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Witness(es): Angie M. Gibson

PACIFIC GAS AND ELECTRIC COMPANY

2016 CATASTROPHIC EVENT MEMORANDUM ACCOUNT

ERRATA TO CHAPTER 2 TESTIMONY

ELECTRIC DISTRIBUTION COSTS

PACIFIC GAS AND ELECTRIC COMPANY

ERRATA TO CHAPTER 2

ELECTRIC DISTRIBUTION COSTS

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PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 2
ELECTRIC DISTRIBUTION COSTS

A. Introduction

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

- December 2012 Storm
- 2013 Rim Fire
- 2013 Clover Fire
- 2014 Butts Fire
- 2014 Eiler Fire
- 2014 Napa Earthquake
- 2014 Bridge Fire
- 2014 King Fire
- 2014 Courtney Fire
- 2014 December Storms
- 2015 February Storms
- 2015 July Storms
- 2015 October Storms
- 2015 Wildfires, including:
  - Tassajara Fire
  - Rough Fire
  - Jerusalem Fire
  - Valley Fire
  - Parkhill Fire
  - Olive Tree Fire
  - Sky Fire
  - Wragg Fire
  - Tesla Fire
  - Corrine Fire
  - Oak and Hill Fire
  - Rocky Fire
  - Swedes Fire

  - Lumpkin Fire
  - Kyburz Fire
  - Mallard Fire
  - Sky (Rd 632) Fire
  - Lowell Fire
- March 5, 2016 Storm (collectively, the Catastrophic Event Memorandum Account (CEMA) Events)

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

B. Summary of Dollar Request

PG&E's total electric distribution expenditures related to the CEMA Events was $326.3 million. However, consistent with California Public Utilities Commission (Commission) Decision (D.) 07-07-041, PG&E is only seeking recovery for those expenditures incurred in counties in which a state of emergency was declared by a competent state or federal authority. Therefore, of the $326.3 million related to electric distribution expenditures incurred by PG&E to respond to CEMA Events, PG&E is requesting recovery of $154.5 million. Table 2-1 provides a detailed breakdown of the CEMA-eligible costs by: CEMA Event; Major Work Category (MWC) 95 (Capital); and MWC IF (Expense).

Table 2-2 provides a detailed breakdown of systemwide costs by CEMA Event and MWC.

TABLE 2-1
CEMA-ELIGIBLE ELECTRIC DISTRIBUTION BREAKDOWN OF EXPENDITURES FOR CEMA EVENTS
(THOUSANDS OF DOLLARS)

Line No.	Event by Year	MWC 95	MWC IF	Grand Total
1	**2012**	**$207**	**$386**	**$593**
2	Dec 2012 Rain Storm	$207	$386	$593
3	**2013**	**$4,991**	**$1,660**	**$6,651**
4	Clover Fire	2,096	325	2,421
5	Rim Fire	$2,895	$1,335	$4,230
6	**2014**	**$18,903**	**$19,350**	**$38,253**
7	Dec 10 – Rain Storm	11,782	13,116	24,898
8	Dec 2 – RAIN STORM	2,661	2,355	5,016
9	Dec 5 – Wind/Rain Storm	286	241	527
10	Nov 30 – Rain Storm	142	223	365
11	American Canyon Earthquake	1,303	2,120	3,423
12	Eiler Fire	564	571	1,135
13	Bridge Fire	137	48	185
14	Courtney Fire	977	257	1,234
15	King Fire	922	$420	1,342
16	Butts Fire	$128	–	$128
17	**2015**	**$44,475**	**$51,946**	**$96,421**
18	Feb 6 – Rain/Wind Event	4,436	6,277	10,713
19	Jul 18 – Lightning	1,130	186	1,316
20	Oct 15 – Thunder/Lightning	1,035	235	1,270
21	Tassajara Fire	1,126	848	1,974
22	Rough Fire	173	685	859
23	Jerusalem Fire	11	3	13
24	Valley Fire	34,534	42,747	77,281
25	Parkhill Fire	287	12	299
26	Olive Tree Fire	4	5	10
27	Sky Fire	21	9	30
28	Wragg Fire	12	24	36
29	Tesla Fire	45	10	55
30	Corrine Fire	40	25	65
31	Oak & Hill Fire	23	43	66
32	Rocky Fire	1,570	660	2,230
33	Swedes Fire	13	88	102
34	Lumpkin Fire	–	26	26
35	Kyburz Fire	–	26	26
36	Mallard Fire	13	22	35
37	Sky (Rd 632) Fire	$1	–	1
38	Lowell Fire	–	$14	$14
39	**2016**	**$5,364**	**$7,263**	**$12,628**
40	Mar 5 – Wind/Rain	$5,364	$7,263	$12,628
41	**Grand Total**	**$73,940**	**$80,606**	**$154,546**

TABLE 2-2
SYSTEMWIDE ELECTRIC DISTRIBUTION BREAKDOWN OF INCREMENTAL CEMA EVENTS
(THOUSANDS OF DOLLARS)

Line No.	Event by Year	MWC 95	MWC IF	Grand Total
1	**2012**	**$21,082.84**	**$18,608.61**	**$39,691.45**
2	Dec 2012 Rain Storm	$21,082.84	$18,608.61	$39,691.45
3	**2013**	**$4,991.11**	**$1,660.08**	**$6,651.19**
4	Clover Fire	2,095.71	325.16	2,420.87
5	Rim Fire	$2,895.41	$1,334.92	$4,230.33
6	**2014**	**$49,632.21**	**$53,669.30**	**$103,301.51**
7	Dec 10 – Rain Storm	35,207.22	40,525.17	75,732.39
8	Dec 2 – RAIN STORM	8,346.89	6,967.75	15,314.64
9	Dec 5 – Wind/Rain Storm	591.10	504.73	1,095.84
10	Nov 30 – Rain Storm	1,455.83	2,256.12	3,711.96
11	American Canyon Earthquake	1,303.45	2,119.51	3,422.97
12	Eiler Fire	564.33	570.95	1,135.28
13	Bridge Fire	136.95	48.42	185.37
14	Courtney Fire	977.03	256.76	1,233.79
15	King Fire	919.67	$419.88	1,339.55
16	Butts Fire	127.64	–	127.64
17	King Fire	$2.09	–	$2.09
18	**2015**	**$72,280.36**	**$70,644.89**	**$142,925.25**
19	Feb 6 – Rain/Wind Event	23,054.95	21,055.88	44,110.83
20	Jul 18 – Lightning	9,638.45	3,959.12	13,597.57
21	Oct 15 – Thunder/Lightning	1,712.96	381.86	2,094.82
22	Tassajara Fire	1,126.42	847.93	1,974.35
23	Rough Fire	173.35	685.32	858.67
24	Jerusalem Fire	10.60	2.84	13.44
25	Valley Fire	34,533.77	42,746.87	77,280.64
26	Parkhill Fire	286.75	11.87	298.62
27	Olive Tree Fire	4.38	5.24	9.63
28	Sky Fire	21.28	8.71	29.99
29	Wragg Fire	12.02	24.05	36.07
30	Tesla Fire	45.25	9.99	55.24
31	Corrine Fire	39.71	25.06	64.77
32	Oak & Hill Fire	22.87	43.43	66.30
33	Rocky Fire	1,570.34	659.91	2,230.25
34	Swedes Fire	13.48	88.22	101.70
35	Lumpkin Fire	–	26.31	26.31
36	Kyburz Fire	–	26.14	26.14
37	Mallard Fire	12.81	22.36	35.17
38	Sky (Rd 632) Fire	$0.98	–	0.98
39	Lowell Fire	–	$13.77	$13.77
40	**2016**	**$15,038.69**	**$18,667.56**	**$33,706.25**
41	Mar 5 – Wind/Rain	$15,038.69	$18,667.56	$33,706.25
42	**Grand Total**	**$163,025.21**	**$163,250.44**	**$326,275.65**

Costs identified in this chapter represent electric distribution response costs only. Costs associated with transmission, gas, or hydro response and damage are not included.

C. PG&E's Electric Emergency Response Activities and Base Revenues Funding Source

1. December 23, 2012-December 31, 2013 Funding

Funding for PG&E's Electric Emergency Response Activities from December 23, 2012 through December 31, 2013, was granted as part of the 2011 General Rate Case.

2. January 1, 2014-April 30, 2016 Major Emergency Balancing Account Funding Mechanism

The Commission approved PG&E's request for the Major Emergency Balancing Account (MEBA) in D.14-08-032. All qualifying[1] major

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[1] MEBA qualifying event must meet the following criteria:

1. Major Emergency Event Costs where:
   a) A division exceeds the total number of outages (transformer and above outages) noted in the Table 2-3;
   b) The outages are stable with the majority of outages unassigned; and
   c) A PG&E Operations Emergency Center (OEC) is activated; or
2. Pre-Event Costs where:
   a) A PG&E division's Distribution System Operations (DSO) Storm Outage Prediction Project (SOPP) forecast is at Category 2 or above and PG&E predicts that the Event will ultimately meet the requirements of Criteria 1, above;
   b) An OEC is activated; and
   c) The requirements of Criteria 1 ultimately are met in response to the event.

* If the requirements of Criteria 1 ultimately are not met, the costs previously charged to MEBA must be removed from MEBA and re-classified as Routine Emergency; or

3. Costs related to a Wildfire Event that does not meet Criteria 1 and 2 where:
   a) The wildfire event is under way, and an OEC is activated in response;
   b) PG&E de-energizes electric distribution facilities to mitigate public safety risk and/or first responder risk, including at the request of responding agencies such as California Department of Forestry and Fire Protection (CAL FIRE), U.S. Forest Service (USFS), and/or city or county government; and
   c) PG&E mobilizes resources from outside the affected district to address the wildfire event.

emergency costs incurred between January 2014 and December 2016 are charged to this balancing account. The purpose of the MEBA is to recover actual expenses and capital revenue requirements resulting from responding to major emergencies and catastrophic events not eligible for recovery through CEMA, which only records costs related to declared emergencies.

To effectively separate CEMA qualifying costs from MEBA, CEMA qualifying orders are identified and reassigned to a dedicated Receiver Cost Center (RCC)[2] established to track and separate CEMA costs.

D. PG&E's Electric Emergency Response Process

PG&E's service territory is divided into four regions. These regions, in turn, are divided into 19 divisions. PG&E's electric distribution system consists of approximately 113,242 circuit miles of overhead lines, 28,743 circuit miles of underground lines, and 993,820 distribution line transformers. The overhead lines, supported by approximately 2.2 million poles, are particularly susceptible to damage from catastrophic events like storms and fires. PG&E's DSO monitors the distribution grid to identify outages and directs the scheduling and dispatch of field personnel to address identified abnormal conditions. PG&E typically identifies outages through alarms from field devices such as circuit breakers or reclosers, SmartMeter™ data, notifications from police and fire departments, preventive maintenance patrols and inspections, and/or by telephone calls from customers who are experiencing an outage. Once outages have been identified, personnel are directed to address the issues.

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2 RCCs are cost objects which represent the organization's hierarchy of fixed assets. The cost of maintenance and servicing of assets associated with the RCC are collected in expense orders and settle monthly to the appropriate RCC.

RCCs are used to:

a) Provide asset-based groupings useful for product analysis, such as the cost of producing power at a power plant;

b) Provide asset-based groupings useful in rate case analyses: Nuclear Generation; Power Generation; Gas and Electric Distribution (these include Customer Care and Energy Procurement); Gas Transmission; and Electric Transmission;

c) Record Corporate Items and Corporate Services' costs; these may be allocated to other RCCs;

d) Gather all (expense and revenue) activity for specific Non-Earnings Expense work (e.g., balancing accounts).

Part of PG&E's proactive approach to anticipate events is the use of the DSO SOPP model. This model evaluates potential impacts to the electric system from forecast adverse weather, translates this into expected outage activity, and estimates the resources required to respond effectively. The model has evolved into a key component of the PG&E EER Program. Using the detailed information that the DSO SOPP model provides, PG&E can preschedule resources several days in advance of an anticipated major adverse weather event. DSO SOPP model improvements have enabled PG&E to become more effective in preparing for emergency outages in support of public and system safety and work efficiency, for major events, and for smaller and more frequent day to day weather challenges.

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

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

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

1. Incident levels

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

Major Emergencies are typically Level 2 through 5 emergencies. A Level 2 emergency would be considered major if an OEC is activated. OECs are positioned within each region and are activated separately in individual division locations. OECs can be activated when a division exceeds the total number of outages (transformer level and above outages) noted in Table 2-3 below and field resources (i.e., Troublemen and crews) to sufficiently support outage activity have been exhausted. The outage numbers vary by division due to differences in geographical size, electric infrastructure design (e.g., overhead versus underground, urban versus rural), outage history, and resource availability. Occasionally, OECs will activate based on anticipated outage activity determined by the DSO SOPP model to support public safety and outage restoration.

TABLE 2-3
OEC ACTIVATION CRITERIA BY DIVISION

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

PG&E Incident Levels:

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

are activated to direct and coordinate the personnel necessary to assess damages, secure hazardous situations, restore service, and communicate status information internally and externally. Regional Emergency Center (REC) and Emergency Operations Center (EOC) activation is possible. The REC provides oversight and support to the OEC(s) at a region level. As an event escalates, the REC becomes the point of contact for information and managing escalated OEC issues.

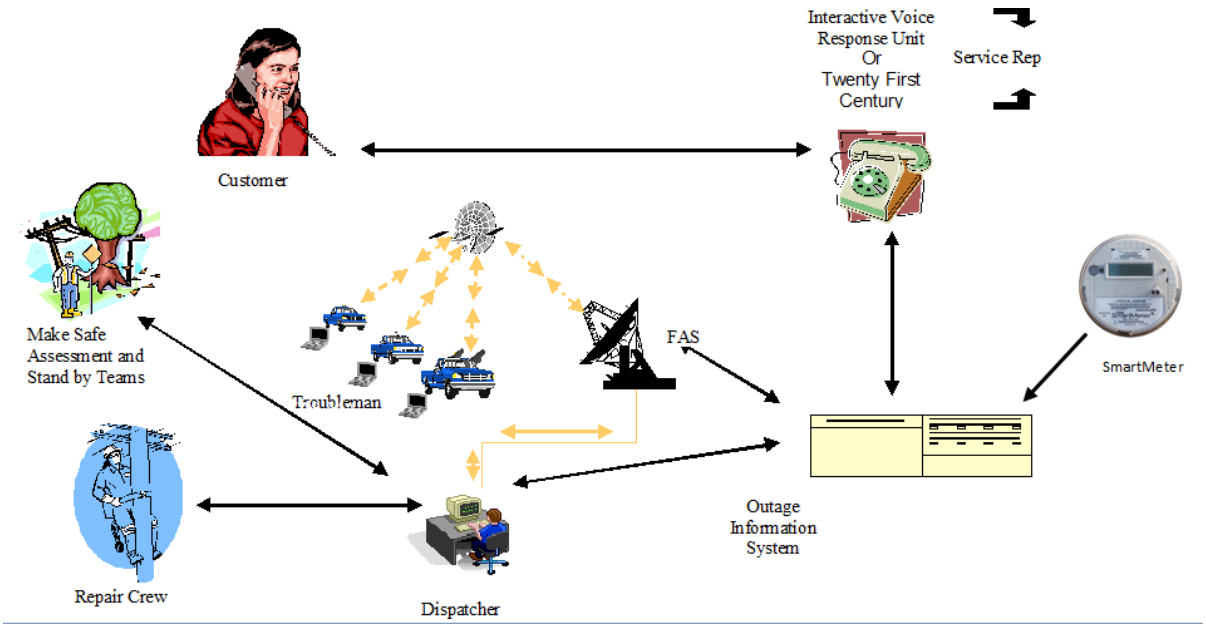
- Level 4 – Severe: Level 4 is an escalating incident with companywide impact or extended multiple emergency incidents that impact a large number of customers. Resources move between regions, general contractors are utilized, and mutual aid may be needed. During a Level 4 emergency, the OEC, REC and EOC are activated. Additionally, the Emergency Preparedness and Response team assumes incident command.
- Level 5 – Catastrophic: Level 5 is a catastrophic event that includes multiple emergency incidents, impacts a large number of customers, has a significant cost, and significant infrastructure risk/damage. This level of emergency affects the entire Company and the ability to conduct business operations. The full mobilization of Company resources is needed to respond, and mutual aid resources are needed. During a Level 5 event, all emergency centers are activated, and the Emergency Preparedness and Response team assumes incident command.

2. Outage Communication

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

PG&E uses the OIS to assist in deploying resources to address outages and to provide outage information to customers. Figure 2-1 depicts the outage communication system.

FIGURE 2-1
OUTAGE COMMUNICATION SYSTEM



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

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

After entering[3] outage information from these sources into the OIS, system operators can identify and locate the equipment involved in the outage by using detailed information on the circuit and the equipment information stored in a database. Customer calls produce outage locations in the OIS through the customers' telephone numbers. The OIS is able to associate each customer call with a specific service transformer, based on the phone number or service account identifiers provided by the customer. With this data, the OIS can identify the operating device (e.g., a circuit

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

breaker, based on the pattern of service transformers receiving trouble calls) that serves the affected area.

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

3. Emergency Recovery Cost Management

PG&E divisions follow specific procedures for recording expenditures associated with the response and repair of damage to company facilities. During the occurrence of a major event, affected divisions are instructed to separately track and report the costs incurred for restoring utility service and repairing damaged facilities associated with that event. The divisions segregate these costs by creating "specific orders"[4] to capture repair, replacement, and service restoration costs. These specific orders are created for both capital and expense and for both overhead and underground work, by county within each division. The orders are created using a specific naming convention to identify the business region, division, county, and event for which the order is created.

The role of the Finance Section Chief within the OEC or the Incident Management Team (IMT) is responsible for monitoring costs, developing financial accounting strategy and providing charging guidance during the incident. Costs are closely monitored and reviewed to ensure they are recorded in the correct MWC and aligned with the correct line of business (LOB). Where an event affects a number of PG&E facilities across wide geographic regions, multiple specific orders are used to ensure the proper

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4 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.

reporting and control of system repairs and restoration work. The Business Finance Department, Emergency Recovery Program (ERP) Manager, and the affected divisions review the orders to ensure that the costs charged to the specific orders occurred within the timeframes of the event, are in accordance with the major event charging guidelines,[5] and were in the counties covered by the orders.

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

1. 2012 December Storm

a. Damaged Facilities

A series of strong storm systems brought wind, rain, and heavy snow to the PG&E service territory. The first storm of the series hit the Humboldt Division on December 20, 2012, bringing wind gusts of 40 miles per hour (mph) to the coast and 70 mph over the elevated area. The system progressed slowly south and east and continued to bring wind gusts in excess of 50 mph to the Bay Area and Santa Cruz mountains and low-elevation snow across Humboldt and North Valley Divisions.

The second system in the series moved into the service territory late Friday, December 21st, bringing an additional round of heavy rain, gusty wind, thunderstorms, and low snow.

The third and strongest wave in the series moved into the northern half of the service territory on December 23rd, bringing additional heavy rain, strong winds and low-elevation snow.

As a result of this storm series, PG&E experienced 1,372 outages, 32 percent of the outage volume for the month, impacting 278,300 customers. The impact from the third wave of the storm series was significant—36 percent of the overall customer impact occurred on December 23rd.

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5 The "Major Event Charging Guidelines" is a document that provides guidance and support to ensure costs captured during a major event are in accordance with PG&E's accounting policy.

The damage inflicted on the overhead distribution facilities included whole trees and large limbs falling through the overhead lines and onto poles and pole mounted equipment. In response, PG&E repaired or replaced 183 poles, 135 transformers, 182 cross arms and 637 spans of conductor at a total cost of $39.6 million.

b. Restoration Activities

SOPP model outputs were utilized to prepare the organization for the forecasted impacts of the active storm series. The EOC conducted pre-event calls to discuss pre-staging of resources in the areas forecasted to experience the most significant impact and RECs and OECs opened in preparation for the event.

PG&E mobilized resources in response and focused efforts on safety to the public, assessment, communication, and restoration of service. The heavy rain and low-elevation snow resulted in localized flooding and vegetation failure. The weather conditions made accessing certain locations challenging. In response, PG&E utilized helicopter contractors to assist with patrolling and assessment of outage locations, as well as to support restoration efforts.

During the course of the 2012 December Storm, approximately 1,371 Maintenance and Construction (M&C) employees responded; including electric construction crews, Troublemen, Gas Service Representatives (GSR), Meter Technicians, Clerical Staff, Estimators, and Meter Readers. Additionally, PG&E utilized contract crews and vegetation contract crews to support restoration of customers.

2. 2014 December Storms

a. Damaged Facilities

The PG&E service territory was hit by several storm systems that swept through the service territory from November 30, 2014 through December 15, 2014. The strongest of which began on December 10, 2014.

Fueled by the Pineapple Express[6]—an atmospheric river originating in the tropical waters of the Pacific Ocean adjacent to the Hawaiian Islands—the storm was the strongest to affect California since January 2010. The system was also the single most intense storm to impact the West Coast, in terms of minimum low pressure, since a powerful winter storm in January 2008. The National Weather Service classified the storm as a significant threat and issued 15 warnings and advisories, including a blizzard warning for the northern Sierra Nevada—the first issued in California since January 2008. Due to the anticipated flooding and other impacts, many schools across California, particularly in northern and central California, were closed in advance of the storm.

As a result of this series of storms, PG&E experienced 2,915 outages, impacting 762,153 customers. The strongest storm on December 10 represented 37 percent of the outage volume, and 51 percent of the customer impact out of the total series of storms.

The damage to overhead distribution facilities was widespread across the service territory including 294 poles, 307 transformers, 213 cross arms, and 1,615 spans of conductor, at a total cost of $95.8 million.

b. Restoration Activities

PG&E meteorologists tracked this storm as it crossed the Pacific Ocean, providing ongoing forecasts to Emergency Management utilizing the SOPP model. Model outputs for this storm indicated peak winds would occur in the early morning hours. Resource plans were created to ensure adequate staffing levels in the divisions predicted to be the hardest hit.

PG&E preemptively opened the EOC and staffed the necessary Command (safety public information, liaison, customer strategy) and general staff (operations, planning and intelligence, logistics and

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6 Pineapple Express is a non-technical term for a meteorological phenomenon characterized by a strong and persistent flow of atmospheric moisture and associated heavy rainfall from the waters adjacent to the Hawaiian Islands, extending to any location along the Pacific Coast of North America. A Pineapple Express is an example of an atmospheric river, which is a more general term for such narrow corridors of enhanced water vapor transport at mid-latitudes around the world.

finance) positions. Pre-incident conference calls were held, with region and division leadership discussing the weather forecast, safety concerns, and initial incident response objectives. The REC and OECs were also preemptively activated.

Based on the forecasted strength of the storm, two base camps were also established prior to impact: one in the Scotts Valley area, east of Santa Cruz; and one in Willits, east of Fort Bragg. The locations for these base camps were established to ensure crews and materials were closest to areas that have historically seen significant impact for storms similar to the forecast.

PG&E utilized Incident Command System (ICS) to be better prepared to respond when the storm hit the service territory. As the storm hit, the EOC Incident Commander (IC) and his staff developed an Incident Action Plan (IAP) for each operational period that included incident objectives, weather forecasts, safety messages, resource deployment activities, customer messaging support, and financial management. Operational briefing conference calls were held with the field leadership at the beginning of every Operational Period to discuss the execution of the IAP and incident objectives.

PG&E focused initial efforts on assessment and identification of damaged facilities. The information gathered during the assessment phase was used to determine the number of crew resources needed and materials required to quickly restore service to customers. During the damage assessment phase, information was also gathered to help determine ways to temporarily reconfigure the system to restore service to the greatest number of customers possible prior to the completion of major repairs. The system was reconfigured by opening and closing field switches to isolate damaged sections and re-energize intact sections via alternate routes where possible.

PG&E's OEC and District Storm Rooms worked around the clock to ensure that outage assessment information was entered into the OIS in order to provide customers with timely, accurate information regarding outage status and restoration.

More than 762,000 customers were impacted during this series of storms; 385,000 of them during the strongest storm on December 10, 2014. Service to the last remaining customers was restored at 0700 on Sunday, December 14, 2014.

In the areas of heavy winds and rain, downed trees and debris blocked roadways and prevented personnel attempting to respond from accessing outage locations. To allow responding personnel to access these areas, tree crews with excavating equipment needed to remove trees and debris. Overhead line repairs included repairing and replacing damaged poles, pole hardware, and pole mounted equipment; removing foreign objects from the overhead lines; and splicing and repairing conductors. Specialized equipment, such as helicopters and excavators were used to set poles, string conductors, and conduct aerial assessments of remote locations in order to expedite restoration.

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

During the course of the December 2014 Storms, approximately 3,091 M&C employees responded. These employees included electric and gas construction crews, Troublemen, GSRs, Meter Technicians, Clerical Staff, Estimators, and Meter Readers. Resources were dispatched and moved from lesser-impacted areas to the more heavily-impacted areas. In addition to PG&E M&C personnel, vegetation crews and contract crews assisted PG&E in responding to the storms.

3. 2015 February Storms

a. Damaged Facilities

A strong Pacific storm impacted the service territory on February 6, 2015, bringing strong winds and heavy rain. The largest impact on the service territory was driven by the volume of heavy rain and wind in the

heavily vegetated areas, including Humboldt, Central Coast, North Bay and North Valley divisions.

Twenty-four hour rain totals from the storm were unusually elevated, ranging from an inch in the south bay to more than six inches in Honeydew, near Fortuna.

As a result of this storm, PG&E experienced 1,952 outages, impacting service to 450,216 customers, representing 58 percent of the total outages for the month of February 2015.

The damage observed on the overhead distribution infrastructure included whole trees and large limbs falling through overhead lines and onto poles and pole-mounted equipment. In response, PG&E repaired or replaced 342 poles, 285 transformers, 255 cross arms, and 1,443 spans of conductor, at a total cost of $44.1 million.

b. Restoration Activities

As with other storms, the PG&E meteorology team had been tracking the development of this system and providing ongoing intensity analysis. Based on the continued strengthening of the system, the EOC conducted pre-event calls to develop a resource and response plan which included: pre-staging resources in the forecasted-hardest hit divisions; preemptively opening emergency centers, including the EOC, RECs and OECs; establishing base camps in areas with historic access challenges; and mobilizing vegetation crews.

Once developed, the plans were executed prior to the impact of the storm. The initial focus was on assessment, which was supported by the deployment of eight Rapid Assessment Teams[7] from the Resource Management Centers (RMC). These teams were used to augment local Estimators and Troublemen in the completion of damage assessment. Additional 911 Standby teams were also mobilized to respond to outages where a public safety agency needed assistance. These teams

[7] Rapid Assessment Teams consist of 6 to 10 Estimators and a Supervisor that can be mobilized from the RMC to assist with damage assessment and job package creation. Estimators are trained in loading and sizing facilities and performing pole calculations.

are trained to standby[8] the location, protect the public, and relieve the public safety agency and wait for a Troublemen or make-safe crew to respond.

The weather conditions hindered access to locations due to downed trees, debris, and flooding. PG&E utilized helicopter contractors to support aerial assessment and patrolling where needed.

During the course of the February 2015 storms, approximately 2,853 M&C employees responded. These employees included electric and gas construction crews, Troublemen, GSRs, Meter Technicians, clerical staff, Estimators, and Meter Readers. Resources were dispatched and moved from lesser-impacted areas to the more heavily-impacted areas. In addition to PG&E M&C personnel, vegetation crews were mobilized from across the system to address the high volume of vegetation damage and 58 contract crews assisted PG&E in responding to the storms.

4. 2015 July Storms

a. Damaged Facilities

On July 18, 2015, afternoon thunder cells developed over the Bakersfield area of Kern Division. The cells were remnants from Hurricane Delores that had moved northward from its origination off the coast of Mexico. At approximately 4 p.m., the PG&E on-call meteorologist issued a thunderstorm warning for Kern Division. The thunder cell expanded northward, into Fresno Division, later that evening and then moved westward, to Los Padres Division, in the early morning hours.

The volume of lightning experienced in the three impacted divisions was significant. In both Fresno and Los Padres this was the second highest volume of lightning strikes in the past ten years. In Kern it was the in the top five.

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[8] Standby resources are PG&E employees specially trained to standby damage infrastructure to protect the public and relieve public safety agency personnel.

FIGURE 2-2
HISTORIC LIGHTNING STRIKE VOLUME FOR LOS PADRES, FRESNO AND KERN DIVISIONS

Top 6 lightning days for all lightning strikes below 3000 feet in elevation

Date	Los Pad.
8/30/2007	3032
7/19/2015	3023
10/12/2006	1797
10/13/2006	1779
9/10/2011	1194
4/13/2012	749

Date	Fresno
8/30/2007	3012
7/18/2015	878
10/11/2012	653
8/19/2013	608
10/24/2005	604
9/20/2005	561

Date	Kern
10/13/2006	6264
9/10/2011	3178
7/11/2010	905
7/18/2015	697
9/23/2011	513
8/30/2007	495

* Data begins in October 2004

As a result of the storm and lightning strikes, these three divisions in PG&E's service territory experienced 702 outages, impacting 140,790 customers. Direct lightning strikes in several substations in the Fresno area caused the outages for 76,264 of those customers. The damage to the overhead distribution facilities was primarily to overhead transformers that failed due to lightning strikes. In response, PG&E replaced 888 transformers at a total cost of $13.5 million.

b. Restoration Activities

The Kern OEC was the first to open, based on the initial impact, followed by Fresno, Los Padres, and later Yosemite and Central Coast. Alignment calls were conducted to develop a centralized resource plan to ensure all divisions received adequate resources to address the outage volume.

PG&E mobilized resources and focused efforts on safety to the public, assessment of damage, communications, and restoration of service. The large volume of transformer-related outages required the mobilization of resources from across the system. In many cases, additional damaged transformers were identified by crews in the field. The logistics team provided direct support with the mobilization of transformers to the impacted divisions.

During the course of the July 2015 Lightning Storm approximately, 1,008 M&C employees responded. These employees included, electric and gas construction crews, Troublemen, clerical staff, Estimators, and

Meter Readers. Resources were dispatched and moved from lesser-impacted areas to the more heavily-impacted areas. In addition to PG&E M&C personnel, 12 contract crews assisted PG&E in responding to the storms.

5. 2015 October Storms

a. Damaged Facilities

On October 14, 2015, the PG&E on call meteorologist issued a thunderstorm warning for Kern Division beginning at 7 p.m. Two distinct storm cells formed over the division and began to discharge lightning and other outage-causing events. The volume of lightning was even more significant than the July 18, 2015 lightning event. Kern Division experienced 2,035 lightning strikes, which is the third highest total in a single day in the prior 11 years.

Later in the evening, the thunderstorm moved up to Fresno Division (with a lesser impact than the July event), and then on to Stockton Division. PG&E experienced 345 outages, impacting 30,072 customers. The damage to the overhead distribution facilities was primarily to overhead transformers that failed due to lightning strikes. In response, PG&E replaced 122 transformers, at a total cost of $42.1 million.

b. Restoration Activities

The Kern OEC was the first to open, based on the initial impact of the thunderstorm; Fresno and Stockton closely followed as outage activity increased. Resource needs were managed locally within the region. As local resource availability was exhausted, PG&E mobilized crews from outside the region to support the restoration efforts.

As with the July events, transformer damage was high and required a large amount of crew support as a result of the large volume of smaller-scale outages. The logistics team provided direct support with the management of materials inventory and the mobilization of transformers to the impacted divisions.

During the course of the July 2015 Lightning Storm, approximately 365 M&C employees responded. These employees included, electric and gas construction crews, Troublemen, clerical staff, Estimators, and

Meter Readers. Resources were dispatched and moved from lesser-impacted areas to the more heavily-impacted areas to support safe and rapid restoration of service to customers and communities.

6. 2016 March Storms

a. Damaged Facilities

A strong Pacific storm impacted the service territory on March 5, 2016, bringing heavy rain and strong winds. This storm system was preceded by a smaller system a few days earlier that had dropped several inches of rain across the elevated terrain, saturating the ground and raising the level of many small streams and rivers. With the heavy rain, the storm also brought periods of heavy winds. Wind gusts were recorded in the 40-50 mph range, with stronger gusts exceeding 60 mph in the elevated terrain.

As a result of this storm, PG&E experienced 1,298 outages, impacting 287,143 customers. This represents 40 percent of the total outages for the month of March 2016.

The damage to the overhead distribution facilities included whole trees and large limbs falling through overhead lines and onto poles and pole-mounted equipment. In response, PG&E repaired or replaced 238 poles, 175 transformers, 92 cross arms, and 886 spans of conductor, at a total cost of $33.7 million.

b. Restoration Activities

SOPP model outputs were utilized to prepare the organization for the forecasted impacts of this storm. The PG&E meteorology team monitored the development and provided analysis as to the forecasted impact and complexity of the event. The EOC conducted pre-event calls to discuss the pre-staging strategy and resource plan several days prior to the impact. Emergency centers, including the EOC, RECs, and OECs, all opened prior to the forecasted impact of the storm; field resource schedules were adjusted to align them with the expected impact.

The large volume of rain and heavy winds resulted in local flooding, mudslides, and vegetation failure. In response, PG&E utilized helicopter

contractors to assist with patrolling and assessment of outage locations as well as support with restoration efforts. Excavators were used to support pole setting in remote areas with difficult access and vegetation crews were focused on tree and debris removal.

Assessment was supported by the mobilization of Rapid Assessment Teams and a base camp was established in Scotts Valley to move the materials and crews closer to the damage. Additional 911 Standby teams were also mobilized to respond to outages where a public safety agency needed assistance.

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

During the course of the March 2016 Storm, approximately 2,519 M&C employees responded. These employees included, electric and gas construction crews, Troublemen, GSRs, Meter Technicians, Clerical Staff, Estimators, and Meter Readers. Resources were dispatched and moved from lesser-impacted areas to the more heavily-impacted areas. In addition to PG&E M&C personnel, vegetation crews and 30 contract crews assisted PG&E in responding to the storms.

7. Wildfire Response

Fires are different from winter storms in terms of their impact on assets. Winter storms cause damage to electric distribution facilities that is often widespread, involves large portions of the service territory simultaneously, and is comparatively short in duration. A winter storm passes through the service territory, sometimes lasting less than a day, damaging facilities and causing large volumes of outages to customers.

In contrast, fires are concentrated in a specific geographic area and are far more dynamic. Fires can last an hour or weeks. Influenced by factors such as relative humidity, wind speed and direction, available fuel, and topography, fires can change director or rate of spread, making them challenging to predict.

Damage to the electric distribution system is also different in a winter storm than in a fire. Winter storms may break poles, cross arms, spans of wire, or other facilities at intermittent locations within the impacted division, and generally involve a large, widespread volume of outage locations. In contrast, a fire may completely destroy electric distribution facilities in its path, affecting the customers those facilities serve. Due to the geographic concentration of a fire, outage volume is generally smaller than during a winter storm. Circuits are de-energized in advance of the fire spread to protect firefighters and the public from exposure to energized conductors. Restoration activities during a fire often involve replacing, not just single assets or components—such as cross arms on an existing pole or a broken pole and re-sagging the conductor—but all the assets and components as if installing the facilities for the first time.

a. 2013 Fires

1) Rim Fire

The Rim fire erupted on August 17, 2013, at 3:25 p.m. in the Stanislaus National Forest, east of the community of Groveland. The fire had consumed 40 acres when it was discovered, but due to dry drought conditions it grew to cover 10,000 acres within 72 hours, and 100,000 acres after just seven days. By the time it was contained, the fire had become the third largest wildfire in California history, destroying 257,314 acres. The fire destroyed 112 structures and damaged another seven. 458 of PG&E's customers were impacted, and PG&E crews repaired or replaced 70 poles, 104 cross arms, and 25,000 feet of conductor.

The Rim Fire grew rapidly, and PG&E quickly mobilized to respond. The Yosemite OEC activated, and a Mobile Command Vehicle (MCV) was mobilized to the USFS Incident Command Post

(ICP) where PG&E co-located with the USFS IMT.[9] PG&E provided space in the MCV for the City of San Francisco Department of Emergency Management and San Francisco Fire Department response leadership as they supported protection of the City of San Francisco infrastructure around Hetch Hetchy Reservoir. PG&E established a staging area and laydown yard just outside Groveland for crews and materials. This reduced travel time and put the crews and material closer to the work.

Assessment teams were created by pairing up qualified electric workers and arborists. This provided for a broad assessment of the work area to determine the volume of hazard tree removal and infrastructure replacement that would need to take place. Tree crews were then sent in to fell all identified hazard trees. Performing this critical work before the distribution infrastructure is replaced prevented additional damage during felling operations. Construction crews then accessed the area and completed the work of replacing the damaged infrastructure.

The area within the fire perimeter was an area of Native American cultural significance. To ensure protection of sensitive areas, PG&E brought in cultural archeologists to work directly with the local Native American community and the USFS. The archeologists identified and marked areas of significance in the work area and developed access and protection strategies to ensure areas of cultural sensitivity were not damaged during restoration.

2) Clover Fire

The Clover Fire (Shasta County) began on September 9, 2013 and burned 8,073 acres over a 6-day period. The fire began near

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9 The IMT is ICS organizational structure used by fire and government agencies and emergency responders in the United States as required by the National Incident Management System. It consists of the IC and his command and general staff. ICS is used by various jurisdictions and functional agencies, both public and private, to organize field-level incident management operations. ICS is a standardized on-scene emergency management construct. It is designed to provide for the adoption of an integrated organizational structure that reflects the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries. It is used for all kinds of emergencies and is applicable to small as well as large and complex incidents.

Cloverdale Road near the communities of Happy Camp and Igo, about 10 miles southwest of the City of Redding. It spread quickly due to strong winds and dry conditions, giving some residents only minutes to evacuate. At the request of CAL FIRE, PG&E de-energized sections of two impacted circuits to support public and responder safety. The fire destroyed 68 residences and 128 outbuildings, impacted 1,267 customers, and damaged 173 poles, 42 transformers, and 28 spans of conductor.

Restoration of the damage from the Clover Fire was extensive. The area is very rural with little of the infrastructure accessible from the roadway. Replacement of damaged infrastructure required support from excavation and helicopter contractors. PG&E established a base camp at the Anderson Fairgrounds and worked directly with CAL FIRE regarding access and customer impact. The area impacted by the fire was extensive and, to support rapid restoration, the area was divided-up geographically and a Construction Supervisor was assigned to oversee all work. Assessment teams gained access to the fire area within 48 hours of ignition. Vegetation crews removed hazard trees with access to construction crews immediately following. All repairs were completed and customers were restored by September 15, 2013.

8. 2014 Fires

a. The Butts Fire

The Butts Fire (Lake and Napa Counties) began on began on July 1, 2014, off Butts Canyon Road in Pope Valley, northwest of Lake Berryessa. The fire burned 4,300 acres, destroying 2 residences and 7 outbuildings, impacting 259 customers, and damaging 7 poles. The fire was in a rural part of Napa County and moved very quickly due to strong winds and very dry vegetation.

To support restoration, the North Bay OEC activated, and PG&E deployed a MCV to the ICP and provided a single point of contact to support the integration between PG&E and CAL FIRE. Crews were quickly given access to the fire area to begin work on restoration. With

support from vegetation management, crews replaced all damaged infrastructure and restored impacted customers by July 2, 2014.

b. The Eiler Fire

The Eiler Fire (Shasta County) began on July 31, 2014 southeast of the town of Burney and burned 32,416 acres. The fire began in the back country and quickly moved toward Burney requiring the evacuation of the communities of Burney and Cassel. Fueled by winds and dry vegetation, the observed fire behavior was extreme with long range spotting, allowing the fire to move very quickly toward populated areas. The fire impacted both state and federal response areas and was managed by the unified command of both CAL FIRE and the USFS. The fire threatened assets in several LOBs including, electric distribution, transmission, gas transmission, and hydroelectric infrastructure. PG&E worked closely with the fire response leaders and implemented fuels reduction and asset protection measures. Damage from the fire was limited to 28 distribution poles, impacting 555 customers.

PG&E engaged quickly with the USFS IMT. The ICP was staffed with personnel to support collaboration with the IMT. PG&E activated the North Valley OEC and established a base camp outside Burney. Initially, PG&E infrastructure was not at risk, but as the fire continued to develop, the risk to different types of PG&E facilities (e.g., electric distribution, gas transmission) increased. Due to the expanded threat to PG&E facilities, the PG&E command team contained representatives from each of the responsible LOBs to ensure continuity of response. The command team worked together to identify and mitigate threats to PG&E infrastructure. Aggressive vegetation remediation and the application of fire retardant were both successfully used to mitigate the impact of the fire. Access to begin repairs was granted when the areas impacted by the fire became safe, and all impacted customers were quickly restored.

c. The Bridge Fire

The Bridge Fire (Mariposa County) began on September 5, 2014 in the area of Highway 49 and Harris Road, east of the community of Mariposa. The fire burned 300 acres and was managed by the unified command of CAL FIRE and the Mariposa County Fire and Mariposa County Sheriff's Departments. The fire exhibited extreme fire behavior with extensive spotting, moving very quickly, due in part to impacts from the drought. The fire damaged 10 distribution poles, 4,500 feet of distribution conductor, and impacted 44 customers.

To support the response, a Construction Supervisor was quickly dispatched to the ICP to support public and responder safety. Based on the rapid fire spread, secondary plans were develop to quickly de-energize additional parts of the circuit if needed. PG&E activated the Yosemite OEC and mobilized crews and Troublemen to support the incident response needs. CAL FIRE granted access very quickly to the fire area, and crews were able to replace all damaged infrastructure by September 6, 2014.

d. The King Fire

The King Fire (El Dorado County) began on September 13, 2014, near the community of Pollock Pines. By September 16, three days later, the fire had spread to 11,520 acres, forcing the evacuation of over 500 homes. By September 18, the fire had expanded to 73,184 acres, becoming the second largest wildfire of the 2014 California wildfire season. As a result of this expansion, the mandatory evacuation order was expanded to 20,000 homes. As with many of the catastrophic fires discussed in this CEMA filing, the King Fire also demonstrated extreme fire behavior with rapid and expansive growth beyond what the fire agencies had predicted. This created challenges in utilizing asset pre-treatment and vegetation removal as mechanisms to minimize damage to the infrastructure.

PG&E incurred damage to the distribution infrastructure, including 25 distribution poles, 45 cross arms, 7 transformers, and 15 spans of conductor.

PG&E activated the Sierra OEC during the initial phases of the fire, and as the fire progressed and risk to the transmission infrastructure increased, the command team was expanded to incorporate the transmission leadership.

PG&E deployed personnel to the CAL FIRE ICP to support a coordinated response. Crews and Troublemen were mobilized to support assessment and restoration. The PG&E leadership worked daily with CAL FIRE and the USFS to safely gain access to the fire area to begin the work of assessing and repairing damaged infrastructure. Vegetation crews were brought in to identify and remove hazardous trees. Once the distribution infrastructure was repaired and all customers were restored, a transfer of command took place to allow transmission leadership to manage the completion of their restoration work.

e. The Courtney Fire

The Courtney Fire (Madera County) began on September 14, 2014 near the community of Oakhurst. The fire burned 320 acres, impacted 227 customers, and damaged 42 poles and 18 spans of conductor. When fully contained, the fire destroyed 30 residences, 19 outbuildings, and 14 vehicles.

The Yosemite OEC activated to support response. Crews were quickly mobilized to pre-treat poles ahead of the fire. A PG&E representative was deployed to the CAL FIRE ICP to support public and responder safety. A staging area was established to get the crews and material closer to the fire perimeter. PG&E worked in coordination with CAL FIRE throughout the duration of the response. The strong collaboration allowed PG&E swift access into the impacted area to complete assessment, remove hazard trees, and perform restoration activities, allowing impacted homes—that were in a condition to receive power—to be re-energized prior to re-population.

9. 2015 Wildfires

As a result of the severe drought conditions and extreme weather, a series of wildfires ignited across California in 2015. Over the course of the

2015 wildfire season, many more wildfires ignited across California. These fires burned hundreds of thousands of acres, destroyed thousands of structures, necessitated the evacuation of residents, and damaged critical infrastructure.

PG&E actively responded to the 2015 Wildfires, including by providing an Agency Liaison at each fire. The Agency Liaison worked closely with the fire agency IMT and supported fire response by directing the de-energizing of facilities for safety when requested, actively participating in the development of the IAP, and identifying critical assets at risk, based on predicted fire spread. PG&E crews and Troublemen supported suppression efforts by de-energizing circuits to ensure safety of the responders and the public and performing restoration activities when identified as safe to do so.

a. Damaged Facilities

PG&E experienced significant damage in several divisions throughout the service territory from the series of wildfires in 2015. Table 2-4 shows the fires by date and name and shows their respective costs- both capital (MWC 95) and expense (MWC IF).

TABLE 2-4
ELECTRIC DISTRIBUTION EXPENDITURES BY FIRE
(THOUSANDS OF DOLLARS)

Line No.	Fire	MWC 95	MWC IF	Grand Total
1	Tassajara Fire	$1,126.42	$847.93	$1,974.35
2	Rough Fire	173.35	685.32	858.67
3	Jerusalem Fire	10.60	2.84	13.44
4	Valley Fire	34,533.77	42,746.87	77,280.64
5	Parkhill Fire	286.75	11.87	298.62
6	Olive Tree Fire	4.38	5.24	9.63
7	Sky Fire	21.28	8.71	29.99
8	Wragg Fire	12.02	24.05	36.07
9	Tesla Fire	45.25	9.99	55.24
10	Corrine Fire	39.71	25.06	64.77
11	OAK & HILL FIRE	22.87	43.43	66.30
12	Rocky Fire	1,570.34	659.91	2,230.25
13	Swedes Fire	13.48	88.22	101.70
14	Lumpkin Fire	–	26.31	26.31
15	Kyburz Fire	–	26.14	26.14
16	Mallard Fire	12.81	22.36	35.17
17	Sky (Rd 632) Fire	0.98	–	0.98
18	Lowell Fire	–	13.77	13.77
19	Total	$37,874.01	$45,248.03	$83,122.03

b. Restoration Activities

The impacts from the 2015 Wildfires represent the full spectrum of restoration activity and damage to the infrastructure, ranging from no damage to the infrastructure—as exemplified in the Parkhill Fire, to the extensive damage of the Valley Fire.

Where there was damage from these fires, PG&E immediately replaced the damaged electric distribution line facilities—including poles, cross arms, conductors, and necessary line equipment—once access to the impacted area of the fires became available. Facilities sized specifically for customer load, such as transformers, are being replaced as customers rebuild. The rebuilding process can take months, sometimes years.

The Corrine Fire burned 920 acres over a 7-day period, beginning on June 18, 2015. Originating on Road 222 and Tunoi Place in Madera County, the fire damage was limited to several spans of conductor and surrounding vegetation as a result of pole pre-treatment activities that prevented damage to wood poles and infrastructure. PG&E provided support at the ICP and out in the field, monitoring distribution assets and de-energizing facilities to protect the responders and the public. At the request of CAL FIRE, the distribution circuit was de-energized, impacting 1,050 customers for two days.

The Parkhill Fire burned 1,791 acres in the area of Park Hill Road and Las Pilitas Road in San Luis Obispo County over a 4-day period, beginning on June 20, 2015. The fire destroyed two homes, four mobile homes, two recreational vehicles used as primary residences, ten outbuildings, and seven vehicles. Damage to PG&E's infrastructure included eight poles, one transformer, and several spans of conductor.

The Sky Fire (Solano County) began on July 6, 2015, and over a 2-day period, burned 150 acres in the area of Mix Canyon Road and Sky Ranch Road, northwest of Vacaville. The fire impacted approximately 25 customers, damaging two poles and several spans of conductor.

The Wragg Fire (Napa and Solano Counties) began on July 22, 2015, and burned 8,051 acres over a 14-day period. The fire destroyed

two outbuildings and damaged one residence. PG&E deployed personnel to the ICP to support response. At the request of CAL FIRE, a section of a distribution line was de-energized, impacting 292 customers for 23 hours. PG&E experienced no damage to distribution infrastructure from the Wragg Fire.

The Kyburz Fire (El Dorado County) burned 75 acres in the El Dorado National Forest in the community of Kyburz, beginning on July 23, 2015. In the initial stages, the fire threatened a PG&E distribution line. At the request of the USFS, a section of the line was de-energized, impacting 1,159 customers for two days. PG&E deployed personnel to the ICP to support engagement with the USFS IC. Damage to distribution infrastructure was prevented through aggressive vegetation clearing and pole pre-treatment.

The Lowell Fire (Nevada County) burned 2,304 acres west of the community of Alta, beginning on July 25, 2015. The fire threatened a PG&E distribution line and, at the request of CAL FIRE, the line was de-energized, impacting 7,136 customers for two hours. PG&E deployed personnel to the ICP to support public and responder safety. PG&E experienced no damage to distribution infrastructure from the Lowell Fire.

The Rocky Fire (Lake County) began on July 29, 2015, and burned 69,438 acres east of the communities of Lower Lake and Clearlake over a 17-day period. This fire was the first of three significant fires to impact Lake County in 2015. The fire destroyed 43 residences and 53 outbuildings. Distribution service was de-energized at the request of CAL FIRE, impacting 6,243 customers for several days. PG&E deployed personnel to the ICP to support alignment and coordination with CAL FIRE. Over the course of the fire, PG&E limited damage to the infrastructure through aggressive vegetation removal and pole pre-treatment activities. From a distribution perspective, PG&E replaced 58 poles and conductor to re-establish service to the customers that could accept service.

The Swedes Fire (Butte County) began on July 29, 2015, and burned 400 acres over a 6-day period. This fire destroyed two homes

and 14 outbuildings. Damage to PG&E infrastructure was prevented through aggressive vegetation clearing and pole pretreatment.

The Jerusalem Fire (Lake County) began on August 9, 2015, and burned 25,118 acres southwest of the community of Lower Lake over a 16-day period. This is the second significant fire of 2015 for Lake County. This fire destroyed six residences and 21 outbuildings. At the request of CAL FIRE, the distribution line at risk was de-energized, impacting 143 customers for a 4-day period. PG&E mobilized resources to support coordinating response with CAL FIRE. PG&E performed pole pre-treatment and vegetation clearing, limiting damage to distribution facilities to four poles that required replacement.

The Tesla Fire (Alameda County) began on August 19, 2015, and burned 2,700 acres east of Livermore over a 3-day period. The fire damaged five poles and multiple spans of conductor, impacting 25 customers.

The Olive Fire (Butte County) began September 2, 2015, and burned 72 acres south of the community of Oroville. At the request of CAL FIRE, a section of the distribution circuit was de-energized, impacting 100 customers for six hours. The fire damaged two poles, requiring replacement of those poles.

The Oak Fire (Tuolumne County) began on September 8, 2015, burning 108 acres north-east of Sonora. The distribution circuit was de-energized at the request of CAL FIRE, impacting 65 customers for 26-hours. The fire damaged three poles, requiring replacement, and contaminated insulators required washing prior to re-energizing the circuit.

The Lumpkin Fire (Butte County) began on September 11, 2015, and burned 1,042 acres east of Oroville. Due to PG&E's pole pre-treatment activities that prevented damage to distribution wood poles and other infrastructure, the fire damage was limited to vegetation.

The Tassajara Fire (Monterey County) began on September 19, 2015, and burned 1,086 acres south-east of the community of Laureles. At the request of CAL FIRE, the distribution circuit was de-energized, impacting 324 customers for five days. PG&E deployed personnel to

the CAL FIRE ICP to provide direct support to the IMT and support responder and public safety. The fire damaged 15 poles, 4 transformers, and 12 spans of conductor, requiring replacement.

c. Rough Wildfire

1) Damaged Facilities

The Rough Fire (Fresno County) began on July 31, 2015 in the Sierra National Forest, east of the community of Auberry. The fire burned 151,623 acres and with impacts to distribution customers, ranging from between 25-348 customers over the month-long response. Initially, there was no infrastructure in immediate threat, and PG&E monitored the daily progression of the fire, maintaining contact with the USFS IC. On the afternoon of August 17th, the fire became very active, beyond what was forecast by the command team. The fire began moving quickly to the north-west, expanding beyond the containment line, becoming well-established in the drainage due east of Haas Powerhouse. The rapid expansion placed critical PG&E hydroelectric infrastructure in immediate risk, including two power houses, three transmission lines, and the distribution circuit that ran through the Kings River Canyon. The infrastructure at risk provided key generation and voltage stability to the Central Valley Region. To support the response, PG&E established an enterprise IMT. The IMT operations branches included Generation, Transmission, Distribution, and Vegetation. The team focused on the safety of the public, responders, and employees, as well as identifying the assets at risk, and developing mitigation strategies including pretreatment and fuels management.

Based on the weather, topography, and fuel condition, the fire continued to expand to the north-west and south-east daily, resulting in the mobilization of a second PG&E IMT at the south end of the fire in the area of Hume Lake. The Hume Lake area included only distribution infrastructure at risk, and this is where the majority of distribution damage occurred.

2) Restoration Activities

PG&E's response to the Rough Fire was lengthy and complex. Two IMTs were deployed to provide dedicated response to the extensive incident. The Balch Camp ICP was moved to the Kings River Powerhouse when the fire put the Balch Camp facility in immediate danger. The focus of both teams was on pole pretreatment and aggressive fuels remediation. Tree crews were utilized to support removal of fuel from around at risk infrastructure. A mobile retardant plant was set up at the Kings River base camp to support the pole pretreatment activities. Structure wrap was also used around poles and at risk hydroelectric infrastructure.

Employees living at Balch Camp were evacuated and sheltered in hotels away from the risk. A dedicated liaison was used to keep employees updated on fire conditions and re-entry timelines.

In light of the critical nature of the at-risk infrastructure, the USFS deployed a second IMT to support protection and suppression efforts in the Kings River Canyon.

The PG&E IMTs were engaged on this incident for approximately 30 days, during which time the team pre-treated 70 distribution poles. Twenty of these poles were overrun by fire, and only one pre-treated pole was damaged to the point of needing to be replaced. In total, three distribution poles and several spans of conductor required replacement.

d. Valley Wildfire

1) Damaged Facilities

The Valley Fire (Lake, Napa and Sonoma Counties) began on September 12, 2015, on High Valley Road in the community of Cobb. By the time it was contained, the fire had burned 76,076 acres and destroyed 1,955 structures, including 1,281 homes, 27 multi-family structures, 66 commercial properties, and 581 other minor structures. This was the third significant fire in Lake County in 2015, and the third most damaging wildland fire in

California history, after the Tunnel-Oakland Hills Fire of 1991 and the Cedar Fire of 2003.

The wind-driven fire moved very quickly, burning 10,000 acres in the initial four hours. The fire had burned 40,000 acres by 8 a.m. the following morning and destroyed the communities of Cobb, Anderson Springs, Middletown, and Hidden Valley. The rapid spread of the fire prevented any pole pretreatment or vegetation removal to protect infrastructure. The fire caused significant damage to PG&E's electrical equipment. During the response to the Valley Fire, PG&E replaced 1,426 distribution poles, 314 transformers, and 50 miles of distribution conductor.

2) Restoration Activities

During the Valley Fire, PG&E crews were fully engaged with CAL FIRE and other first responders. PG&E embedded an Agency Representative[10] within the CAL FIRE command team. This provided a single point of contact for CAL FIRE and PG&E, providing for more efficient communication, collaboration, and alignment.

Within 48 hours from the start of the fire, PG&E had assigned an IMT and established a 50-acre base camp within the fire perimeter in Middletown to manage restoration activities. The base camp supplied everything, from sleeping quarters for the PG&E IMT, to a landing zone for air operations to an on-site garage support to mechanics to catering. The base camp was supported by PG&E's main EOC in San Francisco, as well as support staff working in Lake, Napa, and Sonoma counties.

At the height of the Valley Fire, there were nearly 1,700 PG&E employees and contractors working in the fire-affected areas to restore power.

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10 An individual assigned to an incident from an assisting or cooperating agency who has been delegated authority to make decisions on matters affecting that agency's participation at the incident. Agency Representatives report to the Incident Liaison Officer.

During the fire, PG&E crews worked across challenging terrain to assess damage, remove hazardous trees, and rebuild PG&E equipment and facilities. The fire affected a hilly region with limited access roads. In many cases the only bridges across small creeks or rivers were damaged or destroyed by the fire. Many of the areas requiring restoration efforts still had smoldering timbers, creating safety hazards.

In addition to power restoration, PG&E made significant efforts to support customers impacted by the fire and the community at large. PG&E quickly supplied secondary generation to the Middletown gas station and grocery store. Providing power to these essential businesses helped first responders working in the area and residents who stayed behind to protect their property. PG&E also dispatched a state-of-the-art exportable power truck to the Napa Fairgrounds to provide charging stations for anyone displaced by the fires. The charging stations provided power for anyone needing to power personal electronic devices, including phones, laptops, and tablets, in order to communicate with concerned family members, learn about the status of fire control efforts, and contact insurance or other critical services. PG&E also used exportable power vehicles to help light efforts under way at the Valley Fire evacuation centers so that food service and other important activities could be well-lit while customers sought needed support.

For certain customers impacted by the Valley Fire, PG&E suspended bills and discontinued remote and field service disconnects. PG&E also suspended all past due bill notices for 30 days and provided impacted customers with extended payment plan options as necessary.

PG&E worked closely with local law enforcement to control looting and ensure customer safety while evacuation orders were still in effect. In the Hidden Valley Lakes subdivision, looters were gaining access to empty homes because the street lights were not working. PG&E deployed Troublemen and GSRs to open

2,000 breakers and then used primary generation via an Aggreko Power Pak to energize remaining homes and energize street lights.

When the evacuation order was lifted, PG&E worked with CAL FIRE, California Highway Patrol, and Lake County local government officials to develop a phased re-population plan for impacted residents. PG&E supported the repopulation areas using MCVs and Troublemen, and also created customer centers in the field to allow customers face-to-face access to PG&E support.

As residents began to return to the area, PG&E worked with CAL FIRE to address the hazard of fire-damaged trees that posed ongoing safety risks if they were to fall onto people or property, including power lines. PG&E identified 11,180 locations where fire-affected vegetation needed to be removed and worked to make these removals as residents returned home.

The area of the Valley Fire was home to several Native American tribes. To support transparency and protect areas of cultural significance, two cultural archeologists were on site supporting the response, along with a biologist to ensure the identification and protection of threatened species.

From an employee perspective, the intensity of the fire created on-the-ground conditions similar to a war zone or other catastrophic disaster. In addition to the danger, employees were working in close proximity to cadaver dogs still searching for missing residents. To cope with those conditions, PG&E brought in a Critical Incident Stress Management (CISM) team to support employees working in the fire perimeter. The CISM team was dispatched to help employees manage their emotional response to the trauma and support overall employee health.

10. 2014 Napa Earthquake

a. Damaged Facilities

In the early morning hours (0320) of August 24, 2014, a magnitude 6.1 earthquake hit the Napa Valley/American Canyon/Sonoma region of the Bay Area in California, along the Napa fault system, with an

epicenter five miles south of the City of Napa. This was the most intense Bay Area earthquake since the magnitude 6.9 Loma Prieta quake in 1989, impacting 76,040 customers. The earthquake generated five miles of fault rupture, primarily to the north, with heavy damage in Napa and light damage in American Canyon. This magnitude 6.1 earthquake had strong shaking that was felt as far as eight miles to the west, seven miles to the east, 20 miles to the north, and 15 miles to the south. Damage and loss of power were predominantly located within the Napa Valley/American Canyon/Sonoma areas, all within Napa, Solano, and Sonoma counties. This damage included ruptures to more than 144 water lines, requiring close coordination with water utilities and a redefining of restoration strategies.

Further complicating the restoration, there were approximately 190 aftershocks during the 48 hours following the initial earthquake, the largest aftershocks ranging from magnitude 3 to 3.6. These aftershocks made field conditions more challenging and threatening for those working on restoration.

During the response to the earthquake PG&E crews repaired or replaced 63 spans of conductor, 17 cross arms, and 1 pole.

b. Restoration Activities

PG&E activated several emergency centers to support response including: the EOC; Gas Emergency Center; Electric Transmission Emergency Center; Substation/Transmission Operations Emergency Center; Bay Region Emergency Center; and the Sonoma and North Bay OECs. Restoration and response began immediately as Troublemen and Gas Servicemen began to mobilize to the area. PG&E was able to assemble emergency personnel from 17 dual-commodity emergency centers to include 257 gas personnel, 500 electric personnel, and 100 management staff within a few hours of the initial earthquake.

PG&E's Electric Distribution Damage Model[11] was available within 30 minutes and provided invaluable insight to the forecasted extent of damage. This enabled the assembly and rapid deployment of required field resources.

Within two hours of the onset of the Napa earthquake, PG&E was on the scene supporting the Napa City Fire chief and PG&E first responders. PG&E worked with the EOCs of both the City and County of Napa on make-safe, repair, and restoration efforts. PG&E response personnel were also present in both the California EOC and Napa City EOC, ensuring consistent, timely, and appropriate communications. This close and immediate coordination with the EOCs helped provide information on the most disabling infrastructure damage, resulting in a more coordinated restoration effort.

PG&E established a base camp at the Napa Airport to support a coordinated Gas and Electric response to the earthquake. Control Centers immediately began to develop restoration strategies. Quick execution of switching began, and the first customers were restored within 40 minutes of the earthquake, and 99 percent of impacted electric customers were restored within 26 hours.

F. CEMA-Eligible Costs

PG&E operating departments plan their labor by month, and specifically plan a set amount of units of work for normal business operations to respond to day-to-day emergencies and for restoration work associated with a major

[11] Electric Distribution Damage Model is a damage modeling product developed within PG&E. The model uses Shakecast, a U.S. Geological Survey product, designed to forecast probability of damage. With the addition of PG&E proprietary facility data and application of in-house fragility curves, the model will estimate damage.

emergency.[12] A unit of work is a Priority-A Electric Corrective (EC) tag.[13] As with dollars, units of work are forecasted by both capital and expense. All emergency repairs performed on the distribution system are also captured in the form of units. The operating departments base the planned units of work for responding to emergencies on historical recorded expenditures and unit volume.

PG&E records all costs associated with electric distribution major emergency response to MWCs IF (Expense) and 95 (Capital). 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. 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.

Responding to emergency situations is one of PG&E's highest priorities. When a major event impacts the service territory, scheduled work is put on hold, and resources are re-deployed to the higher priority work of restoring customers. Thus, in a major emergency, planned units of work for normal day-to-day business operations may be displaced by units of work for responding to the major emergency.

The planned work displaced by emergency work must still be completed. This work is re-prioritized and re-scheduled, potentially causing other scheduled work to also be moved farther out in time. It can take from a few months to a year, depending on the magnitude of the major emergency and other factors, such as the use of overtime, to make up the work in the schedule.

Particularly before the MEBA took effect in 2014, PG&E continuously monitored and balanced the budget during the year for Electric Distribution spend. On a quarterly basis, PG&E would examine the actual spend compared

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12 A "major emergency" is any event that results in PG&E activating one of the Company's OECs.

13 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.

to the imputed spend and actual units compared to the planned unit volume for MWCs. If PG&E was overspending in one MWC (e.g., IF or 95) and that was expected to continue through the remainder of the year, then PG&E would reallocate funds from other areas of the electric distribution organization that were underspending and, if there were insufficient funds available from within electric distribution, request additional money from the rest of PG&E. Likewise, funds would be reallocated from MWCs that are underspending to other MWCs or programs in the company.

Beginning in 2014, PG&E began using the 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.

Table 2-5 shows the imputed budget versus actual costs for Major Emergency IF and 95 activities for years 2012 through 2015.[14] Table 2-5 shows that actual expenditures exceeded the imputed regulatory values levels for MWCs IF and 95 in nearly all of the years between 2012 and 2015. This reflects the significant impact the volatile climate has had on PG&E's infrastructure.

14 CEMA-eligible expenses are not included in this table.

TABLE 2-5
ELECTRIC DISTRIBUTION IMPUTED VERSUS ACTUAL COSTS
(MWC IF AND MWC 95) THRU DECEMBER 2015
(THOUSANDS OF DOLLARS)

MWC	2012 Imputed Regulatory Values	2012 Actual Expenditure	2012 Actual Over/(Under) vs. Imputed		2013 Imputed Regulatory Values	2013 Actual Expenditure	2013 Actual Over/(Under) vs. Imputed		2014 Imputed Regulatory Values	2014 Actual Expenditure	2014 Actual Over/(Under) vs. Imputed		2015 Imputed Regulatory Values	2015 Actual Expenditure	2015 Actual Over/(Under) vs. Imputed	
IF	21,877	36,363	14,486	~~(14,486)~~	22,534	20,850	(1,684)	~~1,684~~	40,848	44,916	4,068	~~(4,068)~~	41,863	126,637	84,774	~~(84,774)~~
95	32,104	35,972	3,868	~~(3,868)~~	32,104	33,200	1,096	~~(1,096)~~	49,040	48,838	(202)	~~202~~	42,331	128,686	86,355	~~(86,355)~~
	53,981	72,335	18,354	~~(18,354)~~	54,638	54,050	(588)	~~588~~	89,888	93,754	3,866	~~(3,866)~~	84,194	255,323	171,129	~~(171,129)~~

Sources:
2012 and 2013 IF and 95 Imputed Regulatory Values: PG&E calculation available upon request
2014 and 2015 IF and 95 Imputed Regulatory Values: PG&E's November 12, 2014 Budget Report in Compliance with CPUC Decision 11-05-018
2012 IF and 95 Actual Expenditures: PG&E's March 29, 2013 Budget Report in Compliance with CPUC Decision 14-08-032
2013 IF and 95 Actual Expenditures: PG&E's November 12, 2014 Budget Report in Compliance with CPUC Decision 14-08-032
2014 IF and 95 Actual Expenditures: PG&E's March 30, 2015 Budget Report in Compliance with CPUC Decision 14-08-032
2015 IF and 95 Actual Expenditures: PG&E's March 31, 2016 Budget Report in Compliance with CPUC Decision 14-08-032

PG&E creates work schedules and plans resources on a 5-week rolling schedule. Table 2-6 shows the annual planned and actual specific hours recorded for major emergency work in MWCs IF and 95 from 2012 through July 2016.

TABLE 2-6
ELECTRIC DISTRIBUTION MAJOR EMERGENCY HOURS PLANNED AND BY EVENT
2012 THROUGH JULY 2016

Line No.	Year	Storms	Hours 95	Hours IF	Hours Grand Total
1	2012	Dec 2012 Rain Storm	63,345	73,025	136,370
		2012 Plan	257,535	232,685	490,220
		% of Total	24.60%	31.38%	27.82%
2	2013	Clover Fire	5,809	1,624	7,433
		Rim Fire	9,651	3,971	13,622
		Subtotal	15,460	5,595	21,055
		2013 Plan	148,380	164,972	313,352
		% of Total	10.4%	3.4%	6.7%
3	2014	Dec 10 – Rain Storm	101,998	146,584	248,581
		Dec 2 – RAIN STORM	28,538	26,273	54,811
		Dec 5 – Wind/Rain Storm	1,435	1,537	2,972
		Nov 30 – Rain Storm	5,252	9,152	14,404
		American Canyon Earthquake	4,232	8,504	12,736
		Eiler Fire	1,637	1,114	2,751
		Bridge Fire	446	24	470
		Courtney Fire	2,736	671	3,406
		King Fire	1,901	1,461	3,362
		Butts Fire	428	–	428
		Subtotal	148,601	195,319	343,920
		2014 Plan	124,509	166,136	290,645
		% of Total	119.3%	117.6%	118.3%
4	2015	Feb 6 – Rain/Wind Event	67,693	74,214	141,907
		Jul 18 – Lightning	29,825	14,344	44,170
		Oct 15 – Thunder/Lightning	6,647	1,502	8,149
		Tassajara Fire	3,805	2,866	6,671
		Rough Fire	533	2,645	3,178
		Jerusalem Fire	–	13	13
		Valley Fire	61,745	34,984	96,729
		Parkhill Fire	623	70	693
		Olive Tree Fire	16	29	45
		Sky Fire	58	38	96
		Wragg Fire	47	100	148
		Tesla Fire	165	42	207
		Corrine Fire	100	81	–
		Oak & Hill Fire	59	126	185
		Rocky Fire	3,725	2,246	5,971
		Swedes Fire	39	270	309
		Lumpkin Fire	–	125	125
		Kyburz Fire	–	109	109
		Mallard Fire	36	96	132
		Sky (Rd 632) Fire	3	–	3
		Lowell Fire	–	101	101
		Subtotal	175,118	133,998	308,936
		2015 Plan	155,339	139,561	294,900
		% of Total	112.7%	96.0%	104.8%
5	2016	Mar 5 – Wind/Rain	39,786	60,362	100,148
		2016 Plan	96,043	106,385	202,428
		% of Total	41.4%	56.7%	49.5%

When a major event impacts the service territory scheduled work is put on hold, and resources are re-deployed to the higher priority work of restoring customers. In 2012, PG&E construction resources worked 136,370 hours for just the December Storm, which was 28 percent of the total hours planned for 2012. In 2013, PG&E construction resources worked 21,500 hours, which was 6.7 percent of the total planned hours. In 2014, PG&E construction resources worked 343,920 hours, which was 118.3 percent of the total planned hours. In 2015, PG&E construction resources worked 308,936 hours, which was 105 percent of the total planned hours. Thus far in 2016, PG&E construction resources worked 100,148 hours in response to the March storm, which was 49.5 percent of the total planned hours. The planned work that was put on hold must still be completed. This work is re-prioritized and re-scheduled, causing other scheduled work to also be moved farther out in time. It can take from a few months to a year, depending on the magnitude of the major emergency and other factors, such as the use of overtime, to make up the work in the schedule.

G. Conclusion

This chapter describes PG&E's damaged electric distribution facilities and PG&E's electric distribution restoration activities associated with the 2016 CEMA Events. As explained herein, PG&E's costs: of restoring utility services to customers—repairing, replacing, or restoring damaged utility facilities; and of complying with governmental agency orders in connection with these CEMA Events were reasonable, limited to just those counties in which a state of emergency was declared, and therefore should be approved in their entirety.