PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

January 6, 2023 TA2022-1021

Vincent Tanguay, Senior Director
Electric Compliance, Electric Engineering
Pacific Gas & Electric Company (PG&E)
300 Lakeside Dr., Oakland 94612

SUBJECT: Electric Transmission Audit of PG&E's Moss Landing Headquarters (HQ)

Dear Mr. Tanguay:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Dmitriy Lysak, Monica Hoskins, and Joseph Murphy of ESRB staff conducted an electric transmission audit of PG&E's Moss Landing HQ from October 24, 2022 through October 28, 2022. During the audit, ESRB staff conducted field inspection of PG&E's transmission facilities and equipment and reviewed pertinent documents and records.

As a result of the audit, ESRB staff identified violations of one or more General Orders (GOs). A copy of the audit findings itemizing the violations is enclosed. Please provide a response no later than February 3, 2023, by electronic copy of all corrective actions and preventive measures taken by PG&E to correct the identified violations and prevent the recurrence of such violations. The response should indicate the date of each remedial action and preventive measure completed. For any outstanding items not addressed, please provide the projected completion dates of all corrective actions for the violations outlined in Sections II & IV of the enclosed Audit Findings.

If you have any questions concerning this audit, please contact Dmitriy Lysak at (415) 940-4423 or dmitriy.lysak@cpuc.ca.gov.

Sincerely,

Banu Acimis, P.E.
Program and Project Supervisor
Electric Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission

Enclosure: CPUC Electric Transmission Audit Report of PG&E Moss Landing HQ

Cc: Lee Palmer, Director, Safety and Enforcement Division, CPUC
Nika Kjensli, Program Manager, ESRB, SED, CPUC
Nathan Sarina, Senior Utilities Engineer (Supervisor), ESRB, SED, CPUC
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Monica Hoskins, Utilities Engineer, ESRB, SED, CPUC
Joseph Murphy, Utilities Engineer, ESRB, SED, CPUC

CPUC AUDIT REPORT OF

PG&E MOSS LANDING HEADQUARTERS
ELECTRIC TRANSMISSION AUDIT
October 24 – 28, 2022

I. Records Review

During the record review part of the audit, ESRB staff reviewed the following records for the Moss Landing Headquarters (Moss Landing HQ) Electric Transmission facilities provided by PG&E:

- PG&E's "Electric Transmission Preventive Maintenance Manual (ETPM) TD-1001M" Rev 3, Rev 4, and Rev 5
- PG&E's utility procedures, standards, guidelines, and job aids for electric transmission facility inspections
- Third-Party Notification and Resolution of Potential Violations and Safety Hazards from 2017 to August 2022
- Notification to Third-Party Non-Utility of Nonconformance from 2017 to August 2022
- A list of transmission circuits and tower count
- Maps of transmission circuits
- A list of transmission facilities
- Lists of patrol, enhanced inspection, and drone inspections for electric transmission facilities from 2017 to August 2022
- PG&E's utility procedures, standards, guidelines, and job aids for electric transmission vegetation management
- A list of vegetation management for transmission circuits from 2017 to August 2022
- PG&E's policy and procedures related to transmission right-of-way maintenance, and associated performance records from 2018 to August 2022
- PG&E's insulator washing notifications and records from 2018 to August 2022
- PG&E's pole intrusive tests, foundation tests, and all other tests related to transmissions structure safety, and associated performance records from 2018 to August 2022
- A list of non-routine patrols for electric transmission facilities from 2017 to August 2022
- PG&E's policy and procedures for assigning priority levels to the transmission deficiencies identified from 2018 to August 2022
- A list of all open, closed, and cancelled notifications from 2018 to August 2022
- A list of all new construction projects completed from 2018 to August 2022
- A list of all pole loading calculations from 2021 to August 2022

- PG&E's utility standard and procedures for transmission work verification, vegetation management quality assurance, and vegetation management audit
- A list of PG&E's training undertaken by various work groups.
- The results of all internal quality management audits from 2017 to August 2022

II. Records Violations

ESRB staff found the following violations during the record review portion of the audit:

1. **General Order (GO) 95, Rule 31.2, Inspection of Lines** states in part:

   "Lines shall be inspected frequently and thoroughly for the purpose of insuring that they are in good condition so as to conform with these rules. Lines temporarily out of service shall be inspected and maintained in such condition as not to create a hazard."

   PG&E failed to complete the three non-routine patrols in Table 1 by their required due dates.

Table 1: PG&E Late Inspections

Inspection Type	Facility	Notification Number	Completion Date	Due Date	Days Late
Non-Routine Patrol	LLAGAS-HOLLISTER	117717712	5/4/2020	11/6/2019	180
Non-Routine Patrol	COBURN-OIL FIELDS #2	118473470	4/15/2020	2/27/2020	48
Non-Routine Patrol	EI LAURELES-OTTER	119510177	11/17/2020	10/27/2020	21

2. **PG&E's last two versions of its ETPM, Revision 4, effective November 20, 2018, and Revision 5, effective August 31, 2020,** define the priority codes and associated due dates for the corrective actions shown in Tables 2 and 3:

Table 2: PG&E ETPM Rev 04, Published on 11/20/2018, Priority Codes

Priority Code	Priority Code Priority Description
A	The condition is urgent and requires immediate response and continued action until the condition is repaired or no longer presents a potential hazard. SAP due date will be 30 days to allow time for post-construction processes and notification close-out.
B	Corrective action is required within 3 months from the date the condition is identified. The condition must be reported to the transmission line supervisor as soon as practical.
E	Corrective action is required within 12 months from the date the condition is identified.
F	Corrective action is recommended within 24 months from the date the condition is identified, (due beyond 12 months, not to exceed 24 months). Requires Director approval.
1. QCRs must report immediately any "Priority Code A" abnormal condition to the transmission line supervisor and GCC.	

2. In addition, QCRs must report any "Priority Code B" condition to the transmission line supervisor as soon as practical, to ensure that correction occurs within the appropriate time.

Table 3: PG&E ETPM Rev 05, Published on 08/31/2020, Priority Codes

Priority Code[1]	Priority Description
A[2]	The condition is urgent and requires **immediate** response and continued action until the condition is repaired or no longer presents a potential hazard. SAP due date will be 30 days to allow time for post-construction processes and notification close-out.
B[3]	Corrective action is required within **3 months** from the date the condition is identified. The condition must be reported to the transmission line supervisor as soon as practical.
E	Corrective action is required within **12 months** from the date the condition is identified. ***EXCEPT FOR ITEMS WITHIN HFTD TIER 3 ARE REQUIRED WITHIN 6 MONTHS[4].***
F	Corrective action is recommended within **24 months** from the date the condition is identified, (due beyond 12 months, not to exceed 24 months). ***EXCEPT FOR ITEMS WITHIN HFTD TIER 3 ARE REQUIRED WITHIN 6 MONTHS AND WITHIN HFTD TIER 2 ARE REQUIRED WITHIN 12 MONTHS[5].***
1) Refer to 2.3.5.2, "Priority Code Due Dates for High Fire Risk Conditions within HFTDs" and 2.3.5.3, "Priority Code Due Dates for Non-Fire Risk Conditions within HFTDs."	
2) QCRs must report immediately any "Priority Code A" abnormal condition to the transmission line supervisor, and the transmission supervisor or QCR contacts GCC.	
3) In addition, QCRs must report any "Priority Code B" condition to the transmission line supervisor as soon as practical, to ensure that correction occurs within the appropriate time.	
4) If the condition in the HFTD Tier 3 does NOT create a fire risk (non-threatening) the corrective action is required within 12 months.	
5) If the condition in the HFTD Tier 3 OR Tier 2 does NOT create a fire risk (non-threatening) the corrective action is required within 24 months.	

ESRB noted that PG&E did not correct identified deficiencies according to PG&E's assigned due dates. ESRB staff reviewed notifications from "*DR 15 – Master List of Notifications*" and found a total of 2,317 past due notifications, Table 4 below is a breakdown of the past due work orders for each priority.

Table 4: Number of Notifications Past Their Scheduled Completion Dates by Priority Codes

Priority Code*	Late Closed Notifications	Late Open Notifications	Late Cancelled Notifications	Total Late Notifications
A	-	-	28	28
B	78	6	34	118
E	776	928	154	1,858
F	14	291	8	313
Total	**868**	**1,225**	**224**	**2,317**

*Current Priority Codes

Table 5 below shows the longest overdue notification for each priority.

Table 5: Latest Open or Closed Notifications

Priority Codes*	Most Overdue Notification	Corrective Action Completion Date	Required End Date	Days Overdue**
B	116807144	Open	6/19/2019	299
E	116861209	Open	3/28/2020	916
F	117970470	Open	10/8/2021	357

*Current Priority Codes
**As of September 30, 2022

III. Field Inspection List

During the field inspection, ESRB staff inspected PG&E's transmission facilities listed in the following Table 6:

Table 6: Structures Inspected During Field Visit

Location	Structure Number	Circuits	Voltage (kV)
1	1/10	Moss Landing-Los Banos	500
2	1/9 C	Moss Landing-Los Banos	500
3	1/9 B	Moss Landing-Los Banos	500
4	1/9 A	Moss Landing-Los Banos	500
5	1/8	Moss Landing-Los Banos	500
6	00/13	Del Monte-Viejo	60
7	00/12	Del Monte-Viejo	60
8	00/11	Del Monte-Viejo	60
9	00/10	Del Monte-Viejo	60
10	00/14	Del Monte-Viejo	60
11	00/15	Del Monte-Viejo	60
12	5/67	Burns-Lone Star #1	60
13	5/66	Burns-Lone Star #1	60
14	5/115	Burns-Lone Star #2	60
15	5113	Burns-Lone Star #2	60
16	5/114	Burns-Lone Star #2	60
17	00/1	Crusher Tap Line	60
18	00/2 A	Crusher Tap Line	60
19	00/2 B	Crusher Tap Line	60
20	00/2 C	Crusher Tap Line	60
21	5/69	Burns-Lone Star #1	60
22	5/68	Burns-Lone Star #1	60
23	00/1	Burns-Lone Star #1	60
24	1/36	Burns-Lone Star #2	60
25	1/35	Burns-Lone Star #2	60
26	1/37	Burns-Lone Star #2	60
27	1/38	Burns-Lone Star #2	60
28	13/116	Green Valley-Paul Sweet	115
29	4/97	Green Valley-Watsonville	60
30	4/98	Green Valley-Watsonville	60
31	4/96	Green Valley-Watsonville	60
32	4/91	Green Valley-Watsonville	60
33	4/90	Green Valley-Watsonville	60
34	4/89	Green Valley-Watsonville	60
35	4/88	Green Valley-Watsonville	60
36	4/87	Green Valley-Watsonville	60

Location	Structure Number	Circuits	Voltage (kV)
37	4/86	Green Valley-Watsonville	60
38	00/1	Dean Foods Tap	60
39	00/1 A	Llagas-Gilroy Foods	115
40	00/1 B	Llagas-Gilroy Foods	115
41	00/1 C	Llagas-Gilroy Foods	115
42	20/126 A	Morgan Hill-Llagas	115
43	:20/126	Green Valley-Llagas Morgan Hill-Llagas Llagas-Hollister	115
44	:20/125	Green Valley-Llagas Morgan Hill-Llagas	115
45	00/3	Llagas-Gilroy Foods	115
46	00/4	Llagas-Gilroy Foods	115
47	00/2	Llagas-Gilroy Foods	115
48	3/50	Metcalf Coyote Plumbing Plant	115
49	3/49	Metcalf Coyote Plumbing Plant	115
50	29/130	Metcalf-Moss Landing #1 Metcalf-Moss Landing #2	230
51	3/27	Metcalf-Green Valley Metcalf-Morgan Hill	115
52	3/26	Metcalf-Green Valley Metcalf-Morgan Hill	115
53	29/129	Metcalf-Moss Landing #1 Metcalf-Moss Landing #2	230
54	3/46	Metcalf Coyote Plumbing Plant	115
55	3/47	Metcalf Coyote Plumbing Plant	115
56	3/38	Metcalf Coyote Plumbing Plant	115
57	9/62 A	Green Valley-Llagas	115
58	9/62	Metcalf-Morgan Hill	115
59	9/62 B	Metcalf-Green Valley	115
60	9/62 C	Metcalf-Morgan Hill	115
61	9/62 D	Morgan Hill-Llagas	115
62	9/63 A	Metcalf-Green Valley	115
63	9/63	Metcalf-Green Valley	115
64	13/93	Green Valley-Llagas	115
65	9/63 B	Metcalf-Green Valley	115
66	20/308	Coburn-Oil Field #2	60
67	20/309	Coburn-Oil Field #2	60
68	20/310	Coburn-Oil Field #2	60
69	20/311	Coburn-Oil Field #2	60
70	21/312	Coburn-Oil Field #2	60
71	21/313	Coburn-Oil Field #2	60
72	00/1	San Ardo Tap	60

Location	Structure Number	Circuits	Voltage (kV)
73	21/314	Coburn-Oil Field #2 San Ardo Tap	60
74	21/315	Coburn-Oil Field #2	60
75	21/316	Coburn-Oil Field #2	60
76	4/49	Jolon Tap	60
77	4/48	Jolon Tap	60
78	4/47	Jolon Tap	60
79	4/50	Jolon Tap	60
80	4/51	Jolon Tap	60
81	3/69	Coburn-Oil Field #2	60
82	3/68	Coburn-Oil Field #2	60
83	3/67	Coburn-Oil Field #2	60
84	3/66	Coburn-Oil Field #2	60
85	3/65	Coburn-Oil Field #2	60
86	3/70	Coburn-Oil Field #2	60
87	C 27/105	Coburn-Las Aguilas Switching Station Moss Landing-Coburn	230
88	C 26/104	Coburn-Las Aguilas Switching Station Moss Landing-Coburn	230
89	C 26/103	Coburn-Las Aguilas Switching Station Moss Landing-Coburn	230
90	C 26/102	Coburn-Las Aguilas Switching Station Moss Landing-Coburn	230

IV. Field Inspection – Violations

ESRB staff observed the following violations during the field inspection.

1. **GO 95, Rule 31.1, Design, Construction and Maintenance** states in part:

   "Electrical supply and communications systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

   For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment."

   ESRB identified the following facilities which need to be repaired or replaced, shown in Table 7.

Table 7: Deficient Facilities

Location	Structure Number	Deficiencies	Comments
1	1/10	Rusted sways	LC122007169 – Existing tag
17	00/1	Switch out of adjustment	LC123518661 - Existing tag
25	1/35	Replace structure	LC124247523 - Existing tag
26	1/37	Repair insulators	LC123714427 - Existing tag
42	20/126 A	Repair foundation	LC121889385 - Existing tag
43	:20/126	Steel pole within reach of substation fence	LC124954100 - Created in field
58	9/62	Repair foundation	LC124780922 - Created in field
59	9/62 B	Bent secondary members	LC124780972 - Created in field
72	0/1	Repair distribution crossarm	EC124974186 - Created in field
81	3/69	Damaged pole top	LC123908361 - Existing tag
84	3/66	Woodpecker holes	LC124787598 - Created in field

2. **GO 95, Rule 51.6 – Marking and Guarding, High Voltage Marking** states:

   "A. High Voltage Marking

   Poles which support line conductors of more than 750 volts shall be marked with high voltage signs. This marking shall consist of a single sign showing the words "HIGH VOLTAGE," or pair of signs showing the words "HIGH" and "VOLTAGE," not more than six (6) inches in height with letters not less than 3 inches in height. Such signs shall be of weather and corrosion–resisting material, solid or with letters cut out therefrom and clearly legible."

   GO 95, Rule 61.6 – Marking and Guarding states:

   "A. Marking

   All towers shall be equipped with signs designed to warn the public of the danger of climbing same. Additionally, such signs shall include a graphic depiction of the dangers of falling or electrocution associated with climbing the towers. Such signs shall be placed and arranged so that they may be read from the four corners of the tower. Such signs shall be neither less than 8 feet nor more than 20 feet above the ground except where the lowest horizontal member of the tower is more than 20 feet above the ground in which case the sign shall be not more than 30 feet above the ground."

   ESRB identified the following missing signage and high visibility strips shown in Table 8.

Table 8: Structures with Missing Signs

Location	Structure Number	Deficiencies	Comments
28	13/116	Missing “High Voltage” sign	LC122414592 – Included in existing tag
31	4/96	Missing visibility strips	LC119162150 - Existing tag
34	4/89	Faded visibility strips	Addressed in field
35	4/88	Damaged visibility strips	Addressed in field
36	4/87	Missing visibility strips	LC119810429 - Existing tag
73	21/314	Missing visibility strips	LC124785368 - Created in field

3. **GO 95, Rule 35 – Vegetation Management** states:

   "Where overhead conductors traverse trees and vegetation, safety and reliability of service demand that certain vegetation management activities be performed in order to establish necessary and reasonable clearances, the minimum clearances set forth in Table 1, Cases 13 and 14, measured between line conductors and vegetation under

normal conditions shall be maintained. (Also see Appendix E for tree trimming guidelines.) These requirements apply to all overhead electrical supply and communication facilities that are covered by this General Order, including facilities onlands owned and maintained by California state and local agencies."

ESRB identified the following vegetation management issues shown in Table 9.

Table 9: Vegetation Management Issue

Location	Structure Number	Deficiencies	Comments
26	1/37	Vegetation overgrown	LC124773641 – Created in field
53	12/129	Vegetation overgrown	Addressed in field

4. **GO 95, Rule 31.1 - Design, Construction, and Maintenance** states:

"Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service. For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment."

ESRB identified the following guy wires in Table 10 that were not in conformance with PG&E guidelines in TD-1001M-JA13.

Table 10 – Deficient Guy Wires

Location	Structure Number	Deficiencies	Comments
10	00/14	Slack distribution down guy	EC124959684 – Created in field
16	5/114	Missing guy markers. Slack distribution down guy	LC119971890, EC123698696 – Existing tag
17	00/1	Slack down guy	LC124775437 – Created in field
29	4/97	Repair guy wire. Install sectionalizer rod	LC119127096 – Existing tag
39	0/1 A	Missing sectionalizer rod	LC124777757 – Existing tag
40	0/1 B	Missing sectionalizer rod	LC124777756 – Existing tag
41	0/1 C	Missing sectionalizer rod	LC121892253 – Existing tag
45	0/3	Missing sectionalizer rod	LC124778381 – Created in field

54	3/46	Slack distribution down guy	LC124779308 – Created in field
60	9/62 C	Missing guy markers. Buried guy anchor	Addressed in field
61	9/62 D	Missing guy markers. Buried guy anchor	Addressed in field
67	20/309	Buried guy anchor	LC124785331 - Created in field
73	21/314	Missing sectionalizer rod	LC124785368 - Created in field
80	4/51	Slack distribution down guy	EC122494112 – Existing tag

5. **GO 95, Rule 31.1 – Design, Construction and Maintenance** states in part**:**

   "*Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service."*

   ESRB identified missing anti-climb guards. Table 11 below shows locations where anti-climb guards need to be installed.

Table 11: Deficient Anti-Climb Guards

Location	Structure Number	Deficiencies	Comments
58	9/62	Missing climbing guard	LC124780924 - Created in field
59	9/62 B	Missing climbing guard	LC124780928 - Created in field

6. **GO 95, Rule 31.6 – Abandoned Lines states:**

   "Lines or portions of lines permanently abandoned shall be removed by their owners so that such lines shall not become a public nuisance or a hazard to life or property. For the purposes of this rule, lines that are permanently abandoned shall be defined as those lines that are determined by their owner to have no foreseeable future use."

   ESRB identified the following abandoned facilities listed in Table 12 below:

Table 12: Abandoned Facilities not removed

Location	Structure Number	Deficiencies	Comments
67	20/309	Abandoned pole butt needs to be removed	LC124780924 - Created in field
72	0/1	Abandoned pole debris needs to be removed	LC119850923 - Existing tag

7. **GO 95, Rule 31.1 – Design, Construction and Maintenance** states in part**:**

" Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service."

ESRB identified missing grading rings. Table 13 below shows locations where grading rings need to be installed:

Table 13: Missing Grading Rings

Location	Structure Number	Deficiencies	Comments
39	0/1 A	Insulators need grading rings	LC 124777727 - Existing tag
40	0/1 B	Insulators need grading rings	LC124777728 - Existing tag
41	0/1 C	Insulators need grading rings	LC122261168 - Existing tag
45	0/3	Insulators need grading rings	LC124778437 - Created in field
52	3/26	Insulators need grading rings	LC120771041 - Existing tag
58	9/62	Insulators need grading rings	LC121418290 - Existing tag
59	9/62 B	Insulators need grading rings	LC124780973 - Created in field
60	9/62 C	Insulators need grading rings	LC124780976 - Created in field
61	9/62 D	Insulators need grading rings	LC121191680 - Existing tag
62	9/63 A	Insulators need grading rings	LC120679746 - Existing tag