEMA Response	1-2
a. Wildfire and Weather-Related Events.....	1-2
b. COVID-19 Pandemic	1-2
3. Customer Care Initiatives.....	1-3
C. Summary of Accounts Covered in This Application	1-3
D. Summary of Request.....	1-5
E. Activities, Costs, and Reductions	1-9
1. Recorded Costs	1-9
a. Wildfire Mitigation Balancing Account Activities.....	1-9
b. Vegetation Management Balancing Account Activities	1-11
c. COVID-19 Pandemic Costs	1-13
d. CEMA Costs	1-15
e. Other Costs	1-18
2. Exclusions and Reductions	1-19
F. Ratemaking and Customer Impacts	1-20
G. Organization of Remainder of Testimony	1-20
H. Conclusion.....	1-21

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 reviews. The work covered by this
9 Application for Cost Recovery of 2020 Wildfire-Related Costs and Catastrophic
10 Event Memorandum Account (CEMA) (Application) mostly spans the years
11 2017-2020, although a relatively small portion of work dates to 2015.

12 **B. Overview**

13 In accordance with applicable law and policy, this Application seeks
14 recovery for costs we have incurred for activities performed in response to
15 extraordinary events in our service area over the past several years, and to
16 make our employees and the customers we serve safer. As discussed below,
17 these activities include: (1) completing certain wildfire risk mitigation work in
18 accordance with our approved Wildfire Mitigation Plans (WMP); (2) responding
19 to government-declared catastrophic events to repair damaged facilities, restore
20 utility services, and protect our employees and customers; and (3) implementing
21 various customer-focused initiatives.

22 **1. Wildfire Risk Mitigation and Vegetation Management (VM) Activities**

23 The risk of wildfire and the rate of catastrophic wildfire events continues
24 to be heightened across California due to climate change, drought, and
25 increasingly dry conditions. PG&E is committed to reducing wildfire risk to
26 keep customers and communities safe. In 2020, PG&E completed several
27 important wildfire-related safety enhancements and investments in
28 accordance with our WMPs to continue progress toward these vital
29 objectives, consistent with state policy. The work under review in this
30 proceeding includes:

- 31 • Enhanced and Routine Vegetation Management – We continued to trim
32 or remove trees with a higher potential for wildfire risk along distribution
33 lines in HFTD areas, in addition to our Routine VM activities;

- 1 • Tree Mortality – We continued to remove dead or dying hazard trees
2 that may pose a public safety or wildfire threat or risk to PG&E electric
3 and power generation (PG) infrastructure;
- 4 • Advanced Fire Modeling – We advanced our fire modeling capabilities to
5 more precisely forecast conditions necessitating Public Safety Power
6 Shutoff (PSPS) events;
- 7 • Improved PSPS – We reduced the scope and impact of PSPS events
8 compared to events in 2019 under similar weather conditions, and
9 restored power faster after severe weather passed; and
- 10 • Microgrids – We installed facilities in connection with microgrids to
11 mitigate the impact of PSPS events on customers.

12 **2. CEMA Response**

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

14 Our proactive work to reduce wildfire risks posed by our facilities
15 could not eliminate the risk of wildfire altogether. Large wildfires caused
16 by lightning and other sources continued to occur throughout our service
17 territory in 2020. Indeed, we responded to five of the six largest wildfires
18 in California’s history (as of 2020), including the first fire to impact more
19 than one million acres. We responded to these events with urgency to
20 repair damaged electrical, gas, and PG facilities, and restore utility
21 services to customers as expeditiously as possible. We completed
22 these activities safely and reliably, with a focus on serving our
23 customers, consistent with sound utility practices.

24 **b. COVID-19 Pandemic**

25 For the past year, the COVID-19 pandemic has presented
26 significant challenges to comply with various public healthcare
27 measures to protect the health and safety of PG&E’s customers and
28 employees and help customers impacted economically during these
29 times, while continuing to maintain the safe, continuous operation of our
30 systems. During 2020, PG&E implemented several vital measures to
31 protect employees, contractors, and customers impacted by the
32 pandemic, including, among other things: (1) transitioning employees to
33 a remote-work environment, (2) modifying facilities to comply with state

1 and county health orders; (3) sequestering critical employees to
2 maintain utility operations; and (4) purchasing cleaning supplies and
3 other equipment (masks, shields, etc.) to protect employees from
4 exposure to the virus.

5 **3. Customer Care Initiatives**

6 In addition to these other efforts and consistent with our objective of
7 placing customers at the center of our operations, PG&E has implemented
8 various customer-focused initiatives, including: (1) protecting customers'
9 private information to comply with the California Consumer Privacy Act;
10 (2) implementing emergency consumer protections during a
11 government-declared emergency event that has resulted in a loss,
12 disruption, or degradation of utility services; and (3) implementing
13 billing-related protections for residential and small business customers
14 impacted by the COVID-19 pandemic. We continue to look for ways to
15 improve the quality of service we provide to our customers.

16 **C. Summary of Accounts Covered in This Application**

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

26 The balancing and memorandum accounts covered in this Application are:

- 27 • Wildfire Mitigation Balancing Account (WMBA) – We have performed the
28 work recorded to this account in order to mitigate the risk of catastrophic
29 wildfires, increase public and customer safety and awareness, and more
30 accurately predict the potential and spread of wildfire to inform our future
31 mitigation plans and activities. Specifically, in this Application, we seek
32 recovery of \$149 million, subject to reasonableness review, in expenses
33 recorded to this account in 2020 for PSPS planning and event support

1 activities, and to support Advanced Fire Modeling (AFM) and the projects
2 and programs that AFM supports.¹ The work associated with this account
3 addresses necessary components of PG&E's commitment to reduce
4 catastrophic wildfire risk and increase public and customer safety and
5 awareness.

- 6 • Vegetation Management Balancing Account (VMBA) – We have performed
7 the work recorded to this account in order to mitigate the risk of ignition
8 caused by vegetation contacting electrical lines and components. In this
9 Application, we seek approximately \$592 million, subject to reasonableness
10 review, in expenses recorded to the VMBA in 2020 for four categories of
11 work: (1) Routine Vegetation Management (VM); (2) Enhanced VM
12 activities; (3) Tree Mortality VM activities previously associated with the
13 Catastrophic Event Memorandum Account (CEMA); and (4) PG VM.² Our
14 vegetation-management work involves inspecting our lines for potential
15 vegetation contacts, and trimming/removing vegetation, often exceeding
16 regulatory requirements.³ The work completed under these VM programs
17 supports public safety, service reliability, and regulatory compliance of
18 PG&E's electric distribution facilities.
- 19 • Catastrophic Events Memorandum Account (CEMA) – In addition to the
20 wildfire mitigation and VM work, we also seek recovery for costs resulting
21 from PG&E's response to various government-declared catastrophic events,

1 The 2020 General Rate Case (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) or if PG&E's recorded average per mile unit costs for system hardening exceed 115 percent of the authorized unit costs. (See D.20-12-005 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 two CWSP wildfire mitigation activities (PSPS and AFM) that caused PG&E to exceed the WMBA's 115 percent reasonableness review threshold.

2 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. (See D.20-12-005, p. 395, Conclusion of Law 17.)

3 Enhanced VM overhang clearing and radial clearance work often exceeds compliance with GO 95, Rule 35 and PRC Section 4293.

1 including weather-related events, wildfires, and the COVID-19 pandemic. In
2 this Application, we seek recovery of costs recorded in the CEMA totaling
3 \$681 million. The majority of the CEMA costs in this Application pertain to
4 four events: the 2015 Butte Fire, the August 2020 Lightening Complex
5 Fires, and the 2020 Glass Fire. In addition, we have performed activities in
6 order to mitigate the health and safety risks inflicted upon employees,
7 contractors, and the public by the COVID-19 pandemic. In this Application,
8 we seek to recover \$57 million for recorded costs to respond to the
9 COVID-19 pandemic during 2020. The work associated with the Company's
10 response included coordination, employee support, transition to remote
11 work, protective equipment, facility modifications, vehicle rentals and
12 inspections, sequestration of critical employees, and cleaning.

- 13 • Other Memorandum Accounts – Finally, this Application includes a request
14 to recover \$180 million in costs related to several additional memorandum
15 accounts: the COVID-19 Pandemic Protections Memorandum Account
16 (CPPMA); Disconnections Memorandum Account (DMA); Emergency
17 Consumer Protections Memorandum Account (ECPMA); California
18 Consumer Privacy Act Memorandum Account (CCPAMA); the Microgrids
19 Memorandum Account (MGMA); and the Transmission Revenue
20 Requirement Reclassification Memorandum Account (TRRRMA).

21 **D. Summary of Request**

22 PG&E provides several tables below summarizing its cost-recovery request
23 by PG&E organizational unit, applicable memorandum account, and the cost
24 categories within each account.

25 Table 1-1 summarizes the costs requested in this Application by
26 memorandum account:

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

Line No.	Chapter	Memo Accounts	Expense	Capital	Total
1	Chapter 2: Wildfire Mitigation	WMBA	\$149,469	–	\$149,469
2	Chapter 3: Vegetation Management	VMBA	591,718	–	591,718
3	Chapter 4: ED – CEMA	CEMA	429,319	\$181,502	610,821
4	Chapter 5: GD – CEMA	CEMA	4,594	7,636	12,230
5	Chapter 6: PG – CEMA	CEMA	926	53	979
6	Chapter 7: PG&E – COVID-19: CEMA	CEMA	55,370	1,209	56,579
7	Chapter 8: CC – Other Memorandum Accounts	CPPMA	7,847	–	7,847
8		DMA	666	–	666
9		ECPMA	6,271	–	6,271
10		CCPAMA	25,414	586	26,001
11	Chapter 9: ED – Microgrids	MGMA	132,977	6,153	139,130
12	Grand Total		\$1,404,569	\$197,139	\$1,601,708

(a) TRRRMA is calculated based on Plant and Reserve balances for Capital and derived from a factor based on Plant for O&M Expense. The December 2019 Plant is \$42 million and the December 2019 Reserve is \$20 million. The total revenue requirement for TRRRMA is \$13.3 million and not reflected in the total costs above.

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	Gas	Other	Total
1	\$1,511,367	\$17,726	\$72,615	\$1,601,708

4 Table 1-3 shows a cost-breakdown within EO for each memorandum
5 account. Costs recorded to the WMBA, VMBA, CEMA, and MGMA collectively
6 comprise most of our request. These costs are described in Chapters 2 through
7 7 and Chapter 9 of this testimony and are summarized in more detail in
8 Section C of this chapter.

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

Line No.	WMBA	VMBA	CEMA	MGMA	Total
1	\$149,469	\$591,718	\$631,051	\$139,130	\$1,511,637

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

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

Line No.	2020 Total Spend	2020 WMBA Adopted Expense	115% of Adopted	Total WMBA Request
1	\$210,845	\$53,371	\$61,337	\$149,469

6 Table 1-5 identifies the total costs recorded in the VMBA. This Application
7 will focus on work categories contributing to costs above 120 percent of adopted
8 in the VMBA (Routine VM, Enhanced VM, Tree Mortality VM, and PG VM work),
9 which are the costs for which we seek recovery. These activities are
10 summarized in Section C of this chapter and discussed in further detail in
11 Chapter 3 of this testimony.

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

Line No.	2020 Total Spend	2020 VMBA Adopted	120% Adopted	Total VMBA Request
1	\$1,249,333	\$548,013	\$657,615	\$591,718

12 Table 1-6 summarizes CEMA costs (non-COVID-19) by PG&E
13 organizational unit. As shown in the table, the majority of costs recorded to
14 CEMA are attributable to EO (distribution). The activities associated with these

1 costs are summarized in Section C of this chapter and discussed in further detail
2 in Chapters 4 through 6 of this testimony.

**TABLE 1-6
CEMA
(THOUSANDS OF DOLLARS)**

<u>Line No.</u>	<u>ED</u>	<u>GO</u>	<u>Other</u>	<u>Total</u>
1	\$631,051	\$17,726	\$31,831	\$680,608

3 Table 1-7 summarizes COVID-related CEMA costs by PG&E organizational
4 unit. As shown in the table, the majority of costs recorded to CEMA are
5 attributable to EO (distribution), Information Technology (IT), Corporate Real
6 Estate Strategy and Services (CRESS), and Transportation. The activities
7 associated with these costs are summarized in Section C of this chapter and
8 discussed in further detail in Chapter 7.

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

<u>Line No.</u>	<u>ED</u>	<u>GO</u>	<u>IT</u>	<u>CRESS</u>	<u>TRANSP</u>	<u>OTHER</u>	<u>Total</u>
1	\$20,230	\$5,496	\$8,850	\$12,328	\$4,583	\$5,091	\$56,579

9 Other memorandum accounts including the CPPMA, DMA, ECPMA,
10 CCPAMA, and MGMA are summarized in Table 1-8. As shown in the table, the
11 majority of recorded costs are attributable to MGMA and are entirely borne by
12 electric distribution. The remaining costs, for which Customer Care is
13 responsible, are attributed to the other four memorandum accounts. The
14 activities associated with these accounts are summarized in Section C of this
15 chapter and discussed in further detail in Chapters 8 and 9.

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

Line No.	Memo Account	ED Capital	ED Expense	CC Capital	CC Expense	Total
1	CPPMA	–	–	–	\$7,847	\$7,847
2	DMA	–	–	–	666	666
3	ECPMA	–	–	–	6,271	6,271
4	CCPAMA	–	–	\$586	25,414	26,001
5	MGMA	\$6,153	\$132,977	–	–	139,130
6	Total	\$6,153	\$132,977	\$586	\$40,198	\$179,914

1 **E. Activities, Costs, and Reductions**

2 The activities covered by this Application fall into five general areas:
3 (1) wildfire mitigation activities; (2) VM activities; (3) COVID-19 response
4 activities; (4) catastrophic event (non-COVID-19) response activities; and
5 (5) other memorandum accounts. In subsection 1, we summarize the activities
6 in our request. In subsection 2, we describe certain exclusions and reductions
7 we have made prior to calculating the revenue requirement, which is set forth in
8 Chapter 13 along with our ratemaking proposal.

9 **1. Recorded Costs**

10 **a. Wildfire Mitigation Balancing Account Activities**

11 As noted above, the wildfire mitigation activities and associated
12 costs described in this Application can be separated into two categories
13 booked to WMBA: (1) PSPS, comprised of PSPS Event costs and
14 PSPS Program costs, and (2) AFM. PG&E is requesting recovery of
15 recorded expense costs that exceed the reasonableness review
16 thresholds specified by D.20-12-005 (2020 GRC Decision).

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

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

Line No.	WMBA Activity	Adopted Amount	Adopted at 115%	2020 Recorded Expenses	Amount over 115% ^(a)
1	PSPS Events	–	–	\$80,708	\$80,708
2	PSPS Program	\$6,095	\$7,009	77,499	70,490
3	AFM	1,154	1,327	5,542	4,215
4	Total	\$7,249	\$8,336	\$163,749	\$155,413

(a) PG&E presents total expenses above the 115 percent reasonableness review threshold for PSPS and AFM. However, because PG&E incurred less than the adopted amounts for other WMBA activities in 2020, the total amount subject to reasonableness review is only \$149.5 million.

1 PSPS Events are the activities directly associated with PG&E
2 proactively de-energizing electric transmission and/or distribution lines
3 following a determination of weather-related threats posing an imminent
4 threat to power line assets and increased catastrophic wildfire risk. The
5 PSPS Program includes all activities supporting, but not directly
6 connected to, PSPS events, such as helicopter contracts and
7 Community Resource Center preparedness.

8 AFM activities are intended to enhance and operationalize models
9 that are utilized to understand fire risk and spread, and to inform
10 PG&E’s decision-making process for PSPS, including when to initiate
11 and end a PSPS Event. The AFM program is comprised of four primary
12 projects: (1) Technosylva Fire Spread Modeling; (2) Dead and Live Fuel
13 Moisture Modeling; (3) Live Fuel Moisture Sampling and Observation
14 Program; and (4) Wildfire Safety Operations Center Support.

15 PG&E’s PSPS and AFM activities demonstrate PG&E’s commitment
16 to improve and enhance PSPS in order to make our customers and
17 communities safer. Our efforts include ongoing expansion and
18 refinement of our weather and fire modeling capabilities which support
19 the PSPS program and bolster its situational awareness capabilities. In
20 addition to our investment in modeling, increased focus on PSPS
21 operations and community resources also contribute to our goal of
22 initiating fewer events with smaller scopes and shorter durations.

1 **b. Vegetation Management Balancing Account Activities**

2 The VMBA is a two-way balancing account created pursuant to the
 3 2020 GRC decision. PG&E records in the VMBA costs for Routine VM
 4 and Enhanced VM activities previously recorded in FRMMA/WMPMA,
 5 and Tree Mortality and Fire Risk Reduction work previously recorded in
 6 CEMA.^{4,5} PG&E also records costs for PG VM activities in the VMBA.

7 PG&E’s VM activities and associated costs in this Application
 8 include four categories of work outlined above: (1) Routine VM
 9 activities; (2) Enhanced VM activities; (3) Tree Mortality VM activities;
 10 and (4) PG VM.

11 Recorded costs related to these activities are summarized in the
 12 Table 1-10 below:

**TABLE 1-10
 2020 RECORDED VMBA EXPENSES
 (THOUSANDS OF DOLLARS)**

Line No.	Program	Imputed Adopted Amount	Adopted at 120%	2020 Recorded Adj. Expenses	Subject to Review
1	Routine VM	\$229,270	\$275,124	\$699,084	\$423,960
2	Enhanced VM	318,742	382,491	451,390	68,899
3	Tree Mortality	–	–	98,131	98,131
4	PG	–	–	1,448	1,448
5	Sub Total	\$548,013	\$657,615	\$1,250,053	\$592,438
6	<i>EY adjustment</i>	–	–	\$(720)	\$(720)
7	Total	–	–	\$1,249,333	\$591,718

13 PG&E recorded costs of \$424 million more than the 120 percent
 14 reasonableness review threshold for Routine VM work, encompassing
 15 patrols, inspections, and maintenance of clearances for trees along
 16 PG&E’s 81,000 miles of overhead high voltage Distribution line in High
 17 Fire Threat District (HFTD) areas and non-HFTD areas. PG&E’s
 18 Routine VM program supports public and employee safety, wildfire risk

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

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

1 reduction, electric system reliability, and compliance with applicable
2 regulatory standards including CPUC's GO 95, Rules 35 and PRC
3 Sections 4292 and 4293.

4 PG&E recorded costs of \$69 million more than the 120 percent
5 reasonableness review threshold for Enhanced VM activities, which
6 focus on addressing vegetation in Tier 2 HFTD and Tier 3 HFTD areas
7 that poses a higher potential for wildfire risk. Enhanced VM work
8 includes radial clearances, overhand trimming, tree assessment for
9 strike potential, fuel reduction and the use of Light Detection and
10 Ranging technology. Enhanced VM work is based on the commitments
11 and activities approved in PG&E's 2020 WMP that support Public
12 Utilities Code (Pub. Util. Code) 8386.

13 PG&E recorded costs of \$98 million for PG&E's Tree Mortality
14 program activities that mitigate risks associated with dead or dying trees'
15 contact with utility facilities per Commission Resolution (Res.) ESRB-4
16 (Electric Safety and Reliability Branch). Specifically, these remedial
17 measures include, but are not limited to, "increasing vegetation
18 inspections and removing hazardous, dead and sick trees and other
19 vegetation near the Investor-Owned Utilities (IOU) electric power lines
20 and poles."⁶ Resulting from the ongoing drought and bark beetle
21 infestation, dead, dying or diseased trees are targeted for removal so
22 that they no longer pose a threat to overhead electric facilities or to
23 PG&E's critical hydroelectric generation facilities and public recreational
24 areas.⁷

⁶ Res.ESRB-4 (June 16, 2014): page 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.

⁷ In order to reduce the incidences 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 PG&E recorded \$1.5 million for PG VM activities. PG&E's PG VM
2 program includes the work associated with identifying, abating, and
3 cleaning up dead trees in the areas surrounding PG&E's 67
4 powerhouses and associated equipment.

5 The sizeable investment PG&E continues to make in its vegetation
6 management programs directly supports public safety, service reliability,
7 and regulatory compliance through management of vegetation near
8 PG&E's electric distribution facilities. As our service territory continues
9 to experience extreme climate change, resulting in increased
10 temperatures, drought, high winds and longer fire seasons, these
11 proactive measures serve the important purposes of reducing fire risk,
12 improving the safety of PG&E's electric system, and protecting
13 customers and the public.

14 **c. COVID-19 Pandemic Costs**

15 Activities related to PG&E's response to the COVID-19 Pandemic
16 can be categorized into five components: (1) Response Coordination
17 and Employee Support, (2) Sequestration, (3) Protective Equipment,
18 Facility Modifications, Vehicle Rentals, and Inspections to Comply with
19 Health Orders, (4) Transition to and Support of Remote Work,
20 (5) Cleaning due to COVID-19 cases.

21 On March 13, 2020, PG&E's office-based workforce was directed to
22 work at home, requiring company coordination and support for the
23 transition to remote work. The high airborne transmissibility of
24 COVID-19 and close working environment in most PG&E offices
25 necessitated this decision, which was made to protect the health of
26 PG&E workers. On March 17, 2020, PG&E closed in-person customer
27 service offices to comply with the Governor's stay-at-home order and to
28 protect public health.

29 The work-at-home requirement necessitated a rapid deployment of
30 equipment and technology (portable lap top computers, docking
31 stations, monitors, remote-access software, etc.) because most
32 office-based employees did not have the necessary equipment and
33 technology to allow them to work remotely from home. PG&E's network
34 access had to be adapted for the large number of personnel and

1 required additional licensing of access software, procuring and
2 deploying security tokens, providing computers and other hardware, and
3 reconfiguring and repurposing equipment for a remote setting.

4 In addition, PG&E incurred various costs related to protecting those
5 essential workers who were unable to work remotely from home.
6 Beginning in March 2020, and continuing for the rest of the year, the
7 State of California and various individual counties in PG&E's service
8 territory implemented a wide variety of health orders, regulations, and
9 guidance on prudent practice that necessitated the purchase and
10 deployment of personal protective equipment, facility modifications, and
11 the implementation of specialized inspections. These measures were
12 necessary to provide a safe working environment for employees and
13 contractors who continued to work in an office setting or in the field, and
14 to protect customers in situations where employees needed to have
15 direct contact with them.

16 PG&E also prepared the San Ramon Valley Conference Center
17 (SRVCC) as a potential site for sequestering critical control center
18 personnel from gas and EO. Sequestration was a "last-resort" decision
19 due to the cost and significant inconvenience to personnel and logistics
20 associated with having key personnel living on-site 24/7. In April 2020,
21 PG&E determined that the circumstances surrounding COVID-19 in the
22 community had deteriorated to the point that sequestration of personnel
23 was necessary in order to ensure continued safe operation of the
24 electric and gas systems. Four sequestration "waves" were established
25 in the period of April 27, 2020 to September 25, 2020, at which point the
26 SRVCC was held in stand-by for the remainder of 2020 in anticipation of
27 the need to potentially re-sequester personnel at a future date.

28 Finally, the Center for Disease Control, state of California, local
29 counties, and California Occupational Safety and Health Administration
30 issued various cleaning and disinfection measures to be taken in the
31 event of a confirmed positive COVID-19 case in the workplace. These
32 measures are significantly more intensive than can be provided by
33 contract custodial staff and require specialized skills and equipment.
34 When PG&E learned of COVID-19 cases of employees who were in the

workplace, a contract cleaning and disinfection service was used to completely disinfect the areas the employee was working or came into contact with.

The investment in the actions outlined above directly contributed, and continues to contribute, to the health and safety of PG&E employees, contractors, and the public. The steps taken to provide remote workers with the tools they require, sequester system-critical employees, and maintain clean and hospitable working conditions helped ensure continuous and safe operations during the pandemic. These actions were necessary to respond to the COVID-19 pandemic and the needs of PG&E’s workforce and operations, and the public.

Recorded costs related to these activities are summarized in Table 1-11 below:

**TABLE 1-11
SUMMARY OF RECORDED COSTS BY PURPOSE
(THOUSANDS OF DOLLARS)**

Line No.	Component	Expense	Capital
1	Response Coordination and Employee Support	\$2,041	–
2	Transition to and Support of Remote Work	8,399	\$1,209
3	Protective Equipment, Facility Modifications, and Inspections to Comply with Health Orders	5,252	–
4	Sequestration	26,283	–
5	COVID-19 Contact Tracing, Quarantine and Cleaning due to COVID-19 Cases	13,909	–
6	Total	\$55,884	\$1,209

d. CEMA Costs

PG&E’s CEMA costs are recorded pursuant to Pub. Util. Code Section 454.9, which authorizes utilities to record costs of “restoring utility service to customers,” “repairing, replacing, or restoring damaged utility facilities,” and “complying with governmental agency orders” in connection with declared disasters. The CEMA work reflected in this Application pertains to the 2015 Butte Fire and seven events in 2020, including the August and September Extreme Heat Events, the Lightening Complex Fires, and the Glass, Oak, and Creek Fires. The costs recorded also include work related to prior CEMA events,

1 including one 2017 fire (Tubbs) and two 2018 fires (Carr Fire and
2 Ridgecrest Earthquake Fire), as well as costs for various catastrophic
3 events in 2019 (January & February Storms, October Wind/PSPS Event,
4 Winter Event, and the Glencove, Camino, and Bethel Island fires).

5 Table 1-12 below outlines costs recorded to CEMA for these events
6 of approximately \$490 million in expense and \$190 million in capital.

**TABLE 1-12
CEMA-ELIGIBLE EXPENDITURES
(THOUSAND OF DOLLARS)**

Line No.	Event by Year	Electric Expense	Electric Capital	Gas Expense	Gas Capital	Other Expense	Other Capital	Grand Total
1	2020 August Extreme Heat Event	\$8,976	\$20,642	—	—	—	—	\$29,618
2	2020 August Fires	163,705	67,125	\$305	\$17	\$897	—	232,049
3	2020 Sept North Complex Fire	74,531	2,872	—	—	—	—	77,402
4	2020 Sept Extreme Heat Event	1,698	4,281	—	—	—	—	5,979
5	2020 Glass Fire	71,530	41,227	2,941	490	—	—	116,188
6	2020 Sep Oak Fire	437	31	—	—	—	—	468
7	2020 Creek Fire	26,016	10,930	—	—	—	—	36,946
8	2015 Butte Fire	86,590	19,396	—	—	—	—	105,986
9	2020 COVID-19	20,230	—	5,496	—	29,644	\$1,209	56,579
10	2020 Costs for Prior CEMA Events	(4,164)	14,997	1,348	7,130	29	53	19,393
11	Grand Total	\$449,549	\$181,502	\$10,090	\$7,636	\$30,569	\$1,262	\$680,608

1 **e. Other Costs**

2 This Application also addresses five other memorandum accounts to
 3 which PG&E recorded costs. First, and the largest in this section of the
 4 Application, we seek approximately \$139 million in costs to develop and
 5 support PG&E's microgrid solutions focused on building grid resilience
 6 and keeping the power on for customers in communities that have a
 7 high likelihood of experiencing a future PSPS event. The microgrid
 8 program is supported by four workstreams: (1) substation temporary
 9 generation, (2) distribution microgrids, (3) single site back-up power
 10 support, and (4) CRCs. Each workstream supports PG&E's ability to
 11 maintain electric services in safe-to-energize areas during 2020 PSPS
 12 events. All recorded costs were born by electric distribution and are
 13 highlighted in Table 1-13 below:

**TABLE 1-13
 MICROGRID
 (THOUSANDS OF DOLLARS)**

Line No.	Account	Expense	Capital	Total Spending
1	Make-Ready Program	\$41	\$6,153	\$6,194
2	Temporary Generation Program	131,381	–	131,381
3	Community Microgrid Enablement Program	391	–	391
4	Program Management	1,164	–	1,164
5	Total	\$132,977	\$6,153	\$139,130

14 PG&E also incurred approximately \$41 million costs in 2019 and
 15 2020 for customer support and assistance activities recorded in the
 16 CPPMA, DMA, ECPMA, and the CCPAMA. Recorded costs and
 17 designated activities for each of these accounts are summarized in
 18 Table 1-14 below.

**TABLE 1-14
OTHER ELIGIBLE EXPENDITURES
(THOUSANDS OF DOLLARS)**

Line No.	Account	Activity	Expense	Capital	Total Spending
1	CPPMA	Providing temporary service and billing support for customers impacted by disasters	\$7,847	–	\$7,847
2	DMA	Implementing policies that aim to mitigate residential disconnections pursuant to D.20-06-003	666	–	666
3	ECPMA	Extending emergency customer protections to customers impacted by the COVID-19 pandemic	6,271	–	6,271
4	CCPAMA	Implementing the California Consumer Privacy Act of 2018	25,414	\$586	26,001
5	Total		\$40,198	\$586	\$40,784

1 The remaining account is the TRRRMA, detailed in Chapter 10,
2 which represents a total revenue requirement of \$13.3 million. The
3 TRRRMA was established to record a CPUC revenue requirement
4 associated with the costs requested by PG&E for recovery in
5 transmission rates that are no longer deemed to be network
6 transmission related costs and, as such, are not allowed to be included
7 in Federal Energy Regulatory Commission transmission rates. Please
8 see Chapter 10 for details.

9 **2. Exclusions and Reductions**

10 Ernst & Young (EY) performed an analysis of 2020 costs from the
11 WMBA and VMBA to confirm the costs are directly attributable to the
12 balancing accounts as they are captured in PG&E’s financial systems. EY
13 segregated the costs within the balancing accounts by cost category and
14 developed testing procedures for each category of costs based on the
15 unique nature and risks of each cost category. Approximately \$400 million,
16 totaling 17 percent of total costs incurred, was tested.

17 EY identified items totaling approximately \$0.4 million (extrapolated to
18 approximately \$0.9 million) that EY recommended for removal from this
19 Application. The amounts requested in the Application have been reduced
20 accordingly.

1 **F. Ratemaking and Customer Impacts**

2 PG&E seeks recovery of \$1,468 million in total revenue requirement
3 (excluding interest) for the period of 2015 through 2022. This filing proposes
4 that the electric distribution, electric generation, gas distribution, and gas
5 transmission revenue requirements for the incremental costs included in this
6 filing (with the exception of the MGMA revenue requirement) be recovered in
7 rates over a period of 24 months beginning January 1, 2023, or as soon as
8 practicable following the decision in this proceeding, until the 2023 GRC in which
9 the capital plant will be included in the test year 2023 for purposes of the
10 revenue requirement calculations. Thereafter, the recovery of capital-related
11 costs (such as ROR, taxes, and depreciation) will be included in the 2023 GRC.

12 **G. Organization of Remainder of Testimony**

13 The remainder of the testimony in support of this Application is organized as
14 follows:

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

- 1 • Chapter 12 – Describes the proposed ratemaking for the costs included in
2 this Application.
- 3 • Chapter 13 – Presents the revenue requirement associated with the
4 incremental costs in this Application.

5 **H. Conclusion**

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

11 We are proud of what our employees and contractors have accomplished
12 with this work. It has made our service area safer for the people that live and
13 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	2-4
a. Description of Audit.....	2-4
b. Review Methodology and Observations.....	2-5
c. Audit Results	2-5
C. Public Safety Power Shutoff Activities	2-6
1. PSPS Events	2-8
a. Nature of Activity	2-8
b. Summary of Costs	2-11
1) Electric Distribution Field Resources.....	2-12
2) Community Resource Centers	2-12
3) EOC Support.....	2-13
4) Customer Communications	2-13
5) Aviation/Helicopter Services.....	2-14
6) In-Event Vegetation Management.....	2-14
7) Information Technology.....	2-15
8) Miscellaneous	2-15
c. Reason for Activity.....	2-15
2. PSPS Program.....	2-16
a. Nature of Activity	2-16
b. Summary of Costs	2-17

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 2
WILDFIRE MITIGATION BALANCING ACCOUNT

TABLE OF CONTENTS
(CONTINUED)

1) PG&E Event Readiness	2-17
2) Customer Event Readiness.....	2-22
3) Tools and Technologies	2-29
c. Reason for Activity.....	2-30
3. Conclusion	2-31
D. Advanced Fire Modeling.....	2-31
1. Technosylva Fire Spread Modeling.....	2-33
a. Nature of Activity	2-33
b. Summary of Costs	2-35
c. Reason for Activity.....	2-35
2. Wildfire Safety Operations Center Support	2-36
a. Nature of Activity	2-36
b. Summary of Costs	2-37
c. Reason for Activity.....	2-37
3. Dead and Live Fuel Moisture Modeling.....	2-37
a. Nature of Activity	2-37
b. Summary of Costs	2-38
c. Reason for Activity.....	2-38
4. Live Fuel Moisture Sampling and Observation Program.....	2-39
a. Nature of Activity	2-39
b. Summary of Costs	2-39
c. Reason for Activity.....	2-39
5. Conclusion	2-40

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **CHAPTER 2**
3 **WILDFIRE MITIGATION BALANCING ACCOUNT**

4 **A. Introduction**

5 This chapter presents Pacific Gas and Electric Company’s (PG&E or the
6 Company) 2020 Wildfire Mitigation Balancing Account (WMBA) costs and the
7 primary drivers of expenditures above General Rate Case (GRC)-authorized
8 amounts: the Public Safety Power Shutoff (PSPS) and Advanced Fire Modeling
9 (AFM) programs. This chapter demonstrates that expense costs incurred for
10 these programs beyond the 115 percent reasonableness review threshold set
11 forth in the 2020 GRC Decision are reasonable and should be authorized by the
12 California Public Utilities Commission (CPUC or Commission).

13 **B. Overview**

14 **1. Wildfire Mitigation Balancing Account**

15 The Commission authorized the WMBA in Decision (D.) 20-12-005¹
16 (2020 GRC Decision). The WMBA is a two-way balancing account used to
17 track costs for PG&E’s Community Wildfire Safety Program (CWSP) and
18 associated activities as of January 1, 2020. The CWSP costs recorded to
19 the WMBA include both operations and maintenance (O&M) and capital
20 costs incurred for certain wildfire mitigation activities outlined in PG&E’s
21 GRC and annual WMPs.² These wildfire mitigation activities include:
22 (1) system hardening; (2) enhanced situational awareness initiatives,
23 including AFM; (3) enhanced operational practices, including PSPS; and
24 (4) support programs. These activities are critically important for PG&E to
25 comply with state policy under Senate Bill (SB) 901 and Assembly Bill 1054

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 filed or updated annually with the CPUC’s Wildfire Safety Division and comprehensively addresses PG&E’s activities to reduce wildfire risk. See PG&E’s 2021 Wildfire Mitigation Plan – Revised Report, Rulemaking (R.) 18-10-007 (June 3, 2021) (Revised 2021 WMP), available at: <www.pge.com/wildfiremitigationplan> (as of June 21, 2021).

1 to mitigate the increasing risk of wildfire caused by climate change and
2 drought conditions across California.³

3 The 2020 GRC Decision authorized PG&E to recover WMBA expenses
4 up to 115 percent of the adopted values through a Tier 2 advice letter.⁴
5 PG&E must file a reasonableness review application to recover WMBA
6 costs exceeding 115 percent of the GRC-authorized amount for CWSP or if
7 PG&E's recorded average per mile unit costs for system hardening exceed
8 115 percent of the authorized unit costs.⁵ Costs up to 115 percent of the
9 GRC-authorized amount are considered just and reasonable and are not
10 included in PG&E's request.⁶

11 **2. Activities and Recorded Amounts Subject to Reasonableness Review**

12 As shown in Table 2-1 below, the GRC-authorized (adopted) amount for
13 2020 CWSP O&M expenses is \$53.4 million,⁷ and the 115 percent
14 reasonableness review threshold is \$61.4 million. PG&E's 2020 recorded
15 CWSP O&M expenses totaled \$211.0 million, which is \$149.5 million over
16 the reasonableness review threshold. Pursuant to the 2020 GRC Decision,
17 PG&E must therefore demonstrate that \$149.5 million in CWSP O&M
18 expenses was reasonably incurred.

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 Ordering Paragraph (OP) 1.

⁵ D.20-12-005, p. 397, COL 32 ("PG&E should be required to file an application for recovery of CWSP costs recorded in the WMBA if CWSP expenditures are in excess of 115 percent of the authorized amount or if recorded per mile unit costs are in excess of 115 percent of the authorized unit costs."), p. 410, OP 1.b. PG&E's recorded average per mile unit costs for overhead and underground system hardening were less than 115 percent of the authorized per mile unit costs.

⁶ Advice Letter 4392-G/6100-E was approved on March 25, 2021 without changes. In accordance with OP 8 and 9 of D.20-12-005, PG&E submitted this Tier 2 advice letter to seek recovery of the VMBA expense undercollection of \$110.823 million and WMBA expense undercollection of \$7.600 million as authorized by D.20-12-005 OP 1.

⁷ D.20-12-005, p. 119.

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

Line No.	Account	Adopted Amount	Adopted at 115%	2020 Recorded	Subject to Review
1	WMBA	\$53,371	\$61,377	\$210,845	\$149,469

Note: Reflects removal of Ernst & Young (EY) Adjustment \$0.14 million. See Chapter 12 for details.

1 PG&E's recorded WMBA expenses exceeded adopted amounts due
 2 primarily to two wildfire mitigation program areas: (1) PSPS, which includes
 3 costs to execute PSPS events in 2020 (PSPS Events) and general PSPS
 4 program costs (PSPS Program); and (2) AFM. As shown in Table 2-2
 5 below, recorded expenses for PSPS Program and AFM exceeded
 6 115 percent of their respective adopted amounts. Costs to execute PSPS
 7 events were not forecasted in the 2020 GRC and therefore have no adopted
 8 amount.

**TABLE 2-2
WMBA PROGRAMS SUBJECT TO REASONABLENESS REVIEW
(THOUSANDS OF DOLLARS)**

Line No.	WMBA Activity	Adopted Amount	Adopted at 115%	2020 Recorded Expenses	Amount over 115%
1	PSPS Events	-	-	\$80,708	80,708
2	PSPS Program	6,095	7,009	77,499	70,490
3	AFM	1,154	1,327	5,542	4,215
4	Total	\$7,249	\$8,336	\$163,749	\$155,413

9 In Table 2-2, and in the testimony that follows, PG&E presents total
 10 expenses above the 115 percent reasonableness review threshold for PSPS
 11 and AFM. However, because PG&E incurred less than the adopted
 12 amounts for other WMBA activities in 2020, the total amount subject to
 13 reasonableness review is only \$149.5 million, as shown in Table 2-1 above.

14 In the testimony that follows, PG&E will demonstrate that \$149.5 million
 15 in expense recorded to the WMBA for PSPS and AFM activities in 2020 was
 16 reasonably incurred and should be adopted by the Commission.

1 **3. Ernst & Young’s Independent Audit Report**

2 As shown in Appendix A, EY performed an independent analysis of
3 2020 costs recorded in the WMBA and Vegetation Management Balancing
4 Account (VMBA) (Balancing Accounts) to confirm that the costs are directly
5 attributable to the Balancing Accounts and properly tracked in PG&E’s
6 financial systems.⁸

7 **a. Description of Audit**

8 PG&E proactively engaged EY to review the wildfire mitigation and
9 vegetation management costs in this Application. EY reviewed costs
10 booked to the VMBA and WMBA from January 1, 2020 through
11 December 31, 2020. Specifically, EY evaluated whether the costs were
12 appropriately booked to the Balancing Accounts and were incurred for
13 activities incremental to those contemplated by rates established in
14 the GRC.

15 EY reviewed PG&E’s VMBA and WMBA costs as captured in the
16 Company’s financial systems to confirm that they are directly attributable
17 to the Balancing Accounts and that any potential deviations observed in
18 the cost data provided were not material to the overall costs incurred.

19 EY also evaluated whether the costs were properly recorded in the
20 VMBA and WMBA, respectively, and whether they were incurred for
21 separate activities—i.e., not recovered in multiple accounts. EY tested
22 transactions and selected representative samples to determine whether
23 the costs had appropriate underlying support.

24 EY conducted its analysis in accordance with consulting standards
25 established by the American Institute of Certified Public Accountants.
26 EY’s approach was designed to achieve (to the extent possible given
27 the scope of work) the principles of the National Association of
28 Regulatory Utility Commissions audit manual.

29 Finally, EY also considered California SB 901, which mandates
30 activities to strengthen California’s ability to prevent and recover from
31 catastrophic wildfires. This legislation contains additional requirements

⁸ 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 for utilities to address wildfire risks including implementing a
 2 comprehensive fire prevention plan. EY embedded requirements from
 3 SB 901 and the Company’s guidance on costs related to the Balancing
 4 Accounts within the testing steps and used this guidance to inform its
 5 conclusions.⁹

6 **b. Review Methodology and Observations**

7 EY segregated the costs within the Balancing Accounts by cost
 8 category and developed testing procedures for each category of costs
 9 based on the unique nature and risks of each cost category.
 10 Approximately \$357 million, totaling 17 percent of total costs incurred,
 11 was tested. In addition to detailed transaction testing, multiple
 12 discussions were held across the organization with the Finance,
 13 Regulatory Affairs, and Vegetation Management Departments. The
 14 table below summarizes the cost categories:

**TABLE 2-3
 POPULATION OF BALANCING ACCOUNTS BY COST CATEGORY**

Line No.	Cost Category	Amount	Transaction Amount Analyzed	Percentage Tested
1	Contracts	\$1,680,099,110	\$334,395,558	20%
2	Internal Labor	124,800,595	12,603,678	10%
3	Employee Expense	9,618,717	4,881,075	51%
4	Helicopter Charges	5,056,113	980,427	19%
5	Materials	90,482,647	1,169,635	1%
6	AFUDC/Other	8,045,350	N/A	N/A
7	Overheads	191,101,321	3,718,696	2%
8	Total	\$2,109,203,853	\$357,749,069	17%

15 PG&E provided, and EY reviewed, available data and supporting
 16 documentation for each of these cost categories.¹⁰

17 **c. Audit Results**

18 EY prepared findings and observations regarding the costs in the
 19 Balancing Accounts based on their testing and analysis. EY’s full report

⁹ Appendix A, EY Report, pp. 3.

¹⁰ Appendix A, EY Report, pp. 5-26 provides a complete breakdown of the review and approach.

can be found as Appendix A. In sum, EY found no material evidence to undermine PG&E’s assertions that costs were: (1) incurred for the activities set forth in the corresponding, relevant CPUC-approved Balancing Accounts; and (2) accurately recorded.

Through the procedures described above, EY identified items totaling approximately \$0.44 million (extrapolated to \$0.9 million) that were not properly evidenced for inclusion in the Balancing Accounts.¹¹ PG&E removed the \$0.9 million (\$0.72 million from VMBA and \$0.14 million from WMBA, from this request as recommended by EY).

C. Public Safety Power Shutoff Activities

The PSPS Events category includes activities directly associated with 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. 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 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 \$158.2 million in expense for both categories of PSPS activities in 2020.

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

Line No.	Activity	2020 Recorded
1	PSPS Events	\$80,708
2	PSPS Program	77,499
3	Total	\$158,207

¹¹ A summary of EY’s specific observations is provided in Chapter 12.

1 These costs exceeded the 2020 GRC adopted imputed amount of
2 \$6.1 million, and the 115 percent reasonableness review threshold of
3 \$7.0 million. (See Table 2-2 above.)

4 PG&E's 2020 GRC forecast did not include costs to implement PSPS
5 events. When the 2020 forecast was developed, PG&E had never executed a
6 PSPS event and did not have a basis to forecast the cost per event or the
7 number of events per year. As such, there is no adopted amount for PSPS
8 Events.

9 PG&E's 2020 GRC forecast included costs for certain PSPS Program
10 activities, including the development of a multi-channel outreach strategy to
11 raise awareness and prepare potential PG&E customers across all customer
12 segments for PSPS.¹² To drive awareness, PG&E planned to develop
13 educational materials and disseminate content including press releases, direct
14 mailings, automated and live call outs, and social media posts, based on each
15 segment's needs. PG&E also planned to train several customer-facing teams,
16 develop operational processes, and host and staff community workshops and
17 customer open houses across potentially impacted areas.

18 Since PG&E developed the 2020 GRC forecast, changing climate conditions
19 in California have forced the California Investor-Owned Utilities (IOU) to rely on
20 PSPS with increasing frequency. In response, the Commission has imposed a
21 series of requirements to lessen the impact to customers and communities. For
22 example, the Phase 1 PSPS Guidelines required IOUs to conduct enhanced
23 statewide PSPS public education and outreach tailored to the needs of different
24 stakeholders, including Access and Functional Needs (AFN) populations.¹³ The
25 guidelines set forth specific requirements for this outreach, including different
26 modes of communication and language requirements, among other things.¹⁴
27 The Phase 2 PSPS Guidelines required IOUs to establish working groups and
28 advisory boards, further refine their de-energization protocols, perform
29 simulation exercises, and establish CRC plans in preparation for PSPS events,

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

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

14 *Id.*

1 among other requirements.¹⁵ PG&E’s 2020 GRC forecast, developed before
2 PG&E had executed its first PSPS event, could not have anticipated the extent
3 of these activities and the associated costs.

4 PG&E’s PSPS activities and their cost drivers in 2020 are described in more
5 detail below.

6 **1. PSPS Events**

7 Table 2-5 below shows PG&E’s 2020 expenses for PSPS Events.

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

Line No.	Activity	2020 Recorded
1	PSPS Events	\$80,708

8 **a. Nature of Activity**

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

20 The PSPS program encompasses both distribution and transmission
21 lines. The most common electric lines to be considered for
22 de-energization are those that pass through designated Tier 2 (elevated
23 risk) and Tier 3 (extreme risk) fire threat areas according to the CPUC’s
24 High Fire Threat District (HFTD) map, and additional high-risk areas that
25 PG&E has independently identified. While customers in these areas are

¹⁵ D.20-05-051, Appendix A, pp. 1-2, 5-6.

1 more likely to be affected by a PSPS event, any customer could lose
2 power if their community relies upon a line that passes through a
3 high-risk fire area.

4 To ensure that our PSPS program is appropriately scoped to
5 capture all areas of our service territory presenting catastrophic wildfire
6 risk, PG&E developed the High Fire Risk Area (HFRA) map in 2020.
7 The HFRA map includes areas with high risk for potential catastrophic
8 fire that are not captured on the CPUC's HFTD map. Many of these
9 areas do not contain a large number of customers or PG&E assets and
10 are in rural, hard-to-access locations where a wildfire could grow and
11 spread rapidly. The initial version of PG&E's HFRA map identified
12 approximately 115 additional HFRA's that were included in our PSPS
13 program scope in 2020.

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

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

32 PG&E's process for executing PSPS events includes the following
33 steps: (1) monitoring weather before the EOC is activated;
34 (2) activating the EOC if necessary based on weather conditions;

1 (3) identifying and approving the initial scope of the potential
2 de-energization event and notifying Public Safety Partners and impacted
3 customers; (4) making the final decision to de-energize based on
4 updated weather forecasts, situational intelligence, and other
5 information; (5) sending final warning notifications to impacted Public
6 Safety Partners and customers; (6) de-energizing transmission and
7 distribution assets identified to be in scope; and (7) making the weather
8 all-clear determination to begin patrolling affected circuits and
9 re-energizing the power grid when it is safe to do so.

10 Through improvements like transmission and distribution line
11 sectionalization, refined scoping tools and more granular meteorology
12 models, temporary substation microgrids, and islanding, PG&E reduced
13 the number of customers impacted by each PSPS event in 2020 by
14 approximately 55 percent on average, when compared to the number of
15 customers that would have been impacted by the same weather
16 conditions under our 2019 PSPS program and infrastructure.

17 For instance, the October 25, 2020 event was PG&E's largest PSPS
18 event in 2020. As a result of our 2020 PSPS improvements, PG&E
19 de-energized approximately 47 percent—or over 300,000—fewer
20 customers during the October 25, 2020 event than we would have
21 de-energized had we applied the 2019 decision-making criteria.

22 Details about our 2020 PSPS events are shown in the table
23 below.¹⁶

16 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 are available here: <https://www.cpuc.ca.gov/consumer-support/psps/utility-company-psps-post-event-reports>.

**TABLE 2-6
2020 PSPS EVENT DETAILS**

2020 Event		Sep 7-10	Sep 27-29	Oct 14-16	Oct 21-23	Oct 25-28	Dec 2-3	Total
Event	Event Days	4	3	3	3	4	2	19
	Max Wind Gust	66 mph	72 mph	73 mph	56 mph	89 mph	72 mph	
	Damages/Hazards	83	11	28	8	126	1	257
	First out-to-last restored Duration	153 hrs	38 hrs	89 hrs	46 hrs	84 hrs	24 hrs	
	Counties Impacted	22	15	19	7	35	1	99
	Avg. Restore Dur. (CAIDI from all clear)	11 hrs	5 hrs	6 hrs	8 hrs	10 hrs	4 hrs	
	Avg. Outage Duration (CAIDI)	37 hrs	22 hrs	37 hrs	19 hrs	37 hrs	21 hrs	
Customer	Customers Impacted	168,594	64,298	40,574	30,154	345,470	617	649,707
	MBL Door Knocks	10,383	4,358	2,431	2,477	22,124	33	41,806
	CRCs Open	50	29	40	19	106	1	245
Operations	Distribution Circuits	140	64	90	41	343	5	683
	Distribution Miles (Tier 2/3)	7,244	3,613	2,921	1,909	15,823	41	31,551
	Distribution Miles (Total)	8,070	3,947	3,270	2,218	17,889	48	35,442
	Restoration Helicopters	28	50	47	14	65	3	207

- Notes: 1) Total customers impacted does not necessarily reflect unique customers because some customers can be impacted by multiple events.
- 2) 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.

1 **b. Summary of Costs**

2 PG&E incurred \$80.7 million to execute six PSPS events in 2020.

3 A breakdown of costs for each event by activity is provided in Table 2-7
4 below, followed by a description of each activity.

**TABLE 2-7
2020 PSPS EVENT EXPENSE COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Activity	PSPS Event 9/7/2020	PSPS Event 9/27/2020	PSPS Event 10/14/2020	PSPS Event 10/21/20	PSPS Event 10/25/2020	PSPS Event 12/3/2020	Misc. ^(a)	2020 Recorded
1	Electric Dis. Field Resources	\$8,576	\$7,388	\$5,773	\$6,527	\$15,982	\$80	–	\$44,326
2	Community Resource Centers	2,356	1,443	1,954	1,289	4,668	49	–	11,759
3	EOC Support	1,005	744	1,305	1,297	2,712	79	–	7,143
4	Customer Communications	1,566	973	800	703	1,771	89	–	5,902
5	Aviation/Helicopter Services	716	628	403	246	1,705	–	–	3,698
6	In-Event Vegetation Management	494	105	213	5	1,147			1,964
7	Information Technology (IT)	138	105	75	43	398	6		764
8	Miscellaneous	184	68	64	73	151	2	\$4,610	5,153
9	Grand Total	\$15,035	\$11,455	\$10,587	\$10,184	\$28,533	\$305	\$4,610	\$80,708

(a) These include small cost adjustments from 2019 events and an anticipated PSPS event on December 7, 2021 that ultimately did not occur.

1 We provide additional details about each activity below.

2 **1) Electric Distribution Field Resources**

3 PG&E incurred \$44.3 million for electric distribution field
4 resources in connection with our 2020 PSPS events. Electric
5 distribution field resources are internal and contract crews that patrol
6 and inspect the de-energized lines during a PSPS event to ensure it
7 is safe to re-energize the lines and restore power to customers. In
8 2020, more than 35,000 distribution lines miles had to be patrolled
9 prior to re-energization.¹⁷ Although helicopters greatly assist in this
10 effort, field crews play a vital role as not all locations are visible from
11 the air.

12 **2) Community Resource Centers**

13 To minimize the impact of PSPS events on our customers,
14 PG&E incurred \$11.8 million to operate a total of 245 CRCs in
15 impacted counties in 2020. The CRCs provided safe and accessible
16 locations where customers and residents could obtain PSPS event
17 information and use restrooms, hand-washing stations, tables,
18 chairs, Wi-Fi, and cellular service. The CRC sites were typically
19 open from 8 a.m. to 10 p.m. for the duration of the PSPS event,
20 although some closed early when necessary to adhere to local
21 COVID-19 curfews.

22 In light of COVID-19 health considerations and state and county
23 guidelines, PG&E required facial coverings and physical distancing
24 at CRCs in 2020, and limited the number of visitors at any given
25 time. At indoor CRCs, temperature checks were required for entry,
26 and tables and chairs were positioned to ensure visitors could
27 observe social distancing guidelines. In some cases, indoor CRCs
28 were replaced with Micro CRCs (smaller, open air tents) and Mobile
29 CRCs (pop-up tents around a sprinter vans) at the request of county
30 Office of Emergency Services (OES) or tribal communities.

¹⁷ Transmission patrol costs are funded through the Transmission Owner rate case and are not included in this cost-recovery request.

1 At each CRC, PG&E provided visitors with “grab and go”
2 resource bags to minimize COVID-19 risks. Each resource bag
3 contained a small battery pack capable of charging two small
4 devices, a blanket, water, snacks, and a PSPS information card.

5 Additional information about CRC site requirements is provided
6 in Section C.2.a.1 below.

7 **3) EOC Support**

8 PG&E incurred \$7.1 million to support the EOC during 2020
9 PSPS events. These costs were primarily for employee labor and
10 other employee related expenses (e.g., lodging and travel) when
11 working in or supporting the EOC, security services, and other
12 miscellaneous expenses. The EOC is comprised of a
13 multi-disciplinary team of PG&E employees who assume emergency
14 response positions consistent with the Incident Command System.
15 Each member of the Command and General Staffs have specific
16 responsibilities when the EOC is activated for a PSPS event.

17 Based on feedback following our 2019 PSPS events, we
18 expanded the PSPS EOC staffing plan in 2020 to include dedicated
19 Agency Representatives¹⁸ who were available to work with local
20 agencies and address issues in real-time.

21 **4) Customer Communications**

22 PG&E incurred \$5.9 million for Customer Communications
23 during 2020 PSPS events. PG&E’s Customer teams provided key
24 support and notifications to customers and partner agencies during
25 PSPS events in accordance with PSPS Guidelines.¹⁹ During the
26 six PSPS events in 2020, PG&E notified over 99 percent of the
27 affected customers prior to de-energization, despite in-event
28 weather shifts that caused PSPS footprint changes in every event.
29 These notifications included improved content, like more information

¹⁸ An Agency Representative is typically a member of the Public Safety Specialist (PSS) or Local Public Affairs teams who have existing relationships with these local agencies.

¹⁹ See D.19-05-042 and D.20-05-051.

1 about when power would be turned off and restored, that was tested
2 for usability and accessibility, as described in Section C.2.b below.

3 To ensure that MBL customers had time to prepare, PG&E sent
4 automated notifications via phone, text, and email every hour until
5 the customer confirmed receipt. If an MBL customer did not confirm
6 receipt, PG&E conducted door knocks prior to de-energization.

7 In addition to proactive direct communications to potentially
8 impacted customers, PG&E conducted event-related public
9 awareness campaigns and coordinated with third party agencies,
10 media, and local organizations that shared event information
11 through their own respective networks. PG&E provided in-event
12 communications in 15 non-English languages.²⁰

13 **5) Aviation/Helicopter Services**

14 PG&E incurred \$3.7 million on aviation and helicopter services
15 in connection with the 2020 PSPS events. This included flight costs
16 for aerial patrols of de-energized distribution lines to ensure it was
17 safe to re-energize. Use of aerial patrols significantly shortens the
18 patrol time for circuits following an all-clear, thereby reducing the
19 duration of a PSPS event.

20 **6) In-Event Vegetation Management**

21 In 2020, PG&E incurred \$2.0 million to conduct expedited
22 vegetation work with the goal of reducing vegetation impacts and
23 potentially averting the need to de-energize certain lines. PG&E
24 mitigated high risk trees and addressed outstanding vegetation tags
25 that could be completed prior to the start of a given weather event to
26 reduce the risk of vegetation failures and to avoid shutoff for
27 particular lines.

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

²⁰ Spanish, Chinese (Mandarin and Cantonese), Vietnamese, Tagalog, Korean, Russian, Arabic, Punjabi, Farsi, Japanese, Khmer, Hmong, Thai, Hindi, and Portuguese.

1 **7) Information Technology**

2 PG&E incurred \$0.8 million to coordinate the response of our IT
3 resources and systems in support of all stages of PSPS.

4 **8) Miscellaneous**

5 Miscellaneous other costs of \$5.1 million were incurred for:
6 (1) staging and mobilizing response resources for a December 2020
7 PSPS event that was ultimately canceled; (2) support for 2020
8 PSPS events, including Hydro Support to identify potentially
9 impacted PG&E Power Generation managed facilities and business
10 continuity plans; and (3) 2019 event cost adjustments that were
11 recorded in 2020.

12 **c. Reason for Activity**

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

21 PG&E’s 2020 PSPS event costs reflect our efforts to maintain public
22 safety during dangerous fire weather while minimizing the scope and
23 impact of de-energization on our customers in compliance with
24 Commission guidelines. Our spending on electric distribution field
25 resources and aerial patrols, for example, shortened restoration times
26 during the 2020 PSPS events. CRCs and customer communication
27 activities reduced the impact to customers by providing necessary
28 resources and information during de-energization. Our expedited
29 in-event vegetation management strategy was an effort to avoid
30 de-energization on certain lines to minimize the scope of PSPS and

²¹ See, e.g., D.19-05-042, p. 7.

²² Electric Safety and Reliability Branch Resolution 8 (July 12, 2018) (Res. ESRB-8), p. 4 (emphasis omitted).

1 ensure it was deployed only as a measure of last resort, as required by
2 the Commission.

3 **2. PSPS Program**

4 Table 2-8 below shows PG&E's 2020 expenses for PSPS Program.

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

Line No.	Activity	2020 Recorded
1	PSPS Program	\$77,499

5 **a. Nature of Activity**

6 PG&E recognizes that PSPS events cause significant disruption to
7 the public and can themselves present risks to public safety. In
8 accordance with the Commission's Phase 1 and Phase 2 PSPS
9 Guidelines, our PSPS Program activities reflect efforts to minimize the
10 impact of PSPS events on customers by strengthening our overall event
11 response, ensuring PG&E and our customers are prepared, and
12 improving the tools and technologies we rely on to scope and manage
13 PSPS events.

14 We communicated extensively with customers and communities in
15 2020 regarding our PSPS program. Our outreach and education efforts
16 included direct communications, in person events, listening session
17 meetings with county and tribal officials, and meetings and
18 communications with Public Safety Partners and large/critical
19 customers. We translated critical PSPS and wildfire safety
20 communications into 15 non-English languages, coordinated with
21 community based organizations (CBO) and AFN organizations,
22 prepared digital channels and notification systems for use during PSPS
23 events, and trained Contact Center and Customer Service Office
24 personnel to field customer inquiries. We also focused on data
25 collection improvements to ensure that customer contact information,
26 particularly for vulnerable customers, was complete and up to date.

Our PSPS Program activities can be generally grouped into three categories: PG&E Event Readiness, Customer Event Readiness, and Tools and Technologies. PG&E Event Readiness activities like field exercises and establishing a PSPS Program Team helped prepare PG&E personnel and contractors to respond safely and efficiently during PSPS events. Customer Event Readiness activities including public education campaigns and community workshops helped to prepare customers for fire season and potential PSPS events. Tools and Technologies activities entailed developing and enhancing technological solutions to improve PSPS events.

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

b. Summary of Costs

PG&E incurred \$77.5 million in expense for PSPS Program activities in 2020. A breakdown of costs by each category of activity is provided in Table 2-9 below, followed by a description of the individual activities within each category.

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

Line No.	Activity	2020 Recorded
1	PG&E Event Readiness	\$39,331
2	Customer Event Readiness	27,688
3	Tools and Technologies	10,480
4	Total	\$77,499

1) PG&E Event Readiness

The Aviation Program, CRC Preparedness Program, Emergency Preparedness and Response (EP&R) Field Operations, PSPS Program Team, Field Exercises and Training, and Wildfire Safety Public Engagement Team helped prepare PG&E personnel and contractors to respond safely and efficiently during PSPS events. The 2020 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	2020 Recorded
1	Aviation Program	\$16,156
2	CRC Preparedness Program	15,452
3	EP&R Field Operations	4,158
4	PSPS Program Team	2,180
5	Field Exercise and Training	1,087
6	Wildfire Safety Public Engagement Team	298
7	Total	\$39,331

1 **Aviation Program**

2 PG&E spent \$16.2 million on the PSPS Aviation Program in
3 2020. This program is made up of exclusive use helicopter
4 contracts that ensure access of up to 65 helicopters during the peak
5 PSPS season. Access to these helicopters allows PG&E to
6 significantly shorten the patrol time for circuits following an all-clear,
7 thereby reducing the duration of a PSPS event. While all
8 65 helicopters may not be deployed for smaller events, utilization of
9 all 65 helicopters during larger events facilitated faster restoration
10 times in 2020.

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

- 15 • Obtain critical information to develop effective plans for air and
16 ground resource needs during PSPS events, including
17 identifying circuits that require either ground or air patrols to
18 ensure that the necessary resources are appropriately staged
19 during PSPS events;
- 20 • Improve planning capabilities by gathering patrol time data to
21 ensure more accurate estimated restoration times;
- 22 • Identify potential hazards on circuits and take appropriate
23 action; and
- 24 • Enhance patroller training and expand the patroller resource
25 pool.

1 **CRC Preparedness Program**

2 As discussed in section C.1.b.2 above, PG&E opens CRCs
3 during PSPS events to provide a safe, energized space for impacted
4 customers and residents experiencing a PSPS-related outage. In
5 2020, we spent \$15.5 million on the CRC Preparedness Program to
6 ensure that CRCs were ready to be activated quickly during PSPS
7 events. These costs include construction to make all indoor sites
8 Americans with Disabilities Act (ADA) compliant, electrical upgrades
9 where needed for temporary generating units, CRC material
10 procurement, key third party vendor contracts, and a small project
11 management team.

12 In 2020, PG&E bolstered efforts to ensure ADA compliance and
13 accessible paths of travel at CRCs. Any building improvements
14 required to make an indoor CRC facility compliant, such as repairing
15 cracks in the path of travel or restriping ADA parking, were
16 completed in advance of fire season. Indoor CRC sites were also
17 equipped with an automatic transfer switch so that the
18 PG&E-provided or site-owned generator²³ would activate
19 automatically during an outage. By the end of 2020, PG&E had
20 completed this work at 98 indoor CRC sites.

21 The CRC Preparedness Program includes costs for third party
22 providers to prepare in advance for PSPS events. This includes
23 work by a professional staffing agency to recruit and train Customer
24 Service Leads (CSL) and Customer Service Support (CSS) staff to
25 operate CRCs. The agency hires and trains 850-1,000 CSL and
26 CSS personnel in advance so they are ready to deploy during PSPS
27 season. The cost also includes the retainer for emergency service
28 providers who set up the CRC sites during activations.²⁴

29 CRC Preparedness Program costs include logistics support,
30 which consists primarily of costs to acquire supplies provided to

23 The cost of renting temporary generators is discussed in Chapter 9, Microgrids.

24 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 visitors, like batteries and blankets. The logistics support also
2 includes expenses associated with updating signage and
3 replenishing other supplies. Other costs for the program include the
4 internal project management work conducted by a dedicated team,
5 and time from supporting departments such as land, logistics, IT,
6 and materials.

7 While PG&E initially planned to use predominantly hard-sided
8 buildings for indoor CRCs during 2020 events, we adjusted the
9 original CRC plan for 2020 due to the effect of COVID-19 on site
10 reviews, construction, and completion of indoor sites. PG&E
11 engaged with counties and tribal communities to share the
12 anticipated timeline changes and worked with them individually on a
13 plan for both indoor and outdoor CRC locations to meet each
14 community's needs. Where indoor CRCs were not event-ready due
15 to COVID-19 delays, PG&E opened Micro CRCs (smaller, open air
16 tents) and Mobile CRCs (pop-up tents around a sprinter vans). By
17 December 16, 2020, PG&E secured 362 indoor and outdoor
18 event-ready locations with site agreements executed between
19 PG&E and landowners.

20 **Emergency Preparedness and Response Field Operations**

21 In 2020, PG&E incurred \$4.2 million for EP&R Field Operations.
22 This includes the PSS team that maintains established relationships
23 with external agency partners and supports emergency planning
24 and information sharing during emergencies. The PSS team serves
25 as the PG&E Agency Representative to coordinate and integrate
26 PG&E's response with the Authority Having Jurisdiction during
27 active incidents.

28 The work also includes PSPS Collateral and Segmentation
29 Creation where PG&E's Segment Guides for distribution circuits
30 were enhanced. These guides are the primary reference
31 documents that Distribution Control Centers and field patrol
32 personnel use when executing "step restoration" efforts during
33 PSPS restoration. "Step restoration" is the breaking up of a given
34 distribution circuit into incremental "segments" that, once patrolled,

1 are energized individually rather than waiting to patrol the entire
2 circuit (and then energizing all customers at once). Step restoration
3 provides for safer and more efficient customer restoration.

4 **PSPS Program Team**

5 PG&E incurred \$2.2 million for the PSPS Program Team in
6 2020. The PSPS Program Team includes costs for PSPS
7 Operations and the PSPS Program Management Office. Primary
8 functions of the PSPS Program team in 2020 included:

- 9 • Building a cross-functional process by collaborating with various
10 line-of-business teams to build and continuously improve the
11 end-to-end PSPS execution process, including gathering and
12 prioritizing requirements, establishing process handoffs, and
13 conducting tabletops;
- 14 • Establishing and evolving the PSPS decision-making process
15 by working closely with Meteorology and Electric Asset
16 Management to develop and operationalize PSPS thresholds
17 and Officer in Charge decisions to support successful execution;
- 18 • Leading the development of the HFRA effort and determining
19 program scope by identifying areas at risk of catastrophic fire
20 risk during high-wind events;
- 21 • Driving and tracking execution against PSPS regulatory
22 requirements;
- 23 • Managing PSPS event data including design control, system,
24 and reporting for key PSPS data;
- 25 • Developing and leading PSPS training; and
- 26 • Preparing post-de-energization reports for submission to the
27 CPUC.

28 The team's responsibilities also included supporting the
29 development and implementation of various tools needed to execute
30 PSPS events, developing processes for transmission PSPS scoping
31 in partnership with Meteorology and Asset Strategy, improving the
32 overall PSPS event scoping process by minimizing manual process
33 steps, ensuring timely and accurate data reporting, and otherwise
34 managing PSPS Process Documentation.

1 **Field Exercises and Training**

2 In 2020, we invested \$1.1 million to train our crews to quickly
3 restore power during a PSPS event while maintaining public and
4 employee safety. Our crews conducted three restoration drills in
5 HFTD areas across northern and central California. These efforts
6 focused on practicing the coordination of emergency response
7 teams, inspecting lines for damage, and quickly restoring power.
8 These full-scale drills helped our personnel and contractors prepare
9 for the challenges they faced during actual PSPS events.

10 **Wildfire Safety Public Engagement Team**

11 We spent \$298 thousand in 2020 on the Wildfire Safety Public
12 Engagement Team. This team focused on increasing the
13 transparency of PG&E’s wildfire safety and PSPS programs with
14 local and tribal governments, public agencies, and other external
15 stakeholders to increase mutual trust and cooperation.

16 **2) Customer Event Readiness**

17 PG&E spent \$27.7 million on customer preparedness outreach
18 initiatives in 2020 to educate and prepare our customers for PSPS
19 events in accordance with Commission guidance.²⁵ Outreach
20 activities included:

- 21 • Community Events and Workshops;
- 22 • Translated Outreach Materials;
- 23 • Community Board Organization Engagement;
- 24 • Advisory Boards;
- 25 • Direct Business Customer Engagement;
- 26 • Research and Customer Insights; and
- 27 • Media Engagement.

28 Each activity is described below.

29 **Community Events and Workshops**

30 In 2020, PG&E hosted 15 regional virtual open houses,
31 three systemwide virtual open houses, and one town hall with over

²⁵ See, e.g., D.19-05-042, D.20-05-051, D.20-03-004, and R.18-10-007.

1 5,000 attendees, to provide localized updates on wildfire safety work
2 being conducted in customer communities.

3 Through a series of workshops, open houses, webinars,
4 meetings, and presentations throughout 2020, we also briefed the
5 public and the Commission, California Department of Forestry and
6 Fire Protection (CAL FIRE), California Governor’s OES, and other
7 entities throughout the state on our PSPS approach and analysis,
8 including our criteria and data analytics for PSPS events. We also
9 made PSPS criteria available on our external-facing website at
10 www.pge.com/psps.

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

15 **Translated Outreach Materials**

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

19 As part of our outreach efforts, PG&E expanded the languages
20 used for PSPS communications and notifications from six
21 non-English languages to 15 non-English-languages.²⁶ This
22 included the translation of PG&E’s website and other critical wildfire
23 safety and PSPS preparedness materials. PG&E also contracted
24 with five CBOs to provide in-language PSPS preparedness
25 communications to customers in a variety of indigenous
26 languages.²⁷

27 To support customers who are deaf or hard of hearing, PG&E
28 published a video in American Sign Language (ASL) explaining the
29 PSPS process and directing customers to use PG&E’s address
30 look-up tool as a resource during PSPS events. PG&E also

²⁶ Spanish, Chinese, Tagalog, Russian, Vietnamese, Korean, Farsi, Arabic, Hmong, Khmer, Punjabi, Japanese, Thai, Portuguese, and Hindi.

²⁷ Mixteco, Tlapaneco, Triqui, Zapoteco, Maya, Nahuatl, Chatino, Chinanteca, and Katz el.

1 continued to respond to requests from customers for
2 communications in Braille, large print, and audio formats.

3 **Community Based Organization Engagement**

4 Throughout 2020, PG&E actively engaged with over 200 CBOs
5 that have existing relationships and serve a variety of populations,
6 including disadvantaged and/or hard-to-reach communities. By
7 engaging with CBOs, PG&E was able to provide education and
8 awareness information to customers in new ways, including in
9 indigenous languages and through local, community-level
10 resources.

11 **Advisory Boards**

12 In 2020, PG&E engaged with interested parties and advisory
13 councils to gain feedback on our approach to serving customers
14 before, during, and after PSPS events.

15 In April 2020, PG&E launched an AFN-focused advisory council
16 called People with Disabilities and Aging Advisory Council
17 (PWDAAC). The PWDAAC is a diverse group of recognized CBO
18 leaders supporting people with developmental or intellectual
19 disabilities, physical disabilities, chronic conditions, injuries, and
20 older adult communities, as well as advocates from within these
21 communities. The PWDAAC's role includes actively identifying
22 issues, opportunities, and challenges related to PG&E's effort to
23 minimize the impacts of its PSPS events on AFN populations over
24 the long term. Virtual meetings were held on April 30, May 29,
25 June 26, July 31, August 28, September 18, October 5,
26 November 2, and December 18, 2020. In addition, PG&E invited all
27 PWDAAC members as observers to our full-scale PSPS exercise
28 held on August 3-7, 2020.

29 PG&E also partnered with the other California electric IOUs to
30 establish the Statewide AFN Council in June 2020. The Statewide
31 AFN Council's scope includes the following: helping to identify the
32 needs of the various AFN constituents in connection with PSPS
33 events and wildfire emergencies; actively identifying issues,
34 opportunities, and challenges related to the joint IOUs' ability to

1 minimize the impacts of wildfire safety strategies like PSPS
2 throughout California over the long term; and identifying
3 opportunities for partnerships with participating organizations to
4 provide additional resources to the most vulnerable customers
5 impacted by PSPS. Meetings were held on June 15, 18, July 24,
6 August 14, September 18, and November 6, 2020.

7 Throughout 2020, PG&E also continued to engage with and
8 solicit feedback from other existing advisory groups, including:
9 Disadvantaged Communities Advisory Group; Low Income
10 Oversight Board; Local Government Advisory Councils and Working
11 Groups; and Communities of Color Advisory Group.

12 Additional details on PG&E's outreach and engagement with
13 AFN and medically sensitive customers can be found in PG&E's
14 2020 AFN Plan.²⁸

15 **Direct Business Customer Engagement**

16 PG&E supports the unique and complex needs of its large
17 commercial and industrial customers with a dedicated team of over
18 60 customer relationship managers supporting over 3,500 business
19 customers.

20 In 2020, PG&E met with nearly 300 key customer stakeholders
21 to provide information about emergency preparedness, local
22 progress on wildfire safety measures, and expanded resources
23 available to prepare for PSPS events. PG&E met with all assigned
24 large commercial and industrial customers, including critical facilities
25 served by lines that traverse Tier 2 and Tier 3 HFTD areas, to share
26 PSPS and emergency preparedness information and update
27 customer PSPS contact information.

28 Throughout 2020, PG&E met with the California Hospital
29 Association, Hospital Council Board of Directors of Northern and
30 Central California, California Association of Medical Product
31 Providers, telecommunications and broadband providers, water
32 agency members of the Association of California Water Agencies

28 R.18-12-005.

1 (ACWA), and industrial and commercial members of the California
2 Large Energy Consumers Association and the Small Business Utility
3 Advocates. In 2020, PG&E conducted meetings with nearly
4 300 individual stakeholders.

5 PG&E initiated the PG&E and Telecommunications Resiliency
6 Collaborative in early 2020 to create a forum for communication
7 providers to provide feedback on PG&E's current PSPS
8 implementation protocols and to coordinate engagement before and
9 during PSPS events, as well as to enhance collaboration and
10 coordination during emergency response generally. Attendees
11 included representatives from AT&T, Verizon Wireless, Comcast,
12 Charter Communications, Frontier Communications, U.S. Cellular,
13 Sierra Telephone and Cellular Telecommunications and Industry
14 Association. PG&E received valuable feedback from this group
15 throughout 2020. For example, representatives from Verizon,
16 AT&T, Comcast, T-Mobile, U.S. Cellular, Charter Communications,
17 and Cox Communications provided feedback to PG&E, the
18 Commission, and Cal OES about PG&E's September 2020 PSPS
19 events. While feedback was generally positive, the group
20 recommended improvements to enhance accessibility to PSPS
21 event information, including maps in the PSPS Portal and support
22 provided by PG&E.

23 In March 2020, PG&E established a partnership with the
24 Hospital Council of Northern and Central California. The Council is
25 a member organization comprised of approximately 150 Hospitals in
26 Northern and Central California. Given the vital role hospitals serve
27 in the community, and especially in light of the COVID-19 pandemic,
28 PG&E made a commitment to identify the PSPS risk for each
29 hospital and support the development of customized solutions for
30 those most likely to experience a PSPS event. Through this
31 partnership, PG&E formulated the energy resiliency project to
32 support fire season readiness and explore longer term grid-based,
33 single site, and microgrid resiliency solutions.

1 In partnership with the United States Environmental Protection
2 Agency Region 9, PG&E supported two water agency resiliency
3 workshops in early 2020, with a focus on small and tribal water
4 systems. After those sessions, PG&E produced quick reference
5 guides and resources in support of emergency planning and
6 preparedness. We also partnered with ACWA and the other IOUs to
7 provide resources available for water agency resiliency planning,
8 including information on PSPS readiness. In addition, several water
9 agencies participated in our 2020 full scale PSPS exercises to
10 further enhance their readiness and help us improve critical
11 customer communication and coordination.

12 **Research and Customer Insights**

13 In accordance with D.20-03-004 and R.18-10-007, PG&E
14 performed research to evaluate the effectiveness of our PSPS and
15 wildfire safety outreach, identify areas for improvement, and assess
16 customer needs to help mitigate PSPS impacts. Qualitative
17 research included focus groups and input from advisory councils.
18 Quantitative research involved representative surveys of a specific
19 population (customers, CBOs, etc.) to test message awareness and
20 recall, message understanding, and reported changes in
21 behavior.²⁹ Non-survey quantitative measures included web-traffic,
22 click-through rates of advertisements, and conversion rates/actions
23 taken by customers as a result (e.g., webinar attendance, updates
24 made to contact information, or adoption of various customer
25 programs).

26 **Media Engagement**

27 PG&E incurred \$11.5 million for media engagement to educate
28 and better prepare customers for the 2020 PSPS and wildfire
29 season. Traditional messaging campaigns, direct-to-customer
30 mailings, social media posts and earned media outreach help to

²⁹ Independent Survey Results:
<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M357/K561/357561987.PDF>
Wildfire Safety Survey 2019 Results:
<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M338/K728/338728952.PDF>.

1 breakthrough and motivate customers to be ready for the height of
2 wildfire and PSPS season. Campaigns were distributed broadly,
3 with increased weight and emphasis targeted to high-fire threat
4 regions, and optimized for effectiveness.

5 In 2020, PG&E ran PSPS and emergency preparedness
6 education messaging on a variety of paid media channels including:
7 digital display, video, radio (traditional and online), interactive
8 channels, social platforms and Search Engine Marketing delivering
9 over 100 million impressions (i.e., the number of times content is
10 displayed). PG&E purchased a combination of English and
11 in-language radio ads, as well as digital banners in English and
12 multiple languages based on targeted ZIP codes.

13 We developed and distributed emails and 17 different types of
14 direct mail, including letters, postcards, brochures, and bill inserts,
15 encouraging customers to update their contact information and
16 providing PSPS readiness information and safety tips.

17 We also distributed PSPS preparedness tips and information on
18 social platforms (e.g., Facebook, Twitter, Instagram and NextDoor)
19 in up to 15 languages, including videos in ASL.³⁰ We continued to
20 work with 36 multi-cultural media organizations and five CBOs to
21 assist with in-language communications and sharing our social
22 media posts before and during PSPS events. We also developed a
23 three-minute YouTube video on safety tips for individuals with
24 medical needs.

25 In 2020, we identified 36 multicultural media outlet partners who
26 helped to ensure customers and communities, regardless of
27 potential language and other cultural barriers, were prepared for

30 See Examples of translated social media posts:

- PPS Alert Banner: <https://twitter.com/PGE4Me/status/1321169776014667779>.
- PPS Event Update in Chinese: <https://twitter.com/PGE4Me/status/1321220048791334912?s=20>.
- PPS Update in Spanish: <https://twitter.com/PGE4Me/status/1321219692392968193?s=20>.
- PPS Warning Alert in ASL: <https://twitter.com/PGE4Me/status/1320423102866542593?s=20>.

1 PSPS, including both planned and unplanned outages. All news
2 releases can be found at:

3 <https://www.pge.com/en/about/newsroom/newsreleases/index.page>.

4 Additional details on PG&E's customer preparedness outreach
5 can be found in PG&E's 2020 WMP³¹ and 2020 WMP Quarterly
6 Conditions Reports, as well as PSPS Phase 2 Progress Reports.³²

7 **3) Tools and Technologies**

8 The PSPS Project and work with Palantir helped PG&E develop
9 and enhance technological solutions to improve PSPS events.³³
10 The 2020 recorded expenses for these activities are shown in the
11 table below.

TABLE 2-11
TOOLS AND TECHNOLOGIES EXPENSE COSTS
(THOUSANDS OF DOLLARS)

Line No.	Activity	2020 Recorded
1	PSPS Project	\$4,980
2	Palantir	5,500
3	Total	\$10,480

12 **PSPS Project**

13 PG&E incurred \$5.0 million for the PSPS Project in 2020. The
14 PSPS Project builds out and improves tools that are critical to PSPS
15 execution. These tools include:

- 16 1) PSPS Viewer – This tool provides the ability to orchestrate the
17 scoping of a PSPS event from planning until the point of
18 de-energization. It translates geographic areas of

31 R.18-10-007, PG&E's 2020 Wildfire Mitigation Plan.

32 Per D.20-05-051. PG&E's first PSPS Phase 2 Progress Report was submitted on August 4, 2020. PG&E's second Phase 2 Progress Report was submitted on December 7, 2020.

33 The IT costs described in the PSPS Events section were incurred in connection with executing specific PSPS events, whereas the costs described here relate to improving PSPS processes generally.

1 meteorological fire risk to the distribution and transmission
2 assets potentially compromised by those conditions.

- 3 2) PSPS Portal – An online platform to share key event and
4 sensitive customer information with Public Safety Partners.
- 5 3) PSPS Situational Intelligence Platform – This is the primary
6 interface supporting PSPS events. It connects PSPS data
7 across multiple systems for real-time intelligence and post-event
8 reporting, and is a central repository of event data for decision
9 making during events.
- 10 4) PSPS FORCE Tool – This tool estimates field resources
11 needed to patrol de-energized lines and restore customers
12 during PSPS events.

13 **Palantir**

14 PG&E spent \$5.5 million in 2020 to partner with Palantir to
15 centralize, curate, and transform data into business insights through
16 creation of various data products. PG&E operationalized two data
17 products that dramatically improved our situational awareness,
18 decision-making, and customer notifications capability for PSPS
19 events in 2020. Additionally, two prototype products were
20 developed to focus on asset failure analysis and grid fault location
21 detection and prediction, which continue to be matured.

22 **c. Reason for Activity**

23 Pub. Util. Code Sections 451 and 399.2(a) authorize utilities to shut
24 off power when necessary for public safety to prevent wildfires caused
25 by utility equipment under hazardous fire weather conditions.³⁴ At the
26 same time, PSPS events cause significant disruption to the public and
27 can themselves present risks to public safety. In accordance with the
28 Commission’s Phase 1 and Phase 2 PSPS Guidelines, our PSPS
29 Program activities minimized the impact of PSPS events on customers
30 by educating them about PSPS events and strengthening our overall
31 event response to make our PSPS events safer, shorter, and more
32 targeted.

34 D.12-04-024, p. 25; Res. ERSB-8, p.1; D.19-05-042, p. 7.

1 As the Commission has advised, “[i]ncreased coordination,
2 communication and public education can be effective measures to
3 increase public safety and minimize adverse impact from
4 de-energization.”³⁵ Accordingly, the Commission has imposed specific
5 requirements related to customer outreach, education, and coordination,
6 both prior to and during PSPS events.³⁶ For example, the Commission
7 has directed IOUs to “utilize all reasonable channels of communication
8 to all populations potentially affected by a de-energization event.”³⁷ In
9 the Phase 2 PSPS Guidelines, the Commission also directed utilities to
10 conduct PSPS exercises in preparation for PSPS events, plan for the
11 provision of CRCs, refine PSPS protocols, and establish working groups
12 and advisory boards, among other things.³⁸

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

16 **3. Conclusion**

17 Our most important responsibility is protecting the health, welfare, and
18 safety of our customers and the communities we serve. When severe
19 weather or other circumstances threaten the ability to provide electricity
20 safely, we must take the steps necessary to protect the public. In addition to
21 executing six PSPS events in 2020, we took necessary and prudent steps to
22 prepare for PSPS events and improve the process overall.

23 **D. Advanced Fire Modeling**

24 PG&E recorded \$5.5 million in expense for AFM in 2020, as shown in
25 Table 2-12 below.

³⁵ Res. ESRB-8, p. 6.

³⁶ D.19-05-042, p. A3; D.20-05-051, Appendix A, pp. 3-4.

³⁷ D.20-05-051, Appendix A, p. 2.

³⁸ D.20-05-051 (May 28, 2020), Appendix A, pp. 1-2, 5-6.

**TABLE 2-12
ADVANCED FIRE MODELING 2020 RECORDED EXPENSE COSTS**

Line No.	Activity	2020 Recorded
1	AFM	\$5.5 million

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

- 4 1) Technosylva Fire Spread Modeling (7.3.1.5);³⁹
5 2) Wildfire Safety Operations Center (WSOC) Support;
6 3) Dead and Live Fuel Moisture Modeling (7.3.2.1.2); and
7 4) Live Fuel Moisture Sampling and Observation Program (7.3.2.1.2).

8 PG&E’s 2020 GRC forecast for these activities totaled \$1.2 million, as
9 shown in the table below.

**TABLE 2-13
2020 GRC EXPENSE FORECAST V. 2020 RECORDED EXPENSE COSTS**

Line No.	Order Description	2020 Forecast	2020 Recorded
1	CWSP – AFM	\$0.987 million ^(a)	\$5.263 million ^(b)
2	WSOC Support	0.167 million	0.209 million
3	Fuel Moisture Sampling	N/A ^(c)	0.069 million ^(d)
4	Total	\$1.154 million	\$5.54 million

(a) Includes Dead and Live Fuel Moisture Modeling and Live Fuel Moisture Sampling and Observation.

(b) Includes Technosylva Fire Spread Modeling.

(c) Included in CWSP-AFM forecast.

(d) Includes Dead and Live Fuel Moisture Modeling.

10 These 2020 AFM expenses exceeded the 115 percent reasonableness
11 review threshold of \$1.3 million. (See Table 2-2 above.) The primary driver for
12 the increase from the 2020 forecast to the 2020 recorded costs was the use and
13 implementation of Technosylva’s new and emerging technology, which was not
14 forecasted as part of the AFM budget for 2020 and recorded approximately

³⁹ Parenthetical references are to the 2021 WMP, which describes these projects based on 2020 work and 2021 commitments.

1 \$3.6 million. Additional cost drivers included Amazon Web Services (AWS)
2 charges running higher than forecasted by approximately \$0.3 million, and
3 increases in material and services spending.

4 PG&E's 2020 AFM activities and their cost drivers in 2020 are described in
5 more detail below.

6 **1. Technosylva Fire Spread Modeling**

7 **a. Nature of Activity**

8 PG&E recorded \$3.6 million for Technosylva Fire Spread Modeling
9 in 2020.

10 As part of our effort to better understand the impact of ignitions on
11 surrounding areas and communities, PG&E partnered with Technosylva
12 in 2019 to develop cloud-based wildfire spread model capabilities. In
13 2020, we made considerable improvements to the model to enhance our
14 overall operations and decision-making.

15 Fire spread modeling technology has advanced in recent years to
16 the point that millions of fire spread simulations can now be conducted
17 virtually instantaneously to estimate the impact and potential
18 consequences of an ignition. Some ignitions may have minimal impact
19 on the surrounding area and communities, while other ignitions could
20 create significant risks, including potential loss of life, property damage,
21 and air quality impacts. Information concerning the potential
22 consequences of an ignition provides a fuller picture of wildfire risk than
23 risk of ignition alone.

24 In 2019, PG&E collaborated with SDG&E, which is generally
25 considered to be a leader in this space, to identify wildfire technologies
26 SDG&E had found valuable for assessing the risk of catastrophic
27 wildfire. One emerging technology highlighted was the ability to
28 run millions of fire spread simulations over a short-term forecast horizon
29 (i.e., several days), and simulate fires on-demand as they occur to
30 understand their potential spread and impact. PG&E determined that
31 the technology could enhance our own operations and decision-making
32 and engaged the vendor, Technosylva, to develop a wildfire spread
33 model for PG&E.

1 In late 2019 and into 2020, Technosylva and PG&E tested and
2 deployed cloud-based wildfire spread model capabilities with the goal of
3 better understanding the technology and ultimately integrating it into
4 PG&E's decision support framework, such as for PSPS.

5 PG&E and Technosylva made other considerable improvements to
6 the Technosylva wildfire spread model in 2020, which are outlined
7 below.

- 8 1) Detailed Fuels Mapping for PG&E Service Territory: We
9 significantly enhanced the fuel model map used in the fire spread
10 model to fix known issues in the United States Forest Service
11 LANDFIRE dataset, provide more granularity in the Wildland Urban
12 Interface, and include recent fire scars through 2020.
- 13 2) Updated Weather Forecast 2 kilometer (km) Data Integration: We
14 fully integrated into the wildfire spread model the PG&E Operational
15 Mesoscale Modeling System 2 km weather forecast.
- 16 3) Territory wide risk: We developed another mode to evaluate the fire
17 risk, not just as it pertains to PG&E's assets, but across the entire
18 footprint of PG&E's territory.
- 19 4) Woody and Herbaceous Live Fuel Moisture (LFM) Remote Sensing
20 Methods Analysis and Integration: Technosylva developed and
21 integrated new LFM models that simulate the moisture available in
22 the LFM woody and herbaceous fuels.
- 23 5) Climatological Risk Assessment: Technosylva completed a
24 historical analysis from 2000-2019 and simulated over a billion fires
25 over the worst >450 fire risk days. This analysis will help PG&E
26 identify the highest risk areas across our service territory. Output
27 from the Climatological Risk Assessment forms the basis of the
28 consequence dimension of the Distribution Wildfire Risk model that
29 PG&E considers when prioritizing wildfire mitigations to target the
30 circuits at highest risk of producing catastrophic fires.
- 31 6) Integration with PG&E Fire Detection and Alert System: Data
32 generated from PG&E's fire detection and alert system are delivered
33 to Technosylva via an API and are now integrated into Wildfire
34 Analyst (WFA) Enterprise. These detections are being shared with

1 multiple parties including CAL FIRE and the utilities that also use
2 WFA in California.

3 7) Integration with PG&E AWS cloud: Results from each Technosylva
4 simulation were made available on the PG&E cloud, allowing PG&E
5 scientists to evaluate the results of every single simulation out of
6 the millions produced daily.

7 **b. Summary of Costs**

8 PG&E forecasted \$1.0 million for AFM expenses related to modeling
9 in the 2020 GRC. PG&E recorded \$5.3 million for CWSP-AFM in 2020,
10 \$3.6 million of which was for Technosylva.⁴⁰ Recorded costs for
11 CWSP-AFM included labor, expenses related to technological upgrades
12 and integration (primarily for Technosylva and AWS), and additional
13 analysis required for the AFM program.

14 **c. Reason for Activity**

15 The technology delivered by Technosylva improves PG&E's
16 understanding of the risk of catastrophic wildfires in our service territory
17 and is integrated into many aspects of our operations and
18 decision-making.

19 Each day, PG&E delivers high-resolution 2 x 2 km weather and fuels
20 model data sets to Technosylva, who performs over 100 million fire
21 spread simulations every three hours looking forward for a 3-day period.
22 These simulations provide fire spread outputs (e.g., potential number of
23 acres burned, and population impacted) and can be visualized per
24 overhead circuit in forecast mode to determine the highest risk circuits
25 every 3 hours.

26 PG&E can also simulate fires on demand using a Technosylva
27 application called WFA. This involves selecting a location on a map and
28 inputting the start time of ignition and the simulation duration in hours.
29 The Technosylva wildfire spread model uses the dynamic weather
30 forecast of wind and fuel moisture to model how the wildfire may spread.
31 This technology allows PG&E, and the other California IOUs and
32 agencies who employ it, to forecast approximately 100 million virtual

40 Reference workpaper supporting AFM.

1 fires daily across our territory in forecast mode, simulate fires on
2 demand as they start, simulate hypothetical fires based on PSPS
3 damage and hazard reports, and simulate fires in past weather
4 scenarios.

5 PG&E has also developed a Wildfire Consequence Model using the
6 Technosylva fire simulations. This model, in combination with the
7 wildfire ignition probability models, is used in the 2021 Wildfire
8 Distribution Risk Model for producing Multi-Attribute Value Function–
9 calibrated risk scores. These scores can then be used to inform
10 initiatives such as Enhanced Vegetation Management and System
11 Hardening.

12 PG&E (as well as SDG&E, Southern California Edison Company,
13 CAL FIRE, and the CPUC) has used Technosylva’s technology to
14 deepen its understanding of the wildfire risk in California. The
15 technology will be further integrated into PG&E systems in 2021 as
16 outlined in the 2021 WMP, including using the wildfire consequence
17 outputs from the short-term forecast into its PSPS decision-making
18 protocols.

19 **2. Wildfire Safety Operations Center Support**

20 **a. Nature of Activity**

21 PG&E recorded \$0.2 million for Meteorology support for the WSOC
22 in 2020. (See Table 2-13.) The WSOC serves as a physical hub for
23 coordinating and facilitating PG&E’s wildfire-response activities. With
24 support from the Meteorology team, the WSOC monitors for fire ignitions
25 across PG&E’s service area 24-hours a day, seven days a week,
26 leveraging internal and publicly available weather information, wildfire
27 camera data, and first responder (local and state) data. The WSOC
28 monitors, assesses, and directs specific wildfire prevention and
29 response efforts throughout PG&E’s service territory. The WSOC
30 interfaces and collaborates with various PG&E lines of businesses
31 (including Meteorology) to assist in deploying technology, processes
32 and procedures for wildfire prevention, response, and recovery.

1 In support of these efforts, the Meteorology team provided the
2 following support to the WSOC in 2020:

- 3 • Daily operational support including weather briefings;
- 4 • Systems integration items with the WIV and previous tools utilized
5 (Weather and fire detection);
- 6 • Meteorology training development and execution;
- 7 • Fire Index review and seasonal briefings for operational decisions
8 (e.g., reclosure decisions, support, and staffing needs);
- 9 • Assistance via the use of Technosylva spot fire modeling for
10 incidents; and
- 11 • Other ad-hoc requests and support.

12 **b. Summary of Costs**

13 The 2020 forecast for WSOC support was \$0.2 million. WSOC
14 Meteorology Support recorded \$0.2 million in 2020. Recorded dollars
15 were tied to internal labor costs.

16 **c. Reason for Activity**

17 Meteorology support for the WSOC plays a key role in PG&E's
18 efforts to ensure customer and community safety while addressing the
19 challenges of climate-driven extreme weather events like wildfires. In
20 support of PG&E's efforts to produce fire models, provide general
21 support, and aid decision-making during PSPS events, Meteorology
22 provided management and technical services for the WSOC

23 **3. Dead and Live Fuel Moisture Modeling**

24 **a. Nature of Activity**

25 The Dead Fuel Moisture (DFM) and LFM forecasts are inputs to
26 PG&E's Fire Potential Index (FPI) Model, which is a core component of
27 PG&E's PSPS assessments. Working with external experts, PG&E
28 enhanced these models in 2020 to provide hourly output across PG&E's
29 entire modeling domain at 2 x 2 km resolution, which provides more
30 granular output and a longer lead time than is publicly available. This
31 enables PG&E to assess the potential for PSPS events with a longer
32 lead time which will, in turn, afford customers more advanced notice of
33 potential PSPS events.

1 In 2020, PG&E partnered with Atmospheric Data Solutions (ADS)
2 and Technosylva to develop the next generation of LFM and DFM
3 Models deployed at PG&E. PG&E deployed a DFM Model on the
4 PG&E-AWS cloud, capable of predicting the moisture content of multiple
5 DFM fuel classes (i.e., DFM 1hr, DFM 10hr, DFM 100hr, DFM 1000hr)
6 at 2 x 2 km resolution. The DFM Model PG&E deployed is a customized
7 version of the Nelson DFM model used in the National Fire Danger
8 Rating System 2016 model version. These models provide hourly DFM
9 forecasts for the four DFM classes up to four days in advance and are
10 used in each PSPS assessment.

11 PG&E also deployed 2 x 2 km LFM models for Chamise as well as
12 Manzanita plant species. These are machine-learning models
13 developed by ADS using observations of LFM taken primarily by state
14 and federal agencies. Like the DFM model, the LFM model provides
15 hourly forecast data several days in advance and is used in PG&E's
16 PSPS assessments.

17 In addition to creating new forecast models, PG&E and ADS created
18 a 30-year climatology of DFM and LFM output at 2 x 2 km spatial and
19 hourly temporal resolution. These robust historical datasets allow PG&E
20 meteorologists and data scientists to evaluate DFM and LFM conditions
21 present during historical fires and to train the next generation of FPI
22 models.

23 **b. Summary of Costs**

24 Forecasted costs for Dead and Live Fuel Moisture Modeling were
25 rolled up with the AFM forecast and did not have a standalone estimate
26 of costs. Recorded costs are combined with the Live Fuel Moisture
27 Sample and Observation Program. Please reference Section D.4.b.

28 **c. Reason for Activity**

29 The moisture content in living and dead vegetation is a critical
30 component of PG&E's FPI and fire danger assessments compiled by
31 state and federal fire agencies. PG&E and other California utilities
32 model the state of live and dead fuels to better understand when large
33 fires are possible. As part of the AFM program in 2020, PG&E

1 significantly enhanced its DFM and LFM models, used to simulate fuel
2 moistures in dead and living vegetation.

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

4 **a. Nature of Activity**

5 While constructing LFM models, PG&E determined that historical
6 observations of LFM were sparse and not taken consistently across the
7 PG&E territory, making it difficult to train forecast models and verify
8 model results. In 2020, PG&E established an internal LFM sampling
9 program to complement samples collected by state and federal
10 agencies across Northern and Central California.

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

23 **b. Summary of Costs**

24 Forecasted costs for the Live Fuel Moisture Sampling and
25 Observation program were rolled up with the AFM forecast and did not
26 have a standalone estimate of costs. Fuel Moisture Sampling recorded
27 \$.069 million in 2020. The primary driver of recorded costs was
28 technical and managerial services related to DFM and LFM sampling
29 provided by Senior Meteorologists and Engineering Technicians.

30 **c. Reason for Activity**

31 The sampling program provides critical real-time data on the state of
32 live-fuels and necessary data to train better live fuel moisture models
33 now and in the future.

1 **5. Conclusion**

2 The AFM projects discussed in this chapter are important components
3 of PG&E’s commitment to reducing wildfire risk and increasing public and
4 customer safety and awareness. The ability to more accurately predict fire
5 spread and fire potential are crucial to making the most well-informed
6 decisions regarding PSPS events (start, end, and duration times) as well as
7 other wildfire mitigation efforts. Gathering intelligence about current
8 conditions across PG&E’s service territory highlights areas where potential
9 ignitions may occur and spread, and strengthens initiatives across the
10 Company. From system hardening to vegetation management work,
11 running models and simulations using data gathered in the field and beyond
12 allows PG&E to work smarter and faster. This in turn reduces adverse
13 impacts to customers and communities and provides PG&E with the
14 necessary tools and intelligence to complete needed work in a safer and
15 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. Vegetation Management Balancing Account	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. Audit Results	3-5
C. Program Scope Overview.....	3-5
1. Routine Vegetation Management.....	3-6
a. Nature of and Reason for Activity	3-7
1) Routine Regulatory Compliance.....	3-7
2) Vegetation Control – CPRC Section 4292	3-9
3) Contractor Safety	3-10
4) Safety Oversight, Quality Verification, and Quality Assurance	3-11
5) Public Education	3-12
6) Environmental Compliance	3-13
b. Summary of Costs	3-13
1) Increased Costs for Routine Tree Work	3-14
2) Transitioning the VMBA from a Cash to Accrual Accounting Basis	3-18
3) Vegetation Control	3-19
4) In-Sourcing of Inspectors	3-19
5) Legacy Public Safety and Reliability	3-19

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 3
VEGETATION MANAGEMENT BALANCING ACCOUNT

TABLE OF CONTENTS
(CONTINUED)

c.	Location and Timing of Activity	3-19
2.	Enhanced Vegetation Management.....	3-20
a.	Nature of and Reason for Activity	3-20
1)	Overhang Clearing, Tree Removals, and Radial Clearance.....	3-20
2)	Evaluating the Condition of Trees	3-21
3)	Fuel Reduction	3-22
4)	Wood Management.....	3-22
5)	Safety Oversight, Work Verification, Quality Verification	3-23
b.	Summary of Costs	3-23
1)	Increased Unit Costs for Enhanced VM	3-24
2)	Reduced Costs for LiDAR and Fuel Reduction	3-26
c.	Location and Timing of Activity	3-26
3.	Tree Mortality VM Activities.....	3-27
a.	Nature of and Reason for Activity	3-27
1)	Enhanced Vegetation Inspection and Mitigation Initiative	3-28
2)	Wood Management.....	3-29
3)	Wildland Urban Interface Protection.....	3-29
4)	Fuel Reduction and Emergency Response Access	3-30
5)	Safety Oversight and Quality Verification	3-30
b.	Summary of Costs	3-31
c.	Location and Timing of Activity	3-31
4.	Power Generation Tree Mortality Activities	3-31
a.	Nature and Reason for Activity	3-32

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 3
VEGETATION MANAGEMENT BALANCING ACCOUNT

TABLE OF CONTENTS
(CONTINUED)

b. Summary of Costs	3-33
c. Location and Timing of Activity	3-33
D. Conclusion.....	3-33

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **CHAPTER 3**
3 **VEGETATION MANAGEMENT BALANCING ACCOUNT**

4 **A. Introduction**

5 This testimony demonstrates that Pacific Gas and Electric Company's
6 (PG&E) 2020 costs for electric distribution and power generation (PG)
7 vegetation management (VM) activities recorded in its Vegetation Management
8 Balancing Account (VMBA) are reasonable.

9 **B. Overview**

10 **1. Vegetation Management Balancing Account**

11 PG&E's 2020 General Rate Case (GRC) decision¹ modified PG&E's
12 VMBA. Starting in 2020 the VMBA became a two-way balancing account
13 that records all of PG&E's VM costs for: (1) Routine VM, (2) Enhanced VM,
14 (3) Tree Mortality, which was formerly recorded to the Catastrophic Event
15 Memorandum Account (CEMA), and (4) Power Generation (PG) Tree
16 Mortality, which was also formerly recorded to CEMA.² Costs recorded to
17 the VMBA are presumed to be reasonable up to 120 percent of the
18 authorized amount, after which PG&E is required to file an application to
19 allow for a reasonableness review of the amount exceeding that threshold.³

20 **2. Cost Analysis**

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

1 D.20-12-005.

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

3 D.20-12-005, Conclusions 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 \$548.0 million for 2020 VM activities.

**TABLE 3-1
2020 RECORDED VMBA EXPENSE
(THOUSANDS OF DOLLARS)**

Line No.	Program	Imputed Adopted Amount ^(a)	Adopted at 120%	2020 Recorded Adj. Expenses ^(b)	Subject to Review
1	Routine VM	\$229,270	\$275,124	\$699,084	\$423,960
2	Enhanced VM	318,742	382,491	451,390	68,899
3	Tree Mortality	–	–	98,131	98,131
4	PG	–	–	1,448	1,448
5	Sub Total ^(c)	\$548,013	\$657,615	\$1,250,053	\$592,438
6	<i>EY adjustment^(d)</i>	–	–	\$(720)	\$(720)
7	Total	–	–	\$1,249,333	\$591,718

- (a) D.20-12-005, Section 7.2.5.1, p. 74 for Routine VM; Section 7.2.5.3, p. 77 for Enhanced VM.
- (b) There are minor differences between the 2020 recorded adjusted amounts shown on this table and the 2020 recorded adjusted amounts in PG&E's 2023 GRC due to recorded costs adjustments made after PG&E filed its 2023 GRC.
- (c) Differences due to rounding.
- (d) See Chapter 12 for details.

1 In 2020, PG&E recorded expenditures of \$1,250 million in the VMBA for
2 its combined electric distribution and PG VM activities. PG&E seeks to
3 recover \$591.7 million of 2020 recorded VMBA costs in excess of the
4 120 percent reasonableness review threshold of \$657.6 million. PG&E will
5 demonstrate that these costs were reasonably incurred, and that recovery is
6 appropriate, and asks that these costs be approved by the California Public
7 Utilities Commission (CPUC or Commission).

8 The sizeable investment PG&E continues to make in its VM activities
9 directly supports public safety and wildfire mitigation, service reliability, and
10 regulatory compliance through management of vegetation near PG&E's
11 electric distribution facilities. As California continues to experience extreme
12 climate change, resulting in increased temperatures, drought, high winds
13 and longer and more destructive wildfire seasons, PG&E's proactive VM
14 measures serve the important purposes of reducing fire risk, improving the
15 safety of PG&E's electric system, and protecting customers and the public.

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

1 Each program section is structured as follows:

- 2 a) Nature of and Reason for Activity;
- 3 b) Summary of Costs; and
- 4 c) Location and Timing of Activity.

5 **3. Ernst & Young’s Independent Audit Report**

6 As shown in Appendix A, Ernst & Young (EY) performed an independent
7 analysis of 2020 costs recorded in the VMBA and Wildfire Mitigation
8 Balancing Account (WMBA) (Balancing Accounts) to confirm that the costs
9 are directly attributable to the Balancing Accounts and properly tracked in
10 PG&E’s financial systems.⁵

11 **a. Description of Audit**

12 PG&E proactively engaged EY to review the wildfire mitigation and
13 VM costs in this Application. EY reviewed costs booked to the VMBA
14 and WMBA from January 1, 2020 through December 31,
15 2020. Specifically, EY evaluated whether the costs were appropriately
16 booked to the Balancing Accounts and were incurred for activities
17 incremental to those contemplated by rates established in the GRC.

18 EY reviewed PG&E’s VMBA and WMBA costs as captured in the
19 Company’s financial systems to confirm that they are directly attributable
20 to the Balancing Accounts and that any potential deviations observed in
21 the cost data provided were not material to the overall costs incurred.

22 EY also evaluated whether the costs were properly recorded in the
23 VMBA and WMBA, respectively, and whether they were incurred for
24 separate activities—i.e., not recovered in multiple accounts. EY tested
25 transactions and selected representative samples to determine whether
26 the costs had appropriate underlying support.

27 EY conducted its analysis in accordance with consulting standards
28 established by the American Institute of Certified Public Accountants.

29 EY’s approach was designed to achieve (to the extent possible given

5 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 the scope of work) the principles of the National Association of
2 Regulatory Utility Commissions audit manual.

3 Finally, EY also considered California Senate Bill (SB) 901, which
4 mandates activities to strengthen California’s ability to prevent and
5 recover from catastrophic wildfires. This legislation contains additional
6 requirements for utilities to address wildfire risks including implementing
7 a comprehensive fire prevention plan. EY embedded requirements from
8 SB 901 and the Company’s guidance on costs related to the Balancing
9 Accounts within the testing steps and used this guidance to inform its
10 conclusions.⁶

11 **b. Review Methodology and Observations**

12 EY segregated the costs within the Balancing Accounts by cost
13 category and developed testing procedures for each category of costs
14 based on the unique nature and risks of each cost category.
15 Approximately \$357 million of costs, totaling 17 percent of total costs
16 incurred, were tested. In addition to detailed transaction testing, EY
17 held multiple discussions across the organization with the Finance,
18 Regulatory Affairs, and VM Departments. The table below summarizes
19 the cost categories:

**TABLE 3-2
POPULATION OF BALANCING ACCOUNTS BY COST CATEGORY**

Line No.	Cost Category	Amount	Transaction Amount Analyzed	Percentage Tested
1	Contracts	\$1,680,099,110	\$334,395,558	20%
2	Internal Labor	124,800,595	12,603,678	10%
3	Employee Expense	9,618,717	4,881,075	51%
4	Helicopter Charges	5,056,113	980,427	19%
5	Materials	90,482,647	1,169,635	1%
6	AFUDC/Other	8,045,350	N/A	N/A
7	Overheads	191,101,321	3,718,696	2%
8	Total	\$2,109,203,853	\$357,749,069	17%

⁶ Appendix A, EY Report, pp. 3.

1 PG&E provided, and EY reviewed, available data and supporting
2 documentation for each of these cost categories.⁷

3 **c. Audit Results**

4 EY prepared findings and observations regarding the costs in the
5 Balancing Accounts based on their testing and analysis. EY's full report
6 can be found as Appendix A. In sum, EY found no material evidence to
7 undermine PG&E's assertions that costs were: (1) incurred for the
8 activities set forth in the corresponding, relevant CPUC-approved
9 Balancing Accounts; and (2) accurately recorded.

10 Through the procedures described above, EY identified items
11 totaling approximately \$0.44 million (extrapolated to \$0.9 million) that
12 were not properly evidenced for inclusion in the Balancing Accounts.⁸
13 PG&E removed the \$0.9 million (\$0.72 million from VMBA and
14 \$0.14 million from WMBA, from this request as recommended by EY).

15 **C. Program Scope Overview**

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

21 PG&E's Routine VM program consists of an annual patrol of all PG&E
22 distribution lines to support compliance with the CPUC's General Order (GO) 95,
23 Rule 35 and California Public Resource Code (CPRC) Sections 4292 and 4293.
24 PG&E complies with these regulations by maintaining a year-round 4-foot radial
25 clearance within High Fire Threat District (HFTD) areas and 18-inch radial
26 conductor clearance in non-HFTD areas. Within the HFTD, PG&E trims to the
27 recommended minimum 12-foot clearance at the time of trim in order to maintain
28 the required 4-foot clearance. During the declared fire season, 4-foot radial
29 clearance is required as well as 10-foot firebreak maintenance around subject

7 Appendix A, EY Report, pp. 5-26 provides a complete breakdown of the review and approach.

8 A summary of EY's specific observations is provided in Chapter 12.

1 poles within the State Responsibility Area (SRA) and Federal Responsibility
2 Area (FRA) that are outside of the HFTD.

3 The Enhanced VM program targets approximately 1,800 overhead
4 distribution line miles within Tier 2 and Tier 3 HFTD areas annually. The
5 program is based on the commitments and activities approved in PG&E's 2020
6 Wildfire Mitigation Plan (WMP) pursuant to Public Utilities Code (Pub. Util. Code)
7 Section 8386. The Enhanced VM program is designed to exceed the annual
8 Routine VM work in HFTDs. Enhanced VM work includes greater radial
9 clearances than Routine VM, overhang trimming, tree assessment for strike
10 potential, tree removals, fuel reduction, and the use of Light Detection and
11 Ranging (LiDAR) to strategically deploy resources where vegetation is near the
12 electrical assets.

13 The Tree Mortality program targets dead, dying, or diseased trees that
14 threaten overhead electric facilities. Tree Mortality activities are designed to
15 mitigate the effects of drought-caused tree mortality and to reduce fire risk from
16 contact with utility facilities per Commission Resolution (Res.) ESRB-4 (Electric
17 Safety and Reliability Branch). This work includes: additional targeted,
18 redundant vegetation inspections and removal of hazardous, dead, and
19 diseased trees and other vegetation near PG&E's electric power lines, poles,
20 and hydro facilities.⁹

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

24 **1. Routine Vegetation Management**

25 PG&E's 2020 Routine VM costs were \$699.1 million, exceeding the
26 reasonableness review threshold of \$275.1 million by \$424.0 million as
27 shown in Table 3-3 below.

⁹ See Res.ESRB-4 (June 16, 2014), 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.").

**TABLE 3-3
ROUTINE VEGETATION MANAGEMENT
2020 RECORDED COSTS COMPARED TO ADOPTED AMOUNTS
(THOUSANDS OF DOLLARS)**

Line No.	Program	Adopted	Adopted at 120%	2020 Expenses	Subject to Review
1	Routine VM	\$229,270	\$275,124	\$699,084	\$423,960

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-HTFD areas. For those trees identified for work 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 to three years. In certain cases, PG&E may not achieve this optimum clearance because of the tree’s health or response to pruning.

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

1) Routine Regulatory Compliance

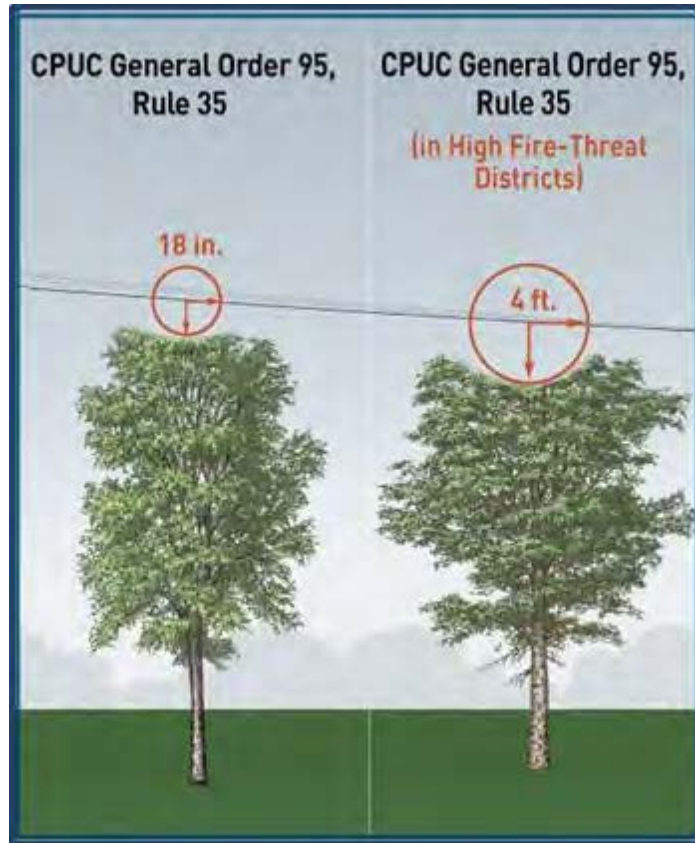
Routine VM starts with pre-inspection of vegetation near the conductor and consists of the following steps:

- Step 1 – PG&E determines when a circuit or project will be inspected and worked. PG&E schedules routine VM work based on a number of factors that may include: the number and species of trees on a given circuit or project, the last patrol date, the criticality of the circuit, regulatory jurisdiction, tag and outage information, weather access concerns, property owner concerns, and input from other departments and external agencies. PG&E then enters the schedule and estimated scope of work by circuit or project into the Project Management Database.

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- Step 2 – Each distribution circuit or project is inspected via ground or aerial patrols for compliance with GO 95, Rule 35 and CPRC 4293. Pre-Inspectors carry hand-held computers to input information on trees that need to be pruned or removed while on patrol. The information includes tree species, tree size, trim type, clearance required, notifications of intended tree work provided to the property owner, and location of the tree. The information collected during the pre-inspection process is critical to determining what work needs to be performed that year. The inspection information is input into the VM Database (VMD) and a systematic inventory of vegetation requiring mitigation is maintained.
- Step 3 – A different contractor performs quality verification reviews by randomly sampling pre-inspection records to ensure that work is identified and prescribed according to PG&E’s 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 quality verification 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**



1 **2) Vegetation Control – CPRC Section 4292**

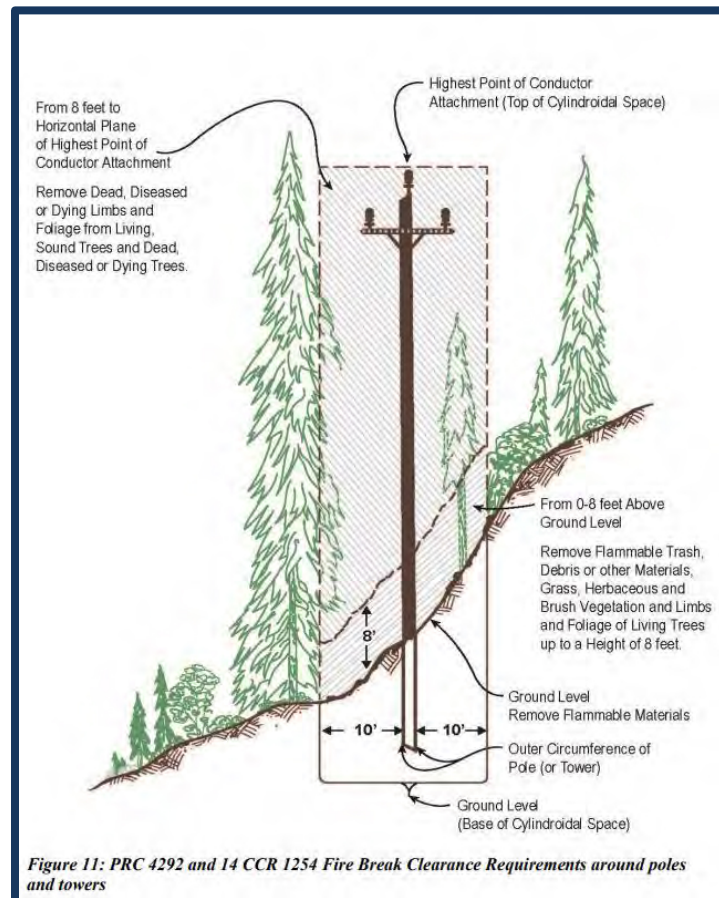
2 In 2020, PG&E cleared vegetation around the base of
3 approximately 102,000 “subject poles” in its service territory.
4 Subject poles are either subject to CPRC Section 4292 or local
5 requirements or are located in non-SRA portions of the HFTD that
6 meet specific risk criteria.

7 A subject pole has certain equipment attached to it (e.g., a
8 surge arrester or fuse) which, upon normal operation, may drop hot
9 or molten material that could ignite surrounding fuels. CPRC
10 Section 4292 requires utilities to maintain a firebreak of at least
11 10 feet in each direction from the outer circumference of the base of
12 subject poles and up to 8 feet to prevent the spread of fire, as
13 shown in Figure 3-2 below.

14 PG&E inspects and clears the vegetation around all
15 102,000 subject poles at least once per year. Most locations require

1 more frequent visits to maintain compliance, resulting in more than
2 300,000 pole visits per year. PG&E contracts with one or more
3 contractors who perform the inspections and clearing. PG&E
4 monitors the Vegetation Clearing work by means of quality
5 verification reviews and quality assurance (QA) audits.

**FIGURE 3-2
VEGETATION CONTROL SCOPE**



6 **3) Contractor Safety**

7 All contractors and subcontractors working for PG&E must meet
8 the Contractor Safety program requirements in PG&E's Utility
9 Standard SAFE-3001S (SAFE-3001S), which outlines the minimum
10 requirements for contractor safety management and PG&E's health
11 and safety expectations for work performed on behalf of PG&E.¹⁰

¹⁰ A copy of Utility Standard SAFE-3001S is available upon request.

1 Utility vegetation work is classified as high-risk work as described in
2 the PG&E Contractor Safety Program Risk Matrix. This work is
3 aligned to SAFE-3001S and, as such, requires completion of
4 additional Occupational Safety and Health Administration (OSHA)
5 programs and training to mitigate task and location-specific hazards.

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

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

19 PG&E also contracted with North American Training Solutions
20 (NATS) to provide further safety education to VM personnel
21 following a contractor "stand down" order. PG&E directs contractors
22 to stand down – or cease work – following line strikes or
23 safety-related incidents. When a contractor is in stand down, it must
24 provide a corrective action plan detailing the action it will take to
25 return to work safely and correct any deficiencies that resulted in the
26 stand down order. In 2020, NATS supported the reassessment and
27 return to work requirements for each contractor and sub-contractor
28 working on PG&E's VM programs.

29 **4) Safety Oversight, Quality Verification, and Quality Assurance**

30 PG&E performs QA audits of VM defined scope work to confirm
31 that the work complies with standards and regulations and to drive
32 continuous improvement. In late 2020, PG&E entered into defined
33 scope service agreements with contractors conducting routine tree

1 work. The work included in the defined scope contracts is subject to
2 the QA audits.

3 An annual QA plan is created to ensure that each VM program
4 manager area is audited at least once per year. The methodology
5 for each individual audit is based on using randomly selected
6 distribution line segments. QA audits confirm compliance with
7 GO 95, Rule 35 and CPRC Sections 4292 and 4293. The QA
8 auditors help identify the cause of the non-compliance if issues are
9 identified. If a recurring or systemic issue is identified, VM
10 Operations develops action plans for its personnel and contractors
11 to prevent a reoccurrence.

12 PG&E also performs quality verification audits of VM Defined
13 Scope work. Quality verification audits are conducted after the
14 completion of annual pre-inspection and tree work projects. An
15 annual quality verification plan is created to ensure that defined
16 scope bundle circuit areas¹¹ are audited monthly. Randomly
17 selected portions of PG&E's electric distribution facilities in HFTDs
18 are audited in between routine cycles (5-7 months after the
19 completion of a project). For CPRC Section 4292, quality
20 verification conducts monthly compliance and work quality audits on
21 the Vegetation Control program. Short-term and long-term
22 corrective actions are automatically generated for VM operations
23 based on the type and severity of any findings. VM operations
24 develops action plans for its personnel and contractors to implement
25 the corrective actions.

26 **5) Public Education**

27 In coordination with PG&E's Community Wildfire Safety
28 Program, public education is an integral part of PG&E's VM program
29 and helps to mitigate risks associated with third-party contacts with
30 electric lines. Public education and outreach efforts include:

31 (1) educating third-party tree workers and customers about tree and

¹¹ 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.

1 power line safety; (2) creating communication materials such as
2 brochures, “right tree right place” posters, door hangers, and
3 websites; (3) outreach efforts, such as representation at local Fire
4 Safe Councils (FSC) and forestry committees, and booths at fairs,
5 garden shows, and tree planting events; (4) support and
6 maintenance of “Tree Line USA”; and (6) the automated customer
7 notification system.

8 **6) Environmental Compliance**

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

17 **b. Summary of Costs**

18 The costs for Routine VM work exceeded the reasonableness
19 review threshold because: (1) the cost for completing each unit of work
20 was higher than forecast; (2) the volume of work exceeded the forecast
21 amount; and (3) the work included items that were not anticipated when
22 PG&E filed its 2020 GRC. Increased costs were partially off-set by
23 lower than forecast spend for in-sourcing of Pre-Inspectors and legacy
24 public safety and reliability.

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

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

Line No.	Description	Approx. Recorded Costs In Excess of Forecast	Approx. Recorded Costs Less than Forecast
1	Increased Costs for Routine Tree Work	\$401,200	–
2	Transitioning the VMBA from a Cash to Accrual Basis	42,600	–
3	Vegetation Control	13,700	–
4	Insourcing of Pre-Inspectors	–	\$(27,000)
5	Legacy Public Safety and Reliability	–	(6,500)
6	Subtotal	<u>\$457,500</u>	<u>\$(33,500)</u>
7	Net Difference (Maintenance Activity Types (MAT) HNA, HN#)	\$424,000	

Note: Differences due to rounding.

1 **1) Increased Costs for Routine Tree Work**

2 PG&E’s recorded costs for Routine VM tree work were
3 approximately \$401.2 million higher than the forecast amount due
4 to: increased costs per unit of work; increased volume of work;
5 additional costs for complying with new legislation; additional costs
6 for safety oversight; and increased costs for environmental activities.
7 PG&E discusses each of these contributing factors below.

8 **a) Increased Cost per Unit of Work**

9 PG&E’s cost per unit of work was higher than the forecast
10 amount primarily because of increased contractor costs driven
11 by the volume of work and year-over-year increases in time and
12 equipment (T&E) costs.

13 In 2020, PG&E shifted from a unit cost basis to T&E in order
14 to complete a higher volume of work than originally forecast.
15 The 2020 GRC forecast assumed that work would be conducted
16 on a unit cost basis. Ultimately, PG&E incurred more costs than
17 anticipated in 2020 when it moved from unit cost work to a T&E
18 basis, which was needed to increase the vendor pool and
19 complete the higher volume of work. This switch was driven by
20 the need to complete the higher volume of work coupled with a
21 significant market demand for tree contractors in California.

1 The T&E work was more costly because PG&E contracted
2 with more out-of-state resources than forecast. Hiring
3 out-of-state contractors added costs because PG&E paid for
4 their travel to California and per diem amounts, including costs
5 for meals and lodging. PG&E also incurred more costs for both
6 overtime and double-time because of the increased volume of
7 tree work. In addition, there were fewer qualified contract
8 resources available because of increased market demand. The
9 costs for working with qualified and interested contractors was
10 also higher than planned as contractors increased their rates to
11 account for the increased risk of potential liability due to wildfires
12 in California and the high cost of living in the state.

13 Working with and paying increased costs for out-of-state
14 contractors was a state-wide issue in 2020 as the California
15 utilities moved expeditiously to complete VM work and reduce
16 wildfire risk. To reduce the need to work with higher-cost
17 out-of-state resources, PG&E entered into 5-year defined scope
18 contracts with fifteen contractors who are accountable for
19 year-round compliance of bundled areas of work. The defined
20 scope work began in late 2020. PG&E entered into the defined
21 scope contracts to drive operational efficiencies and reduce
22 costs for Routine VM work.¹²

23 The higher than forecast costs for completing the Routine
24 VM work are reasonable. PG&E took the necessary steps to
25 contract with the available resources and complete the higher
26 volume of work to reduce vegetation risk and maintain electric
27 distribution system safety and reliability.

28 Table 3-5 below shows the forecast and recorded unit costs
29 for routine tree removal. The recorded costs reflect both the
30 increased volume of work and the higher T&E costs.

¹² PG&E anticipates lower costs for Routine VM under the defined scope contracts and, as such, the 2023 GRC forecast for Routine VM in 2023 is \$117.9 million less than the 2020 recorded costs. A.21-06-021, Exhibit (PG&E-4), p. 9-15, lines 11-12.

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

Line No.	Description	2020 GRC Forecast ^(a)	2020 Recorded Adj. ^(b)
1	Trims/Prunes	\$976,890	\$1,368,327
2	Removals	148,936	191,728
3	Total Tree Units	1,125,826	1,560,055
4	Total Cost (Thousands of Nominal Dollars)	\$229,286 ^(c)	\$699,084
5	Average Unit Cost ^(d) – Calculated	\$204	\$448

(a) A.18-12-009, Exhibit (PG&E-4), Workpapers (WP) 7-14, lines 4-6.

(b) A.21-06-021, Exhibit (PG&E-4), WP 9-10, lines 4-6 and WP 9-2, line 2.

(c) Amount for Routine VM provided in D.20-12-005, Section 7.2.5.1, p. 74.

(d) Fully loaded unit cost.

b) Increased Volume of Work

The number of trees trimmed and removed in 2020 exceeded the number forecast in 2020 by approximately 39 percent, contributing to the increased costs for routine tree work.

In 2020, PG&E worked approximately 1.56 million trees, 434,000 more trees than anticipated in the 2020 GRC forecast (see Table 3-4 above). The additional number of trees worked was due to: (1) a higher than normal amount of work identified in 2019 and completed in 2020 (approximately 409,000 trees); and (2) increased tree work identified during the 2020 inspections (approximately 25,000 trees).

The reason that work identified in 2019 was not completed until 2020 was primarily due to the start of the Enhanced VM program in 2018 and wet weather in 2019. PG&E began its Enhanced VM program in 2018, focusing on overhang clearing, tree removals and radial clearance in the high-risk HFTDs. With the implementation of the Enhanced VM program, certain routine tree work identified in 2018 and 2019 was completed the following years. In addition, California experienced heavy rains in early 2019 that resulted in work delays and more tree growth. The above-normal precipitation in 2019 led to higher tree

1 volumes in 2019 that contributed to the increased volume of tree
2 work completed in 2020.

3 Along with the 434,000 additional trees worked in 2020,
4 PG&E completed additional corrective work as well. In 2019,
5 PG&E began the Wildfire Safety Inspection Program (WSIP) to
6 proactively expand inspections of poles and associated
7 equipment in HFTD areas on an accelerated and enhanced
8 basis to mitigate the risk of initiating fires. The output from
9 WSIP included a significant number of corrective notifications
10 that were addressed in 2020, adding to the volume of work
11 conducted by the Routine VM contractors. PG&E did not
12 anticipate or forecast costs for the WSIP or the corrective
13 actions resulting from the inspections, nor did PG&E recover
14 costs for these activities in any other proceeding.

15 Delaying certain work in 2019 and completing it in 2020 was
16 reasonable because PG&E was focused on work in higher-risk
17 HFTDs through the Enhanced VM program. The additional
18 volume of work due to increased rain in 2019 could not have
19 been anticipated in the 2020 GRC forecast. Completing the
20 corrective work in 2020 identified during the WSIP was
21 reasonable as it helped to mitigate fire risk.

22 **c) Increased Labor Costs Due to SB 247**

23 PG&E incurred higher than forecast labor costs in 2020 due
24 to SB 247.

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

32 PG&E's 2020 GRC forecast did not account for the costs
33 required to comply with this new legislation. PG&E did not
34 recover costs for this increased labor in any other proceeding.

1 **d) Additional Costs for Safety Oversight, Quality Verification,**
2 **and Quality Assurance**

3 PG&E incurred more costs than forecast in 2020 for safety
4 oversight, quality verification, and QA.

5 In 2020 PG&E performed quality verification audits of VM
6 Defined Scope work. PG&E introduced quality verification
7 audits in 2020. The costs for this work were not included in the
8 2020 GRC forecast.

9 **e) Increased Costs for Environmental Reviews**

10 PG&E incurred more costs than forecast in 2020 for
11 environmental work. The increased costs were due to
12 conducting more environmental reviews than planned.

13 **2) Transitioning the VMBA from a Cash to Accrual Accounting**
14 **Basis**

15 Approximately \$43 million in costs are reflected in PG&E's 2020
16 costs because PG&E transitioned from a cash to accrual accounting
17 basis. PG&E paid accrued costs in 2020 that would have been paid
18 in 2021 had the transition from cash to accrual not occurred.¹³ The
19 transition does not represent additional costs to the Routine VM
20 program.

21 PG&E accounts for Enhanced VM and Tree Mortality on an
22 accrual basis. Routine VM was the only one of the three VMBA
23 programs that was still using a cash accounting basis. PG&E
24 transitioned Routine VM from cash to accrual accounting so that all
25 three VMBA programs were using a consistent accounting method
26 and to align to PG&E's accounting standards that recommend cost
27 accrual accounting.

13 In cash accounting, only invoices that have actually been paid are recorded in PG&E's balancing account: invoices that were not paid at the end of a year are paid in the following year; similarly, invoices that are not paid in that following year will be paid in the next year. Accrual accounting allows for costs to be recorded in the year the work was performed. The accrual is equal to work completed, but not yet billed.

1 **3) Vegetation Control**

2 PG&E incurred approximately \$13.7 million more than forecast
3 for Vegetation Control work in 2020.

4 In 2020, PG&E's VM teams worked through more customer
5 challenges and refusals due to stricter enforcement of clearing
6 required per CPRC Section 4292. PG&E worked aggressively to
7 address non-conformance on fire break requirements at locations
8 where owners had previously accepted responsibility for fire-safe
9 maintenance.

10 **4) In-Sourcing of Inspectors**

11 PG&E planned to hire 224 Pre-Inspectors and 48 supervisory
12 and back office staff in 2020 at a forecast cost of approximately
13 \$27 million.¹⁴ PG&E did not incur any costs for this work in 2020.

14 **5) Legacy Public Safety and Reliability**

15 PG&E recorded approximately \$6.5 million less than forecast for
16 Legacy Public Safety and Reliability (PS&R) work.

17 PS&R includes removing failing tree branches that could strike
18 distribution lines, which requires de-energizing those lines for
19 safe work.

20 In 2020 PG&E concentrated its resources on conducting
21 Enhanced VM work in the HFTDs. Because PS&R work is generally
22 focused on reliability work in non-HFTD areas, this work was
23 considered lower priority and less PS&R work was completed than
24 forecast.

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

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

¹⁴ A.18-12-009, Exhibit (PG&E-4), WP 7-10, line 8.

1 **2. Enhanced Vegetation Management**

2 PG&E’s 2020 Enhanced VM costs were \$451.4 million, exceeding the
3 reasonableness review threshold of \$382.5 million by \$68.9 million.

**TABLE 3-6
ENHANCED VEGETATION MANAGEMENT
2020 RECORDED COSTS COMPARED TO ADOPTED AMOUNTS
(THOUSANDS OF DOLLARS)**

Line No.	Program	Adopted	Adopted at 120%	2020 Expenses	Subject to Review
1	Enhanced VM	\$318,742	\$382,491	\$451,390	\$68,899

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

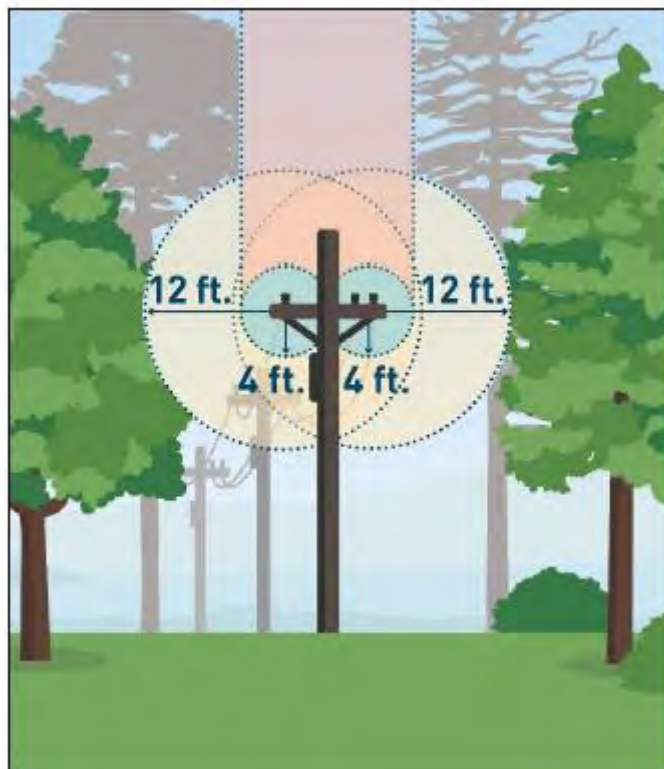
5 PG&E’s Enhanced VM program encompasses overhead distribution
6 lines within Tier 2 and Tier 3 HFTD areas. It is based on the
7 commitments and activities approved in PG&E’s 2020 WMP that support
8 Pub. Util. Code Section 8386 and is designed to exceed annual Routine
9 VM work and comply with CPUC mandated clearances (GO 95,
10 Rule 35) as described below. PG&E performs targeted work, primarily
11 in Tier 2 and Tier 3 HFTD areas, to further mitigate the possibility of
12 wildfire ignitions and downed wires due to vegetation-conductor contact.
13 This work includes establishing greater conductor-to-vegetation
14 clearances and clearing overhanging vegetation from distribution lines.

15 **1) Overhang Clearing, Tree Removals, and Radial Clearance**

16 Overhang clearing and radial clearance work includes removing
17 all branches that directly overhang or reach within four horizontal
18 feet of electric distribution lines. Removing overhanging branches
19 and keeping the area above and immediately adjacent to distribution
20 lines clear further reduces the wildfire, public safety, and reliability
21 impacts of vegetation falling into power lines. Under PG&E’s
22 Enhanced VM standards, trees must have a minimum 12-foot radial
23 clearance around the primary conductor at the time of tree work to
24 ensure no encroachment within a 4-foot radius of primary conductor
25 prior to the next routine patrol cycle. This work also provides

1 additional support for compliance with GO 95, Rule 35 and CPRC
2 Section 4293. Figure 3-3 depicts the Enhanced VM scope of work.

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



2) Evaluating the Condition of Trees

3 Under the Enhanced VM program, PG&E Pre-Inspectors use
4 the PG&E Tree Assessment Tool to determine if a strike tree (a tree
5 tall enough to strike electrical facilities if it falls) should be abated (in
6 the case of a hazard strike tree) or inventoried (in the case of a
7 healthy strike tree). The Tree Assessment Tool relies on
8 region-specific risk data, including the species' likelihood of igniting
9 a wildfire. The tool has various data inputs that inform the
10 assessment, such as historical data and statistics on tree failures,
11 species, lean, health, terrain, slope, and local wind gusts.
12 Inspectors use the Tree Assessment Tool in the field on a per-tree
13 basis to document abatement decisions. PG&E's Enhanced VM
14 program assesses all strike trees regardless of species, but only
15

1 removes hazard trees. When the Pre-Inspector identifies a tree to
2 be abated, it is assigned to a tree crew.

3) **Fuel Reduction**

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

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

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

19 PG&E coordinates Fuel Reduction work with property owners.

20 **4) Wood Management**

21 PG&E initiated a Wood Management program in 2016 because
22 of drought induced tree mortality. The intent of the program was to
23 ensure that work performed near dead or dying trees could be
24 conducted safely and that property owners could safely use their
25 properties. Occasionally, wood management is also necessary for
26 environmental reasons.

27 PG&E accommodates property owners’ requests, where
28 feasible, by either relocating the wood from VM activities on-site,
29 cutting to the requested length, or removing it from the property.
30 Where wood must be hauled off-site and disposed, PG&E delivers
31 the material to various locations that accept the material and legally
32 dispose of it. In certain areas with a high volume of dead or dying

1 trees, PG&E contracts with a vendor that establishes a delivery
2 location near where the work is being conducted.

3 **5) Safety Oversight, Work Verification, Quality Verification**

4 The contractor safety requirements for the Enhanced VM
5 program are the same as the requirements for Routine VM
6 described in Section C.1.a.3 above.

7 PG&E performs Work Verification on 100 percent of Enhanced
8 VM work. Work Verification is an independent review of all
9 Enhanced VM work to verify that: (1) the Pre-Inspector prescribed
10 tree work that was necessary per PG&E's Enhanced VM
11 procedures; (2) the work was completed as prescribed; and
12 (3) specific to Enhanced VM, the Pre-Inspector has inspected all
13 strike trees. Additionally, the quality verification team samples
14 segments that "passed"¹⁵ Work Verification for Quality Review.

15 **b. Summary of Costs**

16 The 2020 recorded Enhanced VM costs differed from the adopted
17 forecast amounts due primarily to an increase in the unit cost per tree
18 worked. Increased costs were off-set by a reduced scope of work and
19 lower than forecast spend for Fuel Reduction and LiDAR.

20 Table 3-7 shows the areas of work driving the differences in cost
21 between the 2020 forecast and 2020 recorded amounts.

¹⁵ Passing Work Verification indicates that: (1) the Pre-Inspector prescribed tree work that was necessary per PG&E's Enhanced VM procedures; (2) the work was completed as prescribed; and (3) specific to Enhanced VM, the Pre-Inspector has inspected all strike trees.

**TABLE 3-7
ENHANCED VM – SUMMARY OF COST CHANGES
(THOUSANDS OF DOLLARS)**

Line No	Description	Recorded Costs in Excess of Forecast	Recorded Costs Less Than Forecast
1	Increased Unit Costs for Enhanced VM	\$107,900	–
2	Reduced Costs for LiDAR and Fuel Reduction (Utility Defensible Space)	–	\$(34,700)
3	Other Differences ^(a)	–	(4,400)
4	Subtotal	\$107,900	\$(39,100)
5	Net Difference (MAT IGJ) ^(b)	\$68,800	–

(a) Reflects cost differences that cannot be associated with a specific category of work due to the difference between PG&E’s forecast and the amount adopted by the Commission.

(b) Differences due to rounding.

1) Increased Unit Costs for Enhanced VM

PG&E’s recorded unit costs for Enhanced VM work were higher than forecast because of: increased volume of tree removals; increased costs for wood management; increased T&E costs; costs incurred to comply with new legislation; and additional costs for increased safety oversight and work verification. PG&E describes each of these contributing factors below.

a) Increased Volume of Tree Removals

PG&E incurred more costs than forecast because of increased tree density—that is, the number of trees removed per mile exceeded the forecast amount. Along with increased tree density, the costs for tree removal generally are higher than costs for tree trimming. As a result, the combined increased tree density and increased number of removals drove the higher unit costs for Enhanced VM work.

b) Increased Costs for Wood Management

In addition to removing a potential fuel source, PG&E’s Wood Management program ensures that work performed near dead or dying trees can be conducted safely, and that property owners can safely use their properties. PG&E incurred approximately \$92.7 million for wood management in 2020.

1 Costs incurred for wood management are off-set by
2 approximately \$28.2 million for debris management,¹⁶ resulting
3 in a net incurred cost of approximately \$64.5 million. PG&E did
4 not forecast costs for this specific category of work in the
5 2020 GRC.

6 In 2020, PG&E relocated and disposed of approximately
7 82,878 trees for property owners. This work included relocating
8 the wood from Enhanced VM activities on-site, cutting to the
9 requested length, or hauling off-site to various locations for
10 disposal. Many of the trees that were relocated and disposed of
11 were large trees measuring more than 23 inches in diameter.

12 **c) Increased Costs Due to Higher Time and Equipment Rates**

13 PG&E incurred higher costs for T&E Enhanced VM work for
14 the reasons discussed in Section C.1.b.1.a above.

15 **d) Increased Labor Costs Due to SB 247**

16 PG&E incurred additional labor costs to comply with SB 247
17 as described in Section C.1.b.1.c above.

18 **e) Additional Costs for Safety Oversight, Quality Verification,
19 and Quality Assurance**

20 PG&E incurred more costs than forecast because it
21 implemented new safety oversight, QA, and quality verification
22 work in 2020. This work included reviewing 100 percent of
23 Enhanced VM pre-inspection work and confirming that
24 Enhanced VM tree work was completed as prescribed, with
25 all hazard trees mitigated or removed. In 2020, PG&E hired an
26 external contractor to perform an additional Enhanced VM QA
27 audit. QA and quality verification are critical elements to
28 ensuring that Enhanced VM work is performed according to
29 PG&E standards and regulatory requirements.

¹⁶ The forecast costs for debris management are embedded in the 2020 GRC forecast for Enhanced VM. A.18-12-009, Exhibit (PG&E-4), WP 7-12, line 22.

1 **f) Offset Costs Based on Number of Miles Completed**

2 The increased cost per unit of work was off-set by a
3 reduction in the number of miles worked in 2020: PG&E
4 forecast 2,922 miles¹⁷ and worked 1,878 miles, a reduction of
5 1,044 miles.

6 Overall, PG&E incurred approximately \$199.7 million more
7 for Enhanced VM tree work that is off-set by a reduction of
8 approximately \$156.3 million due to fewer miles worked. This
9 results in a net increase of approximately \$43.4 million.

10 **2) Reduced Costs for LiDAR and Fuel Reduction**

11 PG&E's recorded costs for LiDAR and Fuel Reduction (now
12 called Utility Defensible Space) were approximately \$34.7 million
13 less than the forecast amount.

14 In 2020, PG&E was building-out its Fuel Reduction program by
15 benchmarking with other utilities, identifying industry best practices,
16 and establishing an effective scope of work. Work in 2020 focused
17 on building the structure of the program as opposed to executing
18 fuel reduction work.

19 PG&E conducted very few miles of additional LiDAR collections
20 in 2020 and instead leveraged the LiDAR collections from 2019.
21 PG&E continued to use the 2019 LiDAR collections in various
22 capacities in 2020, which obviated the need for new, large-scale
23 LiDAR data captures in 2020.

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

25 PG&E created the Enhanced VM program in December 2018.
26 Enhanced VM activities occur year-round to complete the planned
27 mileage by the end of each year. In 2020, PG&E completed 1,878-miles
28 of Enhanced VM work across PG&E's Tier 2 and Tier 3 HFTD areas.¹⁸

¹⁷ A.18-12-009, Exhibit (PG&E-4), WP 7-12, line 1.

¹⁸ Small amounts of work occur 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 **3. Tree Mortality VM Activities**

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

6 PG&E did not forecast tree mortality work in the 2020 GRC, and
 7 therefore seeks full recovery of these costs in this Application. PG&E
 8 recorded 2020 Tree Mortality VM costs of \$98.1 million as shown in
 9 Table 3-8 below.

**TABLE 3-8
 TREE MORTALITY VEGETATION MANAGEMENT
 2020 RECORDED COSTS COMPARED TO ADOPTED AMOUNTS
 (THOUSANDS OF DOLLARS)**

Line No.	Program	Adopted	Adopted at 120%	2020 Expenses	Subject to Review
1	Tree Mortality	-	-	\$98,131	\$98,131

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

11 PG&E’s Tree Mortality program removes dead or dying hazard trees
 12 that may pose a public safety or wildfire threat or risk to PG&E
 13 infrastructure. PG&E implemented the Tree Mortality program in
 14 response to the 2014 proclamation of a drought emergency in
 15 Commission Res.ESRB-4, OP 2, the Governor’s October 30, 2015 Bark
 16 Beetle Tree Mortality Emergency Proclamation, and the February 18,
 17 2014 letter from the CPUC Safety and Enforcement Division, each of
 18 which relates to mitigating the effects of drought on tree mortality to
 19 reduce wildfire risk.

20 ESRB-4 directs IOUs to take specific remedial measures to reduce
 21 the likelihood of fires started by or threatening utility facilities. These
 22 remedial measures include: “increasing vegetation inspections and
 23 removing hazardous, dead and sick trees and other vegetation near the
 24 IOUs’ electric power lines and poles; sharing resources with the
 25 CAL FIRE to staff lookouts adjacent to the IOUs property; and clearing
 26 access roads under power lines for fire truck access.” These proactive

1 measures serve the important purposes of reducing wildfire risk in
2 California, improving the safety and reliability of PG&E’s system, and
3 protecting customers.

4 Five initiatives make up the Tree Mortality program: (1) Enhanced
5 Vegetation Inspections and Mitigation;¹⁹ (2) Wood Management;
6 (3) Wildland Urban Interface (WUI) Protection; (4) Fuel Reduction and
7 Emergency Response Access; and (5) Safety Oversight and Quality
8 Verification.

9 These work categories are discussed in more detail below.

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

11 The purpose of the Enhanced Vegetation Inspection and
12 Mitigation initiative is to implement a series of supplemental
13 enhanced vegetation patrols and associated tree work in
14 SRA/FRA²⁰ and HFTD areas. This allows PG&E to address the
15 rapidly changing forest conditions resulting from the drought and
16 bark beetle infestations to prevent dead or dying vegetation from
17 contacting power lines.

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

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

20 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.

**FIGURE 3-4
TREE MORTALITY SCOPE**



1 PG&E also conducts ad-hoc patrols of areas subject to “Red
2 Flag” warnings. The red flag patrols are conducted to identify dead
3 trees or specific trees at risk of failure due to extraordinary wind
4 conditions that could significantly compromise tree stability.

5 **2) Wood Management**

6 The Tree Mortality Wood Management program is the same as
7 the Enhanced VM Wood Management program described in
8 Section C.2.a.4 above.

9 **3) Wildland Urban Interface Protection**

10 The WUI represents areas around the urban environment where
11 conditions in the field, like slopes and vegetation, closely resemble
12 rural areas. These areas, also referred to as Local Responsibility
13 Areas, are usually moderately to densely-developed, and local
14 agencies (local fire district, county, or municipal fire services) are
15 responsible for fire suppression. All portions of lines within WUI

1 areas are patrolled once per year. During the patrols, PG&E VM
2 teams identify trees requiring abatement work and issue the work to
3 PG&E's tree contracting work force, which conducts the abatement
4 work. These additional inspections are focused on reducing risk by
5 increasing the frequency of inspections to be able to identify and
6 mitigate dead or dying vegetation.

7 **4) Fuel Reduction and Emergency Response Access**

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

- 11 • Distributing fire safety materials;
- 12 • Teaching fire-safe home construction techniques;
- 13 • Coordinating fire safety workshops with insurance companies
14 and home builders;
- 15 • Conducting fuel reduction projects;
- 16 • Funding escape route and defensible space projects around
17 homes as required by CPRC Section 4291;²¹
- 18 • Sponsoring lookout towers; and
- 19 • Forming community safety networks.

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

26 **5) Safety Oversight and Quality Verification**

27 PG&E describes its Safety Oversight, Work Verification and
28 Quality Verification program for Enhanced VM in Section C.2.a.5
29 above. PG&E performs those same activities for tree work
30 performed under the Tree Mortality program.

²¹ 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.

1 **b. Summary of Costs**

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

**TABLE 3-9
TREE MORTALITY VM 2020 ANNUAL SPEND
(THOUSANDS OF DOLLARS)**

Line No.	Activity	MAT	2020 Expense
1	Enhanced Vegetation Inspections and Mitigation Initiative		\$72,777
2	Wood Management		2,871
3	WUI Protection		4,717
4	Fuel Reduction and Emergency Response Access		2,757
5	Safety Oversight, Work Verification, QA and Quality Verification		173
6	Total Tree Mortality	IGI	\$83,295

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

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

12 **4. Power Generation Tree Mortality Activities**

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

16 PG&E did not forecast PG VM work in the 2020 GRC,²² and therefore
17 seeks full recovery of these costs here. PG&E recorded 2020 PG VM costs
18 of \$1.5 million, as shown in Table 3-10 below.

²² A.18-12-009, Exhibit (PG&E-5).

**TABLE 3-10
POWER GENERATION TREE MORTALITY
2020 RECORDED COSTS COMPARED TO ADOPTED AMOUNTS
(THOUSANDS OF DOLLARS)**

Line No.	Program	Adopted	Adopted at 120%	2020 Expenses	Subject to Review
1	PG Tree Mortality	-	-	\$1,448	\$1,448

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 2020 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 recent drought mortality, PG implemented a continuous inspection system in 2016 to abate hazards as they developed.

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

PG&E abated 3,397 trees for PG in 2020.

1 **b. Summary of Costs**

2 PG&E did not forecast PG Tree Mortality work in the 2020 GRC and
3 therefore seeks full recovery of these costs here. PG&E recorded
4 \$1.5 million in 2020 for PG Tree Mortality (see Table 3-9 above).

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

6 PG Tree Mortality is a year-round program encompassing the area
7 surrounding PG&E's 63 powerhouses and associated equipment.
8 PG&E's 63 hydro powerhouses are located on 16 rivers and 4 tributaries
9 flowing from the Sierra Nevada, Cascade, and Coast mountain ranges.
10 The system collectively includes ancillary support facilities consisting of:
11 98 reservoirs, 72 diversions, 168 dams, over 400 miles of water
12 conveyance (canals, flumes, penstocks, siphons, tunnels, low head
13 pipes, and natural waterways), and approximately 140,000 acres of
14 fee-owned land that is readily accessible to the public.

15 **D. Conclusion**

16 The substantial investment PG&E continues to make in its VM activities is
17 reasonable because it directly supports public safety, service reliability, and
18 regulatory compliance through management of vegetation near PG&E's electric
19 distribution and power generation facilities. These proactive measures serve the
20 important purposes of reducing wildfire risk, improving the safety of PG&E's
21 electric and PG systems, and protecting customers and the public especially in
22 this time of extreme climate change.

23 This testimony demonstrates that the authorized 2020 costs and the costs
24 above the reasonableness review threshold recorded in the VMBA for electric
25 distribution and power generation VM activities are reasonable. As such, PG&E
26 seeks to recover \$592 million for 2020 expense amounts recorded to the VMBA
27 in excess of the 120 percent reasonableness review threshold. PG&E seeks a
28 determination that these costs were reasonably incurred, and that recovery of
29 these costs is appropriate. PG&E asks that these costs be authorized by the
30 CPUC.

PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 4
ELECTRIC DISTRIBUTION: CEMA

PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 4
ELECTRIC DISTRIBUTION: CEMA

TABLE OF CONTENTS

A. Introduction.....	4-1
B. Summary of Request.....	4-1
C. Damages to PG&E’s Electric Distribution Facilities and Restoration Activities	4-2
1. 2015 Events	4-3
a. 2015 Butte Fire	4-3
1) Damaged Facilities.....	4-4
2) Restoration Activities.....	4-5
2. 2020 Costs Related to Prior CEMA Events.....	4-5
a. 2017 Tubbs Fire	4-5
b. 2018 Carr Fire	4-6
c. 2019 January-February Severe Storms.....	4-7
d. 2019 Statewide Extreme Fire Conditions State of Emergency	4-8
1) October 26 and 29 Wind Events	4-8
2) Glencove Fire.....	4-9
3) Bethel Island Fire	4-10
4) Camino Fire.....	4-10
3. 2020 CEMA Events.....	4-11
a. Creek Fire.....	4-11
1) Damaged Facilities.....	4-12
2) Restoration Activities.....	4-12
b. Glass Fire	4-13
1) Damaged Facilities.....	4-14
2) Restoration Activities.....	4-14

PACIFIC GAS AND ELECTRIC COMPANY
 2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
 CHAPTER 4
 ELECTRIC DISTRIBUTION: CEMA

TABLE OF CONTENTS
 (CONTINUED)

c.	Oak Fire.....	4-15
	1) Damaged Facilities.....	4-15
	2) Restoration Activities.....	4-16
d.	August Extreme Heat Event	4-16
	1) Damaged Facilities.....	4-17
	2) Restoration Activities.....	4-18
e.	August 2020 Fires	4-18
	1) Lake Napa Unit (LNU) Lighting Complex Fire	4-20
	2) Santa Cruz Unit (CZU) Lighting Complex Fire	4-22
	3) North Complex Fire (NCF)	4-23
	4) SCU (Santa Clara Unit) Lighting Complex Fire	4-25
	5) 2020 August Complex Fire.....	4-26
	6) 2020 August 14 Fire and Extreme Heat Event.....	4-27
	7) Carmel Fire	4-28
	8) Jones Fire	4-29
	9) August Transmission Capacity EOC	4-30
	10) Moc Fire	4-30
	11) Woodward Fire.....	4-32
	12) Potters Ravine Fire	4-32
f.	September Extreme Heat Event.....	4-33
	1) Damaged Facilities.....	4-34
	2) Restoration Activities.....	4-34
D.	Conclusion.....	4-34

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS**
3 **CHAPTER 4**
4 **ELECTRIC DISTRIBUTION: CEMA**

5 **A. Introduction**

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

- 8 • 2015 Butte Fire
- 9 • 2020 Costs (Tubbs Fire, Carr Fire, 2019 January/February storms, and
10 2019 Statewide Extreme Fire Conditions)
- 11 • 2020 Creek Fire
- 12 • 2020 Glass Fire
- 13 • 2020 Oak Fire
- 14 • August 2020 Extreme Heat Event
- 15 • August 2020 Fires (including the LNU, CZU, NCF, SCU, and
16 August Complex Fire)
- 17 • September 2020 Extreme Heat Event

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

26 The remainder of this chapter is organized as follows:

- 27 • Section B provides a summary of the cost-recovery request,
- 28 • Section C explains the costs incurred by PG&E in response to these
29 catastrophic events; and
- 30 • Section D provides a brief conclusion.

31 **B. Summary of Request**

32 PG&E incurred \$191.8 million in capital expenditures and \$433 million in
33 expenses for its electric distribution costs related to these catastrophic events

1 through December 31, 2020. Of those totals incurred, PG&E seeks recovery of
 2 only those Catastrophic Event Memorandum Account (CEMA)—eligible
 3 incremental capital and expense costs.

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

**TABLE 4-1
 CEMA-ELIGIBLE ELECTRIC DISTRIBUTION BREAKDOWN OF EXPENDITURES^(a)
 (THOUSANDS OF DOLLARS)**

<u>Line No.</u>	<u>Event By Year</u>	<u>Capital</u> <u>MWC 95</u>	<u>Expense</u> <u>MWC IF</u>	<u>CEMA-Eligible</u> <u>Spending</u>
1	2015 Butte Fire	\$ 21,233	\$ 86,590	\$ 107,823
2	2017 Tubbs	\$ 12,290	\$ (4,515)	\$ 7,775
3	2018 Carr Fire	\$ 486	\$ 146	\$ 632
4	2019 January February Severe Storms	\$ (159)	\$ (50)	\$ (209)
5	2019 Statewide Extreme Fire Conditions State of Emergency	\$ 2,384	\$ 255	\$ 2,639
6	2020 Creek Fire	\$ 12,441	\$ 27,268	\$ 39,709
7	2020 Glass Fire	\$ 41,301	\$ 71,530	\$ 112,831
8	2020 Oak Fire	\$ 31	\$ 437	\$ 468
9	2020 August Extreme Heat Event	\$ 21,075	\$ 8,977	\$ 30,052
10	2020 August Fires and Extreme Weather Conditions	\$ 73,770	\$ 240,154	\$ 313,925
11	2020 September Extreme Heat Event	\$ 6,940	\$ 2,309	\$ 9,249
12	Grand Total	\$ 191,792	\$ 433,102	\$ 624,894

(a) Amounts include Customer Communications costs for 2015 Butte of \$39K Expense and 2017 Tubbs of \$322K Capital costs.

7 **C. Damages to PG&E’s Electric Distribution Facilities and Restoration**
 8 **Activities**

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

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

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

12 Damage to the electric distribution system is also different in a winter storm
13 than in a wildfire. Winter storms may break poles, cross arms, spans of wire, or
14 other facilities at intermittent locations within the impacted division, and
15 generally involve a large, widespread volume of outage location. In contrast, a
16 wildfire may destroy electric distribution facilities in its path. Depending on the
17 geographic concentration of a wildfire, the outage scope may be smaller than
18 during a winter storm. In some instances, circuits can be de-energized in
19 advance of the wildfire spread to protect firefighters and the public from
20 exposure to energized distribution conductors. Restoration activities during a
21 fire often involve replacing all the assets and components in the wildfire's path,
22 rather than portions of assets or components such as a cross arms or a broken
23 pole. The following events are described in detail below:

24 **1. 2015 Events**

25 **a. 2015 Butte Fire**

26 The Butte Fire (Amador County) began September 9, 2015, east of
27 Jackson and was active for 36 days. Weather conditions on
28 September 9, 2015, were hot and dry. As the day progressed,
29 conditions swiftly deteriorated through the afternoon and evening.

1 Observation Site CQ011,¹ located approximately 3.40 miles
 2 west-northwest of the ignition location, registered a high temperature of
 3 99.7 degrees Fahrenheit (F) and 10 percent humidity. Winds were
 4 generally light out of the north-northeast at 0-2 miles per hour (mph) and
 5 then shifted out of the west-northwest by the afternoon at just 2-4 mph.
 6 Despite the high temperatures and low relative humidity, due to the lack
 7 of significant winds, the National Weather Service (NWS) Office in
 8 Sacramento did not issue any Red Flag Warnings (RFW). The fire was
 9 contained on October 15, 2015

10 PG&E incurred \$107.8 million responding to this wildfire of which
 11 \$107.8 million is related to the declared emergency in CEMA-eligible
 12 counties. The \$107.8 million can be broken down as follows:

**TABLE 4-2
 2015 BUTTE FIRE
 COST ELEMENT BREAKDOWN OF COSTS
 (THOUSAND OF DOLLARS)**

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital</u>	<u>Expense</u>	<u>CEMA-</u>
		<u>MWC 95</u>	<u>MWC IF</u>	<u>Eligible</u>
1	Contract	\$ 3,223	\$ 77,406	\$ 80,630
2	Labor	\$ 13,766	\$ 6,152	\$ 19,917
3	Materials	\$ 2,764	\$ 465	\$ 3,228
4	Other	\$ 1,480	\$ 2,568	\$ 4,048
5	Total	\$ 21,233	\$ 86,590	\$ 107,823 ^(a)

(a) Costs include \$39K Expense costs related to Customer and Communication.

13 **1) Damaged Facilities**

14 The fire burned a total of 70,868 acres. In regard to non-PG&E
 15 facilities, the Butte Fire destroyed 877 structures and damaged
 16 44 structures. In regard to PG&E facilities, the Butte Fire destroyed

¹ CQ011 (Approximately 3.40 miles west-northwest of the approximate ignition location):
https://mesowest.utah.edu/cgi-bin/droman/meso_base_dyn.cgi?product=&past=1&stn=CQ011&unit=0&time=LOCAL&day1=10&month1=09&year1=2015&hour1=0.

1 or damaged 884 poles, 56 transformers, 47 crossarms and
 2 119 spans of distribution conductor.

3 **2) Restoration Activities**

4 During the Butte Fire, PG&E crews were fully engaged with
 5 CAL FIRE and other first responders to provide support as needed.

6 PG&E crews worked across challenging terrain performing
 7 traffic control, tree and brush removal and additional fire clean-up
 8 Other costs included helicopter services, shoring, and temporary
 9 service work. Capital costs were centered around restoration work.

10 **2. 2020 Costs Related to Prior CEMA Events**

11 **a. 2017 Tubbs Fire**

12 In its 2020 WMCE application (Application (A.) 20-09-019), PG&E
 13 requested cost recovery for Tubbs Fire costs incurred up to
 14 December 31, 2019. Additional costs have been incurred for restoration
 15 activities related to the Tubbs Fire continuing through December 31,
 16 2020. These costs included an additional \$12.3 million in Capital costs
 17 and a credit of \$4.5 million in Expenses. The expense credit is related
 18 to an insurance payment received in the amount of \$7.8 million.

19 The Tubbs Fire (Sonoma and Napa Countries) began on October 8,
 20 2017, near Highway 128 and Bennett Lane in Calistoga. Costs incurred
 21 in 2020 for the Tubbs Fire are summarized below:

**TABLE 4-3
 2017 TUBBS FIRE
 COST ELEMENT BREAKDOWN OF COSTS
 (THOUSAND OF DOLLARS)**

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital</u>	<u>Expense</u>	<u>CEMA-</u>
		<u>MWC 95</u>	<u>MWC IF</u>	<u>Eligible</u>
				<u>Spending</u>
1	Contract	\$ 10,320	\$ 1,388	\$ 11,708
2	Labor	\$ 906	\$ 784	\$ 1,690
3	Materials	\$ 550		\$ 550
4	Other	\$ 514	\$ (6,687)	\$ (6,173)
5	Total	\$ 12,290	\$ (4,515)	\$ 7,775 ^(a)

(a) Costs include \$322 thousand Capital costs related to Customer and Communication.

1 Additional information on the Tubbs Fire can be found in PG&E's
2 opening testimony in A.20-09-019.²

3 Continued restoration activities are ongoing as customers return and
4 rebuild. During 2020, PG&E continued to restore damaged distribution
5 infrastructure in response to customer requests. These activities
6 included installing one pole, ten transformers, and 140 spans of
7 distribution conductor.

8 **b. 2018 Carr Fire**

9 In A.19-09-012, PG&E requested cost recovery for the Carr Fire
10 (Shasta County) for costs incurred up to December 31, 2018.

11 A.20-09-019 included costs incurred up to December 31, 2019.

12 Additional costs have been incurred for restoration activities related to
13 the Carr Fire continuing through December 31, 2020. These costs
14 included an additional \$0.5 million in Capital costs and \$0.1 million in
15 Expenses.

16 The Carr Fire began on July 23, 2018, at Highway 299 and Carr
17 Powerhouse Road, in the community of Whiskeytown, west of Redding.
18 Costs incurred in 2020 for the Carr Fire are summarized below:

TABLE 4-4
2018 CARR FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$257	\$(0)	\$257
2	Labor	171	147	318
3	Materials	24	(2)	23
4	Other	33	1	34
5	Total	\$486	\$146	\$632

19 Additional information on the Carr Fire can be found in PG&E's
20 opening testimony in A.19-09-012.³

² See pp. 3-5 to 3-8 of PG&E's opening testimony for A.20-09-019.

³ See pp. 2-28 to 2-37 in A.19-09-012.

Continued restoration activities are ongoing as customers return and rebuild. During 2020, PG&E continued to restore damaged distribution infrastructure in response to customer requests. These activities included installing four poles, eight transformers, and 38 spans of distribution conductor.

c. 2019 January-February Severe Storms

In A.20-09-019, PG&E requested cost recovery for the January-February Severe Storms for costs incurred up to December 31, 2019. Additional costs and (accounting) adjustments made in 2020 can be broken down as follows.

**TABLE 4-5
2019 JANUARY FEBRUARY SEVERE STORMS
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)**

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$(9)	\$(60)	\$(69)
2	Labor	1	(1)	(1)
3	Materials	141	(2)	139
4	Other	(291)	13	(279)
5	Total	\$(159)	\$(50)	\$(209)

The January-February Severe Storms (Sonoma and Napa Counties) 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.

The costs adjustments are related mainly to Joint Pole Credits. These credits are reimbursements made by other companies that share the cost and use of the poles. When PG&E installs a pole that is shared by another company (for example cable or phone companies) they will pay a portion of the pole costs for its use.

Additional information on the January-February Severe Storms can be found in PG&E's opening testimony in A.20-09-019.⁴

⁴ See pp. 3-12 to 3-14 of PG&E's opening testimony in A.20-09-019.

1 **d. 2019 Statewide Extreme Fire Conditions State of Emergency**

2 In A.20-09-019, PG&E requested cost recovery for the following
3 2019 events: October 26 and 29 Wind Events, Glencove Fire, Bethel
4 Island Fire, and Camino Fire. Here, PG&E is discussing these events in
5 one section, as each fire took place during the course of the
6 October 2019 extreme fire weather conditions declared emergency.

TABLE 4-6
2019 STATEWIDE EXTREME FIRE CONDITIONS STATE OF EMERGENCY COST ELEMENT
BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital MWC 95</u>	<u>Expense MWC IF</u>	<u>CEMA-Eligible Spending</u>
1	Contract	\$2,099	\$269	\$2,368
2	Labor	110	(67)	43
3	Materials	126	–	126
4	Other	49	52	101
5	Total	\$2,384	\$255	\$2,639

7 A further breakdown of the \$2.6M is listed below by event.

8 **1) October 26 and 29 Wind Events**

9 The October Wind Event was a systemwide response to the
10 CEMA declared emergency. During the wind events, PG&E
11 conducted two Public Safety Power Shutoff (PSPS) events to
12 mitigate catastrophic wildfire risk presented by offshore wind events
13 combined with low humidity levels and critically dry fuels. The
14 overlap of the two wind events resulted in approximately 12 hours of
15 daylight restoration time available for patrols and restoration for the
16 October 26 PSPS event. Those customers who were affected by
17 both events experienced a cycle of either (1) being de-energized
18 and restored for a short period of time before being de-energized
19 again, or (2) being de-energized and remaining de-energized over
20 the duration of both events. Because PG&E is unable to determine
21 which offshore wind event caused the damage discussed herein, the
22 damage statistics for both events have been consolidated.

**TABLE 4-7
2019 OCTOBER WIND EVENT
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)**

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital</u>	<u>Expense</u>	<u>CEMA-</u>
		<u>MWC 95</u>	<u>MWC IF</u>	<u>Eligible</u> <u>Spending</u>
1	Contract	\$ 2,043	\$ 269	\$ 2,313
2	Labor	\$ 107	\$ (71)	\$ 36
3	Materials	\$ 125		\$ 125
4	Other	\$ 42	\$ 52	\$ 94
5	Total	\$ 2,317	\$ 250	\$ 2,568

1 Additional information on the October Wind Event can be found
2 in PG&E’s opening testimony in A.20-09-019.⁵ The Glencove,
3 Bethel Island, and Camino fires took place during the October Wind
4 Event and are discussed in more detail below.

5 **2) Glencove Fire**

6 The Glencove Fire (Solano County) began on October 27, 2019
7 off Glen Cove Parkway and Lookout Drive south of Vallejo.

**TABLE 4-8
2019 GLENCOVE FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)**

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital</u>	<u>Expense</u>	<u>CEMA-</u>
		<u>MWC 95</u>	<u>MWC IF</u>	<u>Eligible</u> <u>Spending</u>
1	Contract	\$ 32		\$ 32
2	Labor	\$ 2	\$ 4	\$ 6
3	Materials	\$ 1		\$ 1
4	Other	\$ 1		\$ 1
5	Total	\$ 35	\$ 4	\$ 40

8 Additional information on the Glencove Fire can be found in
9 PG&E’s opening testimony in A.20-09-019.⁶

5 See pp. 3-14 to 3-17 of PG&E’s opening testimony in A.20-09-019.

6 See pp. 3-17 to 3-19 of PG&E’s opening testimony in A.20-09-019.

1 **3) Bethel Island Fire**

2 On October 27, 2019, a fire began on East Cypress Road and
3 Bethel Island Road on Bethel Island (Contra Costa County). The
4 fire burned a total of approximately 200 acres, with several
5 structures being damaged. High wind speeds that morning
6 contributed to the fire’s rapid spread.

TABLE 4-9
2019 BETHEL ISLAND FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital</u> <u>MWC 95</u>	<u>Expense</u> <u>MWC IF</u>	<u>CEMA-</u> <u>Eligible</u> <u>Spending</u>
1	Contract			\$ -
2	Labor			\$ -
3	Materials	\$ 1	\$ -	\$ 1
4	Other			\$ -
5	Total	\$ 1	\$ -	\$ 1

7 Additional information on the Bethel Island Fire can be found in
8 PG&E’s opening testimony in A.20-09-019.⁷

9 **4) Camino Fire**

10 The Camino Fire (Contra Costa County) started on October 27,
11 2019, and burned about five acres, destroying a tennis club building,
12 an outbuilding and minor damage to a residential home.

⁷ See pp. 3-19 to 3-20 of PG&E’s opening testimony in A.20-09-019.

**TABLE 4-10
2019 CAMINO FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)**

<u>Line No.</u>	<u>Cost Category</u>			<u>CEMA-</u>
		<u>Capital</u>	<u>Expense</u>	<u>Eligible</u>
		<u>MWC 95</u>	<u>MWC IF</u>	<u>Spending</u>
1	Contract	\$ 23		\$ 23
2	Labor	\$ 1		\$ 1
3	Materials			
4	Other	\$ 6		\$ 6
5	Total	\$ 31	\$ -	\$ 31

1 Additional information on the Camino Fire can be found in
2 PG&E’s opening testimony in A.20-09-019.⁸

3 **3. 2020 CEMA Events**

4 **a. Creek Fire**

5 The Creek Fire (Fresno and Madera County) began September 4,
6 2020, on both sides of the San Joaquin River near Mammoth Pool,
7 Shaver Lake, Big Creek, and Huntington Lake. The fire burned mostly
8 in the Sierra National Forest. At the time, the Creek Fire was the
9 fourth-largest wildfire in modern California history, and the largest single
10 fire not part of a greater complex.⁹ Weather conditions on September 4,
11 2020, were hot and dry. Conditions started off in the morning with
12 temperatures reaching their morning low of 70 F at observation site
13 SE625¹⁰ and 64.1 F at observation site SE379¹¹ between 6 and 7 a.m.
14 Temperatures continued to climb throughout the day with a high
15 temperature of 81.6 F at SE379 and 90.6 F at SE625. The relative

⁸ See pp. 3-21 to 3-22 of PG&E’s opening testimony in A.20-09-019.

⁹ CAL FIRE Top 20 Largest California Wildfires
(https://www.fire.ca.gov/media/4jandlhh/top20_acres.pdf).

¹⁰ SE625 (Approximately 0.84 miles northeast of the approximate ignition location):
https://mesowest.utah.edu/cgi-bin/droman/meso_base_dyn.cgi?product=&past=1&stn=SE379&unit=0&time=LOCAL&day1=5&month1=09&year1=2020&hour1=1

¹¹ SE379 (Approximately 2.13 miles north-northeast of the approximate ignition location):
https://mesowest.utah.edu/cgi-bin/droman/meso_base_dyn.cgi?product=&past=1&stn=SE379&unit=0&time=LOCAL&day1=5&month1=09&year1=2020&hour1=1

1 humidity remained in the low 20s through the morning and into the early
 2 afternoon hours before dropping into the 10s. The lowest relative
 3 humidity measured was 17 percent at 8:50 p.m. Winds started out of
 4 the northeast early in the morning with winds sustained between
 5 8-12 mph, with wind gusts up to 20 mph at times. The winds gradually
 6 shifted out of the southwest for the late morning through the afternoon
 7 with slightly calmer winds sustained at 2-4 mph and gusts up to 10 mph.
 8 That evening, the winds then shifted out of the northeast and increased
 9 with sustained winds between 4-8 mph and gusts as high as 16 mph.
 10 The NWS Office in Hanford had no RFWs or Fire Weather Watches
 11 active. The fire was contained on December 24, 2020.

12 PG&E incurred \$39.7 million systemwide responding to this fire of
 13 which \$39.7 is related to the declared emergency in CEMA-eligible
 14 counties. The \$39.7 million can be broken down as follows:

**TABLE 4-11
 2020 CREEK FIRE
 COST ELEMENT BREAKDOWN OF COSTS
 (THOUSAND OF DOLLARS)**

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital</u>	<u>Expense</u>	<u>CEMA-</u>
		<u>MWC 95</u>	<u>MWC IF</u>	<u>Eligible</u>
				<u>Spending</u>
1	Contract	\$ 6,906	\$ 20,992	\$ 27,897
2	Labor	\$ 1,929	\$ 5,362	\$ 7,291
3	Materials	\$ 2,493	\$ 306	\$ 2,799
4	Other	\$ 1,113	\$ 608	\$ 1,721
5	Total	\$ 12,441	\$ 27,268	\$ 39,709

15 **1) Damaged Facilities**

16 The Creek Fire burned a total of 379,895 acres and destroyed
 17 853 non-PG&E structures. The fire also destroyed or damaged the
 18 following number of PG&E facilities: 727 poles, 16 transformers,
 19 11 crossarms and 33 spans of distribution conductor.

20 **2) Restoration Activities**

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

1 impacted area. Other activities including but not limited to were
2 traffic control, security services, and necessary restoration activities
3 to restore power.

4 Additional costs in response to the restoration effort are taking
5 place in 2021 and recovery of those costs will be sought in future
6 applications.

7 **b. Glass Fire**

8 The Glass Fire (Sonoma and Napa County) began September 27,
9 2020, on North Fork Crystal Springs Road and Crystal Springs Road.
10 (Near the east side of the vineyard-lined Silverado Trail
11 between St. Helena and Calistoga). The early-morning hours of
12 September 27, 2020, were warm and breezy. Relative humidity values
13 would only reach as high as 45 percent overnight. Winds early were out
14 of the northwest at 5-10 mph with wind gusts as high as 27.8 mph
15 shortly after 4 a.m. Through the morning and into the early afternoon
16 the temperature would continue to climb rapidly as the relative humidity
17 dropped and the winds persisted. A daytime high of 91.2 F would be
18 reached at 5 p.m. and the relative humidity would drop as low as
19 13 percent at 6 p.m.. During this time, the winds continued out of the
20 North with sustained winds between 4-8 mph and some gusts as high as
21 20 mph. The hot temperatures combined with the breezy winds and low
22 relative humidity prompted the NWS Office out of Monterey to issue a
23 RFW from 9 p.m. on the 26th until 9 p.m. on the 28th. The RFW was
24 originally set to expire on the morning of September 28, but was
25 extended at the time it went into effect. The fire was contained on
26 October 20, 2020.

27 PG&E incurred \$112.8 million systemwide responding to this fire of
28 which \$112.8 is related to the declared emergency in CEMA-eligible
29 counties. The \$112.8 million can be broken down as follows:

**TABLE 4-12
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	\$25,305	\$58,851	\$84,156
2	Labor	5,351	10,032	15,383
3	Materials	9,438	347	9,785
4	Other	1,207	2,300	3,507
5	Total	\$41,301	\$71,530	\$112,831

1 **1) Damaged Facilities**

2 The Glass Fire burned a total of 67,484 acres. In regard to
3 non-PG&E facilities, the Glass Fire destroyed 1,555 structures and
4 damaged 282 structures. In regard to PG&E facilities, the Glass
5 Fire destroyed or damaged 1,624 poles, 34 transformers,
6 15 crossarms and 101 spans of distribution conductor.

7 **2) Restoration Activities**

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

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

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

1 **c. Oak Fire**

2 The Oak Fire (Mendocino County) began September 7, 2020,
3 located West of Highway 101, at Big John Road and Skyview Road,
4 Brooktrails Township in Willits. Hot and dry conditions were present
5 early in the morning on September 7, 2020. The early morning low
6 temperature dropped only as low as 81.3 F shortly after 7 a.m. Early
7 morning relative humidity reached a high of only 28 percent, with winds
8 out of the northwest at 2-4 mph and some gusts as high as 11 mph.
9 The high temperature at 2 p.m. reached 97.6 F. Afternoon winds shifted
10 out of the southwest at 5-10 mph with the strongest wind gust of the day
11 recorded after 3pm at 21.6 mph. Relative humidity would reach
12 15 percent after 11 p.m.

13 The high temperatures, low humidity, and breezy winds prompted
14 the NWS to issue a RFW from 10 p.m. on September 7 until the morning
15 of September 9. An Excessive Heat Warning stayed in effect until
16 6 a.m. on September 8th. The fire was contained on September 14,
17 2020.

18 PG&E incurred \$0.5 million systemwide responding to this fire of
19 which \$0.5 is related to the declared emergency in CEMA-eligible
20 counties. The \$0.5 million can be broken down as follows:

**TABLE 4-13
2020 OAK FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)**

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital</u>	<u>Expense</u>	<u>CEMA-</u>
		<u>MWC 95</u>	<u>MWC IF</u>	<u>Eligible</u>
1	Contract	\$ 16	\$ 407	\$ 423
2	Labor	\$ 4	\$ 46	\$ 50
3	Materials	\$ 12		\$ 12
4	Other	\$ (1)	\$ (16)	\$ (17)
5	Total	\$ 31	\$ 437	\$ 468

21 **1) Damaged Facilities**

22 The Oak Fire burned a total of 1,100 acres. In regard to
23 non-PG&E facilities, the fire destroyed one structure and damaged

1 56 structures. In regard to PG&E facilities, the fire destroyed or
2 damaged four poles, and one span of distribution conductor.

3 **2) Restoration Activities**

4 Restoration activities related to the Oak Fire included temporary
5 repairs in certain situations to eliminate unsafe conditions and help
6 restore services more quickly. Permanent repairs were made, and
7 normal operating system configuration was restored via field
8 switching as soon as resources were available and could be
9 efficiently used to do so.

10 **d. August Extreme Heat Event**

11 An extreme heat event began on August 14, 2020, and continued
12 through August 20. A ridge of high pressure steadily built over the
13 four corners region and gradually shifted westward over the territory
14 from August 14 through the 20th. This high-pressure ridge brought
15 extreme temperatures across a large majority of the territory, with
16 multiple extreme heat warnings issued throughout the duration of this
17 event. The 14th saw 343 outages system-wide with extensive outage
18 activity in Diablo, DeAnza, and San Jose division

19 August 14 Record temperatures were:

- 20 • 107 F in Stockton
- 21 • 106 F in Sacramento
- 22 • 71 F at the Sacramento Airport,
- 23 • 78 F in Modesto

24 August 15 Record temperatures were:

- 25 • 109 F in Stockton
- 26 • 111 F in Sacramento
- 27 • 109 F at the Sacramento Airport,
- 28 • 105 F in Modesto

29 August 16 Record temperatures were:

- 30 • 106 F in Stockton
- 31 • 112 F in Sacramento
- 32 • 112 F at the Sacramento Airport,
- 33 • 111 F in Modesto

- 1 • 107 Ukiah
- 2 August 17 Record temperatures were:
- 3 • 109 F in Stockton
- 4 • 105 F in Modesto
- 5 August 18 Record temperatures were:
- 6 • 107 F in Stockton
- 7 • 109 F in Sacramento
- 8 • 112 F at the Sacramento Airport,
- 9 • 106 F in Modesto
- 10 PG&E incurred \$30 million systemwide responding to this event of
- 11 which \$30 million is related to the declared emergency in CEMA-eligible
- 12 counties. The \$30 million can be broken down as follows:

**TABLE 4-14
2020 AUGUST 14-20 HEAT EVENT
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)**

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$7,110	\$3,171	\$10,281
2	Labor	7,515	5,200	12,715
3	Materials	3,762	227	3,990
4	Other	2,687	380	3,067
5	Total	\$21,075	\$8,977	\$30,052

1) Damaged Facilities

Extreme temperatures drive the use of air conditioning and increased demand for electricity on the grid. Heat also impacts PG&E’s electrical equipment if operating maximum temperatures are exceeded. As demand for electricity increases the equipment heats and, combined with the ambient temperature, cannot cool down as normal. As such, extra demand and heat can damage the electric system, stressing electrical generation and distribution infrastructure and inducing failure.

The heat event resulted in damage to PG&E facilities, including 51 poles, 1,059 transformers, 44 crossarms and 330 spans of distribution conductor.

1 **2) Restoration Activities**

2 The damaged items referenced above were repaired to restore
3 power to customers.

4 **e. August 2020 Fires**

5 Five complex fires, known as the LNU, CZU, NCF, SCU, and August
6 Complex fires, were the most destructive events during the declared
7 August Fires and Extreme Weather Conditions, with many other smaller
8 fire occurring during this time. Due to the multitude of events, PG&E
9 has provided a total cost element break down by cost element, and then
10 by event:

**TABLE 4-15
2020 AUGUST FIRES
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)**

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital</u> <u>MWC 95</u>	<u>Expense</u> <u>MWC IF</u>	<u>CEMA-</u> <u>Eligible</u> <u>Spending</u>
1	Contract	\$ 34,210	\$ 200,521	\$ 234,731
2	Labor	\$ 24,027	\$ 28,386	\$ 52,414
3	Materials	\$ 9,862	\$ 3,157	\$ 13,019
4	Other	\$ 5,672	\$ 8,090	\$ 13,761
5	Total	\$ 73,770	\$ 240,154	\$ 313,925

11 Below is the cost breakdown of the \$314 million incurred during the
12 August 2020 Events through December 31, 2020.

**TABLE 4-16
2020 AUGUST FIRES
COST ELEMENT BREAKDOWN BY EVENT
(THOUSAND OF DOLLARS)**

Line No.	Event By Year	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	2020 Aug LNU Complex Fire	\$40,609	\$59,561	\$100,170
2	2020 Aug CZU Complex Fire	11,401	83,340	94,741
3	2020 Sep North Complex Fire	6,516	75,683	82,198
4	2020 Aug SCU Fire	8,694	8,723	17,416
5	2020 Aug Complex Fire	3,548	3,209	6,757
6	2020 Aug 14 Fire and Ext. Heat Event	-	5,048	5,048
7	2020 Aug Carmel Fire	2,575	2,310	4,884
8	2020 Aug Jones Fire	266	727	993
9	2020 Aug Trans Capacity Fire	-	634	634
10	2020 Aug MOC Fire	80	329	409
11	2020 Aug Event Temp Gen	-	351	351
12	2020 Aug Woodward Fire	65	174	239
13	2020 Aug Potter Ravine Fire	18	66	83
14	Grant Total	\$73,770	\$240,154	\$313,925

1 It should be noted that many smaller fires during this time later
2 merged to form one of the complex fires. PG&E has separated the
3 costs into the respective events based on the classification of each
4 event.

5 Figure 4-1 illustrates the number of lightning strikes that took place
6 during August 16 and August 17, which coincided with many of the
7 August fires.

**FIGURE 4-1
AUGUST LIGHTNING STRIKES**

Aug 16, 2020 Strike Counts				Aug 17, 2020 Strike Counts			
Division	< 3k ft	> 3k ft	Total	Division	< 3k ft	> 3k ft	Total
Humboldt	42	32	74	Humboldt	848	304	1152
Sonoma	70	0	70	Sonoma	283	1	284
North Valley	44	20	64	North Valley	1307	1000	2307
Sacramento	40	0	40	Sacramento	391	0	391
Sierra	12	0	12	Sierra	303	12	315
North Bay	38	0	38	North Bay	442	0	442
San Francisco	4	0	4	San Francisco	0	0	0
East Bay	3	0	3	East Bay	0	0	0
Diablo	101	0	101	Diablo	1	0	1
Peninsula	143	0	143	Peninsula	0	0	0
Mission	183	0	183	Mission	0	0	0
De Anza	21	0	21	De Anza	0	0	0
San Jose	66	4	70	San Jose	1	0	1
Central Coast	97	5	102	Central Coast	0	0	0
Los Padres	6	0	6	Los Padres	0	0	0
Stockton	49	20	69	Stockton	1	1	2
Yosemite	21	8	29	Yosemite	0	58	58
Fresno	6	62	68	Fresno	0	0	0
Kern	1	1	2	Kern	0	0	0
Total	947	152	1099	Total	3577	1376	4953

1) Lake Napa Unit (LNU) Lighting Complex Fire

August 16 and 17 saw widespread lightning from numerous rounds of thunderstorms passing through the area, resulting in numerous severe thunderstorm warnings issued by the NWS in Monterey. With the relative humidity mostly below 50 percent, this allowed any rain from the thunderstorms to evaporate prior to reaching the ground, elevating the risk for wildfires to spark with the cloud to ground lighting. As such, RFWs were issued due to lightning and dry conditions at the ground. 1,099 lightning strikes occurred within the territory on August 16, including 38 in the North Bay where the Complex started. There were also 4,953 strikes on August 17, including 442 in the North Bay.¹²

¹² See Figure 4-1.

1 The LNU complex fire began August 17, 2020, in multiple
 2 locations throughout Napa, Sonoma, Lake, Yolo, and Solano
 3 Counties. This complex fire totaled approximately 250 fires. The
 4 fire was contained on October 2, 2020.

5 PG&E incurred \$100.2 million systemwide responding to this fire
 6 of which \$100.2 million is related to the declared emergency in
 7 CEMA-eligible counties.

8 Final 2020 costs for this event are still being determined due to
 9 the size and complexity related to the restoration activities
 10 performed.

11 The \$100.2 million can be broken down as follows:

TABLE 4-17
2020 LNU LIGHTING COMPLEX FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

<u>Line No.</u>	<u>Cost Category</u>	<u>CEMA-</u>		
		<u>Capital</u>	<u>Expense</u>	<u>Eligible</u>
		<u>MWC 95</u>	<u>MWC IF</u>	<u>Spending</u>
1	Contract	\$ 21,688	\$ 46,630	\$ 68,318
2	Labor	\$ 12,295	\$ 9,608	\$ 21,904
3	Materials	\$ 4,494	\$ 1,560	\$ 6,054
4	Other	\$ 2,132	\$ 1,762	\$ 3,894
5	Total	\$ 40,609	\$ 59,561	\$ 100,170

12 **a) Damaged Facilities**

13 The LNU complex fire burned a total of 363,220 acres. In
 14 regard to non-PG&E facilities, 1,491 structures were destroyed,
 15 and 232 were damaged. in regard to PG&E facilities, the LNU
 16 complex fired destroyed or damaged 1,972 poles,
 17 55 transformers, 36 crossarms, and 120 spans of distribution
 18 conductor.

19 **b) Restoration Activities**

20 PG&E restoration activities include the formation of a base
 21 camp and a micro site to better and more efficiently respond to
 22 the number of fires that were burning in that area. Security
 23 services, traffic control and helicopters were used to help in the

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

5 **2) Santa Cruz Unit (CZU) Lightning Complex Fire**

6 During the morning of August 16, a large weather system
7 brought a continued train of thunderstorms onshore across the area.
8 This continuous line of thunderstorms resulted in numerous severe
9 thunderstorm warnings across the area. Due to dry conditions at
10 the surface with relative humidity dropping below 50 percent during
11 the afternoon, any rainfall from these thunderstorms evaporated
12 prior to hitting the ground. This resulted in any vegetation remaining
13 dry. As such, when a lightning strike did occur, the likelihood of a
14 wildfire starting was greatly increased. Due to this fact, there were
15 several RFWs issued across much of the Bay Area. On August 16,
16 there were a total of 1,099 lightning strikes in the territory, and
17 102 strikes in the Central Coast Division where the CZU complex
18 fire started.¹³ The CZU Lightning Complex fire began August 16,
19 and continued through September 22, 2020, in various locations
20 across San Mateo and Santa Cruz Counties.

21 PG&E incurred \$94.7 million systemwide responding to this fire
22 of which \$94.7 million is related to the declared emergency in
23 CEMA-eligible counties. The \$94.7 million can be broken down as
24 follows:

¹³ See Figure 4-1.

TABLE 4-18
2020 CZU LIGHTNING COMPLEX
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

<u>Line No.</u>	<u>Cost Category</u>	<u>CEMA-</u>		
		<u>Capital</u>	<u>Expense</u>	<u>Eligible</u>
		<u>MWC 95</u>	<u>MWC IF</u>	<u>Spending</u>
1	Contract	\$ 4,734	\$ 72,135	\$ 76,869
2	Labor	\$ 3,892	\$ 7,384	\$ 11,277
3	Materials	\$ 2,230	\$ 503	\$ 2,733
4	Other	\$ 545	\$ 3,318	\$ 3,863
5	Total	<u>\$11,401</u>	<u>\$ 83,340</u>	<u>\$ 94,741</u>

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a) Damaged Facilities

The CZU Lightning Complex Fire burned a total of 86,509 acres. In regard to non-PG&E structures, the fire destroyed 1,490 structures and damaged 140 structures.

In regard to PG&E structures, the fire destroyed or damaged 1,381 poles, 41 transformers, 24 crossarms and 241 spans of distribution conductor.

b) Restoration Activities

PG&E restoration activities included the formation of a base camp to better and more efficiently respond to the number of fires that were burning in that area. Security services, traffic control and helicopters were used to aid in the effort. 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.

3) North Complex Fire (NCF)

A large complex of thunderstorms rolled through the North Valley area throughout much of the day on August 17. This continuous complex of thunderstorms was also met with dry conditions at the surface. Because the relative humidity was below 50 percent during much of the event, any rainfall evaporated prior to reaching the surface. As a result, any lightning strikes had a higher probability of sparking a wildfire. Due to these factors, the NWS in Sacramento issued RFWs around the area for dry lightning. In total

1 there were 4,953 lighting strikes in the territory, with 2,307 in the
 2 North Valley division where the complex started.¹⁴

3 The NCF was a massive wildfire complex that burned in the
 4 Plumas National Forest in Northern California in the counties of
 5 Plumas and Butte. Twenty-one fires were started by lightning on
 6 August 17, 2020. By September 5, each individual fire had been put
 7 out with the exception of the Claremont and Bear Fires, which
 8 merged on that date, and the Sheep Fire, which was then
 9 designated a separate incident. On September 8, strong winds
 10 caused the Bear/Claremont Fire to explode in size, rapidly
 11 spreading to the Southwest. The fire was contained on
 12 December 3, 2020.

13 The fire response was managed by the U.S. Forest Service in
 14 conjunction with CAL FIRE. At the time the NCF was the sixth
 15 largest in California's modern history.

16 PG&E incurred \$82.2 million systemwide responding to this fire
 17 of which \$82.2 million is related to the declared emergency in
 18 CEMA-eligible counties. The \$82.2 million can be broken down as
 19 follows:

TABLE 4-19
2020 NORTH COMPLEX FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$966	\$66,639	\$67,606
2	Labor	3,055	6,549	9,604
3	Materials	439	537	976
4	Other	2,055	1,957	4,012
5	Total	\$6,516	\$75,683	\$82,198

20 **a) Damaged Facilities**

21 The NCF burned a total of 318,935 acres. In regard to
 22 non-PG&E structures, the fire destroyed 2,455 structures. In

¹⁴ See Figure 4-1.

1 regard to PG&E structure, the fire destroyed or damaged
2 3,060 poles, 12 transformers, 18 crossarms and 12 spans of
3 distribution conductor.

4 **b) Restoration Activities**

5 PG&E restoration activities include the formation of a micro
6 sites (smaller base camps), and temporary generation facilities
7 to better service our customers and crews.

8 Crews worked within the fire footprint which includes
9 identifying and felling trees, and other debris that are either an
10 immediate hazard to either our personnel, or our infrastructure.
11 The majority of these costs were contract costs.

12 **4) SCU (Santa Clara Unit) Lightning Complex Fire**

13 The SCU Fire began August 18, 2020, in multiple locations
14 throughout Santa Clara, Alameda, Contra Costa County,
15 San Joaquin, Merced, and Stanislaus Counties. During the
16 morning hours of August 16, 2020, a large weather system
17 produced multiple rounds of thunderstorms that moved through the
18 area and resulted in numerous severe thunderstorm warnings.
19 These thunderstorms produced 1,099 lightning strikes across the
20 territory, including 70 in the San Jose Division where the complex
21 started. This continuous line of thunderstorms through the morning
22 produced multiple cloud-to-ground lightning strikes. The surface was
23 also very dry at the time of the thunderstorms. Despite the
24 temperature climbing through the 70s, the relative humidity was
25 only around 50 percent. While the thunderstorms moved over the
26 area, any rain evaporated prior to reaching the ground. Given the
27 increased wildfire threat owing to the dry conditions and high
28 concentration of lightning, RFWs were issued in the area.¹⁵ The fire
29 was contained on October 1, 2020

30 PG&E incurred \$17.4 million systemwide responding to this
31 fire of which \$17.4 million is related to the declared emergency in
32 CEMA-eligible counties.

¹⁵ See Figure 4-1.

1

The \$17.4 million can be broken down as follows:

**TABLE 4-20
2020 SCU FIRES
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)**

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital</u>	<u>Expense</u>	<u>CEMA-</u>
		<u>MWC 95</u>	<u>MWC IF</u>	<u>Eligible</u>
				<u>Spending</u>
1	Contract	\$ 4,033	\$ 6,262	\$ 10,294
2	Labor	\$ 2,707	\$ 1,886	\$ 4,593
3	Materials	\$ 1,479	\$ 71	\$ 1,549
4	Other	\$ 475	\$ 504	\$ 980
5	Total	\$ 8,694	\$ 8,723	\$ 17,416

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a) Damaged Facilities

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The SCU Fire burned a total of 396,624 acres. In regard to non-PG&E facilities, the fire destroyed 222 structures and damaged 26 structures. In regard to PG&E facilities, the fire destroyed or damaged 325 poles, two transformers, nine crossarms and three spans of distribution conductor.

8

b) Restoration Activities

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PG&E restoration activities include the formation of a base camp, and a micro site to better and more efficiently respond to the number of fires that were burning in that area. Security services, traffic control and helicopters were used to help in the effort. 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.

16

5) 2020 August Complex Fire

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The August Complex Fire started on August 16, 2020, in the Shasta-Trinity and Six Rivers National Forests (Mendocino County), burning over one million acres (1,032,648). More than 935 buildings were destroyed. Since this fire occurred primarily National Forests, there was less damage to PG&E’s infrastructure compared to other fires of similar size.

1 PG&E incurred \$6.8 million systemwide responding to this fire of
 2 which \$6.8 million is related to the declared emergency in
 3 CEMA-eligible counties. The \$6.8 million can be broken down as
 4 follows:

**TABLE 4-21
 2020 AUGUST COMPLEX FIRES
 COST ELEMENT BREAKDOWN OF COSTS
 (THOUSAND OF DOLLARS)**

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$1,544	\$1,854	\$3,398
2	Labor	1,048	1,071	2,120
3	Materials	743	239	982
4	Other	213	45	257
5	Total	\$3,548	\$3,209	\$6,757

5 **a) Damaged Facilities**

6 The fire was contained on November 11, 2020, but not
 7 before damaging PG&E facilities, including 84 poles,
 8 five transformers, nine crossarms, and 14 spans of distribution
 9 conductor

10 **b) Restoration Activities**

11 PG&E restoration activities include security services, traffic
 12 control and helicopters were used to help in the effort. Crews
 13 worked within the fire footprint which includes identifying and
 14 felling trees, and other debris that are either an immediate
 15 hazard to either our personnel, or our infrastructure.
 16 Additionally, crews repaired or replaced damaged infrastructure
 17 as need to restore power as needed.

18 **6) 2020 August 14 Fire and Extreme Heat Event**

19 The August Fire and Heat Event took place between August 14
 20 and August 20, 2020. The Heat Event overlapped the fires, and the
 21 Emergency Operation Center (EOC) support order was created to
 22 support those events. The EOC was activated to support the
 23 response of these fires. Hence this support order allows for the

1 charging of time of billable staff who supported a multiple of events
 2 and whose time cannot be easily or efficiently identified in the
 3 support of only one event. (These costs do not include any
 4 damaged PG&E facilities).

5 PG&E incurred \$5 million systemwide responding to this event
 6 of which \$5 million is related to the declared emergency in
 7 CEMA-eligible counties. The \$5 million can be broken down as
 8 follows:

TABLE 4-22
2020 AUGUST 14 FIRE AND HEAT EVENT
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital</u>	<u>Expense</u>	<u>CEMA-</u>
		<u>MWC 95</u>	<u>MWC IF</u>	<u>Eligible</u>
				<u>Spending</u>
1	Contract		\$ 4,408	\$ 4,408
2	Labor		\$ 543	\$ 543
3	Materials		\$ 71	\$ 71
4	Other		\$ 26	\$ 26
5	Total	\$ -	\$ 5,048	\$ 5,048

9 **7) Carmel Fire**

10 The Carmel Fire started on August 18, 2020, between
 11 Cachagua road and Carmel Valley road, southeast of Carmel, in
 12 Monterey County. The fire was contained September 4, 2020. It
 13 burned 6,905 acres, damaged seven structures, and destroyed
 14 73 structures.

15 PG&E incurred \$4.9 million systemwide responding to this fire of
 16 which \$4.9 million is related to the declared emergency in
 17 CEMA-eligible counties. The \$4.9 million can be broken down as
 18 follows:

TABLE 4-23
2020 AUGUST CARMEL FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital</u> <u>MWC 95</u>	<u>Expense</u> <u>MWC IF</u>	<u>CEMA-Eligible</u> <u>Spending</u>
1	Contract	\$ 1,163	\$ 1,465	\$ 2,628
2	Labor	\$ 901	\$ 723	\$ 1,624
3	Materials	\$ 371	\$ 71	\$ 442
4	Other	\$ 139	\$ 51	\$ 190
5	Total	<u>\$ 2,575</u>	<u>\$ 2,310</u>	<u>\$ 4,884</u>

1 The fire was contained on January 11, 2021, but not before
2 damaging PG&E facilities, including 126 poles, nine transformers,
3 seven crossarms and five spans of distribution conductor.

4 **8) Jones Fire**

5 The Jones Fire started on August 17, 2020, between Jones Bar
6 road and Yuba River Drainage, northwest of Nevada City in the
7 county of Nevada. It was fully contained on August 28, 2020. The
8 fires burned 705 acres, damaged three structures, and destroyed
9 21 structures.

10 PG&E incurred \$0.9 million systemwide responding to this fire of
11 which \$0.9 million is related to the declared emergency in
12 CEMA-eligible counties. The \$0.9 million can be broken down as
13 follows:

TABLE 4-24
2020 AUGUST JONES FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

<u>Line</u> <u>No.</u>	<u>Cost Category</u>	<u>Capital</u> <u>MWC 95</u>	<u>Expense</u> <u>MWC IF</u>	<u>CEMA-Eligible</u> <u>Spending</u>
1	Contract	\$24	\$586	\$610
2	Labor	114	137	251
3	Materials	91	-	91
4	Other	36	3	39
5	Total	<u>\$266</u>	<u>\$727</u>	<u>\$993</u>

1 The fire was contained on August 28, 2020, but not before
 2 damaging PG&E facilities, including 11 poles, three transformers,
 3 and one span of distribution conductor.

4 **9) August Transmission Capacity EOC**

5 The August Transmission Capacity event was an EOC support
 6 order created to support the multitude of events that occurred during
 7 this time (this was established only for Distribution and not
 8 Transmission costs). This EOC order was created support the
 9 response of these August fires. Hence this support order allows for
 10 the charging of time of billable staff who supported a multiple of
 11 events and whose time cannot be easily or efficiently identified in
 12 the support of only one event. (These costs do not include any
 13 damaged PG&E facilities).

14 PG&E incurred \$0.6 million systemwide responding to the
 15 August fires. This EOC order included costs related to support of
 16 the EOC of which \$0.6 million is related to the declared emergency
 17 in CEMA-eligible counties. The \$0.6 million can be broken down as
 18 follows:

**TABLE 4-25
 2020 AUGUST TRANSMISSION CAPACITY
 COST ELEMENT BREAKDOWN OF COSTS
 (THOUSAND OF DOLLARS)**

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital</u> <u>MWC 95</u>	<u>Expense</u> <u>MWC IF</u>	<u>CEMA- Eligible</u> <u>Spending</u>
1	Contract		\$ 184	\$ 184
2	Labor		\$ 130	\$ 130
3	Materials		\$ 43	\$ 43
4	Other		\$ 277	\$ 277
5	Total	\$ -	\$ 634	\$ 634

19 **10) Moc Fire**

20 The Moc Fire began on August 20, 2020, near Highway 49 and
 21 Highway 120 in Moccasin in Tuolumne County. The fire was fully
 22 contained on August 30, after burning 2,857 acres.

1 PG&E incurred \$0.4 million systemwide responding to this fire of
 2 which \$0.4 million is related to the declared emergency in
 3 CEMA-eligible counties. The \$0.4 million can be broken down as
 4 follows:

**TABLE 4-26
 2020 AUGUST MOC FIRE
 COST ELEMENT BREAKDOWN OF COSTS
 (THOUSAND OF DOLLARS)**

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$28	\$67	\$95
2	Labor	6	255	261
3	Materials	14	4	18
4	Other	30	4	34
5	Total	\$80	\$329	\$409

5 The fire damaged PG&E facilities, including one pole.

6 **a) August Event Temporary Generation**

7 The August Event Temporary Generation costs relate to the
 8 support of several different areas in response to the 2020
 9 August fires. These costs include support for areas of
 10 Monticello 1101, Elk Creek, Mt. Hamilton, Gordon Valley, and
 11 Spanish Flat. (These costs do not include any damaged PG&E
 12 facilities).

13 PG&E incurred \$0.4 million systemwide supporting the
 14 August fires. These Temporary Generation costs related to the
 15 August Fires are \$0.4 million and is related to the declared
 16 emergency in CEMA-eligible counties. The \$0.4 million can be
 17 broken down as follows:

TABLE 4-27
2020 AUGUST EVENT TEMP GEN
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	–	\$220	\$220
2	Labor	–	28	28
3	Materials	–	1	1
4	Other	–	102	102
5	Total	–	\$351	\$351

11) Woodward Fire

The Woodward Fire began on August 18, 2020, near the Woodward Valley trail, east of Olema, in Point Reyes National Seashore National Park in Marin County. The fire was fully contained by October 1, 2020. It burned 4,929 acres and damaged PG&E facilities, including one crossarm.

PG&E incurred \$0.2 million systemwide responding to this fire of which \$0.2 million is related to the declared emergency in CEMA-eligible counties. The \$0.2 million can be broken down as follows:

TABLE 4-28
2020 AUGUST WOODWARD FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$14	\$16	\$30
2	Labor	6	58	64
3	Materials	–	57	57
4	Other	45	43	88
5	Total	\$65	\$174	\$239

12) Potters Ravine Fire

The Potters Fire began on August 18, 2020, near Oroville at Potters Ravine Drive and Oregon Gulch Road in Butte County. The fire burned 927 acres and was fully contained on September 5,

1 2020, damaging PG&E facilities, including one pole and one
2 crossarm.

3 PG&E incurred \$0.1 million systemwide responding to this fire of
4 which \$0.1 million is related to the declared emergency in
5 CEMA-eligible counties. The \$0.1 million can be broken down as
6 follows:

TABLE 4-29
2020 AUGUST POTTER RAVINE FIRE
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

<u>Line No.</u>	<u>Cost Category</u>	<u>Capital</u>	<u>Expense</u>	<u>CEMA-</u>
		<u>MWC 95</u>	<u>MWC IF</u>	<u>Eligible</u>
				<u>Spending</u>
1	Contract	\$ 16	\$ 55	\$ 71
2	Labor	\$ 1	\$ 13	\$ 14
3	Materials	\$ 1		\$ 1
4	Other	\$ 0	\$ (3)	\$ (2)
5	Total	\$ 18	\$ 66	\$ 83

7 **f. September Extreme Heat Event**

8 A ridge of high pressure settled over much of PG&E's service
9 territory on September 2, remaining over the territory through the week
10 and resulting in extremely hot temperatures. Throughout the duration of
11 this event, but particularly during the second half, dozens of record high
12 temperatures were reached across large parts of the territory with
13 extreme heat warnings issued across various NWS Offices throughout
14 the territory. Fire Weather Watches and RFWs were issued during the
15 second half of this heat event across various NWS Offices.

16 PG&E incurred \$9.2 million systemwide responding to an extreme
17 heat event lasting from September 2-8, 2020, of which \$9.2 million is
18 related to the declared emergency in CEMA-eligible counties. The
19 \$9.2 million can be broken down as follows:

TABLE 4-30
2020 SEPTEMBER EXTREME HEAT EVENT
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

Line No.	Cost Category	Capital MWC 95	Expense MWC IF	CEMA-Eligible Spending
1	Contract	\$1,754	\$763	\$2,517
2	Labor	2,782	1,586	4,368
3	Materials	410	4	414
4	Other	1,994	(45)	1,950
5	Total	\$6,940	\$2,309	\$9,249

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1) Damaged Facilities

The heat event damaged PG&E facilities, including one transformer, one crossarms and six spans of distribution conductor.

2) Restoration Activities

Restoration actives restored service impacted by this event. However, not all of the costs were captured during this year; additional costs related to the restoration were captured in 2021 and will be sought in a future application.

D. Conclusion

This chapter describes PG&E’s electric distribution restoration activities associated with the CEMA Events that occurred between 2015 and 2020 with costs ending December 31, 2020. 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. Incident Levels	4-4
B. Outage Communication	4-7
C. Emergency Recovery Cost Management	4-8
D. Incrementality	4-9
E. Cost Reasonableness	4-12
1. PG&E's Response Was Driven by the Requirements of GO 166	4-13
2. Performance Metrics Demonstrate the Effectiveness of PG&E's Response	4-14

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **CHAPTER 4**
3 **ATTACHMENT A**
4 **ELECTRIC EMERGENCY RESPONSE ACTIVITIES**

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

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

- 19 • Standard 1 – Prepare an emergency response plan and update the plan
20 annually;
- 21 • Standard 2 – Enter into mutual assistance agreements with other utilities;
- 22 • Standard 3 – Conduct annual emergency training and exercises using the
23 utilities emergency response plan;
- 24 • Standard 4 – Develop a strategy for informing the public and relevant agencies
25 of a major outage;
- 26 • Standard 5 – Coordinate internal activities during a major outage in a
27 timely manner;
- 28 • Standard 6 – Notify relevant individuals and agencies of an emergency or major
29 outage in a timely manner;
- 30 • Standard 7 – Evaluate the need for mutual assistance during a major outage;

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

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

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

16 The CERP provides a number of functions including:

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

24 The Electric Annex, one of the many Lines of Business (LOB) and
25 hazard-specific annexes within the CERP provides an outline of PG&E’s electric
26 Emergency Management Organization (EMO) structure, roles and responsibilities,
27 and describes the activities undertaken in response to electric emergency outage
28 situations.

29 The Electric Annex is a key element to ensure the Company is prepared for
30 emergencies in order to minimize damage and inconvenience to the public that may
31 occur as a result of electric system failures, major outages, or hazards posed by
32 damage to electric facilities.

33 The Electric Annex’s purpose is to serve as:

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

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

14 PG&E's service territory is divided into four regions. These regions, in turn,
15 consist of 19 divisions. PG&E's electric system contains approximately
16 80,390 primary circuit miles of overhead distribution lines, approximately
17 26,980 primary circuit miles of underground lines, and approximately
18 907,830 distribution transformers. The overhead lines, supported by approximately
19 2.3 million poles, are particularly susceptible to damage from catastrophic events
20 like storms and fires. PG&E's Distribution System Operations (DSO) monitors the
21 distribution grid to identify outages and directs the scheduling and dispatching of
22 field personnel to address identified abnormal conditions. PG&E typically identifies
23 outages through alarms from field devices such as circuit breakers or reclosers,
24 SmartMeter™ data, notifications from police and fire departments, preventive
25 maintenance patrols and inspections, and/or by telephone calls from customers who
26 are experiencing an outage. Once outages have been identified, personnel are
27 directed to address the issues.

28 Part of PG&E's proactive approach to anticipate events is the use of the DSO
29 Storm Outage Prediction Project (SOPP) model. This model evaluates potential
30 impacts to the electric system from forecast adverse weather, translates this into
31 expected outage activity, and estimates the resources required to respond
32 effectively. The model has evolved into a key component of the PG&E Electric
33 Emergency Recovery Program (ERP). Using the detailed information that the DSO
34 SOPP model provides, PG&E can preschedule resources several days in advance

1 of an anticipated major adverse weather event. DSO SOPP model improvements
2 have enabled PG&E to become more effective in preparing for emergency outages
3 in support of public and system safety and work efficiency, for major events, and for
4 smaller and more frequent day-to-day weather challenges.

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

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

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

28 **A. Incident Levels**

29 PG&E has five incident levels, which are described below. PG&E’s incident
30 levels function as a decision-support tool that helps determine the actions PG&E
31 may need to employ. Level 1 emergencies are classified as routine. Level 2
32 emergencies may be classified as routine if the local Operational Emergency
33 Center (OEC) is not activated or is activated for communications only. OEC
34 communications-only activations are used for pre-staging of resources, resource

1 support for other affected OECs, significant media impacts, large non-incident
 2 major events (e.g., conventions or major sporting events), or outages requiring
 3 significant environmental impact. These activities are all considered
 4 Routine Emergency.

5 Major Emergencies are typically Level 2 through 5 emergencies. A Level 2
 6 emergency would be considered major if an OEC is activated. OECs are
 7 positioned within each region and are activated separately in individual division
 8 locations. OECs can be activated when a division exceeds the total number of
 9 outages (transformer level and above outages) noted in Table 4A-1 below and
 10 field resources (i.e., Troublemens and crews) to sufficiently support outage
 11 activity have been exhausted. The outage numbers vary by division due to
 12 differences in geographical size, electric infrastructure design (e.g., overhead
 13 versus underground, urban versus rural), outage history, and resource
 14 availability. Occasionally, OECs will activate based on anticipated outage
 15 activity determined by the DSO SOPP model to support public safety and
 16 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

1 PG&E Incident Levels:

- 2 • Level 1 – Routine: A Level 1 emergency is typically at the local level,
3 involving a limited number of customers with an anticipated restoration
4 response time within 24 hours. In a Level 1 emergency, PG&E can
5 respond sufficiently using its standard operating mode and local resources.
6 The local operating departments coordinate resource deployment in a
7 Level 1 emergency. This level does not require the activation of an
8 emergency center;
- 9 • Level 2 – Elevated: Level 2 emergencies are defined as a pending potential
10 incident or a local emergency that may require more than routine operations
11 response. Resources are mainly local, but there is a possibility that
12 resources may need to move within the region. For Level 2 emergencies,
13 an OEC may be activated for communications only or fully activated to
14 provide oversight and support at a divisional level;
- 15 • Level 3 – Serious: Level 3 emergencies are serious incidents involving
16 large numbers of customers. Resources mainly move within the region, but
17 may need to move between regions. In Level 3 emergencies, OECs are
18 activated to direct and coordinate the personnel necessary to assess
19 damages, secure hazardous situations, restore service, and communicate
20 status information internally and externally. Regional Emergency Center
21 (REC) and Emergency Operations Center (EOC) activation is possible. The
22 REC provides oversight and support to the OEC(s) at a regional level. As
23 an event escalates, the REC becomes the point of contact for information
24 and managing escalated OEC issues;
- 25 • Level 4 – Severe: Level 4 is an escalating incident with companywide
26 impact or extended multiple emergency incidents that impact a large number
27 of customers. Resources move between regions, general contractors are
28 utilized, and mutual aid may be needed. During a Level 4 emergency, the
29 OEC, REC and EOC are activated. Additionally, the Emergency
30 Preparedness and Response team assumes incident command; and
- 31 • Level 5 – Catastrophic: Level 5 is a catastrophic event that includes multiple
32 emergency incidents, impacts a large number of customers, has a
33 significant cost, and significant infrastructure risk/damage. This level of
34 emergency affects the entire Company and the ability to conduct business

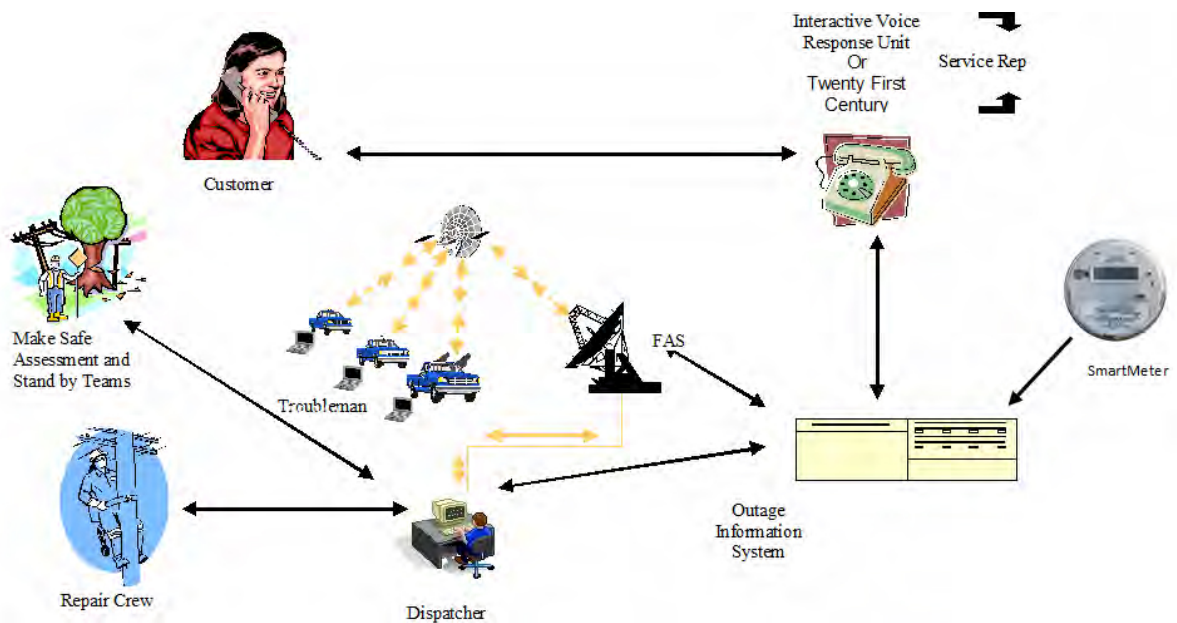
1 operations. The full mobilization of Company resources is needed to
2 respond, and mutual aid resources are needed. During a Level 5 event, all
3 emergency centers are activated, and the Emergency Preparedness and
4 Response team assumes incident command.

5 B. Outage Communication

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

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

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



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

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

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

18 As information is recorded in the OIS, it becomes accessible to customers
19 through PG&E's call center resources. These resources include Customer
20 Service Representatives, as well as PG&E's high-volume Interactive Voice
21 Response Units. As the outage progresses and more information becomes
22 available, PG&E can provide customers with increasing amounts of information,
23 such as an estimated time of arrival for field response personnel
24 (e.g., Troublemens and construction crews), the outage cause (if known), and
25 ETOR when available.

26 **C. Emergency Recovery Cost Management**

27 PG&E divisions follow specific procedures for recording expenditures
28 associated with the response and repair of damage to Company facilities.
29 During the occurrence of a major event, affected divisions are instructed to
30 separately track and report the costs incurred for restoring utility service and
31 repairing damaged facilities associated with that event. The divisions segregate

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 these costs by creating “specific orders”³ to capture repair, replacement, and
2 service restoration costs. These specific orders are created for both capital and
3 expense and for both overhead and underground restoration work, by county
4 within each division. The orders are created using a specific naming convention
5 to identify the business region, division, county, and event for which the order
6 is created.

7 The Finance Section Chief within the OEC, or the Incident Management
8 Team (IMT), is responsible for monitoring costs, developing financial accounting
9 strategy and providing charging guidance during the incident. Costs are closely
10 monitored and reviewed to ensure they are recorded in the correct major work
11 category and aligned with the correct LOB. Where an event affects a number of
12 PG&E facilities across wide geographic regions, multiple specific orders are
13 used to ensure the proper reporting and control of system repairs and
14 restoration work. PG&E’s Business Finance Department, ERP Manager, and
15 the affected divisions review the orders to ensure that the costs charged to the
16 specific orders occurred within the timeframes of the event, are in accordance
17 with the major event charging guidelines, and were in the counties covered by
18 the orders.

19 **D. Incrementality**

20 CEMA event costs are explicitly removed from Electric Distribution’s
21 historical spending when the Electric Distribution’s General Rate Case (GRC)
22 forecast is developed. In the GRC, PG&E forecasts and records in Major Work
23 Categories (MWC) IF (Expense)⁴ and 95 (Capital)⁵ all costs associated with
24 electric distribution major emergency response that are not declared disasters

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.

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.

1 (i.e., non-CEMA events).⁶ The MWC IF and MWC 95 forecast in the GRC are
2 typically developed by taking an average of historical spending.

3 PG&E operating departments plan their labor by month, and specifically plan
4 a set amount of units of work for normal business operations to respond to
5 day-to-day emergencies and for restoration work associated with a major
6 emergency.⁷ A unit of work is a Priority-A Electric Corrective (EC) tag.⁸ As with
7 costs, units of work are forecasted by both capital and expense. All emergency
8 repairs performed on the distribution system are also captured in the form of
9 units. Operating departments' planned units of work for responding to
10 emergencies are based on historical recorded expenditures and unit volume.

11 Responding to emergency situations is one of PG&E's highest priorities.
12 When a major event impacts the service territory, scheduled work is put on hold,
13 and resources are re-deployed to the higher priority work of restoring customers.
14 Thus, in an emergency, planned units of work for normal day-to-day business
15 operations may be displaced by the units of work for responding to the
16 emergency.

17 The planned work displaced by emergency work must still be completed.
18 This work is re-prioritized and re-scheduled, potentially causing other scheduled
19 work to also be moved farther out in time. It can take from a few months to a

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.

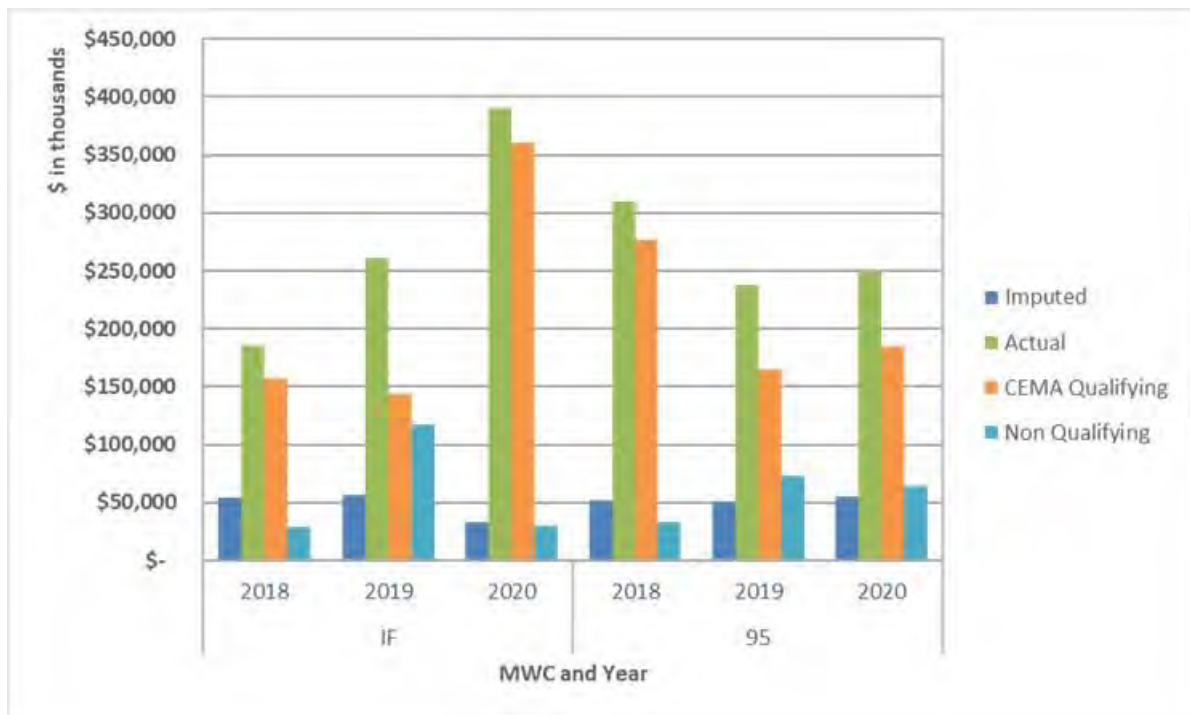
7 A "major emergency" is any event that results in PG&E activating one of the Company's OECs.

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 year or more, depending on the magnitude of the emergency and other factors,
2 such as the use of overtime, to make up the work in the schedule.

3 PG&E uses a 5-year average to calculate Major Emergency planned hours,
4 units and costs, Major Emergency work in 2018 and 2020 was significantly over
5 plan due to the higher-than-forecasted storm and fire activity. Figure 4A-2
6 shows the Major Emergency planned versus actual costs, as well as the costs of
7 CEMA qualifying events within the date range of 2018-2020.

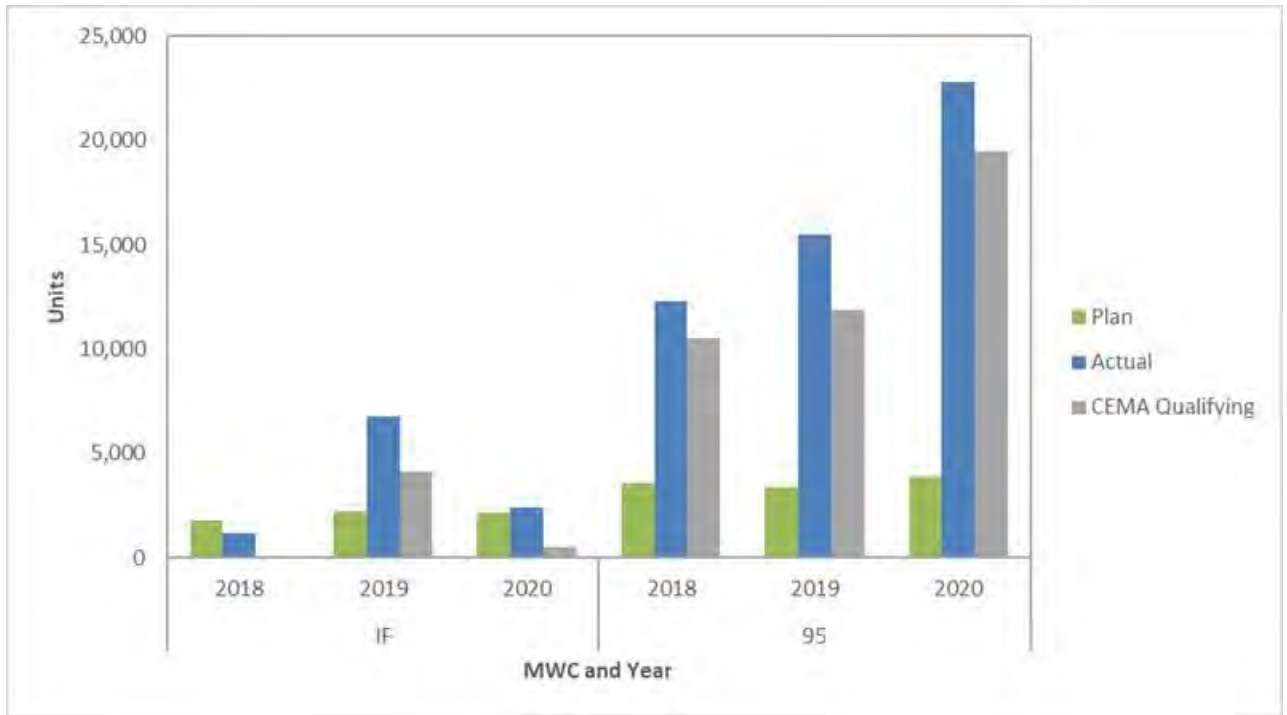
FIGURE 4A-2
ELECTRIC DISTRIBUTION PLANNED VERSUS ACTUAL COSTS
(MWC IF AND MWC 95) JANUARY 2018 THROUGH DECEMBER 2020
(THOUSANDS OF DOLLARS)



8 Figure 4A-2 shows that actual expenditures exceeded the budget in
9 expense and capital between 2018 and 2020. This reflects the significant
10 impact the volatile climate had on PG&E's infrastructure.

11 Figure 4A-3 shows the planned, actual and CEMA-qualifying units from
12 2018 through 2020.

**FIGURE 4A-3
ELECTRIC DISTRIBUTION PLANNED VERSUS ACTUAL UNITS
(MWC IF AND MWC 95) JANUARY 2018 THROUGH DECEMBER 2020**



1 Figure 4A-3 shows the magnitude and the severity of the 2018 storms and
 2 wildfires. The actual and CEMA-qualifying are significantly over plan. In 2018,
 3 the CEMA-qualifying events represented 5 percent of the expense (MWC IF)
 4 and 292 percent of the capital (MWC 95) planned units. In 2019, the
 5 CEMA-qualifying events represented 187 percent of the expense (MWC IF) and
 6 349 percent of the capital (MWC 95) planned units. In 2020, the
 7 CEMA-qualifying events represented 25 percent of the expense (MWC IF) and
 8 501 percent of the capital (MWC 95) planned units.

9 Incrementality is discussed in greater detail in Chapter 12 of this application.

10 **E. Cost Reasonableness**

11 The costs PG&E incurred in responding to the catastrophic events described
 12 above are reasonable, as described further in this section. First, the activities
 13 PG&E performed are in accordance with GO 166 requirements, as described in
 14 Attachment 4A to this Chapter. Second, PG&E tracks a number of performance
 15 metrics for each event which illustrate the reasonableness of the response.
 16 These metrics are reviewed after the events to drive continuous improvement
 17 and efficiency in PG&E’s emergency response.

1 **1. PG&E’s Response Was Driven by the Requirements of GO 166⁹**

2 There are many factors that will drive the strategy and tactics of PG&E’s
3 response to a catastrophic event including the incident complexity, volume
4 of damage, and duration of customer impact. All of these factors then drive
5 the resources required to respond and restore customers as quickly as
6 possible. The expectation of the CPUC, as provided in the Standards within
7 GO 166, is that a utility safely and quickly restores service to customers.
8 PG&E’s CERP¹⁰ and Annexes, as required by Standard 1, contain
9 processes, procedures and guidelines to facilitate compliance with the ten
10 sections of the standard.

11 As discussed in Section D of this testimony with respect to each of the
12 individual incidents, PG&E’s response actions were consistent with those
13 requirements and the costs it incurred were in support of achieving those
14 objectives. For example, as contemplated by Standard 1, PG&E has
15 coordinated internally in the gathering and dissemination of information,
16 established response priorities, implemented proactive deployment and
17 allocation of resources from across the service territory and coordinated
18 activities to restore service to impacted customers.

19 PG&E has further demonstrated the focus on public and employee
20 safety through: (1) using 911 Standby resources to relieve public safety
21 agencies within 60 minutes and the use of base camps to get crews and
22 material closer to the work, limiting driving risk exposure; (2) executing
23 dynamic damage assessment strategies to assess infrastructure damage
24 and mobilize additional resources in the form of Rapid Assessment Teams
25 to expedite the assessment and restoration of service; (3) developing and
26 communicating restoration priorities during each incident both internally and
27 externally during wildland fire situations; and (4) using mutual assistance to
28 reduce outage duration.

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.

1 **2. Performance Metrics Demonstrate the Effectiveness of PG&E's**
2 **Response**

3 PG&E's top priorities when responding to catastrophic events is the
4 safety of the public, first responders, and employees, and the timely
5 restoration of service to customers. In a catastrophic emergency response
6 setting, costs are affected by many different factors depending on the nature
7 of the event and response. Therefore, it is not appropriate to judge the
8 reasonableness of costs incurred on a per unit basis as may be done in
9 other circumstances. Rather, it is appropriate to look to the activities
10 undertaken given the circumstances and the overall level of success of the
11 response.

12 Response to a catastrophic event differs in many ways compared to
13 work performed in a "normal" setting. PG&E may incur additional costs
14 during these types of events, such as warehouse and telecom services,
15 base camp setup and operational costs, standby labor, overheads, and
16 others. Total costs for catastrophic events vary widely due to severity,
17 resource requirements, type of event and many other factors. As described
18 above, PG&E's SOPP model outputs add visibility to the potential
19 complexity of the incident, area of greatest impact and resource and
20 material needs. This information is used to assist PG&E in executing an
21 efficient response. PG&E's three warehouse facilities contain stores of
22 material and their strategic placement in the service territory support rapid
23 mobilization of materials to service centers and lay down yards during
24 response. During a catastrophic event, PG&E uses the standards set forth
25 in GO 166 and the CERP in order to respond appropriately and reasonably.
26 For example, PG&E's Resource teams monitor assessment and restoration
27 rates to help identify how many and where crews are needed and if contract
28 or Mutual Assistance resources will need to be requested. Operational calls
29 are held with OEC and REC Commanders to validate the resource plan and
30 identify unique needs for specialized equipment to mitigate access or
31 geographic challenges and improve restoration performance. The
32 development of a common operating picture confirms the number of
33 resources required and ensures we are not moving resources unnecessarily

1 or bringing on additional external resources that are not required for
2 restoration.

3 In accordance with the 2016 CEMA settlement, to help better
4 understand PG&E's emergency response performance across CEMA
5 events, Tables 4A-2 through 4A-4 below provide a comparative perspective
6 of the metrics used to measure response performance for the winter storms
7 and wildfires included in this application. PG&E reviews its performance
8 with the IMT and responders within the LOBs after the fact in an effort to
9 continually work on improving the effectiveness and efficiency of response
10 efforts.

11 Among all the performance metrics provided in Tables 4A-2 through
12 4A-4, PG&E highlights the following five metrics as key measures of
13 performance, which illustrates the complexity during response and
14 compliance with the expectations outlined in GO 166 Standard 1.

- 15 1) CAIDI – Customer Average Interruption Duration Index – CAIDI
16 measures average outage duration per customer and is identified in
17 Standard 12 of GO166 to be a benchmark for the reasonableness of
18 PG&E's response;
- 19 2) Productivity – measured in labor hours per unit and quantifies the
20 efficiency of the crews and resources directly supporting response in the
21 field;
- 22 3) Straight Time, Over Time and Double Time – measured in hours worked
23 in each category. This is a direct component of productivity and
24 measures performance to the established 16/8-hour work schedule
25 utilized to help manage employee fatigue;
- 26 4) 911 Standby Response – measured as a percentage of calls responded
27 to within 60 minutes made by public safety agencies requesting
28 response by PG&E; and
- 29 5) Customers restored within 24 hours – measured as a percentage of the
30 total customers restored within 24 hours of the first call reporting the
31 outage. This quantifies the efficiency of the response and directly
32 impacts CAIDI.

**TABLE 4A-2
EMERGENCY RESPONSE
EVENT LEVEL PERFORMANCE METRICS FOR FIRE EVENTS**

Event		2015 Butte Fire	2020 Creek Fire	2020 Glass Fire	2020 Oak Fire	UNU	CZU	NCF	SCU
Spend	Cap S	\$ 21,232,878	\$ 12,440,587	\$ 41,300,871	\$ 30,888	\$ 40,809,246	\$ 11,400,879	\$ 8,515,541	\$ 8,893,873
	Exp S	\$ 86,590,172	\$ 27,266,008	\$ 71,529,750	\$ 438,747	\$ 59,660,808	\$ 83,340,142	\$ 75,882,870	\$ 8,722,807
	Total	\$ 107,822,849	\$ 39,708,595	\$ 112,830,621	\$ 467,635	\$ 100,470,054	\$ 94,741,021	\$ 82,198,212	\$ 17,416,480
	Labor	\$ 19,917,469	\$ 7,290,881	\$ 15,383,281	\$ 50,064	\$ 21,903,797	\$ 11,278,523	\$ 9,604,397	\$ 4,593,360
	Materials	\$ 3,228,384	\$ 2,799,158	\$ 9,784,723	\$ 12,077	\$ 6,053,978	\$ 2,732,820	\$ 975,942	\$ 1,549,298
	Contracts	\$ 80,629,506	\$ 27,887,123	\$ 84,155,761	\$ 422,668	\$ 68,317,924	\$ 78,869,110	\$ 67,005,533	\$ 10,294,083
	Other	\$ 4,047,501	\$ 1,721,433	\$ 3,508,876	\$ (17,194)	\$ 3,894,352	\$ 3,862,689	\$ 4,012,341	\$ 979,743
Total	\$ 107,822,849	\$ 39,708,595	\$ 112,830,621	\$ 467,635	\$ 100,470,051	\$ 94,741,021	\$ 82,198,212	\$ 17,416,480	
Productivity	Cap Hrs	86,487	27,480	77,050	36	115,442	45,688	58,663	24,688
	Exp Hrs	25,052	34,233	92,134	224	72,878	50,830	42,042	15,785
	Total Hrs	91,539	61,713	169,183	260	188,119	96,316	100,695	40,454
	ST HRS	44,343	25,480	72,229	172	89,150	40,539	48,031	14,965
	OT HRS	4,855	2,347	4,855	34	113,564	52,827	48,379	23,183
	DT HRS	42,541	33,907	92,299	55	5,406	2,550	5,285	2,306
	Cap HRS/Unit	57.42	35.14	42.92	7.20	51.91	30.18	32.93	72.40
	Exp Hrs/Unit	394.70	34,233.25	1,059.01	-	1,579.95	1,177.43	14,013.52	5,254.83
	Total Hrs /Unit	77.18	78.82	89.90	51.95	82.87	61.86	56.44	117.60
Units	Cap Units	1,158	782	1,795	5	2,224	1,514	1,781	341
	Exp Units	28	1	87	-	48	43	3	3
	Total Units	1,186	783	1,882	5	2,270	1,557	1,784	344
	Poles	884	700	1,624	4	1,972	1,228	1,743	325
	Conductor	119	25	101	1	122	214	9	3
	Transformers	58	15	34	-	55	40	8	2
	Cross Arms	47	11	15	-	36	21	12	8
	Other	50	32	106	-	85	56	12	5
Outage and Customer Impact	Duration	36 Days	111 Days	23 Days	7 Days	46 Days	37 Days	108 Days	44 Days
	CAIDI	20	228	48	121	257	257	196	142
	3rd Party	-	-	-	-	-	-	-	-
	Animal	-	-	-	-	-	-	-	-
	Environmental /External	5	38	171	5	271	411	-	30
	Equipment Failure/ Involved	4	385	48	4	274	124	-	890
	Unknown Cause	-	-	-	-	-	-	-	-
	Vegetation	-	-	-	-	-	-	-	-
	Total Outages	28	2,471	310	20	1,146	910	3	1,838
	Customers Impacted	20,861	203,837	48,920	267	247,184	170,813	40	396,900
% Cust Restored within 12Hrs	31.40%	79.83%	47.08%	69.82%	62.43%	73.52%	100.00%	82.28%	
% Cust Restored within 24Hrs	31.57%	81.98%	47.65%	70.39%	71.71%	88.83%	100.00%	95.10%	
911 Standby	# of 911 Standby Requests	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

**TABLE 4A-3
EMERGENCY RESPONSE
EVENT LEVEL PERFORMANCE METRICS FOR FIRE EVENTS**

Event		Aug Complex Fire	Aug 14 Fire & Extreme Heat	Carmel Fire	Jones Fire	Aug Trans Capacity	MOC Fire	Aug Event Temp Gen	Woodward Fire	Potters Fire
Spend	Cap \$	3,547,946	-	\$ 2,574,545	265,838	-	79,715	-	65,406	17,510
	Exp \$	3,208,798	5,048,468	\$ 2,309,779	726,729	634,362	329,054	351,237	173,657	65,988
	Total	\$ 6,756,745	\$ 5,048,468	\$ 4,884,324	\$ 992,567	\$ 634,362	\$ 408,769	\$ 351,237	\$ 239,063	\$ 83,496
	Labor	2,119,760	542,977	1,624,442	251,351	130,137	261,152	27,839	63,963	14,120
	Materials	982,019	71,457	442,124	91,464	43,129	17,993	698	57,429	708
	Contracts	3,397,773	4,407,896	2,627,677	610,483	183,797	95,290	220,245	29,999	71,073
	Other	257,192	26,138	190,081	39,269	277,298	34,334	102,454	87,672	(2,406)
Total	\$ 6,756,745	\$ 5,048,468	\$ 4,884,324	\$ 992,567	\$ 634,362	\$ 408,769	\$ 351,237	\$ 239,063	\$ 83,496	
Productivity	Cap Hrs	7,577	-	10,916	1,059	-	35	-	41	-
	Exp Hrs	7,209	10,822	6,633	1,174	4,040	1,880	216	440	112
	Total Hrs	14,786	10,822	17,549	2,233	4,040	1,915	216	481	112
	ST HRS	5,743	8,849	9,583	1,427	3,882	476	139	135	112
	OT HRS	482	1,621	315	32	51	75	42	-	-
	DT HRS	8,561	352	7,651	773	108	1,365	35	347	-
	Cap HRS/Unit	67.05	-	70.88	66.19	-	35.00	-	41.00	-
	Exp Hrs/Unit	360.45	-	1,658.25	-	-	-	-	-	-
	Total Hrs / Unit	111.17	-	111.07	139.56	-	1,915.00	-	481.00	56.00
Units	Cap Units	113	-	154	16	-	1	-	1	2
	Exp Units	20	-	4	-	-	-	-	-	-
	Total Units	133	-	158	16	-	1	-	1	2
	Poles	84	-	126	11	-	1	-	-	1
	Conductor	14	-	5	1	-	-	-	-	-
	Transformers	5	-	9	3	-	-	-	-	-
	Cross Arms	9	-	7	-	-	-	-	1	1
	Other	21	-	11	1	-	-	-	-	-
Outage and Customer Impact	Duration	87 Days	6 Days	17 Days	11 Days	6 Days	10 Days	266 Days	44 Days	18 Days
	CAIDI	1,151	-	142	86	-	130	-	148	192
	3rd Party	-	-	-	-	-	-	-	-	-
	Animal	-	-	-	-	-	-	-	-	-
	Environmental/External	66	-	48	8	-	15	-	23	1
	Equipment Failure/ Involved	90	-	235	4	-	3	-	15	10
	Unknown Cause	-	-	-	-	-	-	-	-	-
	Vegetation	-	-	-	-	-	-	-	-	-
	Total Outages	1,374	-	794	139	-	83	-	107	130
	Customers Impacted	135,044	-	93,755	20,299	-	12,502	-	11,442	5,831
% Cust Restored within 12Hrs	50.19%	-	90.93%	89.52%	-	65.50%	-	95.30%	98.12%	
% Cust Restored within 24Hrs	52.62%	-	95.63%	92.10%	-	65.50%	-	97.35%	100.00%	
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-2 and Tables 4A-3 above show spending, productivity and
2 performance metrics of the fire events included in this CEMA filing. While
3 fire events last longer and require an extensive response to protect our
4 facilities from fire damage, they have fewer outages and safety incidents
5 such as wire down events. In addition, PG&E's response can be
6 significantly longer due to the dynamic changing environment associated
7 with an active fire, as well as PG&E's ability to gain safe access to the area
8 as provided by the fire agency in charge such as CAL FIRE or the USFS.

9 Table 4A-4 shows spending, productivity and performance metrics of the
10 2020 storm event included in this CEMA filing. The storms from PG&E's
11 2019 CEMA filing are included to provide comparative context of the 2019
12 Storms metric results. PG&E had a very strong safety performance,

1 relieving 911 standby responders within 60 minutes at least 92 percent of
2 the time during storm events. Doing so promotes public safety, effectively
3 freeing up first responders to attend to other life safety calls. PG&E's
4 reliability performance was very strong and in line with CAIDI of a non-storm
5 day. This shows the effectiveness of PG&E's response to restore
6 customers quickly, in line with Standard 12 of GO 166.

**TABLE 4A-4
EMERGENCY RESPONSE
EVENT LEVEL PERFORMANCE METRICS FOR STORM EVENTS**

Event		2019 October Wind Event	August Extreme Heat Event	September Extreme Heat Event
Spend	Cap \$	\$ 9,263,277	\$ 21,074,778	\$ 6,940,326
	Exp \$	\$ 7,893,046	\$ 8,977,394	\$ 2,309,145
	Total	\$ 17,156,323	\$ 30,052,172	\$ 9,249,471
	Labor	\$ 6,522,283	\$ 12,714,549	\$ 4,367,981
	Materials	\$ 4,847,056	\$ 3,989,709	\$ 414,357
	Contracts	\$ 994,536	\$ 10,280,701	\$ 2,517,363
	Other	\$ 4,238,448	\$ 3,067,213	\$ 1,949,770
	Total	\$ 16,602,323	\$ 30,052,172	\$ 9,249,471
Productivity	Cap Hrs	7,866	53,720	12,112
	Exp Hrs	14,311	40,781	8,187
	Total Hrs	22,177	94,501	20,299
	ST HRS	7,921	32,253	5,020
	OT HRS	375	2,172	613
	DT HRS	13,882	60,076	14,686
	Cap HRS/Unit	9.64	39.44	39.32
	Exp Hrs/Unit	20.86	141.60	154.47
Total Hrs / Unit	14.76	57.27	56.23	
Units	Cap Units	816	1362	308
	Exp Units	686	288	53
	Total Units	1,502	1,650	361
	Poles	238	51	7
	Conductor	711	323	78
	Transformers	94	1059	234
	Cross Arms	194	44	8
	Other	265	173	34
Outage and Customer Impact	Duration	6 Days	6 Days	6 Days
	CA/DI	1,050	176	992
	3rd Party	22	77	74
	Animal	19	39	39
	Environmental /External	-	805	156
	Equipment Failure/ Involved	128	1,003	473
	Unknown Cause	70	415	172
	Vegetation	62	254	84
	Total Outages	661	3,288	1,961
	Customers Impacted	185,666	1,334,210	413,780
	% Cust Restored within 12Hrs	39.22%	85.77%	52.03%
% Cust Restored within 24Hrs	51.97%	93.57%	59.87%	
911 Standby	# of 911 Standby Requests	652	422	192
	% 911 Requests responded to within 60 mins	82.06%	92.89%	98.44%

PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 5
GAS: CEMA

PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 5
GAS: CEMA

TABLE OF CONTENTS

A. Introduction.....	5-1
B. Summary of Request.....	5-2
C. Discussion of CEMA Events.....	5-3
1. 2017 Tubbs Fire.....	5-3
a. Description of Event	5-3
b. PG&E’s Response Activities.....	5-3
2. 2018 Carr Fire.....	5-5
a. Description of Event	5-5
b. PG&E’s Response Activities.....	5-5
3. 2019 Winter Storms	5-7
a. Description of Events.....	5-7
b. PG&E’s Response Activities.....	5-7
4. 2019 Ridgecrest Earthquakes.....	5-8
a. Description of Events.....	5-8
b. PG&E’s Response Activities.....	5-8
5. 2020 August Fires.....	5-10
a. Description of Event	5-10
b. PG&E’s Response Activities.....	5-11
6. 2020 Glass Fire.....	5-13
a. Description of Event	5-13
b. PG&E’s Response Activities.....	5-13
D. Conclusion.....	5-16

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS**
3 **CHAPTER 5**
4 **GAS: CEMA**

5 **A. Introduction**

6 This chapter describes the response of Pacific Gas and Electric Company's
7 (PG&E) Gas Operations (Gas)¹ to the catastrophic events listed below:

- 8 1) 2017 Tubbs Fire;
9 2) 2018 Carr Fire;
10 3) 2019 Winter Storms;
11 4) 2019 Ridgecrest Earthquakes;
12 5) 2020 August Fires; and
13 6) 2020 Glass Fire.

14 This chapter demonstrates the necessity and reasonableness of the steps
15 Gas took to:

- 16 • Provide standby support to Electric Distribution;
17 • Eliminate potentially hazardous conditions;
18 • Communicate with customers;
19 • Repair or replace damaged gas transmission and distribution (T&D)
20 facilities; and
21 • Restore gas service to customers.

22 The remainder of this chapter is organized as follows:

- 23 • Section B provides a summary of the cost-recovery request.
24 • Section C discusses the Gas Catastrophic Event Memorandum Account
25 (CEMA) Events and explains the costs incurred by Gas in response to these
26 catastrophic events.
27 • Section D provides a brief conclusion.
28 • Attachment A provides additional material in support of testimony.

¹ Both Gas Distribution and Gas Transmission incurred costs in response to the various events, included in this Application. These are referred to collectively as "Gas" or together as "Gas T&D."

1 **B. Summary of Request**

2 In response to the six catastrophic events listed above, PG&E recorded Gas
3 expenses of \$4.6 million and capital expenditures of \$8.0 million through
4 December 31, 2020. PG&E is only seeking recovery for incremental costs
5 incurred in restoring service and repairing damaged infrastructure.² Further
6 information on cost details is set forth in the workpapers supporting this chapter.

7 Tables 5-1 and 5-2 summarize PG&E's total Gas costs for the CEMA events
8 by expense and capital before adjustments.³ In general, costs fall under two
9 categories: (1) restoration response costs, which concern repairing or replacing
10 infrastructure for customers who are able to receive service, and (2) rebuild
11 costs, which begin later and occur over a longer time-period, and are mainly
12 focused on re-installing infrastructure to support permanent and temporary
13 service and to replace destroyed infrastructure. The restoration and/or rebuild
14 efforts for each event are discussed in further detail in Section C below.

TABLE 5-1
CEMA EVENTS 2020 GAS EXPENSE
(THOUSANDS OF DOLLARS)

Line No.	Event	Total CEMA-Eligible Spending
1	2017 Tubbs	\$1,260
2	2018 Carr Fire	84
3	2019 Winter Storms	–
4	2019 Ridgecrest Earthquakes	22
5	2020 August Fires	305
6	2020 Glass Fire	2,992
7	Grand Total	\$4,663

² See Attachment A for additional information; see also Chapter 11 (Incrementality).

³ These costs do not include the adjustments discussed in Chapter 12.

**TABLE 5-2
CEMA EVENTS 2020 GAS CAPITAL
(THOUSANDS OF DOLLARS)**

Line No.	Event	Total CEMA-Eligible Spending
1	2017 Tubbs	\$6,987
2	2018 Carr Fire	291
3	2019 Winter Storms	5
4	2019 Ridgecrest Earthquakes	121
5	2020 August Fires	34
6	2020 Glass Fire	560
7	Grand Total	\$7,998

1 **C. Discussion of CEMA Events**

2 The following section briefly describes each CEMA event and PG&E’s Gas
3 response activities. For more information on Gas emergency response
4 processes, see Attachment A.

5 **1. 2017 Tubbs Fire**

6 **a. Description of Event**

7 The Tubbs Fire began on October 8, 2017, near Highway 128 and
8 Bennett Lane in Calistoga, Napa County. As the California Department
9 of Forestry and Fire Protection (CAL FIRE) and local fire departments
10 battled the blaze, strong winds from the northeast pushed the front of
11 the fire more than 12 miles in its first three hours. Local fire officials
12 requested evacuations of Calistoga and Santa Rosa. On October 9,
13 Governor Brown had declared a state of emergency in Napa, Sonoma,
14 and Yuba counties. By then, the fire was spreading quickly to the south
15 and west, and had reached Santa Rosa. By the time of its containment,
16 the fire burned an estimated 36,807 acres in both Napa and Sonoma
17 Counties and destroyed 5,636 structures.

18 **b. PG&E’s Response Activities**

19 In 2020, Gas continued to repair and restore assets impacted by
20 the fire.

21 PG&E continued work throughout 2020 to restore meters and
22 associated service as homes were repaired or rebuilt. This work
23 consisted of pipe replacement and service restoration to homes. Pipe

1 replacement requires trenching and digging, replacing gas distribution
 2 pipe, testing, traffic control, repairing concrete and landscaping, and all
 3 of the associated equipment and labor required to do so. Service
 4 restoration requires installation of service pipe, meters, testing and pilot
 5 relighting at the home.

6 PG&E incurred approximately \$1.3 million in expense and
 7 \$7.0 million in capital related to the Tubbs Fire in CEMA-eligible
 8 counties, broken down as follows:⁴

**TABLE 5-3
 2017 TUBBS COST ELEMENT BREAKDOWN OF 2020 EXPENSE COSTS
 (THOUSANDS OF DOLLARS)**

Line No.	Cost Category	CEMA-Eligible Spending
1	Contract	\$1,016
2	Labor	144
3	Materials	86
4	Other	14
5	Total	\$1,260

**TABLE 5-4
 2017 TUBBS COST ELEMENT BREAKDOWN OF 2020 CAPITAL COSTS
 (THOUSANDS OF DOLLARS)**

Line No.	Cost Category	CEMA-Eligible Spending
1	Contract	\$5,100
2	Labor	813
3	Materials	589
4	Other	485
5	Total	\$6,987

- 9 • Gas costs in the “contract” category primarily relate to construction
 10 service (i.e., permanent service installations and joint trench

⁴ In its 2020 Wildfire Mitigation and Catastrophic Event (WMCE) A.20-09-019, PG&E requested cost recovery for the Tubbs Fire costs incurred up to December 31, 2019. Additional costs have been incurred for activities related to the Tubbs Fire continuing through December 31, 2020. See workpapers supporting this chapter for an additional breakdown of 2020 costs.

1 completion) paving and grading services, flagging and traffic control,
2 and wet/dry spoils.

- 3 • Gas costs in the “labor” category primarily relate to Gas divisional
4 and General Construction (GC) (mobile) construction, Gas Field
5 Services, Locate and Mark, Central Design, Service Planning and
6 Estimating, staff augmentation, paid time off and indirect overhead
7 burdens.
- 8 • Gas costs in the “material” category primarily relate to working stock
9 which includes minor gas materials (e.g., wrapped pipe) located in
10 service centers.
- 11 • Gas costs in the “other” category primarily relate to benefits,
12 permits, and employee-related expenditures (meals, lodging, travel,
13 etc.).⁵

14 **2. 2018 Carr Fire**

15 **a. Description of Event**

16 The Carr Fire began on July 23, 2018. CAL FIRE responded to a
17 mechanical failure of a vehicle that had ignited vegetation in the vicinity
18 of Highway 299 and Carr Powerhouse Road, in Whiskeytown,
19 Shasta County. As CAL FIRE battled the blaze, the wildfire grew to
20 20,000 acres during the overnight hours from July 25 to July 26, forcing
21 the evacuations of Old Shasta, the town of Keswick, and all surrounding
22 areas, and the closure of Highway 299 in Redding. The Carr Fire
23 ultimately burned 229,651 acres, destroyed 1,614 structures, and
24 damaged an additional 61 structures.

25 **b. PG&E’s Response Activities**

26 In 2020, PG&E employees and contractors continued work to
27 restore service to customers, as their neighborhoods and properties
28 were rebuilt. PG&E incurred approximately \$0.1 million in expense and

⁵ For additional information pertaining to cost treatment, see Chapter 12.

1 \$0.3 million in capital related to the Carr Fire in CEMA-eligible counties,
 2 broken down as follows:⁶

**TABLE 5-5
 2018 CARR FIRE COST ELEMENT BREAKDOWN OF 2020 EXPENSE COSTS
 (THOUSANDS OF DOLLARS)**

Line No.	Cost Category	CEMA-Eligible Spending
1	Contract	\$32
2	Labor	46
3	Materials	5
4	Other	1
5	Total	\$84

**TABLE 5-6
 2018 CARR FIRE COST ELEMENT BREAKDOWN OF 2020 CAPITAL COSTS
 (THOUSANDS OF DOLLARS)**

Line No.	Cost Category	CEMA-Eligible Spending
1	Contract	\$134
2	Labor	71
3	Materials	26
4	Other	59
5	Total	\$291

- 3 • Gas costs in the “contract” category primarily relate to construction
 4 service (i.e., main and services installation and joint trench
 5 completion) paving and grading services, flagging and traffic control,
 6 wet/dry spoils, and excavation services.
- 7 • Gas costs in the “labor” category primarily relate to Gas divisional
 8 construction, Inspection, Service Planning, and paid time off and
 9 indirect overhead burdens.
- 10 • Gas costs in the “material” category primarily relate to working
 11 stock, pipe and conduits, elbows, fittings, and gas service risers.

⁶ In its 2020 WMCE Application (A.20-09-019), PG&E requested cost recovery for the Carr Fire costs incurred up to December 31, 2019. Additional costs have been incurred for activities related to the Carr Fire continuing through December 31, 2020. See workpapers supporting this chapter for an additional breakdown of 2020 costs.

- Gas costs in the “other” category primarily relate to benefits and payroll taxes, facilities, fleet, minor materials, operational management and support, and permits.⁷

3. 2019 Winter Storms

a. Description of Events

Several storm events in early 2019 required Gas Emergency Center (GEC) activation, field response and restoration work.

One event was due to a storm-induced landslide in Tiburon. On February 14, 2019, PG&E was alerted to the landslide, which damaged homes and caused a gas leak in the area. Approximately 50 customers were evacuated. Later that day, another landslide was reported in Tiburon that damaged a road and the gas main in the area. PG&E crews isolated the gas system to investigate the damage.

b. PG&E’s Response Activities

In 2020, PG&E continued to repair damage caused by the storm event in the Tiburon area. This work included repairing streets where previous trench work was done. Materials, paving and equipment fees were included in this work. All work was completed by contractors.

PG&E incurred approximately \$0.005 million in capital related to the 2019 Winter Storms in CEMA-eligible counties, broken down as follows:⁸

⁷ For additional information pertaining to cost treatment, see Chapter 12.

⁸ In its 2020 WMCE Application (A.20-09-019), PG&E requested cost recovery for the 2019 Winter Storms costs incurred up to December 31, 2019. Additional costs have been incurred for activities related to the 2019 Winter Storms continuing through December 31, 2020. See workpapers supporting this chapter for an additional breakdown of 2020 costs. There are no 2020 expense costs for the 2019 Winter Storms event.

TABLE 5-7
2019 WINTER STORMS COST ELEMENT BREAKDOWN OF 2020 CAPITAL COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	CEMA-Eligible Spending ^(a)
1	Contract	\$2
2	Materials	0
3	Other	3
4	Total	\$5

(a) Costs are presented in thousands and rounded to the nearest whole dollar. Costs incurred in the Materials Cost Category are approximately \$400.

- 1 • Gas costs in the “contract” category primarily relate to paving and
- 2 grading services.
- 3 • Gas costs in the “materials” category primarily relate to working
- 4 stock.
- 5 • Gas costs in the “other” category primarily related to permits in
- 6 Tiburon.

7 **4. 2019 Ridgecrest Earthquakes**

8 Multiple earthquakes in the Ridgecrest area in 2019 required GEC

9 activation and response work.

10 **a. Description of Events**

11 On July 4, 2019, PG&E was notified of a magnitude 6.3 earthquake

12 near the town of Ridgecrest. On July 5, PG&E was notified of a

13 7.1 earthquake, again near Ridgecrest. By July 6, PG&E received

14 30 gas odor calls in Ridgecrest and Trona.

15 **b. PG&E’s Response Activities**

16 PG&E assessed lines 311 and 372 for damage at fault locations,

17 identifying 353 leaks in the system. PG&E cut out and replaced 300 feet

18 of damaged pipe on lines 311 and 372 to repair many of the leaks.

19 Compressed Natural Gas/Liquefied Natural Gas was used to support

20 customers while repairs were made, so no customers lost gas during

21 this time.

1 In 2020, PG&E continued to repair lines 311 and 372, as well as the
 2 investigation and repair of 79 smaller leaks previously identified in the
 3 system. PG&E incurred approximately \$0.02 million in expense and
 4 \$0.1 million in capital related to the 2019 Ridgecrest earthquakes in
 5 CEMA-eligible counties, broken down as follows:⁹

TABLE 5-8
2019 RIDGECREST EARTHQUAKES COST ELEMENT BREAKDOWN OF
2020 EXPENSE COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	CEMA-Eligible Spending ^(a)
1	Contract	\$4
2	Labor	16
3	Materials	2
4	Other	0
5	Total	\$22

(a) Costs are presented in thousands and rounded to the nearest whole dollar. Costs incurred in the Other Cost Category are approximately \$200.

TABLE 5-9
2019 RIDGECREST EARTHQUAKES COST ELEMENT BREAKDOWN OF
2020 CAPITAL COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	CEMA-Eligible Spending
1	Contract	\$79
2	Labor	8
3	Materials	6
4	Other	28
5	Total	\$121

⁹ In its 2020 WMCE Application (A. 20-09-019), PG&E requested cost recovery for the 2019 Ridgecrest Earthquakes costs incurred up to December 31, 2019. Additional costs have been incurred for activities related to the Ridgecrest Earthquakes continuing through December 31, 2020. See workpapers supporting this chapter for an additional breakdown of 2020 costs.

- Gas costs in the “contract” category primarily relate to construction repairs to pipelines 311 and 372.
- Gas costs in the “labor” category primarily relate to Gas divisional construction, Engineering and Technical Services, and paid time off and indirect overhead burdens.
- Gas costs in the “materials” category primarily relate to plaster sand and working stock.
- Gas costs in the “other” category primarily relate to payroll tax burdens, Fleet and minor materials overheads.¹⁰

5. 2020 August Fires

a. Description of Event

The August Fires of 2020 started as a result of extreme heat, and rapidly spread throughout the impacted areas. The August Fires included Santa Cruz Unit (CZU), Lake Napa Unit (LNU), Santa Clara Unit (SCU) complex fires, River Fire, and Carmel Fire.

The CZU Fire began August 16, 2020, in various locations across San Mateo and Santa Cruz Counties. PG&E activated the San Carlos IMT on August 20, 2020, to support response coordination. The fire burned a total of 86,509 acres, damaged 140 structures, and destroyed 1,490 structures. The fire was contained on September 22, 2020.

The LNU Lightning Complex Fire was a wildfire that impacted Napa, Sonoma, Lake, Yolo and Solano counties. PG&E activated the Sacramento IMT on August 17, 2020, to support response coordination. The fire burned a total of 363,220 acres, damaged 232 structures, and destroyed 1,491 structures. The fire was contained on October 2, 2020.

The SCU Complex Fire began August 18, 2020, in multiple locations throughout Santa Clara, Alameda, Contra Costa, San Joaquin, Merced, and Stanislaus Counties. The fire burned a total of 396,624 acres, damaged 26 structures, and destroyed 222 structures. The fire was contained on October 1, 2020.

The River Fire began August 16, 2020, in Monterey County. The Carmel Fire began August 18, 2020 nearby, in Monterey County. The

¹⁰ For additional information pertaining to cost treatment, see Chapter 12.

1 River Fire burned 48,088 acres and the Carmel Fire burned 6,905 acres.
 2 Between them, they damaged 20 structures and destroyed
 3 103 structures. These fires were contained on September 4, 2020.

4 **b. PG&E’s Response Activities**

5 In response to the August Fires, PG&E activated several Gas IMTs
 6 to provide support. As the complexity and size of the events grew, gas
 7 created a unified response structure to support response efforts. For all
 8 fires, gas provided employees to support emergency centers, isolation
 9 strategy planning, make safe efforts, and restoration activities.

10 The CZU Fire required gas services to 11 homes be shut off due to
 11 those homes having been destroyed and not yet rebuilt. Three other
 12 homes were shut off and restored once the fire was contained.

13 The LNU Lightning Complex Fire, SCU Fire, River Fire, and Carmel
 14 Fire did not damage any PG&E gas facilities nor required any to be shut
 15 off. However, PG&E did have gas employees monitoring and surveying
 16 the area during these fires. This work included preparing isolation plans
 17 and other activities, in the event the gas needed to be shut in.

18 The table below shows the departments involved in response and
 19 restoration activities for the August Fires and the number of employees
 20 supporting.

**TABLE 5-10
 2020 AUGUST FIRES STAFFING SUPPORT**

Line No.	Department	# of Employees
1	Analyst Services	1
2	Construction	50
3	Engineering and Mapping	6
4	Field Services	20
5	Gas Estimating	2
6	Maintain and Operate	30
7	Management Services	6
8	Monitoring and Controlling	3
9	Gas Planning	15

1 PG&E incurred approximately \$0.3 million in expense and
 2 \$0.03 million in capital related to the August Fires in CEMA-eligible
 3 counties, broken down as follows:¹¹

TABLE 5-11
2020 AUGUST FIRES COST ELEMENT BREAKDOWN OF
2020 EXPENSE COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	CEMA-Eligible Spending
1	Contract	\$12
2	Labor	439
3	Materials	(11)
4	Other	(135)
5	Total	\$305

TABLE 5-12
2020 AUGUST FIRES COST ELEMENT BREAKDOWN OF 2020 CAPITAL COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	CEMA-Eligible Spending ^(a)
1	Contract	\$0
2	Labor	16
3	Materials	0
4	Other	17
5	Total	\$34

(a) Costs are presented in thousands and rounded to the nearest whole dollar. Costs incurred in the Contract Cost Category are approximately \$400. Cost incurred in the Materials Cost Category are approximately \$100.

- 4
- Gas costs in the “contract” category primarily relate to wet/dry
- 5 spoils.
- Gas costs in the “labor” category primarily relate to Gas divisional
- 6 and GC (mobile) construction, Locate and Mark,
- 7

¹¹ See workpapers supporting this chapter for an additional breakdown of costs.

1 Engineering/Estimating and Planning, Instrumentation and
2 Regulation, and paid time off and indirect overhead burdens.

- 3 • Gas costs in the “materials” category primarily relate to working
4 stock and work stock adjustments back to work stock overhead
5 pool.
- 6 • Gas costs in the “other” category primarily relate to benefits and
7 payroll taxes, facilities, fleet, and minor materials overheads,
8 operational management and support, overhead adjustments
9 redirected back to overhead pools, and employee related
10 expenditures (meals, lodging, travel, etc.).¹²

11 **6. 2020 Glass Fire**

12 **a. Description of Event**

13 The Glass Fire began on September 27, 2020, at North Fork Crystal
14 Springs Road in Deer Park and remained active for 23 days in Napa and
15 Sonoma counties.

16 The fire burned a total of 67,484 acres, damaged 282 structures,
17 and destroyed 1,555 structures. Over 50,000 people were evacuated
18 from the area. The fire was contained on October 20, 2020.

19 **b. PG&E’s Response Activities**

20 Gas initially activated its local IMT in the Napa and Santa Rosa
21 yards on September 28, 2020. These locations were then consolidated
22 to the Sacramento yard, with support staff remaining in Napa and
23 Santa Rosa. The GEC was also activated remotely to support the IMT
24 in fire response efforts. The emergency centers remained active
25 through October 8, 2020.

26 Gas proactively shut in 4,197 customers in the impacted area.
27 CAL FIRE requested the shut in and the GEC strategized completing
28 the work. Below is a breakdown of the area, number of customers shut
29 in and number of addresses that required repairs or were “cut and
30 capped” due to homes being destroyed.

¹² For additional information pertaining to cost treatment, see Chapter 12.

TABLE 5-13
2020 GLASS FIRE NUMBER OF CUSTOMERS AND ADDRESSES IMPACTED BY AREA

Line No.	Area Shut-In	Number of Services Shut in	Number of Services Restored	Number of Services Cut and Capped
1	Oakmont	3,151	3,128	23
2	St. Helena	8	8	0
3	Deer Park	325	323	2
4	Angwin	707	701	6
5	Santa Rosa	6	6	0
6	Total	4,197	4,166	31

1 Additional plans were made to isolate expanded areas should the
2 fire spread but were not executed. Restoration activities included leak
3 survey and repair, purging the portions of pipe that were shut in,
4 inspections, and relighting customer pilots.

5 The table below shows the departments involved in response and
6 restoration activities and the number of employees supporting.

TABLE 5-14
2020 GLASS FIRE STAFFING SUPPORT

Line No.	Department	# of Employees
1	Account Services	14
2	Administrative Services	9
3	Analyst Services	1
4	Construction	173
5	Contractor Consultant	1
6	Engineering and Mapping	29
7	Environmental	3
8	Field Services	207
9	Gas Estimating	4
10	Inspection Services	1
11	Maintain and Operate	35
12	Management Services	13
13	Monitoring and Controlling	4
14	Gas Planning	30
15	Warehouse Services	33

7 PG&E incurred approximately \$3.0 million in expense and
8 \$0.6 million in capital related to the Glass Fire in CEMA-eligible
9 counties, broken down as follows:¹³

¹³ See workpapers supporting this chapter for an additional breakdown of costs.

TABLE 5-15
2020 GLASS FIRE COST ELEMENT BREAKDOWN OF
2020 EXPENSE COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	CEMA-Eligible Spending
1	Contract	\$551
2	Labor	3,173
3	Materials	234
4	Other	(966)
5	Total	\$2,991

TABLE 5-16
2020 GLASS FIRE COST ELEMENT BREAKDOWN OF 2020 CAPITAL COSTS
(THOUSANDS OF DOLLARS)

Line No.	Cost Category	CEMA-Eligible Spending
1	Contract	\$71
2	Labor	291
3	Materials	34
4	Other	163
5	Total	\$560

- 1 • Gas costs in the “contract” category primarily relate to flagging and
- 2 traffic control, wet/dry spoils, mobile fuel services, and vacuum
- 3 excavation services.
- 4 • Gas costs in the “labor” category primarily relate to Gas divisional
- 5 and GC (mobile) construction, Gas Field Services, Instrumentation
- 6 and Regulation, Locate and Mark, GC Traffic Control, Leak Survey,
- 7 Engineering, paid time off and indirect overhead burdens.
- 8 • Gas costs in the “materials” category primarily relate to working
- 9 stock and working stock adjustments back to working stock
- 10 overhead pool, pipe and conduits, elbows, fittings, and gas service
- 11 risers.
- 12 • Gas costs in the “other” category primarily relate to benefits and
- 13 payroll taxes, facilities, fleet, and minor materials overheads,
- 14 operational management and support, overhead adjustments

1 redirected back to overhead pools, and employee related
2 expenditures (meals, lodging, travel, etc.).¹⁴

3 **D. Conclusion**

4 As explained above, PG&E's costs of restoring gas service to customers,
5 repairing, replacing, or restoring damaged gas facilities, and complying with
6 governmental agency orders in connection with these events are reasonable
7 and limited to costs incurred in counties where states of emergency were
8 declared. Thus, recovery of these CEMA costs should be approve.

¹⁴ For additional information pertaining to cost treatment, see Chapter 12.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 5

ATTACHMENT A

ADDITIONAL MATERIAL

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 5
ATTACHMENT A
ADDITIONAL MATERIAL

TABLE OF CONTENTS

- A. PG&E’s Requested Gas Transmission and Distribution (T&D) Costs Are Eligible for Catastrophic Event Memorandum Account (CEMA) Recovery 5-1
 - 1. Routine GRC and GT&S Work..... 5-1
 - a. Routine GT Pipeline Emergency Costs 5-1
 - b. Routine Gas Distribution System Emergency Response Costs..... 5-1
 - 2. CEMA Gas T&D Restoration and Rebuild Work 5-2
- B. PG&E’s Requested Gas T&D Costs Are Reasonable 5-3
- C. Accounting for Gas Emergency Costs 5-4
- D. Gas Incident and Emergency Response Process 5-4
 - 1. Gas Incident/Emergency Definition 5-4
 - 2. Scope of PG&E Gas Facilities Exposed to Potential Emergency Conditions 5-5
 - 3. Gas Emergency Response Plan 5-5
 - 4. Incident Levels and Activation Criteria 5-6
 - 5. Gas Emergency Centers (OEC, GEC, EOC) and Field Facilities..... 5-7
 - a. Incident Management Teams 5-7
 - b. Gas Emergency Center 5-7
 - c. Emergency Operations Center 5-8
 - d. Incident Command Post 5-8
 - e. Mobile Command Vehicle 5-8
 - 6. Key Response Steps..... 5-9

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **CHAPTER 5**
3 **ATTACHMENT A**
4 **ADDITIONAL MATERIAL**

5 **A. PG&E’s Requested Gas Transmission and Distribution (T&D) Costs Are**
6 **Eligible for Catastrophic Event Memorandum Account (CEMA) Recovery**

7 For 2020, Pacific Gas and Electric Company (PG&E or the Company)
8 forecast its Gas Transmission (GT) routine emergency response budgets in the
9 Gas Transmission and Storage (GT&S) Rate Case and Gas Distribution routine
10 emergency response budgets in the General Rate Case (GRC), respectively,
11 based upon the trend for the normal number of units of work to perform routine
12 emergency work. These forecasts do not include or reflect CEMA costs.

13 **1. Routine GRC and GT&S Work**

14 PG&E records costs associated with routine Gas T&D emergency
15 response expense work in various Major Work Categories (MWC) and
16 Maintenance Activity Types (MAT). The more common MWCs and MATs
17 used are described below.

18 **a. Routine GT Pipeline Emergency Costs**

19 PG&E records costs associated with routine GT pipeline emergency
20 response expense in MWC JT – Reliability and General Maintenance,
21 including MAT JTB – Pipeline Safety and Reliability Pipe
22 Replacements.¹ This work includes responding to dig-ins, leaks, and
23 non-routine corrective maintenance. Routine GT pipeline emergency
24 response capital work is recorded in MWC 75 – Pipeline Reliability,
25 including MAT 75L – Fault Crossings. This work includes pipe
26 replacement required due to leaks, dig-ins, or corrosion integrity issues.

27 **b. Routine Gas Distribution System Emergency Response Costs**

28 PG&E records costs associated with routine gas distribution system
29 emergency response expense in MWC FI – Corrective Maintenance,

1 If GT system emergency response expense work is performed on a station asset, costs may be recorded in MWC JP – Station Maintenance, including MAT JPN – Station Operations.

1 including MAT FIM – Gas Major Event and Emergencies. Activities
2 associated with MWC FI include work required to repair mains and
3 services, such as leak repair. PG&E records costs associated with
4 routine gas distribution system emergency response capital in
5 MWC 52 – Gas Distribution Emergency Response, including
6 MATs 52B – Emergency Response Gas Dig-Ins, Services and 52C –
7 Emergency Response Gas Dig-Ins, Main. Activities associated with
8 MWC 52 include replacement of mains and services due to incidents
9 that do not result in an emergency declaration, such as dig-ins, or
10 small-scale natural disasters such as landslides or localized
11 earthquakes. PG&E also records costs associated with routine gas
12 distribution system emergency response capital in MWC 50 – Gas
13 Distribution Reliability, including MATs 50A – Reliability Main
14 Replacement and 50B – Reliability Service Replacement. Activities
15 associated with MWC 50 include replacing gas distribution mains and
16 services.

17 **2. CEMA Gas T&D Restoration and Rebuild Work**

18 Non-routine, major emergency work is also recorded in the above
19 MATs. However, such non-routine, major emergency work is recorded
20 under the specially coded and titled orders described above that allow them
21 to be clearly and automatically segregated from routine work of the same
22 type and then moved to the CEMA MWCs. The CEMA mechanism allows
23 PG&E to recover from its customers the incremental costs associated with
24 response and restoration activities for a catastrophic CEMA event.² For the
25 CEMA events described in the testimony above, incremental Gas CEMA
26 costs incurred in the declared counties are included in this application.³
27 These incremental costs qualify for CEMA recovery because they were
28 incurred only in counties where emergencies were declared.

2 See Chapter 11 which demonstrates the incrementality of costs requested in this application.

3 See workpapers supporting this chapter for additional information on costs.

1 **B. PG&E’s Requested Gas T&D Costs Are Reasonable**

2 In the early stages of emergency response for the various CEMA events,
3 Gas performed two primary tasks: (1) it stopped the flow of gas from damaged
4 lines and meters, and (2) supported Electric Distribution with debris clean-up.
5 Once these two primary tasks were accomplished, Gas began restoration
6 procedures. These include cutting and capping damaged gas lines for those
7 structures that cannot receive gas service as well as inspecting, repairing, and
8 replacing damaged meters for those customers whose structures can receive
9 gas service.

10 The personnel involved in the CEMA event were requested by the Incident
11 Management Team (IMT) Incident Commander (IC) in consultation with
12 maintenance, construction, and engineering experts, in response to the need to
13 expeditiously and safely return communities to states of relative normalcy.
14 Generally, each cut-and-cap procedure takes three to four hours to complete
15 safely. The time to excavate a gas line, replace damaged pipe, squeeze
16 (close off) an existing line, or weld components are all factors in the total time
17 needed to complete each cut and cap. Additionally, each cut-and-cap operation
18 minimally requires a two-person crew with support from Leak Survey and Locate
19 and Mark personnel. Generally, each Maintenance and Construction (M&C)
20 team is able to cut and cap two to three services each day. The Gas Services
21 Representatives and Field Services personnel are able to complete pilot relights
22 relatively quickly after services have been repaired by M&C. Even with
23 personnel working 12-hour days, these processes can take weeks to safely
24 complete in large communities.

25 PG&E Gas response activities for the various CEMA events were necessary
26 and reasonable given the extensive damage the events caused, as well as the
27 potential damages the events threatened to cause that required standby service
28 to support electric outages and prevent damage to gas facilities if the threats
29 increased. PG&E acted responsibly to ensure the safety of the public and to
30 restore service to customers as quickly and efficiently as possible. Therefore,
31 PG&E’s request for recovery pursuant to CEMA requirements is reasonable and
32 should be granted by the California Public Utilities Commission.

1 **C. Accounting for Gas Emergency Costs**

2 During an emergency that affects gas facilities, Gas tracks the costs
3 incurred to restore gas utility service and repair damaged facilities. The
4 accounting process for Gas emergencies differs from the process for Electric
5 Distribution.

6 Unlike Electric Distribution, Gas has not historically used MWCs that are
7 exclusive to emergencies. Instead, Gas has historically used certain
8 conventions to create accounting orders within existing MWCs featuring unique
9 reason codes and titles to identify the emergency work and the county in which
10 the work occurred. These orders are created for both capital and expense. This
11 allows PG&E to query its accounting system to select for CEMA treatment only
12 the emergency response work that occurred in the counties covered by a
13 government-declared emergency. The Business Finance Department,
14 Emergency Preparedness Coordinator, and the affected divisions review the
15 orders to ensure that the costs identified for CEMA treatment did in fact occur
16 within the timeframes of the CEMA event and within the appropriate counties, in
17 accordance with CEMA-event charging guidelines. In 2018, Gas created
18 catastrophic event MWCs 3Q (capital) and LX (expense). While Gas
19 catastrophic event orders will continue to originate under existing MWCs aligned
20 with the work performed, orders will then transition to Transmission or
21 Distribution catastrophic event MATs under MWC 3Q and LX.

22 **D. Gas Incident and Emergency Response Process**

23 This section defines gas incidents and emergencies, and describes PG&E's
24 gas service territory, the Gas Emergency Response Plan (GERP), Gas
25 Emergency Center (GEC) and field facilities, levels of gas incidents/emergencies
26 and activation criteria, incident response, outage communication, and
27 emergency cost recovery management.

28 **1. Gas Incident/Emergency Definition**

29 A gas incident/emergency occurs when there is:

- 30 • An actual or potential hazardous escape of gas;
- 31 • An over pressure or under pressure situation; or
- 32 • An interruption of gas supply.

1 **2. Scope of PG&E Gas Facilities Exposed to Potential Emergency**
2 **Conditions**

3 PG&E’s Gas Operations is divided into transmission, storage, and
4 distribution operations. The transmission system includes the backbone
5 pipelines that transport gas from interstate pipelines connected to natural
6 gas basins in western North America, including western Canada and
7 southwest and Rocky Mountains of the United States.

8 Local GT lines transport gas from the backbone pipelines to the
9 distribution system. They also move gas into and out of underground
10 natural gas storage fields. Gas Operations also maintains Compressed
11 Natural Gas (CNG)/Liquefied Natural Gas (LNG) injection capabilities to
12 support local T&D disruptions.

13 To manage gas distribution, PG&E has divided its gas service territory
14 into two regions and 18 divisions. Similarly, to manage GT, PG&E has
15 established 13 districts. Resources are typically assigned to one region,
16 division, area, or district, but can be moved within and across boundaries as
17 required for incident response.

18 Gas Operations are managed from the Gas Operations Center in
19 San Ramon. The Gas Operations Center is comprised of Gas Dispatch and
20 Scheduling, the Gas T&D Control Center. Each division and district has
21 local engineering resources to coordinate with the Gas Operations Center in
22 the event of an incident/emergency.

23 **3. Gas Emergency Response Plan**

24 The GERP is the Gas functional annex to the Company Emergency
25 Response Plan (CERP).

26 The GERP provides detailed information about PG&E’s planned
27 response to T&D incidents/emergencies. GERP guidance is consistent with
28 the Incident Command System (ICS). The ICS is a standardized, all-hazard
29 incident management system that provides a systematic, proactive
30 approach for the government, nongovernmental organizations, and the
31 private sector to work together in an incident, in order to reduce the loss of
32 life and property and harm to the environment. The ICS is based on proven
33 management principles, implemented through a wide range of management

1 features including the use of common terminology and a modular
 2 organizational structure.

3 The GERP incorporates industry best practices, standards,
 4 requirements, regulations, and laws into its emergency response protocols.
 5 The GERP supports responding to all incidents/emergencies as “One
 6 PG&E” through integration with the CERP and the other lines of business
 7 (e.g., Electric Operations). The GERP identifies the relationship between
 8 Gas emergency response and other company-wide planning efforts, such as
 9 Business Continuity and Community Recovery processes.

10 **4. Incident Levels and Activation Criteria**

11 PG&E uses a five-level system to manage gas incidents/emergencies.
 12 See Table 1 below.

**TABLE 5A-1
 FIVE-LEVEL SYSTEM MANAGING GAS INCIDENTS/EMERGENCIES**

Line No.	Level	Label	Description
1	1	Routine	Involves a relatively small number of customers, such as those managed during routine operations. Local resources are the preferred response. Does not require the activation of an IMT.
2	2	Elevated	Requires more than routine response. Resources are mainly local, but there is a possibility that resources may need to move within the region/area. An IMT may be activated with Command and General Staff. Full IMT activation is possible.
3	3	Serious	Involves a large number of customers. Resources primarily move within the region/area but may need to move between regions/areas. One or more IMT(s) may activate. The GEC and/or the Emergency Operation Center (EOC) may activate.
4	4	Severe	Involves an escalating incident with Company impact or extended multiple emergency incidents that impact a large number of customers. Resources are brought in from outside the division, district, area and/or region. Gas Construction and contractor resources are mobilized across regions. The IMT(s), GEC and EOC are activated.
5	5	Catastrophic	Involves multiple incidents, impacts a large number of customers, has a significant cost, and results in significant infrastructure risk/damage. Emergency affects the ability to conduct business operations. Full mobilization of company resources is needed to respond, and mutual aid is needed. The IMT(s), GEC, and EOC are activated.

13 PG&E's Incident Level system allows PG&E to quickly and decisively
 14 understand the actions that should be taken. Determining the incident level
 15 includes identifying actual and potential customer outages (since responses to

1 gas incidents involve considerations of peak capability), possible non-core
2 customer curtailments, gas system back-feeding options, and the use of
3 LNG/CNG. A primary focus of gas response is dedicated to prevention of gas
4 service interruption, with restoration being the secondary focus.

5 **5. Gas Emergency Centers (OEC, GEC, EOC) and Field Facilities**

6 Emergency Centers and field facilities are important parts of PG&E's
7 emergency response. Depending on the level of the incident, command and
8 control may be executed at any one of PG&E's designated emergency
9 centers.

10 **a. Incident Management Teams**

11 IMT staff provide oversight and support at the division and/or district
12 level. IMT staff is composed of a pool of personnel, with at least
13 8 people available per ICS position. These positions include Command,
14 Operations, Planning and Intelligence, Logistics, Finance and
15 Administration, Safety, Public Information Office duties, Liaison duties,
16 and Customer Strategy. These personnel are available for IMT duty and
17 may be called, as needed. The IMT is activated by Gas Emergency
18 personnel with authority to activate. Once formed in response to an
19 incident, an IMT directs and coordinates the personnel necessary to
20 assess damage, make safe, restore service, and communicate status
21 information internally and externally. IMTs may support more than one
22 incident at a time, and may have several Incident Command Posts (ICP)
23 reporting to them.

24 **b. Gas Emergency Center**

25 The GEC, which is located within the Gas Operations Center in San
26 Ramon, is staffed by an Incident Support Team/GEC Team that
27 activates in support of gas-only incidents or the gas aspects of
28 dual-commodity (gas and electric) events when the EOC has been
29 activated for dual-commodity events. Five teams are available for GEC
30 duty and serve on a two-week rotational basis. The GEC is activated by
31 Gas Emergency personnel with authority to activate. During
32 dual-commodity events, the GEC may support the EOC in Operations,
33 Planning and Intelligence, Logistics, Finance and Administration, Safety,

1 Public Information Office duties, Liaison duties, and Customer Strategy.
2 During an EOC activation, the GEC reports to the Gas Operations
3 Branch in the EOC. If the EOC is not activated, the GEC manages the
4 overall gas incident.

5 **c. Emergency Operations Center**

6 The EOC is a designated location where information and resources
7 are coordinated to support incident management activities. EOC
8 activation occurs for Level 4 or 5 incidents, or during a Level 3 incident
9 when deemed necessary by the IC and/or the Director of Emergency
10 Preparedness and Response.

11 When the EOC is activated, the EOC Commander establishes
12 priorities for the incident and supports the emergency centers and field
13 responders. During significant emergency incidents, PG&E may
14 activate additional emergency centers to support the primary EOC
15 activities. These emergency centers manage the work in a defined
16 geographic region. They are responsible for directing resources to
17 implement actions and for reporting status and progress through the
18 emergency center chain of command ultimately to the EOC.

19 **d. Incident Command Post**

20 At the scene of a Level 1 incident, activities of on-scene response
21 personnel are typically managed at a gas ICP location. The IC or
22 delegate serves as the single point of contact for all off-site (e.g., Gas
23 Control Center) and other PG&E (e.g., Company Communications)
24 groups.

25 **e. Mobile Command Vehicle**

26 A Mobile Command Vehicle (MCV) is a specialized vehicle that can
27 be deployed to and stationed at the scene of an incident. The MCV can
28 act as an ICP or an emergency center, if warranted. MCVs help
29 facilitate communication between response crews, command staff, and
30 government agencies. There are three types of MCVs available at the
31 Company: Type I Commander (motor coach), Type III Sprinter (van),
32 and Emergency Communications Trailer. MCVs are specially outfitted

1 for events that may require multiple personnel to be stationed near the
2 site of an incident for one or more days.

3 **6. Key Response Steps**

4 PG&E uses the ICS structure, which is a systematic tool used for the
5 command, control, and coordination of incident/emergency response, to
6 complete key steps in the incident response. The ICS involves a structured
7 response to:

- 8 1) Establish command;
- 9 2) Assess the situation;
- 10 3) Take “Make Safe” actions;
- 11 4) Communicate with and notify all necessary parties, including first
12 responders, government agencies, and customers (ongoing);
- 13 5) Restore service; and
- 14 6) Recover/Demobilize.

PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 6
POWER GENERATION: CEMA

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 6
POWER GENERATION: CEMA

TABLE OF CONTENTS

A. Introduction.....	6-1
B. Summary of Request.....	6-1
C. Discussion of CEMA Events.....	6-1
1. NCF.....	6-2
a. Description of Event	6-2
b. Costs	6-3
c. Damaged Facilities and Prevention Activities	6-3
2. 2020 Costs Related to Prior Filings.....	6-3
a. 2019 January-February Storms	6-3
1) Description of Event	6-3
2) Costs	6-3
3) Damaged Facilities.....	6-4
4) Restoration Activities.....	6-5
D. Accounting for PG Emergency Costs	6-5
E. Conclusion.....	6-5

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 6
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 2020 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 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.

B. Summary of Request

PG&E recorded PG expenses of \$0.9 million and capital expenditures of \$0.05 million as shown in Table 6-1 below.

TABLE 6-1
POWER GENERATION CEMA COSTS
(THOUSAND OF DOLLARS)

Line No.	Accounts and Events	Expense	Capital	Total
1	2020 NCF	\$897	–	\$897
2	2020 2019 Jan/Feb Storm	40	\$53	93
3	Total	\$937	\$53	\$990

C. Discussion of CEMA Events

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

1 event by a state or federal governmental agency. CEMA allows PG&E to
2 recover from customers the incremental costs associated with response and
3 restoration activities for a government-declared catastrophic event, subject to a
4 California Public Utilities Commission (CPUC) reasonableness review
5 proceeding.

6 Costs for routine operations, maintenance, and compliance for PG&E's
7 hydro generation facilities are primarily based upon labor and other recurring
8 costs and are typically consistent year over year. The costs of the individual
9 projects included in the Hydro forecast are estimated on a project-specific basis.
10 PG&E's forecast is based on a bottom-up calculation of the expected costs for
11 the projects and programs to be implemented in the forecast year.

12 Costs for CEMA are based on actual dollars spent on rebuilding or restoring
13 the existing facilities damaged due to a fire or storm event. These costs are
14 tracked and accounted for separately from the routine operation and are not
15 recovered from the GRC.

16 The CEMA events described in this chapter affected or threatened to affect
17 PG facilities. PG&E's actions in response to these incidents were necessary
18 and reasonable given the extensive damage the emergency events caused and
19 the further damage they threatened to cause.

20 **1. NCF**

21 **a. Description of Event**

22 The NCF was a massive wildfire complex that burned in the Plumas
23 National Forest in Northern California in Plumas and Butte counties.

24 21 fires were started by lightning on August 17, 2020. By September 5,
25 most of the individual fires had been contained with the exception of the
26 Claremont and Bear Fires, which merged on that date, and the Sheep
27 Fire, which was then designated as a separate incident. On
28 September 8, strong winds caused the Bear and Claremont Fires to
29 explode in size, rapidly spreading to the southwest.

30 The NCF was 100 percent contained on December 3. The fire was
31 managed by the U.S. Forest Service in conjunction with Cal Fire. At that
32 time the NCF was the sixth largest in California's modern history.

1 **b. Costs**

2 PG spent \$0.9 million in 2020 responding to this fire. The
3 \$0.9 million is itemized in Table 6-2.

TABLE 6-2
2020 NCF LIGHTING COMPLEX
COST ELEMENT BREAKDOWN OF COSTS
(THOUSAND OF DOLLARS)

Line No.	Cost Category	Capital	Expense	Total (Capital + Expense)
1	Contract	–	\$851	\$851
2	Labor	–	39	39
3	Materials	–	–	–
4	Other	–	8	8
5	Total	–	\$897	\$897

4 **c. Damaged Facilities and Prevention Activities**

5 The fire burned a total of 318,935 acres, and 2,455 structures were
6 destroyed. During the course of the fire, PG&E personnel and
7 contractors performed fire mitigation measures to protect PG assets.
8 These activities included brush removal for fuel reduction, as well as
9 application of fire retardant and blankets on equipment. As a result of
10 this proactive response, PG facilities did not incur significant damages.
11 Following the fire, PG sent teams for damage assessment, hazard
12 tree/fire debris removal, and minor repairs to roads and the Butte canal.

13 **2. 2020 Costs Related to Prior Filings**

14 **a. 2019 January-February Storms**

15 **1) Description of Event**

16 The January-February Severe Storms began on January 5 and
17 continued through February 27, 2019. This series of rainstorms
18 swept across California bringing high winds, substantial
19 precipitation, snow, and lightning.

20 **2) Costs**

21 Table 6-3 provides a summary of PG costs for these storms
22 incurred in 2020.

**TABLE 6-3
2019 JANUARY-FEBRUARY STORM
COST ELEMENT BREAKDOWN OF 2020 COSTS
(THOUSAND OF DOLLARS)**

Line No.	Cost Category	Capital	Expense	Total
1	Contract	\$39	\$2	\$41
2	Labor	9	38	47
3	Materials	-	-	-
4	Other	5	-	5
5	Total	\$53	\$40	\$93

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 Tiger
6 Creek facility included work to clear debris from the area for
7 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. Accounting for PG Emergency Costs**

19 In instances when a declaration of disaster has been made by a competent
20 state or federal authority, PG tracks related costs incurred within the designated
21 geographic area(s) for potential recovery by assigning Reason Code 63,
22 Catastrophic Event, to planning orders and orders. These orders are created for
23 both capital and expense. This allows PG&E to query its accounting system to
24 select only the emergency response work that occurred in the counties covered
25 by a government-declared emergency for CEMA treatment.

26 **E. Conclusion**

27 The incremental recorded activities described in this chapter were
28 necessary to mitigate the effects of fire and storm related emergencies, to
29 reduce the likelihood and impact of fires and storm related damages on PG&E's
30 facilities. The costs incurred performing those activities were reasonable, and
31 the CPUC should authorize PG&E to recover them in this application.

PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 7
COVID 19 PANDEMIC: CEMA

PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 7
COVID 19 PANDEMIC: CEMA

TABLE OF CONTENTS

A. Introduction.....	7-1
B. Summary of Request.....	7-2
C. Background	7-5
1. Response Coordination and Employee Support	7-5
2. Sequestration.....	7-6
3. Protective Equipment, Facility Modifications, Vehicle Rentals, and Inspections to Comply with Health Orders	7-6
4. Transition to and Support of Remote Work.....	7-7
5. Cleaning Due to COVID-19 Cases.....	7-8
D. COVID-19 Response Components.....	7-9
1. Response Coordination and Employee Support	7-9
a. Electric Operations	7-11
b. Gas Operations	7-13
c. Strategy and Policy.....	7-13
2. Sequestration.....	7-14
a. Electric Operations	7-16
b. Gas Operations	7-17
1) Gas Operations Control Centers	7-17
2) Gas Operations Hinkley Compressor Station.....	7-18
c. Corporate Real Estate Strategy and Services (CRESS)	7-19
d. Transportation Services.....	7-20
e. IT Organization	7-21
f. Power Generation.....	7-22
g. Nuclear Generation	7-23

PACIFIC GAS AND ELECTRIC COMPANY
 2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
 CHAPTER 7
 COVID 19 PANDEMIC: CEMA

TABLE OF CONTENTS
 (CONTINUED)

3. Protective Equipment, Facility Modifications, Vehicle Rentals, and Inspections to Comply with Health Orders	7-24
a. Electric Operations	7-26
1) Material Costs	7-26
2) Alternate Work Location Costs	7-27
b. Gas Operations	7-28
c. CRESS	7-29
d. Transportation Services	7-30
e. Enterprise Health and Safety	7-31
f. IT Organization	7-32
g. Power Generation	7-33
h. Nuclear Generation	7-35
4. Transition to and Support of Remote Work	7-36
a. Information Technology	7-36
b. Customer Care	7-37
c. IT Organization	7-38
1) IT Labor	7-41
d. Customer Care	7-45
1) Remote Agent Set-up	7-45
2) Ergonomic Equipment	7-46
3) COVID-19 Customer Service Support Costs	7-47
4) Internet and Cell Phone Reimbursements	7-48
5) Employee Communication	7-48

PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 7
COVID 19 PANDEMIC: CEMA

TABLE OF CONTENTS
(CONTINUED)

5. Cleaning Due to COVID-19 Cases.....	7-49
a. CRESS	7-50
b. Transportation Services.....	7-50
c. Power Generation.....	7-52
E. Incrementality	7-52
F. Cost Reasonableness	7-52
1. Mandated Actions	7-53
2. Continuity of Service	7-53
3. Concurrent Emergencies	7-54
G. Avoided Costs	7-55
H. Conclusion.....	7-56

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS**
3 **CHAPTER 7**
4 **COVID 19 PANDEMIC: CEMA**

5 **A. Introduction**

6 Pacific Gas and Electric Company (PG&E or the Company or the Utility)
7 respectfully requests authorization from the California Public Utilities
8 Commission (CPUC or Commission) to recover 2020 costs recorded in its
9 Catastrophic Event Memorandum Account (CEMA) associated with PG&E’s
10 activities necessary to ensure the health and safety of customers, the public,
11 employees, and contractors during the coronavirus (COVID-19) pandemic.

12 In December 2019, a new strain of the Severe Acute Respiratory Syndrome
13 Coronavirus was identified in Wuhan, China. The highly-transmissible virus
14 causes a potentially fatal respiratory condition called COVID-19. By
15 February 2020, the virus had been detected in the United States.

16 While it did not directly damage physical infrastructure, the COVID-19
17 pandemic caused PG&E to change business operations and implement new
18 work practices. This included implementing enhanced cleaning; transitioning
19 employees to remote work; purchasing protective equipment; modifying facilities
20 to allow for social distancing; and sequestering certain personnel critical to
21 operating our infrastructure. The COVID-19 costs for which we seek recovery
22 were necessary to protect our customers, the public, employees, and
23 contractors as well as prevent a shortage of key personnel that could jeopardize
24 our ability to provide reliable utility services to customers.

25 On March 4, 2020, Governor Gavin Newsom declared a state of emergency
26 in California because of the COVID-19 outbreak.¹ Beginning in March 2020,
27 PG&E began incurring significant unanticipated costs to protect the health of
28 customers, the public, employees, and contractors in light of the significant
29 health risks posed by the pandemic. These costs were necessary to comply
30 with Executive Orders (EO) issued by the Governor regarding the pandemic,

1 <https://www.gov.ca.gov/wp-content/uploads/2020/03/3.4.20-Coronavirus-SOE-Proclamation.pdf>.

1 various public health orders issued by state and county Health Officers, and to
2 meet other operational requirements (e.g., maintain sufficient workforce levels
3 and work schedules to maintain reliable service). On April 3, 2020, PG&E
4 notified the CPUC Executive Director that the Company had begun recording
5 COVID-19 response costs to its CEMA.

6 As the pandemic developed in 2020, PG&E implemented various measures
7 to respond to rapidly developing and changing regulatory requirements imposed
8 by state and local authorities. The measures protected the health and safety of
9 the public and PG&E customers, employees, and contractors, while ensuring
10 reliable utility service. These dynamics necessitated rapid and often
11 unprecedented changes in how PG&E performs work.

12 Costs incurred to implement these changes were not forecasted nor
13 anticipated in any other cost-recovery proceeding. Normal costs of doing
14 business and activities funded in base rates are not included within this chapter.
15 In addition, PG&E is not seeking any COVID-19 related expenditures associated
16 with its electric transmission facilities under Federal Energy Regulatory
17 Commission (FERC) jurisdiction. The costs described herein reflect only
18 incremental costs for CPUC-jurisdictional activities that were necessary and
19 reasonable to respond to the COVID-19 pandemic.

20 **B. Summary of Request**

21 In this application, PG&E requests authorization to recover \$55.9 million in
22 expense and \$1.2 million in capital for recorded costs to respond to the
23 COVID-19 pandemic in 2020. The tables below list the workstreams and
24 associated costs shown by capital and expense for each line of business (LOB).

**TABLE 7-1
SUMMARY OF RECORDED COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Workstream	Expense	Capital
1	Response Coordination and Employee Support	\$2,041	–
2	Sequestration	25,674	–
3	Protective Equipment, Facility Modifications, Vehicle Rentals, and Inspections to Comply with Health Orders	15,522	–
4	Transition to and Support of Remote Work	8,326	\$1,209
5	Cleaning Due to COVID-19 Cases	4,385	–
6	Total	\$55,948	\$1,209

TABLE 7-2(a)
SUMMARY OF RECORDED EXPENSE COSTS BY LOB
(THOUSANDS OF DOLLARS)

Line No.	Category	Electric Ops ^(b)	CRESS	IT	Gas	Transportation Services	Power Generation ^(c)	Customer Care	Strategy & Policy	Enterprise Health & Safety	CEMA – Eligible Expense Total
1	Response Coordination and Employee Support	\$1,786	–	–	\$146	–	–	–	\$109	–	\$2,041
2	Sequestration	7,795	\$7,086	\$1,222	5,435	\$3,542	\$597	–	–	–	25,674
3	Protective Equipment Facility Modifications, Vehicle Rentals, and Inspections to Comply with Health Orders	10,729	1,401	195	292	577	2,268	–	–	\$56	15,522
4	Transition to and Support of Remote Work	–	–	6,233	–	–	–	\$2,093	–	–	8,326
5	Cleaning Due to COVID-19 Cases	–	3,843	–	–	471	71	–	–	–	4,385
6	Total	\$20,310	\$12,330	\$7,650	\$5,874	\$4,590	\$2,936	\$2,093	\$109	\$56	\$55,948

(a) These numbers do not include the overhead adjustments discussed in Chapter 13.

(b) The categories here are based on cost elements.

(c) This category of costs includes nuclear.

TABLE 7-3^(a)
SUMMARY OF RECORDED CAPITAL COSTS
(THOUSANDS OF DOLLARS)

Line No.	Workstream	CEMA – Eligible IT Capital
1	Transition to Support of Remote Work	\$1,209

(a) These numbers do not include the overhead adjustments discussed in chapter 13.

1 **C. Background**

2 A detailed timeline of the pandemic and PG&E’s response activities is
3 provided in Attachment A to this chapter. A summary of key events and
4 milestones is provided below.

5 **1. Response Coordination and Employee Support**

6 On February 3, 2020, PG&E convened a planning group to monitor the
7 developing COVID-19 situation in California, and to identify potential impacts
8 to the utility, as well as customers, the public, employees, and contractors.
9 This planning group subsequently evolved to become the COVID-19 Policy
10 Committee (Committee), led by the Senior Vice President of
11 Human Resources (HR). The Committee includes leadership from PG&E’s
12 operations and support LOBs, as well as internal subject matter experts in
13 epidemiology/public health, safety, emergency response and business
14 continuity, HR, benefits, facilities, and technology. The Committee is
15 advised by a contract Medical Director and a consulting
16 pandemic/business-continuity expert.

17 The Committee’s role is to guide PG&E’s overall response, including
18 establishing: (1) prudent, health-protective policies for employees and work
19 activities; and (2) clear communications with all employees regarding
20 COVID-19 risks and best work practices. PG&E’s primary objective in its
21 COVID-19 response is to maintain the safety and health of customers, the
22 public, employees, and contractors, while assuring that PG&E meets all
23 applicable regulatory requirements and maintains reliable service for
24 customers. The Committee met several times per week through the
25 duration of 2020. Incremental costs associated with coordinating PG&E’s

1 response and communicating with employees about requirements and the
2 developing situation are described in Section D1.

3 **2. Sequestration**

4 Beginning in April 2020, PG&E prepared to implement a business
5 continuity process called “sequestration.” Sequestration involves isolating a
6 group of personnel who are known to be uninfected in an environment
7 where their only contact is with other uninfected personnel. The uninfected
8 personnel remain in a single location and do not leave at any time or interact
9 in-person with anyone outside the sequestration “bubble.” Certain essential
10 jobs at PG&E, such as Operators in controls rooms, are staffed by a small
11 number of personnel with highly specialized qualifications. Assuring
12 continuity in staffing these positions is vital to maintaining the safe and
13 reliable provision of gas and electric service. Staffing of these duties under
14 normal circumstances allows for occasional absences due to sick leave,
15 vacation, and other reasons. However, there would be insufficient
16 personnel qualified to perform these functions if COVID-19 suddenly made
17 several of these workers unavailable simultaneously, whether due to actual
18 infection or due to being quarantined for exposure. This work cannot be
19 performed remotely, and mutual aid or temporary staffing alternatives are
20 not possible or practical. Sequestration planning and implementation was
21 conducted to assure these essential functions continued unimpacted by the
22 pandemic. Incremental costs associated with sequestration are described in
23 Section D2.

24 **3. Protective Equipment, Facility Modifications, Vehicle Rentals, and** 25 **Inspections to Comply with Health Orders**

26 Numerous state and county health orders issued in 2020, as well as an
27 Emergency Regulation promulgated by the California Occupational Safety
28 and Health Administration (Cal/OSHA),² required the purchase of Personal
29 Protective Equipment (PPE) specific to the COVID-19 pandemic to protect
30 those critical infrastructure workers exempted from the stay-at-home orders.

² 8 California Code of Regulations (CCR) 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 A related, fundamental health control measure required by Centers for
2 Disease Control and Prevention (CDC) guidance, health orders, Governor
3 Newsom’s EO, and the emergency Cal/OSHA regulation, was a requirement
4 for personnel to remain at least six feet from others, unless close contact
5 was necessary to perform a specific task. This “social distancing”
6 requirement necessitated use of separate vehicles, closing or reconfiguring
7 various indoor facilities and performing work outdoors, and other measures
8 to facilitate maximal distance between working personnel. Expansive
9 additional COVID-19 related inspection requirements, including inspection
10 by a third party for construction work in certain counties and facility
11 inspection in response to specified Cal/OSHA criteria, were also required.
12 The incremental costs associated with these programs are described in
13 Section D3.

14 **4. Transition to and Support of Remote Work**

15 On March 4, 2020, Governor Gavin Newsom declared a state of
16 emergency in California for COVID-19. On March 16, 2020, Public Health
17 Officers of six San Francisco Bay Area counties concurrently issued
18 stay-at-home orders directing residents to shelter at home except as
19 necessary to perform certain essential functions. Concurrent with these
20 health orders, PG&E opened its Emergency Operations Center (EOC) to
21 manage the Company’s tactical response to the COVID-19 pandemic. On
22 March 19, 2020, Governor Newsom issued EO N-33-20 directing all
23 Californians, with the exception of certain specified Critical Infrastructure
24 workers, to heed the State Health Officer’s Directive and remain at home.³
25 EO N-33-20 and the associated health order were modified from time to time
26 but remained in effect throughout 2020.

27 On March 13, 2020, in anticipation of the Bay Area stay-at-home orders,
28 and to protect the health of PG&E workers, PG&E directed all non-field
29 personnel to shelter at home. Personnel who had job responsibilities
30 permitting them to work remotely were directed to do so. Field personnel
31 were directed to continue working under the exception in the health orders
32 for critical infrastructure work.

3 <https://covid19.ca.gov/img/Executive-Order-N-33-20.pdf>.

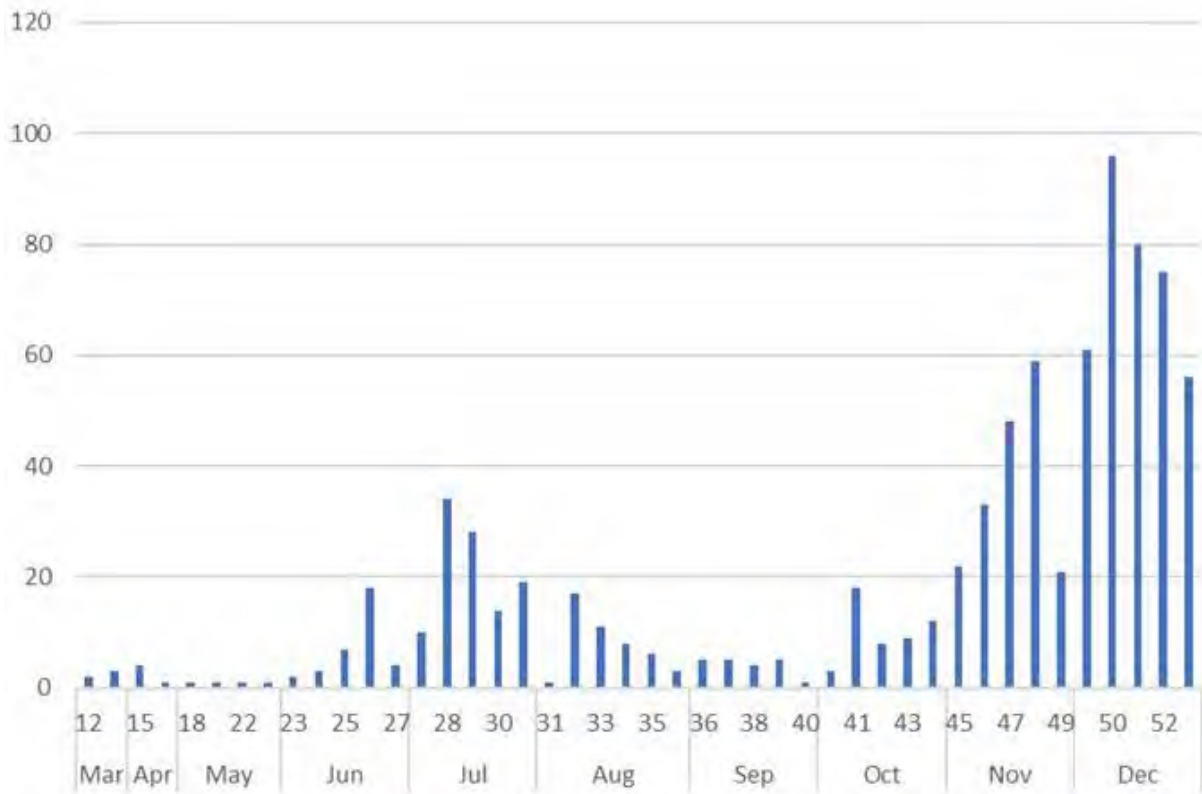
1 The directive to remain at home (“remote,” “work from home,” or WFH)
2 required a rapid deployment of equipment and upgrades to PG&E’s
3 Information Technology (IT) network to support the suddenly distributed,
4 remote workforce. Equipment and enhanced technical support were
5 necessary to support the remote workforce. The incremental costs of
6 shifting PG&E personnel from PG&E sites to remote work are described in
7 Section D4.

8 **5. Cleaning Due to COVID-19 Cases**

9 When an individual who spent time in the workplace subsequently
10 tested positive for COVID-19, PG&E performed enhanced cleaning of
11 workstations, vehicles, and other parts of the workplace encountered by the
12 infected individual in order to prevent transmission of the virus. Particularly
13 in the early stages of the pandemic, enhanced cleaning was considered an
14 essential protective measure. During 2020, 794 PG&E employees and
15 259 contractors reported testing positive for COVID-19 (Figure 7-1) and
16 were required to isolate. Many of these cases necessitated enhanced
17 cleaning of the workplace.

18 Incremental costs associated with workplace cleaning following a
19 positive case of COVID-19 are described in Section D5.

**FIGURE 7-1
NUMBER OF NEW PG&E CASES OF COVID-19 BY WEEK, 2020**



1 **D. COVID-19 Response Components**

2 In this section, PG&E describes the response-activity categories and
 3 associated costs identified in Sections B and C above: (1) Response
 4 Coordination and Employee Support; (2) Sequestration; (3) Protective
 5 Equipment, Facility Modifications, Vehicle Rentals, and Inspections to Comply
 6 with Health Orders; (4) Transition to and Support of Remote Work; and
 7 (5) Cleaning due to COVID-19 Cases.

8 **1. Response Coordination and Employee Support**

9 A summary of PG&E’s Response Coordination and Employee Support
 10 activities is provided below, with costs shown in Table 7-4.

TABLE 7-4
SUMMARY OF RESPONSE COORDINATION EXPENSE COSTS BY LOB
(THOUSANDS OF DOLLARS)

Line No.	LOB	CEMA – Eligible Expense
1	Electric Operations	\$1,786
2	Strategy and Policy	109
3	Gas Operations	146
4	Total	\$2,041

1 PG&E’s EOC was activated for COVID-19 response on March 16, 2020
2 and was transitioned to a Project Management Office (PMO) on July 24,
3 2020. While activated, the EOC coordinated procurement, sequestration
4 planning and execution, and the implementation of immediate tactical
5 requirements necessitated by state/county policy decisions and health
6 orders. An internal communications program was implemented to keep
7 PG&E employees, contractors, and other interested parties aware of the
8 rapidly changing situation, compliance requirements, safety measures to be
9 taken, and other expectations. When it became clear that the pandemic
10 would be a long-term event lasting at least several more months, PG&E
11 established a COVID-19 PMO in the Emergency Preparedness and
12 Response Department to continue implementing guidance provided by
13 PG&E’s Committee and coordinating COVID-19 tactical responses. This
14 allowed EOC resources to be redirected to address shorter-term wildfire,
15 storm, Public Safety Power Shutoff (PSPS), and commodity-shortfall events
16 that occurred in the remainder of 2020.

17 PG&E engaged a contract physician familiar with PG&E operations to
18 provide medical and public health guidance for PG&E’s pandemic response.
19 The physician advised the Committee, EOC, and field personnel on safe
20 health practices and guided implementation of case reporting, contact
21 tracing, and other COVID-19 case activities. PG&E also engaged a
22 business-continuity and crisis-response advisor to prioritize and align
23 response activities as business continuity plans were implemented.

24 Contracted security service was necessary at various facilities in
25 response to the COVID-19 pandemic. These security resources provided
26 the following services: (1) protection of the San Ramon Valley Conference

Center (SRVCC) that was used for sequestering employees; (2) preventing entry to PG&E property by the public for recreational purposes (e.g., hydro facility recreation areas); and (3) protecting facilities outside PG&E’s fence line that were established to permit social distancing of personnel. These security costs were assigned to the LOB responsible and appear in various sections of this testimony.

a. Electric Operations

Table 7-5 summarizes costs incurred by PG&E’s Electric Operations Organization to provide oversight, contracted medical guidance, and business continuity expertise in support of the Company’s COVID-19 response in 2020.

**TABLE 7-5
SUMMARY OF ELECTRIC OPERATIONS COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA Eligible Expense
1	Labor	\$1,308
2	Contract and Business Continuity Consultant ^(a)	478
3	Total	\$1,786

(a) Intrinsik Environmental Services (Intrinsik) provides a number of services to PG&E, including environmental work and medical consultation. The Intrinsik costs embedded in line 2 are strictly for medical consultation related to COVID-19.

At the start of the pandemic, PG&E activated its EOC to provide oversight and coordination of several projects initiated to support COVID-19 response.

The labor costs of \$1.3 million include EOC staffing from government relations, customer relations, emergency response, and other functions. These particular staffing costs were paid by Electric Operations. The EOC personnel organized and performed tactical response activities associated with PG&E’s COVID-19 response, provided information and intelligence to support the response, and monitored and coordinated with government agencies at the state and local level to assure continuity of operations in compliance with all

1 regulatory orders. Other EOC personnel (paid through other
2 departments) will be identified in subsections below.

3 The costs of \$0.48 million are for contracts for the Medical Director
4 and a Business Continuity Consultant. PG&E does not have a physician
5 on staff. A licensed, Board Certified occupational and environmental
6 physician—who has advised PG&E’s Health and Safety Program for
7 many years, and who is familiar with PG&E operations—was contracted
8 through Intrinsic to provide consulting service on appropriate COVID-19
9 response measures. The Medical Director is a recognized expert in risk
10 and crisis communication and specializes in assisting business clients in
11 communicating with concerned employees and communities about the
12 health risk of operations and the work environment. She has advised
13 PG&E management on all medical aspects of the developing pandemic.
14 In addition, she provided guidance on appropriate occupational health
15 measures to be taken to protect employees and customers; advised
16 leaders on policy decisions; and reviewed and contributed to materials
17 being developed by PG&E’s communications team to inform employees
18 on protective measures, policies, and procedures and to interpret the
19 complex and often conflicting information appearing in the press and in
20 government guidance. PG&E’s Medical Director also participated in
21 monthly “all-hands” video conference-calls where employees could ask
22 questions about COVID-19, and was featured in a series of short videos
23 produced by PG&E for an internal audience that addressed specific
24 concerns and issues that arose during 2020.

25 Early in the pandemic, PG&E also retained an expert on business
26 continuity and pandemic planning. This expert was contracted through
27 Emergency Management and Safety Solutions to advise PG&E on
28 immediate and longer-term planning as the pandemic situation evolved.
29 The focus of the work performed was to help assure sufficient measures
30 were in place to maintain continuity of service as staffing levels
31 fluctuated and as PG&E moved to remote work.

32 Travel expenses totaling \$1 million were incurred for employees
33 implementing necessary changes in procedures and work methods
34 necessitated by COVID-19.

1 **b. Gas Operations**

2 Table 7-6 summarizes costs incurred by Gas Operations in support
3 of the Company's COVID-19 response in 2020.

TABLE 7-6
GAS OPERATIONS COVID-19 EXPENSES
(THOUSANDS OF DOLLARS)

Line No.	Costs	CEMA – Eligible Expense
1	Labor – Gas Personnel	\$146

4 Labor costs of \$0.14 million were incurred for Gas Operations
5 employees supporting the EOC and, subsequently, the COVID-19 PMO
6 (the Gas Operations Pandemic Response Team). This team identified
7 issues within Gas Operations specific to COVID-19 and developed and
8 implemented strategies for deploying necessary information and
9 resources throughout this LOB.

10 **c. Strategy and Policy**

11 Table 7-7 summarizes costs incurred by PG&E's Strategy and
12 Policy Organization to develop and deliver communications in support of
13 the Company's COVID-19 response in 2020.

TABLE 7-7
STRATEGY AND POLICY 2020 COVID-19 EXPENSES
(THOUSANDS OF DOLLARS)

Line No.	Costs	CEMA – Eligible Expense
1	Labor – Communications and Marketing Personnel	\$83
2	Website & Video Production	26
3	Total	\$109

14 Labor costs of \$0.08 million were incurred for Communications and
15 Marketing personnel necessary to support the COVID-19 emergency in
16 the EOC by developing internal and external communications (social
17 media, news releases, direct to customer communications, etc.). These
18 communications informed stakeholders as to how PG&E was

1 responding to the pandemic with a focus on ensuring continuity of
2 service and providing customer protections.

3 The website production costs of \$0.03 million were incurred in
4 connection with publishing COVID-19 related content on PG&E's
5 COVID-19 internal website. This webpage⁴ is targeted to employees
6 and contractors. It is designed to be a central repository for all
7 guidance, policies, direction, and health information related to COVID-19
8 and the pandemic. The costs also include video production costs for
9 posting and closed captioning of videos PG&E produced to inform
10 employees and contractors about the pandemic and safety expectations
11 while working.

12 2. Sequestration

13 As discussed in Section C, PG&E prepared the SRVCC as a site for
14 sequestering control center personnel from Gas and Electric Operations if
15 conditions deteriorated and there was a need to isolate these personnel.
16 Sequestration was a last-resort decision due to the cost, significant
17 inconvenience to personnel, and logistics associated with having key
18 personnel living on-site 24 hours per day for an extended period. Table 7-8
19 summarizes sequestration costs by LOB.

TABLE 7-8
SUMMARY OF SEQUESTRATION PREPARATION & IMPLEMENTATION COSTS BY LOB
(THOUSANDS OF DOLLARS)

Line No.	LOB	CEMA – Eligible Expense
1	Electric Operations	\$7,795
2	Gas Operations	5,435
3	CRESS	7,086
4	Transportation	3,542
5	IT	1,222
6	Power Generation	549
7	Nuclear Generation	48
8	Total	\$25,677

⁴ The webpage is available at: https://www.pge.com/en_US/about-pge/company-information/protective-protocols/covid19-employee.page.

1 Preparation for sequestration included establishing temporary control
2 centers, developing a labor agreement to cover the conditions of
3 sequestration, identifying which employees would need to be sequestered,
4 and establishing ancillary services—such as COVID-19 testing, medical
5 care, food, and lodging—and other necessary components to isolate a
6 group of personnel.

7 Sequestration is only suitable for truly critical functions performed at
8 specific locations that can be isolated—such as a control room or power
9 plant. It is appropriate to protect essential functions that have a very limited
10 number of employees with the knowledge, skills, and qualifications to
11 perform them, in circumstances where the technical requirements prevent
12 use of other personnel, contractors, or mutual aid to perform the function.
13 During 2020, sequestration was considered and planned to protect control
14 room workers in Electric Distribution, Gas Transmission and Distribution,
15 certain workers at the Diablo Canyon Power Plant (DCPP), and workers at a
16 few key power plants and gas storage and transmission facilities.

17 On April 27, 2020, as the number of cases of COVID-19 continued to
18 rise in California, and after PG&E employees began to be affected directly
19 by the disease, implementation of sequestration was approved and initiated
20 for Gas and Electric Control Centers at PG&E's SRVCC. The first group of
21 approximately 100 personnel (67 Operators and about 33 support
22 personnel) entered sequestration at SRVCC. Personnel were tested for
23 COVID-19, isolated until their tests were confirmed negative, and then were
24 permitted to commence working in the Sequestration Control Rooms that
25 had been established at that facility. Personnel were not permitted to leave
26 the property during their tour of duty. Support personnel including IT,
27 facilities, food service, security, and contract medics were included in the
28 sequestration team and remained on-site for the entire tour of duty. Security
29 personnel maintained the sequestration "bubble" and prevented any
30 possible interaction between the sequestered personnel and outside
31 individuals.

32 Four sequestration "waves" of 28 to 32 days duration were established
33 in the period between April 27 and September 25, 2020, at which point the

1 SRVCC was held in stand-by for the remainder of 2020 in anticipation of the
2 need to potentially re-sequester personnel at a future date.

3 The SRVCC was ideal as a sequestration site for several reasons: (1) it
4 could be readily secured; (2) there were on-site lodging and food-service
5 facilities; (3) support staff were already in place who could facilitate facility
6 and lodging operations; (4) IT network infrastructure was available or readily
7 configurable; and (5) there was sufficient space to accommodate the control
8 centers for which sequestration was necessary.

9 Sequestration was also implemented at Humboldt Bay Generating
10 Station (HBGS) on December 8, 2020, as a result of COVID-19 related staff
11 impacts reaching pre-designated trigger points.

12 Preparation for sequestration at Hinkley Compressor Station (HCS)—
13 which also reached critical staffing levels—was completed in December
14 2020, with sequestration initiated in January 2021.

15 **a. Electric Operations**

16 Total sequestration and security costs for Electric Operations are
17 presented in Table 7-9.

TABLE 7-9
ELECTRIC OPERATIONS CONTROL ROOM SEQUESTRATION
(THOUSANDS OF DOLLARS)

Line No.	Costs	CEMA – Eligible Expense
1	Sequestration Pay and Other Stipends	\$7,462
2	Security Services	333
3	Total	\$7,795

18 In order to establish the requirements for represented labor in a
19 sequestered environment, PG&E and International Brotherhood of
20 Electrical Workers Local 1245 negotiated LA 20-22-PGE to reach an
21 agreement for 24/7 sequestered coverage. Pursuant to the agreement,
22 sequestered employees were provided double-time pay for the duration
23 of their sequestered time, and were eligible for a daily stipend for
24 purchase and/or delivery of food to the employee’s household or a daily
25 gift card, to be spent at local restaurants to stimulate local economies.
26 In order to be eligible for this stipend or gift card, a sequestration

1 volunteer was required to have a spouse, registered domestic partner,
2 and/or dependent children living in their personal residence.

3 LA 20-22-PGE also provided sequestered employees with a
4 \$75.00 per month (or a prorated portion thereof) stipend to cover
5 connectivity charges associated with maintaining contact outside of
6 sequestration during the duration of the sequestration assignment.

7 At the completion of a sequestration assignment, this agreement
8 also provided four days of straight-time pay based on the employee's
9 regularly scheduled hours (8, 9, 10, or 12), during which the employee
10 was not required to report to work and could not be called in to work.

11 Sequestered supervisors were provided the same benefits afforded
12 by LA 20-22-PGE, but were paid at the overtime rate and compensated
13 with lump-sum payments at the end of the assignment. Lump-sum
14 payments were calculated as the difference in regular pay, 2x their
15 regular pay for every hour of the sequestered assignment.

16 Following the Governor's "stay-at-home" order issued March 19,
17 2020, PG&E negotiated with Union representatives to enact a temporary
18 premium pay of 10 percent to incentivize critical classifications who were
19 not sequestered and who were required to continue working in the field
20 and interacting with the public to remain at work, in order to assure
21 continuity of field operations. Letter Agreement (LA) LA-20-22-PGE
22 went into effect on April 6, 2020 through May 30, 2020.

23 Finally, Security for the SRVCC site was covered under the
24 G4 Security contract, totaling \$0.33 million.

25 **b. Gas Operations**

26 **1) Gas Operations Control Centers**

27 Gas Control sequestration included four waves of
28 two employees being sequestered as needed for periods of
29 28 to 32 days at a time. These costs are summarized in
30 Table 7-10 below.

**TABLE 7-10
GAS OPERATIONS SEQUESTRATION COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	Sequestration Pay and Other Stipends – Transmission	\$2,033
2	Sequestration Pay and Other Stipends – Distribution	807
3	Security Services	2,552
4	Technology Set Up Labor and Contract	13
5	Total	\$5,405

1 In order to establish the requirements for represented labor in a
2 sequestered environment, PG&E and International Brotherhood of
3 Electrical Workers Local 1245 negotiated LA 20-39-PGE to reach an
4 agreement for 24/7 sequestered coverage. Pursuant to the
5 agreement, sequestered employees were provided double-time pay
6 for the duration of their sequestered time.

7 At the completion of a sequestration assignment, this
8 agreement also provided four days of straight-time pay based on the
9 employee’s regularly scheduled hours (8, 9, 10, or 12), during which
10 the employee was not required to report to work and could not be
11 called in to work.

12 Sequestered supervisors were provided the same benefits
13 afforded by LA 20-39-PGE, but were paid at the overtime rate and
14 compensated with lump-sum payments at the end of the
15 assignment. Lump-sum payments were calculated as the difference
16 in regular pay, 2x their regular pay for every hour of the sequestered
17 assignment.

18 Security for the SRVCC site was covered under the G4 Security
19 contract, totaling \$2.6 million.

20 The remaining sequestration costs included IT support at the
21 SRVCC site such as telecommunications, networking solutions, and
22 cybersecurity services.

2) Gas Operations Hinkley Compressor Station

24 The Gas Incident Management Team was activated on
25 December 23, 2020 to coordinate HCS sequestration plans if
26 staffing levels became impacted by COVID-19. Because HCS

1 requires five qualified Operators, an outbreak of COVID-19 would
 2 put the facility at risk of having inadequate staff to maintain safe
 3 operations. Due to the statewide surge in COVID-19 cases in
 4 December, sequestration preparatory work was completed
 5 December 26-29, 2020, although sequestration was not actually
 6 initiated until January 2, 2021. Costs for sequestration preparatory
 7 work are included in this filing. Table 7-11 summarizes the 2020
 8 costs to prepare HCS for sequestration.

**TABLE 7-11
 HINKLEY COMPRESSOR STATION SEQUESTRATION
 (THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	Labor hours and Sequestration Set-Up	\$30

9 Labor hours for preparatory work at HCS included establishing
 10 security, COVID-19 testing, food service, living quarters, site
 11 generators, portable lighting, temporary fencing, etc. Lodging
 12 trailers were set up and inspected and additional technology was
 13 installed in anticipation of personnel living on-site for up to 30 days.
 14 Because sequestration was actually implemented in January 2021,
 15 costs for some preparatory work were not incurred during 2020 and
 16 are not included here. Also included are the incidental costs (meals
 17 and lodging) incurred by employees travelling from outside of the
 18 area to perform the setup work.

c. Corporate Real Estate Strategy and Services (CRESS)

20 The cost of leveraging Sodexo to support CRESS is summarized in
 21 Table 7-12.

**TABLE 7-12
 CRESS SEQUESTRATION COSTS
 (THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	SRVCC Sequestration Facility	\$7,086

1 CRESS leveraged its vendor Sodexo to expedite, set up, and
 2 support the sequestration process and sequestered environment at
 3 SRVCC. As part of the complement of support staff in sequestration,
 4 Sodexo staffed and rotated four teams of about 29 full-time employees
 5 to live and work on-site 24 hours per day in order to provide onsite
 6 lodging and on-call services to the sequestered PG&E workgroups.
 7 These teams also remained sequestered on-site to minimize the risk of
 8 COVID-19 entering the sequestration bubble. Services provided to
 9 sequestered employees included all-day food and beverage, access to
 10 gyms and recreational areas for physical activity, housekeeping and
 11 enhanced janitorial cleanings, 24/7 front desk coverage, conference
 12 center and facility management, and 24/7 on-call building and Control
 13 Center maintenance support. The teams included staff with expertise in
 14 grid and control center facility support and site maintenance work, as no
 15 outside vendors were allowed within the sequestered environment.
 16 Enhanced janitorial cleanings were also performed to ensure the
 17 environment remained fully sanitized.

d. Transportation Services

18 Table 7-13 summarizes the 2020 trailers and equipment rental
 19 costs.
 20

**TABLE 7-13
 TRANSPORTATION SERVICES COSTS
 (THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	Trailers and Equipment Rentals	\$3,542

21 PG&E incurred incremental costs associated with office trailer
 22 rentals to comply with social distancing requirements imposed by the

1 State of California and local health orders. Trailers were also used at
 2 some locations, such as Humboldt and Hinkley, in anticipation of
 3 possible sequestration. On April 23, 2020, as a proactive, preventive
 4 measure, PG&E made the decision to begin sequestering a small
 5 number of critical employees responsible for daily monitoring of our
 6 electric and gas systems. Sequestration means that employees would
 7 live and work at one of our facilities 24 hours per day for an extended
 8 period of time. To ensure that they remained healthy and safe, PG&E
 9 ensured that basic necessities were provided. These items included
 10 food, travel trailers, generators, lighting, portable restrooms, washers
 11 and dryers, office equipment, bedding, and towels. From the start of this
 12 guidance, 329 units were rented -- including 18 generators, 72 travel
 13 trailers, 103 vehicles, 111 portable restrooms, and a small number of
 14 attachments and accessories. Most of the trailers and associated
 15 equipment were deployed in response to sequestration needs defined
 16 by Power Generation and Gas Transmission LOB.

17 **e. IT Organization**

18 IT incurred \$1.2 million for collective sequestered labor, as shown in
 19 Table 7-14 below.

**TABLE 7-14
 IT SEQUESTRATION LABOR
 (THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	Sequestration Labor	\$1,222

20 IT established 3 gas and electric control centers at the SRVCC and
 21 provided IT support within the sequestration bubble. IT set-up work
 22 included provisioning and installing standard computer workstations,
 23 monitor screens, and special workstations (e.g., Remedial Action
 24 Scheme, Turret radio consoles, data and voice network cabling, network
 25 firewalls, multi-functional printers, power back-up batteries, speakers,
 26 and phones). IT also assigned staff to work within the 3 sequestration
 27 centers to provide ongoing support.

1 **f. Power Generation**

2 The costs to prepare power generation facilities for sequestration
3 are summarized below in Table 7-15.

**TABLE 7-15
POWER GENERATION SEQUESTRATION COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	HBGS Sequestration Labor	\$397
2	Sequestration Preparation	152
3	Total	\$549

4 The HBGS planned headcount for 2020 includes 16 employees.
5 Due to COVID-19 cases and associated quarantining of HBGS
6 personnel in December 2020, the plant was at risk of becoming
7 inoperable due to insufficient qualified Operators.

8 HBGS is a critical facility providing energy to the Humboldt Bay
9 area. Loss of the plant due to COVID-19 would have immediately
10 affected the reliability of electric power to this isolated community, as
11 there are presently insufficient transmission resources to bring in
12 enough energy to replace the plant's output. On December 8, 2020,
13 sequestration was initiated at HBGS. Sequestration continued there for
14 the duration of 2020, with six employees sequestered.

15 Power Generation incurred \$0.4 million in labor costs as a result of
16 sequestering employees at HBGS during the month of December 2020.
17 These costs were incremental to normal plant operations costs and
18 were strictly due to the COVID-19 sequestration.

19 Power Generation reviewed other PG&E generation facilities and
20 support facilities at risk for needing to sequester personnel, based on
21 the criticality of the facilities in providing electric service to customers,
22 the facilities' locations, and, for hydroelectric facilities, the necessity to
23 manage dams and ensure compliance with FERC license requirements.

**TABLE 7-16
CRITICAL PG&E GENERATION FACILITIES AND
SUPPORT FACILITIES AT RISK FOR STAFFING SHORTAGES**

Line No.	Facility
1	Alta ^(a)
2	Angels Camp
3	Auberry ^(a)
4	Balch Camp
5	Camp 1
6	Caribou
7	Colusa
8	Electra
9	Fresno Operating Center
10	Gateway
11	Helms
12	Pit 3
13	Pit 5
14	Potter Valley
15	Rock Creek
16	Rogers Flat
17	Spring Gap
18	Tiger Creek
19	Wise ^(a)

(a) For certain locations, the need to potentially sequester employees off-site was identified. Alta Powerhouse was evaluated to sequester at the Spaulding Powerhouse, Auberry was evaluated to sequester at San Joaquin 3, and Wise Powerhouse was evaluated for sequestration at Halsey.

1 In preparation for sequestration at these facilities, PG&E incurred
2 costs for household items, appliances, and emergency communications
3 equipment.

4 **g. Nuclear Generation**

5 The costs to prepare PG&E's nuclear facilities for sequestration are
6 summarized below in Table 7-17.

**TABLE 7-17
NUCLEAR GENERATION SEQUESTRATION COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	Sequestration Set-Up	\$48

1 In anticipation of the potential need to sequester key Nuclear
2 Operators and other essential personnel at DCP, PG&E purchased
3 and stored materials and equipment including sleeping bags, cots, and
4 other necessities. To date, these materials have not been required as
5 part of plant preparedness. Keeping DCP in operation through the
6 pandemic was a critical requirement to maintain reliable service to
7 PG&E customers, and without the key Nuclear Operators and other
8 essential personnel available in sufficient numbers to comply with all
9 Nuclear Regulatory Commission requirements, shut-down of the plant
10 was a distinct possibility.

11 DCP leadership in consultation with the Company Medical
12 Director, on-site clinic, operational staff at the plant, and other advisors
13 assessed the need for sequestration daily beginning early in the
14 pandemic and continuing through the end of 2020, during the early part
15 of the pandemic. Triggers for the decision to sequester (trigger factors
16 included infection and hospitalization rate in San Luis Obispo County,
17 case counts among PG&E personnel, percent of personnel in key
18 positions absent or unable to perform their duties, etc.) were reviewed
19 daily, but never required the decision to actually sequester staff.

20 **3. Protective Equipment, Facility Modifications, Vehicle Rentals, and** 21 **Inspections to Comply with Health Orders**

22 Beginning in March 2020, and continuing for the rest of the year, the
23 State of California and various individual counties in PG&E's service territory
24 implemented a wide variety of COVID-19 related health orders, regulations,
25 and guidance on workplace practices,⁵ necessitating the purchase and
26 deployment of PPE, facility modifications, and the implementation of
27 specialized inspections in order to comply. These measures were
28 necessary to provide a safe working environment for employees and
29 contractors, and to protect customers when employees needed to have
30 direct contact with them.

5 When no regulatory requirement or enforceable health order was in place, PG&E relied on guidance from the CDC, and later from the state of California in *COVID-19 Industry Guidance for Energy and Utilities*, published July 29, 2020.

1 PPE is a broad category of materials that includes face coverings
2 (e.g., cloth masks, neck gaiters, and respirators such as N-95 masks),
3 coveralls, and gloves necessary to protect an employee from exposure to
4 viruses and other pathogens. Many of these products were not available
5 from PG&E's usual vendors and were purchased from textile companies and
6 others who were able to rapidly provide them in the quantities necessary.
7 PG&E also needed to purchase face coverings that were rated as Fire
8 Resistant (FR) to comply with electrical orders for workers performing
9 electrical work. These FR-rated face coverings were in short supply and
10 were considerably more expensive than simple cloth face coverings (at
11 times approaching \$80/unit) and were required for most Electric Operations
12 field personnel. New guidance from the CDC and the State of California in
13 late summer 2020 on what constituted an effective face mask led to
14 replacing thinner and less effective masks. Since the fit of cloth masks
15 depends on the shape of the face, they are not "one size fits all" and a
16 variety of masks had to be procured to accommodate the different
17 requirements of PG&E personnel. PG&E made limited and judicious use of
18 the N-95 respirators on-hand for wild-fire response. Due to the extreme
19 shortage of N-95 respirators nationwide, we maintained a policy of not using
20 N-95s unless circumstances necessitated it.

21 Cleaning, disinfecting surfaces, and washing and sanitizing hands were
22 key health-protective recommendations from the CDC and state/county
23 public health agencies in California. Hand sanitizer and sanitizing wipes
24 were in extremely short supply in 2020. To assure adequate supplies were
25 available, PG&E contracted with several local distilleries who formulated and
26 provided bulk quantities of hand-sanitizing gel meeting the U.S. Food and
27 Drug Administration's required minimum 60 percent ethanol content. A
28 summary of these costs is provided by LOB in Table 7-18 below.

**TABLE 7-18
SUMMARY OF COSTS BY LOB
(THOUSANDS OF DOLLARS)**

Line No.	LOB	CEMA – Eligible Expense
1	Electric Operations	\$10,729
2	Gas Operations	292
3	CRESS	1,401
4	Transportation	577
5	Enterprise Health and Safety	56
6	IT	195
7	Power Generation	364
8	Nuclear Generation	1,904
9	Total	\$15,518

1 **a. Electric Operations**

2 **1) Material Costs**

3 Material and shipping costs for PPE, sanitizer, and related items
4 for Electric Operations totaled \$9.5 million as shown in Table 7-19
5 below.

**TABLE 7-19
SUMMARY OF ELECTRIC OPERATIONS COSTS FOR MATERIALS
(THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	PPE and COVID-19 Related Mitigations	\$9,524

6 Throughout 2020, materials were purchased specifically to
7 support sanitation of onsite facilities and health of employees.
8 Materials were needed at an enterprise level to ensure employees
9 could maintain safety and compliance. Disinfecting wipes, sprays,
10 soap, gloves, masks, thermometers, and hand gels were purchased
11 in bulk and required to be used regularly. Some items were difficult
12 to obtain and higher in cost during the pandemic. Face masks were
13 purchased to ensure all employees complied with state and county
14 orders. Flame Resistant (FR) neck gaiters and masks were
15 purchased for field employees to ensure compliance with California
16 masking requirements, as well as FR clothing rules. Additionally,

1 employees working from home were provided materials to conduct
2 day-to-day business, including office furniture, stationary, and
3 printers.

4 **2) Alternate Work Location Costs**

5 In order to comply with CIP-006-6 Physical Security Plan
6 (SEC-2006P-01), enhanced security including 24/7 perimeter control
7 was required at various Alternate Control Centers, totaling
8 \$0.7 million as shown in table 7-20 below.

TABLE 7-20
SUMMARY OF ELECTRIC OPERATIONS COSTS FOR ALTERNATE WORK LOCATIONS
(THOUSANDS OF DOLLARS)

Line No.	Costs	CEMA – Eligible Expense
1	Security Services for Alternate Control Centers ^(a)	\$681

(a) Locations: Fresno, San Ramon, Auburn.

9 Electric Distribution Control Centers (EDCC) are operated by
10 highly-trained personnel who are essential to providing electric
11 service to PG&E customers. There are a limited number of these
12 personnel, and maintaining operations at the EDCCs was one of the
13 key objectives as PG&E developed its COVID-19 response.

14 Under normal conditions, Control Center System Operators
15 working in Fresno, Concord, and Rocklin utilize multi-user
16 workstations where personnel cannot be separated by six feet, as
17 required by State of California guidance and Cal/OSHA regulation
18 for social distancing during the COVID-19 pandemic. To maintain
19 mandated social distancing and provide redundant operational
20 oversight and integrity of the electric distribution grid, three
21 additional temporary Control Center locations were established.
22 Personnel were then separated between the sites, permitting
23 Control Center Operators to spread out and maintain adequate
24 distances.

1 These three additional Control Center sites were designed with
 2 full visibility and control of PG&E’s distribution electric grid and are
 3 located in Auburn, San Ramon, and Fresno. The Alternate Control
 4 Center sites were based out of trailers and did not have adequate
 5 security measures, such as card readers. Therefore, PG&E needed
 6 to implement appropriate security measures. The measures
 7 included using fencing and security officers to patrol these sites.

8 **b. Gas Operations**

9 Table 7-21 summarizes costs incurred by Gas Operations for facility
 10 modifications and protective equipment to comply with COVID-19 health
 11 orders.

TABLE 7-21
SUMMARY OF COSTS FOR GAS OPERATIONS FACILITY MODIFICATIONS AND PPE
(THOUSANDS OF DOLLARS)

Line No.	Costs	CEMA – Eligible Expense
1	Brentwood Facility	\$25
2	PPE and COVID-19 Related Mitigations	267
3	Total	\$292

12 Similar to EDCCs, Gas Control Centers are staffed by a very limited
 13 number of qualified key personnel responsible for controlling the flow of
 14 gas through the pipeline systems. Under normal operating
 15 circumstances, there are two redundant Gas Control Centers at PG&E
 16 (Bishop Ranch and Vacaville). Based on COVID-19 guidance from the
 17 State of California,⁶ these two sites were determined to be insufficient to
 18 provide adequate social distancing and to minimize contact between
 19 Gas Operations personnel. To address the risk of having insufficient
 20 personnel to operate the gas system safely, PG&E reconfigured its
 21 Brentwood facility to serve as an alternate Gas Control Center. Prior to
 22 the pandemic, the Brentwood facility was in the process of being retired,
 23 so limited construction was necessary to make the facility usable for this
 24 purpose. Once the reconfiguration was complete, Gas Control Center

⁶ *Ibid* at 11.

1 Operators were split between the Bishop Ranch, Vacaville, and
2 Brentwood control centers.

3 Brentwood facility costs include construction and configuration work
4 to permit physical separation; upgrading of heating, ventilation, and air
5 conditioning systems to provide adequate filtration consistent with
6 COVID-19 requirements; and lighting, water filtration, and other
7 maintenance work to establish a safe work environment for Gas Control
8 Center employees.

9 PPE and COVID-19 Related Mitigations include costs for masks,
10 face shields, gloves, etc. to protect employees from COVID-19 and
11 reduce transmission. The costs also include signage to emphasize
12 social distancing and other proper health practices at facilities and other
13 offices not managed by CRESS. These costs were not incurred prior to
14 the COVID-19 pandemic and are incremental to normal supply
15 expenses.

16 **c. CRESS**

17 Table 7-22 summarizes costs incurred by PG&E's CRESS to
18 provide enhancements to facility management required by the
19 Company's COVID-19 response in 2020.

**TABLE 7-22
SUMMARY OF CRESS COST
(THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	PPE and COVID-19 Related Mitigations	\$267
2	Facility Modifications	1,134
3	Total	\$1,401

20 Most PG&E office and support facilities are managed by CRESS,
21 who provide day-to-day facility management. CRESS purchased PPE
22 and other COVID-19 mitigation supplies, such as hand sanitizer and
23 cleaning supplies to comply with health orders and CDC guidance.
24 Cal/OSHA and various counties also enacted specific requirements for
25 the posting of signs and placards, which had to be purchased or
26 prepared for all facilities where personnel would be present. Due to

1 social distancing requirements, modifications were required for many
2 workspaces and, in some cases, the installation of plexiglass partitions
3 was necessary to isolate workers who could not maintain the required
4 distancing from others.

5 In some special cases, it was necessary to modify work areas for
6 mission-critical operations—such as additional secondary distribution
7 operations locations—to allow for social distancing.

8 All of the implemented requirements included in Table 7-22 were
9 incremental to normal business operations, and were necessary to
10 comply with specific health orders or guidance from the CDC or the
11 State of California on prudent practices for maintaining a COVID-19 safe
12 work environment.

13 **d. Transportation Services**

14 Table 7-23 summarizes the costs of vehicle rentals.

TABLE 7-23
SUMMARY OF TRANSPORTATION SERVICES COSTS
(THOUSANDS OF DOLLARS)

Line No.	Costs	CEMA – Eligible Expense
1	Vehicle Rentals	\$577

15 Various county health orders and guidance from the CDC and State
16 of California identified the sharing of vehicles by employees as a
17 high-risk activity to be avoided if possible.⁷ Traveling for extended
18 periods in the same vehicle with someone who is COVID-19 positive
19 has been a significant source of workplace transmission, both at PG&E
20 and other companies. On April 10, 2020, to adhere with CDC
21 recommendations for social distancing and minimize the spread of
22 COVID-19, PG&E published guidance to employees regarding vehicle
23 use. The PG&E guidance directed employees to avoid operating
24 vehicles with a passenger and avoid riding as a passenger. To enable

⁷ State of California *COVID-19 Industry Guidance for Energy and Utilities*, published July 29, 2020; Cal/OSHA Emergency Temporary Standard 8 CCR 3205 (c) (8)(C)(2), effective November 30, 2020.

1 employees to follow social distancing guidelines and meet the demand
 2 for additional fleet resources, PG&E repurposed a small group of
 3 30 vehicles that were previously planned to be retired from the fleet and
 4 began using 103 temporary rental vehicles, and 72 rental travel trailers.
 5 These vehicles remained in service for the duration of 2020, and
 6 facilitated compliance with Cal/OSHA regulations that became effective
 7 in November.

8 **e. Enterprise Health and Safety**

9 Table 7-24 summarizes EH&S costs for third-party inspections.

**TABLE 7-24
 ENTERPRISE HEALTH AND SAFETY COST FOR THIRD PARTY INSPECTIONS
 (THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	Other Employee-Related Expense	\$56

10 In May 2020, seven Bay Area counties implemented health orders
 11 requiring that a “COVID-19 Third-Party Jobsite Safety Accountability
 12 Supervisor (JSAS)” be assigned for certain large construction projects.
 13 The role of the JSAS is to provide oversight and assure COVID-19
 14 protocols and requirements are met. PG&E engaged a third-party
 15 vendor meeting the qualifications specified in the health orders to
 16 perform the required inspections, interviews, reporting and
 17 recordkeeping. Inspections were performed for all PG&E construction
 18 jobs meeting the criteria for a “large construction project” as defined in
 19 the health orders. The vendor was also prepared to assist PG&E in
 20 developing remediation at jobsites where COVID-19 protection was
 21 determined to be inadequate.

22 A total of 322 inspections were performed by the JSAS in 2020, as
 23 shown in Table 7-25.

**TABLE 7-25
JSAS INSPECTIONS REQUIRED BY HEALTH ORDER
PERFORMED FOR PG&E BY COUNTY, 2020**

Line No.	County	# of Inspections
1	Alameda	39
2	Contra Costa	23
3	Marin	77
4	San Francisco	50
5	San Mateo	18
6	Santa Clara	89
7	Sonoma	26
8	Total	322

1 **f. IT Organization**

2 Table 7-26 summarizes IT’s costs for: (1) PPE and COVID-19
3 Related Mitigations; and (2) Facility Modifications.

**TABLE 7-26
SUMMARY OF IT COST
(THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	PPE and COVID-19 Related Mitigations	\$19
2	Facility Modifications	176
3	Total	\$195

4 PPE and COVID-19 Related Mitigation costs for IT personnel
5 included various mask varieties (e.g., gaiter, respirator, cloth, cotton),
6 digital thermometers, disinfectant wipes, and hand sanitizer.

7 IT supported Electric Operations by preparing three alternate EDCC
8 sites for improved distancing and operational isolation at the Fresno
9 Operations Center, Auburn Service Center, and SRVCC
10 (non-sequestration area). These locations were selected due to having
11 space and existing core backbone IT infrastructure. Please refer to the
12 “Electric Operations” subsection for additional discussion on the
13 Alternate EDCC sites.

14 IT support actions included extending and installing network cables
15 to added trailer locations, installing wireless access points, and
16 providing multi-functional printing devices. All sites required

1 two computers per workstation, multiple monitor configurations,
2 telephony, radio consoles, and back-up battery feature.

3 **g. Power Generation**

4 Table 7-27 summarizes the costs incurred by the Power Generation
5 LOB for COVID-19 related protective equipment, facility inspections, and
6 other support costs to maintain PG&E's fleet of fossil and hydroelectric
7 generation facilities in readiness during the COVID-19 pandemic.

TABLE 7-27
SUMMARY OF POWER GENERATION COSTS
(THOUSANDS OF DOLLARS)

Line No.	Costs	CEMA – Eligible Expense
1	PPE and COVID-19 Related Mitigations	\$104
2	Facility Modifications ^(a)	260
3	Total	\$364

(a) Locations include Tiger Creek, Helms, Colusa.

8 Power Generation also incurred \$0.05 million to procure PPE—
9 including masks, gaiters, gloves, hand sanitizer, and soap products—to
10 be used by individual employees moving among the various power
11 generating stations. Personal thermometers were also purchased to
12 permit compliance with daily health screening requirements required by
13 state and local health orders, regulations, and guidance. Additional
14 computer peripherals, primarily printers, were also purchased to allow
15 for different groups of employees to maintain social distancing within
16 certain locations.

17 Power Generation also incurred \$0.124 million for enhanced
18 security services at PG&E's Tiger Creek facilities, which include a
19 switching center where PG&E is responsible for the safe operation of
20 seven powerhouses, 11 units, 200+ megawatts, 40+ miles of canal, and
21 all associated infrastructure. Areas adjacent to PG&E's Tiger Creek
22 facilities are popular recreation areas for the general public. While
23 sequestration was not required at this location, additional measures
24 were necessary to ensure members of the public did not come into

1 contact with facility personnel. While the Bureau of Land Management
2 and the U.S. Forest Service made decisions to close their adjacent
3 recreation areas, PG&E consulted with the Amador County Board of
4 Supervisors and decided to implement an additional precaution. PG&E
5 stationed a security guard at Tiger Creek to prevent any public
6 incursions and to ensure the limited on-site personnel were protected
7 and able to continue to work at that facility. While such security is not
8 typically required, it was deemed necessary to ensure the continued and
9 safe operation of the Tiger Creek facilities throughout the COVID-19
10 pandemic.

11 PG&E incurred \$0.08 million for various COVID-19 related health
12 measures in connection with contractors brought in to support inspection
13 and maintenance activities during an outage at the Helms Power Plant
14 (HPP or Helms). PG&E was completing a significant maintenance
15 activity at HPP when the COVID-19 pandemic began. This
16 maintenance activity involved bringing international experts from
17 Canada on-site to inspect and confirm the maintenance work performed.
18 The need to bring these experts on-site early in the pandemic
19 necessitated additional expense to address significant
20 government-imposed quarantine and other travel restrictions, and to
21 ensure backup resources were available to support completing the
22 tightly scheduled review on time, permitting the plant to resume
23 operations. Helms is a critical asset in assuring reliable power service
24 to PG&E customers and it was essential to complete this pre-pandemic
25 work as quickly as possible to recommission Unit 2 for operations.

26 PG&E incurred \$0.06 million for various COVID-19 related health
27 measures in connection with contractors brought in to support inspection
28 and maintenance activities at the Colusa Generating Station (CGS)
29 during a required annual outage in May 2020. This outage could not be
30 deferred and required PG&E to bring in approximately 200 contract
31 personnel from around the country to perform necessary on-site
32 maintenance. To oversee COVID-19 compliance during the outage,
33 PG&E retained contract health and safety inspectors to assist the plant
34 in implementing and monitoring proper COVID-19 protocols.

1 In addition, the CGS outage necessitated replacing a key PG&E
 2 staff member who was unable to perform their functions on-site due to
 3 COVID-19 related restrictions, resulting in an additional \$0.05 million in
 4 costs. During the Spring 2020 outage at CGS, a specialized mechanic
 5 was unable to be physically present due to COVID-19 risks to a highly
 6 vulnerable family member. Gateway Generating Station (GGS or
 7 Gateway) had similar staffing challenges and was unable to provide a
 8 replacement, requiring PG&E to bring in an external resource. CGS and
 9 GGS are the only PG&E-run combined cycle plants, so staffing this
 10 position from another internal resource was not possible.

11 **h. Nuclear Generation**

12 Nuclear Generation incurred \$1.9 million in 2020 costs for PPE and
 13 Equipment, preparation for sequestration and costs associated with
 14 cleaning and inspecting the DCPD for COVID-19 issues. These costs
 15 are summarized in Table 7-28 below. The costs were incremental to
 16 normal operating costs and were due to specific requirements or
 17 prudent industry practices for nuclear operations in response to
 18 COVID-19.

**TABLE 7-28
 SUMMARY OF NUCLEAR GENERATION COST
 (THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	PPE and COVID-19 Related Mitigations	\$1,904

19 In the fall of 2020, a refueling outage was required at DCPD. Such
 20 outages require the on-site presence of many contract personnel as well
 21 as personnel who had been working remotely in compliance with the
 22 state-mandated stay-at-home order. Additional costs were incurred to
 23 test and monitor 260 temporary outage contractors and employees for
 24 COVID-19 in addition to testing and monitoring all permanent in-house
 25 employees and contractors. All on-site personnel were regularly
 26 monitored and tested by a qualified third-party COVID-19 testing service
 27 and laboratory, consistent with guidance from the CDC and PG&E’s

1 Medical Director for the unique circumstances encountered during an
2 outage. These costs were incremental to normal outage costs, were
3 incurred due to the COVID-19 pandemic, and are reflected in
4 Table 7-28.

5 In addition, consistent with CRESS procedures described below,
6 Nuclear Generation implemented enhanced cleaning schedules and
7 protocols at DCPD performed by the janitorial contractor, continuing
8 from the beginning of the COVID-19 pandemic through the end of the
9 2020. On-site contractors also provided continued monitoring for
10 COVID-19 compliance by the plant and by personnel entering and
11 working in the facility.

12 **4. Transition to and Support of Remote Work**

13 On March 13, 2020, PG&E's office-based workforce was directed to
14 work from home (WFH). The close working environment in most PG&E
15 offices and high transmissibility of COVID-19 led to this decision, which was
16 made to protect the health of PG&E workers. The WFH requirement led to
17 incremental COVID-19 related costs for two LOBs sought in this application:
18 (1) IT and (2) Customer Care.

19 **a. Information Technology**

20 The WFH requirement, issued concurrent with similar requirements
21 of many other California businesses several days before the Governor's
22 EO, required a rapid deployment of equipment and technology. Most of
23 PG&E's office-based workforce were not physically equipped for remote
24 work and needed to be provisioned to function in a remote setting.
25 Access to PG&E's network had to be adapted for the large number of
26 personnel now accessing it from home. This required: additional
27 licensing of access software, such as Citrix; acquiring and deploying
28 security tokens; providing computers and other hardware for those using
29 fixed equipment in a PG&E office; and reconfiguring and repurposing
30 equipment for a remote setting. This work was done without advanced
31 notice and with great urgency to minimize work interruption.

1 **b. Customer Care**

2 The COVID-19 pandemic caused Customer Care to incur
3 substantial costs to ensure customer services could be maintained in a
4 WFH environment.

5 At the time of the initial move to remote work, it was uncertain how
6 long WFH would be necessary. To be prudent in light of this
7 uncertainty, PG&E did not immediately begin purchasing equipment for
8 personnel who were not already equipped to work at home. When it
9 became clear that remote working would be maintained for several
10 months or longer, further enhancements to systems and equipment for
11 customer-facing Customer Care employees were necessary to provide a
12 stable long-term remote environment and to address ergonomic and
13 other safety concerns that arose due to employees working in spaces in
14 their homes not designed for daily office work.

15 Customer Care workers who interfaced daily with customers were
16 obliged to use their own home internet service to connect to the PG&E
17 network and conduct Company business. To help defray the cost of
18 establishing and maintaining a reliable high-speed internet connection
19 for these customer services, a temporary monthly \$35 reimbursement
20 per home worker was established beginning in March. This
21 reimbursement was provided to customer-facing employees and
22 representatives of the Contact Centers and Customer Service Offices
23 (CSOs). The reimbursement continued through 2020 and will terminate
24 when these Customer Care employees return to the office environment.

25 Customer Care employees interfacing with customers were required
26 to use their own mobile phones to conduct company business. Many of
27 these employees were not previously eligible for PG&E's "Bring Your
28 Own Device" (BYOD) initiative. The BYOD initiative pays a flat
29 \$45 reimbursement each month to employees who agree to use their
30 own mobile phones, instead of having a Company-provided device,
31 thereby reducing the number of deployed Company-owned mobile
32 devices. The initiative was extended on an emergency basis to
33 employees who normally are in the office and ineligible for a Company
34 mobile phone or the BYOD initiative. The monthly reimbursement

1 continued through 2020 and will terminate for those employees who
 2 receive it as part of COVID-19 related costs when they return to the
 3 office environment. Note that employees who were already receiving
 4 this reimbursement were not eligible for the COVID-19 related BYOD
 5 Program and the cost of their reimbursement is not included in this filing.

6 Table 7-29 below summarizes remote-work costs by LOB. PG&E
 7 discusses the costs in further detail below.

**TABLE 7-29
 SUMMARY OF REMOTE WORK COSTS BY LOB
 (THOUSANDS OF DOLLARS)**

Line No.	LOB	CEMA – Eligible Expense	CEMA – Eligible Capital
1	IT	\$6,233	\$1,209
2	Customer Care	2,093	–
3	Total	\$8,326	\$1,209

8 **c. IT Organization**

9 PG&E’s IT organization incurred incremental expenses to ensure
 10 network connectivity and operational functionality was maintained when
 11 PG&E transitioned to remote work. IT expenditures for transitioning to
 12 WFH operations are shown in Table 7-30 below.

**TABLE 7-30
 IT EXPENDITURES SUPPORTING TRANSITION TO REMOTE WORK
 (THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense	CEMA – Eligible Capital
1	IT Expenditures	\$6,233	\$1,209

13 Workers who normally used a desktop computer in the office had to
 14 be provisioned with a portable computer in order to WFH. Capital
 15 expenditures shown in the table above represent the cost of immediately
 16 accessing and deploying 2,200 portable computers from inventory
 17 needed for office-based workers directed to WFH. The desktop-type
 18 computers this group of workers used in the office could not be quickly,

1 safely, and efficiently deployed to employee homes due to their size,
 2 weight, and lack of wireless and remote access functionality, as well as
 3 the lack of enhanced security features necessary for a home setting.

**TABLE 7-31
 IT EXPENSE SUPPORTING REMOTE WORK
 (THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	PG&E Labor	\$2,999
2	Computers & Parts	1,062
3	Software/Hardware Licenses	886
4	Audio & Web Conference	886
5	Vitalyst Service Partner	292
6	Other	108
7	Total	\$6,233

4 IT expenditures are broken down in Table 7-31. These costs were
 5 incurred from March through December 2020 to support the relocation
 6 of office-based staff and to provide ongoing expanded support to
 7 individuals working for the first time in a remote work environment.
 8 Costs identified here are incremental to normal IT support previously
 9 provided to employees in the PG&E office work environment.

10 At the time they were directed to WFH, 2,200 of PG&E's
 11 office-based workers were not physically equipped for remote work nor
 12 were they provisioned with required remote access software. To equip
 13 and accommodate these employees, the IT organization immediately
 14 took the following actions:

- 15 • Expanded the capacity of PG&E's data network to accommodate
- 16 increased remote access demand;
- 17 • Procured and administered additional remote access software
- 18 licenses;
- 19 • Acquired and deployed additional remote access security tokens;
- 20 • Set up and operated nine personal computer (PC) provisioning and
- 21 deployment depots in March and April to configure and deploy
- 22 2,200 portable computers; and
- 23 • Delivered expanded IT support to the relocated workers.

1 The initial support efforts for this worker segment were completed in
2 March and April of 2020.

3 Other PG&E personnel also required additional IT support because
4 of COVID-19 requirements. This included 800 workers who had laptop
5 PCs assigned prior to COVID-19 restrictions, but who needed remote
6 access capability to be enabled. The number of workers requiring
7 COVID-19 based remote working accommodations continued to grow
8 during the year, with additional staff being assigned to work remotely,
9 and new hires who were assigned to work at home. The net increase by
10 year's end was over 5,000 workers. Table 7-32 and the description
11 below provide further context.

**TABLE 7-32
INCREASE OF PG&E STAFF ABLE TO WORK REMOTELY**

Line No.	Snapshot Month	Net Cumulative Increase	Percent Increase
1	February 2020	Baseline	Baseline
2	April 2020	+3,000	+16%
3	September 2020	+4,000	+21%
4	December 2020	+5,000	+26%

12 Because of COVID-19 requirements, the IT Service Desk
13 experienced an increased workload in 2020 to support the newly remote
14 workforce. This increased workload is reflected in incremental costs
15 beginning in March and continuing through December. These costs
16 were above and beyond a base-planned typical operating year, as
17 reflected in Table 7-32 line 1.

18 The 5,000 new/additional remote users required expanded and
19 more complex IT support. This included support configuring and using a
20 new computer in many cases, establishing and using a home computer
21 network and configuring PG&E equipment to run on it, and using
22 security measures including virtual private networks and other
23 technology unfamiliar to most newly remote PG&E workers. Assisting
24 newly home-based workers with unfamiliar technology, plus ongoing
25 support—including troubleshooting for issues experienced—significantly
26 increased the duration of support calls.

1 **1) IT Labor**

2 IT Service Desk workload (Total Work Hours) is defined as the
 3 number of client calls handled multiplied by the call duration
 4 (measured in minutes/seconds). Table 7-33 compares the
 5 March-December period for 2019 (pre-COVID-19) with 2020.

**TABLE 7-33
 IT SERVICE DESK CALL DURATION AND WORK PERFORMED**

Line No.	Mar-Dec Window	Calls Completed	Average Duration per Call (Min:Sec)	Total Work Performed (Calls x Duration) (Hours)	2020 Increase (Hours)	2020 Increase (Percent)
1	2020	171,935	14:55	42,754	+5,856	+15.9%
2	2019	172,689	12:49	36,898	-	-

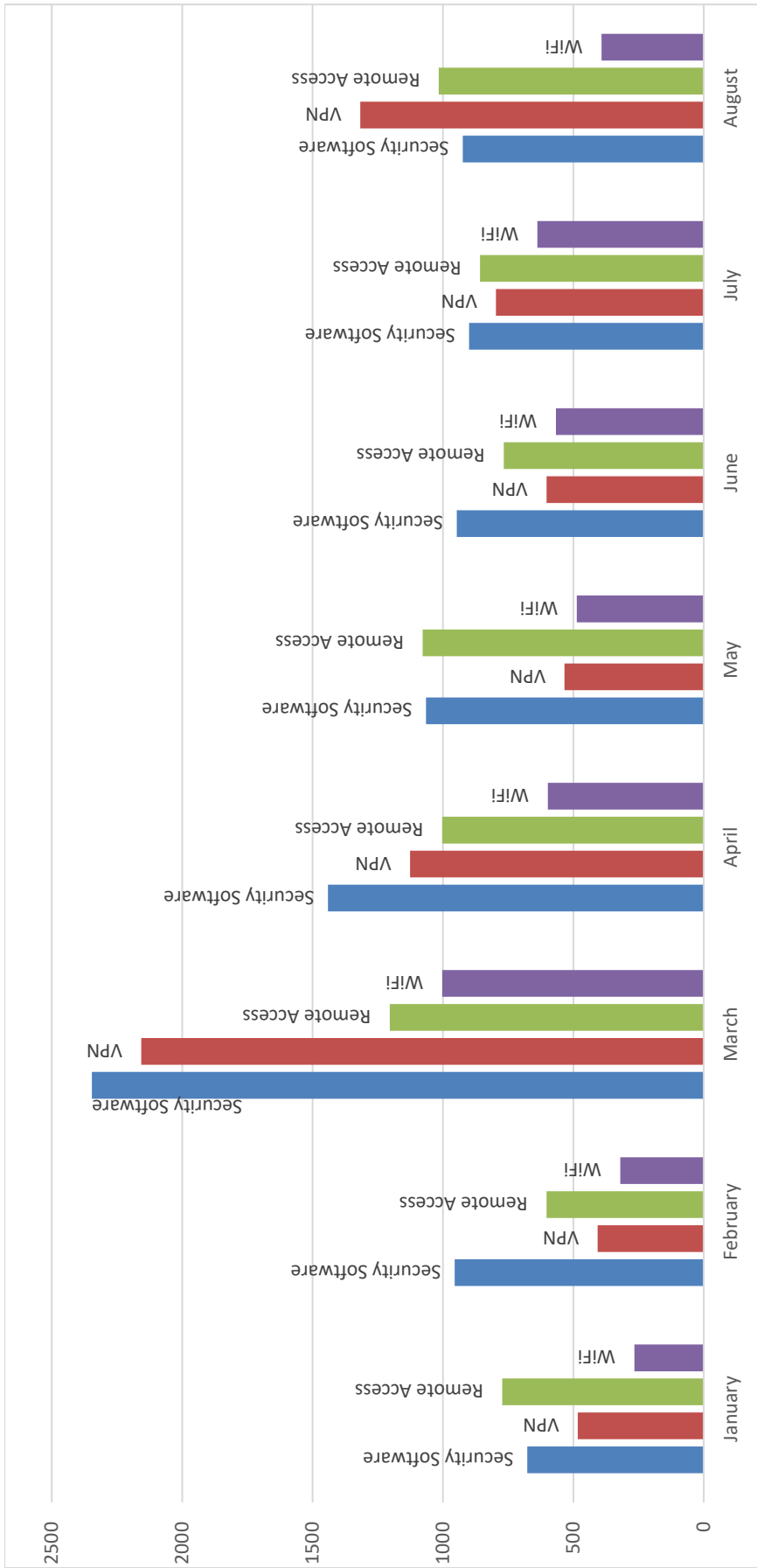
6 Call volume handled for the March-December 2020 period was
 7 lower than the corresponding period in 2019. However, the duration
 8 of the calls completed in 2020 was significantly longer than in 2019.
 9 The primary factor driving longer calls in 2020 was the incremental
 10 IT support required for the COVID-19 based remoted workers. The
 11 total work performed in 2020 amounted to an additional 5,856 hours
 12 (15.9 percent) above the equivalent 10 months in 2019.

13 After moving personnel to a remote environment due to
 14 COVID-19, client calls for IT support were more complex and took
 15 longer. Figures 7-3 and 7-4 demonstrate the 2020 monthly volume
 16 changes of four selected more complex, longer duration call types.
 17 The January to February timeframe was the equivalent
 18 pre-COVID-19 “baseline” and the selected March to August timeline
 19 reflects the “COVID-19 norm” with higher call volumes for complex
 20 issues. The four higher complexity/longer duration call types
 21 profiled are: (1) use of security software; (2) access to PG&E’s
 22 Virtual Private Network (VPN); (3) remote access to specific PG&E’s
 23 systems; and (4) issues associated with workers’ personal WIFI
 24 systems being used to access the PG&E network.

**TABLE 7-34
2020 COMPLEX IT SUPPORT CALLS BY CATEGORY**

Line No.	Month – 2020	Security Software	VPN-Virtual Private Network	Remote Access	WiFi
1	January – February Avg	816	445	688	293
2	March	2346	2157	1204	1003
3	April	1441	1126	1003	598
4	May	1065	534	1078	487
5	June	947	603	767	567
6	July	900	797	858	638
7	August	924	1317	1016	392

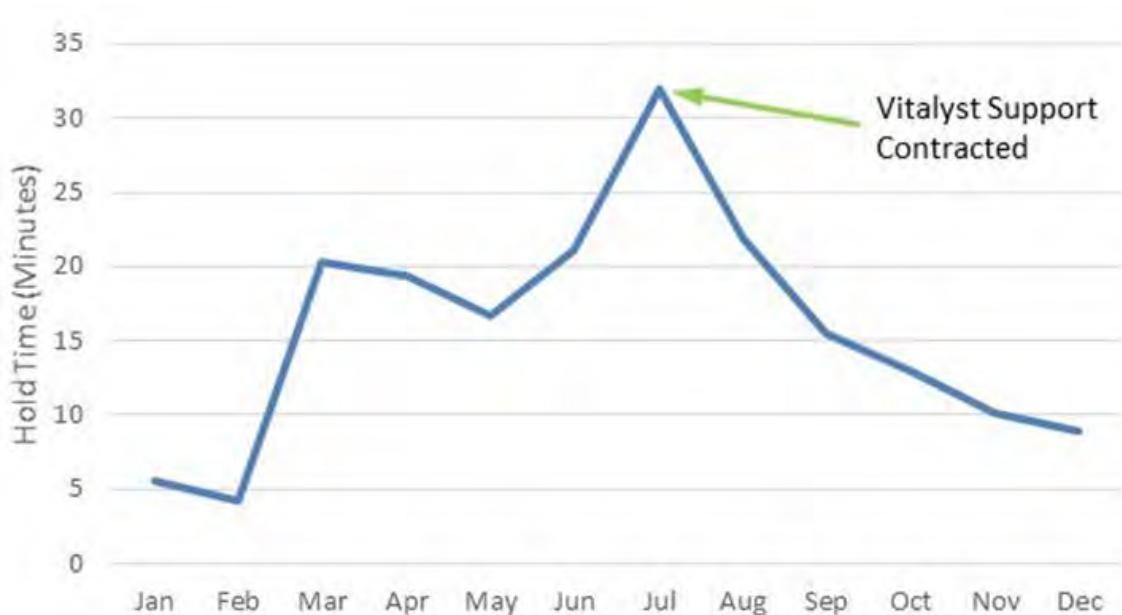
**FIGURE 7-2
2020 CALL TYPE TRENDS**



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To address staffing challenges contributing to long call wait times, PG&E attempted to quickly enhance staffing through direct hires and supplemental contract labor. A nation-wide shortage of eligible candidates limited the effectiveness of this strategy and, as shown in Figure 7-3, call wait times continued to rise, from five minutes on average pre-COVID-19 to a peak of over 30 minutes in July. Wait times of 20-30 minutes were considered excessive and led to unreasonable non-productive time impacts for clients who needed IT support.

FIGURE 7-3
IT SERVICE DESK WAIT TIME, 2020



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To address this growing challenge, PG&E made the decision in July 2020 to contract with a service vendor, Vitalyst, to supplement its available IT Service Desk staff. During the subsequent three month period from August through October, the contracted support partner provided five additional phone agents on weekdays. This reduced call wait-times to 10 minutes, mitigating the excessive non-productive time impacts to workers needing IT support.

1 **d. Customer Care**

2 In addition to its office-based workers, PG&E transitioned almost all
3 of its approximately 2,600 Customer Care employees and contractors to
4 work at home. This included our Contact Center, Customer Service
5 Office, and other Customer Care staff, such as Business Operations,
6 and Customer Energy Solutions. Contact Center personnel have
7 complex telecommunication and other technology needs unique to this
8 environment, as well as significant ergonomic health risks. To move this
9 important customer-related work to a remote environment, it was
10 necessary to reconfigure inbound call management systems and
11 provide Contact Center staff with seamless access to the information
12 systems and data management software they rely on to provide
13 customer service.

**TABLE 7-35
CUSTOMER CARE 2020 COVID-19 EXPENSES
(THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense Amount
1	Remote Agent Set-up	\$849
2	Ergonomic Equipment	385
3	COVID-19 Customer Service Support	360
4	Internet and Cell Phone Reimbursements	294
5	Employee Communications	204
6	Total	\$2,092

14 Table 7-35 summarizes costs incurred to complete the transition of
15 Customer Care employees, including Contact Center employees, to
16 remote work, and to sustain it for the balance of 2020.

17 **1) Remote Agent Set-up**

18 Customer Care incurred approximately \$0.85 million (in labor
19 and minimal travel costs) for both the technical support and
20 representative's time to get Customer Care employees set-up for
21 remote work access, reconfigure inbound call management
22 systems, and provide Contact Center staff with access to the

1 information systems and data management software. These efforts
2 included the following:

- 3 • Hardware logistics and custom set-up of software to enable
4 remote access to over 700 employees in two customer-facing
5 departments: Contact Center Operations and CSOs;
- 6 • Troubleshooting of remote access issues;
- 7 • Coordination/tracking of remote assets; and
- 8 • Overhaul of classroom training to remote online training
9 environments.

10 To support the extremely rapid transition of the Contact Center
11 representatives to a remote work posture, technical support staff
12 traveled throughout the territory to assist with successfully
13 configuring Call Center agents with remote access from their
14 homes. These technical support employees were reimbursed for
15 meals and travel expenses, such as hotels, gas mileage, and tolls,
16 for traveling throughout the territory to set up agents remotely.
17 Group meals were reimbursed for the in-office deployment team that
18 was working around the clock on the remote deployment.

19 Minimal costs were also incurred for:

- 20 • PPE, including masks and gloves, for the technical staff that
21 were making home visits to set-up call center representatives in
22 the remote work posture; and
- 23 • Labor overheads.⁸

24 **2) Ergonomic Equipment**

25 PG&E incurred approximately \$0.39 million for at-home
26 ergonomic set-up, such as headsets, web cameras, keyboards,
27 computer monitors, desks, and chairs. Most Customer Care
28 personnel working remotely for the first time had not been previously
29 provisioned with computer accessories necessary for the home
30 environment. Heavy equipment could not be safely repositioned
31 from office to home. To provide an ergonomically appropriate

⁸ See the Incrementality section of this chapter for more detail about overhead-related costs, including material and labor overhead.

1 environment for a longer-term home assignment, it was necessary
2 to provision many employees with ergonomic equipment or furniture.
3 Each employee's home office was assessed virtually by an
4 ergonomist who made the determination of needed equipment for a
5 safe working environment. These ergonomic assessments were
6 performed as part of PG&E's workplace safety program and the
7 costs are not included in this filing. Minimal material overhead costs
8 were incurred, as well.⁹

9 **3) COVID-19 Customer Service Support Costs**

10 PG&E also incurred \$0.36 million for customers service-related
11 costs, including enhancements to PG&E's Interactive Voice
12 Recording (IVR) and Agent Interact applications, and Contact
13 Center Representatives' labor costs for COVID-19 specific training
14 and preparation time at the start of their shifts. This includes:

- 15 • IVR enhancements enabled special handling of calls for
16 customers that contacted PG&E and have previously
17 self-identified in our system of record as being financially
18 impacted by COVID-19. This information is passed to the
19 Contact Center Representatives with the live call so they can
20 see the flag/alert, and they are then prompted to engage
21 customers with scripted processes to offer various financial
22 assistance options;
- 23 • Call Center representative participation in approximately
24 10 trainings on the latest COVID-19 related policies,
25 procedures, and talking points, including for addressing
26 customer calls; and
- 27 • Call Center Representatives allocating an additional five
28 minutes at the start of their shifts to prepare themselves by
29 reading and learning the latest instructions related to working
30 from home and COVID-19 procedures, as needed.

⁹ See the Incrementality section of this chapter for more detail about overhead-related costs, including material and labor overheads.

1 **4) Internet and Cell Phone Reimbursements**

2 Customer Care incurred approximately \$0.29 million for internet
3 and cell phone reimbursements. The Company’s WFH internet/cell
4 phone reimbursement policy was established in April 2020 for
5 charges starting in March 2020. Under this policy, the Company
6 reimbursed approximately 750 eligible Customer Care employees
7 from the Contact Center and CSOs at \$35/month for internet and/or
8 \$45/month for personal cellphone charges. Prior to COVID-19,
9 PG&E required employees to demonstrate a business need
10 (approved by their supervisor) to obtain a Company-issued cell
11 phone or be reimbursement for their employee-owned cell phone
12 used to perform job duties (enrolling in the Bring Your Own Device
13 (BYOD) Program). PG&E modified the reimbursement-portion of
14 the policy when the WFH Standard was put in place. Contact
15 Center and Customer Service Office employees who did not have
16 Company-issued cell phones and were not receiving
17 reimbursements prior to the pandemic were eligible to receive
18 \$45/month reimbursements given that they would now be required
19 to use their phones daily for business purposes. Employees who
20 already had a PG&E issued cell phone or were on the BYOD
21 Program and already received the \$45 reimbursements were not
22 eligible for additional phone reimbursements.

23 **5) Employee Communication**

24 Customer Care incurred approximately \$0.20 million to
25 implement a COVID-19 related resource website for employees and
26 a “Return-to-Facilities” playbook.

27 The website was developed for employees to learn more about
28 COVID-19 related work practices, including guidance on time off
29 reporting, benefits, vaccine information and testing, quarantine
30 guidance, face coverings, WFH resources, and job site resources
31 and procedures during the pandemic.

32 To identify and communicate all safety and health compliance
33 regulations, PG&E also created and released an enterprise-wide
34 “Return to PG&E Facilities Playbook” (Playbook) that contains

1 federal and state guidance and PG&E COVID-19 related policies.
 2 This Playbook was prepared in response to industry guidance
 3 issued by the State of California,¹⁰ and is applicable to all
 4 employees who remained in the work environment, as well as those
 5 who returned after working remotely. All employees were required
 6 to review the Playbook as part of their COVID-19 training to satisfy
 7 regulatory requirements and protective practices identified by the
 8 State of California. As PG&E was maintaining a State of readiness
 9 to return to the office environment during 2020, the Playbook was an
 10 essential element of the Company's ability to rapidly respond to
 11 changing circumstances.

12 **5. Cleaning Due to COVID-19 Cases**

13 The CDC, State of California, local counties, and Cal/OSHA all have
 14 specified cleaning and disinfection measures to be taken in the event of a
 15 confirmed positive COVID-19 case in the workplace. These measures are
 16 significantly more intensive than can be provided by contract custodial staff
 17 and require specialized skills and equipment. When PG&E learned of
 18 COVID-19 cases in the workplace (either in a facility or vehicle that was also
 19 used by others), a contract cleaning and disinfection service was used to
 20 completely disinfect the areas where the case employee was working.
 21 Costs listed in this section are for enhanced cleaning for COVID-19 cases
 22 and are in addition to the routine cost of cleaning for all PG&E facilities.

TABLE 7-36
SUMMARY OF COSTS BY LOB
(THOUSANDS OF DOLLARS)

Line No.	LOB	CEMA – Eligible Expense
1	CRESS	\$3,843
2	Transportation	471
3	Power Generation	71
4	Total	\$4,385

¹⁰ COVID-19 Industry Guidance for Energy and Utilities, published July 29, 2020, pp. 2, 3, and 7.

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a. CRESS

The costs for the increased levels and frequency of cleaning are listed in Table 7-37.

**TABLE 7-37
CRESS CLEANING COSTS DUE TO COVID-19 CASES IN WORKPLACE
(THOUSANDS OF DOLLARS)**

<u>Line No.</u>	<u>Costs</u>	<u>CEMA – Eligible Expense</u>
1	Janitorial Cleaning at CRESS and Some Non-CRESS Sites	\$3,843

PG&E implemented enhanced levels of janitorial services and cleaning due to COVID-19 precautions in order to provide a safe and clean work environment for all employees.

The enhanced janitorial cleaning used Environmental Protection Agency or FDA-approved hospital grade cleaning and disinfecting products and followed CDC guidelines for disinfecting. The cleaning of common areas, work surfaces, and high touch points were increased to be cleaned daily. Work areas with suspected virus exposure or close contact cases received a deeper level of disinfecting and cleaning. Any work area with a confirmed case of virus exposure requires deep cleaning. Deep cleaning follows CDC processes to sanitize and disinfect the larger area and floors of a facility and requires dispatching specialized janitorial personnel.

The specialized janitorial staff are deployed, and are on-site within 24 hours, once a case of suspected or confirmed virus exposure is reported. The Contract services were retained for COVID-19.

b. Transportation Services

Table 7-38 summarizes the costs incurred for cleaning services of vehicles.

**TABLE 7-38
TRANSPORTATION SERVICES CLEANING COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	Vehicle Decontamination Services	\$471

1 PG&E implemented cleaning services to disinfect vehicles due to
2 confirmed and possible COVID-19 exposure, consistent with CDC,
3 state, and Cal/OSHA requirements. PG&E’s HR organization instituted
4 a process to identify and issue out-of-service notifications for employees
5 who tested positive for COVID-19 and were in possession of a PG&E
6 vehicle. Following the identification of approximately 1,100 such
7 vehicles, Transportation Services engaged a third-party service to
8 conduct the specialized COVID-19 disinfection process. The third-party
9 service, HydroChemPSC, required their resources to attend specialized
10 training prior to conducting the disinfection process. This training
11 covered PPE, preparations to disinfect (including cleaning materials),
12 the cleaning and disinfection process, equipment and personnel
13 decontamination, and waste disposal. The disinfection process itself
14 consisted of the following major steps:

- 15 • Allow for a 72 hour no-contact period to elapse if possible, for
16 vehicle to be decontaminated.
- 17 • If practical, roll vehicle onto a 3-mil thick Visqueen bed (Light Duty
18 Vehicles only);
- 19 • Construct a separate laydown area for interior contents and
20 disinfect, dispose, or return using the proper protocol;
- 21 • Once the vehicle is completely void of interior contents, all
22 nonporous surfaces (carpets, cloth seats, etc.) are sprayed with
23 disinfectant solution;
- 24 • Disinfect the exterior of the vehicle with Hudson sprayers, allow for
25 film to build up, then wipe down entire outside of the vehicle; and
- 26 • PSC employees will deconstruct the laydown area, remove the
27 Visqueen and remove all PPE on site. All materials used for the

1 decon work will be placed in drums and transported off-site for
2 disposal.

3 The estimated disinfection time for each vehicle was roughly 2.5 to
4 3 hours.

5 **c. Power Generation**

6 Table 7-39 summarizes the costs incurred for cleaning services of
7 PG facilities.

**TABLE 7-39
POWER GENERATION CLEANING COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Costs	CEMA – Eligible Expense
1	Cleaning Services	\$71

8 Power Generation incurred and seeks recovery of \$0.071 million in
9 incremental external cleaning costs at various locations not supported
10 by CRESS, as shown in Table 7-37. Cleaning followed the same
11 protocols described by CRESS above, and were compliant with state,
12 Cal/OSHA and CDC guidance.

13 **E. Incrementality**

14 Costs incurred for the activities described in Section D above were recorded
15 to CEMA. As discussed in the Incrementality testimony (Chapter 11, Section 2),
16 CEMA costs are incremental to base operating costs to maintain and operate
17 PG&E’s systems. CEMA costs and associated COVID-19 costs in 2020 for all
18 lines of business were not forecasted or foreseeable and were not included in
19 base rates through the 2020 GRC, 2019 Gas Transmission and Storage rate
20 case, or any other proceeding.

21 **F. Cost Reasonableness**

22 The costs PG&E incurred in responding to the COVID-19 pandemic
23 described above are reasonable as described in this section. Unlike more
24 frequent emergencies, the COVID-19 pandemic affected every employee and
25 operating group in the Company simultaneously. This extraordinary event

1 necessitated an enterprise-wide approach and its dynamic nature required a
2 rapidly changing and evolving response strategy.

3 **1. Mandated Actions**

4 The unique nature of a public health emergency resulted in required
5 actions by the Company and by individual California residents. These
6 requirements were mandated through EOs issued by Governor
7 Gavin Newsom, statewide public health orders issued by the State Health
8 Officer, Cal/OSHA, and by health orders issued by each of the 48 counties
9 in California in which PG&E has facilities. These orders and regulations
10 were issued rapidly and updated frequently in response to the changing
11 nature of the COVID-19 pandemic. Public health and other government
12 officials could not predict the duration or extent of the COVID-19 pandemic,
13 and as the initial perception of a short-term emergency gave way to a
14 longer-term situation, PG&E reacted to changing requirements by focusing
15 on efficient solutions that were health protective, cost-effective, and simple
16 to administer.

17 As scientific understanding of the nature of the virus causing COVID-19
18 evolved, changes were made by authoritative bodies such as the CDC to
19 guidance on how to most effectively protect against infection. PG&E
20 monitored and reacted to these developments and modified its strategy to
21 align with the science. Examples of these changes include the gradual
22 transition from an early emphasis on cleaning and sanitizing surfaces to the
23 developing understanding of how to manage the airborne virus through face
24 coverings, social distancing, and ventilation. Changing health orders and
25 regulations necessitated changing health and safety strategies and costs
26 incurred reflected the evolving understanding of the pandemic.

27 **2. Continuity of Service**

28 Through the pandemic, PG&E maintained service to its customers.
29 Using exemptions and accommodations built into the COVID-19
30 stay-at-home orders for critical infrastructure operations, PG&E field crews
31 maintained gas and electric service. Continuing to work during the
32 stay-at-home orders necessitated significant investment in PPE and

1 changes to how field work was conducted in order to maintain a safe
2 working environment.

3 To continue office-based work, PG&E rapidly and effectively transitioned
4 our office workforce and contact center personnel to remote work, permitting
5 these workers to remain productive, while avoiding the risks of congregating
6 in an office environment. This magnitude and duration of remote work is
7 unprecedented in PG&E's history, and the logistic and technical challenges
8 that had to be overcome to make this transition cannot be understated.

9 **3. Concurrent Emergencies**

10 The on-going COVID-19 pandemic emergency was overlaid on a variety
11 of other emergencies that occurred during 2020, including a capacity
12 shortage event, an extremely unusual lightning event, a heatwave, various
13 wildfires, PSPS events, and a high-wind event. PG&E's response to all of
14 these emergencies, each of which necessitates large numbers of employees
15 and contractors converging on affected locations to restore service, had to
16 be modified to address COVID-19 practices while continuing to meet
17 response and restoration standards. A list of these concurrent emergencies
18 is below in Table 7-40.

**TABLE 7-40
EOC ACTIVATIONS IN 2020**

Line No.	Event Name	Date of Activation	Date of Deactivation
1	COVID-19 Preparedness and Response Event	March 16, 2020	July 24, 2020
2	August 14, 2020 Capacity Emergency Event	August 14, 2020	August 14, 2020
3	August 15, 2020 Capacity Emergency Event	August 15, 2020	August 15, 2020
4	August 16, 2020 Capacity Emergency Event à August Capacity, Lightning and Wildfire Event ^(a)	August 16, 2020	September 3, 2020
5	PSPS Event 09-07-2020	September 4, 2020	September 10, 2020
6	PSPS Event 09-26-2020	September 23, 2020	September 29, 2020
7	PSPS Event 10-14-2020	October 11, 2020	October 16, 2020
8	PSPS Event 10-21-20 to 10-25-20 ^(b)	October 19, 2020	October 28, 2020
9	11-03-20 Election Day	November 3, 2020	November 4, 2020
10	PSPS Event 12-03-2020 ^(c)	December 1, 2020	December 7, 2020
11	PSPS Event 12-07-2020 ^(d)	December 1, 2020	December 7, 2020

(a) On August 20, 2020: “August 16, 2020 Capacity Emergency Event” was changed to: “August Capacity, Lightning and Wildfire Event.”

(b) On October 23, 2020: “PSPS Event 10-21-20” was changed to: “PSPS Event 10-25-20.”

(c) Activities for this event lasted from December 1, 2020 to December 4, 2020.

(d) Activities for this event lasted from December 4, 2020 to December 7, 2020.

1 G. Avoided Costs

2 PG&E recognizes that due to the COVID-19 pandemic, certain costs
3 typically incurred for certain activities may have been avoided or substantially
4 reduced in comparison to prior years for the same activity. As an example,
5 PG&E recognizes that employee business travel expenses and in-person
6 training costs were less in 2020 than in prior years due to COVID-19 travel and
7 social distancing restrictions. Any analysis of avoided costs or savings must
8 consider the magnitude of COVID-19 costs not captured or recorded to date in
9 CEMA. Although there are certain avoided costs or savings such as reduced
10 employee business travel, there are other costs PG&E has or will incur that were
11 caused by the pandemic that have yet to be fully quantified. An example of this
12 is accrued employee vacation resulting from COVID-19 travel restrictions.
13 Indeed, PG&E has identified a substantial increase in PG&E’s liability for

1 vacation payouts based on accrued vacation. This is a COVID-19 cost that
2 PG&E will need to account for in connection with evaluating whether and to what
3 extent there are any avoided costs or savings.

4 PG&E recognizes that it will be appropriate to determine the extent of any
5 such avoided costs or savings to be applied as an offset in a subsequent
6 cost-recovery proceeding of COVID-19 related CEMA costs. PG&E is in the
7 process of developing an analysis and will present the results of this analysis in
8 a future submittal, as directed by the Commission.

9 **H. Conclusion**

10 This chapter describes PG&E's activities associated with responding to the
11 COVID-19 pandemic emergency that began in February 2020 and continues
12 through 2021. As demonstrated throughout this chapter, the costs PG&E
13 incurred responding to this unprecedented national emergency were reasonable
14 and should be approved in their entirety.

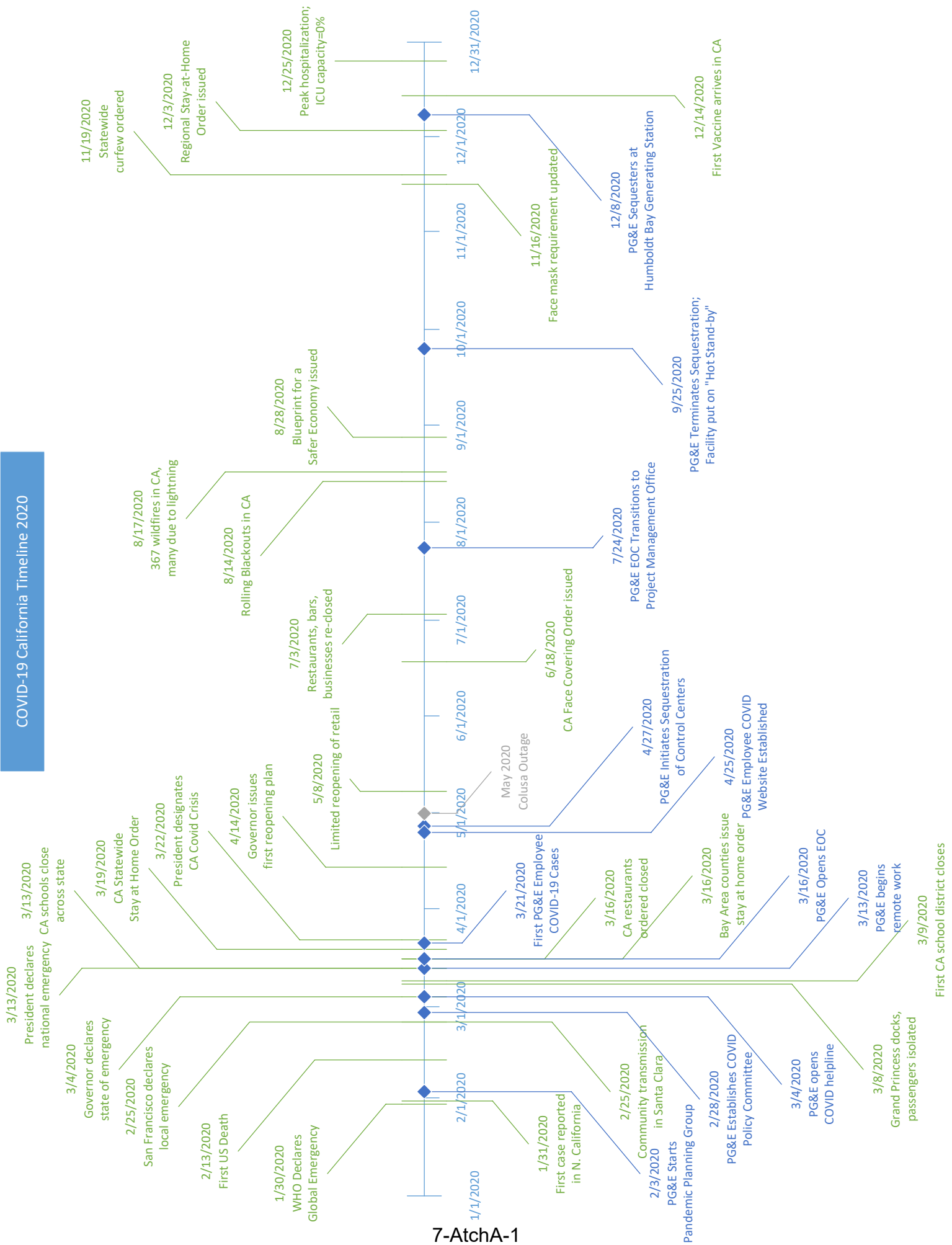
PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 7

ATTACHMENT A

COVID-19 TIMELINE

COVID-19 California Timeline 2020



PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 8
CUSTOMER CARE MEMORANDUM ACCOUNTS

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 8
CUSTOMER CARE MEMORANDUM ACCOUNTS

TABLE OF CONTENTS

A. Introduction.....	8-1
B. California Consumer Privacy Act Memorandum Account.....	8-2
1. Background.....	8-2
2. Summary of Program Activities.....	8-2
a. 2019 Expense.....	8-5
1) Labor and Contracts.....	8-6
2) Hardware and Software	8-9
3) Bill Inserts.....	8-10
b. 2019 Capital	8-10
c. 2020 Expense.....	8-10
1) Labor and Contracts.....	8-10
2) Hardware and Software	8-14
3) Bill Inserts.....	8-14
d. 2020 Capital	8-14
C. Emergency Consumer Protections Memorandum Account.....	8-14
1. Background.....	8-14
2. Summary of Program Activities.....	8-16
a. Temporary Services	8-16
b. Billing Support	8-16
c. Customer Outreach	8-17
D. COVID-19 Pandemic Protections Memorandum Account	8-18
1. Background.....	8-18
2. Summary of Program Activities.....	8-19
a. Accounts Receivables Financing Costs.....	8-20

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 8
CUSTOMER CARE MEMORANDUM ACCOUNTS

TABLE OF CONTENTS
(CONTINUED)

b.	Credit and Billing Support	8-20
c.	Outreach and Communications	8-21
d.	Contact Center Support	8-22
e.	Medical Baseline Program Support	8-22
E.	Disconnections Memorandum Account	8-25
1.	Background	8-25
2.	Summary of Program Activities	8-26
a.	Arrearage Management Plan	8-27
b.	Removing Interim Policy Prohibiting Disconnections for Customers Aged 65+	8-27
c.	Eliminating Deposits and Reconnection Fees	8-28
d.	Offering Applicable Benefit Programs Prior to Disconnection	8-28
e.	Tracking for Disconnection Caps	8-28
f.	Updating 48-Hour Notices	8-28
g.	12-Month Default Pay Plans	8-29
F.	Conclusion	8-29

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 8
CUSTOMER CARE MEMORANDUM ACCOUNTS

A. Introduction

This chapter demonstrates the reasonableness of Pacific Gas and Electric Company (PG&E) request to recover incremental costs incurred in 2019 and 2020 for customer support and assistance activities. Table 9-1 summarizes the activities and their associated memorandum accounts and recorded costs by year. In total, PG&E requests to recover \$14.6 million for 2019 activities and \$26.2 million for 2020 activities.

TABLE 8-1
OVERVIEW OF MEMORANDUM ACCOUNTS
(THOUSANDS OF NOMINAL DOLLARS)

Line No.	Memo Account	Activity	2019 Capital Recorded Costs	2019 Expense Recorded Costs	2020 Capital Recorded Costs	2020 Expense Recorded Costs	Total
1	California Consumer Privacy Act (CCPA) Memorandum Account (CCPAMA)	Implementing the CCPA of 2018	\$477	\$11,612	\$110	\$13,802	\$26,001
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	–	2,559	–	3,712	6,271
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	–	–	–	7,847	7,847
4	Disconnections Memorandum Account (DMA)	Implementing policies that aim to mitigate residential disconnections pursuant to D.20-06-003	–	–	–	666	666
5	Total		\$477	\$14,171	\$110	\$26,027	\$40,785

1 **B. California Consumer Privacy Act Memorandum Account**

2 **1. Background**

3 The CCPA was promulgated by Assembly Bill (AB) 375 and
4 Senate Bill (SB) 1121 and signed into law by Governor Brown on June 28,
5 2018.¹ The CCPA went into effect on January 1, 2020, and affects virtually
6 all California businesses with annual revenue greater than \$25 million. The
7 CCPA significantly expanded the definition of personal data protected under
8 California law. It requires PG&E, “on the consumer’s request, to disclose
9 what data they collect with respect to them, furnish that data to the
10 consumer upon request, permit the consumer to opt out from the transfer of
11 that data, inform the [customer] as to whom their data was disclosed, and
12 delete that data (subject to exceptions)”² PG&E is required to respond
13 to CCPA consumer requests within 45 days and may receive an extension
14 for an additional 45 days, provided it notifies customers within the first
15 45-day period.³ Additionally, the CCPA limits the sale of personal data,
16 requires new disclosures at the time of data collection, and adds new
17 training requirements.

18 PG&E submitted Application (A.) 19-03-020⁴ on March 27, 2019, to
19 establish a memorandum account to record and track incremental costs
20 associated with CCPA compliance. California Public Utilities Commission
21 (CPUC or Commission) approved A.19-03-020 via D.19-09-026⁵ and
22 subsequently approved PG&E’s request to establish the CCPAMA in Advice
23 Letter (AL) 4160-E/5657-E, effective October 11, 2019.

24 **2. Summary of Program Activities**

25 The CCPA required PG&E to work cross-functionally across the
26 enterprise starting in 2019 to comply with the four major customer rights

1 Civil Code §§ 1798.100 et seq.; AB 375 (2017-2018 Reg. Sess.), Ch. 55; SB 1121 (2017-2018, Reg. Sess.), Ch. 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.

1 provided in the CCPA by January 1, 2020, including: (1) the right to receive
2 notice of personal data possessed in a company's records; (2) the right to
3 access personal data possessed by a company; (3) the right to delete
4 personal data processed by a company; and (4) the right to opt-out of the
5 sale of personal data by a company to third parties. PG&E focused on
6 building sustainable solutions to meet CCPA requirements, including:
7 (1) expanding current programs; (2) operationalizing and automating
8 business processes and tools; (3) piloting new technology solutions; and
9 (4) establishing overall governance across PG&E. Specifically, PG&E
10 established seven workstreams supported by internal resources and
11 external consultants to design, develop, and implement CCPA requirements
12 (see Table 8-2).

**TABLE 8-2
OVERVIEW OF CCPA WORKSTREAMS**

Line No.	Workstream	Objective(s)
1	Data Discovery	<ul style="list-style-type: none"> Identify consumer related personal information data in PG&E systems
2	Data Inventory	<ul style="list-style-type: none"> 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 Develop data disposition framework
3	Data Subject Requests	<p>Develop and operationalize by January 1, 2020 processes and supporting systems that receive and respond to:</p> <ul style="list-style-type: none"> 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) Training for employees Corresponding documentation
4	Policy and Governance	<ul style="list-style-type: none"> Update or develop PG&E privacy policies to comply with CCPA Understand where PG&E is collecting information and ensure the privacy policy is provided at time of data collection
5	Third-Party Management	<ul style="list-style-type: none"> Ensure that there are processes, contract language, and systems in place so that third parties act in compliance with CCPA
6	IPA	<p>Implement the following three modules:</p> <ul style="list-style-type: none"> 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
7	Communications and Change Management	<ul style="list-style-type: none"> Ensure impacted employees have the tools they need to meet CCPA requirements by supporting workstreams develop and execute targeted change plans Cultivate a culture of personal information custodianship by driving program -level communications and training initiatives

1 In addition, Tables 8-3 and 8-4 identify the types of costs that PG&E
2 recorded in 2019 and 2020 to implement the seven CCPA workstreams.

1 PG&E describes these activities and how they supported various
 2 workstreams in further detail below.

**TABLE 8-3
 SUMMARY OF 2019 AND 2020 RECORDED EXPENSE TO
 CCPAMA BY ACTIVITY
 (THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Activity	2019 Recorded Costs	2020 Recorded Costs
1	Labor and Contracts	\$10,506	\$12,164
2	Hardware and Software	1,078	1,629
3	Bill Inserts	28	9
4	Total	\$11,612	\$13,802

**TABLE 8-4
 SUMMARY OF 2019 AND 2020 RECORDED CAPITAL TO
 CCPAMA BY ACTIVITY
 (THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Activity	2019 Recorded Costs	2020 Recorded Costs
1	Big ID Server Costs	\$477	\$110

3 **a. 2019 Expense**

4 PG&E recorded approximately \$11.6 million (Table 8-3, Line 4) in
 5 2019 expense costs to the CCPAMA. As shown in Table 8-5, this
 6 includes approximately \$10.5 million in labor and contracts, \$1.1 million
 7 in hardware and software, and \$28,000 in bill inserts. These activities
 8 primarily supported the development and testing of processes and
 9 solutions needed to comply with implementation of CCPA requirements
 10 in 2020. PG&E describes these activities in further detail below.

**TABLE 8-5
SUMMARY OF 2019 RECORDED EXPENSE
TO CCPAMA BY ACTIVITY
(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Activity	2019 Recorded Costs
1	Labor and Contracts	\$10,506
2	Hardware and Software	1,078
3	Bill Inserts	28
4	Total	\$11,612

1 **1) Labor and Contracts**

2 PG&E recorded approximately \$10.5 million (Table 8-5, Line 1)
3 in 2019 in labor and contract costs to the CCPAMA. Table 8-6
4 provides an overview of the five categories of labor and contracts
5 associated with designing and developing CCPA requirements,
6 which are consulting labor and contracts, Information
7 Technology (IT) labor, Privacy labor, Cybersecurity labor, and
8 Contact Center labor.

**TABLE 8-6
OVERVIEW OF LABOR AND CONTRACT COSTS BY LABOR TYPE
(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Activity	2019 Recorded Costs
1	Consulting Labor and Contracts	\$7,824
2	IT Labor	2,147
3	Privacy Labor	338
4	Cybersecurity Labor	190
5	Contact Center Labor	7
6	Total	\$10,506

9 **a) Consulting Labor and Contracts**

10 PG&E recorded approximately \$7.8 million (Table 8-6,
11 Line 1) in consulting labor and contracts in 2019 to the
12 CCPAMA. Following the adoption of the CCPA, PG&E
13 contracted with two consulting firms to design a project plan and
14 help project manage all CCPA workstreams across the
15 enterprise. This involved developing the seven workstreams in

1 Table 8-2 and the required Project Management Office (PMO)
2 structure, verifying the approach with internal and external legal
3 experts, and providing ongoing project management support.

4 In addition, PG&E's consultants served as key resources in
5 each workstream, including:

- 6 • Co-leading the "Data Discovery" workstream by deploying
7 software and fine-tuning configurations to map and validate
8 search results;
- 9 • Supporting the "Data Inventory" workstream by deploying
10 UCM questionnaires across the enterprise to better
11 understand the purpose of customer data collection for
12 various activities;
- 13 • Assisting the "Policy and Governance" workstream by
14 evaluating existing PG&E policies, procedures, notices,
15 mapping these items to CCPA requirements, and
16 recommending items that required updates;
- 17 • Leading the "IPA Tool" workstream, including documenting
18 business requirements building, customizing, and deploying
19 the tool in PG&E's environment, and
- 20 • Leading the "Communications and Change Management"
21 workstream, including conducting a change-management
22 needs assessment, developing a change-management
23 plan, and coordinating with PG&E staff on recommended
24 communications and training to PG&E employees.

25 **b) IT Labor**

26 PG&E recorded approximately \$2.1 million (Table 8-6,
27 Line 2) in IT labor in 2019 to the CCPAMA. PG&E's IT
28 resources developed and implemented the technology
29 resources required to comply with the CCPA, including:

- 30 • Co-leading the "Data Discovery" and "Data Inventory"
31 workstreams by implementing a machine learning -based
32 tool (Big ID) to scan various databases and highlight the
33 location of personal information data.

- 1 • Supporting the “Data Subject Requests” workstream by
2 integrating the IPA platform with the www.pge.com website
3 to intake, process, track, and report CCPA-related requests
4 from customers to access and delete their personal
5 information data.
- 6 • Supporting the “Data Subject Requests” workstream by
7 integrating the OneTrust cookie management module with
8 its customer-facing websites. The OneTrust platform
9 enables PG&E to scan its websites for cookie collection and
10 to provide a banner on these websites that allows
11 customers to learn about the cookies that PG&E collects
12 (e.g. performance cookies, functional cookies, marketing
13 cookies, social media cookies) and opt-out of specific
14 cookies as desired.

15 **c) Privacy Labor**

16 PG&E recorded approximately \$338,000 (Table 8-6, Line 3)
17 in incremental Privacy labor costs in 2019 to the CCPAMA.
18 These resources supported the CCPA PMO and all
19 workstreams, including:

- 20 • Supporting the “Privacy and Governance” workstream by
21 revising the Privacy Policy on www.pge.com to align with
22 CCPA requirements;⁶
- 23 • Updating all internal and external policies and procedures
24 that required CCPA language;
- 25 • Leading the “Communications and Change Management”
26 workstream to develop a required work-based training for
27 PG&E employees on CCPA; and
- 28 • Leading the “Third-Party Management” workstream to
29 ensure that there were appropriate processes and systems
30 in place to ensure that third parties act in accordance with
31 CCPA requirements. This included identifying contracts

6 For more information, see https://www.pge.com/en_US/about-pge/company-information/privacy-policy/privacy.page.

1 with vendors that deal with personal information, reviewing
2 and updating contracts to include CCPA language, updating
3 non-disclosure agreements as needed, and requiring
4 vendors with expired contracts to delete personal
5 information data.

6 **d) Cybersecurity Labor**

7 PG&E recorded approximately \$190,000 (Table 8-6, Line 4)
8 in Cybersecurity labor in 2019 to the CCPAMA. PG&E's
9 Cybersecurity team supported CCPA implementation by
10 monitoring the implementation of all workstreams to ensure that
11 the introduction of new tools and integrations do not pose a
12 security risk to PG&E's systems and customers.

13 **e) Contact Center Labor**

14 PG&E recorded approximately \$7,000 (Table 8-6, Line 5) in
15 2019 to the CCPAMA for Contact Center labor to educate
16 customers on how to exercise their privacy rights and to answer
17 customers' questions regarding the CCPA process at PG&E.

18 **2) Hardware and Software**

19 PG&E recorded approximately \$1.1 million (Table 8-5, Line 2) in
20 2019 to the CCPAMA for hardware and software costs. The primary
21 driver of these costs was PG&E's contract with Big ID which
22 enabled PG&E's IT resources to conduct data discovery for
23 personal information across PG&E's systems. In addition to this
24 contract, PG&E's hardware and software costs include the
25 purchase, implementation, and configuration of the IPA as well as
26 technical support for cookie consent management (i.e., identifying
27 hidden cookies and trackers on the PG&E webpage, mobile
28 applications, and vendor--operated websites, supporting the cookie
29 banner, etc.). PG&E's hardware and software costs also supported
30 updates that enabled PG&E to integrate the Big ID tool into its
31 Salesforce platform, which enabled PG&E to identify personal
32 information across the enterprise.

1 **3) Bill Inserts**

2 PG&E recorded approximately \$28,000 (Table 8-5, Line 3) in
3 2019 to the CCPAMA to provide bill inserts to all customers in
4 January 2020. The bill inserts provided information to customers in
5 English and Spanish on updates to PG&E’s privacy policy in
6 compliance with the CCPA.⁷

7 **b. 2019 Capital**

8 PG&E recorded approximately \$477,000 (Table 8-4, Line 1) in 2019
9 in IT capital costs to the CCPAMA to install scanners and correlators,⁸
10 which were needed to support the Big ID tool’s ability to scan PG&E’s
11 systems for personal information data.

12 **c. 2020 Expense**

13 PG&E recorded approximately \$13.8 million (Table 8-3, Line 4) in
14 2020 expense costs to the CCPAMA. As shown in Table 8-7, this
15 includes approximately \$12.2 million in labor and contracts, \$1.6 million
16 in hardware and software, and \$9,000 in bill inserts.

TABLE 8-7
SUMMARY OF 2020 RECORDED EXPENSE TO
CCPAMA BY ACTIVITY
(THOUSANDS OF NOMINAL DOLLARS)

Line No.	Activity	2020 Recorded Costs
1	Labor and Contracts	\$12,164
2	Hardware and Software	1,629
3	Bill Inserts	9
4	Total	\$13,802

17 **1) Labor and Contracts**

18 PG&E recorded approximately \$12.2 million (Table 8-7, Line 1)
19 in 2020 in labor and contract costs to the CCPAMA. Table 8-8

7 To view these bill inserts, see https://www.pge.com/pge_global/common/pdfs/your-account/your-bill/understand-your-bill/bill-inserts/2020/0120-CCPA.pdf.

8 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.

1 provides an overview of the four categories of labor and contracts
 2 associated with implementing the CCPA, which are consulting labor
 3 and contracts, IT labor, Privacy labor, and Contact Center labor.
 4 PG&E describes each of these activities in further detail below.

**TABLE 8-8
 OVERVIEW OF LABOR AND CONTRACT COSTS BY LABOR TYPE
 (THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Activity	2020 Recorded Costs
1	Consulting Labor and Contracts	\$4,847
2	IT Labor	5,671
3	Privacy Labor	1,224
4	Contact Center Labor	424
5	Adjustments ^(a)	(2)
6	Total	\$12,164

(a) Reflects adjustments driven by cash discounts for labor.

5 **a) Consulting Labor and Contracts**

6 PG&E recorded approximately \$4.8 million (Table 8-8,
 7 Line 1) in 2020 to the CCPAMA for consulting labor and
 8 contracts. PG&E’s consultants continued to support the seven
 9 workstreams outlined in Table 8-2 following the implementation
 10 of the CCPA in January 2020, including:

- 11 • Providing end-to-end training on fulfilling customer requests
 12 for their personal information data to PG&E’s Privacy and IT
 13 teams and developing job aides to support ongoing support
 14 for intake and responses;
- 15 • Supporting the IT team with the testing and implementation
 16 of data subject requests and deletion fulfillment in the IPA,
 17 including necessary enhancements following
 18 implementation; and
- 19 • Providing ongoing project management for the “Data
 20 Discovery” workstream to support customer requests for
 21 access to their personal information data.

- 1 • Identifying and classifying personal employee data stored in
2 PG&E systems and reviewing relevant labor laws. PG&E
3 conducted this work prior to the enactment of AB 1281 in
4 September 2021. The CCPA originally included an
5 exemption until January 1, 2021 that prohibited employees
6 from requesting access to and/or deletion of their personal
7 information data from their employers. AB 1281 further
8 extended this exemption until January 1, 2023. PG&E
9 recorded costs for these activities in 2020 prior to the
10 enactment of AB 1281.
- 11 • Hiring contract workers to support PG&E's ability to process
12 data subject access and deletion requests within 45 days
13 (90 days with an extension).
- 14 • Consulting services provided support of the IPA system for
15 system enhancements to meet CCPA regulations, for
16 example, system updates required for July 2020 regulation
17 changes to DSAR notifications.

18 **b) IT Labor**

19 PG&E recorded approximately \$5.7 million (Table 8-8,
20 Line 2) in 2020 to the CCPAMA for IT labor. PG&E's IT team
21 supported the implementation of the CCPA in 2020 by:

- 22 • Supporting responses to customer requests to access and
23 delete their personal information data using the IPA system;
- 24 • Conducting ongoing operations and maintenance of the Big
25 ID tool to identify the location of customer personal
26 information data;
- 27 • Continuing to update PG&E's data inventory/catalogue with
28 new systems scanned and relevant personal information
29 data identified; and
- 30 • Updating PG&E's data deletion framework as needed to
31 account for newly discovered data elements, legal changes,
32 records retention schedules, etc).
- 33 • Contract labor for consumer request was the contract labor
34 cost for fulfilling the IT support of Data Subject Access

1 Requests (DSAR). This included scanning the systems
2 using BIG ID, pulling data through user interface (UI)
3 searches, and using queries of CCPA and outside vendor.

- 4 • IPA system support also included contracted IT labor
5 supporting upgrades and servicing of IPA system.

6 **c) Privacy Labor**

7 PG&E recorded approximately \$1.2 million (Table 8-8,
8 Line 3) in 2020 to the CCPAMA for incremental Privacy team
9 labor. PG&E's Privacy team supported the implementation of
10 the CCPA in 2020 by:

- 11 • Responding to customer requests to access and delete their
12 personal information data. In 2020, PG&E received
13 1,211 requests from customers to access their personal
14 information data and 1,376 requests to delete their personal
15 information data.
- 16 • Reviewing and changing PG&E's policies and processes
17 based on amendments to CCPA regulations (e.g. AB 1281);
- 18 • Continuing to monitor workstream progress, managing
19 dependencies, and identifying potential issues;
- 20 • Leading the entire lifecycle for non-IT enabled work in all
21 workstreams; and
- 22 • Managing a long-term strategic roadmap for CCPA
23 implementation.

24 **d) Contact Center Labor**

25 PG&E recorded approximately \$424,000 (Table 8-8, Line 4)
26 in 2020 to the CCPAMA for Contact Center support to educate
27 customers on how to exercise their privacy rights and to answer
28 customers' questions regarding the CCPA process at PG&E.
29 PG&E's Contact Center customer service representatives
30 (CSR) also processed data subject requests and deletion
31 requests using the IPA intake form. In 2020, PG&E responded
32 to approximately 19,700 customer calls related to CCPA.

1 **2) Hardware and Software**

2 PG&E recorded approximately \$1.6 million (Table 8-7, Line 2) in
3 2020 in hardware and software costs to the CCPAMA which
4 represent ongoing hardware and software support for the Big ID
5 tool, One Trust cookie management, and the Service Now platform
6 to intake and process data access and deletion requests.

7 **3) Bill Inserts**

8 PG&E recorded approximately \$9,000 (Table 8-7, Line 3) in
9 2020 in materials costs to the CCPAMA to provide bill inserts to all
10 customers in January 2020. The bill inserts provided information in
11 English and Spanish on updates to PG&E’s privacy policy in
12 compliance with the CCPA.⁹

13 **d. 2020 Capital**

14 PG&E recorded approximately \$110,000 (Table 8-4, Line 1) in 2020
15 in capital costs to the CCPAMA for a server to support Big ID scans.

16 **C. Emergency Consumer Protections Memorandum Account**

17 **1. Background**

18 The purpose of the ECPMA is to record incremental costs associated
19 with PG&E’s implementation of its Emergency Consumer Protection Plan.
20 PG&E implements this plan when the California Governor’s Office or the
21 President of the United States declares a state of emergency due to a
22 disaster that has either resulted in the loss or disruption of the delivery or
23 receipt of utility service and/or resulted in the degradation of the quality of
24 utility service as defined in D.19-07-015.¹⁰

25 PG&E established the ECPMA in accordance with D.18-08-004, which
26 authorized a temporary emergency disaster relief program and directed
27 PG&E to re-name its existing Wildfires Customer Protections Memorandum
28 Account to the ECPMA to reflect the fact that D.18-08-004 extended the
29 applicability of emergency customer protections for other disasters, not only

⁹ To view these bill inserts, see https://www.pge.com/pge_global/common/pdfs/your-account/your-bill/understand-your-bill/bill-inserts/2020/0120-CCPA.pdf.

¹⁰ D.19-07-015, p. 16.

1 wildfires.¹¹ In September 2018, PG&E submitted a Tier 2
2 (AL 4014-G/5378-E) to establish the ECPMA. In this AL, PG&E proposed to
3 record all incremental expenses associated with the various protection
4 measures in its Emergency Consumer Protection Plan to the ECPMA,
5 including expenses associated with the waiving of fees for temporary
6 service.¹² The Commission approved AL 4014-G/5378-E effective as of
7 October 7, 2018.

8 Subsequent to this approval, the Commission established a permanent
9 emergency disaster relief program in D.19-07-015, which affirmed that
10 PG&E should continue to use the ECPMA to track costs associated with
11 implementing its Emergency Consumer Protections Plan.¹³ Pursuant to
12 D.19-07-015, OP 2, within 15 days of a declaration of a state of emergency
13 for a qualifying disaster, PG&E submits a Tier 1 AL to report its compliance
14 with implementing emergency customer protections. In each AL, PG&E
15 confirms that it will record to the ECPMA incremental costs associated with
16 implementing the plan's customer protections.¹⁴

17 Under Electric Rule 13.A.1, customers establishing temporary service
18 would be required to pay the estimated cost for installation and removal of
19 facilities needed to furnish temporary service. PG&E records the actual
20 costs of furnishing temporary service to customers affected by wildfires in
21 CEMA. However, only the Rule 13 waiver costs related to the October 2017
22 fires is tracked for recovery in CEMA. Rule 13 waiver costs for other,
23 non-October 2017 wildfires and declared events will be tracked and
24 recovered through the ECPMA, which was approved through
25 AL 4014-G/5378-E.

26 On May 20, 2021 Res.E-5148 was approved to further the extension
27 date to December 31, 2022.

11 D.18-08-004, p. 22, OP 3.

12 PG&E AL 4014-G/5378-E, p. 11.

13 D.19-07-015, p. 27.

14 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.

1 **2. Summary of Program Activities**

2 In 2019 and 2020, PG&E recorded incremental costs to the ECPMA for
3 providing temporary service and discontinuing billing and stopping estimated
4 usage for customers impacted by disasters. Specifically, PG&E recorded
5 approximately \$2.6 million in 2019 and \$3.7 million in 2020 for a total of
6 approximately \$6.3 million. Table 8-9 below summarizes the 2019 and 2020
7 costs recorded in the ECPMA.

TABLE 8-9
SUMMARY OF 2019-2020 ECPMA COST BY ACTIVITY
(THOUSANDS OF NOMINAL DOLLARS)

Line No.	Activity	2019 Recorded Costs	2020 Recorded Costs
1	Temporary Services	\$1,788	\$2,356
2	Customer Billing Support	466	344
3	Customer Outreach	305	1,011
4	Total of Yearly Costs	\$2,559	\$3,712
5	Total ECPMA	–	\$6,271

8 **a. Temporary Services**

9 Pursuant to Res.E-4899, E-4968, and E-5023, PG&E waived
10 Electric Rule 13 for applicants affected by declared emergencies and
11 recorded the costs of furnishing temporary service for customers
12 affected by emergency disasters in its ECPMA. This includes
13 approximately \$1.8 million (Table 8-9, Line 1) in 2019 for the
14 November 2018 Camp Fire, 2018 Carr Fire, and October 2019 Kincade
15 Fire as well as approximately \$2.4 million (Table 8-9, Line 1) in 2020 for
16 the November 2018 Camp Fire, August 2020 Fires, and the 2020
17 Zogg Fire.

18 **b. Billing Support**

19 To support customers impacted by a wildfire or other emergency,
20 the Commission requires PG&E in D.19-07-015 to discontinue billing
21 and stop estimated usage for billing attributed to the time period when
22 a home/unit was unoccupied as a result of the emergency and
23 discontinue billing.

1 In 2019, PG&E recorded approximately \$0.5 million (Table 8-9,
2 Line 2) to the ECPMA to provide these services in response to the
3 following declared emergencies: November 2018 Camp Fire, February
4 2019 Storms that impacted parts of Butte, Colusa, Mariposa, Napa,
5 Santa Cruz, Solano, and Tuolumne Counties, and the October 2019
6 Kincade Fire. In 2020, PG&E recorded approximately \$0.4 million
7 (Table 8-9, Line 2) to the ECPMA to provide billing support in response
8 to the following declared emergencies: August 2020 Fires, 2020
9 Creek Fire, and the 2020 Zogg, Glass, and Oak Fires.

10 For each of these events, PG&E deployed IT resources to identify
11 the premises of impacted customers that were not capable of receiving
12 utilities services, discontinued billing these premises without assessing a
13 disconnect charge or using estimated data, and dispatched field
14 resources to verify the status of impacted premises.

15 **c. Customer Outreach**

16 In 2019 and 2020, PG&E recorded approximately \$1.3 million
17 (Table 8-9, Line 3) in incremental costs to the ECPMA in support of
18 activities to communicate the availability of emergency customer
19 protections, particularly to those who may have been displaced from
20 their homes during a qualifying disaster.

21 In 2019, PG&E recorded approximately \$0.3 (Table 8-9,
22 Line 3) million to the ECPMA to provide these services to the following
23 declared emergencies: 2018 Camp Fire, 2018 Car Fire, and 2019
24 Kincade Fire. In 2020, PG&E recorded approximately \$1.0 million to the
25 ECPMA to provide these services to the following declared
26 emergencies: August 2020 Fires, 2018 Camp Fire, 2020 Zogg Fire, and
27 2019 Kincade Fires.

28 For each of these events, PG&E deployed resources to increase
29 awareness of balance payment plans, and other programs which
30 provide financial relief for wildfire victims.

1 **D. COVID-19 Pandemic Protections Memorandum Account**

2 **1. Background**

3 The purpose of the CPPMA is to record and track incremental costs
4 associated with implementing billing-related, emergency customer
5 protections for residential and small business customers related to the
6 COVID-19 pandemic.

7 On March 4, 2020, Governor Newsom declared a statewide emergency
8 due to the COVID-19 pandemic. On March 19, 2020, PG&E submitted a
9 Tier 1 AL (AL 4227-G/5784-E) pursuant to OP 1 of D.19-07-015 to
10 implement the following billing-related, emergency customer protections for
11 residential and small business customers: (1) suspending service
12 disconnections for non-payment and waiving security deposits;
13 (2) implementing flexible payment plan options; and (3) providing additional
14 support for low-income and medical baseline (MBL) customers.

15 On April 3, 2020, PG&E submitted a supplemental Tier 1 AL
16 (AL 4227-G-A/5784-E-A) to suspend customer removals from the MBL
17 program and allow new applicants to enroll without a signed authorization
18 from their medical practitioners due to COVID-19's impact on customers'
19 ability to see their doctors.¹⁵

20 On April 16, 2020, the Commission adopted Res.M-4842, which directed
21 PG&E to offer applicable emergency customer protections to residential and
22 small business customers through April 16, 2021.¹⁶ Res.M-4842 also
23 directed PG&E to establish the CPPMA to record incremental costs
24 associated with implementing the emergency customer protections and to
25 submit a Tier 2 AL to establish the account and describe the protections it
26 would offer to customers.¹⁷

27 On May 1, 2020, PG&E submitted AL 4244-G/5816-E to describe its
28 implementation of the emergency customer protections and to establish the
29 CPPMA. PG&E submitted two supplemental ALs to incorporate feedback

15 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.

16 Res.M-4842, OP 5.

17 Res.M-4842, 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. Ultimately,
3 the Commission authorized PG&E to track and record the following costs to
4 the CPPMA in 2020:¹⁸

- 5 • Incremental expenses associated with implementing the emergency
6 customer protections¹⁹
- 7 • Incremental uncollectibles expense during the COVID-19 pandemic
8 period for residential and small business customers; and
- 9 • The costs of using a short-term revolving credit facility for purposes of
10 financing residential and small business cash flow shortfalls resulting
11 from the implementation of the emergency customer protections.

12 **2. Summary of Program Activities**

13 As a result of the COVID-19 pandemic, PG&E recorded approximately
14 \$7.8 million to the CPPMA in 2020. This includes costs associated with
15 financing accounts receivables as well as incremental costs incurred to
16 implement COVID-19 emergency customer protections as required by
17 Res.M-4842. PG&E is not seeking recovery of incremental uncollectibles
18 because the Commission has authorized other mechanisms for PG&E to
19 recover these costs (e.g. the Residential Uncollectibles Balancing Account
20 adopted in AL 4334-G/6001-E, effective June 11, 2020) Table 8-10
21 identifies incremental costs that PG&E recorded to the CPPMA. PG&E
22 describes these activities in further detail below.

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.

TABLE 8-10
SUMMARY OF 2020 RECORDED COSTS TO CPPMA BY ACTIVITY
(THOUSANDS OF NOMINAL DOLLARS)

Line No.	Activity	2020 Recorded Costs
1	Accounts Receivables Financing Costs	\$2,600
2	Credit and Billing Support	2,416
3	Outreach and Communications	1,834
4	Contact Center Support	919
5	MBL Support	81
6	Adjustments	(3)
7	Total	\$7,847

Note: *Adjustments include reductions associated with pro rating March 2020 costs by 28/31 to reflect the March 4, 2020 effective date of the CPPMA as well as the addition of interest earned on costs recorded to the account. See WP 8 6 for more information.

a. Accounts Receivables Financing Costs

In 2020, PG&E recorded approximately \$2.6 million (Table 8-10, 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, estimated to be approximately 1.75 to 2.25 percent per year on the incremental cash flow shortfalls.

b. Credit and Billing Support

In 2020, PG&E recorded approximately \$2.4 million (Table 8-10, 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 (\$2.4 million) was approximately 133,000 outbound calls that CSRs in PG&E's Credit Center made to customers with past due balances to offer flexible payment arrangements, provide financial assistance agency information for the Low-Income Home Energy Assistance Program (LIHEAP) and Relief for Energy Assistance through Community Help (REACH)

1 Program, enroll customers in California Alternate Rates Energy
2 (CARE)/Family Electric Rate Assistance (FERA) if eligible, and review
3 their account to ensure they were enrolled in the optimal rate to help
4 manage future bills.

5 In addition, PG&E closed its Customer Service Offices (CSO) in
6 March 2020 due to the COVID-19 pandemic. As a result, PG&E
7 recorded approximately \$81,000 in incremental labor to process
8 approximately 50,000 mailed payments each month that were previously
9 processed through its CSOs.

10 Lastly, consistent with its proposal in AL 4244-G/5816-E and
11 supplements, PG&E allocated partial payments received from residential
12 customers served by third-party service providers (Community Choice
13 Aggregators, Core Transport Agents, Energy Service Providers) on a
14 *pro rata* basis with third-party service providers. To administer this
15 interim policy, PG&E needed to modify its billing system. These
16 modifications required approximately \$26,000 in incremental labor to
17 develop, design, build, and test the billing system changes.

18 **c. Outreach and Communications**

19 In 2020, PG&E recorded approximately \$1.8 million (Table 8-10,
20 Line 3) in incremental costs to conduct community awareness and
21 public outreach pursuant to Res.M-4842, OP 6 to help raise awareness
22 of the COVID-19 emergency customer protections and inform customers
23 of available assistance.²⁰

24 The primary driver of outreach and communications costs was
25 approximately \$1.1 million that PG&E recorded to the CPPMA for media
26 costs related to promoting awareness of customer protections and
27 support programs via television, radio, and other digital channels.

28 In addition, PG&E recorded approximately \$266,000 in 2020 for
29 2021 media pre-buy to support the continuation of outreach campaigns
30 to help customers struggling financially or otherwise impacted by the

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 pandemic find customer assistance and support programs. PG&E also
2 recorded approximately \$196,000 to the CPPMA in 2020 to develop and
3 execute an online campaign to promote LIHEAP²¹ and drive increased
4 program participation. This includes developing and placing targeted
5 advertising that promoted LIHEAP as a source of financial assistance to
6 customers impacted by the COVID-19 pandemic.

7 PG&E also recorded approximately \$140,000 in labor costs to
8 support campaign coordination and execution, including media planning,
9 website development, email planning, and project management.

10 Lastly, PG&E recorded approximately \$133,000 in external agency
11 and vendor costs for outreach development and deployment, including
12 collateral development and print production, translation of web content
13 and communications, and email development and deployment.

14 **d. Contact Center Support**

15 In 2020, PG&E recorded approximately \$916,000 (Table 8-10,
16 Line 4) in incremental labor costs to the CPPMA for its CSRs to handle
17 approximately 77,000 incoming calls from customers who stated that
18 they were impacted by the COVID-19 pandemic and needed help
19 paying their bills. PG&E hired additional CSRs to help address the
20 increase in call volume to mitigate long wait times. During these calls,
21 PG&E's CSRs directed customers to available assistance programs
22 (e.g., CARE, FERA, LIHEAP, REACH) and enrolled them in payment
23 plans to help them spread repayment of their past due balances over
24 time.

25 **e. Medical Baseline Program Support**

26 In 2020, PG&E recorded approximately \$81,000 (Table 8-10, Line 5)
27 in incremental labor costs to the CPPMA for CSRs to call approximately
28 5,600 customers that incorrectly filled out their applications for the
29 MBL Program and help them resubmit corrected applications. As
30 explained further below, this call-back process (an important initiative

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 given the heightened risks presented by COVID-19 pandemic) was new,
2 resulting in incremental costs.

3 As a standard practice, PG&E requires customers that are applying
4 or re-certifying their eligibility for the program to submit an application
5 that is signed by their doctor or other eligible medical practitioner. The
6 form consists of two parts: Part A is filled out by the customer and
7 Part B is typically filled out by a doctor or other eligible medical
8 practitioner. Customers who submit an incorrect and/or incomplete
9 application are sent a denial letter.

10 Following Governor Newsom's COVID-19 emergency declaration in
11 March 2020, PG&E implemented voluntary emergency consumer
12 protections to support the MBL program due to COVID-19
13 shelter-in-place requirements, changing medical practitioner priorities,
14 and the inability for many vulnerable customers to consult with their
15 medical providers to receive the medical certification. PG&E originally
16 described its implementation of these protections in AL 4227-G/5784-E
17 and supplements and included them in the list of activities that it
18 requested to track in the CPPMA in AL 4244-G/5816-E and
19 supplements. The Commission approved AL 4244-G-B/5816-E-B
20 effective March 4, 2020. Specifically, PG&E immediately suspended all
21 customer removals from the MBL program and no longer required
22 customers to certify or re-certify for the MBL program through a doctor
23 or other eligible medical practitioner.

24 Starting in March 2020, PG&E's MBL application included a note on
25 Part B of the form to indicate that PG&E was suspending the
26 requirement to obtain a doctor's signature due to the COVID-19
27 pandemic. However, as shown in Figure 8-1, Part B of the form requires
28 PG&E to collect other information about a customer's medical condition
29 that are critical to support their participation in the program. This
30 includes the customer's medical condition and specific needs
31 (i.e., requires use of life support device(s) and/or requires heating and/or
32 cooling), which are used to ensure they receive additional notifications in
33 advance of a Public Safety Power Shutoff event.

1 applications for the MBL Program between July 15, 2020 through
2 October 7, 2020. Pursuant to AL 4227-G/5784-E and supplements,
3 PG&E did not remove any customers from the MBL Program during the
4 COVID-19 emergency customer protections period. PG&E also updated
5 its communications to clarify that only the portion of Part B requiring a
6 signature was not required.

7 **E. Disconnections Memorandum Account**

8 **1. Background**

9 The purpose of the DMA is to track incremental costs associated with
10 implementing the requirements of D.20-06-003.

11 On June 11, 2020, the Commission adopted D.20-06-003, which
12 includes rules and other changes designed to reduce the number of
13 residential customer disconnections and improve reconnection processes
14 for disconnected customers.²² D.20-06-003 supports SB 598's directive for
15 the Commission, among other things, to develop rules, policies, or
16 regulations with a goal of reducing the statewide disconnection rate of gas
17 and electric utility customers by January 1, 2024.²³

18 In support of these objectives, D.20-06-003 directs PG&E to implement
19 policies and programs, including:

- 20 • Launching the Arrearage Management Plan (AMP), which allows
21 CARE/FERA customers with at least \$500 in past due balances that are
22 at least 90 days old to receive forgiveness of 1/12th of their past due
23 balance with each timely payment of their current monthly charges, up
24 to \$8,000 per calendar year;²⁴
- 25 • Modifying its 48-hour disconnection notice to clarify the assistance
26 programs that are available to support customers;²⁵

22 D.20-06-003, p. 2.

23 D.20-06-003, p. 5.

24 See D.20-06-003, OPs 52-69 for information on the AMP.

25 D.20-06-003, OPs 10 and 13.

- 1 • Adopting annual residential disconnection caps that limit disconnections
2 to 2017 recorded levels (4 percent annually, with a reduction to
3 3.5 percent annually starting January 2023);²⁶
- 4 • Requiring PG&E to not exceed a residential disconnection rate of
5 30 percent in any zip code;²⁷
- 6 • Eliminating deposits and reconnection fees for residential customers;²⁸
- 7 • Requiring PG&E to inquire whether residential customers are interested
8 in learning about applicable benefit programs prior to disconnection;²⁹
9 and
- 10 • Removing an interim policy adopted in D.18-12-013³⁰ that prevented
11 PG&E from disconnecting residential customers that were 65 years or
12 older.³¹

13 2. Summary of Program Activities

14 In March 2020, PG&E implemented a moratorium on disconnections in
15 response to the COVID-19 pandemic. Consistent with Res.M-4842, the
16 moratorium on disconnections was in effect for the remainder of 2020.
17 Since PG&E did not disconnect customers after March 2020, PG&E incurred
18 only minimal costs in 2020 for the initial design, development, and testing of
19 the modifications needed to comply with the directives in D.20-06-003.
20 PG&E intends to complete the remainder of this work in 2021 prior to the
21 resumption of credit activities.³² Table 8-11 identifies activities that PG&E
22 implemented in 2020 pursuant to D.20-06-003 that are associated with
23 incremental costs. PG&E describes these activities in further detail below.

²⁶ D.20-06-003, OP 1a.

²⁷ D.20-06-03, p. 36.

²⁸ D.20-06-003, OPs 8-9, 16.

²⁹ D.20-06-003, OP 1c.

³⁰ D.18-12-013, pp. 21-22.

³¹ D.20-06-003, p. 14.

³² PG&E has implemented a moratorium on disconnections since March 4, 2020 for residential and small business customers. The moratorium is in place through at least September 2021, pursuant to D.21-06-036, OP 1.

TABLE 8-11
SUMMARY OF 2020 RECORDED COSTS TO DMA BY ACTIVITY
(THOUSANDS OF NOMINAL DOLLARS)

Line No.	Activity	2020 Recorded Costs
1	AMP	\$593
2	Removing 65+ disconnection policy	25
3	Eliminating deposits and reconnection fees	27
4	Offering applicable benefit programs prior to disconnection	11
5	Tracking for disconnection caps	2
6	Updating 48-Hour notices	0.5
7	12-Month Default Pay Plans	7
8	Total	\$666

1 **a. Arrearage Management Plan**

2 Pursuant to D.20-06-003, OPs 52-69 and Res.E-5114, PG&E
3 launched the Arrearage Management Plan (AMP) in February 2021 to
4 help low-income customers reduce their arrears and get on a path
5 towards consistent, on-time bill payment. Following the issuance of
6 D.20-06-003 in June 2020, PG&E recorded approximately \$593,000
7 (Table 8-11, Line 1) in 2020 to develop the AMP.

8 In total, PG&E recorded approximately \$446,000 in labor in 2020 to
9 design, develop, and test the billing system updates required to
10 implement the AMP. PG&E also recorded an additional \$146,000 in
11 labor and contracts to develop training materials and train key internal
12 stakeholders on the program (e.g., CSRs).

13 **b. Removing Interim Policy Prohibiting Disconnections for Customers**
14 **Aged 65+**

15 In compliance with D.20-06-003,³³ PG&E is removing an interim
16 rule adopted in D.18-12-013 that prohibited PG&E from disconnecting
17 any residential customers aged 65 years or older.³⁴ In 2020, PG&E
18 recorded approximately \$25,000 (Table 8-11, Line 2) in labor to develop,
19 design, and build required changes to its billing system to remove this
20 requirement. PG&E anticipates recording additional costs to the DMA in
21 2021 to complete the project prior to the resumption of credit activities.

³³ D.20-06-003, p. 14.

³⁴ D.18-12-013, pp. 21-22.

1 **c. Eliminating Deposits and Reconnection Fees**

2 As required by D.20-06-003, OPs 8, 9, and 16, PG&E is updating its
3 billing system to no longer charge reconnection fees or deposits. In
4 2020, PG&E recorded approximately \$27,000 (Table 8-11, Line 3) in
5 labor to the DMA to develop an estimate to design, build, and test
6 system updates to eliminate these processes. PG&E anticipates
7 recording additional costs to the DMA to complete this project prior to
8 the resumption of credit activities.

9 **d. Offering Applicable Benefit Programs Prior to Disconnection**

10 Pursuant to D.20-06-003, OP 1c, PG&E is required to offer all
11 applicable benefit programs to customers prior to disconnection. In
12 support of this requirement, PG&E is updating its billing and Interactive
13 Voice Response system to create new alerts, reporting, messaging, and
14 communications to customers. In 2020, PG&E recorded approximately
15 \$11,000 (Table 8-11, Line 4) in labor to develop an estimate for these
16 changes. PG&E anticipates recording additional costs to the DMA in
17 2021 to complete this project prior to the resumption of credit activities.

18 **e. Tracking for Disconnection Caps**

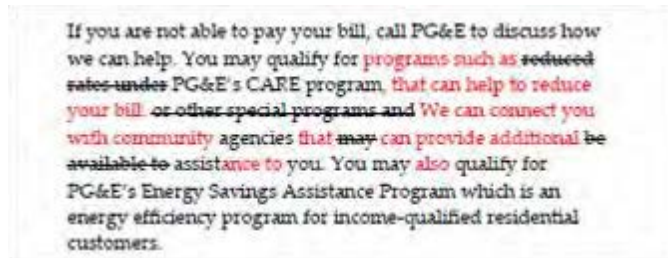
19 In accordance with D.20-06-003,³⁵ PG&E is modifying its systems
20 to track, monitor, and report on its compliance with the annual
21 disconnection caps and zip code level disconnection cap. To develop
22 this system, PG&E recorded approximately \$2,000 (Table 8-11, Line 5)
23 in labor costs to design, build, and test the new requirements. PG&E
24 anticipates recording additional costs to the DMA to complete these
25 activities in 2021 prior to the resumption of credit activities.

26 **f. Updating 48-Hour Notices**

27 Pursuant to D.20-06-003, OPs 10 and 13, PG&E modified its
28 48-hour disconnection notices to provide additional information to
29 customers about available assistance programs. Figure 8-2 identifies
30 the changes to PG&E's 48-hour notices (deletions in strikethrough,
31 additions in red):

35 D.20-06-003, OP 1a and p. 36.

**FIGURE 8-2
MODIFICATIONS TO PG&E'S 48-HOUR NOTICES**



1 In 2020, PG&E incurred \$468 (Table 8-11, Line 6) in connection with
2 the initial design, build, and testing required to implement the modified
3 48-hour notices. PG&E anticipates recording additional costs to the
4 DMA to complete this project in 2021 prior to the resumption of credit
5 activities.

6 **g. 12-Month Default Pay Plans**

7 In accordance with D.20-06-003,³⁶ PG&E is modifying its systems
8 to automatically offer 12 month pay plans to residential customers prior
9 to disconnection. To make these changes, PG&E recorded
10 approximately \$7,000 (Table 8-11, Line 7) in labor costs to design and
11 build the new requirements. PG&E anticipates recording additional
12 costs to the DMA to complete these activities in 2021 prior to the
13 resumption of credit activities.

14 **F. Conclusion**

15 This chapter describes incremental costs that PG&E recorded to implement
16 required activities in the CCPAMA, ECPMA, CPPMA, and DMA. As discussed
17 in this chapter, the costs that PG&E incurred to comply were reasonable and
18 should be approved in their entirety.

36 D.20-06-003, OP 1d.

PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 9
MICROGRIDS

PACIFIC GAS AND ELECTRIC COMPANY
 2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
 CHAPTER 9
 MICROGRIDS

TABLE OF CONTENTS

A. Introduction.....	9-1
B. Summary of Request.....	9-1
C. Nature and Reason for Activity	9-2
D. Evolution of PG&E’s 2020 Temporary Generation and Make-Ready Programs.....	9-4
1. Track 1 Proposal.....	9-5
2. April 2020 Supplemental Testimony	9-7
a. Defer 2020 Efforts for Permanent Generation	9-7
b. Revised Scope of Make-Ready Program.....	9-8
c. Addition of Community Resource Centers in Temporary Generation Program	9-9
d. Temporary Generation Update	9-10
3. Changes Following April 2020 Supplemental Testimony	9-10
4. PSPS Scoping and Modeling Revisions in August 2020.....	9-11
E. PG&E’s Make-Ready Program.....	9-12
F. Use of Temporary Generation During 2020 PSPS Events	9-13
1. Substation Microgrids.....	9-14
2. Distribution Microgrids.....	9-16
3. Community Resource Centers	9-18
4. Critical Customer BUPS.....	9-20
G. Community Microgrid Enablement Program.....	9-24
1. Program Overview	9-25
a. Program Development.....	9-25
b. Community Microgrid Enablement Tariff Creation	9-25

PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 9
MICROGRIDS

TABLE OF CONTENTS
(CONTINUED)

c. Enhanced Utility Technical Support.....	9-26
2. Program Implementation.....	9-26
H. Program Management Expenses.....	9-28
1. Electric Operations Temporary Generation Program Management Office.....	9-28
2. Energy Policy and Procurement DGEMS PMO	9-28
I. Conclusion.....	9-28

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS**
3 **CHAPTER 9**
4 **MICROGRIDS**

5 **A. Introduction**

6 This chapter demonstrates the reasonableness of approximately
7 \$133 million in expense and \$6 million in capital incremental costs incurred in
8 2020 and recorded in the Microgrids Memorandum Account (MGMA) for various
9 microgrid-related programs. As further discussed below, these programs and
10 the associated costs were approved by the California Public Utilities
11 Commission (CPUC or Commission) in Decision (D.) 20-06-017 to be recorded
12 in the MGMA for subsequent reasonableness review and cost recovery.
13 Specifically, this chapter demonstrates the reasonableness of costs incurred in
14 2020¹ for Pacific Gas and Electric Company’s (PG&E) Make-Ready Program,
15 Temporary Generation Program, Community Microgrid Enablement Program
16 (CMEP), and associated program management expenses.

17 **B. Summary of Request**

18 A summary of the 2020 costs for microgrid-related programs recorded in
19 MGMA is presented in Table 9-1 below. This section provides a high-level
20 description of the costs, while further details on the work can be found in the
21 sections that follow.

- 22 • Make-Ready Program – Work performed and equipment installed to safely
23 connect temporary generation to substations. Section E discusses recorded
24 costs for the Make Ready Program.
- 25 • Temporary Generation Program – Generator rental costs and other rental
26 related costs (e.g., environmental fees, sales tax, ancillary equipment

1 PG&E is only seeking cost recovery of microgrid-related costs incurred during the calendar year 2020. It is important to note, however, that these are ongoing programs and that costs continued to be recorded to the MGMA after December 31, 2020. In particular, environmental conditions creating high fire risk persisted during the 2020-21 fire season beyond December into 2021, and PG&E accordingly extended the contracts to reserve its temporary generation for PSPS mitigation beyond December and into 2021. PG&E plans to present the costs incurred associated with the 2021 reservations of temporary generators in a future cost recovery application.

- 1 rentals) along with costs incurred during Public Safety Power Shutoff
 2 (PSPS) events (e.g., fuel, labor, freight). Section F discusses recorded
 3 costs for the Temporary Generation Program.
- 4 • Community Microgrid Enablement Program (CMEP) – Cost related to
 5 program design and development activities. Section G discusses recorded
 6 costs for the CMEP.
 - 7 • Program Management – Costs to implement the Temporary Generation
 8 Program, including coordination of regulatory, project development, finance,
 9 site selection, construction, and permitting. Section H discusses recorded
 10 costs for Program Management.

**TABLE 9-1
 SUMMARY OF 2020 MICROGRID PROGRAM COSTS
 (THOUSANDS OF DOLLARS)**

Line No.	Description	Capital	Expense	Total
1	Make-Ready Program	\$6,153	\$41	\$6,194
2	Temporary Generation Program	–	131,381	131,381
3	Community Microgrid Enablement Program	–	391	391
4	Program Management	–	1,164	1,164
5	Total	\$6,153	\$132,977	\$139,130

11 This chapter describes the evolution of these microgrid programs, the costs
 12 incurred for them in 2020, and why those costs are reasonable and should be
 13 recovered. The Temporary Generation Program, along with the Make-Ready
 14 Program to prepare substations to use locally-sited generation and the CMEP,
 15 were key components of PG&E’s strategy in 2020 to reduce the impact of PSPS
 16 events on customers.

17 **C. Nature and Reason for Activity**

18 Following the 2019 PSPS events, PG&E received feedback from customers,
 19 regulators, and legislators regarding its implementation of the PSPS Program, a
 20 wildfire mitigation measure of last resort to protect the public from wildfire risks
 21 during extreme weather events. PG&E sought input to find ways to improve its
 22 PSPS Program to mitigate the impacts of PSPS outages on customers across
 23 PG&E’s electric system.

1 In 2020, PG&E focused on developing various microgrid solutions to build
2 grid resilience and allow PG&E to maintain electric service for customers in
3 communities that have a high likelihood of experiencing a PSPS outage. These
4 microgrid solutions included: (1) the Make-Ready Program; (2) Temporary
5 Generation Program; and (3) CMEP.

6 In 2020, PG&E reserved approximately 470 megawatts (MW) of temporary
7 mobile generation to mitigate the impacts of PSPS outages. The mobile
8 generators were used in four PSPS mitigation workstreams within PG&E's 2020
9 Temporary Generation Program, which was approved as an incremental
10 program with costs to be recorded into a new MGMA in the Commission's Track
11 1 Decision in Rulemaking (R.) 19-09-009 (Microgrids and Resiliency
12 Strategies).² The four workstreams in the 2020 Temporary Generation Program
13 are described in more detail below.

14 Additionally, within the same Track 1 Decision in R.19-09-009, the
15 Commission approved PG&E's Make-Ready Program,³ to prepare substations
16 to receive generation and to create microgrids during broader grid outages, and
17 PG&E's CMEP, to support community-proposed microgrids for resiliency.⁴
18 These programs are also described in more detail below.

19 The Track 1 Decision in R.19-09-009 initially envisioned that costs recorded
20 into the MGMA for the 2020 Temporary Generation and Make-Ready Programs
21 would be recovered in a future phase of R.19-09-009⁵; CMEP costs recorded
22 into the MGMA would be reviewed and recovered through a separate application
23 or PG&E's General Rate Case (GRC).⁶ However, this approach was modified
24 by the subsequent Track 2 Decision in R.19-09-009, where the Commission
25 directed PG&E to recover the costs for the 2020 Temporary Generation and

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 *Id.*, pp. 128-129, OPs 12 and 14.

6 *Id.*, pp. 130-131, OP 16.

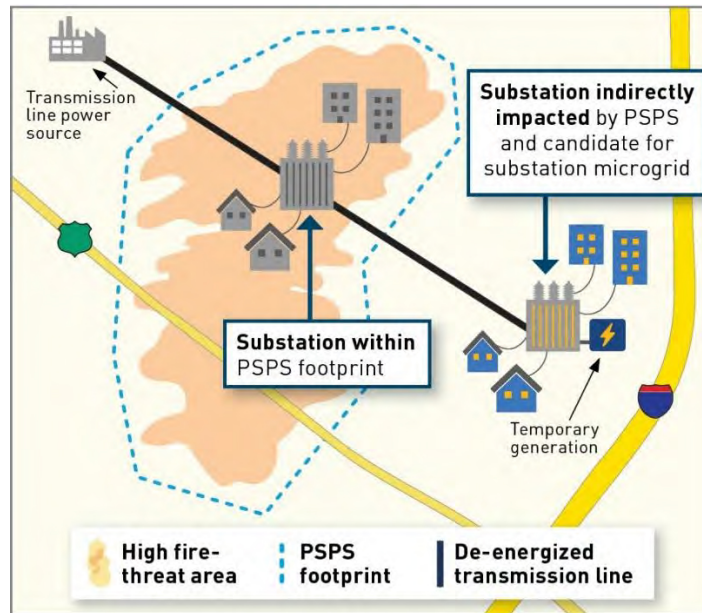
1 Make-Ready Programs through an application filed by September 30, 2021.⁷
2 This application is therefore an appropriate mechanism through which to seek
3 incremental cost recovery for each of these microgrid-related programs.

4 **D. Evolution of PG&E’s 2020 Temporary Generation and Make-Ready**
5 **Programs**

6 During the October 26, 2019 PSPS event, which was the largest in 2019,
7 PG&E shut off power to approximately 234,000 customer meters in a large area
8 within PG&E’s service territory. Remote transmission lines were de-energized
9 for wildfire mitigation. However, it was safe to energize distribution substation
10 and electric lines in certain impacted areas because these assets were outside
11 of the PSPS de-energization footprint needed for wildfire mitigation (See
12 Figure 9-1 for an illustrative example). Similar large-scale outages of otherwise
13 safe-to-energize customer meters occurred during other 2019 PSPS events.
14 While these PSPS events undoubtably prevented catastrophic wildfires, PG&E
15 received a clear message from political leaders and the public: the frequency,
16 scope, and impact of these events must be reduced.

⁷ 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.”).

**FIGURE 9-1
ILLUSTRATION OF ASSETS OUTSIDE OF PSPS FOOTPRINT**



1 In December 2019, PG&E launched its Distributed Generation-Enabled
2 Microgrid Services (DGEMS) solicitation, seeking offers to install permanent
3 generation at or near various substations. The generation would be utilized
4 during a PPS event when PG&E needed to de-energize remote transmission
5 lines servicing the substations, but it was otherwise safe to energize the
6 substation and distribution lines servicing customers outside of the PPS
7 de-energization footprint needed for wildfire mitigation.

8 **1. Track 1 Proposal**

9 In response to direction provided by the Scoping Memorandum issued in
10 R.19-09-009 (Microgrids and Resilience Strategies) at the end of 2019,
11 PG&E submitted written testimony on January 21, 2020, describing its
12 “Track 1 Proposal” of near term activities to mitigate negative customer
13 impacts during PPS events. PG&E’s Track 1 Proposal contained the
14 following components, subject to further feasibility evaluations:

- 15 • A DGEMS Program focused on constructing permanent generation at
16 substations that have historically been safe-to-energize, but were
17 impacted by PPS events in 2019 because the transmission lines
18 feeding each of the substations were not safe to energize due to wildfire
19 risk. The program included a Request for Offers (RFO) to assess the

1 feasibility of procuring permanent generation at 20 candidate
2 substations. Further details on the process to select these
3 20 substations can be found in PG&E's Track 1 Proposal.⁸ In addition
4 to maintaining electric service to customers during PSPS events, these
5 permanent generation solutions would also support Resource Adequacy
6 (RA) and resiliency needs set forth in the Integrated Resource Planning
7 (IRP) proceeding.

- 8 • A Make-Ready Program was originally scoped to support the DGEMS
9 Program by upgrading up to 20 candidate substations to allow for the
10 interconnection of permanent generation. The Make-Ready Program
11 represented the first tranche of a multi-year program that would include
12 providing DGEMS Program up to an additional 28 substations.
- 13 • A Temporary Generation Program was scoped to provide up to 300 MW
14 of mobile temporary generation to support three initial PSPS mitigation
15 workstreams. This program built upon PG&E's successful deployment
16 of temporary generation during 2019 PSPS events, when PG&E
17 successfully utilized temporary generation to maintain electric service
18 to thousands of customers during the October and November PSPS
19 events. The three workstreams and initial allocation of generation for
20 the Temporary Generation Program, as proposed in January 2020,
21 included:
 - 22 – Substation Microgrids: 220 MW
 - 23 • Purpose – Keep safe-to-energize customers impacted by
24 upstream transmission level PSPS outages energized
 - 25 – Distribution Microgrids: 40 MW
 - 26 • Purpose – Keep safe-to-energize “main street” commercial
27 corridors with shared community services energized
 - 28 – Back-Up Power Support (BUPS) for Critical Needs: 40 MW
 - 29 • Purpose – Support emergent needs to protect public safety,
30 stand up emergency operations, avert environmental hazards

⁸ Prepared Testimony in Support of PG&E's Track 1 Proposal, served on R.19-09-009 on Jan. 21, 2020, pp. 2-6 to 2-7.

1 The Track 1 Proposal also included the expense and capital cost
2 forecast for the Temporary Generation Program.⁹

3 **2. April 2020 Supplemental Testimony**

4 Following the submission of PG&E's Track 1 Proposal, PG&E's
5 microgrid programs and strategies continued to evolve based on information
6 obtained from additional technical and feasibility studies, as well as input
7 from stakeholders, including customers, communities, and parties to the
8 Microgrids Rulemaking proceeding. PG&E subsequently revised the
9 Track 1 Proposal based on:

- 10 • Additional feasibility analysis regarding the ability to construct and
11 operate new permanent generation at the DGEMS Program prioritized
12 substations with a 2020 online date;
- 13 • New information concerning indirect impacts at certain substations on
14 the DGEMS Program priority list; and
- 15 • Additional technical analysis of wires-based and other generation
16 alternatives to DGEMS Program at the prioritized substations.

17 Each of PG&E revisions to the Track 1 Proposal are described in more
18 detail in the following sections.

19 **a. Defer 2020 Efforts for Permanent Generation**

20 PG&E decided to defer efforts to develop new permanent
21 generation at substations after evaluating information regarding the
22 feasibility for building generation in 2020. Due to a variety of challenges
23 (e.g., sufficient land available within the substation footprint and gas
24 supplies in close proximity), only five of the twenty potential substations
25 were determined to be feasible for installing permanent generation by
26 2020. PG&E also concluded that one of the five feasible substations
27 (Tyler) should not be pursued for new permanent generation in 2020
28 due to the potential for other mitigating solutions in the area. PG&E
29 would need to de-energize the other four substations¹⁰ to avoid grid

⁹ *Ibid.* at pp. 7-2 to 7-4.

¹⁰ These four substations were: Ignacio, Carquinez, Highway, and Windsor.

1 instability issues when de-energizing certain transmission lines in other
2 areas.¹¹

3 As a result, PG&E concluded that further studies were needed to
4 determine the best solution to address grid instability issues at the
5 four substations. Building permanent generation at the four sites would
6 not have solved the grid instability issues. As such, PG&E needed to
7 evaluate alternative solutions, including possibly placing energy supplies
8 in the area interconnected at the transmission level or adding new
9 transmission capacity in the area. However, this analysis would take
10 additional time to complete. Therefore, PG&E deferred developing
11 permanent generation solutions in the DGEMS Program with a 2020
12 online date.

13 **b. Revised Scope of Make-Ready Program**

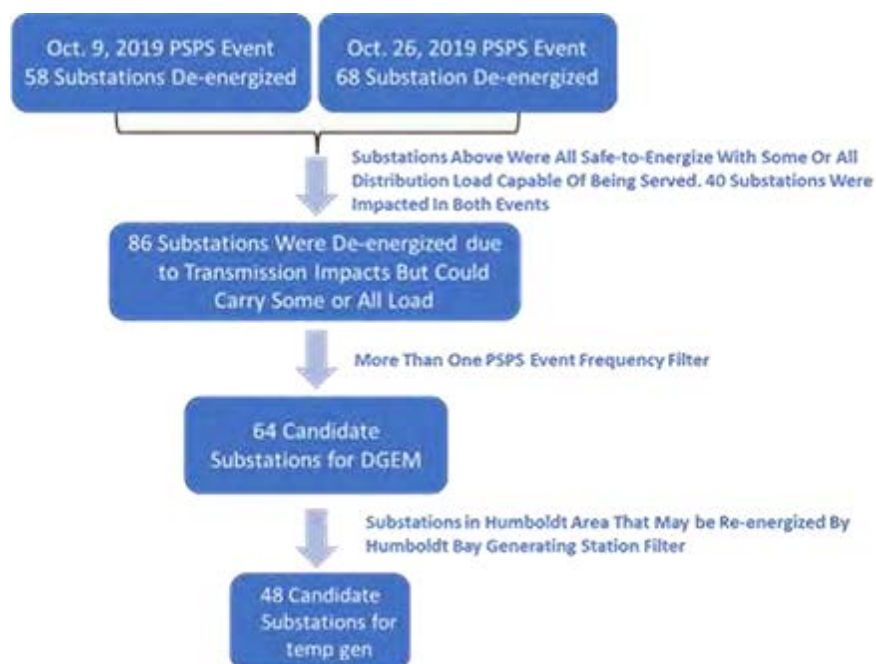
14 PG&E updated the scope of its Make-Ready Program in 2020 to
15 focus on connecting temporary generation at a broader group of
16 48 substations. PG&E identified a significantly lower-cost scope of work
17 to make these substations ready to receive temporary generation during
18 the 2020 fire season. The list of 48 substations was developed using
19 the following methodology, which is summarized in Figure 9-1, and
20 described below:

- 21 • PG&E first identified 86 substations that were impacted by upstream
22 transmission outages caused by PSPS events on October 9 and
23 October 26, 2019 and could safely carry some distribution load;
- 24 • PG&E then further refined the list by applying a “frequency filter,”
25 which removed substations that were only impacted by one
26 transmission-level outage during all 2019 PSPS events. Once the
27 filter was applied, this resulted in 64 substations; and
- 28 • Finally, PG&E further refined the list by filtering out substations
29 located within the Humboldt area that are considered potentially

11 In these cases, while PSPS weather conditions did not directly drive the de-energization of the transmission lines and related substations, but these lines and substations still required de-energization to mitigate overall grid stability in the area caused by transmission lines being de-energized in other areas. Throughout this testimony, PG&E refers to these circumstances as “indirect impacts” on transmission lines.

1 energize-able via the Humboldt Bay Generating Station. This
2 additional filter resulted in 48 substations. The list of 20 substations
3 listed in PG&E's 2019 DGEMS RFO were a subset of this list of
4 48 substations and were prioritized based on the maximum number
5 of safe to energize customers during either the October 9, 2019 or
6 October 26, 2019 PSPS events.

**FIGURE 9-2
OVERVIEW OF INITIAL SUBSTATION SELECTION CRITERIA**



7 **c. Addition of Community Resource Centers in Temporary**
8 **Generation Program**

9 PG&E also indicated that it sought to reserve up to 27 MW of
10 temporary generation to power Community Resource Centers (CRC) in
11 addition to the other three temporary generation workstreams originally
12 included in the Track 1 Proposal. CRCs are intended to provide a safe
13 location where community members can access basic resources, such
14 as electricity to charge medical devices, and up-to-date PSPS
15 event information.

1 **d. Temporary Generation Update**

2 PG&E executed agreements to reserve more than the 300 MW of
3 temporary generation capacity proposed in its Track 1 Proposal, given
4 the decision referenced above to defer the development of new
5 permanent generation for substations and to expand the temporary
6 generation program to include CRCs. Additional temporary generation
7 was procured following PG&E’s submission in April 2020 of
8 supplemental testimony to the parties in R.19-09-009, explaining the
9 planned modifications.¹²

10 **3. Changes Following April 2020 Supplemental Testimony**

11 Following the development of its supplemental testimony, PG&E further
12 updated its 2020 temporary generation program for PSPS mitigation to
13 reflect evolving facts and circumstances, as described below.

- 14 a) PG&E revised its selection of substations to incorporate data from all
15 2019 PSPS events, rather than just the October 9 and 26, 2019 events.
- 16 b) The scope of Critical Customer BUPS was modified to procure
17 additional temporary generation to support hospitals and
18 pandemic-response sites supporting Coronavirus (COVID-19) needs
19 and county voter tabulation centers related to the 2020 presidential
20 election. While hospitals are legally required to have their own back-up
21 power, this requirement only applied to hospitals with intensive care
22 units (ICU). PG&E and the California Hospital Association agreed that
23 the unique circumstances surrounding the COVID-19 pandemic
24 warranted additional BUPS.
- 25 c) PG&E also revised its plan for the Make-Ready Program based on
26 evolving information. PG&E planning engineers in Electric
27 Operations (EO) evaluated complex transmission/distribution grid
28 stability issues and determined that the number of substations to be
29 prepared for temporary generation should be increased to
30 62 substations.

¹² Ultimately, PG&E’s April 2020 Supplemental Testimony was rejected by the Administrative Law Judge on procedural grounds.

1 Following the revisions to the Track 1 Proposal described above, PG&E
2 ultimately reserved approximately 470 MW of temporary generation to
3 support four workstreams:

4 a) Substation Microgrids: 350 MW

- 5 • Purpose – Keep safe-to-energize customers impacted by upstream
6 transmission level PSPS outages energized.

7 b) Distribution Microgrids (Formerly Labeled Temporary Microgrids or
8 Resiliency Zones): 40 MW

- 9 • Purpose – Keep safe-to-energize “main street” commercial corridors
10 with shared community services energized.

11 c) CRCs: 17 MW

- 12 • Purpose – Provide a safe location where community members can
13 access electricity, basic resources and up-to-date information.

14 d) Critical Customer BUPS: 60 MW

- 15 • Purpose – Support emergent needs to protect public safety, stand
16 up emergency operations, avert environmental hazards.

17 **4. PSPS Scoping and Modeling Revisions in August 2020**

18 Following the development and procurement of the 2020 Temporary
19 Generation and Make-Ready Programs, significant improvements in PG&E’s
20 PSPS risk modeling capabilities led to a significant decrease in transmission
21 line de-energization during actual PSPS events, relative to what would have
22 occurred under prior modeling and operational protocols. The smaller size
23 of the PSPS events reduced the need for temporary generation at
24 substations. PG&E Meteorology improved the granularity of both its Utility
25 Fire Potential Index and Outage Producing Wind PSPS weather modeling
26 tools. These enhancements allowed the models to predict severe fire
27 weather risks in more focused (smaller) areas and to identify those areas
28 that exceeded distribution risk guidance with increased geographic
29 precision. Because the weather predictions were more precise and applied
30 to smaller areas, the scope of a potential PSPS event was reduced
31 compared to what would have occurred during a similar weather event
32 in 2019.

33 In addition, transmission line scoping for 2020 PSPS events used
34 transmission-specific thresholds for asset health and outage likelihood

1 based upon the transmission Operability Assessment model. The
2 transmission asset analysis used was more granular than 2019, with assets
3 analyzed against guidance at the structure level.

4 The combined result of these more granular and improved modeling
5 tools was a significant reduction in the scope of 2020 PSPS events
6 compared to the year 2019 models PG&E had used to plan for 2020
7 temporary generation. For those substations that were still de-energized
8 during 2020 PSPS events, PG&E observed that many had little or no
9 safe-to-energize load during the events.

10 PG&E views its Temporary Generation Program for PSPS Mitigation as
11 similar to an insurance policy: That is, while it is prudent and reasonable to
12 have insurance to reduce the impact of reasonably foreseeable major
13 events, the preferred outcome is that the insurance is never utilized because
14 those low-frequency high-impact major events or risks do not materialize. In
15 the same way, PG&E views the reservation of temporary generation and the
16 preparation of substations and other locations for the use of that temporary
17 generation during PSPS events as reasonable and necessary, even if that
18 temporary generation does not end up being used at certain locations.

19 **E. PG&E's Make-Ready Program**

20 PG&E's Make-Ready Program was utilized to make infrastructure upgrades
21 at various substations so that the substations were capable of being connected
22 to temporary generation at or near the substation, in order to keep the substation
23 energized during a PSPS event when safe to do so. PG&E successfully
24 prepared 62 substations to receive temporary generation in 2020 within a
25 48-hour window. The costs PG&E incurred in connection with the DGEMS and
26 Make-Ready programs were reasonable and prudent given the operational
27 flexibility and optionality those programs preserved. PG&E recorded
28 approximately \$6.2 million in capital and \$41,000 in expense in the MGMA in
29 2020 for Make-Ready Program costs incurred for the DGEMS Program.

**TABLE 9-2
MAKE READY PROGRAM
(THOUSANDS OF DOLLARS)**

Line No.	Description	Capital	Expense	Total
1	Make-Ready Program	\$6,153	\$41	\$6,194

1 PG&E acted expeditiously to update its plans as it received new information.
 2 The various updates resulted in a significant change in the cost forecasts
 3 associated with the Track 1 Proposal, eliminating costs associated with
 4 DGEMS Program and significantly reducing the cost of the Make-Ready
 5 Program in 2020.

6 In addition, much of the information gathered, analyzed, and evaluated by
 7 PG&E continues to provide meaningful insight, as PG&E continues to evaluate
 8 the long-term role of permanent generation (including diesel-alternative
 9 technologies) in mitigating the impacts of future PSPS events. Accordingly,
 10 Make-Ready Program costs incurred for the DGEMS Program of \$6,153,000 in
 11 capital and \$41,000 in expense recorded in MGMA are reasonable.

F. Use of Temporary Generation During 2020 PSPS Events

13 As previously mentioned, and discussed in further detail below, PG&E
 14 utilized temporary generation in four main workstreams during 2020:
 15 (1) substation microgrids; (2) distribution microgrids; (3) CRCs; and (4) back-up
 16 support for individual critical customers.

**TABLE 9-3
2020 RECORDED EXPENSES
TEMPORARY GENERATION EXPENSES BY WORKSTREAM
(THOUSANDS OF DOLLARS)**

Line No.	Description	Total Expense
1	Substation Microgrids	\$113,993
2	Distribution Microgrids	4,759
3	CRCs	5,915
4	Critical Customer Backup Power Support	6,713
5	Total	\$131,381

1 **1. Substation Microgrids**

2 The combination of the 2020 Temporary Generation Program and the
 3 Make-Ready Program allowed PG&E to successfully energize
 4 approximately 13,000 customer accounts that would have otherwise been
 5 de-energized during two PSPS events in 2020. These events and the use
 6 of substation-level microgrids in 2020 is summarized in Table 9-4.

**TABLE 9-4
 2020 ACTIVATED SUBSTATION MICROGRIDS**

Line No.	Substation	MW Energized (Nameplate)	2020 PSPS Events	Safe-to-Energize Customer Accounts Served
1	Brunswick	20 MW	7-Sept	~4500
2			25-Oct	~4,250
3	Hoopa	6 MW	25-Oct	~1,800
4	Willow Creek	12 MW	25-Oct	~2,300
5	Russ Ranch	.5 MW	25-Oct	2

7 The 62 substations prepared for temporary generation in 2020 were
 8 separated into three “preparation type” categories: (1) ready-to-energize;
 9 (2) staged at substation; and (3) energization plan only.

10 Of the 62 substations, there were 18 prioritized substations deemed
 11 “ready-to-energize” with temporary generation pre-interconnected and
 12 tested (225 MW of nameplate capacity); 3 substations with temporary
 13 generation staged at the substation and ready to interconnect at that
 14 location or another nearby substation (50 MW of nameplate capacity); and
 15 another 41 substations in a “hub and spoke” model with pre-developed,
 16 engineered, energization plans with temporary generation strategically
 17 staged at several “hubs” across PG&E’s service territory (75 MW of
 18 nameplate capacity). One of these substations, Calistoga, eventually
 19 became part of the distribution microgrid program and therefore is not
 20 included in the total of 62 substations prepared in 2020. Table 9-5 below
 21 provides a summary of how these substations were prepared for 2020.

**TABLE 9-5
2020 TEMPORARY SUBSTATION MICROGRIDS BY PREPARATION TYPE**

<u>Line No.</u>	<u>Preparation Type Category</u>	<u># of Substations</u>	<u>MW Energized (Nameplate)</u>
1	Ready-to-Energize	18	225 MW
2	Staged	3	50 MW
3	Energization Plan	41	75 MW
4	Total	62	350 MW

1 In addition to the four substations identified in Table 9-4, above, as
2 having been energized during 2020 PSPS events, four substations that were
3 prepared to receive temporary generation within 48 hours in 2020, came into
4 scope for 2020 PSPS events and had safe-to-energize load but were not
5 energized. These substations were all in the “energization plan only”
6 preparation category for 2020. This means that energization plans were
7 developed for these substations and that generation was staged at nearby
8 locations for in-event deployment. However, for three of these substations,
9 the determination that they would come into scope for the associated PSPS
10 event and have safe-to-energize load was made less than 48 hours before
11 de-energization and in some cases, less than 24 hours. Due to this brief
12 time window, PG&E was unable to deploy and interconnect generation at
13 these locations. Following the de-energization of two of these substations,
14 temporary generation was deployed and pre-staged at those substations in
15 case future events again required de-energization of the substations. For
16 the fourth substation, a switching solution that had been pre-identified to
17 keep the substation energized could not operate safely given the location of
18 the PSPS risk polygon.

19 The experience gained in 2020, the first operational year for PG&E’s
20 Temporary Generation Program, provided PG&E with important learning
21 experiences. Those lessons learned have informed the design of the
22 proposed 2021 Temporary Generation Program, which, as described in
23 Advice Letter (AL) 6105-E, relies much more heavily on ready-to-energize
24 preparation of substations.

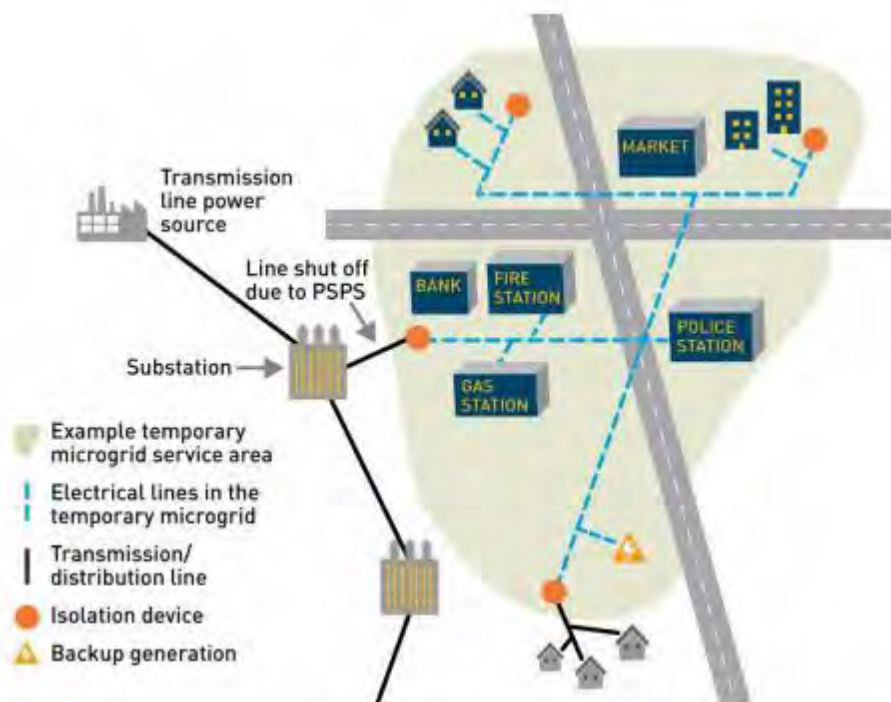
2. Distribution Microgrids

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 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., pre-installed interconnection hub (PIH)); and
- Use of temporary generators allowing PG&E to shorten the design and construction time typically required to ready a permanent microgrid for operation.

Figure 9-3 below represents an approximate layout of a temporary 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 9-3
TEMPORARY MICROGRID ILLUSTRATION**



1 PG&E determined the locations for distribution microgrids by:
2 (1) identifying distribution circuits most likely to be impacted by potential
3 PSPS events based on a 10-year lookback; (2) reviewing those circuits to
4 identify communities with clusters of shared services (i.e., those involving
5 food, fuel, healthcare and shelter); and (3) noting critical facilities served by
6 electrical infrastructure that would likely be safe to energize during a PSPS
7 event. PG&E determined whether distribution microgrids presented were
8 viable, effective near-term mitigation measures for a particular location, by
9 reviewing them for implementation feasibility (i.e., land availability and
10 construction complexity) and the potential to be served by alternative grid
11 solutions.

12 In 2020, PG&E operated four distribution microgrids with PIHs; thereby,
13 energizing over 2,000 unique service points (customers) for as many as four
14 PSPS events per service point (approximately 5,600 customer events). The
15 number of events and use of distribution microgrids in 2020 are summarized
16 in Table 9-5, below.

**TABLE 9-5
2020 DISTRIBUTION MICROGRIDS**

Line No.	Site	County	Year PIH Constructed	Approx. Qty of Service Points	Qty of 2020 PSPS Events Supported
1	Angwin PIH	Napa	2019 Pilot	48	4
2	Shingletown PIH	Shasta	2020	79	4
3	Calistoga PIH	Napa	2020	1,554	3
4	Placerville (TPG)	El Dorado	No PIH; Utilized Temporary Configuration	487	1

1 PG&E also utilized temporary generation to enable a distribution
2 microgrid in Pope Valley (Napa County) on an ad-hoc basis during the
3 October 14-17, 2020, PSPS event, energizing 681 customers—including a
4 market, community center, fire department, post office, and other
5 businesses.

6 In addition, in late October 2020, PG&E readied two additional
7 distribution microgrids in Lake County using a temporary configuration
8 without a PIH. These distribution microgrids in north and south Clearlake
9 were on standby to support customers if needed during the October 25,
10 2020 PSPS event and subsequent PSPS events. In December 2020, PG&E
11 readied an additional distribution microgrid in Colfax (Placer County), which
12 was on standby to support customers if needed during the January 2021
13 PSPS event.

14 The incremental costs presented in this application for recovery related
15 to distribution microgrids are for the generation aspects of the microgrids
16 only. The infrastructure costs to develop the PIHs for interconnecting the
17 generation to distribution microgrids and to ensure that the microgrid would
18 be safe to energize were authorized as part of PG&E’s 2020 GRC.¹³

19 **3. Community Resource Centers**

20 Per R.18-12-005, PG&E opened CRCs to support impacted customers
21 and communities during PSPS events. CRCs provide a safe location where
22 customers can meet basic power needs, such as charging medical devices
23 or other electronics. CRC visitors can also obtain up-to-date information

¹³ Note that distribution microgrids were referred to as Resilience Zones in the 2020 GRC Application. See PG&E’s 2020 GRC, Exhibit (PG&E-4), Chapter 9.

1 about the PSPS event along with other basic resources like water and
2 snacks.

3 In early 2020, PG&E secured 99 units—ranging in size from 50 kilowatts
4 (kW) to 300 kW—for temporary generation to pre-stage at indoor CRC
5 locations. The intent was to ensure these locations could be opened as
6 soon as they were needed, rather than having to wait for a generator to be
7 moved to the location and set up. During one 2020 event, over 100 CRCs
8 (indoor and outdoor) were activated. Without pre-staged generators, indoor
9 CRC openings would likely have been delayed due to constraints in the
10 availability of electrical contractors to deploy and connect generators at CRC
11 sites, which can be many hours away from each other, and many hours
12 away from yards where generators are stored.

13 PG&E opened indoor CRCs powered by temporary generation 47 times
14 in 24 counties in 2020. Unless a local COVID-19-related curfew was in
15 effect, these sites were open from 8 a.m. to 10 p.m., while customers in the
16 area remained impacted by the PSPS event. Sites were open from 19 to
17 70 total hours. If COVID-19 had not been a factor—for most of the year
18 counties, tribes, and visitors preferred outdoor sites to indoor sites—
19 significantly more indoor CRC sites with temporary generation would have
20 been opened in 2020.

21 Table 9-6 summarizes the CRC locations at which temporary generation
22 was deployed in 2020.

**TABLE 9-6
CRC LOCATIONS – TEMPORARY GENERATION**

Line No.	Location	MW	Sept 7	Sept 27	Oct 14	Oct 21	Oct 25
1	Murphys Fire Department	.2	X	X			X
2	Alta Fire Protection District Community Hall	.07	X		X		X
3	Lakehead Lions Hall	.15	X				
4	Downieville Community Hall	.07	X	X	X		X
5	Mace Meadows – The Mountain Grille	.07		X	X		X
6	Bangor Community Center	.1		X	X		X
7	Southside Oroville Community Center	.2		X	X		X
8	Pleasant Valley Community Hall	.2		X			
9	Foothills Event Center	.2		X			X
10	Crosswalk Community Church	.07			X		X
11	Half Moon Bay Library	.1			X		X
12	Lower Alleghany Volunteer Fire Department	.07			X		X
13	Joseph Nelson Community Center	.2			X		X
14	Shingletown	.07				X	
15	Stonyford Community Center	.02					X
16	Cameron Park Community Center	.2					X
17	Sierra Oaks Senior Center	.15					X
18	Coarsegold Elementary School	.065					X
19	North Fork Elementary School	.1					X
20	Yosemite High School	.2					X
21	Willits Community Center	.1					X
22	NSJ Community Center	.07					X
23	Madelyn Helling Library	.1					X
24	Gold Country Fairgrounds	.07					X
25	Inter-Mountain Fairground	.15					X
26	Happy Valley Community Center	.07					X
27	Red Bluff Veterans Hall	.15					X
28	Burnt Ranch School	.3					X
29	Mother Lode Fairgrounds	.07					X

1 **4. Critical Customer BUPS**

2 As a general policy, PG&E does not offer backup generation to
3 individual facilities. However, PG&E’s policy allows for granting exceptions
4 for critical facilities when a prolonged outage could have a significant

1 adverse impact to public health or safety. PG&E supported single-site
2 customers to provide back-up power to critical customers. These sites
3 provided critical services in their communities such as COVID-19 pandemic
4 response (pre-identified most likely to be impacted hospitals in coordination
5 with the California Hospital Association and Hospital Council of Northern
6 and Central California), water agencies, firefighting command support, and
7 support of voting tabulation centers used in the November 2020 national
8 general election.

9 As shown in Table 9-7, below, PG&E energized 27 sites at least once
10 during four PSPS events during 2020 as part of the Critical Customer BUPS
11 Program. The length of time that each site was energized by backup
12 generation ranged between 15-95 hours.

**TABLE 9-7
CRITICAL CUSTOMER BUPS**

Line No.	Location	County	MW	Sept 7	Sept 27	Oct 14	Oct 21	Oct 25
1	Adventist Health St. Helena (ICU)	Lake	1.9-3.4	X		X		X
2	Sonora Regional Medical Center	Tuolumne	.1-.105	X				X
3	Adventist Health Sonora	Tuolumne	1.25-3	X				X
4	Mayers Memorial Hospital, Fall River Mills	Shasta	.3	X				
5	Mayers Memorial Hospital, Burney	Shasta	.3	X				
6	Downieville Public Utilities District – Water Treatment Plant	Sierra	.2	X	X			
7	Plumas County Fairgrounds	Plumas	1	X		X		
8	Western Slope Health	El Dorado	.08-.1	X	X			
9	Lebec County Water District	Kern	.025-.076	X				X
10	USFS Mt. Hough Ranger District	Plumas	.1	X				
11	Napa Fire Department	Napa	.02	X				
12	Clearlake Adventist ICU Hospital (Main Hospital)	Lake	1					X
13	Clearlake Adventist ICU Hospital (Mobile CT Machine)	Lake	.1					X
14	Adventist Health – Clearlake Medical Office	Lake	.275					X
15	Adventist Health – Clearlake Professional Bldg.	Lake	.15					X
16	950 Maidu Avenue, Nevada City	Nevada	1					X
17	Yosemite Springs Park – Utility	Madera	.36					X
18	Mi-Wuk Mutual Water Co. – Mi-Wuk Village	Tuolumne	.24					X
19	First Mace Meadow Water Assn Inc.	Amador	.036					X
20	Tuolumne County OES	Tuolumne	.12					X
21	Tuolumne Co. Sheriff	Tuolumne	.056					X
22	Lake County OES – Middletown Senior Center	Lake	.1					X
23	Gill Creek Mutual Water District	Sonoma	.072					X
24	Lakeport Water Systems	Lake	.2					X
25	Hidden Valley Lake Community Services District	Lake	.75					X
26	Hidden Valley Lake Community Services District	Lake	.25					X
27	Moraga Police Department	Contra Costa	.12					X

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 AL 5883-E, establishing the MGMA, as follows:

4 Pursuant to PG&E's Backup Power Supply Policy, PG&E may agree to
5 provide mobile power generators through arrangements with external
6 contractors for deployment at customer sites, as designated by PG&E,
7 to provide short-term power supply during PSPS events. In such cases,
8 PG&E will endeavor to provide back-up power support where it is
9 operationally feasible and safe to do so in accordance with PG&E's
10 policies and operating standards and solely in PG&E's discretion.
11 Mobile generator deployments are subject to availability of resources
12 and are prioritized based on public safety and criticality.

13 Where PG&E agrees to deploy mobile generators behind a customer's
14 meter pursuant to this policy, PG&E will seek cost reimbursement from
15 the customer in some cases. Because energization of certain facilities
16 are in the public interest to mitigate the potential for broad impacts to
17 public safety or societal continuity that may otherwise arise as a result of
18 a PSPS, PG&E will not seek reimbursement from the following
19 categories of customers: ICU Hospitals identified by the California
20 Hospital Association and Hospital Council of Northern and Central
21 California (HC); Pandemic Response (PR-1) sites classified as medical
22 stations and shelters; and vote tabulations centers (during
23 October-December months only).

24 For any other deployments of mobile generation behind a customer's
25 meter, PG&E will seek reimbursement of costs associated with that
26 deployment from the customer if the customer is legally obligated to
27 have its own back-up power supply to maintain energization of all or a
28 portion of its facility for any period of time during grid outages. Where
29 PG&E seeks reimbursement, it will require that the customer reimburse
30 PG&E for all charges invoiced by PG&E's external contractor and
31 incurred by PG&E associated with the deployment of the back-up
32 generation to that customer's premises, excluding any fixed reservation
33 cost that PG&E incurs that is not specific to the deployment to that
34 customer.

35 Any deployment of mobile generators for connection to PG&E-owned
36 infrastructure, in front of customer meters, will provide electric service to
37 one or more customers under existing tariff terms and conditions, and
38 PG&E will not seek to recover costs from individual customers for the
39 backup power support in excess of the normal tariffed rates for those
40 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.¹⁴

4 During 2020, only one of the 35 deployments of backup power support
5 to individual critical customers required reimbursement from the customer
6 under this policy. In 2021 PG&E was reimbursed 50 percent of the actual
7 incurred cost to procure and deploy third-party-owned generators for
8 emergency backup power support by Placer County Water Authority
9 (PCWA). Revenue received from PCWA will be credited against the cost of
10 the generation incurred by PG&E. The 2021 reimbursement costs will be
11 true-ed up in the next WMCE filing.¹⁵

12 **G. Community Microgrid Enablement Program**

13 PG&E proposed the CMEP as one component of its Track 1 Proposal¹⁶
14 submitted in January 2020 in the Microgrid and Resilience Strategies
15 Rulemaking. CMEP would provide tools and information for communities
16 considering all forms of resilience solutions, and facilitate the development of
17 complex, front-of-the-meter, multi-customer microgrids for those communities.
18 The CPUC approved the CMEP framework in Track 1 of the Microgrid Order
19 Instituting Rulemaking in D.20-06-017,¹⁷ and approved PG&E's implementation
20 plans for the program in Resolution E-5127.¹⁸

21 In 2020, PG&E incurred \$391,000 to develop and implement the CMEP as
22 shown in Table 9-8 and described further below.

¹⁴ AL 5883-E, July 17, 2020, pp. 3-4. The AL was approved via a non-standard disposition letter issued on December 21, 2020.

¹⁵ This is consistent with Electric Preliminary Statement Part IG, establishing the MGMA, as approved in AL 5883-E.

¹⁶ The Track 1 Proposal is further described in Section B of this chapter.

¹⁷ D.20-06-017, pp. 130-131, OP 16.

¹⁸ March 18, 2021.

**TABLE 9-8
COMMUNITY MICROGRID ENABLEMENT PROGRAM
(THOUSANDS OF DOLLARS)**

Line No.	Description	Expense Total
1	Community Microgrid Enablement Program	\$391

1 **1. Program Overview**

2 PG&E recorded costs for CMEP design and development activities, the
3 development of the Community Microgrid Enablement Tariff (CMET) and
4 CMET Operating Agreement, and for engagement with and technical
5 support for communities considering resilience solutions. This work can be
6 broken down into three main categories.

7 **a. Program Development**

- 8 • Development of workshops to solicit input on the design of the
9 CMEP from local and tribal governments and Community Choice
10 Aggregators (CCA), facilitation of the workshops, and
11 post-workshop reporting;
- 12 • Engagement with environmental justice groups, and groups who
13 advocate on behalf of disadvantaged, low-income, and vulnerable
14 populations;
- 15 • Development of the Enhanced Technical Support elements of the
16 program, including the 3-stage, 11-step process to support
17 community inquiries from initial concept exploration through solution
18 assessment and solution execution, as well as associated forms and
19 reports;
- 20 • Design of program elements including program scope, project
21 applicability, eligibility criteria, and prioritization; and
- 22 • Development of the Community Resilience website and associated
23 tools and information.

24 **b. Community Microgrid Enablement Tariff Creation**

- 25 • Development of the CMET, a novel and highly innovative tariff
26 structure necessary to enable multi-customer microgrids, including
27 applicability, eligibility criteria, financial responsibilities, relation to
28 existing tariffs, community microgrid development and operation,

- roles and responsibilities, and required studies including the Microgrid Islanding Study; and
- Development of the CMET Microgrid Operating Agreement.

c. Enhanced Utility Technical Support

- Engagement with local and tribal leaders, CCAs, and vendors in the exploration and development of specific resilience projects; and
- Technical support, analysis, engineering, and related work in support of community resilience solution assessment.

2. Program Implementation

CMEP is part of PG&E’s plan to mitigate the impact of PSPS events and to support energy resilience for our customers and communities. The program complements other parts of PG&E’s resilience plans by providing support for community-driven microgrids. The program helps communities design permanent, multi-customer microgrids by providing incremental technical and financial support on a prioritized basis to qualifying projects in areas with the greatest resilience needs. The program also provides the tariffs and agreements necessary to define the operating relationships among the parties.

The program helps communities overcome the technical, financial, legal, and regulatory challenges inherent in deploying novel microgrid technology deployments. While CMEP provides tools and information for all forms of resilience solutions, the focus of the program is to facilitate the development of complex, front-of-the-meter, multi-customer microgrids.

The CMEP consists of four elements:

- a) Web-Based Tools and Information – PG&E’s Community Resilience website (www.pge.com/resilience) provides comprehensive self-service information on customer-sited and community microgrid implementations, including a Resilience Planning Guide, and a Community Microgrid Technical Best Practices Guide. Additionally, the site includes resources for interconnection planning, grid maps and tools, and financial resources.
- b) Enhanced Utility Technical Support – PG&E has dedicated staff to providing technical support for eligible CMEP projects. The support is

1 structured in three stages, each with distinct objectives, and serves to
2 facilitate the development of a project from initial concept exploration,
3 through solution assessment, and finally, for certain types of resilience
4 solutions, through project completion.

5 c) Pro Forma Tariff and Agreements – Multi-customer community
6 microgrids are complex, and involve novel technical, financial, and
7 operational considerations amongst multiple parties. In order to
8 surmount these challenges and facilitate the development of
9 multi-customer microgrids, PG&E has developed a pro forma
10 Community Microgrid Enablement Tariff, which defines the eligibility and
11 development of community microgrids, as well as their relationship to
12 existing tariffs. PG&E has also developed a Microgrid Operating
13 Agreement, which defines the roles and responsibilities in the
14 development and operational of a community microgrid.

15 d) Cost Offsets – CMEP will offset the cost of certain PG&E equipment
16 necessary to enable the safe islanding of an eligible community
17 microgrid, up to a cap of \$3 million per project. This may include
18 equipment such as isolation devices, PG&E’s microgrid controller, and
19 equipment to ensure that the microgrid is safe to operate. The cost
20 offsets do not cover the cost of distributed generation or energy storage.

21 CMEP also provides prioritized support and dedicated funding to help
22 meet the resilience needs of disadvantaged and vulnerable communities.
23 PG&E will prioritize projects located in Disadvantaged Communities as
24 defined by CalEnviroScreen, tribal lands, zip codes with more than
25 50 percent of residents enrolled or eligible for the California Alternate Rates
26 for Energy Program, and zip codes identified as “Rural.” PG&E has created
27 a separate funding allocation specifically for the use of these disadvantaged
28 and vulnerable communities.

29 Finally, PG&E also prioritizes projects that are most urgent for public
30 health, safety, and the public interest. This prioritization is made through an
31 assessment of the urgency of the risks facing the community, the
32 timeliness/executability of the solution, and the impact to communities.

1 **H. Program Management Expenses**

2 Table 9-9 summarizes the program management support expenses for the
3 Temporary Generation Program Management Office (PMO) and DGEMS PMO.

TABLE 9-9
2020 RECORDED PROGRAM MANAGEMENT EXPENSES
(THOUSANDS OF DOLLARS)

Line No.	Description	Total Expense
1	EO Temp Gen PMO	\$387
2	Energy Policy and Procurement DGEMS PMO	<u>777</u>
3	Total	\$1,164

4 **1. Electric Operations Temporary Generation Program**
5 **Management Office**

6 The Temporary Generation Program Management Office (PMO)
7 coordinates and directs the operational readiness of the temporary
8 generation workstreams. The team also coordinates cross-workstream
9 needs, including prioritization policy guidance, communications, staffing and
10 training the Emergency Operation Center Temporary Generation Branch,
11 and change management.

12 **2. Energy Policy and Procurement DGEMS PMO**

13 The DGEMS PMO coordinated all permanent and temporary generation
14 workstreams for substation microgrids, including regulatory, project
15 development, finance, site selection, construction, and permitting. The team
16 also coordinated procurement activities for permanent and temporary
17 generation across all four temporary generation workstreams (substations,
18 distribution microgrids, BUPS, and CRCs).

19 **I. Conclusion**

20 Based on feedback received from customers and other stakeholders, PG&E
21 developed new programs to maintain electric service to customers during 2020
22 PSPS events. Although customers experienced PSPS events, many customers
23 were kept online by these new, innovative programs. PG&E was able to
24 mobilize temporary generation to multiple locations that were not directly
25 threatened by weather events. PG&E was able to keep electricity flowing in

1 safe-to-energize areas and in unique ways through its four microgrid
2 workstreams with substation temporary generation, distribution microgrids,
3 single site BUPS, and CRCs. In addition, PG&E continues to develop programs,
4 such as the CMEP, to assist customers and communities in efforts to become
5 more resilient. In conclusion, PG&E requests that all costs incurred during 2020
6 and recorded to the MGMA be found reasonable and approved in full for cost
7 recovery.

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 10
TRANSMISSION REVENUE REQUIREMENT
RECLASSIFICATION MEMORANDUM ACCOUNT

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 10
TRANSMISSION REVENUE REQUIREMENT RECLASSIFICATION
MEMORANDUM ACCOUNT

TABLE OF CONTENTS

A. Introduction.....	10-1
B. PG&E’s Twentieth Transmission Owner Rate Case (TO20) and California Independent System Operator (CAISO) Register Updates	10-1
1. Background.....	10-1
2. Rate Base Reconciliation	10-3
a. Rate Base Reconciliation.....	10-3
b. 2020 CAISO Operational Control Designation Changes	10-4
c. Operations and Maintenance (O&M) Expense	10-5
3. Discussion of Recorded Costs	10-6
4. Discussion of Reasonableness	10-7
C. Conclusion.....	10-9

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **CHAPTER 10**
3 **TRANSMISSION REVENUE REQUIREMENT RECLASSIFICATION**
4 **MEMORANDUM ACCOUNT**

5 **A. Introduction**

6 This chapter proposes an incremental revenue of \$13.3 million to recover
7 costs recorded from May 1, 2019 through December 31, 2020 in the
8 Transmission Revenue Requirement Reclassification Memorandum Account
9 (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 the
13 Tier 2 Advice Letter (AL) 6007-E (filed November 18, 2020) update the use of
14 the TRRRMA to: (1) record a CPUC revenue requirement associated with the
15 costs requested by PG&E for recovery in transmission rates that are no longer
16 deemed to be network transmission-related costs and, as such, are not allowed
17 to be included in Federal Energy Regulatory Commission (FERC) transmission
18 rates; (2) record, as a credit to the TRRRMA, any revenue requirement
19 associated with costs already included in CPUC electric distribution rates, but
20 subsequently included in FERC transmission rates; and (3) include an allowance
21 for Revenue Fees and Uncollectibles¹ (RF&U) accounts expense. Under
22 General Order (GO) 96-B, AL 6007-E became effective on December 18, 2020.

23 **B. PG&E’s Twentieth Transmission Owner Rate Case (TO20) and California**
24 **Independent System Operator (CAISO) Register Updates**

25 **1. Background**

26 The CAISO maintains the “CAISO Register” to designate and track
27 transmission facilities that have been turned over to the CAISO’s operational
28 control.² Under the Transmission Owner (TO) Tariff, PG&E is able to

1 Refer to Chapter 13. 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 13.

2 CAISO Tariff, § 7.5.1.1.

1 recover in FERC-jurisdictional rates³ costs associated with certain facilities
2 that are under the CAISO's operational control. In a Partial Settlement
3 approved by FERC in TO20 in Docket No. ER19-13, PG&E agreed to
4 reconcile its network transmission rate base records and the CAISO
5 Register so that any changes to the CAISO Register would be properly
6 reflected in the facilities included in PG&E's FERC-jurisdictional rates. The
7 reconciliation applies to asset records effective as of May 1, 2019 (the rate
8 effective date of TO20) and was updated in FERC rates on January 1, 2021.
9 The reclassification of assets from FERC rates triggers a need to record
10 costs in the TRRRMA for the CPUC's review and approval. Also, the
11 reconciliation involved transferring facilities from CPUC rates to FERC rates,
12 triggering a need to record a credit in the TRRRMA.

13 Separately, based upon information provided by PG&E, the CAISO
14 periodically updates its register to add new facilities, remove facilities that
15 are no longer in use, and update the status of facilities that may have
16 changed purpose or function and are no longer considered to be network
17 transmission facilities. As PG&E can only recover costs in FERC rates for
18 facilities under CAISO's operational control, ongoing and future changes to
19 the CAISO Register directly impact PG&E's ability to record and recover
20 costs with the CPUC.

21 PG&E will record in the TRRRMA the revenue requirement (either as a
22 positive or as a credit) for costs associated with changes to CAISO
23 operational control designation, including as reflected in the CAISO
24 Register. PG&E will record a positive revenue requirement in the TRRRMA
25 for instances in which the CAISO updates the CAISO Register or
26 operational control designation by removing facilities and reclassifying them
27 as non-network transmission in PG&E's asset records. PG&E will record a
28 credit to the TRRRMA if the CAISO adds facilities to the CAISO Register,
29 which was previously included in CPUC-jurisdictional rates.

3 For purposes of this testimony, PG&E refers to the costs for network electric transmission facilities that are recovered through PG&E's TO Tariff as being included in "FERC-jurisdictional rates." Costs for non-network transmission electric facilities that are recovered through electric distribution rates are referred to as being included in "CPUC-jurisdictional rates."

1 Consequently, the TRRRMA allows for the tracking and recording of
2 costs that are determined to be non-transmission-related costs so that these
3 costs can be recovered in CPUC-jurisdictional rates.⁴ Under the TRRRMA,
4 customers only pay once for the costs associated with a facility, avoiding
5 any double-recovery, and PG&E receives the benefit of cost recovery in
6 CPUC-jurisdictional rates if facilities are not CAISO controlled and thus
7 cannot be included in FERC-jurisdictional rates. Moreover, the TRRRMA
8 provides that it “shall only include costs...not disallowed by FERC or the
9 Commission.”

10 **2. Rate Base Reconciliation**

11 **a. Rate Base Reconciliation**

12 In PG&E’s TO20 Rate Case, PG&E compared its rate base records
13 with the CAISO Register and reconciled differences in the following
14 plant categories: Electric Transmission Lines, Electric Substations,
15 Generation Interconnections (Gen-Ties),⁵ and Direct Connects.⁶ PG&E
16 updated its plant records in TO rates as of January 1, 2021, which
17 triggered the recording of revenue requirements in the TRRRMA, as
18 follows: (1) removing certain revenue requirements that had previously
19 been included in FERC-jurisdictional rates (an addition to the TRRRMA)
20 or (2) including revenue requirements in FERC rates that had previously
21 been included in CPUC-jurisdictional rates (a credit or reduction to the
22 TRRRMA). For revenue requirements in this latter category, cost
23 recovery will occur through the TO Tariff formula rate operation after the
24 underlying facilities are reclassified as network transmission in PG&E’s
25 asset records.

26 The reconciliation also applies to asset records effective as of
27 May 1, 2019 (the rate effective date of TO20). For costs incurred from

4 Res.E-3574, Finding 12.

5 Gen-ties are transmission assets that function to bring power from a generator onto the transmission network. Gen-ties are not recovered through the TO rate case. There are two types of gen-ties, PG&E-owned and third-party facilities. Only applicable costs related to PG&E-owned gen-ties are included in the TRRRMA.

6 Direct Connects are transmission voltage lines that only deliver power to a single end-use customer from the transmission network. Direct Connects do not support network transmission and as such, costs are not recovered through the TO rate case.

1 May 1, 2019 through December 31, 2020 that were removed from
2 FERC-jurisdictional rates, PG&E adjusted its financial records in order to
3 ensure TO ratepayers do not pay for these costs.⁷ In order to ensure
4 these costs are not left unrecovered, the associated revenue
5 requirement is requested to be recovered as CPUC-jurisdictional rates
6 through the TRRRMA. Additionally, since the costs associated with rate
7 base were not included in the 2020 General Rate Case (GRC) but are
8 included in the 2023 GRC, the capital revenue requirement for these
9 costs in the TRRRMA is reasonable to be for the period between May 1,
10 2019 and December 31, 2022.⁸

11 Since this detailed reconciliation was completed for the purpose of
12 identifying rate base as of December 31, 2019, PG&E was able to use
13 monthly plant and accumulated depreciation balances identified from the
14 reconciliation for May 31, 2019 through December 31, 2019. However,
15 detailed balances were not identified for months after December 31,
16 2019. To address this, PG&E tracked CAISO operational control
17 designation changes between January 1, 2020 and December 31, 2020
18 in order to apply an incremental rate base amount for those assets
19 applicable to the TRRRMA.

20 **b. 2020 CAISO Operational Control Designation Changes**

21 In 2020, the CAISO updated its register based on information
22 provided by PG&E to add new facilities, remove facilities that are no
23 longer in use, and update operational control designation of facilities that
24 may have changed purpose or function and are no longer or newly
25 classified as network transmission facilities. For costs related to
26 facilities that changed CAISO operational control designation in 2020,
27 PG&E will ensure cost recovery is adjusted accordingly to both
28 FERC-jurisdictional rates through the TO rate case and
29 CPUC-jurisdictional rates through the TRRRMA. For the latter, the

7 Via the true-up of Prior Year 2019 and Prior Year 2020 in the TO20-Rate Year (RY) 2021 and TO20-RY2022 December Annual Update Filings, respectively.

8 This only applies to the revenue requirement from rate base. The revenue requirement for recorded expense is reasonable to only be for the period between May 1, 2019 and December 31, 2020.

1 revenue requirement from rate base⁹ up to December 31, 2022 will be
2 recorded in the TRRRMA, which is the last date before the 2023 GRC
3 will reflect updated asset records.

4 PG&E will continue to record revenue requirements for costs in the
5 TRRRMA for facilities that changed CAISO operational control
6 designation each calendar year.

7 **c. Operations and Maintenance (O&M) Expense**

8 PG&E requests recovery of the revenue requirement associated
9 with non-network electric transmission O&M expense costs that would
10 otherwise be left unrecovered and of which were directly impacted from
11 the rate base reconciliation. These costs are associated with operating
12 and maintaining the electric transmission system, which includes
13 transmission facilities that are not CAISO controlled. The O&M expense
14 revenue requirement included in the TRRRMA is an allocated portion of
15 the total electric transmission O&M expense revenue requirement as
16 presented in PG&E's TO rate cases.¹⁰

17 PG&E's TO20 Formula Rate Models allocate total O&M expense
18 revenue requirement to network transmission by calculating the
19 proportion of Network Electric Transmission Plant (Functional Plant
20 only) divided by the Total Electric Transmission Plant (Functional Plant
21 only).¹¹ Thus, PG&E can accurately calculate the amount of O&M
22 expense revenue requirement that was excluded from the transmission
23 revenue requirement directly due to the rate base reconciliation and
24 changes to CAISO operational control designation by replacing the end
25 of year TRRRMA plant balances with the Network Electric Transmission
26 Plant values in the formula models.

27 The O&M expense revenue requirement amounts in the TRRRMA
28 are also adjusted to account for any partial year. In particular, the 2019

⁹ The associated revenue requirement for O&M Expense will only apply for the period up to December 31, 2020.

¹⁰ Specifically, the TO20-Rate Year (RY) 2021 December 2020 Annual Update Filing and TO20-RY2022 June 2021 Draft Annual Update.

¹¹ Refer to Schedule "24-Allocators", Lines 120-122 and Schedule "18-OandM", Col 12 in the TO20 Formula Models.

O&M expense revenue requirement amount should only account for the allocated portion for May through December 2019. To derive a partial year amount, PG&E utilized the Partial Year True-Up Transmission Revenue Requirement Allocation Factors,¹² consistent with PG&E's TO20-RY2021 Formula Rate Model.¹³

3. Discussion of Recorded Costs

Table 10-1 summarizes the rate base components for transmission assets not under CAISO control that are included in PG&E's rate base for purposes of recovery in the TRRRMA for December 31, 2019 and December 31, 2020. This presents the inputs for calculation of the capital revenue requirement.

**TABLE 10-1
SUMMARY OF RATE BASE COMPONENTS FOR TRRRMA
(MILLIONS OF DOLLARS)**

Line No.	Description	December 31, 2019	December 31, 2020 ^(a)
1	Plant-in-Service	\$42	\$43
2	Accumulated Depreciation	(20)	(21)
3	Accumulated Deferred Income Taxes	(6)	(6)
4	Total Rate Base	\$16	\$17

(a) December 31, 2020 Plant-in-Service and Accumulated Depreciation balances include both the December 31, 2019 balances and the incremental balances identified for 2020 CAISO operational control designation changes that are included in the TRRRMA.

Table 10-2 summarizes the O&M expenses associated with transmission assets not under CAISO control that have been identified for cost recovery in the TRRRMA for the periods of May 1, 2019 to December 31, 2019 and January 1, 2020 to December 31, 2020. This presents the inputs for calculation of the expense revenue requirement.

¹² Refer to Schedule "4-ATA", Lines 505-512 in the TO20-RY2021 December 2020 Annual Update Filing Formula Rate Model. Monthly factors are derived from PG&E's Gross Load (MWh) in 2019.

¹³ PG&E's TO20-RY2021 Formula Rate Model uses the recorded values for 2019.

**TABLE 10-2
SUMMARY OF O&M EXPENSE FOR TRRRMA
(MILLIONS OF DOLLARS)**

Line No.	Description	May 2019 – December 2019	January 2020 – December 2020 ^(a)	Total
1	O&M Expense	\$1	\$2	\$3

(a) 2020 O&M expense is based on the TO20-RY2022 June 2021 Draft Annual Update. The amounts are preliminary and are subject to change with the upcoming December 2021 Annual Update Filing.

1 The rate base components and O&M expense presented in Table 10-1
2 and Table 10-2, respectively, result in a total revenue requirement of
3 \$13.3 million to be recorded in the TRRRMA as shown in Table 10-3 below.

**TABLE 10-3
REVENUE REQUIREMENT FOR TRRRMA
(MILLIONS OF DOLLARS)**

Line No.	Description	Revenue Requirement
1	Depreciation Expense	\$3.8
2	Cost of Capital	4.5
3	Property Tax	0.8
4	State Corporation Franchise Tax	0.4
5	Federal Income Tax	0.8
6	O&M Expense	3.0
7	Total	\$13.3

4. Discussion of Reasonableness

Per the Partial Settlement approved by FERC in TO20 in Docket No. ER19-13, PG&E agreed to reconcile its network transmission rate base records and the CAISO Register so that any changes to the CAISO Register would be properly reflected in the facilities 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

1 versa. This is consistent with AL 6007-E (effective December 18, 2020
2 under GO 96-B), which states that:

3 PG&E would record both the debits and the credits related to these
4 reconciliations [referring to PG&E’s CAISO Reconciliation, TO Formula
5 Rate, and FERC review] as required by the Partial Settlement in the
6 updated TRRRMA and would later seek recovery from or refund to
7 customers in a CPUC application.¹⁴

8 Since PG&E’s calculated revenue requirement starting January 1, 2020
9 only utilizes the rate base balance as of December 31, 2019, it is also
10 reasonable for PG&E to track rate base changes for any facilities that
11 changed CAISO operational control designation between January 1, 2020
12 and December 31, 2020. Such changes are reflected for the full year in TO
13 formula rates and the true-up mechanism. Thus, PG&E requests a recovery
14 from customers for these costs via the TRRRMA as these costs would
15 otherwise not be recovered by PG&E. PG&E will continue to track and
16 report applicable costs in the TRRRMA moving forward for any major
17 reconciliation efforts 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 rate base reconciliation and changes in CAISO
22 operational control designation from May 1, 2019 through December 31,
23 2020. Since PG&E’s TO20 formula rate model derives the portion of O&M
24 expense revenue requirement that should be in FERC-jurisdictional rates
25 based on Network Electric Transmission Plant, the rate base reconciliation
26 and changes in CAISO operational control designation led to a reduction in
27 O&M expense in the transmission revenue requirement that would have
28 otherwise been recovered in FERC-jurisdictional rates if not for the
29 reconciliation or control changes. PG&E can accurately identify the amount
30 of this impact by replacing the TRRRMA plant balances with the Network
31 Electric Transmission Plant¹⁵ in the TO20 Formula Models.

¹⁴ AL 6007-E, page 4 and 5.

¹⁵ Refer to Schedule “24-Allocators”, Lines 120-122 and Schedule “18-OandM”, Col 12 in the TO20 Formula Models.

1 **C. Conclusion**

2 As demonstrated in this chapter, the Commission should approve an
3 incremental revenue of \$13.3 million for PG&E to recover costs related to
4 PG&E's CAISO Reconciliation and CAISO operational control designation
5 changes recorded from May 1, 2019 through December 31, 2020 in the
6 TRRRMA.

PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 11
DEMONSTRATION OF INCREMENTALITY

PACIFIC GAS AND ELECTRIC COMPANY
2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS
CHAPTER 11
DEMONSTRATION OF INCREMENTALITY

TABLE OF CONTENTS

A. Introduction.....	11-1
B. The Costs for Which PG&E Seeks Recovery Are Incremental.....	11-2
1. Overview of PG&E’s Activity-Based Forecasting	11-2
2. Incrementality of CEMA Costs	11-4
a. Electric Distribution – Emergency Work Forecasting Methodology ...	11-4
b. Gas – Emergency Work Forecasting Methodology	11-5
3. Other Types of Costs: CPPMA, DMA, ECPMA, CCPAMA, MGMA, and TRRRMA.....	11-6
C. Orders and Financial Tracking	11-10
D. Intervenors’ Historic Concerns About Incrementality	11-11
1. Straight-Time Labor	11-11
2. Minor Materials	11-12
3. Overhead Costs	11-13
E. Conclusion.....	11-14

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **2021 WILDFIRE MITIGATION AND CATASTROPHIC EVENTS**
3 **CHAPTER 11**
4 **DEMONSTRATION OF INCREMENTALITY**

5 **A. Introduction**

6 This chapter demonstrates the incrementality of the costs requested in this
7 application. “Incremental” costs are those labor, equipment, material, contract,
8 and other support costs associated with work that is not included in Pacific Gas
9 and Electric Company’s (PG&E or the Company) General Rate Case (GRC) or
10 other recovery mechanisms.

11 This chapter focuses on several memorandum accounts, the incrementality
12 of which are discussed in Section B. The Catastrophic Event Memorandum
13 Account (CEMA), discussed in Section B.2, is comprised of catastrophic event
14 costs PG&E has incurred in connection with responding to declared
15 emergencies. In addition to CEMA, this chapter also explains in Section B.3 the
16 basis for incrementality of costs recorded in the following six memorandum
17 accounts: (1) Coronavirus (COVID-19) Pandemic Protections Memorandum
18 Account (CPPMA), (2) the Disconnections Memorandum Account (DMA), (3) the
19 Emergency Consumer Protections Memorandum Account (ECPMA), (4) the
20 California Consumer Privacy Act Memorandum Account (CCPAMA), (5) the
21 Microgrids Memorandum Account (MGMA), and (6) the Transmission Revenue
22 Requirement Reclassification Memorandum Account (TRRRMA).

23 Each of the memorandum account costs included in this application relates
24 to work that is new, or in addition to, what was contemplated by PG&E’s existing
25 authorized base rates. As described in Section C, costs associated with this
26 incremental work are tracked in the memorandum accounts listed above,
27 separate from the accounts used to track costs comprising PG&E’s base rates.
28 In addition, the costs are tied to specific work orders to ensure that they had not
29 already been recovered through existing rates, other proceedings, or any other
30 recovery mechanism.

31 Section D addresses various concerns intervenors have historically raised
32 regarding the Company’s methodologies for ensuring incrementality.

1 This chapter does not include an incrementality discussion of costs in the
2 Wildfire Mitigation Balancing Account (WMBA) and the Vegetation Management
3 Balancing Account (VMBA) due to the scope and function of these accounts.
4 Specifically, for the WMBA and the VMBA, the California Public Utilities
5 Commission (CPUC or Commission) authorized funding in the 2020 GRC
6 (Decision (D.) 20-12-005) for the wildfire mitigation and vegetation management
7 activities included in PG&E's submission in that proceeding. The Commission
8 approved the WMBA and VMBA as two-way balancing accounts with
9 reasonableness review thresholds. PG&E records costs for wildfire mitigation
10 activities in the WMBA and for vegetation management activities in the VMBA,
11 respectively. Although PG&E is reporting in testimony the total costs recorded in
12 each respective balancing account, the amounts subject to review and
13 requested for recovery reflect only the costs above the reasonableness review
14 thresholds set in D.20-12-005 for these accounts. All amounts below the
15 thresholds were authorized for recovery in rates in accordance with
16 D.20-12-005.¹

17 **B. The Costs for Which PG&E Seeks Recovery Are Incremental**

18 In this section, PG&E provides an overview of its activity-based forecasting
19 methodology, an overview of CEMA incrementality, and an overview of the
20 six other memorandum accounts with costs incremental to the GRC² and 2019
21 Gas Transmission and Storage (GT&S). See the workpapers for Chapter 12,
22 Accounting Costs, for a summary of costs requested in this application.

23 **1. Overview of PG&E's Activity-Based Forecasting**

24 The CEMA and other memorandum account costs for which we seek
25 recovery in this application were not included in PG&E's 2020 GRC or prior
26 GRC applications, 2019 GT&S,³ nor any prior proceedings. The following

1 See Advice Letter (AL) 4392G/6100E for PG&E's request to recover authorized amounts in the VMBA and WMBA through a Tier 2 AL. See also GRC SA, Section 2.3.3, Table 3, for adopted VMBA values and SA 2.3.2.1 Table 1 for adopted WMBA values.

2 The majority of CEMA events costs in this application were incurred in 2020 and are incremental to the 2020 GRC. For costs requested prior to 2020, the incrementality reasoning presented here similarly applies to costs incurred in the 2014 (2014-2016) and 2017 GRC (2017-2019) years.

3 A.17-11-009.

1 section describes our activity-based methodology for forecasting and
2 recording costs for recovery through rates, which is foundational to the
3 incrementality of the activities and costs we seek to recover in this
4 application.

5 Activity-based forecasts consist of cost estimates based upon planned
6 scopes and schedules for work that are not tied to particular staff levels and
7 other resources.⁴ As an example, for Electric Operations, we develop
8 forecasts based on the anticipated volume and complexity of work that is
9 required to safely operate and maintain the electric system in compliance
10 with established policies and requirements. At the time the forecast is
11 developed, the staffing levels and resources to execute the work are not
12 specified. Ultimately activities will be completed with internal PG&E
13 employees or contracted vendors, but the forecast does not include the
14 specific internal employees or specific contractors that will be assigned to
15 the work. The specific resources to complete the work are assigned closer
16 in time to the execution of the work. When the work is executed, employees
17 record their time to the orders, contract and material costs are applied, and
18 additional costs are allocated to the orders in the form of overheads as
19 applicable to the type of work.

20 PG&E's forecasts typically present an aggregate cost for an activity
21 without capturing the specific cost components, including labor costs
22 (salaries and benefits), applicable overheads, materials, etc. In addition,
23 PG&E's headcount and support functions are not forecasted directly.
24 Moreover, PG&E's methodology for forecasting is not so granular that
25 materials or distinct allocations are explicitly identified in the forecast.

26 In sum, PG&E's activity-based forecasts are based upon volume and
27 complexity of the work, regardless of how the work is executed or by whom.
28 Because PG&E staff and organizations often support work across multiple
29 rate cases and regulatory accounts, this methodology provides flexibility to
30 use internal and external resources as necessary to execute the work.

⁴ 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.

1 For CEMA and the other memo accounts in this application, none of the
2 activities tracked in the accounts were forecasted in PG&E's 2020 GRC or
3 prior GRC applications, the 2019 GT&S, nor any other proceeding.
4 Accordingly, the costs in these accounts were not included in nor recovered
5 in authorized base rates.

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 GRC
12 forecasts do not include costs for responding to CEMA events. Since CEMA
13 costs are excluded from the GRC forecast submissions, balancing account
14 true-up, or other recovery mechanisms, a CEMA application represents the
15 only mechanism for PG&E to collect costs recorded in CEMA event
16 response orders.

17 The majority of 2020 CEMA costs were incurred by PG&E's Electric and
18 Gas⁵ businesses and the incrementality of those costs are described in
19 more detail below.⁶ Aside from these, the CEMA costs requested in this
20 application by other LOBs are primarily related to COVID-19 pandemic,
21 which were not forecasted in the 2020 GRC. Costs associated with the
22 COVID-19 pandemic are discussed in detail in Chapter 7 – COVID-19
23 Pandemic.

24 **a. Electric Distribution – Emergency Work Forecasting Methodology**

25 While costs for 2020 CEMA events are being requested in this
26 application, costs for non-CEMA-eligible Electric Distribution Major
27 Emergency response activities are recorded separately to Major

5 The request for recovery of Gas costs recorded in CEMA are primarily Gas Distribution but also includes a small amount of Gas Transmission related costs. See Chapter 5 Workpapers. PG&E refers to Gas Transmission and Distribution collectively as Gas in this testimony.

6 A summary of 2020 CEMA costs requested in this application are described in Chapter 1 and the reasonableness of those costs are detailed in Chapters 4 through 7.

1 Emergency Balancing Account (MEBA)⁷ for recovery in the GRC.
2 PG&E's 2020 GRC Forecast for Electric Distribution Major Emergency
3 was based on five-year historical average recorded expenditures for
4 years 2013-2017, adjusted to remove CEMA costs, some of which
5 PG&E had already obtained recovery for and some PG&E would
6 request in future CEMA applications. As shown in the 2020 GRC,⁸ and
7 as in prior GRC's, PG&E did not include a forecast for CEMA-eligible
8 costs, associated straight time labor and applicable overheads.

9 "Routine" emergency work is also included in our GRC applications,
10 and is for smaller scale restoration and facility repair work that does not
11 meet the major emergency or declared disaster definitions. The work
12 for routine emergencies is recorded in specific Major Work Categories
13 (MWC).⁹ CEMA work does not get captured in the corresponding
14 MWCs for "Routine" Emergency work and as such does not overlap with
15 GRC funding.¹⁰

16 **b. Gas – Emergency Work Forecasting Methodology**

17 Costs for routine Gas emergency response are recovered through
18 GRC and GT&S base rates. For example, routine Gas Distribution
19 emergency response includes work and materials required to replace
20 damaged or failed facilities and are captured in specific MWCs. This
21 includes the replacement or repairs of mains, services, and regulator
22 stations due to gas dig-ins and external forces such as landslides and
23 non-catastrophic earth movements. However, Gas does not forecast for
24 catastrophic events given the unpredictability of such events.¹¹

7 PG&E records to and recover from MEBA the actual expenses and capital revenue requirements resulting from responding to major emergencies, not otherwise recoverable through the CEMA mechanism. All MEBA costs are tracked in distinct orders tagged with identifiers different from the CEMA cost included in this chapter.

8 See 2020 GRC Exhibit (PG&E-4), Chapter 4, Section E; and Exhibit (PG&E-4), WP 4-7 and 4-8.

9 See 2020 GRC Exhibit (PG&E-4), Chapter 4, Section B.4.a.

10 See Chapter 4, Attachment A for a description of how Electric Distribution forecasts emergency work and Section D for a more detailed discussion of the incrementality of CEMA costs in Electric Distribution.

11 See Chapter 5, Attachment A for a more detailed description of how Gas forecasts emergency work.

1 To track CEMA work, Gas has historically used certain conventions
2 to create accounting orders within existing MWCs featuring unique
3 reason codes and titles to identify the emergency work and the county in
4 which the work occurred. These orders are created for both capital and
5 expense. This allows PG&E to query its accounting system to select
6 only the emergency response work that occurred in the counties
7 covered by a government-declared emergency for CEMA treatment.
8 The Business Finance Department, Emergency Preparedness
9 Coordinator, and the affected divisions review the orders to ensure that
10 the costs identified for CEMA treatment did in fact occur within the time
11 frame of the CEMA event, in accordance with major CEMA event
12 charging guidelines, and within the applicable counties. In 2018, Gas
13 created catastrophic event MWCs 3Q (capital) and LX (expense). While
14 Gas catastrophic event orders will continue to originate under existing
15 MWCs aligned with the work performed, orders will then transition to
16 Transmission or Distribution catastrophic event Maintenance Activity
17 Types under MWC 3Q and LX. Neither 3Q or LX is forecast in the 2020
18 GRC, prior GRCs, or the 2019 GT&S, therefore activity related to CEMA
19 events is unique and incremental to normal cost recovery mechanisms.

20 **3. Other Types of Costs: CPPMA, DMA, ECPMA, CCPAMA, MGMA, and**
21 **TRRRMA**

22 In addition to the CEMA costs discussed above, this application also
23 includes costs related to the CPPMA, the DMA, the ECPMA, the CCPAMA,
24 the MGMA, and the TRRRMA. As with CEMA, these costs were not
25 forecasted in the 2020 GRC, prior GRCs, or the 2019 GT&S. PG&E
26 ensures that costs for these activities are tracked in specific orders with
27 specific identifiers, that are not recovered in other proceedings.

28 COVID 19 Pandemic Protections Memorandum Account

29 On April 16, 2020, the Commission adopted Resolution M-4842, which
30 directed PG&E to offer applicable emergency customer protections to
31 residential and small business customers through April 16, 2021. The
32 purpose of the CPPMA is to record and track incremental costs associated
33 with implementing emergency customer protections for residential and small

1 business customers related to the COVID-19 pandemic. These protections
2 include:

- 3 • Suspending service disconnections for non-payment and waiving
4 security deposits;
- 5 • Implementing flexible payment plan options; and
- 6 • Providing additional support for low-income and medical baseline
7 customers.

8 The Commission authorized PG&E to track and record the following
9 costs to the CPPMA in 2020:

- 10 • Incremental expenses associated with implementing the emergency
11 customer protections
- 12 • Incremental uncollectibles expense during the COVID-19 pandemic
13 period for residential and small business customers; and
- 14 • The costs of using a short-term revolving credit facility for purposes of
15 financing residential and small business cash flow shortfalls resulting
16 from the implementation of the emergency customer protections.

17 These emergency customer protections costs related to COVID-19 were
18 not forecasted in the 2020 GRC or any other rate case and thus costs
19 recorded to the CPPMA are incremental. The CPPMA is further described
20 in Chapter 8.

21 Disconnections Memorandum Account

22 The purpose of the DMA is to track incremental costs associated with
23 implementing the requirements of D.20-06-003, which includes rules and
24 other changes designed to reduce the number of residential customer
25 disconnections and improve reconnection processes for disconnected
26 customers.¹² D.20-06-003 supports Senate Bill (SB) 598's directive for the
27 CPUC, among other things, to develop rules, policies, or regulations with a
28 goal of reducing the statewide disconnection rate of gas and electric utility
29 customers by January 1, 2024.¹³

¹² D.20-06-003, p. 2.

¹³ D.20-06-003, p. 5.

1 D.20-06-003 was issued in June, 2020 and costs associated with the
2 DMA were not forecasted in the 2020 GRC. The DMA is further described
3 in Chapter 8.

4 Emergency Consumer Protections Memorandum Account

5 The purpose of the ECPMA is to record incremental costs associated
6 with the implementation of PG&E's Emergency Consumer Protection Plan.
7 PG&E implements its Emergency Consumer Protection Plan when the
8 California Governor's Office or the President of the United States proclaims
9 a state of emergency due to a disaster that has either resulted in the loss or
10 disruption of the delivery or receipt of utility service and/or resulted in the
11 degradation of the quality of utility service as defined in D.19-07-015.¹⁴ In
12 2019 and 2020 PG&E recorded incremental costs to the ECPMA for
13 providing temporary service and discontinuing billing and stopping estimated
14 usage for customers impacted by disasters. PG&E's entries into the ECPMA
15 are separately tracked and recorded for each qualifying disaster and are not
16 forecasted in a GRC.¹⁵ The ECPMA is further described in Chapter 8.

17 California Consumer Privacy Act Memorandum Account

18 The CCPAMA was promulgated by Assembly Bill (AB) 375 and SB 1121
19 and signed into law by Governor Brown on June 28, 2018.¹⁶ The CCPAMA
20 requires PG&E, "on the consumer's request, to disclose what data they
21 collect with respect to them, furnish that data to the consumer upon request,
22 permit the consumer to opt out from the transfer of that data, inform the
23 [customer] as to whom their data was disclosed, and delete that data
24 (subject to exceptions)..."¹⁷ Compliance with the CCPA required PG&E to
25 work cross-functionally across the enterprise starting in 2019 to comply with
26 the four major customer rights provided in the CCPA by January 1, 2020,
27 including: (1) the right to receive notice of personal data possessed in a
28 company's records; (2) the right to access personal data possessed by a
29 company; (3) the right to delete personal data processed by a company; and

14 D.19-07-015, p. 16.

15 D.18-08-004, p. 23 OP 3.

16 Civil Code §§ 1798.100 et seq.; AB 375 (2017-2018 Reg. Sess.), Ch. 55; SB 1121 (2017-2018, Reg. Sess.), Ch. 735.

17 D.19-09-026, pp. 2-3.

1 (4) the right to opt-out of the sale of personal data by a company to third
2 parties.

3 Costs recorded to the CCPAMA were not forecasted in the 2020 GRC or
4 other proceedings. The CCPAMA is further described in Chapter 8.

5 Microgrids Memorandum Account

6 Following the 2019 Public Safety Power Shutoff (PSPS) events, PG&E
7 heard the feedback from customers, regulators, and legislators that we need
8 to find better alternatives as compared to turning off customer power. One
9 of the ways we accomplish this is through microgrids. In 2020, PG&E
10 focused on developing various microgrid solutions to build grid resilience
11 and allow PG&E to maintain electric service for customers in communities
12 that have a high likelihood of experiencing a PSPS outage. The 2020 costs
13 recorded in the MGMA are related to the following activities:

- 14 • Make-Ready Program – Work performed and equipment installed to
15 safely connect temporary generation to substations.
- 16 • Temporary Generation Program – Generator rental costs and other
17 rental related costs (e.g., environmental fees, sales tax, ancillary
18 equipment rentals) along with costs incurred during PSPS events
19 (e.g., fuel, labor, freight).
- 20 • Community Microgrid Enablement Program – Cost related to program
21 design and development activities.
- 22 • Program Management – Costs to implement the Temporary Generation
23 Program, including coordination of regulatory, project development,
24 finance, site selection, construction, and permitting.

25 The costs recorded in the MGMA were not forecasted in the 2020 GRC.
26 More details about the MGMA can be found in Chapter 9.

27 Transmission Revenue Requirement Reclassification Memorandum Account

28 A main purpose of the TRRRMA is to record a CPUC revenue
29 requirement associated with the costs requested by PG&E for recovery in
30 transmission rates that are no longer deemed to be network
31 transmission-related costs and, as such, are not allowed to be included in
32 Federal Energy Regulatory Commission (FERC) transmission rates. Under
33 the TRRRMA, customers only pay once for the costs associated with a
34 facility, avoiding any double-recovery, and PG&E receives the benefit of cost

1 recovery in CPUC-jurisdictional rates if facilities are not transmission-related
2 and thus cannot be included in FERC-jurisdictional rates.

3 In a Partial Settlement approved by FERC in the Transmission Owner
4 20th rate case (TO20) proceeding, PG&E agreed to conduct a reconciliation
5 of its network transmission rate base records and the CAISO Register so
6 that any changes to the CAISO Register would be properly reflected in the
7 facilities included in PG&E's FERC-jurisdictional rates. The Partial
8 Settlement requires that this reconciliation be effective as of May 1, 2019,
9 when PG&E's TO20 rates went into effect. PG&E would record both the
10 debits and the credits related to these reconciliations as required by the
11 Partial Settlement in the updated TRRRMA and would later seek recovery
12 from or refund to customers in a CPUC application.

13 The TRRRMA costs requested in this application were removed from
14 transmission rates and have not been recovered in a GRC. The TRRRMA
15 is described in more detail in Chapter 10.

16 **C. Orders and Financial Tracking**

17 To adhere to the activity-based forecasting methodology described above,
18 and to ensure that costs are properly accounted for, all costs for which we seek
19 recovery in this application were tracked in distinct orders that were tagged with
20 identifiers different from those that are included in our GRC or other cost
21 recovery mechanisms. Accordingly, this application is the appropriate
22 mechanism to recover costs incurred for the events and work described herein.
23 This is applicable to all costs incurred, and, as such, all costs captured in these
24 orders are incremental to other recovery mechanisms' revenues.

25 All PG&E orders are linked to distinct regulatory filings. The costs and
26 forecasts for activities associated with the GRC are only included in the GRC
27 filing process, and, similarly, the costs and forecasts for activities associated
28 with this filing are only included in the filing process for this application. Because
29 of this linkage, any forecasted or recorded cost is addressed through a single
30 regulatory process. This distinct order-tracking methodology ensures that
31 duplicative recovery is avoided. Consequently, all costs captured in orders
32 linked to this application are incremental and distinct from costs incurred and
33 reviewed via the GRC, the GT&S, or other rate case filings.

1 For more information on Orders and Financial Tracking see Chapter 4 and 5
2 Attachments A of this application.

3 **D. Intervenors' Historic Concerns About Incrementality**

4 In prior PG&E CEMA application proceedings, intervenors have raised
5 certain incrementality concerns about the types of costs presented by PG&E,
6 such as "straight-time labor," "materials," and "overheads." These historic
7 concerns are addressed below.

8 **1. Straight-Time Labor**

9 Historically, intervenors have argued against the recovery of
10 straight-time labor through the CEMA filing due to the incorrect assumption
11 that straight-time labor is already funded via base rates. As noted above,
12 however, the GRC and GT&S include forecast costs based on activities, not
13 specific resources or positions. Those activity-based forecasts—which are
14 reduced to remove the costs of CEMA activities—take into account various
15 cost components such as materials, contracts, and labor rates, which
16 include a combination of straight-time, overtime, and double-time labor. Had
17 CEMA activities been included, the forecasts would have been higher.
18 Accordingly, cost components associated with CEMA activities, including
19 CEMA straight-time labor costs, are incremental to base rates.

20 When a CEMA-eligible event occurs, PG&E may have to deprioritize
21 non-event response work to devote as many resources as possible to repair
22 damaged electric and gas facilities and restore service as quickly as
23 possible. In performing this work, PG&E crews often work around the clock,
24 incurring not only straight-time, but also overtime and double-time labor
25 costs. These costs are booked to the specific orders using the process
26 described in the previous sections above.

27 Once the repair and restoration activities have concluded, PG&E crews
28 return to their routine duties, including activities that had been postponed
29 due to the CEMA-eligible event. Completing the postponed activities
30 requires incremental overtime labor as well as significant incremental
31 contract resources to offset resources diverted to the event response

1 work.¹⁸ Yet, PG&E does not rely on a quantification of those incremental
2 costs to serve as a proxy for CEMA straight-time labor. They are not
3 charged to CEMA specific orders, but rather are incurred to replace the
4 labor (straight-time and overtime) originally intended for executing base
5 work.

6 Hence, the test of incrementality is not whether a cost is straight-time or
7 overtime. If that were the test, PG&E would book overtime costs to CEMA
8 specific orders for work unrelated to the catastrophic event such as
9 incremental overtime required for reprioritized base work. Similarly, PG&E
10 would exclude from CEMA specific orders costs directly related to a
11 catastrophic event only because the costs were incurred during normal
12 working hours. PG&E does neither. CEMA straight-time labor is
13 incremental for the simple reason that the GRC and GT&S forecasts are
14 reduced commensurate with the cost of CEMA activities.

15 **2. Minor Materials**

16 Similarly, some intervenors have historically argued for the exclusion of
17 routine material costs. PG&E has two methods for accounting for what it
18 spends on materials; these methods are used both for normal work and
19 emergency response activities.

20 Small, common material items (e.g., small bolts, screws, nails) are kept
21 as common stock in work locations and the cost for these materials are
22 spread to orders through an allocation to work categories that use these
23 materials. Major events do not receive the allocation for common stock
24 items, so those material costs are not included in this application for cost
25 recovery, though one could argue they should be as they are used during
26 CEMA events.

27 Larger pieces of equipment (e.g., poles, transformers, and cable) are
28 directly charged to specific work orders as that material is used on a given
29 job. During major events, PG&E may proactively bring major materials to

¹⁸ 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 local yards or base camps that are temporarily established to facilitate
 2 restoration. The cost for these materials staged for major events are only
 3 charged to the emergency orders (including CEMA-specific orders) once a
 4 specific piece of material has been used on a specific job. The only material
 5 charges included in this application are directly tied to CEMA event
 6 response work. As such, any material used during event response is
 7 incremental to base material spend.

8 **3. Overhead Costs**

9 A historic concern from intervenors has been how overheads are
 10 allocated to balancing accounts and CEMA. As noted in Chapter 11
 11 Section C.3., beginning in 2020, CEMA expense did not receive overhead
 12 costs. Also beginning in 2020, CEMA capital orders only receive the
 13 following overheads: fleet, payroll taxes, and minor materials. The balance
 14 is recovered in the GRC. Figure 11-1 shows the before and after allocation
 15 which was accepted in the 2020 GRC Decision. Note that three types of
 16 capital overheads are still allocated to CEMA. As indicated above, these are
 17 fleet, payroll taxes, and minor materials. These overheads are incremental
 18 based on the amount of labor done for the CEMA events.

**FIGURE 11-1
 CHANGE IN APPLICATION OF OVERHEADS TO BALANCING ACCOUNTS AND CEMA**

	2018-2019			2020+		
	EXPENSE			CAPITAL		
	Base Expense	Balancing Account Non-Earnings Expense (GRC/Non-CEMA)	Non-Earnings Expense (CEMA)	Base Capital	Balancing Account Non-Earnings Expense (GRC/Non-CEMA)	Balancing Account Capital (CEMA)
Overheads						
Capitalized A&G				x	x	x
Paid Time Off	x	x	x	x	x	x
Indirect Labor	x	x	x	x	x	x
Operational Management and Support		x	x	x	x	x
Fleet		x	x	x	x	x
Material Burden	x	x	x	x	x	x
Building Services		x	x	x	x	x
IT Device Services		x	x	x	x	x
Benefits		x	x	x	x	x
Payroll Taxes		x	x	x	x	x
Minor Materials	x	x	x	x	x	x

1 **E. Conclusion**

2 This chapter demonstrates that the costs requested in this application are
3 incremental. The costs for which we seek recovery in this application are for
4 activities that are different from and in addition to those forecast in our GRC,
5 GT&S, and other cost recovery mechanisms. We have tracked these costs
6 separately and only those incremental costs are requested in this application.
7 The costs therefore are eligible for recovery in this application.

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 12
ACCOUNTING ADJUSTMENTS TO RECORDED COSTS

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 12
ACCOUNTING ADJUSTMENTS TO RECORDED COSTS

TABLE OF CONTENTS

A. Introduction.....	12-1
B. Costs Already Excluded from Chapters 2-3.....	12-3
1. Ernst & Young’s Independent Audit Report	12-3
2. EY’s Review Methodology and Observations	12-3
3. Results of EY’s Review	12-4
C. Adjustments.....	12-6
1. CEMA Capitalized A&G and Expense Overheads	12-6
D. Conclusion.....	12-6

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **CHAPTER 12**
3 **ACCOUNTING ADJUSTMENTS TO RECORDED COSTS**

4 **A. Introduction**

5 This chapter presents adjustments to Pacific Gas and Electric Company's
6 (PG&E) recorded costs incurred by Electric Distribution, Gas Transmission and
7 Distribution, Power Generation, Shared Services, Corporate Services,
8 Information Technology, and Customer Care. The recorded costs are presented
9 in Chapters 2 through 11 in this application. Adjustments are made to the
10 following memorandum accounts:

- 11 1) Wildfire Mitigation Balancing Account (WMBA);
- 12 2) Vegetation Management Balancing Account (VMBA); and
- 13 3) Catastrophic Event Memorandum Account (CEMA);

14 Specifically, this chapter describes the removal of costs relating to Ernst &
15 Young's (EY) recommendations that have been already reflected in Chapters 2
16 through 3.

17 This chapter also describes adjustments made to remove CEMA overhead
18 and administrative and general (A&G) costs.

19 The adjustments to recorded costs are shown in Tables 12-1 and 12-2
20 below and described more fully in section C. The adjusted costs described in
21 this chapter are used to calculate the corresponding revenue requirement shown
22 in Chapter 13.

23 Table 12-1 below shows, by chapter, the total costs presented in the
24 accompanying testimony (Chapters 2 through 11), as well as the adjustments
25 made to these recorded costs. Subsequently, Table 12-2 shows the total costs
26 by balancing and memorandum accounts. The adjusted recorded costs for
27 which PG&E seeks recovery in this application are \$1.4 billion in expenses and
28 \$0.2 billion in capital expenditures. These amounts include the 2020
29 incremental spend above the 115 percentage of the authorized WMBA expense
30 and the incremental spend above the 120 percentage of the authorized VMBA
31 expense specified in the 2020 General Rate Case (GRC) Decision
32 (D.) 20-12-005.

**TABLE 12-1
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	\$210,986	-	\$210,986
2		Remove: <i>Ernst & Young recommendations</i>	-141	-	-141
3		Subtotal	\$210,845	-	\$210,845
4		2020 Adopted	\$53,371	-	\$53,371
5		115% of 2020 Adopted	61,377	-	61,377
6		Spend Above 115% of 2020 Adopted	149,469	-	149,469
7	Chapter 3: VMBA	Vegetation Management Balancing Account	\$1,250,053	-	\$1,250,053
8		Remove: <i>Ernst & Young recommendations</i>	-720	-	-720
9		Subtotal	\$1,249,333	-	\$1,249,333
10		2020 Adopted	\$548,013	-	\$548,013
11		120% of 2020 Adopted	657,615	-	657,615
12		Spend Above 120% of 2020 Adopted	591,718	-	591,718
13	Chapter 4: ED	CEMA	\$433,102	\$191,792	\$624,894
14		Remove: <i>Overheads and A&G</i>	-3,783	-10,290	-14,073
15		Subtotal	\$429,319	\$181,502	\$610,821
16	Chapter 5: GD & GTS	CEMA	\$4,662	\$7,998	\$12,660
17		Remove: <i>Overheads and A&G</i>	-68	-362	-431
18		Subtotal	\$4,594	\$7,636	\$12,230
19	Chapter 6: PG – CEMA	CEMA	\$937	\$53	\$990
20		Remove: <i>Overheads and A&G</i>	-12	-	-12
21		Subtotal	\$926	\$53	\$979
22	Chapter 7: coronavirus (COVID-19)	CEMA	\$55,948	\$1,209	\$57,156
23		Remove: <i>Overheads and A&G</i>	-578	-	-578
24		Subtotal	\$55,370	\$1,209	\$56,579
25	Chapter 8: CC – Other Memo. Accounts	COVID-19 Pandemic Protections Memo Account	\$7,847	-	\$7,847
26		Disconnections Memo Account	666	-	666
27		Emergency Consumer Protections MA	6,271	-	6,271
28		California Consumer Privacy Act MA	25,414	586	26,001
29		Subtotal	\$40,198	\$586	\$40,784
30	Chapter 09: ED – Other Memo. Accounts	Microgrids Memorandum Account	\$132,977	\$6,153	\$139,130
31	Total Request		\$1,404,569	\$197,139	\$1,601,708

TABLE 12-2
TOTAL COSTS AND ADJUSTMENTS BY BALANCING AND MEMORANDUM ACCOUNT
(THOUSANDS OF DOLLARS)

Line No.	Account	Expense	Capital Expenditures	Total
1	Wildfire Mitigation Balancing Account	\$149,469	–	\$149,469
2	Vegetation Management Balancing Account	\$591,718	–	\$591,718
3	CEMA Costs	\$438,701	\$199,843	\$638,544
4	<i>CEMA Adjustments:</i>			
5	<i>Overheads and A&G</i>	<u>(3,863)</u>	<u>(10,652)</u>	<u>(14,515)</u>
6	CEMA Adjusted Costs	\$434,838	\$189,191	\$624,029
7	COVID-19 CEMA Costs	\$55,948	\$1,209	\$57,156
8	<i>CEMA Adjustments:</i>			
9	<i>Overheads and A&G</i>	<u>(578)</u>	<u>–</u>	<u>(578)</u>
10	COVID-19 CEMA Adjusted Costs	\$55,370	\$1,209	\$56,579
11	Other Memo Accounts	<u>\$173,175</u>	<u>\$6,740</u>	<u>\$179,914</u>
12	Grand Total	\$1,404,569	\$197,139	\$1,601,708

1 B. Costs Already Excluded from Chapters 2-3

2 The recorded amounts described below were already excluded from the
3 costs presented in Chapters 2-3 of the testimony.

4 1. Ernst & Young’s Independent Audit Report

5 As shown in Appendix A, and discussed in Chapters 2 and 3, Ernst &
6 Young (EY) performed an analysis of 2020 costs recorded in the Wildfire
7 Mitigation Balancing Account (WMBA) and Vegetation Management
8 Balancing Account (VMBA) to confirm the costs are directly attributable to
9 the Balancing Accounts and are properly tracked in PG&E’s financial
10 systems. These accounts are hereinafter collectively referred to as the
11 “Balancing Accounts.” EY identified items totaling \$0.9 million recommended
12 for removal from costs for this application. The amounts requested in the
13 application have been reduced by the extrapolated amount of approximately
14 \$0.9 million amount as shown in Tables 12-1 and 12-2.

15 2. EY’s Review Methodology and Observations

16 EY segregated the costs within the balancing accounts by cost category
17 and developed testing procedures for each category of costs based on the
18 unique nature and risks of each cost category. Approximately \$357 million,
19 totaling 17 percent of total costs incurred were tested. In addition to detailed

1 transaction testing, multiple discussions were held across the organization
 2 with the Finance, Regulatory Affairs, and Vegetation Management
 3 Departments. The table below summarizes the cost categories:

**TABLE 12-3
 POPULATION OF BALANCING ACCOUNTS BY COST CATEGORY
 (THOUSANDS OF DOLLARS)**

Line No.	Cost Category	Amount	Transaction Amount Analyzed	Percentage Tested
1	Contracts	\$1,680,099	\$334,396	20%
2	Internal Labor	124,801	12,604	10%
3	Employee Expense	9,619	4,881	51%
4	Helicopter Charges	5,056	980	19%
5	Materials	90,483	1,169	1%
6	AFUDC/Other	8,045	N/A	N/A
7	Overheads	191,101	3,719	2%
8	Total	\$2,109,204	\$357,749	17%

4 We provided to EY available data and supporting documentation for
 5 each of these cost categories. EY reviewed the support for the cost
 6 categories.¹

7 **3. Results of EY’s Review**

8 EY prepared findings and observations regarding the costs in the
 9 balancing accounts based on their testing and analysis. EY’s full report can
 10 be found as Appendix A. EY found no material evidence that would raise
 11 questions relating to management’s conclusions that costs were:
 12 (1) incurred for the activities set forth in the corresponding, relevant CPUC
 13 approved Balancing Accounts; and (2) accurately recorded.

14 As a result of the procedures described above, EY identified items
 15 totaling approximately \$0.4 million (extrapolated to \$0.9 million) that were
 16 not properly evidenced for inclusion in the Balancing Accounts.

17 A summary of the Observations for potential exclusion are provided
 18 below:

¹ EY Report, pp. 5-26 provides a complete breakdown of the review and approach.

**TABLE 12-4
OBSERVATIONS FOR POTENTIAL EXCLUSION
(THOUSANDS OF DOLLARS)**

Line No.	Cost Cat.	Exclusion Type	Statistical	Targeted	Total	Statistical (basis)
1	Contract	Equipment	–	\$6	\$6	–
2	Contract	Labor	–	10	10	–
3	Contract	Manual Entry	\$80	–	80	\$80
4	Contract	Markup	371	233	604	5
5	Contract	Materials	–	2	2	–
6	Contract	Per diem	91	1	92	4
7	Contract	Travel expense	2	4	6	–
8	Employee Expenses	Non-WMCE Account Reference	–	7	7	–
9	Employee Expenses	Other Employee Expenses	–	13	13	–
10	Materials	P-Card Expenses	–	46	46	–
11	Materials	Non-Electric/Uncommon materials	–	24	24	–
12	Total		\$544	\$346	\$890	\$89

- 1 1) **Contract Costs:** EY noted limited instances of vendors including
2 expense amounts that were not properly evidenced within their invoice,
3 the contract, or purchase order. These items contained unsubstantiated
4 per diems, labor expense inconsistencies, and unsubstantiated other
5 miscellaneous expenses. EY noted limited instances of vendors
6 marking up subcontractor charges which were prohibited in the contract.
7 EY noted limited instances where vendors would be directly contracted
8 by PG&E for a specific service and also engaged as a subcontractor
9 (subject to markups by the prime) for a similar service.
- 10 2) **Employee Expenses:** EY noted one instance where a transaction was
11 coded to a Fire Risk Mitigation Memorandum Account order and
12 included in the WMCE Balancing Accounts. EY also noted one instance
13 where sufficient evidence was not provided to support inclusion in
14 WMCE Balancing Accounts.
- 15 3) **Materials:** EY noted limited instances where sufficient evidence was
16 not provided to support inclusion in WMCE Balancing Accounts, or
17 where the materials identified did not appear to fall within the scope of
18 WMCE activities.
- 19 As a result of EY’s observations discussed above, we removed the
20 approximate \$0.9 million in costs from this request.

1 **C. Adjustments**

2 PG&E has removed the following amounts from the costs presented
3 elsewhere in this application.

4 **1. CEMA Capitalized A&G and Expense Overheads**

5 In accordance with D.08-01-021, PG&E is removing all capitalized A&G
6 costs charged to the CEMA capital orders. In accordance with the
7 Commission D.20-12-005 adopting the Settlement Agreement for the 2020
8 GRC (Application18-12-009), beginning in 2020 CEMA expense will not
9 receive overhead costs and CEMA capital orders will only receive the
10 following overheads: fleet, payroll taxes, and minor materials. The CEMA
11 expense overhead and the capital remaining overhead costs will be
12 recovered in the GRC base rate beginning in 2020. Accordingly, PG&E has
13 removed \$10.7 million in CEMA capitalized overheads. PG&E also removed
14 \$4.4 million in CEMA expense overheads to ensure that CEMA expense
15 overheads are no longer recovered in the CEMA proceedings in accordance
16 with the 2020 GRC Decision.

17 **D. Conclusion**

18 As shown in this chapter, PG&E has removed from its cost recovery request
19 appropriate adjustments relating to the recommendations from our external
20 auditor E&Y, and CEMA capitalized A&G and expense overheads.

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 13
REVENUE REQUIREMENT

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 13
REVENUE REQUIREMENT

TABLE OF CONTENTS

A. Introduction.....	13-1
B. Summary of Request.....	13-1
C. Elements of the Results of Operations Calculation	13-3
1. Expense	13-3
2. Capital.....	13-4
a. Depreciation	13-5
b. Rate of Return on Rate Base.....	13-5
c. Income Tax and Depreciation Assumptions	13-6
d. Property Taxes	13-9
D. Common Cost allocation	13-9
E. Cost Recovery.....	13-9
F. Conclusion.....	13-11

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **CHAPTER 13**
3 **REVENUE REQUIREMENT**

4 **A. Introduction**

5 The purpose of this chapter is to present the revenue requirement
6 associated with the incremental costs recorded in various balancing and
7 memorandum accounts sought recovery in this application. These accounts are:
8 (1) the Wildfire Mitigation Balancing Account (WMBA); (2) the Vegetation
9 Management Balancing Account (VMBA); (3) the Catastrophic Event
10 Memorandum Account (CEMA); (4) the Emergency Consumer Protections
11 Memorandum Account (ECPMA); (5) the Disconnections Memorandum Account
12 (DMA); (6) the COVID-19 Pandemic Protections Memorandum Account
13 (CPPMA); (7) the California Consumer Privacy Act Memorandum Account
14 (CCPAMA); (8) the Microgrids Memorandum Account (MGMA); and (9) the
15 Transmission Revenue Requirement Reclassification Memorandum Account
16 (TRRRMA). Pacific Gas and Electric Company (PG&E) calculates the revenue
17 requirement using the Results of Operations (RO) model. The RO model
18 compiles all capital costs and operating expenses to estimate the revenue that
19 PG&E needs to recover for work presented in this application. The revenue
20 requirement for these costs is described below in Section B and sets forth in the
21 tables at the end of this chapter. The revenue requirement for the final cost
22 recovery approved by the California Public Utility Commission (CPUC or
23 Commission) will be calculated using the same RO assumptions presented here,
24 updated as appropriate for interest expense, Revenue Fees and Uncollectibles
25 (RF&U), authorized Cost of Capital (COC), and tax parameters.¹

26 **B. Summary of Request**

27 In this application, PG&E seeks recovery of \$1,467.8 million in total revenue
28 requirement excluding interest for the period of 2015 through 2022 with the
29 exception of Microgrids Memo Account capital revenue requirement which
30 continues through 2026. Table 13-1 below presents the total revenue
31 requirement by memorandum account and Table 13-2 presents revenue

1 A.20-02-003.

1 requirement by Electric Distribution, Gas Distribution, Electric Generation (EG)
 2 and Gas Transmission (GT).

**TABLE 13-1
 2021 WMCE REVENUE REQUIREMENT SUMMARY
 (THOUSANDS OF DOLLARS)**

Line No.	Memorandum Account	Expense Revenue requirement	Capital Revenue requirement	Total Revenue Requirement
1	Total CEMA Events	\$486,963	\$47,588	\$534,551
2	VMBA	591,718	–	591,718
3	WMBA	149,570	–	149,469
4	CPPMA	7,847	–	7,847
5	DMA	666	–	666
6	ECMA	6,271	–	6,271
7	CCPAMA	25,414	599	26,014
8	MGMA	132,977	4,845	137,821
9	TRRRMA	3,039	10,297	13,336
10	Subtotal without interest	\$1,404,464	\$63,329	\$1,467,793
11	Interest (2015-22)	11,283	526	11,809
12	Total RRQ (including Interest)	\$1,415,747	\$63,856	\$1,479,602

3 The CEMA total revenue requirement of \$534.5 million is associated with
 4 \$490.5 million of expense and \$190.4 million in capital expenditures in
 5 responding to certain CEMA events incurred in 2015-2020, as presented in
 6 Chapter 12, Table 12-1. As discussed in Chapter 12, the costs underlying the
 7 CEMA revenue requirement have been adjusted, in compliance with Public
 8 Utilities Code Section 454.9, Resolution (Res.) E-3238, and Decision
 9 (D.) 08-01-021, to reflect only those costs not otherwise recovered through rates
 10 and incurred in counties that received a disaster declaration by a competent
 11 state or federal authority.

12 The WMBA and VMBA revenue requirement of \$741.2 million is associated
 13 with \$741.2 million of expense incurred in 2020 and recorded in the WMBA and
 14 VMBA, as presented in Chapter 12, Table 12-1. As explained in Chapter 12, the
 15 VMBA amount of \$591.7 million is associated with the incremental spend above
 16 the 120 percent of the authorized VMBA activities specified in the 2020 General
 17 Rate Case (GRC) D.20-12-005. The WMBA amount of \$149.5 million is
 18 associated with the incremental expenses above the 115 percent of the
 19 authorized WMBA expenses specified in the 2020 GRC D.20-12-005.

1 The MGMA total revenue requirement of \$137.8 million is associated with
2 \$133.0 million of expense and \$6.2 million of capital expenditures through 2020.

3 The TRRRMA total revenue requirement of \$13.3 million is associated with
4 \$3.0 million of expense and \$42.9 million in plant that are being transferred from
5 the FERC jurisdiction to the CPUC jurisdiction as explained in Chapter 10.

6 The other revenue requirement of \$40.8 million is associated with
7 \$6.3 million of expense recorded to the ECPMA, \$0.7 million of expenses in the
8 DMA, \$7.8 million of expenses in the CPPMA, and \$25.4 million of expense and
9 \$0.6 million of capital expenditures recorded to the CCPAMA, as discussed in
10 Chapter 12.

11 Table 13-2 at the end of this chapter presents the revenue requirement by
12 memorandum account described above. The revenue amount in this application
13 excludes RF&U. When this application is approved by the CPUC, PG&E will
14 update the revenue requirement to include RF&U in accordance with the
15 Commission approved preliminary statement discussed in Section D in this
16 chapter.

17 PG&E proposes to record the appropriate revenue requirement presented in
18 this application into the Electric Distribution Revenue Adjustment Mechanism
19 (DRAM), Portfolio Allocation Balancing Account (PABA), Gas Core Cost
20 Subaccount of the Core Fixed Cost Account (CFCA), and Noncore Subaccount
21 of the Noncore Customer Class Charge Account (NCA).

22 **C. Elements of the Results of Operations Calculation**

23 Costs included in this application are based on the recorded amounts for
24 the Wildfire risk mitigation programs, Catastrophic Events, and other
25 memorandum accounts summarized in Chapter 1. Chapters 2 through 12
26 testimony and workpapers provide detailed description of these costs.

27 **1. Expense**

28 In this application, PG&E seeks to recover a total expense revenue
29 requirement of \$1,404.5 million excluding interest. This amount is
30 associated with the relevant expense of \$741.2 million recorded in the
31 WMBA and the VMBA, \$490.5 million recorded in the CEMA for certain
32 CEMA events included in this application, \$6.3 million recorded in the
33 ECPMA, \$0.7 million recorded in the DMA, \$7.8 million recorded in the

1 CPPMA, \$25.4 million in the CCPAMA, \$133.0 million recorded in the
2 MGMA, and \$3.0 million in the TRRRMA.

3 The expense-related revenue requirement is presented by year in
4 Table 13-3 at the end of this chapter.

5 **2. Capital**

6 In this application, PG&E seeks to recover a total capital revenue
7 requirement of \$63.3 million. This amount is associated with the
8 incremental capital expenditures of \$190.4 million recorded in the CEMA for
9 certain CEMA events and \$0.6 million in the CCPAMA, \$6.2 million in the
10 MGMA and \$22.1 million of net plant in the TRRRMA included in this
11 application. There is no capital revenue requirement for the VMBA, the
12 WMBA, the CPPMA, the DMA and the ECMA.

13 Capital revenue requirement of \$63.3 million represents: (1) revenue
14 requirement from 2015-2022 for recorded costs in the CEMA, the CCPAMA
15 and the TRRRMA; and (2) revenue requirement from 2020-2026 for
16 recorded costs in the MGMA. The capital-related revenue requirement is
17 presented by year in Table 13-4 at the end of this chapter.

18 The capital revenue requirement is calculated based on the capital
19 additions associated with the expenditures included in this application.
20 Capital additions are incurred when PG&E spends funds on capital projects
21 that are necessary to replace, augment or support its existing utility plant.
22 In the case of the CEMA capital expenditures included in this filing, these
23 expenditures were incurred to correct a loss of property or other damage to
24 existing utility plant resulting from the identified Catastrophic Events. As
25 discussed in Chapter 12, PG&E has excluded capitalized Administrative and
26 General (A&G) costs from the CEMA capital expenditures in this filing.

27 As capital work happens, the costs are accumulated and recorded to
28 Construction Work in Progress (CWIP) until the project is operational and
29 providing utility service. While in CWIP, projects that last over 30 days
30 accrue an Allowance for Funds Used During Construction (AFUDC).
31 Projects that last less than 30 days do not accrue AFUDC and are treated
32 as "operative as installed." When a specific capital project becomes
33 operational, the CWIP balance is transferred to plant-in-service, and the
34 capital expenditures and associated AFUDC become capital additions.

1 Once a project is transferred to plant-in-service, it is included in rate base
2 and a revenue requirement is calculated.

3 Res.E-3238 provides that “in addition to direct expense, utilities could
4 also book capital-related costs such as depreciation and return on
5 capitalized additions.” Consistent with this resolution, PG&E’s
6 capital-related revenue requirement includes depreciation expense, a return
7 on rate base, related federal and state income taxes, and property taxes.

8 The various capital-related components of the RO calculation are
9 discussed below.

10 **a. Depreciation**

11 Depreciation is included in the revenue requirement calculation as
12 both depreciation expense and accumulated depreciation. Depreciation
13 expense is calculated on a straight-line, remaining-life method
14 (in accordance with the Commission Standard Practice U-4,
15 Determination of Straight-Line Remaining Life Depreciation Accruals)
16 using CPUC-approved rates from depreciation accrual rate schedules
17 effective during the period for which the revenue requirement
18 calculations are made. Depreciation expense is calculated by
19 multiplying the weighted average plant in service by the corresponding
20 book depreciation rates.

21 In this application, PG&E has used the 2014 GRC D.14-08-032
22 authorized depreciation rates for years 2015-2016, the 2017 GRC
23 D.17-05-013 authorized depreciation rates for the years 2017-2019 and
24 the 2020 GRC D.20-12-005 authorized depreciation rates for the years
25 2020-2022.

26 **b. Rate of Return on Rate Base**

27 Rate base is calculated using utility plant less adjustments for
28 deferred taxes and depreciation reserve. Utility plant consists of the
29 original cost of investment in plant and equipment that is used and
30 useful in rendering or restoring utility services. In developing the rate
31 base associated with that plant for purposes of this filing, certain
32 deductions are made. A reduction is made for the accumulated deferred
33 income taxes associated with these assets. These deferred income

1 taxes primarily result from following the Modified Accelerated Cost
2 Recovery System (MACRS) tax depreciation method and casualty loss
3 deductions for Federal Income Tax (FIT) purposes. Rate base is
4 reduced by the amount of depreciation reserve (i.e., the accumulated
5 depreciation already taken in prior years).

6 PG&E multiplies the currently adopted composite Rate of Return
7 (ROR) by the weighted average rate base for each year to calculate the
8 Net for Return. This calculation uses the ROR and capital structure
9 adopted in PG&E's 2013 authorized COC decision for year 2015-2017,²
10 the 2018 authorized COC decision for years 2018-2019,³ and the 2020
11 authorized COC decision for years 2020-2022.⁴ On August 20, 2020,
12 CPUC approved PG&E's Advice Letter (AL) 4275-G/5887-E (Tier 2) to
13 update its COC effective July 1, 2020. This application uses the
14 updated cost of debt from this AL. PG&E will update the return on rate
15 base if the Commission authorizes a new COC in a future COC
16 proceeding.

17 **c. Income Tax and Depreciation Assumptions**

18 This section describes the assumptions and calculations used in the
19 revenue requirement calculation to estimate depreciation for income tax
20 purposes.

21 PG&E estimates current California Corporation Franchise Taxes
22 and FIT on net operating income before income taxes. PG&E follows
23 MACRS and Asset Depreciation Range⁵ guidelines for classifying
24 capital additions and calculating federal and state tax depreciation.
25 Current FIT expense is the product of the currently effective corporate
26 income tax rate (35 percent prior to 2018 and 21 percent starts in 2018
27 and forward), and federal taxable income. Likewise, current state
28 income tax expense is the product of the statutory rate (8.84 percent)
29 and the state taxable income. Both MACRS and federal casualty loss

2 D.12-12-034.

3 D.17-07-005.

4 D.19-12-056.

5 Uses Sum of Years Digits method.

1 tax deductions are computed on a normalized basis. This allows PG&E
2 to recognize the timing differences between book and these federal tax
3 deductions. This difference multiplied by the federal tax rate is called
4 deferred FITs, and is included as an adjustment to current federal tax
5 expense and a credit to rate base. State income taxes are calculated
6 using flow-through treatment with exception of TRRRMA. With a
7 flow-through treatment, customers receive an immediate benefit from
8 use of accelerated state tax deductions, there is no deferred state taxes
9 and therefore no associated deduction to rate base. However, for
10 TRRRMA, a reclassification memorandum account from FERC to
11 CPUC, PG&E will continue the Federal and California normalized
12 treatment by FERC Order 144-A.

13 The 2017 Tax Cuts and Jobs Act (TCJA) reduced the FIT rate from
14 35 percent to 21 percent, which resulted in remeasurement of deferred
15 taxes associated with capital additions placed in service prior to 2018
16 from 35 percent to 21 percent as of December 31, 2017. The
17 14 percent excess will be refunded to ratepayers in accordance with
18 normalization requirements. Depreciation related tax timing differences
19 giving rise to excess tax reserves are required to be amortized using the
20 Average Rate Assumption Method (ARAM) under the normalization
21 rules. The ARAM requires that excess tax reserves be refunded to
22 customers over the regulatory book life of the underlying assets that
23 generated the original tax reserves. TCJA stipulates that the refund of
24 excess tax reserves will occur more rapidly or to a greater extent than
25 such reserve would be reduced under the ARAM results in a
26 normalization violation. PG&E proposes to use the ARAM to amortize
27 plant-related excess deferred taxes.

28 The CEMA capital expenditures included in this filing were incurred
29 to correct a loss of property or other damage to existing utility plant
30 resulting from an identified catastrophic event. Certain capital costs
31 qualify for casualty loss tax treatment. Internal Revenue Code
32 Section 165(a) allows a deduction for any loss sustained during the
33 taxable year that is not compensated for by insurance or otherwise. In
34 accordance with Revenue Ruling 87-117 and Chief Counsel

1 Advice 201145011, the potential recovery of storm and fire costs
2 requested in a filing with the CPUC is not considered compensation for
3 the casualty loss under Section 165(a) (however any potential recovery
4 will be included in gross income in the future if and when received).
5 Treas. Reg. Section 1.165-1(b) provides that to be allowable as a
6 deduction under Section 165(a), a loss must be evidenced by closed
7 and completed transactions, fixed by identifiable events, and related to
8 disaster losses actually sustained during the taxable year. The amount
9 of loss to be taken into account for purposes of Section 165(a) shall be
10 the lesser of either:

- 11 i) The amount which is equal to the fair market value of the property
12 immediately before the casualty reduced by the fair market value of
13 the property immediately after the casualty; or
- 14 ii) The amount of the adjusted basis prescribed in Treas. Reg.
15 Section 1.1011-1 for determining the loss from the sale or other
16 disposition of the property involved.

17 Under Treas. Reg. Section 1.165-7(a)(2)(ii), the cost of repairs (both
18 capital and expense) to the property damaged is acceptable as
19 evidence of the loss of value. However, Treas. Reg.
20 Section 1.263(a)-(3)(k)(1)(iii), requires the taxpayer to capitalize the
21 expense component resulting in net tax deduction of the capital
22 restoration costs. Since these Catastrophic Event costs are capitalized
23 for book purposes and deducted for tax purposes, a book-tax
24 adjustment is created. As described above, in this filing, federal book
25 tax adjustments for depreciation and casualty loss deduction are
26 computed on a normalized basis, while state book-tax differences are
27 calculated on a flow-through basis.

28 Cost capitalized for book purposes that do not qualify for tax
29 casualty loss deductions may qualify for the tax repair deduction.
30 Federal and California tax repair deductions are treated on a
31 flow-through basis. PG&E applies Treasury Regulations under
32 Sections 162 and 263(a) to deduct costs attributable to repairs and
33 maintenance of GT and distribution lines. PG&E applies Internal
34 Revenue Service (IRS) Revenue Procedures 2011-43 and 2013-24 to

1 deduct costs attributable to repairs and maintenance of electric
2 distribution circuits and EG plants. The IRS guidance allows a more
3 expansive “unit of property” definition for tax purposes than for financial
4 reporting purposes. This allows PG&E to treat certain expenditures as a
5 current repair expense. For financial reporting purposes, these
6 expenditures are capitalized and depreciated. Thus, a tax and book
7 basis timing difference is created.

8 **d. Property Taxes**

9 Property tax calculations are determined by multiplying the taxable
10 Plant Less Depreciation (Net Plant) by the composite property tax factor
11 for 2019-2022 with the exception of 2015 Butte Fire event and
12 Microgrids Memo Account. The composite property tax factor for 2015
13 Butte Fire event is for 2015 to 2022 and for Microgrids Memo Account is
14 for 2020 to 2026. The property tax factor is comprised of the adjusted
15 base year market-to-cost ratio multiplied by the composite tax rate. The
16 adjusted market-to-cost ratio is the relationship between the most
17 current assessment (adjusted) and the taxable Net Plant.

18 **D. Common Cost allocation**

19 Certain CEMA costs presented in Chapter 7 and WMBA costs presented in
20 Chapter 2 relate to A&G costs and are shared among all functional areas within
21 PG&E. Similar to PG&E’s practice in its GRC, these A&G costs are allocated to
22 different functional areas (Electric Distribution, Gas Distribution, EG, GT and
23 Electric Transmission) using 2020 recorded Operations & Maintenance (O&M)
24 labor allocation factors. The revenue requirement presented in this chapter
25 includes Electric Distribution, Gas Distribution, EG, GT which are under CPUC
26 jurisdiction.

27 **E. Cost Recovery**

28 This filing proposes that the electric distribution, EG, gas distribution and GT
29 revenue requirements for the incremental costs included in this filing with the
30 exception of the MGMA revenue requirement be recovered in rates over a
31 period of 24 months beginning January 1, 2023, or as soon as practicable
32 following the decision in this proceeding, until the 2023 GRC in which the capital
33 plant will be included in the test year 2023 for purposes of the revenue

1 requirement calculations. Thereafter, the recovery of capital-related costs (such
2 as ROR, taxes and depreciation) will be included in the 2023 GRC. Consistent
3 with past practice, PG&E proposes to roll the CEMA capital additions into the
4 rate base of its next GRC.

5 For the MGMA, this application seeks 2020 to 2026 revenue requirement for
6 2020 recorded costs. Pursuant to CPUC's decision D.20-06-017 in
7 Rulemaking 19-09-009, PG&E is seeking recovery of costs recorded in the
8 MGMA through this application. PG&E's 2023 GRC application A.21-06-021 did
9 not include 2020 recorded MGMA cost in the 2023 GRC rate base. Consistent
10 with the cost recovery proposal for the other balancing and memorandum
11 accounts in this application, PG&E proposes to recover 2019-2022 MGMA
12 revenue requirement over a period of 24 months beginning January 1, 2023 or as
13 soon as practicable following the decision in this proceeding. For 2023-2026
14 MGMA revenue requirement would be recovered in the respective years. PG&E
15 proposes to roll the MGMA capital additions into the rate base in its 2027 GRC.

16 In the final stages of preparation of this case we have identified some minor
17 amounts that were included in the RO model that should not have been
18 included. These will be removed in future runs of the model. Furthermore,
19 future errors and adjustments that are discovered through the litigation of the
20 case will be included in the revenue requirement update, as appropriate.

21 PG&E's final cost recovery will include the interest expense based on the
22 applicable interest rates, timing of the decision and the approved cost recovery.
23 PG&E will accrue interest associated with authorized revenue requirement
24 based on the latest available interest rates, consistent with the
25 Commission-approved preliminary statement, which states "interest rate on
26 three-month Commercial Paper for the previous month, as reported in the
27 Federal Reserve Statistical Release, G.13, or its successor."⁶

28 The revenue requirement associated with the recorded costs included in this
29 application is not included in PG&E's 2023 GRC or in any other cost recovery
30 mechanism or otherwise adopted as part of current authorized rates.

6 https://www.pge.com/tariffs/tm2/pdf/ELEC_PRELIM_G.pdf;
https://www.pge.com/tariffs/tm2/pdf/GAS_PRELIM_AC.pdf.

1 The revenue requirement calculation in this filing excludes RF&U. Upon the
2 CPUC approval of the cost recovery in this application, the revenue requirement
3 associated with the approved costs in this filing will be posted monthly into the
4 specific memorandum accounts and will include interest and RF&U.

5 PG&E proposes to recover all approved incremental expenditures through
6 the DRAM, PABA, CFCA, and NCA rate mechanisms as part of the Annual
7 Electric True-Up (AET) and Annual Gas True-Up (AGT) AL filings on January 1,
8 2023, or the next available rate change after the effective date of the decision in
9 this proceeding, and through the AET and AGT thereafter. Rates set to recover
10 costs in this application will be determined in the same manner as rates set to
11 recover other Electric Distribution, EG, Gas Distribution and GT costs, using
12 adopted methodologies for revenue allocation and rate design.⁷ The change in
13 rates for approved recovery of recorded costs included in this application will
14 affect total charges for bundled service customers and for customers who
15 purchase energy from other suppliers (i.e., direct access and community choice
16 aggregation customers).

17 **F. Conclusion**

18 PG&E respectfully requests that the Commission adopt a total revenue
19 requirement of \$1,467.8 million (excluding interest). The revenue requirement
20 set forth in this filing is calculated using the RO model for separately funded rate
21 case applications and is based on the recorded costs presented and included in
22 other testimony submitted in this filing. The revenue requirement calculation is
23 provided in the workpapers supporting this chapter.

⁷ The current electric revenue allocation and rate design methods were approved by D.18-08-013 in PG&E's 2017 GRC Phase 2 proceeding. PG&E's 2020 GRC Phase 2 proceeding (A.19-11-019) is currently active and its outcome will alter the revenue allocation applied to the revenue requirements approved in this proceeding upon implementation.

TABLE 13-2
REVENUE REQUIREMENT – SUMMATION OF ALL YEARS (2015-2026)
(THOUSANDS OF DOLLARS)

Line No.	Event	Electric Distribution			Electric Generation			Gas Distribution			Gas Transmission			Total Functional Areas			
		(2015-2026)			(2015-2022)			(2015-2022)			(2015-2022)			(2015-2026)			
		Expense	Capital	Total	Expense	Capital	Total	Expense	Capital	Total	Expense	Capital	Total	Expense	Capital	Total	
	Event																
1	2020 August Extreme Heat Event	8,976	3,881	12,857	-	-	-	-	-	-	-	-	-	-	8,976	3,881	12,857
2	2020 August Fires	163,705	13,056	176,760	897	0	897	305	5	310	-	-	-	-	164,907	13,060	177,967
3	2020 Sept North Complex Fire	74,531	1,022	75,552	-	-	-	-	-	-	-	-	-	-	74,531	1,022	75,552
4	2020 Sept Extreme Heat Event	1,698	723	2,421	-	-	-	-	-	-	-	-	-	-	1,698	723	2,421
5	2020 Glass	71,530	6,774	78,304	-	-	-	2,941	134	3,075	-	-	-	-	74,471	6,908	81,378
6	2020 Sep Oak Fire	437	7	444	-	-	-	-	-	-	-	-	-	-	437	7	444
7	2020 Creek Fire	26,016	1,887	27,903	-	-	-	-	-	-	-	-	-	-	26,016	1,887	27,903
8	2019 October Winter	-	-	-	-	-	-	-	1	1	-	-	-	-	-	1	1
9	2019 Glencoe/Bethel Island/Camino Fires	4	3	8	-	-	-	-	-	-	-	-	-	-	4	3	8
10	2019 October Wind PSPS Event	250	105	355	-	-	-	-	-	-	-	-	-	-	250	105	355
11	2019 Jan-Feb Storms	(50)	268	219	29	15	44	-	-	-	-	-	-	(21)	283	262	
12	2018 Carr Fire	146	102	248	-	-	-	77	25	102	-	-	-	-	223	127	350
13	2018 Ridgecrest Earthquake	-	-	-	-	-	-	22	14	36	-	-	-	-	22	14	36
14	2017 Nor Cal Fires (Tubbs)	(4,515)	3,837	(677)	-	-	-	1,249	893	2,142	-	-	-	-	(3,266)	4,730	1,464
15	2015 Butte Fire	86,577	14,088	100,665	-	-	-	13	0	13	-	-	-	-	86,590	14,088	100,678
16	COVID-19 CEMA	23,713	321	24,034	10,774	177	10,951	12,209	170	12,378	5,429	81	5,510	52,125	749	52,873	
17	California Consumer Memo Acct	14,063	599	14,663	-	-	-	11,351	-	11,351	-	-	-	25,414	599	26,014	
18	COVID-19 Pandemic Protections Memo Acct	5,913	-	5,913	-	-	-	1,934	-	1,934	-	-	-	7,847	-	7,847	
19	Disconnection Memo Acct	366	-	366	-	-	-	300	-	300	-	-	-	666	-	666	
20	Emergency Consumer Memo Acct	3,450	-	3,450	-	-	-	2,822	-	2,822	-	-	-	6,271	-	6,271	
21	Microgrids Memo Acct ^(b)	132,977	4,845	137,821	-	-	-	-	-	-	-	-	-	132,977	4,845	137,821	
22	Vegetation Mgmt. Balancing Acct	590,448	-	590,448	1,270	-	1,270	-	-	-	-	-	-	591,718	-	591,718	
23	WMBA Wildfire Mitigation Balancing Acct	135,900	-	135,900	(226)	-	(226)	13,997	-	13,997	(102)	-	(102)	149,570	-	149,570	
24	TRMMMA ^(a)	2,273	7,786	10,059	766	2,511	3,278	-	-	-	-	-	-	3,039	10,297	13,336	
25	Subtotal - Recorded without Interest	1,338,408	59,304	1,397,712	13,509	2,703	16,213	47,219	1,241	48,460	5,327	81	5,408	1,404,464	63,329	1,467,793	
26	Interest (2015-2022)	10,918	514	11,432	62	14	76	278	(2)	276	25	0	26	11,283	526	11,809	
27	Total RRQ (including Interest)	1,349,326	59,818	1,409,144	13,571	2,718	16,289	47,497	1,239	48,736	5,353	81	5,434	1,415,747	63,856	1,479,602	

(a) TRRRMA is calculated based on Plant and Reserve balances for Capital, and derived from a factor based on Plant for O&M Expense. The 2019 Plant is \$42 million, and the 2019 Reserve is \$20 million. The total revenue requirement for TRRMA is \$13 million.

(b) A total of \$138 million revenue requirement is included in Microgrids Memo Acct for 2020-2026.

TABLE 13-3
EXPENSE REVENUE REQUIREMENT – SUMMARY BY YEAR (2015-2022)
(THOUSANDS OF DOLLARS)

Line No.	Annual RRQ and Interest	Electric Distribution		Electric Generation		Gas Distribution		Gas Transmission		Total Functional Area Expense RRQ
		Expense RRQ	RRQ	Expense RRQ	RRQ	Expense RRQ	RRQ	Expense RRQ	RRQ	
1	2015	36,129	-	-	-	-	-	-	-	36,129
2	2016	50,567	-	-	-	-	-	-	-	50,567
3	2017	(144)	-	-	-	-	-	-	-	(144)
4	2018	-	-	-	-	-	-	-	-	-
5	2019	8,701	281	6,283	15,265	-	-	-	-	15,265
6	2020	1,243,155	13,229	40,936	1,302,647	5,327	-	-	-	1,302,647
7	2021	-	-	-	-	-	-	-	-	-
8	2022	-	-	-	-	-	-	-	-	-
13	Interest (2015-2022)	10,918	62	278	11,283	25	-	-	-	11,283
14	Total	1,349,326	13,571	47,497	1,415,747	5,353	-	-	-	1,415,747

TABLE 13-4
CAPITAL REVENUE REQUIREMENT – SUMMARY BY YEAR (2015-2026)
(THOUSANDS OF DOLLARS)

Line No.	Annual RRQ and Interest	Electric		Gas		Total Functional Area Capital RRQ
		Distribution Capital RRQ	Generation Capital RRQ	Distribution Capital RRQ	Transmission Capital RRQ	
1	2015	(2,693)	-	-	-	(2,693)
2	2016	4,473	-	-	-	4,473
3	2017	2,311	-	-	-	2,311
4	2018	2,312	-	-	-	2,312
5	2019	3,341	428	-	-	3,769
6	2020	(6,656)	738	(1,094)	8	(7,005)
7	2021	28,800	780	1,240	37	30,857
8	2022	24,317	757	1,096	36	26,206
9	2023	815				815
10	2024	788				788
11	2025	761				761
12	2026	735				735
13	Interest (2015-2022)	514	14	(2)	0	526
14	Total	59,818	2,718	1,239	81	63,856

**TABLE 13-5
TOTAL REVENUE REQUIREMENT – SUMMARY BY YEAR (2015-2026)
(THOUSANDS OF DOLLARS)**

Line No.	Annual RRQ and Interest	Electric Distribution RRQ	Electric Generation RRQ	Gas Distribution RRQ	Gas Transmission RRQ	Total Functional Area RRQ
1	2015	33,435	-	-	-	33,435
2	2016	55,039	-	-	-	55,039
3	2017	2,168	-	-	-	2,168
4	2018	2,312	-	-	-	2,312
5	2019	12,042	709	6,283	-	19,034
6	2020	1,236,499	13,967	39,841	5,335	1,295,642
7	2021	28,800	780	1,240	37	30,857
8	2022	24,317	757	1,096	36	26,206
9	2023	815	-	-	-	815
10	2024	788	-	-	-	788
11	2025	761	-	-	-	761
12	2026	735	-	-	-	735
13	Subtotal - Without Interest (2015-2026)	1,397,712	16,213	48,460	5,408	1,464,693
14	Interest (2015-2022)	11,432	76	276	26	11,809
15						
16	Total RRQ	1,409,144	16,289	48,736	5,434	1,479,602

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

July 2021



Table of Contents

I.	Introduction.....	3
II.	Executive summary	4
III.	Procedures performed	6
	Contract Costs.....	7
	Internal Labor.....	15
	Employee Expense	15
	Helicopter Charges.....	20
	Materials.....	21
	Overheads.....	26
IV.	Summary of findings and recommendations.....	28
V.	Appendix A - Statistical sampling methodology	31
VI.	Appendix B - Company documentation received	38

I. 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 Balancing 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, 2020 through December 31, 2020 and the Wildfire Mitigation Balancing Account ("WMBA") from January 1, 2020 through December 31, 2020. These accounts are hereinafter collectively referred to as the "Balancing Accounts."

The purpose of the analysis we performed 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 Balancing 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 (to the extent possible given the limited scope of this work) 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 also considered legislation in California Senate Bill ("SB") 901, 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 requirements from SB 901 and the Company's guidance on costs related to the Balancing 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.

II. Executive summary

Objective

Based on information provided by PG&E relating to the costs included in the Company's cost recovery proceedings for the Balancing Accounts, we prepared findings and observations regarding the inclusion of these costs in the Balancing Accounts based on our testing and analysis. This report summarizes our approach to the analysis and testing of the Balancing Accounts.

PG&E submitted its Test Year 2020 General Rate Case ("GRC") Application to the California Public Utility Commission ("CPUC") on December 13, 2018 to request an increase of approximately \$1.1B, which represented an increase of 12.4% above the 2019 adopted revenue requirement of approximately \$8.5B.¹ We understand PG&E's revenue requirement request was subsequently reduced from \$1.1B to \$575M, which was confirmed in Decision 20-12-005 issued December 3, 2020. The GRC application proposes to modify the VMBA to become a two-way balancing account used to record actual routine and enhanced vegetation management costs.² Beginning on January 1, 2020, the VMBA will also contain tree mortality and fire risk reduction costs previously recorded to the Catastrophic Events Memorandum Account ("CEMA"). Additionally, the newly proposed WMBA will become a two-way balancing account used to track expense and capital revenue requirements related to fire risk-mitigation work not already addressed and recorded in another account. The WMBA costs will include overhead system hardening, enhanced vegetation management and other wildfire mitigations approved in PG&E's annual Wildfire Mitigation Plan ("WMP") filed pursuant to SB 901. Accordingly, the WMBA will be used to track and recover costs previously recorded to the Fire Hazard Prevention Memorandum Account ("FHPMA") beginning on January 1, 2020.³

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 Balancing 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 Balancing Accounts.
- 4) Prepare supporting workpaper documentation for all analyses, observations, and conclusions.

¹ The January 14, 2020 joint motion for the approval of settlement agreement reduces the 2020 revenue requirement requested increase of approximately \$1.1B to \$575M, which was subsequently confirmed in Decision 20-12-005 issued December 3, 2020.

² Our understanding of the modifications to the VMBA are from the April 12, 2021 Advice Letter 4392-G/6100-E. The Advice Letter includes updates and revisions to the types of costs recorded within the VMBA compared to the GRC Application which simply states the VMBA will be modified to discontinue the "incremental inspection and removal cost tracking account," which is a subaccount of the VMBA authorized during the 2007 GRC.

³ This means the FHPMA is no longer necessary, and PG&E proposed the discontinuation of the FHPMA within the GRC Application.

The table below summarizes the total costs within the Balancing Accounts provided to us by PG&E by the following cost categories:

Table 1 – Population of Balancing Accounts by cost category⁴

Cost Category	Amount	Transaction Amount Analyzed	% Tested
Contracts	\$ 1,680,099,110	\$ 334,395,558	20%
Internal Labor	\$ 124,800,595	\$ 12,603,678	10%
Employee Expense	\$ 9,618,717	\$ 4,881,075	51%
Helicopter Charges	\$ 5,056,113	\$ 980,427	19%
Materials	\$ 90,482,647	\$ 1,169,635	1%
AFUDC/Other	\$ 8,045,350	N/A	N/A
Overheads	\$ 191,101,321	\$ 3,718,696	2%
Total	\$ 2,109,203,853	\$ 357,749,069	17%

Approach

Our approach consisted of first segregating the costs within the Balancing Accounts by cost category. We performed analytics across each population and developed specific testing procedures⁵ tailored to each category of cost based on its unique nature and associated risks. We tested approximately \$357M, totaling 17%, of the total costs incurred. In addition to our detailed transaction testing, we held multiple discussions across the organization with the Finance, Regulatory, and Vegetation Management Departments.

Findings and Conclusions

Based on our analysis, we found no material evidence 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 Balancing Accounts; and 2) accurately recorded.

As detailed below, we identified items totaling approximately \$436K (extrapolated to \$890K) that were not properly evidenced for inclusion in the Balancing Accounts largely due to:

- 1) **Unsupported vendor expenses:** 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, material expenses, equipment expenses, and labor rate inconsistencies.

⁴ Values within this table may not sum precisely due to rounding.

⁵ Our tailored testing procedures are further described within the "Procedures Performed" section of this report below.

- 2) **Markups:** We noted limited instances of vendors marking up subcontractor charges which were prohibited in the contract. Furthermore, we noted limited instances where vendors would be directly contracted by PG&E for a specific service and also engaged as a subcontractor (subject to markups by the prime) for a similar service.
- 3) **Unsupported Employee Expenses:** We noted one instance where a transaction was coded to a FRMMA order and included in the WMCE Balancing Accounts. We also noted one instance where sufficient evidence was not provided to support inclusion in WMCE Balancing Accounts.
- 4) **Unsupported 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.

Table 2 – Balancing Account Cost Recovery Application adjusted total costs

Cost Population	Amount
WMCE Balancing Accounts	\$ 2,109,203,853
Compilation Adjustments	\$ (7,230,895)
EY Proposed Exclusions	\$ (889,916)
Adjusted Total	\$ 2,101,083,042

We identified an adjusted total of \$2,101,083,042. The two reductions applied to the WMCE Balancing Accounts are comprised of 1) PG&E compilation adjustments and 2) EY proposed exclusions. Approximately \$7.2M were not properly evidenced for inclusion in the WMCE Balancing Accounts. Per discussions with PG&E, the adjustments comprised of CEMA costs recorded in both the 2018 CEMA Cost Recovery Application data file and the 2020 GRC application draft data (reasonableness review to be filed in the 2021 WMCE) file provided to EY when the project commenced.⁶ However, as part of PG&E’s standard practice, exclusions are identified in the application process to calculate a Results of Operations model, and these amounts were correctly excluded from the 2021 WMCE revenue requirement. We performed a walkthrough of this process to confirm these amounts were removed by PG&E from their 2021 WMCE revenue requirement.

We calculated an adjusted total cost of \$2,101,083,042 related to the Balancing Accounts.

III. Procedures performed

The following section describes the detailed procedures performed for each category of costs mentioned above.

⁶ The \$7.2M is correctly recorded in the CEMA revenue requirement (RRQ) (A.18-03-015) and excluded from the 2021 WMCE RRQ.

Contract Costs

Cost Category	Amount	Percent of Total Population
Contract	\$ 1,680,099,110	79.7%

Approach

We performed detailed transaction testing on \$334.4M of contract costs or approximately 20% of total contract costs from a starting population of approximately \$1.7B. To arrive at a starting population of \$1.7B 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.

We selected approximately \$334.4M for testing and tailored our testing approach based on the characteristic of the transaction as described in the subcategories of vendor costs below.

Table 3 – Contract cost subcategories⁷

Ref	Contract Cost - Subcategories	SAP Amount	Selected for Testing
A	Targeted	\$ 117,901,601	\$ 103,867,258
A.1	External Labor	\$ 47,899,014	\$ 3,354,581
B	Statistical Sample	\$ 1,514,298,496	\$ 227,173,719
Total		\$ 1,680,099,110	\$ 334,395,558

A) Targeted: We identified vendors with cumulative expense totals greater than \$100,000 from the \$1.7B of total contract costs and external labor costs. We analyzed this population of vendors using three different criteria: contract cost category versus external labor cost category, 2) VMBA versus WMBA costs and 3) capital versus expense. We judgmentally selected transactions from each vendor by applying a percentage to each distribution based on the vendor's spend compared to the total spend within each distribution criteria.⁸ For example, we selected approximately 22% of the sampled transactions identified as a capital cost, which corresponds to slightly more than one fifth of total Balancing Account spend during the scope period (i.e. January 1, 2020 through December 31, 2020). We tested approximately \$104M of targeted selections using this methodology. Our testing approach included analyzing invoices, contracts, purchase orders and other potentially relevant contemporaneous information.

⁷ Values within this table may not sum precisely due to rounding.

⁸ We identified a population of approximately \$14M that did not contain a contract Cost Element number within SAP but did contain a vendor number and name, which is indicative of a contract cost. EY analyzed this population and determined the vendors identified were already included in both the targeted and statistical sampling populations.

B) **Statistical Sample:** From the remaining untested contract cost and external labor cost balance of approximately \$1.5B, we selected a statistical sample of transactions to compare financial data to supporting invoices and contracts. 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 \$1.5B 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 Balancing 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.

We performed the following steps in our testing of contract costs

To test contract costs at a transactional level, we generated a unique ID for each transaction within our testing population and created a corresponding case file within the testing platform. Each case file contained relevant fields from SAP associated with the transaction, a testing survey to document observations, and a file storage tab to append supporting documentation provided by PG&E.

The testing surveys were used to document our detailed transactional testing (described more below) and flag transactions meriting further analysis through the use of Reason Codes. The Reason Codes are as follows:

Table 4 – Reason Codes

Code	Exception description
R1	The transaction does not have a corresponding invoice.
R2	Company provided transaction data does not match supporting documentation. Amounts or work description per supporting documentation is inconsistent with transaction data.
R3	The transaction does not have supporting documentation/or is illegible/or has insufficient information.
R4	The transaction occurred outside of the VMBA and WMBA Account period.
R5	The transaction does not appear to be reasonably and prudently incurred. Flagged items may include unusually high unit costs, descriptions unrelated to VMBA and WMBA activities, etc.
R6	The transaction is not consistent with Company policy. Excluded items may include alcohol, tobacco, entertainment, etc.

Our detailed testing steps were as follows:

- 1) Reconciliation of SAP data to supporting documentation (R1, R2, R3, R4):
 - a. We analyzed the underlying documentation to determine whether an invoice from a third party was provided.
 - b. Upon receipt of an invoice, we 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.

- c. If an invoice or the underlying support was lacking sufficient information or was illegible, we noted in the testing platform that additional documents or confirmations were needed to support the transaction amount.
 - d. We analyzed the date or range of dates for services provided within the invoice and documented whether the services took place during the applicable scope periods for the VMBA and WMBA Accounts.
- 2) Reasonableness testing (R5, R6):
- a. We 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. We requested additional documentation and confirmation for outliers noted during our testing and documented our findings within the testing survey.
 - b. We analyzed the information provided in the invoice, contract, and other support to determine whether the services performed appear to be activity related to VMBA and WMBA accounts to substantiate costs were not being potentially recovered elsewhere through other mechanisms or trackers. We relied on Company policies and other guidance from PG&E described below to help identify the nature and timing of the VMBA and WMBA 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 enhanced vegetation management activities. Additionally, the CPUC's Decision in Section 7.2.2.2. notes "PG&E does not provide a rationale for the continued separation of one category of vegetation management costs in the CEMA." 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 Community Wildfire Safety Program ("CWSP"). The CWSP has five core programs: 1) Enhanced Vegetation Management ("EVM"), 2) Wildfire System Hardening, 3) Enhanced Operational Practices, 4) Enhanced Situational Awareness, and 5) Other Support Programs. The EVM activities include trimming tree species in Tier 2 and Tier 3 High Fire Targeted Districts that have been identified as causing 75% of the vegetation ignitions and have the potential to strike an electric distribution line. The Wildfire System Hardening program includes certain activities such as pole replacement, insulated or covered conductor replacement, and line equipment replacement, which is meant to reduce the risk of potential ignitions associated with PG&E's equipment and facilities. Enhanced Operational Practices includes certain 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 CSWP and a project management oversight office used to coordinate with multiple lines of business responsible for implementing the CSWP.

- c. We 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.

For observations requiring further consideration, we grouped the contract cost transactions for further investigation by Reason Codes. We later removed Reason Codes initially tagged to transactions meriting further analysis after we received additional documentation and confirmation demonstrating support for the charges within the transaction. In some instances, transactions can be either partially or fully unsupported and were flagged using all relevant Reason Codes. In these instances, we calculated an excluded amount in dollars for a portion of the corresponding transaction that did not fully meet the testing requirements dictated by the Reason Codes.

We made the following observations in our testing of contract costs

As a result of the procedures described above, we identified immaterial amounts that were lacking sufficient support or did not appear to be reasonably incurred totaling approximately \$799K in contract costs.⁹ We grouped the exclusions by type based on themes we identified within the testing we performed on our targeted and sampled selections. The themes are as follows:

- 1) Equipment – We identified limited instances of incorrect equipment rates charged to the Company.
- 2) Labor – We identified limited instances related to overbillings, calculation errors, or missing support related to labor charges within the vendor invoices.
- 3) Manual entries – We noted one instance within a manual entry transaction that included an accrual charge that was intended to be voided but was included with the transaction amount.
- 4) Markup – We noted limited instances where a markup was incurred for passthrough charges on equipment, materials, travel expense and other items aside from labor. We also noted limited instances of vendors marking up subcontractor charges, which appeared to be prohibited in the contract. In some instances, we noted a subprime markup was incurred for labor where the subprime was also directly engaged by PG&E as a vendor or hired to perform the same or similar services as the original vendor for greater than 50% of the invoiced amount.
- 5) Materials – We identified limited instances where material purchases were lacking sufficient support.
- 6) Per diem – We noted limited instances where the count of per diems incurred exceeded the count of vendor employees providing labor. We also noted limited instances where per diems were incurred when no labor was incurred.
- 7) Travel expenses – We identified limited instances where travel expense was lacking sufficient support or included reimbursement for both mileage and a vehicle allowance.

⁹ Approximately \$345K of identified exclusions extrapolated to a total amount of \$799K.

Table 5 – Contract cost exclusions

Exclusion Type	Statistical	Targeted	Total	Statistical (basis)
Equipment	\$ -	\$ 6,120	\$ 6,120	\$ -
Labor	\$ -	\$ 9,928	\$ 9,928	\$ -
Manual Entry	\$ 79,943	\$ -	\$ 79,943	\$ 79,943
Markup	\$ 370,541	\$ 232,752	\$ 603,294	\$ 5,200
Materials	\$ -	\$ 1,582	\$ 1,582	\$ -
Per diem	\$ 90,858	\$ 1,200	\$ 92,058	\$ 3,993
Travel expense	\$ 2,298	\$ 4,040	\$ 6,338	\$ 309
Total	\$ 543,641	\$ 255,622	\$ 799,263	\$ 89,445

We understand PG&E intends to reflect proposed contract cost exclusions within the Balancing Accounts and remove the proposed exclusions from the 2020 GRC Application.

We performed additional testing on transactions identified as manual journal entries

We identified transactions within our selections that appeared to be manual journal entries and categorized them by reason type based on the journal entry descriptions provided in the supporting documentation.

Table 6 – Manual journal entries identified during contract testing

Ref	Manual JE Category	Count	Amount
A	CEMA	10	\$ 26,821,671
B	Butte County rebuild	2	\$ 1,158,705
C	Electric cost correction - conduits	1	\$ 220,992
D	EST2 Estimating Overhead Pool	3	\$ 418,504
E	FERC clean-up	9	\$ 64,531,061
F	Generic to regional tree work	2	\$ 70,880,645
G	System hardening	6	\$ 20,581,955
Total		33	\$ 184,613,533

Manual journal entries are higher risk in nature and are usually performed to correct, reclass, move or allocate dollars for multiple line items of transactional data. For this reason, EY used a combination of analytical and detailed transaction testing procedures to test each of the 33 transactions within our sampling population associated with manual journal entries. We developed specific testing procedures for each journal entry type based on the nature of the journal entry and associated risk level:

- A) CEMA – We identified transactions totaling approximately \$26.8M within our sampling population related to 2016, 2019 and 2020 vegetation management work that was transferred from CEMA to VMBA. We received Journal Entry Request Forms with supporting line item detail for each manual journal entry. EY judgmentally selected high dollar line items from the schedule of transactions being moved in each manual journal entry and compared those line items against the full population of data provided by PG&E for the CEMA Accounts (2016-2019). EY used the CEMA data provided by PG&E for a prior project related to PG&E’s 2018 CEMA Cost Recovery Application to perform this analysis.¹⁰
- B) Butte County rebuild – We identified transactions totaling approximately \$1.2M within our sampling population related to a reallocation of costs associated with the joint trench effort for the UGML Workstream, Butte County Rebuild Program for active 2020 projects. Per the Journal Entry Request Form description, “The program was set-up for all cost for the joint trench effort to post to the Gas PM order followed by a reallocation of the electric civil cost to the Primary Electric PM order.”¹¹ The supporting documentation suggests the allocation between Major Activity Type (“MAT”) codes is determined by estimates based on the design of the project. PG&E provided the line item detail behind the reallocation entries. EY judgmentally made sub-selections and requested supporting documentation (i.e. invoices, contracts, etc.) to perform transaction testing as described above in our detailed testing steps.
- C) Electric cost correction – conduits – We identified one transaction totaling approximately \$220K within our sampling population related to an allocation of costs for joint electrical and gas trenchwork and installation of communication conduits in the joint trenches for AT&T and Comcast. The Journal Entry Request Form included the rationale, list of associated orders and allocation percentages. We analyzed the supporting documentation and held follow up discussions with PG&E to better understand the nature and methodology around this allocation.
- D) EST2 Estimating Overhead Pool – We identified transactions totaling approximately \$419K within our sampling population related to a correction entry for contract estimating costs charged to the EST2 Estimating Overhead pool instead of being charged directly to MAT 08W orders. The Journal Entry Request Form provides the following justification: “Through YTD August 2020, there were \$10.9M in Contractor Estimating charges to S-Order 2043695. This S-Order is part of the EST2 Estimating Overhead pool and is set up to allocate internal estimating costs only. This resulted in contract costs being applied to actual orders as Internal Estimating costs thereby receiving additional Tier 2-4 overheads (estimated at 2.56x or \$27.9M). The JE is to correct the costs to the orders.”¹² EY corresponded with relevant PG&E process owners and requested additional support, including line item detail and a listing of impacted order numbers, to better understand the costs within the manual journal entry, the calculation and the rationale behind moving overhead costs to the WMBA.
- E) FERC clean-up – We identified transactions totaling approximately \$64.5M within our sampling population related to “FERC Cleanup.” Per discussions with PG&E, FERC cleanup journal entries are net-zero journal entries meant to correct previous entries where charges were erroneously recorded to the incorrect FERC account. PG&E stated the FERC cleanup journal entries were

¹⁰ The population of CEMA data used in this analysis was limited to the scope period of the prior project and included 2016 through 2019 tree mortality and fire risk reduction costs.

¹¹ Journal Entry # 1002675660, dated 12/5/2020; Journal Entry # 1002672583, dated 12/21/2020.

¹² Journal Entry # 1002637097, dated 9/1/2020.

recorded to comply with FERC reporting requirements. PG&E provided a mapping file to tie vendor cost selections related to FERC cleanup entries to the net-zero entry list.

- F) Generic to regional tree work – We identified transactions totaling approximately \$70.9M within our sampling population related to vegetation costs being moved from a generic accrual order number into regional level orders where the work was actually performed. PG&E provided line item detail behind the transaction amount. From that population, EY judgmentally made sub-selections and requested supporting documentation (i.e. invoices, contracts, etc.) to perform transaction testing as described above in our detailed testing steps.
- G) System hardening – We identified transactions totaling approximately \$20.6M within our sampling population related to restoration orders that were originally charged to CEMA due to the emergency nature of the work but were later moved to WMBA as System Hardening Costs. PG&E confirmed these restoration orders were identified as having comingled costs, part restoration and part system hardening rebuild, with only the portion of the costs associated with system hardening moved to WMBA. According to the Journal Entry Request Form provided, "After the Aug/Sep fires of 2020, the decision was made that any line items that had been identified as ones that would be hardened in the future, be rebuilt to the System Hardening standard now."¹³ PG&E provided a system export of costs transferred in each journal entry. EY judgmentally made sub-selections included in the system export and requested supporting documentation (i.e. invoices, contracts, etc.) to perform transaction testing as described above in our detailed testing steps.

We made the following observations in our analysis of manual journal entries identified during contract cost testing

In aggregate, manual journal entry transactions appeared to be properly recorded within the Balancing Accounts and supported by invoices for services rendered. In limited instances, we identified immaterial amounts recommended for exclusion from the invoice (i.e. sub-selection) we tested related to a manual journal entry. For more information related to our recommended exclusions related to contract costs, please refer to our observations in our testing of contract costs above. As previously stated, our analysis of approximately \$184.6M of contract costs within our sampling population related to manual journal entries was performed due to the inherent risks related to a manual entry. Based on our procedures described above, we identified immaterial exclusions from the total population of contract cost related to manual journal entries.

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, a utility treats capital expenditure differently as it relates to the utility's revenue requirement or the amount of recovery a utility is allowed to collect from its ratepayers. Operating expenses are typically recovered at cost whereas capital expenditures are typically recovered using a cost plus basis, meaning these types of costs are multiplied by an allowed rate of return. For this reason, additional procedures were performed to analyze the classification of a cost as a capital

¹³ Journal Entry # 1002669645, dated 12/17/2020; Journal Entry # 1002668632, dated 12/21/2020; Journal Entry # 1002675101, dated 12/29/2020

expenditure as opposed to an operating expense. In the scope of contract costs testing, we tailored our testing procedures to address these issues and applied additional scrutiny to capital expenditures.

We received a listing of expense types by Major Work Category, which is a field within SAP. We compared the listing we received to the vendor cost transactions within SAP to identify which costs were classified as a capital expenditure by the Company. We also identified the total cost by expense type within the vendor cost transactions we tested, which is summarized in the table below.

Table 7 – Contract costs classified as capital expenditures selected for testing¹⁴

Expense Type	Amount	Selected for Testing
Capital	\$ 356,965,377	\$ 104,608,314
Operations and Maintenance	\$ 1,323,133,734	\$ 229,787,244
Total Contract Costs	\$ 1,680,099,110	\$ 334,395,558

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. Additionally, we referenced the Retirement Unit Catalog (“RUC”) to determine whether the transactions tagged as a capital expense contained assets that appeared to be recorded in the RUC. 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 consideration, we tagged the contract cost transactions for further investigation within the testing platform. 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 exception.

We performed additional testing of contract costs classified as accruals

We identified a population of approximately \$32.9M of accruals within our contract selections and performed additional testing procedures on the transactions we tested. We noted this population of accruals was comprised of vendor invoices received in 2020 for services performed in 2019. This means services performed in 2019 potentially could be accrued for within another mechanism or application with a scope period ending on December 31, 2019. For this reason, we performed additional procedures to analyze whether these accruals were recovered outside of the 2020 GRC Application.

¹⁴ Values within this table may not sum precisely due to rounding.

We performed the following steps in our testing of accruals

For contract selections identified as being invoiced in 2020 for services performed in 2019, we obtained an SAP Order Report demonstrating the transaction we sampled was either 1) not accrued in 2019 or 2) accrued in 2019 and reversed in 2020 in aggregate at the Order level. We also performed our normal testing procedures on the invoice selected. Our additional accrual procedures were performed by comparing the 2019 Order balance to the 2020 Order balance to determine whether the net Order movement reflected these two criteria. We performed the additional testing procedures outlined below:

- 1) Prior-year testing:
 - a. We performed a prior-year test on the corresponding accrual amount related to the invoiced amount we selected for testing. We determined the contract selection we tested was not recorded in 2019 or netted to zero with no exceptions.
- 2) Order balance testing:
 - a. We summed the 2019 and 2020 accrual balances at the Order level related to each contract selection we tested. We analyzed the net balance and observed 1) a net zero balance where costs were accrued in 2019 and reversed in 2020, 2) no costs were accrued in 2019 and/or 2020, or 3) a 2020 roll forward balance. PG&E explained these transactions are indicative of accrued costs for 2019 services being recorded as a true-up within the 2020 GRC Application and not double recovered through a different wildfire mechanism.
- 3) Line item comparison testing:
 - a. EY used a waterfall methodology to compare the SAP fields for the contract selections to all line items within SAP related to two applications for recovery outside of the 2020 GRC Application. Based on the results of our analysis, this population of contract selections did not contain overlapping Cost Element, Order, and CO Document Number (as available) fields.

We made the following observations in our testing of accruals

In aggregate, accrual transactions appeared to be properly recorded within the Balancing Accounts and supported by invoices for services rendered. As previously stated, our analysis of approximately \$32.9M of identified accruals netted to zero, were not previously accrued, or contained a 2020 roll forward balance, which is indicative of an accurate true-up process meaning this accrual population was not sought for recovery through a different wildfire mechanism. Based on our procedures described above, we did not identify any exclusions from the total population of contract cost related to accruals.

Internal Labor

Cost Category	Amount	Percent of Total Population
Internal Labor	\$ 124,800,595	5.9%

Approach

We performed an analysis of all internal labor charges. From this analysis we selected and tested transactions totaling approximately \$12.6M from a starting population of approximately \$125M. To arrive at a starting population of \$125M 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.

The internal labor population was made up of \$83M in employee time charges, and \$42M of labor allocations and adjustments.

We performed the following analytics on employee time charge data:

- We analyzed total internal labor and average rate per hour (RPH) by month in 2020. The average monthly internal labor cost was \$6.2M and the average RPH was \$78.42. We did not identify any months for which the total internal labor cost and average RPH were significantly greater than expected.
- We analyzed total internal labor and RPH by employee for each month in 2020. Each individual employee represented less than 0.5% of the total internal labor charges. Accordingly, we did not identify any patterns or unusual trends requiring further detailed testing.
- We analyzed total internal labor by cost element. There were five cost elements that individually represented greater than 5% of the total internal labor costs: construction, management services, construction double time services, vegetation management - misc., and account services. For each of these cost elements, we analyzed the average RPH by month in 2020 and did not identify and patterns or unusual trends requiring further detailed testing.
- We analyzed the quantity in hours for each record within the internal labor data. We identified 111 records totaling \$0.233M for which the quantity in hours was greater than 16. See our observations below for more information.
- We analyzed the total internal labor charges by order. There were 2,742 total orders with an average order cost of \$0.027M. We matched each internal labor charge to the total order value to identify orders that did not contain charges other than internal labor. We identified 17 orders that total \$0.340M, for which the internal labor cost was greater than or equal to the total value of the order.

We identified the following categories for additional testing totaling \$12.6M:

- A) Internal labor charges with no associated employee: We identified a population of \$5.3M for which the employee name and number were blank within SAP. About half of these records also had a quantity greater than 24 hours. The cost element description for the majority of these records is call center operations or management services. We inquired as to the nature of these charges and requested further supporting information.
- B) Employee workdays with 16 or more labor hours charged by an employee on a single day: We identified a population of \$0.233M where an employee charged more than 16 labor hours on a

single day. We performed a targeted selection of these transactions and requested timesheets and work descriptions for the work performed.

- C) Employees with line of business referencing "Generation": We identified a population of \$0.126M with an employee line of business referencing "Generation." This line of business is not normally associated with activities relating to wildfire risk or prevention; therefore, we selected these transactions to perform additional testing and inquired as to the nature of the work performed by these employees.
- D) Non-Standard Cost Elements: We identified three records with non-standard cost elements of special request building service and Contact Center Operations, totaling \$0.306M. We selected all charges for further testing and requested additional documentation to help support these costs.
- E) Journal Entries and Allocations: We identified a population of \$42M for which internal labor charges had no associated employee name, number, or hours charged. We made targeted selections of each of these charge types totaling \$6.6M.

We performed the following steps in our testing of internal labor

We requested supporting documentation for our targeted selection and performed the following additional procedures:

- A) Internal labor charges with no associated employee: We performed a walkthrough with PG&E and analyzed the cost element descriptions associated with these charges. Through discussion with PG&E, we identified that during PSPS events there is increased volume in 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 in minutes and charged at \$1.69 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 also recalculated dollars per minute to get to a result of \$1.69 as defined by PG&E.
- B) Workdays with 16 or More Labor Hours: We performed a walkthrough with PG&E of the process for employees to charge time. Per discussion with PG&E's director of labor relations, once crews are assigned a job, they cannot replace the crew assigned with another crew or contractor. In order to complete the job, extended hours are sometimes required in one off scenario such as PSPS events. PG&E also explained that all employee time charges are reviewed and approved by a supervisor. For each of our selections, we followed SAP detail through to supporting timesheets, work descriptions and approvals provided by PG&E. We looked at patterns in time charges for the period provided and did not identify consistently high hours charged.
- C) Internal Labor Related to Wildfires by Generation Employees: PG&E provided a data file mapping Employee Key to Job Position. We utilized this data file to reconcile the Employee Keys on the SAP internal labor population data to Job Titles. We performed analytics on the long-form Job Titles provided by PG&E and/or their associated cost element to refine and quantify the labor costs related to non-electrical employees (Generation) in the SAP population. EY identified 48 employees

totaling \$0.126M with job titles related to Generation for the majority of 2020 within the internal labor costs.

PG&E provided a list of Generation employees that worked on WMCE efforts. For a sample of employees marked as generation, PG&E provided email testimony from the selected employee stating they assisted the line department with PSPS patrols and charged their time to PSPS Distribution Field order numbers.

- D) Non-Standard Cost Elements: We performed walkthrough of all records identified with non-standard cost elements. The amounts analyzed related to vendor invoices for janitorial services in September of 2020 and additional call center charges. The invoices for the janitorial services were provided and the costs sufficiently supported. Please see above for our analysis of the call center charged.
- E) Journal Entries and Allocations: We performed a walkthrough of all records identified with order numbers indicating "Actvty Chrg - TypeA" and "PCC Allocate Lbr."

The records referencing "Actvty Chrg - TypeA" represent the movement of 2020 direct labor charges from CEMA to WMCE Balancing Accounts. The treatment of these labor charges was a result of the decision from the CPUC. It was determined that any electric lines that had been identified as lines to be hardened in the future to meet the system hardening standard would be reallocated from the incremental CEMA account. For each selection we were provided the journal entry form, which summarized the total dollars in each CEMA order and the amount reallocated to the WMCE Balancing Accounts.

The records referencing "PCC Allocate Lbr" represent allocations of Type B labor, including productive time and non-productive time for administrative services. We performed a walkthrough with PG&E to understand the allocation methodology. It was determined that allocation percentages are defined at the beginning of each year by the Cost Model Governance group and adjusted as necessary throughout the year. For each selection, we received the journal entry detail, and allocation percentage.

We made the following observations in our testing of internal labor

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.

Employee Expense

Cost Category	Amount	Percent of Total Population
Employee Expense	\$ 9,618,717	0.5%

Approach

We performed an analysis of all employee expense charges. From this analysis we selected and tested transactions totaling approximately \$4.9M from a starting population of approximately \$9.6M. To arrive at a starting population of \$9.6M 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 analyzed employee expenses by cost element description, order description, dollar amount and date to identify large or unusual items.
- We performed key word searches across cost element name and order description fields for non-electric and other expense types we would not expect to be included in the Balancing Accounts.

We identified the following categories for additional testing totaling \$4.9M:

- A) Non-WMCE account reference: We identified one transaction totaling \$0.007M related to a Permit/Fee with reference to FRMMA. We selected this transaction for further follow-up and testing.
- B) Other Expenses: We identified categories of expenses including "Other Expenses" and "Other Employee Related Expenses" which did not have sufficient detail within SAP to analyze the nature of the transaction. We made selections from each category totaling \$2.2M and requested additional supporting documentation to determine the nature of the transaction.
- C) Orders descriptions dated 2019: We identified 33 orders totaling \$2.6M with reference to 2019. These orders primarily referenced PSPS events. We selected these orders to perform additional testing and inquired as to whether the materials benefitted projects outside the scope of the Balancing Accounts being analyzed.

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:

- A) Non-WMCE account reference & Other Expenses:
 - i) Compared supporting documentation to SAP fields to determine whether the descriptions, amounts, and dates tied.
 - ii) Considered the transaction dates within the supporting documentation to determine whether expenses were made within the applicable scoping periods for the Balancing Accounts.
 - iii) Considered whether purchases were made within the applicable service territory.
 - iv) 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.
 - v) Analyzed the expense description and considered whether the item appeared related to efforts pertaining to the Balancing Accounts.

- B) Orders descriptions dated 2019: Through discussion with PG&E we understand that some orders are opened in 2019 and tagged as such in the order description. In some instances, there was a delay in submission/approval of expenses. Therefore, although the order is tagged as 2019, the order was processed in 2020 and was not recovered in both periods.

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 \$20,070.

The following types of employee expenses did not appear to be related to WMCE activities:

- 1) **Non-WMCE Account Reference**: We identified one transaction totaling \$6,740 related to a Sonora County permit for FRMMA activities. The scope of this analysis includes WMCE Balancing Accounts only and therefore this transaction falls outside the scope of these accounts.
- 2) **Other Employee Expenses**: We identified one transaction totaling \$13,330 where we were not provided sufficient detail to support the charges. These charges were related to employee expenses incurred during bankruptcy and were incurred and paid outside of the normal expense submission, approval and reimbursement process. We identified one transaction totaling \$1,913,541 that consisted of several charges related to housing for customers affected by PSPS events that need continuous power for medical care, the purchase of power stations, and the purchases of other items related to PSPS events. We received transactional support for the majority of these costs.

Table 8 – Employee expense cost exclusions

Exclusion Type	Total Amount Excluded
Non-WMCE Account Reference	\$ 6,740
Other Employee Expenses	\$ 13,330
Total	\$ 20,070

Helicopter Charges

Cost Category	Amount	Percent of Total Population
Helicopter Charges	\$ 5,056,113	0.2%

Approach

We performed an analysis over all Helicopter Charges. From this analysis we selected and tested transactions totaling approximately \$0.980M from a starting population of approximately \$5M. To arrive at a starting population of \$5M for Helicopter 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.

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 with aviation specialists and an analysis of the data 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 a selection of transactions for further analysis based on key word searches, transaction date, and dollar amount.

We performed the following steps in our testing of helicopter charges

Helicopter charges selected were determined to be related to pilot services. These costs include the time and materials costs included in operating the helicopter and keeping a pilot on standby in emergency situations. To test these transactions, we performed the following;

- 1) Reconciliation of SAP data to supporting documentation: Multiple invoices made up one transaction line item. We obtained and analyzed the underlying transactional data that rolled up to the total SAP transaction amount. We then selected a sample of invoices to determine whether the transaction was sufficiently supported. We analyzed the transaction date and location stated on the invoice to determine whether the helicopter was used during the applicable scope period. We identified through the invoices provided for the sub selection of helicopter charges for PSPS services, the invoices utilize daily rates that are consistent across invoices with the same CWA and similar daily rates are used between different vendors.

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 that did not appear to be within the WMCE scope of activities.

Materials

Cost Category	Amount	Percent of Total Population
Materials	\$ 90,482,647	4.3%

Approach

We performed an analysis of all material charges. From this analysis we selected and tested transactions totaling approximately \$1.2M from a starting population of approximately \$90.5M. To arrive at a starting population of \$90.5M 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 performed walkthroughs of the process to distribute and account for materials. We then performed analytics on \$60.6M of material costs by analyzing cost element descriptions, order descriptions, material type, and high dollar transactions. We analyzed the remaining \$29.9M for similarities to the other material charges for which we performed the analytics.

We performed the following analytics on materials data

- 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 analyzed transactions coded as "P-Card Expense Rpt" which represent materials purchased by an employee on a Purchasing Card. We analyzed these transactions by looking at order description, amount, and date.
- We performed key word searches across cost element name and material description fields for non-electric type materials, personal items, and other material types we would not expect to see included in the Balancing Accounts.
- We performed a unit price analysis based on material descriptions and cost element for material types with high standard deviations compared to their respective averages (coefficient of variation) for further testing.
- We performed a key word search over order number to identify any orders that reference work completed outside the scope of the Balancing Accounts.

We identified the following categories for additional testing totaling \$1.2M:

- A) Large or unusual material items: We identified items totaling \$0.429M with a high unit cost, or not commonly found within materials listing or in greater unit costs than commonly found in materials listings. We selected a transaction from each material category to perform additional testing and inquired as to the nature of the transaction's relevance to the Balancing Accounts.
- B) P-Card Expenses: We identified items totaling \$0.355M coded as "P-Card Expense Rpt" which did not have sufficient detail within SAP to analyze the nature of the transaction. We selected a transaction from each order description "Harden CRC," "Customer Outreach," and "VM Admin" for additional testing and inquired as to the nature of these transactions.
- C) Non-Electric/Uncommon material types: We identified \$0.266M of materials items which did not appear to be aligned with the types of charges included in the Balancing Accounts. These items included Gas and water supplies, office supplies, office equipment, food and personal

items. We made a targeted selection from each of these categories to perform additional testing.

- D) High Unit Cost Variance: We identified \$0.059M of material types with large variances in unit cost. We selected these transactions to perform additional testing.
- E) Orders descriptions dated 2019: We identified 24 orders totaling \$0.061M with reference to 2019. These orders primarily referenced PSPS events. We selected these orders to perform additional testing and inquired as to whether the materials benefitted projects outside the scope of the Balancing Accounts being analyzed.

We performed the following steps in our testing of Materials

We requested supporting documentation for our selections and performed the following additional procedures:

- A) Large or unusual material items: We performed a walkthrough of the process to distribute and account for materials. PG&E provided materials slips including date purchased, location from and to, as well as support evidencing how quantity was entered into SAP. These selections represented purchases of large materials such as transformers and interrupters. For the selected items, we compared the material descriptions to the PG&E unit price guide and open searches. The materials purchased appear to be in line with standard pricing and reasonably incurred.
- B) P-Card Expenses: We performed a walkthrough of the process for employees purchasing materials on a P-Card. We understand that in some instances, once on a job site, an employee is authorized to purchase materials rather than returning to the warehouse. For the selected items, PG&E obtained employee expense reports/receipts evidencing what was purchased, and a description of how these items were used in efforts specific to the Balancing Accounts.
- C) Non-Electric/Uncommon material types: For the selected items, PG&E provided supporting documentation evidencing what was purchased, unit price, and a description of how these items were used in efforts specific to the Balancing Accounts.
- D) High Unit Cost Variance: Through discussion with supply chain it was determined that the "long text" material description associated with the material key distinguishes variations among material type groupings. PG&E provided the long text description for each material item selected. Through the comparison of similar materials and open searches, materials appeared to be in line with standard pricing and reasonably incurred.
- E) Orders descriptions dated 2019: Through discussion with PG&E we understand that some orders are opened in 2019 and tagged as such in the order description. Through discussions with PG&E, the transactions dated 2019 fell into two categories: accruals and p-card expenses. For materials selections tagged to 2019 orders, we obtained an SAP Order Report demonstrating the transaction we sampled was either 1) not accrued in 2019 or 2) accrued in

2019 and reversed in 2020 in aggregate at the Order level. (See above Accrual section for details)

For employee expenses, in some instances, there was a delay in submission/approval of expenses. Therefore, although the order is tagged as 2019, the order was processed in 2020 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 \$70,583.

The following types of materials did not appear to be related to WMCE activities:

- 1) P-Card Expenses: We identified two transactions totaling \$46,450 including charges for items such as gift cards, restaurants, amazon orders, and other miscellaneous transactions which did not appear to reasonable for inclusion within the scope of the WMCE Balancing Accounts.
- 2) Non-Electric/Uncommon material types: We identified four transactions totaling \$24,133 where we were not provided sufficient detail to support the charges, or charges did not appear to be properly evidenced for inclusion within the scope of the WMCE Balancing Accounts. Charges included small miscellaneous materials items.

Table 9 – Material cost exclusions

Exclusion Type	Total Amount Excluded
P-Card Expenses	\$ 46,450
Non-Electric/Uncommon material types	\$ 24,133
Total	\$ 70,583

AFUDC/Other

Cost Category	Amount	Percent of Total Population
AFUDC/Other	\$ 8,045,350	0.4%

Approach

We performed an analysis of all other charges. To arrive at a starting population of \$8M 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 \$8M of costs by analyzing cost element descriptions, order descriptions, and balances by

Cost Element. More than half of this balance or approximately \$4.6M is related to Allowance for Funds Used During Construction (AFUDC).

We analyzed the AFUDC charges against capital orders and determined that the costs incurred appear to be properly evidenced. 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. We identified 3 groupings of cost elements which carried high positive or negative balances. Through discussions with PG&E we identified three categories of costs for which we inquired about further.

- A) A&G Adjustments: We identified large credit balances within the cost element groupings "A&G Adjustments." Through discussion with PG&E we understand these to be regulatory category adjustments (FERC adjustments) which should have no financial impact to the WMCE orders.
- B) Corporate Adjustments: We identified large credit balances within the cost element groupings "Corp Adj - XXX." Through discussion with PG&E we understand these costs to be related to post-close adjustments (accruals).
- C) Other Cost Adjustments: We identified large debit balances within the cost element groupings "Cost Adjust Excl OH," "Cost Adjustments" and "CustColl Exp Ele Adj." Through discussion with PG&E we understand these costs to be vegetation management accruals.

We performed the following steps in our testing of other costs

- A) A&G Adjustments: For cost groupings identified as regulatory category adjustments (FERC adjustments) we received a sample of postings to the regulatory accounts. We identified that the negative balance was due to timing. In some instances, the accrual was booked in the prior year, and the reversal was booked in 2020. Since our scope includes only those transactions with a posting date of 2020, the offset amount did not appear within our population. Based on the sample provided, it appears that the adjustments do not have financial impact on the WMCE account balances.
- B) Corporate Adjustments: For cost element groupings identified as "Corp Adj - XXX" we received a sample transaction to follow through. We understand that at the end of 2019, there was a large post-close accrual for vegetation management. The accrual was reversed in the beginning of 2020. Since our scope includes only those transactions with a posting date of 2020, the offset amount did not appear within our population.
- C) Other Cost Adjustments: For the cost element groupings "Cost Adjust Excl OH," "Cost Adjustments" and "CustColl Exp Ele Adj" we received detail supporting the journal entries within these balances. We understand that at the end of 2020 there was a large accrual related to vegetation management which accounts for the majority of the balance. These cost elements were used to consolidate the journal entry into a single cost element rather than create a large JE with numerous accounts when the financial impact of the correction can be achieved with a single account.

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.

Overheads

Cost Category	Amount	Percent of Total Population
Overheads	\$ 191,101,321	9.1%

Approach

To arrive at a starting population of \$191.1M 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 \$191.1M 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 \$3.7M of Overhead costs or approximately 2% of total overhead charges from a starting population of approximately \$191.1M.

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 4 cost elements totaling \$0.141M 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 LOB may be generation, have the job title of Electrician and would have assisted with efforts specific to the relevant balancing accounts. 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 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.

- 1) Reconciliation of SAP data to supporting documentation:
 - a. 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 2020
 - b. 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

- c. Compared the overhead rate applied to the basis amount in the recalculation to the rate provided in the rate file for each year
- d. Recalculated the basis amount within the underlying SAP data using order number, cost element, and applicable time period
- e. Recalculated the overhead amounts based on recalculated base amounts (from step d above) 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 WMCE scope of activities.

Compilation Error Analysis

Approach

We identified transactions within our testing selections that appeared to be a compilation error. Identical charges were identified within the 2020 WMCE Balancing Accounts and data previously collected for the 2018 CEMA Cost Recovery Application. All relevant SAP fields (i.e. order and document number, vendor name, amount, posting date, etc.) were the same for the line items identified. PG&E confirmed these transactions were double counted within the data extract provided to EY but were properly recorded one time within SAP. PG&E noted the draft data extract was compiled manually, which may have caused the compilation error. EY obtained a draft data extract of WMCE Balancing Account data prior to PG&E's final reconciliation of these costs. As a result, the data originally provided to EY was not finalized and subject to change.

We performed the following analytics for the Compilation Error Analysis

EY performed data analytics to compare the Balancing Account costs within the scope of this analysis to costs included withing prior PG&E applications described above. We used the following SAP data fields to identify duplicate line items amongst the different data sets: Amount, Cost Element, Order, and CO Document Number. Additionally, EY performed a second analysis using only the Amount and Order data fields, which identified credit adjustment matches netting to an immaterial amount. Certain populations of CEMA data contained fewer fields in SAP compared to all other populations, which resulted in the two-field matching analysis for complete coverage across all populations.

We made the following observations in our Compilation Error Analysis

We identified approximately \$7.2M of compilation errors within the WMCE Balancing Accounts and the CEMA Accounts. PG&E confirmed the transactions evidenced double recovery within its two applications and confirmed the Company planned to remove these entries from the 2020 WMCE GRC Application. The compilation adjustment identified is included within our cost exclusion calculation described in the executive summary and captured in the table below:

Table 10 – Compilation errors identified

Account Name	Multi-Field Match (SAP)	Credit Adjustment Match
WMCE 2 (WMBA, VMBA)	\$ 7,230,037	\$ 857
WMCE 1 (FHPMA, FRMMA)	\$ -	\$ -
CEMA (2016 - 2019 tree mortality)	\$ 7,230,037	\$ 857

As a result of the compilation errors referenced above, EY performed additional analytics across the full population of all projects performed for PG&E related to wildfire programs. EY has been engaged to analyze the Wildfire Mitigation Plan Memorandum Account (WMPMA), Fire Risk Mitigation Memorandum Account (FRMMA), Fire Hazard Prevention Memorandum Account (FHPMA), Catastrophic Events Memorandum Account (CEMA), and the 2020 WMCE Balancing Accounts included within the scope of this report. In total, we have analyzed approximately \$4.4B of wildfire program costs. Over the course of these engagements, we have collected and retained transaction level detail for each account listed above. We searched the entire population of data and did not find additional evidence that any transaction was recorded in more than one account. Our analysis was based on the Cost Element, Order and CO Document Numbers.

IV. Summary of findings and recommendations

Conclusions

Based on our analysis, we found no material evidence 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 Balancing Accounts; and 2) accurately recorded.

As a result of the procedures described above, we identified items totaling approximately \$436K¹⁵ (extrapolated to \$890K) that were not properly evidenced for inclusion in the Balancing Accounts.

¹⁵ Items not properly evidenced for inclusion in the Balancing Accounts total \$435,720 (\$346,275 + \$89,445).

Table 11 – Observations for potential exclusion

Cost Cat.	Exclusion Type	Statistical	Targeted	Total	Statistical (basis)
Contract	Equipment	\$ -	\$ 6,120	\$ 6,120	\$ -
Contract	Labor	\$ -	\$ 9,928	\$ 9,928	\$ -
Contract	Manual Entry	\$ 79,943	\$ -	\$ 79,943	\$ 79,943
Contract	Markup	\$ 370,541	\$ 232,752	\$ 603,294	\$ 5,200
Contract	Materials	\$ -	\$ 1,582	\$ 1,582	\$ -
Contract	Per diem	\$ 90,858	\$ 1,200	\$ 92,058	\$ 3,993
Contract	Travel expense	\$ 2,298	\$ 4,040	\$ 6,338	\$ 309
Employee Expenses	Non-WMCE Account Reference	\$ -	\$ 6,740	\$ 6,740	\$ -
Employee Expenses	Other Employee Expenses	\$ -	\$ 13,330	\$ 13,330	\$ -
Materials	P-Card Expenses	\$ -	\$ 46,450	\$ 46,450	\$ -
Materials	Non-Electric/ Uncommon materials	\$ -	\$ 24,133	\$ 24,133	\$ -
Total		\$ 543,641	\$ 346,275	\$ 889,916	\$ 89,445

- 1) **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, labor expense inconsistencies, and unsubstantiated other miscellaneous expenses. We noted limited instances of vendors marking up subcontractor charges which were prohibited in the contract. We noted limited instances where vendors would be directly contracted by PG&E for a specific service and also engaged as a subcontractor (subject to markups by the prime) for a similar service.
- 2) **Employee Expenses:** We noted one instance where a transaction was coded to a FRMMA order and included in the WMCE Balancing Accounts. We also noted one instance where sufficient evidence was not provided to support inclusion in WMCE Balancing Accounts.
- 3) **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.

In addition to the \$890K of items that were not properly evidenced for inclusion in the Balancing Accounts, an additional \$7.2M of compilation adjustments were identified related to amounts included

in past applications. We identified costs totaling approximately \$7.2M that were recorded within the 2018 CEMA Cost Recovery Application data and the 2020 GRC Application data. These transactions were recorded in both sets of application data within the Company's draft data file provided to EY when the project commenced.

Table 12 - WMCE filing total adjusted costs

Cost Population	Amount
WMCE Balancing Accounts	\$ 2,109,203,853
Proposed adjustments	\$ (8,120,810)
Total	\$ 2,101,083,042

We understand PG&E intends to reflect proposed exclusions within the WMCE Accounts and remove the proposed exclusions from the 2020 GRC Application.

V. Appendix A – Statistical sampling methodology

**Pacific Gas and Electric Company
2020
Wildfire Mitigation and Catastrophic Events
Sampling and estimation report**

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Contents

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) 2020 wildfire mitigation and catastrophic events (WMCE) study was to estimate the total error amount for the transactions incurred during 2020 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 207 transactions was selected from a sampling population of 223,741 transactions in PG&E WMCE. Based on the results of the sample, it was estimated that the total error amount was \$463,698 with margins of error of \$636,486 and \$765,361 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	\$ 463,698	\$ 636,486	\$ 765,361

Section II: Population

Population

The original population contained 238,150 transactions totaling \$1,558,856,520 in transaction costs (cost). After removing transactions with zero cost and debit/credit matches based on the fields Order, DT EY and the absolute value of the cost when the document types of the records were either RR or SR, the final population consisted of 230,411 transactions totaling \$1,558,856,520 in cost. The final population also contained -\$603,364,388 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 223,741 transactions totaling \$2,162,220,908 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	\$ 1,558,856,520	238,150	\$ 3,645,663,085	227,625	\$ (2,086,806,565)	10,525
- Zero Amount	\$ -	29	\$ -	29	\$ -	-
- Debit/Credit Matches	\$ -	7,710	\$ 1,483,442,177	3,855	\$ (1,483,442,177)	3,855
Final Population	\$ 1,558,856,520	230,411	\$ 2,162,220,908	223,741	\$ (603,364,388)	6,670
Sampling Population	\$ 2,162,220,908	223,741	\$ 2,162,220,908	223,741	\$ -	-

Sampling unit

The sampling unit was an individual transaction.

Sampling frame

The sampling frame consisted of 223,741 transactions totaling \$2,162,220,908 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 \$3,300,000). Transactions in this stratum were sampled at a rate of 100 percent in an effort to improve the stability of the estimate.

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 \$2,999.99	160,844	\$ 155,919,521	31	\$ 29,486
2	\$3,000 to \$19,699.99	48,534	\$ 343,053,690	31	\$ 201,596
3	\$19,700 to \$77,999.99	9,778	\$ 366,544,702	31	\$ 1,123,819
4	\$78,000 to \$214,999.99	3,064	\$ 382,231,262	31	\$ 3,844,074
5	\$215,000 to \$516,999.99	1,180	\$ 384,816,068	31	\$ 10,103,363
6	\$517,000 to \$3,299,999.99	320	\$ 351,605,373	31	\$ 33,821,087
7	\$3,300,000 and above	21	\$ 178,050,294	21	\$ 178,050,294
Total		223,741	\$ 2,162,220,908	207	\$ 227,173,719

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 1558856520; it represented the total cost in the full population prior to removing any out-of-scope transactions.

Serialization of frame

Prior to generating random numbers in SAS, the population was sorted by the field EY PK. 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 31 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 \$2,999.99	160,844	\$ 155,919,521	31	\$ 29,486	\$ -
2	\$3,000 to \$19,699.99	48,534	\$ 343,053,690	31	\$ 201,596	\$ -
3	\$19,700 to \$77,999.99	9,778	\$ 366,544,702	31	\$ 1,123,819	\$ -
4	\$78,000 to \$214,999.99	3,064	\$ 382,231,262	31	\$ 3,844,074	\$ 5,200
5	\$215,000 to \$516,999.99	1,180	\$ 384,816,068	31	\$ 10,103,363	\$ 3,057
6	\$517,000 to \$3,299,999.99	320	\$ 351,605,373	31	\$ 33,821,087	\$ 1,245
7	\$3,300,000 and above	21	\$ 178,050,294	21	\$ 178,050,294	\$ -
Total		223,741	\$ 2,162,220,908	207	\$ 227,173,719	\$ 9,502

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) estimator¹⁶ 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

$$\hat{S}(\hat{Y}_{mpu}) = \sqrt{\sum N_h(N_h - n_h)S_{y_h}^2/n_h},$$

where

$S_{y_h}^2 = \sum \frac{(y_{hi} - \bar{y}_h)^2}{n_h - 1}$ is the sample variance of error amount in stratum h .

¹⁶ 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.

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	\$ 463,698	\$ 375,730	\$ 636,486	\$(172,788)	\$ 1,100,184	\$ 765,361	\$(301,664)	\$ 1,229,059

Credit adjustments

The estimated total error amount was adjusted to account for the -\$603,364,388 remaining credits. The overall estimated total error amount, determined from the sample (positive amounts only), was adjusted by applying the estimated error percentage of 0.03 percent to the unmatched credits (-\$603,364,388). Therefore, the adjusted estimated total error amount was calculated as follows:

$$\$643,175 + (0.03\% * (-\$603,364,388)) = \$463,698.$$

VI. 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.

<u>Document Title</u>	<u>Description</u>
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

PACIFIC GAS AND ELECTRIC COMPANY
APPENDIX B
STATEMENTS OF QUALIFICATIONS

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF AARON R. CORTES**

3 Q 1 Please state your name and business address.

4 A 1 My name is Aaron R. Cortes, and my business address is Pacific Gas and
5 Electric Company, 12840 Bill Clark Way, Auburn, California, 95602.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 As a Director, I provide oversight to the Hydroelectric Operations and
9 Maintenance team for the Southern region.

10 Q 3 Please summarize your educational and professional background.

11 A 3 I have a High School diploma and am enrolling in classes to support
12 a Bachelor's degree in Nuclear Engineering Technology with a focus on
13 Nuclear Leadership at Excelsior College. I've been with PG&E for 15 years
14 in the Nuclear Unit as a Senior Reactor Operator (10 years) and Mechanical
15 Maintenance Manager (5 years) before taking on my current assignment.

16 Q 4 What is the purpose of your testimony?

17 A 4 I am sponsoring the following testimony and workpapers in PG&E's 2021
18 Wildfire Mitigation and Catastrophic Events Application:

- 19 • Chapter 6, "Power Generation: CEMA"; and
20 • Workpapers supporting Chapter 6.

21 Q 5 Does this conclude your statement of qualifications?

22 A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF LAUREN CUNNINGHAM**

3 Q 1 Please state your name and business address.

4 A 1 My name is Lauren Cunningham, and my business address is Pacific Gas
5 and Electric Company, 245 Market Street, San Francisco, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 I am the Senior Manager of Privacy. In this role I shape privacy strategies
9 across the enterprise to address the risks related to the unauthorized use or
10 loss of customer information. My team seeks, builds, and maintains
11 cooperative/new relationships with key stakeholders and leads partnership
12 opportunities for benchmarking, outreach, sponsorships, engagement on
13 business issues, and best practices. My team also directs development of
14 the privacy framework to assure new legislation or regulations are
15 appropriately addressed in risk controls, data governance, and reporting
16 (California Consumer Privacy Act (CCPA)/California Privacy Rights Act
17 (CPRA)).

18 Q 3 Please summarize your educational and professional background.

19 A 3 In 2009 I graduated from the University of California at Berkeley with a
20 Bachelor of Arts Political Science. In 2021, I also received certification from
21 the International Association of Privacy Professionals as a Certified
22 Information Privacy Manager. I joined PG&E in 2009 and I have worked in
23 several roles across Business Finance and Customer Care. During CCPA
24 implementation I worked as a principal on the Privacy team leading data
25 deidentification. I am currently the Senior Manager of the Privacy team.

26 Q 4 What is the purpose of your testimony?

27 A 4 I am sponsoring the following testimony and workpapers in PG&E's 2021
28 Wildfire Mitigation and Catastrophic Events Application:

- 29 • Chapter 8, "Customer Care Memorandum Accounts":
 - 30 – Section A, "California Consumer Privacy Act Memorandum
31 Account"; and
- 32 • Workpapers regarding "California Consumer Privacy Act Memorandum
33 Account" discussed in Chapter 8.

- 1 Q 5 Does this conclude your statement of qualifications?
- 2 A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF ARTI DAVE**

3 Q 1 Please state your name and business address.

4 A 1 My name is Arti Dave, and my business address is Pacific Gas and Electric
5 Company, 77 Beale Street, San Francisco, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 I am currently the manager of Distributed Generation Enabled Microgrid
9 Program Management Office.

10 Q 3 Please summarize your educational and professional background.

11 A 3 I earned a Bachelor of Science degree in Business Administration,
12 Management Information Systems, from San Jose State University and a
13 Master of Business Administration degree from the University of Illinois at
14 Urbana-Champaign.

15 I have been with PG&E for 14 years, where I have held positions in
16 Internal Audit, Short Term Electric Supply, Transmission Operations –
17 Critical Infrastructure Protection (CIP), Enterprise Health and Safety (EHS),
18 and now Integrated Grid Planning and Innovation (IGPI). While in Internal
19 Audit, I planned and performed audits for different organizations within
20 PG&E by assessing risk within processes and/or business functions. With
21 Short Term Electric Supply, I worked with personnel in functional areas
22 responsible for energy trading and procurement activities to develop a
23 strategic approach for complying with regulatory and external reporting
24 requirements. In Transmission Operations, I developed and implemented a
25 company-wide North American Electric Reliability Corporation CIP
26 compliance framework for regulatory standards as part of the Program
27 Office. With EHS, I developed and began the implementation of the Safety
28 Assurance Program. I am currently with IGPI and my role is described
29 above.

30 Q 4 What is the purpose of your testimony?

31 A 4 I am sponsoring the following testimony in PG&E's 2021 Wildfire Mitigation
32 and Catastrophic Events Application:

- 33
- Chapter 9 "Microgrids"; and

- 1 • Workpapers supporting Chapter 9.
- 2 Q 5 Does this conclude your statement of qualifications?
- 3 A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF ANGELINA M. GIBSON**

3 Q 1 Please state your name and business address.

4 A 1 My name is Angelina M. Gibson, and my business address is Pacific Gas
5 and Electric Company, 2641 N State Street, Ukiah, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 I am Director of Emergency Preparedness and Response Strategy &
9 Execution in the Utility Operations organization. Prior to my current role, I
10 was the Manager of the Emergency Management and Public Safety
11 Department.

12 Q 3 Please summarize your educational and professional background.

13 A 3 I received a Bachelor of Science degree in Public Safety Administration from
14 Franklin University, Columbus, Ohio, in 2004. I am a Disaster Science
15 Fellow of the Academy of Emergency Management. I have held numerous
16 positions within PG&E's emergency response process since 1995 and have
17 been employed in a variety of bargaining unit and management positions at
18 PG&E since 1988.

19 Q 4 What is the purpose of your testimony?

20 A 4 I am sponsoring the following testimony and workpapers in PG&E's 2021
21 Wildfire Mitigation and Catastrophic Events Application:

- 22 • Chapter 7, "COVID-19 Pandemic: CEMA";
- 23 • Chapter 7 Attachment A "COVID-19 Timeline"; and
- 24 • Workpapers supporting Chapter 7.

25 Q 5 Does this conclude your statement of qualifications?

26 A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF SHAWN HOLDER**

3 Q 1 Please state your name and business address.

4 A 1 My name is Shawn Holder, and my business address is Pacific Gas and
5 Electric Company, 300 Lakeside Dr, Oakland, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 I am the Interim Director of the Public Safety Power Shutoff Program
9 Management within the Wildfire Risk organization.

10 Q 3 Please summarize your educational and professional background.

11 A 3 I received a Bachelor's and Master's degree in Electrical Engineering from
12 University of Idaho. I am a registered Professional Engineer in the state of
13 California. I have been working in the field of electric power engineering
14 since 2003 and at PG&E since 2008.

15 Q 4 What is the purpose of your testimony?

16 A 4 I am sponsoring the following testimony and workpapers in PG&E's 2021
17 Wildfire Mitigation and Catastrophic Events Application:

- 18 • Chapter 2, "Wildfire Mitigation Balancing Account":
19 – Section C, "Public Safety Power Shutoff Activities"; and
20 • Workpapers regarding "Public Safety Power Shutoff Activities"
21 discussed in Chapter 2.

22 Q 5 Does this conclude your statement of qualifications?

23 A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF GEORGE KATAOKA**

3 Q 1 Please state your name and business address.

4 A 1 My name is George Kataoka, and my business address is Pacific Gas and
5 Electric Company, 300 Lakeside Drive, Oakland, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 I am an Expert Capital Recovery Financial Analyst in the Capital Recovery
9 and Analysis Group in the Controller's Department at PG&E. In this role, I
10 have worked on Allowance for Funds Used During Construction,
11 Construction Work In Progress, capital additions, and depreciation expense
12 forecasting. I have also developed business requirements and led the
13 implementation for various accounting and forecasting systems.
14 Additionally, I have assisted witnesses in Transmission Owner cases and
15 General Rate Cases.

16 Q 3 Please summarize your educational and professional background.

17 A 3 I earned my Master's degree in Environmental Management from Duke
18 University in 2013 and my Bachelor of Arts degree in Liberal Arts from Soka
19 University of America in 2010. I started my career at PG&E in 2016 in the
20 Capital Recovery and Analysis group. Prior to joining PG&E, I worked for
21 SolarCity in a product management team developing a billing and
22 accounting system and for Booz Allen Hamilton as a Senior Consultant for
23 energy, defense, and transportation clients.

24 Q 4 What is the purpose of your testimony?

25 A 4 I am sponsoring the following testimony and workpapers in PG&E's 2021
26 Wildfire Mitigation and Catastrophic Events Application:

- 27 • Chapter 10, "Transmission Revenue Requirement Reclassification
28 Memorandum Account"; and
- 29 • Workpapers supporting Chapter 10.

30 Q 5 Does this conclude your statement of qualifications?

31 A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF CHARLES MADISON**

3 Q 1 Please state your name and business address.

4 A 1 My name is Charles Madison, and my business address is Pacific Gas and
5 Electric Company, 245 Market Street, San Francisco, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 As a Program Manager, I manage key aspects of the Community Rebuild
9 and Resiliency Program, and other initiatives that are cross department,
10 complex and have a significant impact on the line of business. I provide
11 regular reports, along with custom, ad-hoc reports for special projects.
12 Additionally, I perform trend and performance analysis to identify cost
13 drivers and develop and execute mitigation plans to improve business
14 results.

15 Q 3 Please summarize your educational and professional background.

16 A 3 I hold a Bachelor of Science degree in Mechanical Engineering, and a
17 Master's degree in Business Administration from the University of California,
18 Davis. I am a licensed Mechanical Engineer in the State of California, and
19 hold certifications in Lean Six Sigma, Project Management, and Kanban
20 Management.

21 Q 4 What is the purpose of your testimony?

22 A 4 I am sponsoring the following testimony and workpapers in PG&E's 2021
23 Wildfire Mitigation and Catastrophic Events Application:

- 24 • Chapter 8, "Customer Care Memorandum Accounts":
25 – Section C, "Emergency Consumer Protections Memorandum
26 Account"; and
27 • Workpapers regarding the "Emergency Consumer Protections
28 Memorandum Account" discussed in Chapter 8.

29 Q 5 Does this conclude your statement of qualifications?

30 A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF TODD B. MINTZER**

3 Q 1 Please state your name and business address.

4 A 1 My name is Todd B. Mintzer, and my business address is Pacific Gas and
5 Electric Company, 6111 Bollinger Canyon Road, San Ramon, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 Within Electric Operations (EO), I am a Director in the Electric Business
9 Operations Department of the Asset Risk Management organization. My
10 responsibility is EO Work & Resource Portfolio Management processes. My
11 team's role is to govern over and improve the resource, execution, and
12 financial aspects of our EO Work Plan.

13 Q 3 Please summarize your educational and professional background.

14 A 3 I received both an MBA (2008) and a Bachelor of Science in Engineering
15 (1997) from the University of Michigan. Prior to joining PG&E, I spent the
16 first part of my career working in the Iron and Steel Industry in various
17 environmental consulting and management roles. After receiving my
18 graduate degree in 2008, I joined PG&E in the Electric Engineering and
19 Operations organization, focused on strategy and Electric Transmission
20 capital project portfolio management. After a one-year rotation in Customer
21 Care, I returned to the Engineering & Operations function, where I gradually
22 increased my level of responsibility over time to include portfolio-level
23 planning, reporting, and resource management functions for EO.

24 Q 4 What is the purpose of your testimony?

25 A 4 I am sponsoring the following testimony in PG&E's 2021 Wildfire Mitigation
26 and Catastrophic Events Application:

- 27 • Chapter 11, "Demonstration of Incrementality."

28 Q 5 Does this conclude your statement of qualifications?

29 A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF WHITNAY PECK**

3 Q 1 Please state your name and business address.

4 A 1 My name is Whitnay Peck, and my business address is Pacific Gas and
5 Electric Company, 3136 Boeing Way, Stockton, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 I am the Credit Business Strategy Manager, in the Credit Policy and
9 Operations department within the Communications and Customer
10 Organization. As such, I oversee approximately seven management level
11 staff tasked with data reporting and forecasting, as well as supporting
12 operational and regulatory policies and programs.

13 Q 3 Please summarize your educational and professional background.

14 A 3 I am currently working to obtain my Bachelor of Science degree in Business
15 Administration from DeVry University. I joined PG&E in 2006 as a Customer
16 Service Representative, before moving to Customer Care Credit and
17 Collections, where I have spent the past thirteen years. While in Credit,
18 I assumed roles: of Analyst, Supervisor, Senior Analyst, Expert Analyst and
19 Manager. I assumed my current role as Manager of Credit Business
20 Strategy in 2019.

21 Q 4 What is the purpose of your testimony?

22 A 4 I am sponsoring the following testimony and workpapers in PG&E's 2021
23 Wildfire Mitigation and Catastrophic Events Application:

- 24 • Chapter 8, "Customer Care Memorandum Accounts":
25 – Section D, "COVID-19 Pandemic Protections Memorandum
26 Account";
27 – Section E, "Disconnections Memorandum Account"; and
28 • Workpapers regarding the "COVID-19 Pandemic Protections
29 Memorandum Account" and "Disconnections Memorandum Account"
30 discussed in Chapter 8.

31 Q 5 Does this conclude your statement of qualifications?

32 A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF DEBBIE W. POWELL**

3 Q 1 Please state your name and business address.

4 A 1 My name is Debbie W. Powell, and my business address is Pacific Gas and
5 Electric Company, 245 Market Street, San Francisco, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 I am Vice President of the Enterprise Change Office. In this role I am
9 accountable for Enterprise Change as we transform the way we work. My
10 previous role was Vice President of Electric Asset and Risk Management.

11 Q 3 Please summarize your educational and professional background.

12 A 3 I received a Bachelor of Science degree in General Science from the
13 United States (U.S.) Naval Academy in 1990.

14 I served in the U.S. Navy from 1990-2003 in a variety of leadership
15 positions.

16 I worked in various capacities at Dell, Inc. from 2003-2006 including
17 Facilities Engineering and Maintenance Manager and Business Continuity
18 and Recovery Planning Program Global Manager.

19 I worked at the Lower Colorado River Authority from 2006-2010 as the
20 Plant Manager of a natural gas fired power plant. In this position, I was
21 responsible for plant performance, operations, and environmental and safety
22 compliance.

23 I joined PG&E's Power Generation organization in 2010 and held a
24 variety of leadership positions through 2020.

25 Q 4 What is the purpose of your testimony?

26 A 4 I am sponsoring the following testimony and workpapers in PG&E's 2021
27 Wildfire Mitigation and Catastrophic Events Application:

- 28 • Chapter 1, "Introduction and Overview"; and
- 29 • Workpapers supporting Chapter 1.

30 Q 5 Does this conclude your statement of qualifications?

31 A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF DIVYA RAMAN**

3 Q 1 Please state your name and business address.

4 A 1 My name is Divya Raman, and my business address is Pacific Gas and
5 Electric Company, 77 Beale Street, San Francisco, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 I am a Manager in the Capital Accounting and Regulatory Recovery section
9 of the Finance and Risk Department, where I am responsible for producing
10 and supervising the preparation of revenue requirement models and
11 sponsoring related testimony.

12 Q 3 Please summarize your educational and professional background.

13 A 3 I am a Manager in the Capital Accounting and Regulatory Recovery section
14 of the Finance and Risk Department, where I am responsible for producing
15 and supervising the preparation of revenue requirement models and
16 sponsoring related testimony.

17 Q 4 Please summarize your educational and professional background.

18 A 4 I received my Bachelor of Science degree in Management from Birla
19 Institute of Technology and Science, India in 2005. I also received my
20 Master of Science degree in Finance from London Business School in 2009.

21 I started my career at PG&E in 2012 as a Senior Analyst on the Capital
22 Recovery and Analysis team and was promoted to Expert Analyst in 2013.
23 My responsibilities included analysis and presentation of Depreciation
24 Expense, Plant and Rate base in various rate cases. I was the Plant and
25 Rate base, Depreciation Expense witness in PG&E's first formula rate
26 Transmission Owner filing.

27 In 2018, I was promoted to Principal Analyst in the Financial Forecasting
28 and Revenue Requirements team. My focus in this position included
29 reviewing PG&E's revenue requirement in the 2019 Gas Transmission and
30 Storage, 2020 General Rate Case, as well as PG&E's 2018 and 2019
31 Catastrophic Event Memorandum Account filings. In 2020, I was promoted
32 to my current position as Manager of the Revenue Requirement and
33 Regulatory Results of Operations team. My responsibilities in this position

1 include production and supervision of revenue requirement calculations for
2 regulatory filings and being the expert witness for revenue requirements. I
3 am also the Results of Operation witness in PG&E's 2023 General Rate
4 case.

5 Q 5 What is the purpose of your testimony?

6 A 5 I am sponsoring the following testimony and workpapers in PG&E's 2021
7 Wildfire Mitigation and Catastrophic Events Application:

- 8 • Chapter 13, "Revenue Requirement"; and
- 9 • Workpapers supporting Chapter 13.

10 Q 6 Does this conclude your statement of qualifications?

11 A 6 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF KAMRAN RASHEED**

3 Q 1 Please state your name and business address.

4 A 1 My name is Kamran Rasheed, and my business address is Pacific Gas and
5 Electric Company, 55 East 10th Street, Tracy, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 I am the acting Senior Manager of PG&E's Electric Vegetation Asset
9 Management Strategy and Analytics within the Wildfire Risk Management
10 Department. I oversee PG&E's Electric Vegetation Asset Management and
11 Analytics team. My responsibilities are to formulate the 2022-2026
12 Vegetation Management (VM) Plan for all aspects of VM, participate in the
13 improvement of the 2021 Distribution Wildfire Risk Model for VM by working
14 closely with the System Risk Management and Safety team. I partner with
15 VM Information Technology team to initiate and drive improvements into the
16 data and technologies utilized to prioritize and guide the selection of future
17 work. I also initiate benchmarking activities with other utilities and sponsor
18 research at California universities and/or other entities experts' in utility VM
19 programs to gain a better understanding of where and what VM work should
20 be performed in order to mitigate the risks that vegetation creates with our
21 assets.

22 Q 3 Please summarize your educational and professional background.

23 A 3 I have a Bachelor of Science degree in Forestry from the University of
24 Peshawar and a Master's degree in Science in Forestry from the University
25 of Peshawar. I am a Certified Arborist, Utility Specialist and a Certified
26 Treecare Safety Professional, Certified Utility Safety Professional, Certified
27 Worker Occupational Safety and Health Specialist – University of California,
28 Berkeley, California Occupational Safety and Health Administration
29 (OSHA) 30 and OSHA 10 Certified and Certified Project Manager – Stanford
30 Center for Professional Development. I have worked in the utility VM field
31 for 19 years, and have been with PG&E since 2008. I have held progressive
32 responsibility and Management assignments in PG&E's VM Maintenance
33 programs. The management roles I have held included: Drought

1 Emergency Response and Routine Programs, Supervisor, Operation
2 Manger, and Senior Operations Manager. Additional roles include Senior
3 Manager of Field Safety in Electric Operations, leading to my current role.

4 Q 4 What is the purpose of your testimony?

5 A 4 I am sponsoring the following testimony and workpapers in PG&E's 2021
6 Wildfire Mitigation and Catastrophic Events Application:

7 • Chapter 3, "Vegetation Management Balancing Account"; and
8 • Workpapers supporting Chapter 3.

9 Q 5 Does this conclude your statement of qualifications?

10 A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF SCOTT STRENFEL**

3 Q 1 Please state your name and business address.

4 A 1 My name is Scott Strenfel, and my business address is Pacific Gas and
5 Electric Company, 3400 Crow Canyon Road, San Ramon California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 I am the Director of Meteorology and Fire Science. Responsible for leading
9 an operational and development team that produces daily forecasts for
10 operational decision making. I lead the team that develops, operates, and
11 maintains PG&E models used for Public Safety Power Shutoff decision
12 making.

13 Q 3 Please summarize your educational and professional background.

14 A 3 I hold a Bachelor of Science degree and a Master's degree in Meteorology.
15 Graduate of the San Jose State Fire Weather Research Laboratory. I have
16 10+ years of tenure with PG&E in the Meteorology and Fire Science group
17 and currently Director of Meteorology and Fire Science.

18 Q 4 What is the purpose of your testimony?

19 A 4 I am sponsoring the following testimony and workpapers in PG&E's 2021
20 Wildfire Mitigation and Catastrophic Events Application:

- 21 • Chapter 2, "Wildfire Mitigation Balancing Account":
22 – Section D, "Advanced Fire Modeling"; and
23 • Workpapers regarding the "Advanced Fire Modeling" discussed in
24 Chapter 2.

25 Q 5 Does this conclude your statement of qualifications?

26 A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF ANDREW WELLS**

3 Q 1 Please state your name and business address.

4 A 1 My name is Andrew Wells, and my business address is Pacific Gas and
5 Electric Company, 6121 Bollinger Canyon Road, San Ramon, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 I am the Manager of Emergency Preparedness in the Gas System
9 Operations organization. The Gas Emergency Preparedness (GEP) team
10 consists of staff tasked with developing and maintaining the Gas Emergency
11 Response Plan (GERP). The Emergency Preparedness Team is
12 responsible for: (1) developing and delivering training related to the GERP;
13 (2) creating and delivering challenging exercises to ensure emergency
14 center teams maintain skills in emergency response; (3) and supporting
15 emergencies in the field when they occur. As the Manager, I am
16 responsible for ensuring the GEP team accomplishes its mission. In
17 addition, I represent PG&E on the board of directors for the Underground
18 Service Alliance of California and Nevada, the non-profit organization that
19 operates the 8-1-1 call center for Northern California and Nevada.

20 Q 3 Please summarize your educational and professional background.

21 A 3 I hold a Bachelor of Science degree in Fire Service Administration
22 Technology, and have performed work in the emergency preparedness
23 and/or response fields for approximately the past 30 years. My experience
24 includes working in incident management roles in the: (1) Los Angeles
25 County Fire Department, (2) Pechanga Fire Department, (3) Sierra Madre
26 Fire Department, and (3) San Onofre Nuclear Generating Station, as a
27 Project Manager on the emergency preparedness team. During my 6-year
28 tenure at PG&E, I have managed and supervised emergency preparedness
29 teams and programs, as well as running several damage prevention and
30 public awareness programs.

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 2021
3 Wildfire Mitigation and Catastrophic Events Application:
4 • Chapter 5, "Gas: CEMA"; and
5 • Workpapers supporting Chapter 5.
6 Q 5 Does this conclude your statement of qualifications?
7 A 5 Yes, it does.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF MARCUS J. WENDLER**

3 Q 1 Please state your name and business address.

4 A 1 My name is Marcus J. Wendler, and my business address is Pacific Gas
5 and Electric Company, 111 Stony Circle, Santa Rosa, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 I am an Electric Program Manager, Principal, within the Emergency and
9 Restoration in the Electric Distribution Operations organization. My primary
10 function is the program management of the Catastrophic Event
11 Memorandum Account electric distribution program.

12 Q 3 Please summarize your educational and professional background.

13 A 3 I received a Bachelor of Science degree in Business Administration from the
14 California State University Stanislaus in 1991, and a Master's of Business
15 Administration from Golden Gate University in 1995. In 2011 I obtained my
16 Project Management Certification from PMI. I have been a PG&E employee
17 since 2012 working within the Electric and Gas Operations since that time.

18 Q 4 What is the purpose of your testimony?

19 A 4 I am sponsoring the following testimony and workpapers in PG&E's 2021
20 Wildfire Mitigation and Catastrophic Events Application:

- 21 • Chapter 4, "Electric Distribution: CEMA";
22 • Chapter 4 Attachment A, "Electric Emergency Response Activities"; and
23 • Workpapers supporting Chapter 4.

24 Q 5 Does this conclude your statement of qualifications?

25 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 my business address is Pacific Gas and
5 Electric Company, 77 Beale Street, San Francisco, California.

6 Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company
7 (PG&E).

8 A 2 I am a Principal Analyst in the Revenue Requirements and Cost Analysis
9 section of the Finance and Risk Department, where I am responsible for the
10 analysis and preparation of electric and gas operations and maintenance
11 expenses, as well as estimates and studies required for PG&E's various
12 rate cases.

13 Q 3 Please summarize your educational and professional background.

14 A 3 I received a Bachelor of Science degree in Business Administration from the
15 University of California, Berkeley in 1990 and a Master of Business
16 Administration degree from the University of Southern California in 2000.

17 In 1990, I joined Deloitte & Touche and worked in both the tax and audit
18 functions supporting various industries and clients from large corporations to
19 high net worth individuals. In 1998, I left as a Tax Manager to pursue an
20 MBA degree.

21 In 2000, I joined Sun Microsystems as a Senior Financial Analyst
22 supporting the software division research and development until 2005.
23 From 2005 to 2008, I worked as a Senior Revenue Accounting Analyst
24 supporting United States domestic sales and specializing in software
25 revenue recognition.

26 In 2009, I joined PG&E as a Senior Financial Analyst in the Financial
27 Planning and Governance group responsible for enterprise-wide budget
28 governance of PG&E's lines of business.

29 In 2011, I moved to the Revenue Requirements Department. Since
30 2011, I've supported witnesses for major rates cases such as the 2014,
31 2017 and 2020 General Rate Cases (GRC), 2015 and 2019 Gas
32 Transmission and Storage Rate Case and various Federal Energy
33 Regulatory Commission (FERC) Transmission Owner Tariff cases. I was a

1 witness sponsoring the Accounting and Calculations of Catastrophic Event
2 Memorandum Account (CEMA) Eligible Costs in the 2016 CEMA
3 Application. For the 2017 GRC and 2020 GRC, I was the witness
4 sponsoring the SAP FERC Translation process and the presentation of the
5 operations and maintenance expense in the FERC view.

6 Q 4 What is the purpose of your testimony?

7 A 4 I am sponsoring the following testimony in PG&E's 2021 Wildfire Mitigation
8 and Catastrophic Events Application:

- 9 • Chapter 12, "Accounting Adjustments to Recorded Costs"; and
- 10 • Workpapers supporting Chapter 12.

11 Q 5 Does this conclude your statement of qualifications?

12 A 5 Yes, it does.