



December 19, 2024

The Honorable Chair and Members of the
Hawai'i Public Utilities Commission
Kekuanao'a Building, First Floor
465 South King Street
Honolulu, Hawai'i 96813

Dear Commissioners:

Subject: Non-Docket Case No. 2024-01872
Report to the Commission on the August 8, 2023 Lahaina Fires

Hawaiian Electric¹ respectfully submits the attached Report to the Hawai'i Public Utilities Commission on the August 8, 2023 Lahaina Fires ("Report").²

This Report addresses the events surrounding the August 8, 2023, Lahaina Fires from the standpoint of Hawaiian Electric operations, and summarizes the many measures that Hawaiian Electric has taken since the fire to mitigate the risk that its equipment is involved in an ignition. The information in the Report comports with Hawaiian Electric statements made a few weeks after the Lahaina Fires, the information previously provided in response to Commission Information Requests issued over the last eleven months, and the information in government reports issued by the federal Bureau of Alcohol, Tobacco, Firearms and Explosives ("ATF") and Maui Fire Department ("MFD") and by the Fire Safety Research Institute ("FSRI") of Underwriter Laboratories for the Hawai'i Department of the Attorney General. This Report does not contain information or conclusions that depart in any material way from this body of work. Rather, it builds on it by incorporating internal company data, addressing conclusions and recommendations in the public reports, and outlining mitigation measures and other corrective actions identified, implemented, and contemplated by Hawaiian Electric. Hawaiian Electric will expand on the mitigation measures outlined in this Report when next month it files its 2025-27 Wildfire Safety Strategy, a further step in the Company's continuous efforts to improve public safety.

¹ Hawaiian Electric Company, Inc., Hawai'i Electric Light Company, Inc., and Maui Electric Company, Limited are collectively referred to as the "Hawaiian Electric Company", "Hawaiian Electric", and/or "Company".

² This report is intended to fulfill Hawaiian Electric's commitment to provide a report to the Commission regarding the Lahaina fires. See Letter from Kevin M. Katsura to Jodi Chai on "Accident Reporting Process – Lahaina Fires," October 10, 2023. The Report also includes confidential information, which is being submitted pursuant to the terms of Protective Order No. 40513 issued January 8, 2024. Attachment 1 to this letter provides the detailed justification for the confidential treatment of the information.

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Sincerely,

/s/ Joseph P. Viola

Joseph P. Viola
Senior Vice President
Customer, Legal and Regulatory Affairs

Enclosure

cc: Division of Consumer Advocacy

ATTACHMENT A: CONFIDENTIALITY JUSTIFICATION TABLE

Pursuant to Protective Order No. 40513, Hawaiian Electric Company, Inc. (“Hawaiian Electric” or the “Company”) hereby identifies redacted confidential and/or proprietary information that is being submitted as confidential. The following (1) identifies, in reasonable detail, the confidential information’s source, character, and location; (2) states clearly the basis for the claim of confidentiality; and (3) describes, with particularity, the cognizable harm to the producing party or participant from any misuse or unpermitted disclosure of the information.

Reference	Identification of Item	Basis of Confidentiality	Harm
<i>Report to the Hawai‘i Public Utilities Commission on the August 8, 2023 Lahaina Fires</i>	Information related to Company equipment	Confidential critical infrastructure and system security information falling under the frustration of legitimate government function exception of the Uniform Information Practices Act (“UIPA”). ¹	Public disclosure of the confidential information could increase risk to and/or compromise the physical or electronic security of the Company’s critical energy infrastructure; increase critical infrastructure vulnerability; expose the critical infrastructure to hazards such as vandalism, equipment theft, or other criminal activity; expose the critical infrastructure to physical or electronic disruption; jeopardize the Company’s emergency and disaster preparedness plans; and/or adversely impact its ability to respond to potential terrorist threats, all of which could damage public security.
Exhibits D, E, F, G and S	Information related to Company equipment		
Exhibit G	Information related to the Company’s operating processes and procedures, including outage management		

¹ Haw. Rev. Stat. § 92F-13(3). See also OIP Op. Ltr. No. 07-05 at 1-4; OIP Op. Ltr. No. F17-02 at 13-14.

Reference	Identification of Item	Basis of Confidentiality	Harm
			frustrate its function of ensuring public security of critical energy infrastructure. The confidential information: (1) has not been previously disclosed or otherwise publicly disseminated; (2) is not of the kind of information that the Company would customarily disclose to the public; and/or (3) is of a nature that its disclosure could (a) impair the Commission's ability to obtain necessary information from similarly situated parties in the future, and (b) cause substantial harm to the Company and/or its customers as previously described above.
Exhibit K	Trouble Man Report	Personal identification information which falls under the unwarranted invasion of personal privacy exception in Section 92F-13(1) of the UIPA.	Names and phone number of individuals have been redacted and are considered confidential under section 92F-13(1) of the UIPA as public disclosure could constitute an invasion of personal privacy and expose the person(s) to, among other things, potential victimization, and potentially expose the Company to certain liabilities as well as the cost of addressing any potential untoward uses of the confidential information.

Hawaiian Electric's Report to the
Hawai'i Public Utilities Commission on
the August 8, 2023, Lahaina Fires

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I. Introduction

This report addresses the events surrounding the fire that ignited around 6:30 in the morning on August 8, 2023 (“Morning Fire”), near Lahainaluna Road in Lahaina, and the significant actions that Hawaiian Electric has taken since then to mitigate the risk of fire caused by its equipment.¹ This report confirms the sequence of events that Hawaiian Electric stated on August 27, 2023, and is largely consistent with the origin and cause reports issued by government agencies. Less than three weeks after the Lahaina fires, Hawaiian Electric stated that its equipment was involved in the ignition of the Morning Fire. The recent reports issued by the federal Bureau of Alcohol, Tobacco, Firearms and Explosives (“ATF”) and Maui Fire Department (“MFD”) on October 2, 2024, which determined that the Morning Fire was accidental, largely confirmed the facts that Hawaiian Electric reported. Those government reports also concluded that the Morning Fire that was initially reported to be extinguished rekindled at around 2:55 p.m. (“Afternoon Fire”), and that the Afternoon Fire that spread to Lahaina was not a new ignition.

Hawaiian Electric deeply regrets that its equipment was involved in the ignition of the Morning Fire, and is committed to doing its part to significantly reduce the risk of wildfire in the state. As the reports issued by the Fire Safety Research Institute (“FSRI”) of Underwriter Laboratories (“UL”) for the Hawai‘i Department of the Attorney General (the “FSRI Reports”) emphasize, wildfire is a community-wide problem that requires community-wide solutions. Hawaiian Electric is grateful for the fire mitigation work done by state and local agencies, landowners, and non-profits, and looks forward to continued partnerships with these and other stakeholders to address this statewide challenge.

A. Overview

Hawaiian Electric employees worked tirelessly on August 8 and performed to the best of their abilities under extraordinary and chaotic circumstances. Like all members of our community, Hawaiian Electric’s employees have been deeply impacted by this tragedy and suffered tremendous losses on August 8. Hawaiian Electric is proud of its employees’ dedication

¹ This report is intended to fulfill Hawaiian Electric’s commitment to provide a report to the Hawai‘i Public Utilities Commission (the “Commission”) regarding the Lahaina fires. *See* Letter from Kevin M. Katsura to Jodi Chai on “Accident Reporting Process – Lahaina Fires,” October 10, 2023.

and unflagging efforts to clear roads throughout the day and late into the night on August 8, as well as its employees' prompt reporting of the Afternoon Fire to the MFD. Hawaiian Electric employees worked heroically on August 8 to protect their community.

This Report references and builds upon the work done by public reports and investigations, incorporates internal company data, and explains Hawaiian Electric's procedures and operations. Where appropriate, Hawaiian Electric identifies data presented by ATF or FSRI and addresses conclusions reached in both reports. Many of the findings and recommendations of the FSRI Phase Two Report are addressed by and inform the mitigation measures detailed in Section IV. This Report also documents additional actions identified, implemented, and contemplated by Hawaiian Electric.

Sources for the facts in this Report include electrical event and system data, audio recordings of radio transmissions and calls between the Maui Electric Control Room and field personnel and other communications, trouble reports and outage records, Automatic Vehicle Location ("AVL") data, maintenance and inspection records, and physical evidence collected from Lahaina. This Report also references certain additional publicly available records. The records, data, and physical evidence referenced in this report have been made available to the extent requested to investigating government agencies and to parties to the civil litigation relating to the Lahaina fires.²

While Hawaiian Electric took reasonable steps prior to August 2023 to mitigate the risk of fire—including the voluntary development and implementation of a Wildfire Mitigation Plan³ and Maui Electric's Reclose Blocking Procedure—Hawaiian Electric has since taken additional steps in response to the August 2023 windstorm and wildfires. Because safety is always paramount, Hawaiian Electric has been proactive in implementing these measures and has not waited to be ordered to do them by the Commission. These actions are described in Section IV and are detailed at length in Hawaiian Electric's Wildfire Immediate Action Plan⁴ and in

² Although Hawaiian Electric has agreed to comprehensive settlement agreements to resolve the tort litigation arising out of the Lahaina fires, those agreements remain subject to contingencies and court approval, and litigation remains outstanding. Issuing this fact-based report is not intended to waive, and does not waive, Hawaiian Electric's attorney-client privilege or the protections of the attorney work product doctrine (including over Hawaiian Electric's privileged investigation and privileged communications with its experts and consultants retained at the direction of counsel for litigation), all of which Hawaiian Electric expressly retains.

³ Wildfire Mitigation Plans were mandated by statute in other states like California, but were not required in Hawai'i.

⁴ The Wildfire Immediate Action Plan, also referred to as the Interim Wildfire Safety Measures, was submitted to the Commission in February 2024 in response to Non-Docketed Case No. 2024-01872, PUC-HECO-IR-10.

Hawaiian Electric’s forthcoming 2025-2027 Wildfire Safety Strategy. Immediate corrective actions taken since August 8, 2023, include implementing fast trip settings, replacing electro-mechanical distribution relays to support fast trip, installing fire-safe fuses, performing ground and drone inspections, pole testing, pole replacements, pole upgrades, reconductoring, deploying wildfire spotters, deploying cameras and weather stations, additional vegetation management, and Hawai‘i’s first Public Safety Power Shutoff Program. These steps significantly reduce the likelihood of Hawaiian Electric equipment igniting or contributing to a wildfire.

B. Prior Reports on the Lahaina Fires

Previously released public investigations have provided important insights into the August 8 Lahaina fires for the Commission, and also inform this Report by providing helpful background information. The FSRI Reports collect a large volume of background information concerning events that unfolded on August 8, 2023. The first FSRI Report (“FSRI Phase One Report”), released on April 17, 2024, presents extensive background facts about how the fires unfolded, including a detailed account of the spread of the Afternoon Fire.⁵ In many instances, this Report references and refers the Commission to information provided by the FSRI Phase One Report that is not recounted here. The second FSRI Report (“FSRI Phase Two Report”), released on September 13, 2024, analyzes the data presented in the FSRI Phase One Report and assesses how various emergency and fire response systems operated during the Lahaina Afternoon Fire.⁶ The FSRI Phase Two Report makes 84 findings—ten directed to Hawaiian Electric—with associated recommendations largely related to government and emergency responses that further inform this Report. The FSRI Reports present no origin and cause analysis of the Lahaina fires.

MFD’s origin and cause investigation of the Lahaina fires, which was supported by the ATF, was released on October 2, 2024. This report comprises three underlying reports: (1) an origin and cause report from MFD (“MFD Report”); (2) a longer origin and cause report from ATF (“ATF Report”); and (3) a technical “Laboratory Report” authored by an electrical engineer

⁵ S. Kerber & D. Alkonis, “Lahaina Fire Comprehensive Timeline Report” (FSRI, Apr. 17, 2024), https://d1gi3fvbl0xj2a.cloudfront.net/2024-04/FSRI_Lahaina_Fire-Comprehensive_Timeline_Report_04_17_2024_Redacted_Final_0.pdf.

⁶ S. Kerber & D. Alkonis, “Lahaina Fire Incident Analysis Report” (FSRI, Sept. 13, 2024), <https://fsri.org/resource/phase-two-lahaina-fire-incident-analysis-report>.

from the ATF’s Fire Research Laboratory (“ATF Laboratory Report”).⁷ The findings in the ATF Report and the MFD Report are consistent with Hawaiian Electric’s early acknowledgment that the Morning Fire was caused by power lines damaged by high winds. The ATF Laboratory Report, which analyzes electrical data provided by Hawaiian Electric, confirms that Hawaiian Electric’s lines were not energized when the Afternoon Fire ignited. Both Reports also conclude that the Afternoon Fire was a re-kindle of the Morning Fire, and that the Afternoon Fire was likely ignited by either burning material from the Morning Fire that blew into a nearby gully of unmanaged vegetation and smoldered, or burning material pushed into the gully by a bulldozer operator, working under the direction of the MFD, that attempted to cut an ad hoc firebreak along the northeast edge of the Morning Fire.

Hawaiian Electric cooperated with the investigations conducted by FSRI and ATF.⁸ Hawaiian Electric provided extensive data requested by these organizations without requiring a subpoena and also made employees available for interviews regarding the events of August 8 and to explain the data provided by Hawaiian Electric. Hawaiian Electric looks forward to continuing to cooperate with FSRI as it composes its Phase Three report concerning forward-looking recommendations, which is set to be published in 2025.⁹

C. Outline of Report

This report proceeds as follows:

- Section II presents a timeline of August 6–8, 2023, including background on the Hurricane Dora Windstorm, Hawaiian Electric’s preparations, windstorm impacts to Hawaiian Electric’s system on Maui, Hawaiian Electric’s response to

⁷ All three reports are available here: https://www.mauicounty.gov/DocumentCenter/View/149693/FI23-0012446-Lahaina-Origin-and-Cause-Report_Plus-Appendix-A-B-C-Redacted.

⁸ While MFD did not specifically request materials or data from Hawaiian Electric to support its investigation of the Lahaina Fires, parties to the civil litigation, including the County of Maui (of which MFD is a unit), received voluminous productions from Hawaiian Electric. The County of Maui also had representatives present at the three joint examinations of physical evidence hosted by Hawaiian Electric.

⁹ In addition to the FSRI, MFD, and ATF Reports, additional information on the Lahaina fires is documented in the Western Fire Chiefs Association After-Action Report on behalf of the County of Maui Department of Fire and Public Safety (“MFD AAR Report”) (<https://www.mauicounty.gov/DocumentCenter/View/146279/2023-Wildfire-After-Action-Report>), the Final Report of the House of Representatives Lahaina Wildfire Interim Working Groups (“House Report”) (https://www.capitol.hawaii.gov/CommitteeFiles/Special/ENRWG/Documents/2023_FinalReport-Lahaina-Wildfire-InterimWorking-Group.pdf), and the Maui Police Department Preliminary After-Action Report (“MPD AAR Report”). (http://www.mauipolice.com/uploads/1/3/1/2/131209824/pre_aar_master_copy_final_draft_1.23.24.pdf).

windstorm damage, the Lahaina Morning Fire ignition, Hawaiian Electric’s response to the Morning Fire, the Lahaina Afternoon Fire ignition, and Hawaiian Electric’s response to the Afternoon Fire and support of egress.

- Section III presents analysis of certain information related to the Lahaina Morning Fire, in particular information concerning Pole 7A and electrical data.
- Section IV presents an overview of operational changes made and planned by Hawaiian Electric to mitigate fire risk in light of the August 8 Lahaina fires. The explanation of the measures outlined in this section will be supplemented when Hawaiian Electric files its 2025-2027 Wildfire Safety Strategy in January 2025.

II. Timeline of the Lahaina Fires, August 6 Through 8, 2023

A. The Hurricane Dora Windstorm

The National Weather Service stated as early as August 6, 2023, that Hurricane Dora would drive a “significant” pressure gradient creating strong winds across the Hawaiian Islands.¹⁰ The National Weather Service Honolulu tweeted on August 6, 2023: “Combined w/ dry conditions, these winds pose a serious fire & damaging wind threat. Stay alert!”¹¹



¹⁰ <https://x.com/NWSHonolulu/status/1688339741685792768>.

¹¹ <https://x.com/NWSHonolulu/status/1688339743946522624>.



Figures 1 and 2: August 6, 2023 tweets by NWSHonolulu related to fire risk associated with Hurricane Dora

At 3:15 a.m. on August 7, 2023, the National Weather Service issued a Red Flag Warning for leeward areas of all Hawaiian Islands in effect until 6:00 a.m. on Wednesday, August 9, 2023.¹² The agency warned that “[v]ery dry fuels combined with strong and gusty easterly winds and low humidities below 45 percent will produce critical fire weather conditions through Tuesday night.”¹³ Nonetheless, forecasters predicted Hurricane Dora would pass well south of the Hawaiian Islands. Hawaiian Electric also received updates on Hurricane Dora and its forecasted effects for Hawai‘i leading up to August 8, 2023, from private forecaster StormGeo. The final StormGeo update on August 7, 2023 at 7:07 a.m. stated: “Hurricane Dora will be making its closest approach to Hawai‘i today, but the storm is so small and so far south of Hawai‘i that no impacts will be felt there. Dora will continue moving off to the west to west-northwest over the coming week while slowly weakening.”¹⁴ That update concluded: “Because this storm is no longer a potential threat to your company’s area of concern, this is the final advisory that you will receive via email.”¹⁵

¹² See Exhibit A; for a summary of National Weather Service notifications related to Hurricane Dora and social media posts, see FSRI Phase One Report, Table 6.2, pages 292–293.

¹³ See FSRI Phase One Report, Table 6.2, pages 292–293.

¹⁴ See Exhibit B (StormGeo Hurricane Dora Advisory 33).

¹⁵ See Exhibit B.

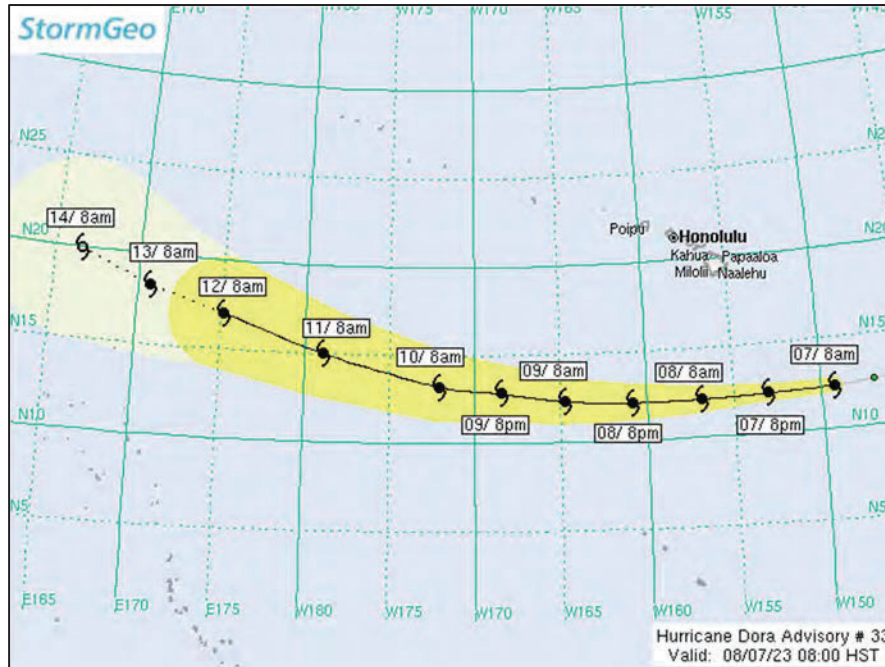


Figure 3: August 7, 2023 Hurricane Dora Advisory for StormGeo showing path far south of Hawaii

Notwithstanding the weakened forecast, Hawaiian Electric took steps to prepare for the potential impacts of the storm.

B. Hawaiian Electric Preparations for the Hurricane Dora Windstorm

Maui Electric implemented its Reclose Blocking Procedure in Maui County in response to the Red Flag Warning issued by the National Weather Service on August 7, 2023. Blocking reclosing for breakers and in-line reclosers is a safety measure that disables automatic reclose functionality for those devices and prevents them from attempting to automatically re-energize. Reclose blocking of circuit breakers and in-line reclosers is a longstanding practice on Maui that has been practiced in various forms since at least 2009. The Reclose Blocking Procedure in place on August 8, 2023, was last revised on March 14, 2023. Maui Electric's then current approach to reclose blocking had been in place since at least as early as 2021.¹⁶

Maui Electric's Reclose Blocking Procedure included triggers for both Red Flag Warnings and high wind conditions. The Procedure directed blocking of automatic reclosing for

¹⁶ This practice of reclose blocking in Red Flag Warning conditions had been in place for a number of years prior to 2021. Hawaiian Electric provided the March 14, 2023, version of its Reclose Blocking Procedure, which was in place on August 8, 2023, to the Commission in Non-Docketed Case No. 2024-01872 PUC-HECO-IR-36. This version of the Reclose Blocking Procedure is also attached to this report as Exhibit C.

a preset list of breakers and in-line reclosers in Maui Electric’s service territory of Maui, Moloka‘i, and Lāna‘i.¹⁷ While negatively impacting reliability, this procedure reduced the likelihood of electrical facilities igniting a fire by preventing specified devices from attempting to reclose and re-energize in the event that a protective device operates to de-energize a line under a fault condition. The procedure provided that circuits that trip offline are manually re-energized only after they have been visually “inspected by vehicle, foot, or aircraft” and found “clear and intact.”¹⁸ The Reclose Blocking Procedure took precedence over Maui Electric’s standard operating procedures, which otherwise allowed for a single reclose attempt in the event a circuit tripped offline under fault conditions.

By 8:34 a.m. on August 7, Maui Electric personnel had blocked automatic reclosing for all designated breakers and reclosers on Maui.¹⁹ The Reclose Blocking Procedure included breakers associated with the three 69kv transmission lines supplying power to West Maui through the [REDACTED] and [REDACTED] Substations. These breakers and reclosers remained blocked through August 8. In general, distribution lines were not included in the Reclose Blocking Procedure, although, as explained further below, there is no indication from the electrical data that recloser operations played any role in the ignition of the Morning Fire.

As reports of damage from the windstorm came in, Hawaiian Electric augmented staffing, calling in on-call personnel, recalling employees from vacation, extending employee hours, and lining up contractor support so that the Company could address damage to its system.

C. Windstorm Impacts on Hawaiian Electric System

System damage and reported winds on the night of August 7 and morning of August 8 indicate that the windstorm exceeded the expected forecast. Relays and in-line protective devices recorded faults on distribution and transmission circuits associated with the windstorm throughout Maui overnight on August 7 into the early morning of August 8, 2023.²⁰ This

¹⁷ See Exhibit D (list of circuit breakers and in-line reclosers included in Maui Electric’s Reclose Blocking Procedure as of August 7, 2023).

¹⁸ See Exhibit C (Reclose Blocking Procedure – Revised Mar. 14, 2023).

¹⁹ A copy of the Excel worksheet tracking the implementation of the Reclose Blocking Procedure on August 7, 2023 is attached to this report as Exhibit E.

²⁰ The first significant fire associated with the August 7-8 Maui windstorm occurred in the Olinda Road area of Upcountry Maui and appears to have ignited at approximately 10:47 p.m. This Report does not address the Olinda Fire or Kula Fire, which began in the late morning of August 8. The MFD and ATF have yet to issue cause and origin reports for these fires.

included West Maui, which is powered by parallel 69kv transmission lines from the [REDACTED] Substation and [REDACTED] Substation—both are located on the southeastern edge of Lahaina along Lahainaluna Road.

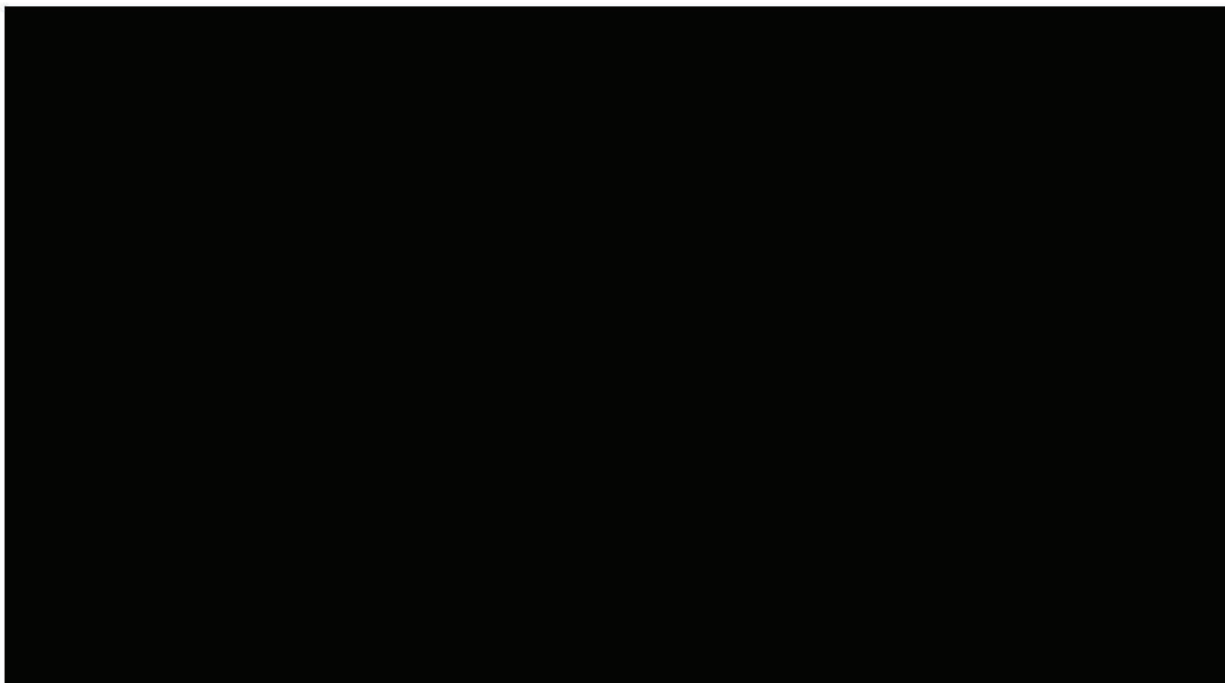


Figure 4: Simplified single-line diagram of West Maui 69kv transmission system provided to illustrate power supply and operation on a “blue sky” day with all transmission lines in service

The [REDACTED] Substation was a switching substation—directly powering no distribution circuits—and supplied power to West Maui through the [REDACTED] Substation via the [REDACTED] Line, and to the [REDACTED], [REDACTED], and [REDACTED] Substations through the [REDACTED] to [REDACTED]²¹ [REDACTED] Line.²² The [REDACTED] Substation powered distribution circuits for Lahaina, and could also power the [REDACTED] Substation via the [REDACTED] Line, and the [REDACTED], [REDACTED], and [REDACTED] Substations via the [REDACTED] to [REDACTED] Line.

The circuit breakers for the transmission lines powering both the [REDACTED] and [REDACTED] Substations from Hawaiian Electric’s Maalaea Power Plant (“MPP”) and

²¹ The terms “mauka” and “makai” are common vernacular throughout Hawai‘i and are used in identifying Hawaiian Electric equipment. “Mauka” means “towards the mountain,” “makai” means “towards the sea” or “seaward.”

²² Subsequent to the Lahaina fires, a distribution transformer was added to the [REDACTED] Substation to add distribution capability to support restoration of power following the destruction of the [REDACTED] Substation. Descriptions of Hawaiian Electric facilities and equipment throughout this Report generally reflect their configuration on August 8, 2023, and may be significantly different following restoration.

**Confidential Information
Deleted Pursuant To
Protective Order No. 40513.**

Kaheawa Wind Power farm (“KWP 1” and “KWP 2”) were included in the Reclose Blocking Procedure and were blocked from automatic reclosing on August 7. [REDACTED] on the [REDACTED] Line was blocked from reclosing at 6:14 a.m. on August 7, 2023. [REDACTED] on the [REDACTED] Line was blocked from reclosing at 6:15 a.m. on August 7, 2023. [REDACTED] and [REDACTED] on the [REDACTED] Line powering the [REDACTED] Substation directly from MPP were blocked from reclosing at 6:20 a.m. and 6:21 a.m. respectively on August 7, 2023.

By 3:30 a.m. on August 8, 2023, the two transmission lines powering the [REDACTED] from the [REDACTED] and [REDACTED] had tripped offline. [REDACTED] on the [REDACTED] Line from the [REDACTED] Substation relayed open at 2:44 a.m. after the relay recorded A-Phase and Ground faults. [REDACTED] on the [REDACTED] Line from the [REDACTED] Substation relayed open at 3:30 a.m. after the relay recorded A-Phase and C-Phase faults. As both breakers were blocked from reclosing in accordance with the Reclose Blocking Procedure, they remained out and did not attempt to automatically re-energize. The Reclose Blocking Procedure required the transmission lines to be visually inspected by field personnel prior to re-energization. These lines were not re-energized on August 8, 2023.

With the [REDACTED] and [REDACTED] Lines offline, the only remaining power supply to the [REDACTED] Substation—and its accompanying distribution circuits for the town of Lahaina—came from a single [REDACTED] line from the [REDACTED] Substation: the [REDACTED] Line. The [REDACTED] Substation remained powered by the [REDACTED] Line directly from the MPP.

At 3:37 a.m. on August 8, 2023, the [REDACTED] to [REDACTED] Line also tripped offline. Reclosing of [REDACTED] and [REDACTED] on the [REDACTED] to [REDACTED] line had been blocked at 6:20 a.m. and 6:22 a.m. respectively on August 7, 2023, so this line did not come automatically re-energize. Afterwards, power to the [REDACTED], [REDACTED], and [REDACTED] Substations was supplied exclusively by a transmission line running north from the [REDACTED] Substation, which itself was supplied through the [REDACTED] Line from the MPP to the [REDACTED] Substation, via the [REDACTED] Line from the [REDACTED] Substation.

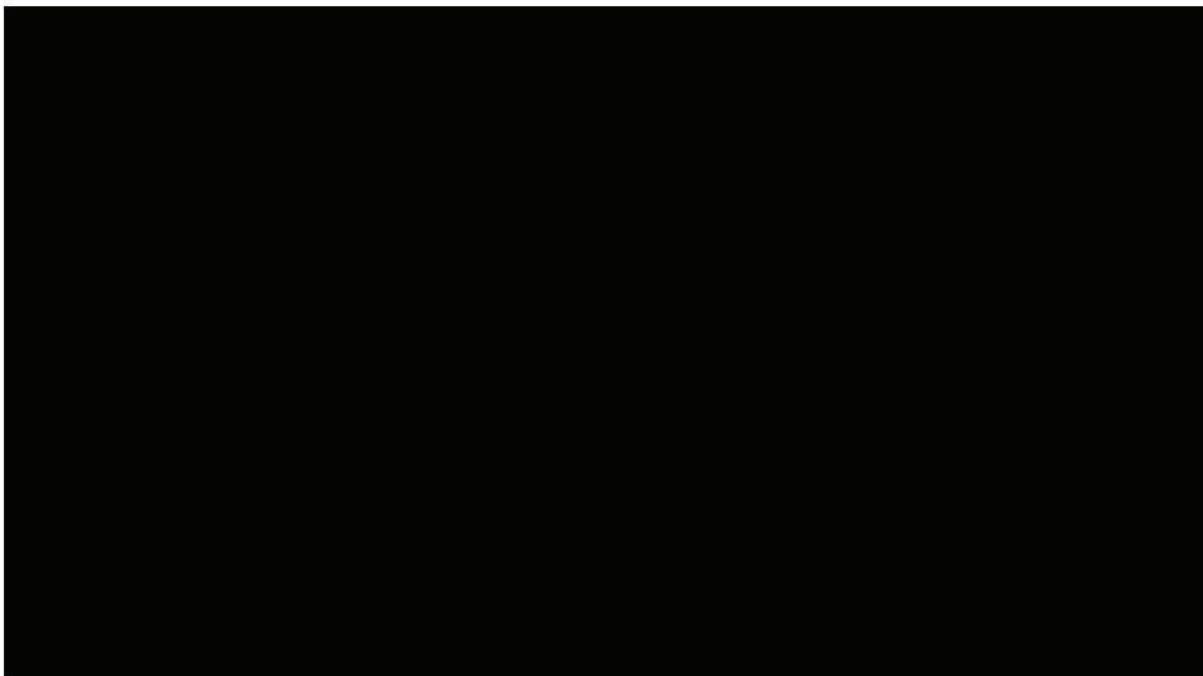


Figure 5: Status of West Maui 69kv transmission system at 3:37 a.m. on August 8, 2023, showing all power to West Maui supplied through the [REDACTED] Line, [REDACTED] Line, and the [REDACTED] Substation. Green arrows indicate customer loads are being served via those transmission lines.

At 5:00 a.m. on August 8, 2023, breakers on the [REDACTED] Line relayed open under fault conditions. [REDACTED] and [REDACTED] on the [REDACTED] [REDACTED] Line had been blocked from reclosing at 6:21 a.m. and 7:20 a.m. on August 7, 2023 respectively, and thus did not automatically re-energize. This trip de-energized the last remaining transmission line powering the [REDACTED] Substation, causing all of West Maui, to lose power at this time, including distribution circuits in Lahaina. Voltage and current data plots for West Maui circuits provided to ATF and attached to this Report document the loss of power to the [REDACTED] Substation and its distribution circuits supplying power to customers in Lahaina.²³

²³ These data plots, versions of which appear on pages 24–29 of the ATF Laboratory Report, are attached to this Report as Exhibit F.



Figure 6: Status of West Maui 69kv transmission system between 5:00 a.m. and 6:07 a.m. on August 8, 2023, with the [REDACTED] Line to be inspected highlighted in yellow.

Concurrent with the complete West Maui outage, the Control Room received numerous reports of equipment damage in Lahaina, including from the MPD and MFD central dispatch,²⁴ during the early hours of the windstorm. The Control Room received four reports from MPD/MFD central dispatch of damaged equipment at five locations in Lahaina between 5:12 a.m. and 5:51 a.m. on August 8, 2023.

- At 5:12 a.m. MPD reported a tin roof resting on power lines at the intersection of Front Street and Lahainaluna Road.
- At 5:29 a.m. MPD reported that Pole 25 had snapped at Lahainaluna Road and Kuialua Street,²⁵ and that there were lines down to the side of the road.
- At 5:48 a.m. MPD reported two poles leaning and damaged at the base at the intersection of Honoapiilani Highway and Keawe Street.
- At 5:51 a.m. MPD reported eight poles down at the intersection of Honoapiilani Highway and Hokiokio Place.

²⁴ MFD and MFD report to a central dispatch operated by Maui County.

²⁵ MFD misreported the location of Pole 25, which is at the intersection with Ho‘okahua Street, not Kuialua Street.

- At 5:51 a.m. MPD reported a pole leaning and transformer swaying at 761 Waianae Street.

In addition to these reports, the Maui Electric Control Room received numerous outage reports from throughout Maui, including reports related to the fire in the Upcountry area of Olinda Road.²⁶

D. Hawaiian Electric's Response to Windstorm Damage

With the Maui County Emergency Operations Center ("EOC") partially activated, Hawaiian Electric's liaison officer was summoned at approximately 4:45 a.m. and reported to the EOC at 5:15 a.m. on August 8, 2023.²⁷ Hawaiian Electric had continuous presence in the EOC for the remainder of August 8, 2023, and overnight into August 9. Hawaiian Electric's liaison officer provided EOC personnel with the phone number to contact the Maui Electric Control Room directly to inquire as to the status of whether certain areas were energized or make other requests to support emergency response. Best practice is for emergency responders to interface directly with Control Room personnel to get the most up-to-date information about whether lines are energized.

Hawaiian Electric field crews and Control Room dispatchers responded to multiple outages and damage reports in the early morning of August 8, 2023. With West Maui experiencing a full outage at 5:00 a.m. after the [REDACTED] Line tripped offline, the Control Room dispatched a Lahaina-based Troubleshooter to inspect the transmission line between the [REDACTED] and [REDACTED] Substations. The Reclose Blocking Procedure, when in effect, mandates visual inspection of lines included in the procedure prior to their restoration. The [REDACTED] Line is approximately one mile in length and runs parallel to Lahainaluna Road over an uncultivated field largely owned by Kamehameha Schools ("KS") and the State of Hawai'i. This area is known as Ku'ia. The [REDACTED] Line, because of its short relative length and visibility from

²⁶ Hawaiian Electric previously described the sequence of events associated with the Olinda Fire in response to Non-Docketed Case No. 2024-01872, PUC-HECO-IR-7, which included discussion of some of the other outages. Various additional outage and damage reports are described in the August 8, 2023 System Operations Department Power System Operation Log. *See* Exhibit G.

²⁷ The liaison officer to the County EOC is one of the standard roles in Hawaiian Electric's Incident Management ("IMT") Team command structure. The liaison directly interfaces with county emergency leaders, ensuring there is a dedicated conduit for direct and clear communication and providing information as requested. Hawaiian Electric activated its IMT at approximately 9:15 a.m. on August 8.

Lahainaluna Road, could be visually inspected and restored more quickly than the other two transmission lines that could have provided service to the [REDACTED] Substation, namely the [REDACTED] and [REDACTED] Lines.

The Troubleman inspected the [REDACTED] Line by driving the length of Lahainaluna Road from the [REDACTED] Substation to [REDACTED] Substation, and back, from 5:16 a.m. to 5:48 a.m. The inspection included entering Dickenson Street, proceeding onto the Lahaina Bypass, passing Ho‘okahua Street, and continuing to the [REDACTED] Substation.

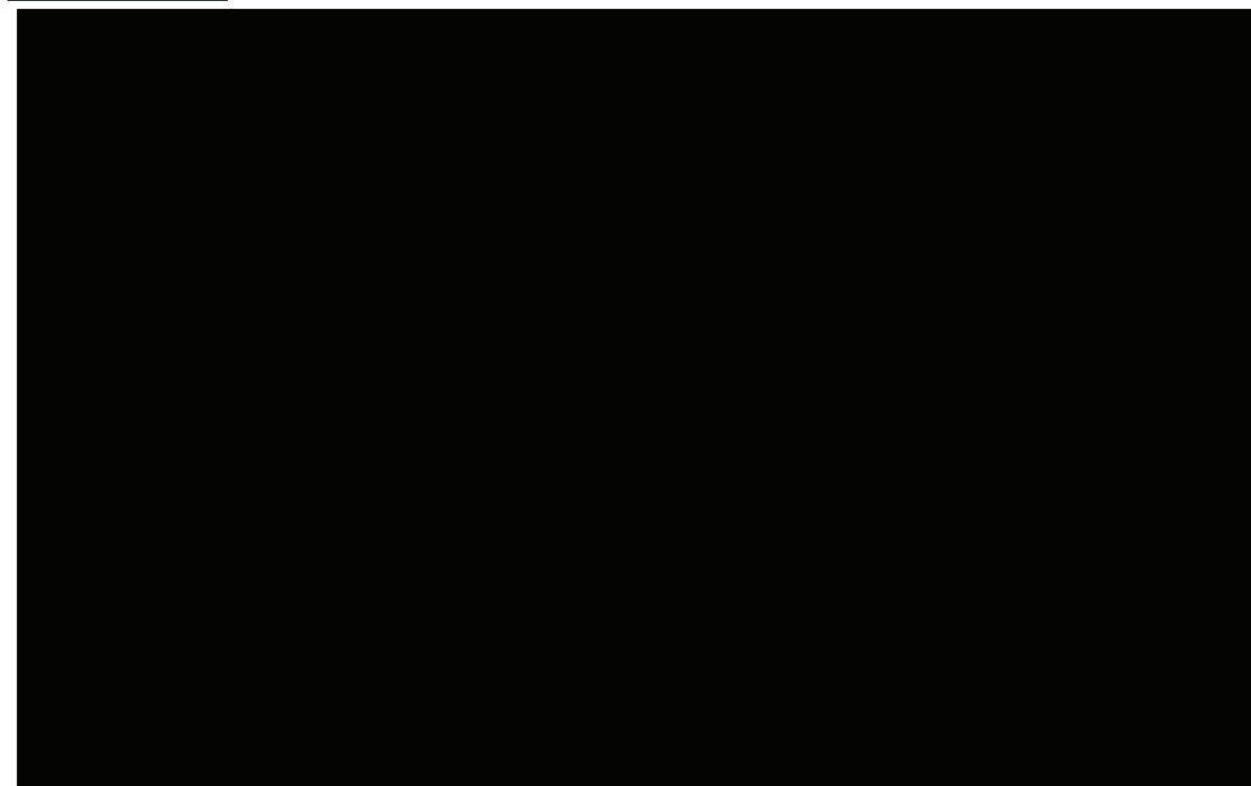


Figure 7: GPS (AVL) track of the Hawaiian Electric Troubleman’s inspection of the [REDACTED] Line from 5:16 to 5:48 a.m. overlaid on a Google Earth November 2023 aerial image. The [REDACTED] Line is highlighted in yellow to indicate the focus of the Troubleman’s inspection.

AVL data recorded by Hawaiian Electric’s Zonar Fleet Management system tracked the Troubleman’s inspection and is presented above in Figure 7. With sunrise at 6:03 a.m. that day, the Troubleman inspected the line in the pre-dawn hours. His route twice took him past the intersection of Lahainaluna Road and Ho‘okahua Street—where the Morning Fire would later start near the base of Pole 25. Pole 7A is on Ho‘okahua Street, north of Lahainaluna Road, and Pole 25 is just south of Lahainaluna Road at the intersection with Ho‘okahua Street. His

inspection focused on the [REDACTED] Line that was south of Lahainaluna Road. He reported no damage to that transmission line or any other Hawaiian Electric equipment to the Control Room, and apparently identified none.²⁸ After completing the inspection at 5:48 a.m., the Troubleman then continued to respond to reports of damage elsewhere in Lahaina that the Control Room had received, proceeding next to Waine'e Street in Lahaina town where a pole and transformer had been reported leaning.

With the power out in West Maui since 5:00 a.m., and the inspection of the blocked [REDACTED] Line complete, the Control Room took steps to restore power to customers throughout Lahaina and West Maui in accordance with the Reclose Blocking Procedure. The Control Room re-energized the [REDACTED] Line, and with it the [REDACTED] Substation, at 6:01 a.m. Shortly thereafter, the Control Room began re-energizing distribution circuits from the [REDACTED] Substation to restore power to certain parts of Lahaina town.

System dispatchers refrained from re-energizing distribution circuits where they were aware of damage impacting that circuit. For instance, the load dispatchers responsible for re-energizing circuits did not re-energize [REDACTED] because they were aware of a report of poles leaning at Honoapiilani Highway and Keawe Street, or [REDACTED] because they were aware of a report of poles down at Honoapiilani Highway and Hokiokio Place. At 6:07 a.m., the Control Room re-energized [REDACTED] by remotely closing the associated breaker. ([REDACTED] powers the area of Lahaina encompassing Lahainaluna Road and the Lahaina Intermediate School.) The load dispatchers who re-energized [REDACTED] were not aware of damage to Pole 7A or the [REDACTED] distribution lines it supported. As described further in the section analyzing electrical data, below, [REDACTED] did not trip while it was live, and the Maui Control Room did not receive notice of any fault on [REDACTED] through its SCADA system. It appears that Pole 7A failed during the period of time when [REDACTED] was not energized.

²⁸ See Exhibit G (August 8, 2023 System Operations Log - 5:40 a.m. entry).



Figure 8: Status of West Maui 69kv transmission system between 6:07 a.m. and 6:39 a.m. with the [REDACTED] Line and [REDACTED] re-energized. Green arrows indicate customer loads are being served via those transmission lines.

[REDACTED] remained energized until 6:39 a.m. when the [REDACTED] Line powering the [REDACTED] Substation again relayed open, once again cutting off all power to the [REDACTED] Substation. With the [REDACTED] Substation again de-energized, all West Maui customers lost power at 6:39 a.m. No lines serving customers in West Maui were re-energized afterwards on August 8, 2023.

E. Lahaina Morning Fire

The first recorded report of the Morning Fire in publicly released 911 recordings came in at 6:34 a.m.—one minute after a rapid succession of faults recorded by the [REDACTED] relay, as described below in section III(B).²⁹ Hawaiian Electric became aware of the Morning Fire from MPD dispatch shortly after the [REDACTED] Line tripped offline a second time. At 6:40 a.m. on August 8, MPD dispatch called the Maui Electric Control Room and stated: “At 871 Lahainaluna Road, right across from Intermediate School...Power line came down started a fire...we gotta try de-energize that as well.” The Maui Electric dispatcher

²⁹ See Exhibit H (6:34 a.m. 911 Audio Recording produced by County of Maui).

responded, clearly stating that the power was already off: “Okay, I think it just went out.”³⁰ West Maui had lost power only one minute before, and all lines in the area were not energized.

MFD responded to the fire. At 9:36 a.m., MPD contacted the Control Room regarding the downed lines on Lahainaluna Road near the ignition of the Morning Fire. The Hawaiian Electric dispatcher once again clearly stated: “It is de-energized there.” The dispatcher continued, “Everybody is de-energized in Lahaina at the moment, and we have crews going over there.”

MFD announced that it had contained the Morning Fire shortly after its ignition. At 9:55 a.m., Maui County issued a press release stating that the brushfire off Lahainaluna Road had been “100 percent contained” shortly before 9:00 a.m.³¹ In a subsequent radio communication at 2:18 p.m., a firefighter at the scene described the Morning Fire as “extinguished,”³² and the Maui County Fire Chief also later described the Morning Fire as having been “extinguished.”³³ The County reopened Lahainaluna Road at 12:58 p.m.³⁴ The MFD remained on scene monitoring the area of the Morning Fire, before reportedly departing at 2:18 p.m.³⁵ Throughout the time that MFD was attending to the Morning Fire, the lines in the area were not energized.

The Morning Fire appears to have started around Pole 25 and in a strip of vegetation owned by the State of Hawai‘i makai of Pole 25, between Lahainaluna Road and its sidewalk. The Morning Fire appears to have spread past a chain link fence and into a grass field owned by Kamehameha Schools adjacent to Lahainaluna Road. The Morning Fire also spread around the Ho‘okahua Street cul-de-sac and into the uncultivated field of vegetation south of Lahainaluna Road. Fire was not observed near Pole 7A.

³⁰ See Exhibit I (6:40 a.m. Control Room Audio Recording); see also FSRI Phase One, Table 4.3.4.3, pages 236–236.

³¹ See Exhibit J (9:55 a.m. Maui County Press Release).

³² See ATF Report, page 23 ¶ 19.

³³ S. Kovaleski & M. Baker, “Lahaina Inferno Began After Firefighters Departed a ‘Contained’ Scene” (N.Y. Times, Aug. 23, 2023), <https://www.nytimes.com/2023/08/23/us/hawaii-maui-lahaina-fire-contained.html>.

³⁴ <https://twitter.com/CountyofMaui/status/1689048481712021506>.

³⁵ Firefighters told the press that they left to eat lunch. C. Mai-Duc, “Maui Firefighters Took Lunch as Lahaina Blaze Seemed Dead. Then It Grew.” (WSJ, updated Sept. 19, 2023), <https://www.wsj.com/us-news/while-maui-firefighters-broke-for-lunch-the-wildfire-that-destroyed-lahaina-grew-f83c9dfd>.



Figure 9: Parcel map showing Ho'okahua Street, Kuialua Street, and Ho'okahua Place cul-de-sacs on the wildland-urban interface, with the approximate burn area of the Morning Fire shaded in magenta

The burn area of the Morning Fire roughly extended from the rocky gully to the northeast, around a parcel that borders a parcel owned by the State of Hawai'i, and to Kuialua Street to the southwest, approximately 130,000 square feet (or 3 acres) in total.³⁶ According to the ATF, a local resident also arrived at the scene with a bulldozer to support MFD's response to the Morning Fire by cutting a firebreak around the approximate perimeter of the Morning Fire. The northeast edge of this firebreak ran along the precipice of a rocky gully in the Ku'ia field. This gully contained accumulated dry and dead vegetation from the unmaintained field. The ATF concluded that the Afternoon Fire would later re-ignite within this rocky gully to the northeast—just beyond the burn area of the Morning Fire. The ATF could not rule out that operation of the resident's bulldozer pushed combustible material into the gully where it was left to smolder for hours.³⁷

³⁶ See MFD Report, page 6.

³⁷ See ATF Report, page 100 ¶ 242.



Figure 10: Photo captured as part of Test and Treat inspection in November 2021 by Osmose of Pole 1-25 (left) and Pole 25 (right) from the Ku'ia field owned by Kamehameha Schools. This photo faces northwest and the Lahainaluna Road speed limit sign is visible over the crest of the hill. The abandoned vehicle and metal piping visible in the brush remained present on August 8, 2023. This brush is near an unmaintained firebreak that MFD ordered cleared in November 2019. The Morning Fire started at the base of Pole 25 and spread downhill towards Pole 1-25 through this unmanaged field.



Figure 11: Photo captured on August 13, 2023, of Pole 1-25 (left) and Pole 25 (right) from Lahainaluna Road east of Pole 25. This photo faces west and shows burned, unmanaged brush, as well as the same abandoned equipment in the Ku'ia field. The unmaintained firebreak is visible in the foreground, and appeared as a dirt road after the brush burned.

F. Hawaiian Electric's Response to Damaged Equipment in Lahaina

For most of August 8, until the Afternoon Fire was reported, Hawaiian Electric and contractor crews were focused on repairing equipment damaged by the windstorm and restoring power. Electricity is vital to power medical devices, traffic signals, and communication networks. Prior to the Afternoon Fire, there was no reason to believe that Hawaiian Electric's response to the windstorm should have been focused on anything other than restoring power safely. After Hawaiian Electric became aware of the Afternoon Fire and the need to evacuate Lahaina from Maui County and reports from crews in the field, its efforts shifted to prioritize removing damaged equipment from roadways and assisting with the evacuation.

1. Hawaiian Electric's Response to the Morning Fire

After the Control Room learned about the Morning Fire from MPD, it directed another Hawaiian Electric Troubleman to the scene, who arrived at the intersection of Lahainaluna Road and Ho'okahua Street at approximately 7:03 a.m. MPD and MFD were already on scene when the Hawaiian Electric Troubleman arrived.



Figure 12: 6:53 a.m. photograph captured by a Hawaiian Electric Troubleman from the Lahaina Bypass showing smoke from the Morning Fire

The Troublemán observed Pole 7A on Ho‘okahua Street—the dirt alley that intersects Lahainaluna Road from the north, near the Lahaina Intermediate School—broken in half with the top section inverted and supported by telecommunication lines. Pole 25, south of Lahainaluna Road, which had been erroneously reported by MFD dispatch to Hawaiian Electric as broken, was intact. All three phases of [REDACTED] and the neutral ground wire between Pole 25 and Pole 7A toward Ho‘okahua Street had broken. At Pole 7A, the de-energized and disconnected distribution conductors were on the ground in the dirt alley to the north of Lahainaluna Road near the top portion of the broken pole, which had fallen to the ground as shown in Figure 13. Electrically, Pole 7A is load-side, or downstream, of Pole 25; the conductors on the ground by Pole 7A were not electrically connected to any source. There was no indication of fire in the immediate area of Pole 7A, and this area did not burn later in the day. At Pole 25, short sections of the three broken aluminum conductors and broken neutral remained attached to the pole, as shown in Figure 14. These broken conductors were electrically connected by jumpers to two [REDACTED] conductors that ran parallel to Lahainaluna Road. The third conductor—the field-side, southernmost phase of [REDACTED] along Lahainaluna Road—had separated, and hung from either end to Pole 24 and Pole 26.



Figure 13: 7:29 a.m. photo captured by a Hawaiian Electric Troublemán showing Pole 7A snapped in half. The base of Pole 7A remains upright and in the ground

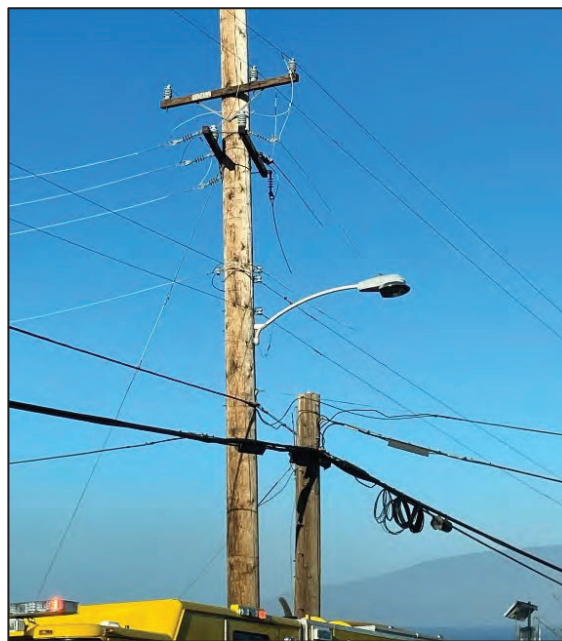


Figure 14: 7:19 a.m. photo captured by a Hawaiian Electric Troublemán showing short dead-end conductors hanging from Pole 25, as well as the southernmost (field-side) phase between Pole 24 and Pole 26 missing from the insulator



Figure 15: Map showing transmission and distribution lines, as well as poles at the intersection of Lahainaluna Road and Ho‘okahua Street

Transmission lines also ran down Ho‘okahua Street north of Lahainaluna Road. These lines, although not energized, were up and intact. They were not supported by Pole 7A, but ran from Pole 25 to Pole 8 at the far end of the alley.³⁸ The Troubleman remained on Lahainaluna Road throughout the morning while MFD responded.

Around 11:50 a.m., MFD waved down a Hawaiian Electric inspector on Lahainaluna Road to ask if MFD could leave the scene. The inspector noted smoke was still visible at the scene at this time and declined to offer an opinion on whether MFD could depart the scene.

2. Hawaiian Electric Addresses Damage Throughout Lahaina

While MFD were on the scene addressing the Morning Fire, Hawaiian Electric field crews responded to reports of damaged equipment throughout Lahaina and elsewhere on Maui. Subsequent to the Morning Fire, Hawaiian Electric continued to receive reports and identify poles down throughout Lahaina as the windstorm continued and damage was reported. Hawaiian Electric became aware of poles down in Lahaina on Kauhi Place, the Puamana area of

³⁸ In addition to the photos captured by the Troubleman as Figures 13 and 14, the Troubleman’s reports are documented in Exhibit K (Trouble Ticket 1252).

Honoapiilani Highway, Dickenson Street, Mill Street, Niheu Street, and Papalaua Street. Several field crews (over a dozen personnel in total) were dispatched to Lahaina to respond to reports of damage early on August 8. Crew members were recalled from vacation or asked to work extra shifts, and Maui Electric engaged contractors to address some of the reported damage. Dispatchers also remained in the Control Room following their scheduled shifts to augment staffing.

Hawaiian Electric made the determination to activate its Incident Management Team (“IMT”) at around 9:00 a.m.—well in advance of the Afternoon Fire. Hawaiian Electric leadership met to discuss IMT staffing and operations at 9:15 a.m. Hawaiian Electric held an IMT Operations Briefing from 1:00 p.m. to 2:00 p.m. The IMT remained in place throughout August 8, 2023, overnight, and in the weeks after. Regular IMT updates were provided to the Commission via email over the ensuing days.

While the number of fallen, leaning, and broken poles grew during the windstorm, Hawaiian Electric field crews prioritized poles blocking traffic, threatening residential areas, and identified as priorities by first responders and the County EOC. The power remained off in West Maui, as Hawaiian Electric crews worked to clear and repair additional equipment at risk of falling onto roadways. Poles leaning onto and blocking Honoapiilani Highway—the major transportation artery running along the coast of West Maui and through Lahaina town—were priorities. These poles were also heavily loaded with telecommunications lines. Hawaiian Electric crews arrived at these poles around 10:00 a.m. and worked throughout the morning at the intersection of Honoapiilani Highway and Keawe Street to bolster leaning and broken poles that threatened motorists and had shut down a turning lane on Honoapiilani Highway.



Figure 16: 8:00 a.m. photo captured by Hawaiian Electric foreman of Pole 13 leaning at the intersection of Honoapiilani Highway and Keawe Street



Figure 17: 8:01 a.m. photo captured by Hawaiian Electric foreman of Pole 14 leaning at the intersection of Honoapiilani Highway and Keawe Street

Hawaiian Electric dispatched contractors to respond to poles that fell onto Honoapiilani Highway south of Lahaina near the intersection with Hokiokio Place—which links Honoapiilani Highway to Lahaina Bypass. Contractors were on scene before 9:00 a.m. and worked continuously throughout the day. Honoapiilani Highway south of Lahaina would remain closed throughout most of August 8 while the contractors worked to clear the poles laying across the road and MPD remained on the scene. For much of the day, residents could still leave Lahaina to the south via the Lahaina Bypass, which remained open until it was closed later in the day when the Afternoon Fire ignited.



Figure 18: Photo captured by a Hawaiian Electric substation engineer at 9:25 a.m. of a series of poles across Honoapiilani Highway near the intersection with Hokiokio Place



Figure 19: A 12:59 p.m. dashcam photo captured by a contractor showing poles down across Honoapiilani Highway and a MPD cruiser stopping traffic



Figure 20: Photo captured at 11:40 a.m. by a Hawaiian Electric foreman of lines and poles down on Honoapiilani Highway

Hawaiian Electric generally tells first responders and residents to treat downed and damaged electric lines as energized, unless informed otherwise by the Control Room.³⁹ This reflects industry standard guidance that should be followed in all but the most extreme instances—such as fleeing a large urban conflagration. Downed power lines may still be energized, or hold residual voltage if they are not discharged to ground. MFD and MPD contacted the Maui Electric Control Room several times on August 8 to inquire on the condition of lines or request their de-energization, and Maui Electric confirmed that the lines were de-energized in all instances.

Hawaiian Electric also honors requests from emergency services to de-energize power lines. Hawaiian Electric received few such requests to de-energize lines in Lahaina on August 8. When it received those requests, it reported that the lines were not energized. There is no record of emergency services asking Hawaiian Electric to de-energize all of Lahaina at any point on August 8. Had Hawaiian Electric received such a request, it would have reported that power to customers in Lahaina was out already.

G. Lahaina Afternoon Fire⁴⁰

Maui Electric line crews arrived on scene on Lahainaluna Road in the afternoon to make repairs to the damaged equipment in this area. Maui Electric received reports at 12:18 p.m. of damage to additional distribution and transmission poles on Ho‘okahua Street—the dirt alley that intersects Lahainaluna Road—and Niheu Place by Princess Nahi‘ena‘ena Elementary School. Because these poles are located close to residences (and in some instances in backyards), field crews prioritized their repair after completing work at the intersection of Honoapiilani Place and Keawe Street.

³⁹ See “Downed Power Line Safety,” <https://www.hawaiianelectric.com/safety-and-outages/electrical-safety/downed-power-line-safety>; see also MPD AAR at page 28, noting that “Officers are provided training by Hawaiian Electric Company (HECO) about the dangers of fallen lines.”

⁴⁰ Separate to the events of the Lahaina Morning Fire, a wildfire began in the Upcountry area of Kula in the late morning, where a large eucalyptus tree fell across Haleakala Highway at around 11:22 a.m. near a bridge over Pohaku O Ka La gulch. The Kula Fire eventually burned approximately 200 acres and damaged approximately 23 structures. Neither the ATF nor the MFD has released an origin and cause report for the Kula Fire, or the Olinda Fire.



Figure 21: 2:18 p.m. photo captured by a Hawaiian Electric foreman of Pole 9 on Niheu Place leaning into the backyard of a residence



Figure 22: 2:10 p.m. photo captured by a Hawaiian Electric foreman of Pole 9 on Niheu Place leaning into the backyard of a residence



Figure 23: 1:21 p.m. photo captured by a Hawaiian Electric foreman of Pole 8 at Kumukahi Street and Ho'okahua Street leaning toward the backyard of a residence

Field crews arrived on Lahainaluna Road between 1:00 and 2:00 p.m. Crew members waited on Lahainaluna Road and surveyed the damage while the circuits were further isolated from the [REDACTED] Substation to ensure crew safety while making repairs. This is best practice, even when lines are not energized.

After MFD departed the area of the Morning Fire, Hawaiian Electric crew members in the area observed smoke emerging from the gully adjacent to the burn scar of the Morning Fire shortly before 3:00 p.m. Publicly released 911 calls indicate that the Afternoon Fire was first reported at 2:53 p.m.⁴¹ The caller stated that the Fire Department had been “at the end of the street for a long time because we’ve been having flare ups, but now they’re all gone.”⁴² A video recorded at 2:57 p.m. by a Hawaiian Electric crew member shows white smoke emerging from the gully and being pushed towards Lahaina by a strong east wind. This video, as well as those taken by an additional lineman and Troubleman, was provided to ATF and appears in the ATF Report. Two Hawaiian Electric crew members in the area called 911 to report the Afternoon Fire at 2:55 p.m. and 2:57 p.m., respectively. One crew member called from Lahainaluna Road.⁴³ A second called from the [REDACTED] Substation.⁴⁴



Figure 24: Still frame from a 2:57 p.m. video captured by a Hawaiian Electric foreman from Lahainaluna Road. This is believed to be the first recording of the Afternoon Fire



Figure 25: Still frame from a 2:58 p.m. video captured after the same Hawaiian Electric foreman advanced into the Ku'ia field towards the Afternoon Fire

⁴¹ See Exhibit L (2:53 p.m. 911 Audio Recording produced by County of Maui with name and address redacted).

⁴² See Exhibit L.

⁴³ See Exhibit M (2:55 p.m. 911 Audio Recording produced by County of Maui).

⁴⁴ See Exhibit N (2:57 p.m. 911 Audio Recording produced by County of Maui with name redacted).



Figure 26: Still frame from a 2:57 p.m. video captured by a Hawaiian Electric lineman from Lahainaluna Road



Figure 27: Still frame from a 3:39 p.m. video captured by a Hawaiian Electric Troubleman from the [REDACTED] Substation

The power was off in all of West Maui when the Afternoon Fire ignited. Hawaiian Electric lines serving customers in West Maui had been de-energized since approximately 6:39 a.m. There is no evidence that Hawaiian Electric's equipment is directly associated with a second ignition that resulted in the Afternoon Fire. Hawaiian Electric provided documentation to FSRI and ATF demonstrating that its lines were not energized during this time, and the ATF confirmed in its report that Hawaiian Electric lines in West Maui were not energized.⁴⁵

⁴⁵ See voltage and current data plots provided to ATF, attached here as Exhibit F.



Figure 28: Status of West Maui transmission system between 7:48 a.m. and 3:45 p.m. on August 8, 2023, which includes the timeframe when the Afternoon Fire rekindled

MFD returned to the Lahainaluna scene at 2:59 p.m., and eventually directed Maui Electric crews to evacuate.⁴⁶ The Afternoon Fire spread to the south and west, jumping the Lahaina Bypass and Lahainaluna Road, and reaching the Kelaweia Mauka subdivision. The progression of the Afternoon Fire is described in FSRI's Phase One Report, released on April 17, 2024. A large volume of Hawaiian Electric equipment, including the [REDACTED] Substation and poles, transformers, and lines were damaged or destroyed in the Afternoon Fire.

H. Hawaiian Electric's Response to the Lahaina Afternoon Fire and Support of Clearing Egress Routes

At 2:54 p.m., the Troubleman on Lahainaluna Road reported the Afternoon Fire to the Control Room. At 4:11 p.m., the MPD/MFD dispatch relayed a request from MFD to "shut down all of the electric off of Lahainaluna, above and below the bypass." The Control Room responded in a clear manner, stating: "it's off right now." The dispatcher followed up: "It's all

⁴⁶ C. Mai-Duc, "Maui Firefighters Took Lunch as Lahaina Blaze Seemed Dead. Then It Grew." (WSJ, updated Sept. 19, 2023), <https://www.wsj.com/us-news/while-maui-firefighters-broke-for-lunch-the-wildfire-that-destroyed-lahaina-grew-f83c9dfd>.

off?” The Control Room confirmed: “Yup.”⁴⁷ This was the first time that MPD/MFD dispatch had asked Hawaiian Electric to de-energize lines in Lahaina after the Afternoon Fire ignited.

As the Afternoon Fire spread through Lahaina and once Hawaiian Electric was made aware that the need for residents to evacuate was urgent, Hawaiian Electric shifted its efforts from power restoration to clearing egress routes. Hawaiian Electric crews prioritized clearing poles on Honoapiilani Highway south of Lahaina near the intersection with Hokiokio Place, and north of Lahaina in front of the Lahaina Civic Center.

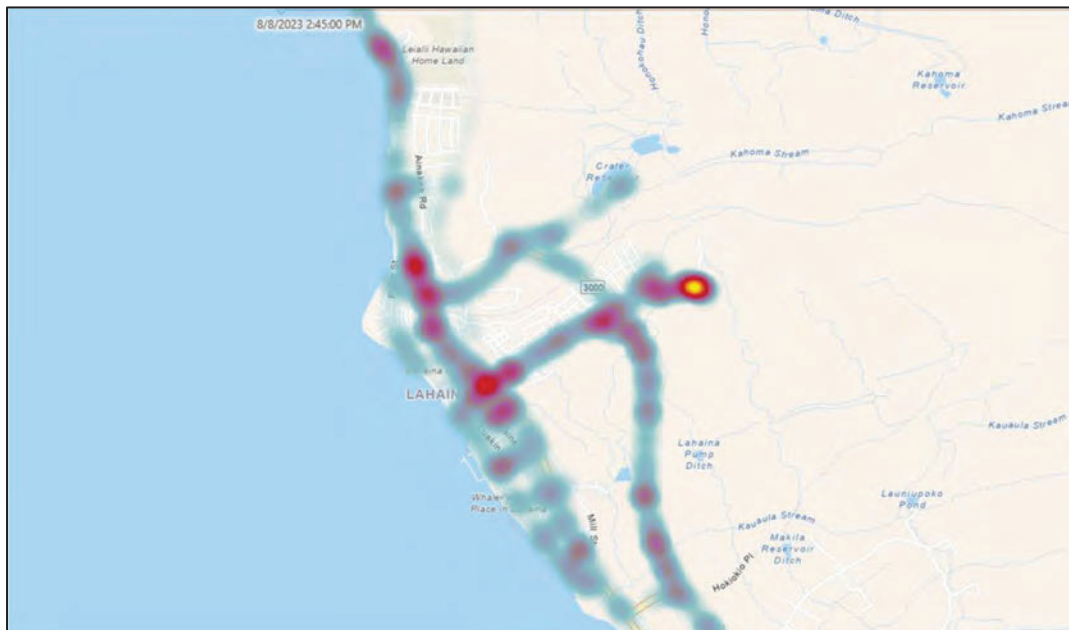


Figure 29: Heatmap of Hawaiian Electric field crew and contractor vehicles after 2:45 p.m. on August 8. Crews and contractors primarily responded to Lahainaluna Road and Honoapiilani Highway, as indicated by red and yellow in the heatmap

⁴⁷ See Exhibit O (4:11 pm. Control Room Audio Recording); see also FSRI Phase One Report, Table 4.3.4.3, page 236.



Figure 30: Google Earth aerial image illustrating Lahaina's paved egress routes. The town can be accessed from the north by Honoapiilani Highway, and from the south by Honoapiilani Highway and the Lahaina Bypass

With Lahaina Bypass closed after 3:30 p.m., Honoapiilani Highway became the sole egress route southward from Lahaina.⁴⁸ Hawaiian Electric crews and contractors prioritized clearing this portion of the highway, which had been closed since the early morning when eight poles fell onto it near its intersection with Hokiokio Place. Hawaiian Electric contractors addressed these downed poles throughout the day, starting around 9:00 a.m. on August 8 with Honoapiilani Highway closed between Aholo Road and Hokiokio Place. MPD stopped northbound traffic at the intersection of Honoapiilani Highway and Hokiokio Place, while a traffic control contractor stopped traffic at the intersection of Honoapiilani Highway and Aholo Road.

⁴⁸ In addition to limited northbound and southbound egress routes, Lahaina town also included a score of planning issues that hampered egress on August 8, 2023. See M. Honore, "Two Escape Routes Could Have Saved Dozens of Maui Fire Victims" (Honolulu Civil Beat, Oct. 29, 2024), <https://www.civilbeat.org/2024/10/two-escape-routes-would-have-saved-maui-fire-victims/>.



Figure 31: 12:59 p.m. north-facing dashcam photo captured by a contractor showing poles down across Honoapiilani Highway and a MPD cruiser stopping traffic at Hokiokio Place



Figure 32: 4:03 p.m. still frame from a north-facing video captured by a Hawaiian Electric apprentice showing a traffic control contractor blocking traffic southbound at Aholo Road

Hawaiian Electric understands that the southbound lane of Honoapiilani Highway was briefly open just after 4:00 p.m. By approximately 4:12 p.m., however, three additional poles and lines fell across the intersection of Honoapiilani Highway and Aholo Road, once again blocking the route. Hawaiian Electric crews were already on scene and immediately responded and cleared the poles and cut lines.



Figure 33: 4:03 p.m. still frame from a north-facing video captured by a Hawaiian Electric apprentice showing some traffic past Aholo Road



Figure 34: 4:33 p.m. south-facing photo captured by a Hawaiian Electric contractor showing additional poles and power lines down, as well as low-hanging telecommunications lines at Aholo Road fully blocking Honoapiilani Highway

Crews were able to re-open the southbound lane of Honoapiilani Highway at approximately 4:48 p.m. Hawaiian Electric field personnel immediately informed the Control

Room that the southbound lane of Honoapiilani Highway was open for egress.⁴⁹ The Control Room promptly called MPD and stated: “Just wanted to let you guys know Aholo and HP Highway is open. We moved the line.” The MPD/MFD dispatcher did not appear familiar with the issue. She repeated the location multiple times and said: “let’s take a look...There’s so many cases...I don’t even see it.”⁵⁰ Honoapiilani Highway remained open southbound for the remainder of the day.



Figure 35: 4:50 p.m. south-facing dashcam photo captured by a contractor showing traffic moving southbound while contractors work in the northbound lane of Honoapiilani Highway

⁴⁹ See Exhibit P (4:47 p.m. Control Room Audio Recording). While metadata for this radio recording indicates it was captured at 4:36:54 p.m., this time is approximately ten minutes early because of a discrepancy with the internal timekeeping system. Thus, this transmission actually occurred closer to 4:47 p.m.

⁵⁰ See Exhibit Q (4:48 p.m. Control Room Audio Recording).



Figure 36: 6:11 p.m. north-facing photo captured by a contractor showing traffic moving southbound while contractors work in the northbound lane of Honoapiilani Highway

At the request of County officials, relayed through Hawaiian Electric's EOC liaison, Hawaiian Electric crewmembers crossed Lahaina while the Afternoon Fire was burning to clear poles that had fallen across Honoapiilani Highway by the Lahaina Civic Center, which is north of town. Hawaiian Electric field crews prioritized clearing these poles because they were identified as a priority by County officials to support egress from Lahaina and for access to the Red Cross shelter at the Lahaina Civic Center. Crews worked to clear poles on Honoapiilani Highway in front of the Lahaina Civic Center from approximately 7:37 p.m. until 10:57 p.m. Poles and lines blocked both northbound lanes, however egress was still possible as the southbound lanes were not blocked. Northbound traffic was able to pass in waves until the northbound lanes were cleared around 10:57 p.m. This crew was unable to pass south through Lahaina once they had finished clearing the road, and spent the night in their trucks in a parking lot north of Lahaina.

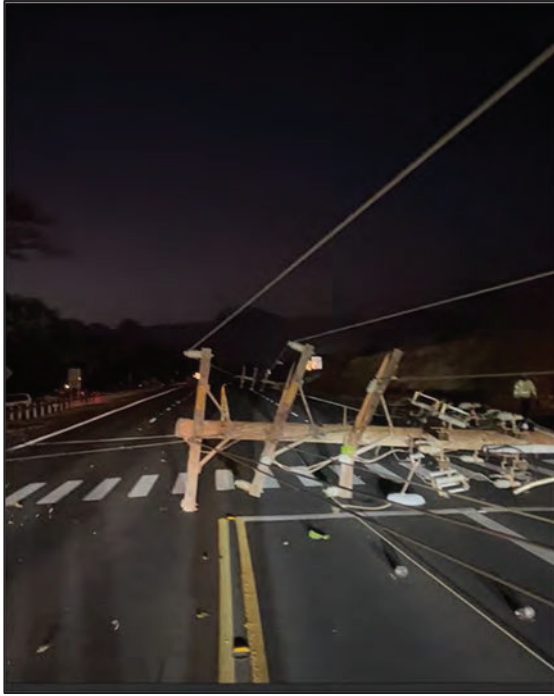


Figure 37: Still frame from a video captured by a Hawaiian Electric Lineman at approximately 7:49 p.m. of poles down in front of the Lahaina Civic Center on Honoapiilani Highway (looking north towards Kaanapali)

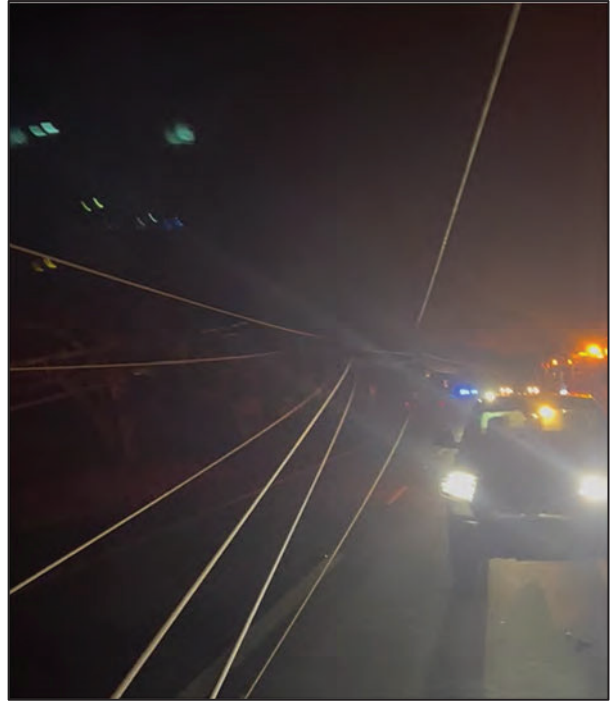


Figure 38: Still frame from a video captured by a Hawaiian Electric Lineman at approximately 7:49 p.m. of poles down in front of the Lahaina Civic Center on Honoapiilani Highway (looking south towards Lahaina town)

Poles and lines also fell elsewhere in Lahaina during the late afternoon of August 8 that were a lower priority for crews than supporting northbound and southbound egress on Honoapiilani Highway. For example, an additional series of five poles fell near the Shell Station at the intersection of Honoapiilani Highway and Kapunakea Street at around 3:00 p.m. These poles could be bypassed in many instances through the nearby Safeway parking lot or Front Street. Because the poles could be bypassed and did not impact northbound and southbound egress, crews did not prioritize clearing these poles and lines over Honoapiilani Highway.



Figure 39: Photo by a Hawaiian Electric Troublemaker from approximately 3:22 p.m. of additional poles down at the intersection of Honoapiilani Highway and Kapunakea Street (exact metadata not available) that could be bypassed via the Safeway parking lot

Poles and lines also fell on Mill Street, a dirt road parallel to Honoapiilani Highway and behind the Lahaina Aquatic Center that is not actively utilized. Because these poles presented relatively limited danger to residents and did not impact egress, they were not prioritized on the afternoon of August 8.



Figure 40: Photo captured by a Hawaiian Electric foreman at 2:27 p.m. of damaged poles and lines on Mill Street



Figure 41: Photo captured by a Hawaiian Electric foreman at 12:37 p.m. of damaged poles and lines on Mill Street

As the Afternoon Fire entered Lahaina town, Hawaiian Electric crews working near Lahainaluna Road were directed by first responders to evacuate at approximately 4:30 p.m. and took up station on the Lahaina Bypass to the south of Lahaina town. From their vantage point on the Lahaina Bypass, crews observed the spread of the fire in the early evening.⁵¹



Figure 42: Photo captured by a Hawaiian Electric Lineman at 4:59 p.m. from the Lahaina Bypass south of Lahaina after evacuating Lahainaluna Road



Figure 43: Still frame from a video captured at 7:17 p.m. from the Lahaina Bypass by the Hawaiian Electric foreman that directed de-energization of the [REDACTED] Line

At 9:33 p.m., MPD Dispatch contacted the Maui Electric Control Room to inquire if power lines on Honoapiilani Highway by the Lahaina Police Station were energized. Maui Electric promptly stated the lines were not energized, but cautioned against touching them because they were not grounded and could still present a danger. MPD then asked if it was safe to drive over the lines to evacuate. The Maui Electric dispatcher conferred with a colleague, and stated the lines could be driven over for evacuation purposes. Although the power was already out, at no time did MPD/MFD dispatch request that Hawaiian Electric de-energize all of Lahaina and keep the lines de-energized.

⁵¹ Hawaiian Electric was able to re-energize the [REDACTED] Line feeding the [REDACTED] Substation at approximately 3:40 p.m. Power never went past that substation. Hawaiian Electric later decided to de-energize the transmission line once it became apparent that the fire would preclude restoring power to West Maui that day. Dispatchers de-energized the [REDACTED] Line at 7:40 p.m.

III. Analysis

The facts available to Hawaiian Electric are generally consistent with those contained in the ATF and MFD Reports. Those reports largely confirmed the timeline of events that Hawaiian Electric described on August 27, 2023: Hawaiian Electric equipment was involved in the ignition of the Morning Fire, which was a small brush fire that began at approximately 6:30 a.m. on August 8, 2023, as a result of damage to 12kv distribution lines near the intersection of Lahainaluna Road and Ho‘okahua Street.⁵² The Morning Fire ignited after Pole 7A broke in high winds in the early morning hours of August 8.

As a result of the failure of Pole 7A on August 8, the [REDACTED] conductors crossing Lahainaluna Road between Pole 7A and Pole 25 broke. This disconnected the conductors attached to Pole 7A from [REDACTED]’s power supply. The evidence suggests that this occurred after 5:00 a.m., when the power in West Maui was out and [REDACTED] was not energized.

[REDACTED] was re-energized at around 6:07 a.m., and it appears that approximately twenty-six minutes later two strands of broken, energized conductor hanging from Pole 25 came into contact with one another, causing a phase-to-phase fault and arcing that ejected molten material that ignited the Morning Fire in the unmaintained vegetation below. Electrical contact between these two phases of energized conductor also appears to have damaged one phase of conductor on the same circuit that ran parallel to Lahainaluna Road between Pole 24 and Pole 25. This conductor parallel to Lahainaluna Road fell and appears to have separately ignited a small fire between Pole 24 and Pole 25 on land owned by the State of Hawai‘i.

In the intense early morning wind, the small brush fire near the base of Pole 25 spread into a field of unmaintained and invasive vegetation southeast of Lahainaluna Road in Ku‘ia owned by KS and the State of Hawai‘i. MFD responded and declared that by 9:00 a.m. the Morning Fire had been 100% contained.⁵³ MFD remained on scene until 2:18 p.m., at which point MFD radio communications indicate that firefighters determined that the fire was fully extinguished and left the scene.⁵⁴

⁵² See Hawaiian Electric Press Release (Aug. 27, 2023), <https://www.hawaiianelectric.com/hawaiian-electric-provides-update-on-lahaina-fires-response>.

⁵³ See ATF Report, page 23 ¶ 19.

⁵⁴ See ATF Report, page 75 ¶ 160.

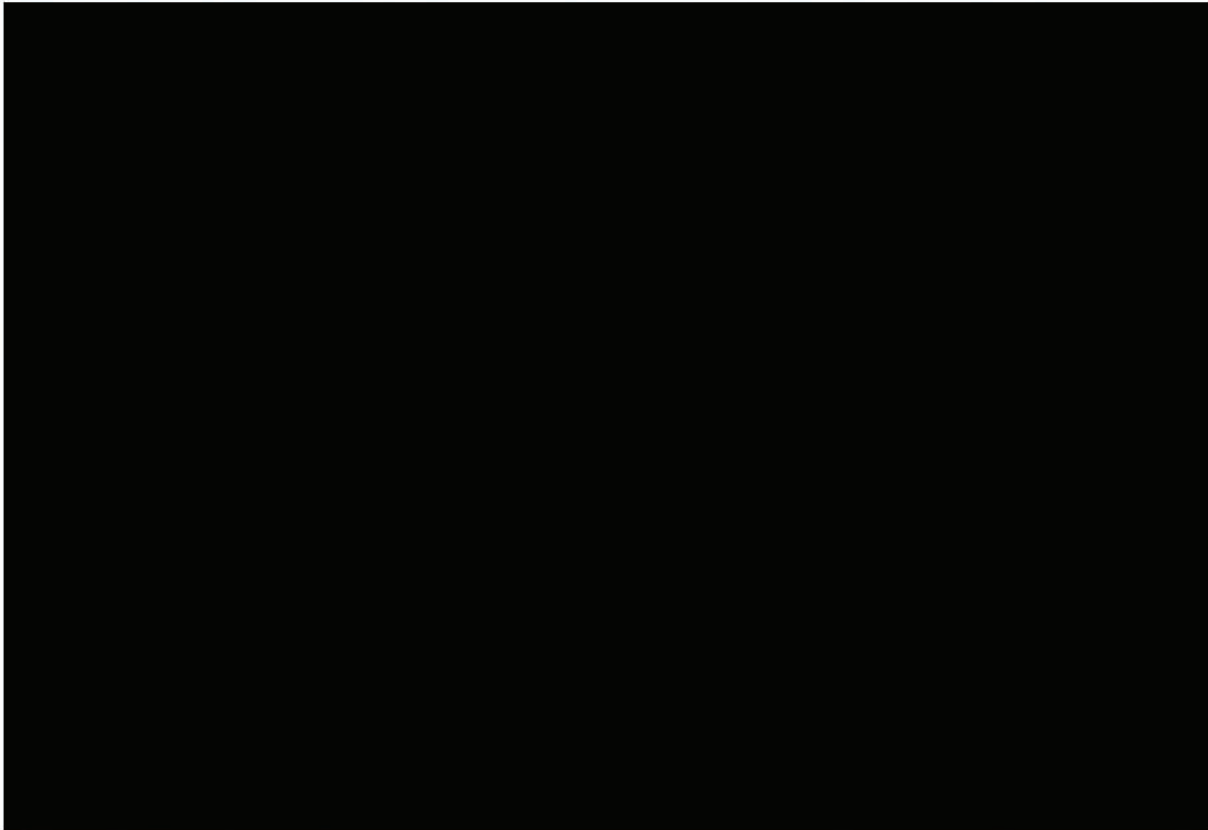


Figure 44: Overhead image of Lahainaluna Road at the area of origin of the Morning Fire, with Hawaiian Electric facilities overlaid. Distribution [REDACTED] is illustrated by the solid white line.

At the time the MFD left the scene of the Morning Fire, Hawaiian Electric's power lines in Lahaina were not energized and remained so. Power to all of Lahaina had tripped offline earlier at approximately 6:39 a.m. There was no power to customers in West Maui after this time until August 11, as the Company has stated previously.⁵⁵

The remainder of this section focuses on Pole 7A and electrical data associated with the distribution lines that Pole 7A supported, distribution [REDACTED], which originated from [REDACTED] Substation.

A. Pole 7A

Pole 7A was a 45-foot, Class 3 Douglas fir pole that records indicate was installed in 1980 and last inspected in September 2022. Pole 7A broke approximately twenty feet above ground level at a location with latent structural weakness owing to multiple knots in the wood and a through-bolt hole in the telecommunications space of the pole, which was likely drilled at

⁵⁵ For a detailed overview of de-energization and re-energization data, see ATF Laboratory Report, page 29.

fabrication. These conditions were present in the pole since manufacture and did not present structural issues for over forty years. These weaknesses, in addition to not being outwardly visible, were well above the height at which poles are examined through the Test and Treat inspections the Company commissions. At the time Pole 7A was installed, the wind loading requirements of General Order 6 required it to be able to withstand winds of 56 miles per hour. FSRI Phase Two Report indicates that winds ranged between 60 and 80 miles per hour on August 8.⁵⁶



Figure 45: August 13, 2023 field photograph of the bottom Pole 7A fracture surface. For ease of reference, identified knots are indicated by red circles.



Figure 46: August 13, 2023 field photograph of the bottom Pole 7A fracture surface with the bored through-bolt hole visible

Although post-incident examination of the interior of Pole 7A showed mild to moderate termite damage in certain areas of the pole, a condition addressed and treated by Hawaiian Electric’s Test and Treat contractor in 2022, this level of termite damage did not sufficiently impact the pole’s remaining strength to prompt its replacement. In Hawaiian Electric’s experience, such degree of termite damage is not exceptional given the prevalence of various

⁵⁶ See FSRI Phase Two Report, pages 52–53. The FSRI Phase Two Report noted that the Kohala Ranch Remote Automatic Weather Station (RAWS) on the island of Hawai‘i recorded the highest wind speeds of all RAWS and described that station as being “located on a southwest-facing slope, in an area similar to where the Lahaina PM fire started.” FSRI Phase Two Report, pages 49–50. The Kohala Ranch RAWS recorded wind gusts in excess of 80 miles per hour on August 8–9. See Kohala Ranch RAWS Data (KHRH1), <https://raws.dri.edu/cgi-bin/rawMAIN.pl?hiHKOH>.

termite species throughout the Hawaiian Islands. The observed termite damage affecting portions of the interior of the pole is not believed to be a significant factor in its failure.



Figure 47: Photo captured February 2024. The photo presents a cross-section of Pole 7A above its fracture point. The photographed cut was made shortly after the August 8 fires when Pole 7A was removed from the field. An enclosed pocket, of mild to moderate termite damage is visible in the bottom left quadrant of the pole. Because the outer shell of Pole 7A is fully intact, the bulk of the pole's strength remained.

Pole 7A was inspected in 2010 and 2022 as part of Hawaiian Electric's Test and Treat program and deemed fit to remain in service.⁵⁷ Hawaiian Electric's Test and Treat program is executed by a leading provider of wood pole inspection services for utilities around the world. While Test and Treat includes intrusive examinations near ground level—such as boring and sounding—as well as treatments, poles are inspected only visually from the ground. That is, consistent with industry standards, Test and Treat does not include elevated examinations by inspectors.

2010 Inspection. Test and Treat records indicate the May 2010 inspection included excavating around the base of Pole 7A. The records reflect that the inspector assessed Pole 7A's remaining strength at 92% and noted that the reduction in strength was based on a recorded reduction in shell thickness of 0.16 inches. Pole 7A was treated with MIT-C fume capsules—a

⁵⁷ Test and Treat data for Pole 7A are attached to this Report as Exhibit R.

widely utilized wood pole fumigant intended to protect against strength loss from internal decay and insect attack. Additionally, the inspection records indicate application of an external treatment to protect against decay.

2022 Inspection. Test and Treat records indicate the inspector performed a “sound & bore” inspection of Pole 7A in September 2022. The inspector identified and measured a pocket of enclosed internal deterioration, inward of the pole’s outer shell. Such pockets of deterioration are not abnormal or unexpected. Because the bulk of a wood pole’s strength is derived from its outer shell, limited internal deterioration can be present without a significant reduction in a pole’s effective cross section or strength. The inspector assessed the remaining pole strength at 95% based on the observed measurements of the pocket of deterioration. Pole 7A was not identified for replacement or restoration. The records reflect that the pole was again treated with MIT-C fume capsules, and the inspector also applied Hollow Heart and Termidor treatments in 2022. Hollow Heart is a copper and boron liquid treatment that is applied to provide protection against decay. Termidor is an insecticide intended to control ants and termites.



Figure 48: Pole 7A re-assembled for examination by parties to the civil litigation on June 21, 2024

B. Electrical Data

Hawaiian Electric's electrical data is consistent with the sequence of events set out above and the general conclusions in the ATF and MFD Reports. Electrical records indicate that the conductors connecting Pole 7A to Pole 25 broke while [REDACTED] was not energized, indicating Pole 7A failed after 5:00 a.m. As described in Section II(C) above, West Maui experienced a system-wide outage at 5:00 a.m. when the sole transmission line providing power to West Maui at that time tripped offline. Review of Advanced Metering Infrastructure ("AMI") data indicates that meters downstream of Pole 7A showed power consumption until 5:00 a.m., and did not consume power upon the re-energization of [REDACTED] at 6:07 a.m.

Relay records downloaded after the fires showed that the protective device monitoring [REDACTED] recorded several faults during the early morning of August 8, 2023. Specifically, faults were recorded by the relay at approximately 3:19 a.m., 6:07 a.m., and 6:33 a.m. Based on post-incident analysis of the relay records, none of these recorded faults was of sufficient magnitude and duration to trip open the circuit breaker, given the [REDACTED] relay settings at the time.⁵⁸ The Maui Electric Control Room did not receive real-time notification of these faults since no circuit breaker operation resulted.

3:19 a.m. Fault. The earliest fault recorded by the [REDACTED] relay on August 8, 2023, was a C-Phase-to-ground fault at approximately 3:19 a.m. The fault peaked at an RMS value⁵⁹ of 1,631 amps. Both time overcurrent elements picked up, but the fault was not long enough at its magnitude to exceed protective variable trip curve settings and initiate a protective action. Review of oscillography as shown in the waveform in Figure 49 indicated a spike in C-Phase amperage and associated drop in voltage that lasted less than 100 milliseconds.

⁵⁸ The relay settings and time-current curve for the [REDACTED] relay are attached to this Report as Exhibit S.

⁵⁹ Fault amperage is reported as a Root Mean Square ("RMS") value, as recorded by the relay. The RMS value for alternating current ("AC") indicates the constant direct current ("DC") that would dissipate the same power for a resistive load. The accompanying waveforms show amplitudes unadjusted to reflect RMS values.

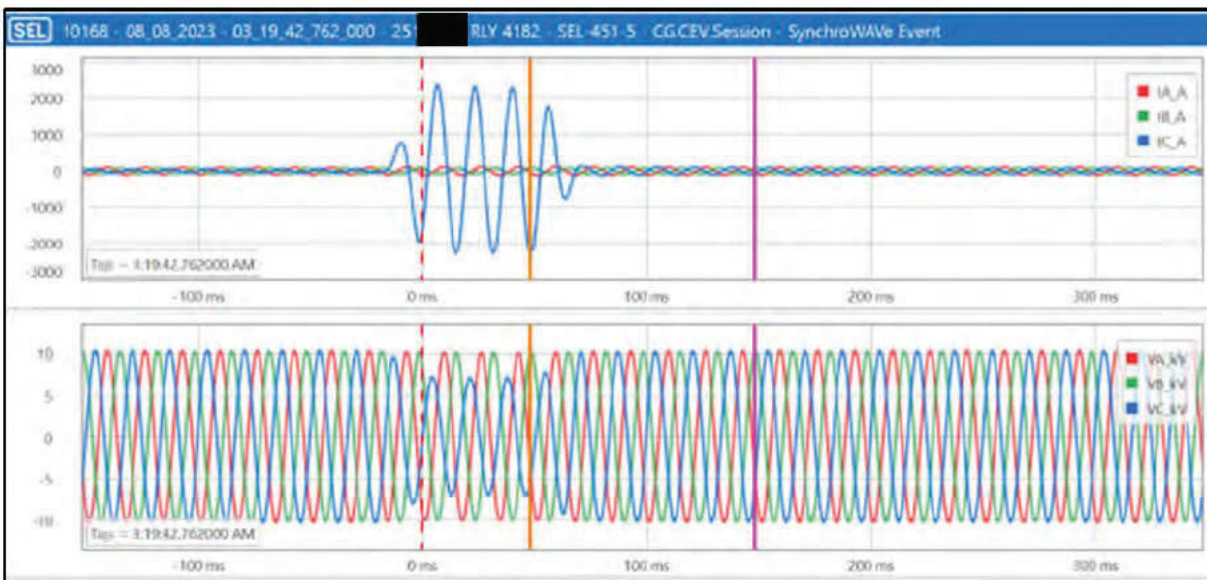


Figure 49: Waveform downloaded from [REDACTED] relay showing the 3:19 a.m. C-Phase to Ground fault

The cause of the 3:19 a.m. fault remains unclear, but is not believed to be associated with any ignition or with Pole 7A breaking and disconnecting downstream loads from [REDACTED]. If Pole 7A had broken in half (as it did) while [REDACTED] was energized, additional faults would be expected to have been recorded by the relay, since the circuit remained energized until 5:00 a.m., when all of West Maui lost power as described above. But no additional faults were recorded on [REDACTED] between 3:19 a.m. and 5:00 a.m. Additionally, if the 3:19 a.m. fault were associated with Pole 7A breaking and detaching conductors from the rest of the circuit, AMI data would be expected to show loads downstream of Pole 7A ceasing to consume power after this time, but that is not what the data indicates. Rather, as set forth below, AMI data indicates that meters load-side, or downstream, of Pole 7A showed load consumption after 3:19 a.m. and up until all of West Maui lost power at 5:00 a.m.

6:07 a.m. Fault. The cause of the 6:07 a.m. A-Phase to Ground fault that occurred upon restoration of [REDACTED] also remains undetermined. As shown by the waveform in Figure 50, this fault lasted approximately 6 cycles, or 100 milliseconds, and had a recorded RMS peak of 2,134 amps.

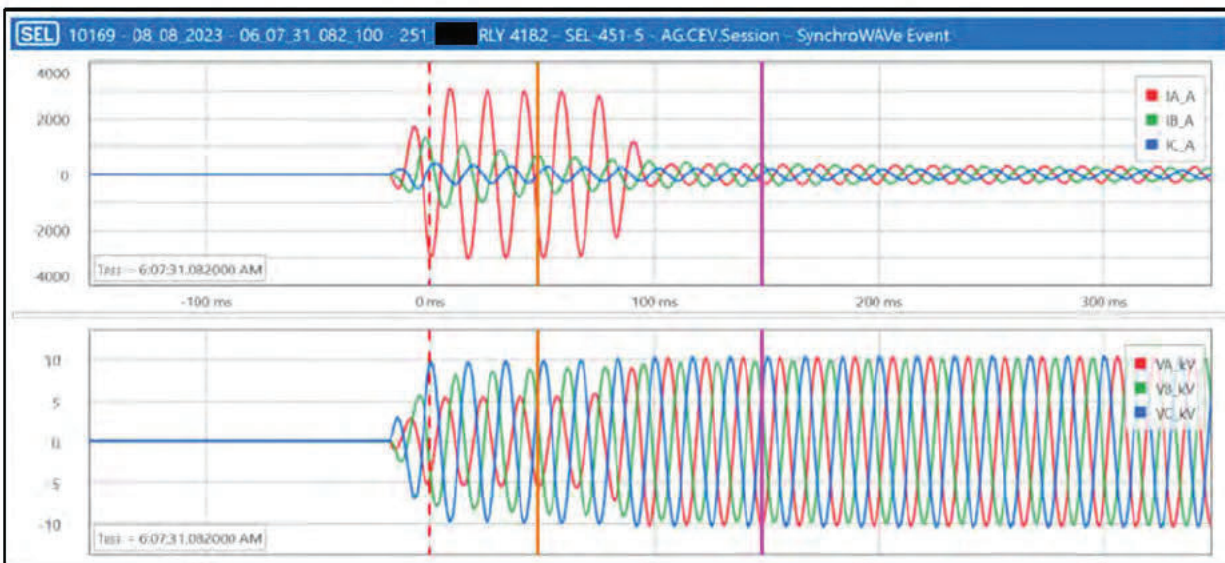


Figure 50: Waveform downloaded from [REDACTED] relay showing the 6:07 a.m. A-Phase to Ground fault

No damage to Hawaiian Electric equipment has been identified to explain this fault, but it appears to have been associated with an A-Phase conductor momentarily in contact with ground or a grounded surface upon restoration. The fault cleared quickly, with no additional faults detected until 6:33 a.m. Meters downstream of Pole 25 towards Lahainaluna High School on [REDACTED] showed load consumption upon re-energization of the circuit at 6:07 a.m.

6:33 a.m. Faults. The 6:33 a.m. faults recorded by the [REDACTED] relay are consistent with two broken conductors attached to Pole 25 coming into contact and arcing, followed by the A-Phase conductor between Pole 24 and Pole 25 separating and then contacting the speed limit sign and the soil below. The first 6:33 a.m. fault recorded by the relay was between the C-Phase and A-Phase and peaked at an RMS value of approximately 2,300 amps for approximately 18 cycles, or 300 milliseconds. This fault is shown in the waveform in Figure 51.

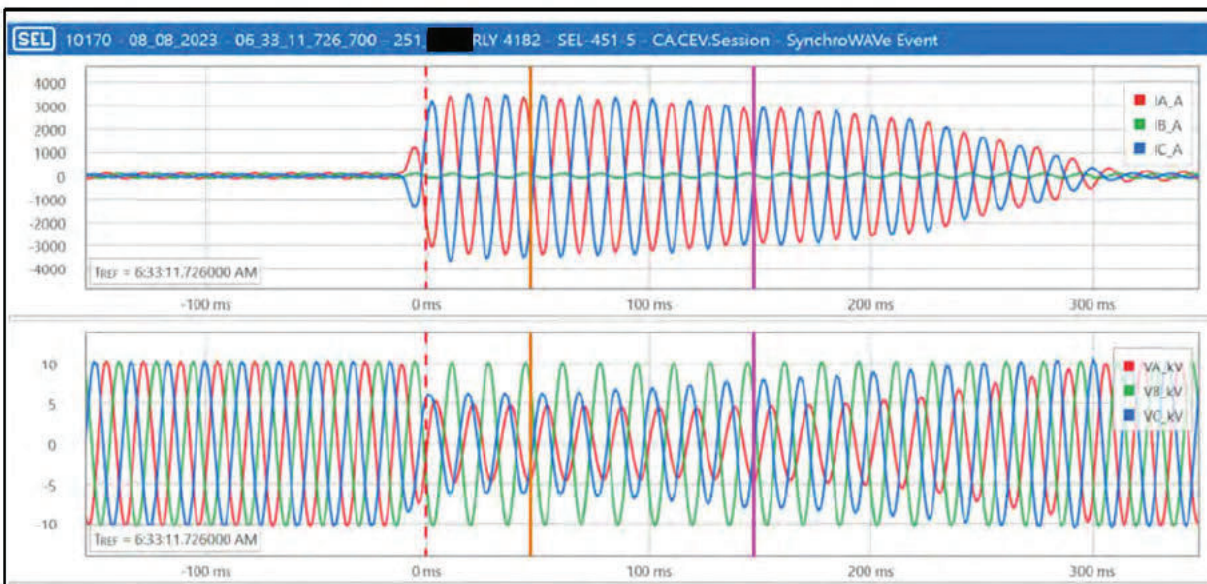


Figure 51: Waveform downloaded from the [REDACTED] relay showing the 6:33 a.m. fault between A-Phase and C-Phase

The physical evidence supports that the 6:33 a.m. phase-to-phase fault was caused by contact and arcing between the broken ends of the A and C phases of [REDACTED] which were still attached to Pole 25 after Pole 7A broke. Figures 52–54 show the ends of these conductors as observed after the incident, and Figure 55 shows where these broken conductors were attached to Pole 25.



Figure 52: Microscope image of FCA Artifact DB#21, C-Phase dead-end conductor attached to Pole 25 that exhibited melting associated with phase-to-phase fault current



Figure 53: Microscope image of FCA Artifact DB#30, A-Phase dead-end conductor attached to Pole 25 exhibiting melting associated with phase-to-phase fault current



Figure 54: Image of FCA Artifact DB#29, B-Phase dead-end conductor attached to Pole 25 that did not exhibit melting and appeared to have experienced tensile failure

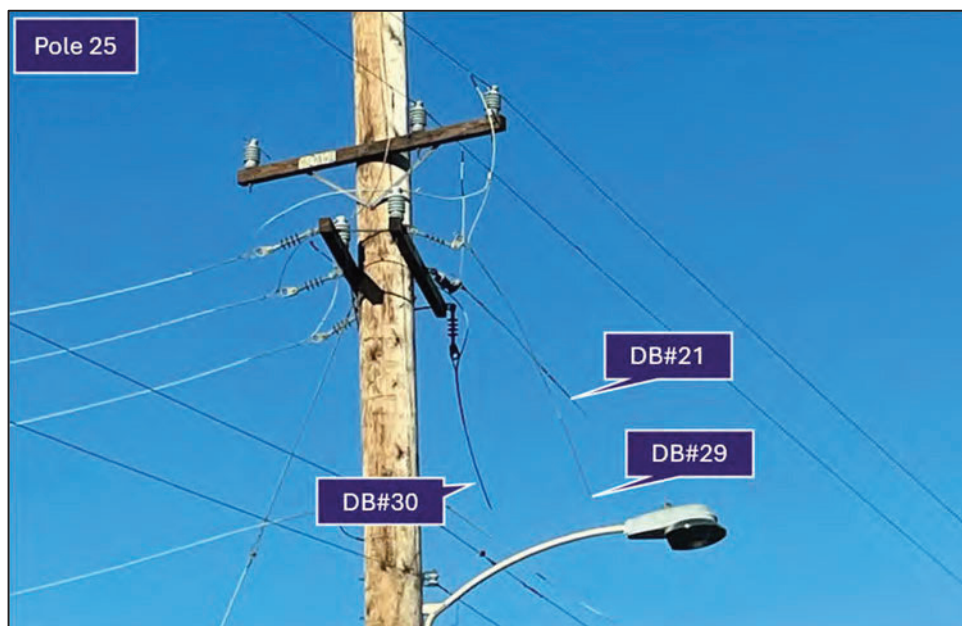


Figure 55: 7:19 a.m. photo from August 8, 2023 captured by a Hawaiian Electric Troublemaker with short dead-end conductors hanging from Pole 25 labeled with FCA artifact numbers

Following the initial phase-to-phase fault at 6:33 a.m., five additional faults were recorded by the [REDACTED] relay over approximately six seconds. These faults were all phase-to-ground faults involving the A phase. These faults were of longer duration but lower

amperage, with a peak RMS value of 212 amps. A representative phase-to-ground fault from this series of faults is shown in the waveform in Figure 56.

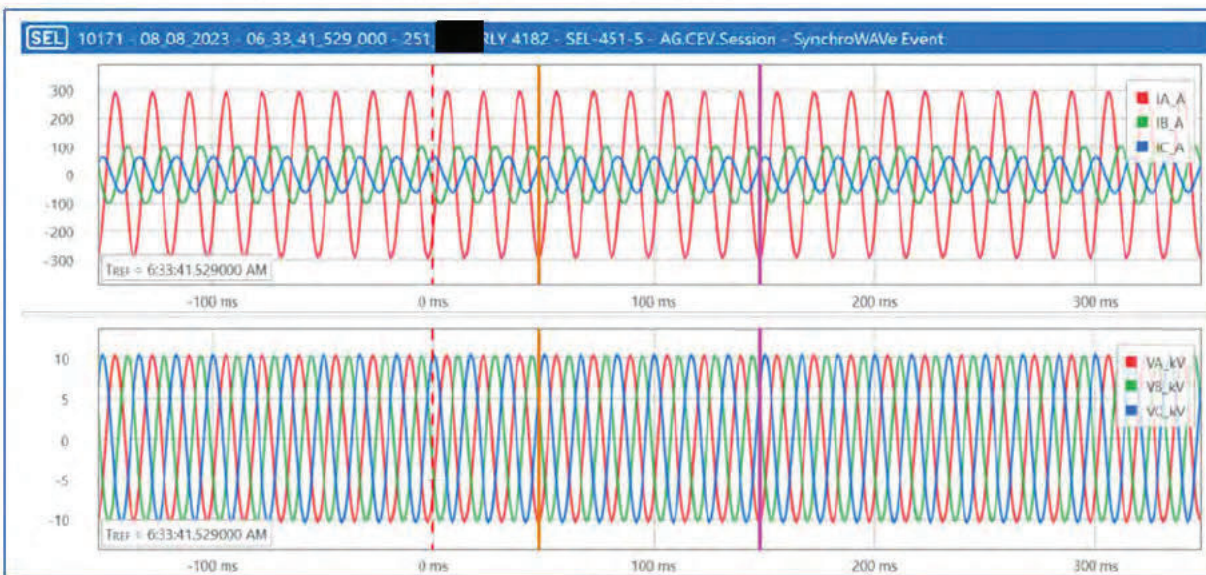


Figure 56: Waveform downloaded from the [REDACTED] relay showing a representative 6:33 a.m. high impedance fault from A-Phase to ground

The physical evidence supports that the 6:33 a.m. phase-to-ground faults were caused by the A-Phase copper conductor of [REDACTED] between Pole 24 and Pole 25 separating and falling onto the narrow corridor of grass and soil alongside Lahainaluna Road and over the adjacent speed limit sign.

Timing of Pole 7A Failure. AMI data indicates that Pole 7A failed after power went out to West Maui at 5:00 a.m., but before [REDACTED] was re-energized at 6:07 a.m. Specifically, AMI data shows that meters load-side, or downstream, of Pole 7A showed load consumption until all of West Maui lost power at 5:00 a.m. Upon re-energization of [REDACTED] at 6:07 a.m., meters load-side of Pole 7A (towards Princess Nahi'ena'ena Elementary School) consumed no power, while meters source-side and down-stream of Pole 25 (along Lahainaluna Road) resumed consuming power. This is shown in Figure 57 below. Additionally, as explained above, if Pole 7A had failed while [REDACTED] was energized, additional fault data would very likely have been recorded by the relay. It is unlikely Pole 7A could have broken as it did on August 8, 2023

while [REDACTED] was energized with no accompanying faults detected by the relay monitoring the line.⁶⁰

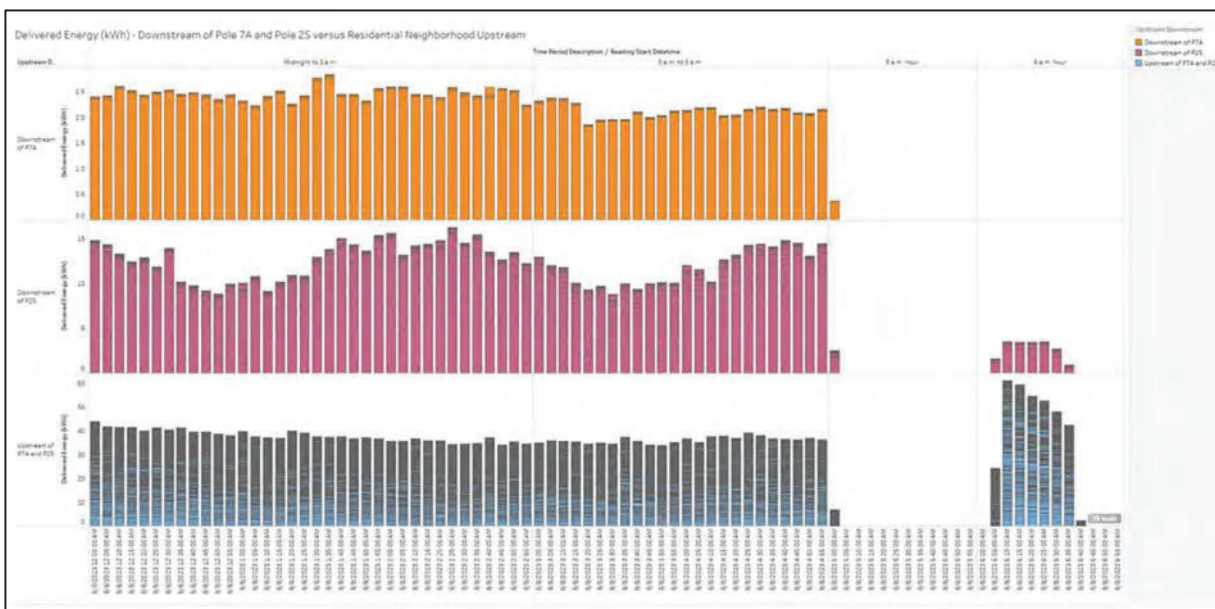


Figure 57: AMI data showing power consumption by certain meters in Lahaina. Meters downstream of Pole 7A (orange) show power consumption until 5:00 a.m., and not upon restoration at 6:07 a.m. Meters upstream of Pole 7A and Pole 25 (blue), as well as meters just upstream of Pole 25 (pink) show power consumption until 5:00 a.m., as well as upon restoration at 6:07 a.m.

IV. Actions Taken by Hawaiian Electric to Mitigate Fire Risk in Light of the August 8, 2023 Lahaina Fires

Even before the Lahaina fires, Hawaiian Electric had taken proactive steps to mitigate fire risk in its service territory, above and beyond regulatory requirements. Hawaiian Electric has invested heavily in additional fire mitigation measures since the fires, and looks forward to continuing to work with government agencies, landowners, non-profits, and other interested parties to address this community-wide problem. Fires ignite and spread for a variety of natural and person-caused reasons. Hawaiian Electric is fully committed to do its part to mitigate fire risk, recognizing that fire is a problem affecting the entire state and is not utility-centric.

⁶⁰ Others have hypothesized Pole 7A failed at about 3:15 a.m. on August 8 and was supported by conductors throughout the morning. See Hawai'i House of Representatives, Committee on Finance, Public Hearing (Apr. 2, 2024), https://www.youtube.com/live/dzUQblprZk8?si=WmStsB_FlNwomV6j&t=10908. The electrical data indicates this is not the sequence of events that occurred.

A. Wildfire Mitigation Efforts Prior to August 8, 2023

Hawaiian Electric had proactively implemented a number of measures to mitigate the risks of wildfire and other hazards prior to the August 2023 wildfires. In 2019, Hawaiian Electric convened the Resilience Working Group to identify threat scenarios that would inform how and where Hawaiian Electric would expend resources to harden and modernize its grid. That group consisted of several dozen members from a broad range of state and national agencies, commercial and industrial customers, and non-profit interest groups across sectors including defense, transportation, emergency management, and healthcare. The Group analyzed a variety of data and thereafter prioritized threats: (1) Hurricane/Flood/Wind; (2) Tsunami/Earthquake; (3) Wildfire; (4) Physical/Cyber Attack; and (5) Volcano (Hawai‘i Island only).⁶¹

Even though wildfire did not rank at the top of the risks that the working group prioritized, Hawaiian Electric took proactive steps to address the risk of wildfire. In 2019, Hawaiian Electric began developing a Wildfire Mitigation Plan (“WMP”) as a proactive measure to address wildfire risks. While such plans are mandated in California, they were not mandated in Hawai‘i. Hawaiian Electric nonetheless developed its plan on its own initiative. Hawaiian Electric hired an engineering consultancy firm, gathered information from other utilities and industry conferences, and engaged with the Honolulu Fire Department and a Hawai‘i wildland fire specialist, among other stakeholders. The WMP was considered an internal, working document that was intended to align and inform fire mitigation work across islands and programs, including the Climate Adaptation Transmission and Distribution Resilience Program, even before it was finalized. Hawaiian Electric’s WMP, finalized internally in January 2023, addressed wildfire mitigation through inspections, vegetation management, system hardening,

⁶¹ Hawaiian Electric, “Hawaiian Electric finalizes ‘Integrated Grid Plan’ to decarbonize its energy system by 2045, stabilize” (May 15, 2023), https://www.hawaiianelectric.com/documents/about_us/news/2023/20230515_integrated_grid_plan_filed_with_puc.pdf at page 103; for more on the Resilience Working Group, see Hawaiian Electric Company, Maui Electric Company, and Hawai‘i Electric Light Company, “Resilience Working Group Report for Integrated Grid Planning (Apr. 29, 2020), https://www.hawaiianelectric.com/documents/clean_energy_hawaii/integrated_grid_planning/stakeholder_engagement/working_groups/resilience/20200429_rwg_report.pdf; Other state assessments did not identify wildfire as a top threat to Hawai‘i, see, e.g., <https://dod.hawaii.gov/hiema/files/2022/03/Hawaii-State-CEMP-FEB-2022.pdf> (listing the wildfire threat to people on Hawai‘i as “low” and assessing vulnerability as “medium”).

situational awareness measures, operational procedures, and study of new technologies to mitigate fire risk.

In June 2022, Hawaiian Electric filed an application with the Commission to fund its Transmission and Distribution Resilience Program measures, including a host of system hardening projects and other wildfire mitigation measures identified in the WMP. Earlier this year, the Commission approved this application. Correspondingly, Hawaiian Electric applied for and was awarded approximately \$95 million of matching funds under the 2021 Infrastructure Investment and Jobs Act to support its system hardening and wildfire mitigation efforts. That grant is administered by the United States Department of Energy.

In addition, Hawaiian Electric had other procedures, such as Maui Electric's Reclose Blocking Procedure, to mitigate the risk of fire in high winds. Reclose blocking, described above, is a longstanding practice in Maui Electric's service territory that significantly reduces the likelihood of electrical equipment sparking or contributing to a wildfire.

B. Public Safety Power Shutoff Program

Hawaiian Electric has proactively developed and implemented a Public Safety Power Shutoff Program ("PSPS"). Hawaiian Electric's wildfire mitigation planners concluded prior to the August 2023 wildfires that perceived wildfire risk in Hawai'i, given the significant differences with California, did not justify the detrimental effects of preemptive shutoffs. Shutoffs mitigate wildfire risk through significant sacrifice and introduce different risks to life, health and safety, critical infrastructure, businesses, and the economy. Deliberate shutoffs deprive communities of power for medical devices or air conditioning for the elderly and those with special medical needs; impact the ability of people to exit their houses and garages in emergency situations; shut off power to traffic signals and schools; and can reduce communications and digital access to emergency updates. There are also impacts to water pumping that can impede fire suppression efforts. Prior to August 2023, Hawaiian Electric sought to mitigate wildfire risk through a coordinated strategy focused on inspections, system hardening, situational awareness, and system operations.

The August 2023 windstorm and wildfires prompted Hawaiian Electric to revisit the determinations that shaped its earlier wildfire mitigation efforts and risk assessment. Hawaiian Electric has since developed and has had in place since July 1, 2024, a preemptive power shutoff

program as described in the Company's letter *Notification of Establishment of Public Safety Power Shutoff Practice*, submitted to the Commission on May 31, 2024.⁶² Hawaiian Electric was able to accelerate its implementation of its PSPS program by building on the work of other utilities. Implementing the PSPS program has required extensive coordination with government agencies and other stakeholders to help mitigate the risks that arise when power is shut off.

C. Additional Wildfire Mitigation Strategies

Hawaiian Electric has taken additional steps to expand its wildfire strategy and expedite its implementation since the August 2023 windstorm and wildfires. While the 2023 WMP reflected reasonable judgments at the time, the August 2023 wildfires have prompted Hawaiian Electric to reevaluate wildfire risk on Hawai'i and appropriate measures for mitigation.⁶³

1. Wildfire Immediate Action Plan (2024)⁶⁴

Following the August 2023 Maui windstorm and wildfires, the Company developed an Immediate Action Plan to reduce the risk of wildfires associated with utility infrastructure in service territory areas that the Company has identified as posing a higher wildfire risk.

Components include:

- **Wildfire Risk Modeling:** Develop advanced methods to quantitatively analyze wildfire risk to inform mitigation planning and operational decision-making.
- **Wildfire Maps:** Leverage and augment fire risk maps developed by the Hawai'i Department of Land and Natural Resources Division of Forestry and Wildlife to account for risk associated with overhead power facilities by overlaying Hawaiian Electric's overhead powerlines and extending high fire-risk area boundaries by one mile in each direction.
- **Video Cameras:** Deploy high-definition 360-degree cameras that use artificial intelligence to identify ignitions and notify the Company and first responders.

⁶² More info is available at <https://www.hawaiianelectric.com/safety-and-outages/wildfire-safety/public-safety-power-shutoff>.

⁶³ Additional wildfire safety measures contemplated since the January 2023 WMP are also documented in Docket No. 2022-0135 in the Company's response to PUC-HECO-IR-30 through PUC-HECO-IR-32, Potential Adjustments outlined in its November 27, 2023 letter, and its responses to LOL-HECO/PAIR-6, -14, and -15, among others.

⁶⁴ Hawaiian Electric initially called these measures its Interim Wildfire Safety Measures, but more recently has referred to them as its Wildfire Immediate Action Plan.

- Watch Office: Enable 24/7 wildfire-focused watch office capabilities to monitor video cameras, enhance wildfire ignition detection accuracy, and alert response teams.
- Weather Stations: Deploy additional weather stations to capture local weather data to enhance key operational decision-making during hazardous weather conditions.
- Spotters: Utilize human spotters during red-flag conditions to alert system operators and emergency responders of hazardous observations.
- Fast Trip Settings and Reclose Blocking: Implement fast-trip settings at substation feeder circuit breakers/reclosers and expand reclose blocking to reduce the potential for ignitions caused by faults during certain weather conditions.
- Fault Current Indicators (“FCI”): Deploy new FCIs on high wildfire risk circuits that are capable of coordinating with fast trip settings in order to better locate faults and improve trouble-shooting when fast trip settings are enabled.
- Equipment Inspections: Implement detailed ground and aerial inspections of transmission and distribution overhead assets in high wildfire risk areas.
- Pole Replacement and Upgrades: Replace poles and pole hardware to reduce the probability of asset failures that could cause fires.
- Conductor Replacement: Replace smaller single-strand copper conductor, limit splices, and remove temporary in-line disconnects to reduce the probability of conductor failure.
- Shield Wire Replacement: Replace old/deteriorated shield wire to reduce the probability of failure.
- Expulsion Fuse Replacement: Replace expulsion fuses in high wildfire risk areas with fuse models designed to reduce the potential for the release of sparks or high temperature material during operation.
- Lightning/Surge Arrester Replacement: Replace arresters in high wildfire risk areas with new models equipped with arc or spark prevention mechanisms.
- KPF Air Switch Replacement: Replace existing KPF Air Switches in high wildfire risk areas.

- Targeted Re-Design of Spans: Reduce the potential for swing shorts in high wildfire risk areas through targeted re-design of spans.
- Fire Retardant Mesh: Install fire retardant mesh on new poles in high wildfire risk areas.
- Enhanced Vegetation Management: Enhance vegetation management practices in high wildfire risk areas to further reduce the potential for vegetation contact with lines.

2. 2025-2027 Wildfire Safety Strategy

Hawaiian Electric is developing and will submit to the Commission by January 10, 2025, a comprehensive 2025-2027 Wildfire Safety Strategy, which will detail the Company's plan to reduce the risk of wildfires associated with utility infrastructure.⁶⁵

- This multi-year Wildfire Safety Strategy is being developed with input from key stakeholders and communities.
- The Company has been engaging with the Consumer Advocate, the Hawai'i Emergency Management Agency ("HiEMA"), fire agencies, Hawai'i Wildfire Management Organization ("HWMO"), various state and county agencies, the University of Hawai'i, peer utilities with extensive wildfire mitigation experience, parties to Docket No. 2022-0135, and many other key stakeholders.
- In April 2024, the Company hosted a two-day Wildfire Safety Symposium to engage a cross-section of external stakeholders and partners to inform the Company's 2025-2027 Wildfire Safety Strategy.
- The Company has established a Wildfire Safety Working Group (similar to the Resilience Working Group), offering a forum for ongoing engagement and feedback from key stakeholders and subject matter experts in the utility wildfire mitigation space. To date, the Company has held seven Working Group meetings and plans to continue these in the future.

⁶⁵ The Company will submit its 2025-2027 Wildfire Safety Strategy by January 10, 2025, pursuant to Order No. 41033 issued by the Commission on September 13, 2024, Non-Docket Case No. 2023-04661.

- The Company is engaging communities in elevated risk areas by sharing the Company's wildfire mitigation plans and soliciting feedback ahead of finalizing the 2025-2027 Wildfire Safety Strategy.
 - To develop the 2025-2027 Wildfire Safety Strategy, the Company is utilizing wildfire risk modeling tools to better understand the wildfire risk areas, risk of ignition, and impact of wildfire consequences to communities.
 - Based on the data developed through these wildfire risk modeling tools, the Company will consider various wildfire mitigations for each elevated risk area to reduce the risk of wildfires, including enhanced inspections and vegetation management, system hardening, grid design, situational awareness, and operational strategies and practices.
- Location-specific wildfire mitigations will be prioritized according to their risk reduction potential.

D. Re-energization Policies and Procedures

Hawaiian Electric's policies for re-energizing lines that trip offline are governed by its System Operations Policies and Procedures and its Reclose Blocking Procedure. Hawaiian Electric does not re-energize without visual inspection lines that are included in its Reclose Blocking Procedure and trip offline during a Red Flag Warning or High Wind Advisory.

In addition, since the August 8, 2023 windstorm and wildfires, Hawaiian Electric has implemented a new procedure providing that overhead circuits within designated fire risk areas that de-energize as a result of a higher-level transmission line or sub-transmission line trip must be inspected before they are re-energized. This procedure helps ensure that Hawaiian Electric is able to identify damage to distribution lines when that damage occurs while the distribution line is de-energized. Hawaiian Electric's updated procedure further provides that field observers (spotters) for sections of lines in designated fire risk areas are required for certain re-energization attempts. Hawaiian Electric continues to evaluate and refine its practices and procedures regarding re-energization of lines.

E. Policies for First Responders Working Near Downed Equipment

Hawaiian Electric provides direct access for first responders to contact dispatchers for up-to-date information regarding the energization of lines and circuits. First responders are advised to treat downed equipment as energized absent specific direction from Hawaiian Electric. On August 8, 2023, Hawaiian Electric's representative in the Maui County EOC provided County officials a direct phone line to the Maui Electric Control Room to inquire on the status of power lines or request de-energization. Hawaiian Electric will de-energize circuits at the request of first responders and County emergency management representatives. Hawaiian Electric will continue to coordinate with first responders regarding best practices for working near damaged equipment, as well as requesting updates on the status of power lines or their de-energization.

The FSRI Report concludes that MPD and MFD were uncertain about the status of power in crucial areas on August 8. The Maui Electric Control Room informed MPD and MFD the power was off in Lahaina at least five times on August 8, 2023.⁶⁶ MPD and MFD never requested Hawaiian Electric refrain from re-energizing lines (although the Company did so of its own volition). Several of the recommendations in the FSRI Phase Two report involved encouraging Hawaiian Electric to work more closely with first responders and emergency managers in emergencies. Hawaiian Electric had a liaison in the Maui County EOC starting at 5:15 a.m. on August 8, 2023. Hawaiian Electric remains open to closer cooperation with first responders and emergency managers, and looks forward to working collaboratively to develop workable plans that would deepen cooperation during emergency situations. In particular, if asked, Hawaiian Electric would be open to sending a representative to a police or fire command center during emergency situations.

V. Conclusion

Safety is Hawaiian Electric's top priority. Hawaiian Electric remains committed to minimizing the risk that its equipment could be involved in a catastrophic fire, and has taken significant steps since August 8, 2023, to reduce the risk of ignition from its equipment. Hawaiian Electric looks forward to working with the Commission, the State of Hawai'i, county agencies, and other relevant stakeholders on Hawaiian Electric's 2025-2027 Wildfire Safety Strategy and on additional community-wide solutions to this community-wide problem.

⁶⁶ See FSRI Phase One Report, pages 235–236.

From: StormGeo[impactweather@stormgeo.com]
Sent: Mon 8/7/2023 3:16:22 AM (UTC-10:00)
To: zz-StormGeo-HECO-List[zz-StormGeo-HECO-List@hawaiianelectric.com]
Subject: Condition Yellow - Red Flag Warning - 5 locations

[This email is coming from an EXTERNAL source. Please use caution when opening attachments or links in suspicious email.]

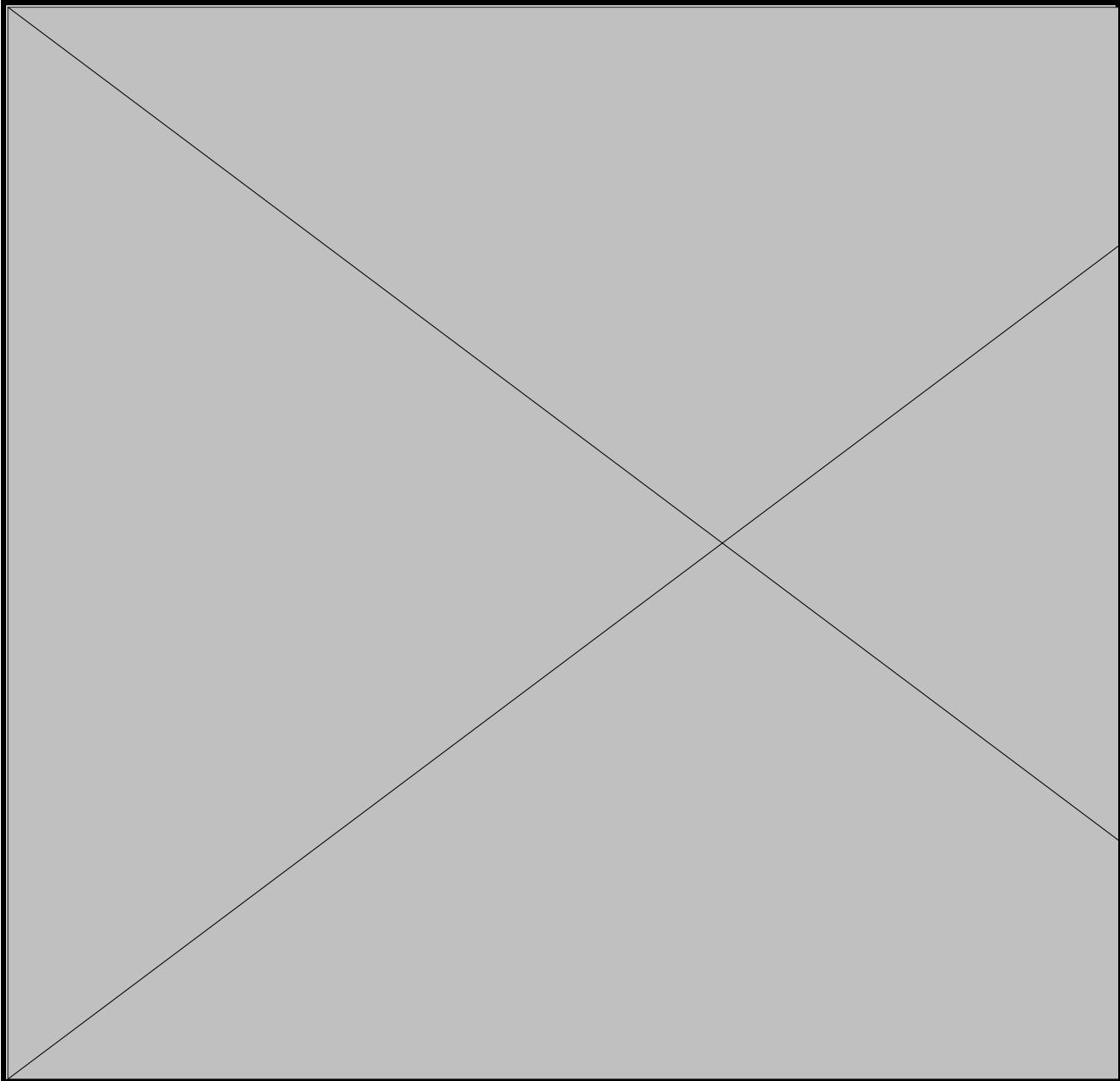
**Condition Yellow - Hawaiian Electric Co.
Red Flag Warning**

Valid 6:00 AM, Mon, Aug 07 to 6:00 AM HST, Wed, Aug 09, 2023

A Condition Yellow for Elevated Fire Danger will be in effect from 6:00 AM HST until 6:00 AM HST, Wed, Aug 09 for the following locations.

Label	Location
A	*Honolulu - HECO HQ
B	CEIP Substation
C	Kaneohe Substation
D	Wahiawa Substation
E	Ward Base Yard

- Honolulu - HECO HQ CEIP Substation Kaneohe Substation Wahiawa Substation Ward Base Yard
- AFFECTED AREA...Leeward portions of all Hawaiian Islands.
- WIND...East winds 30 to 45 mph with gusts over 65 mph expected.
- HUMIDITY...40 to 45 percent during afternoons and evenings.
- IMPACTS...any fires that develop will likely spread rapidly. Outdoor burning is not recommended.



Overall Alert Status For Each Location			
Label	Location	Highest Alert Status	Other Alerts
A	*Honolulu - HECO HQ	Condition Red - High Wind Warning from 6:00 AM HST to 6:00 AM HST, Wed, Aug 09	Condition Yellow - Red Flag Warning
B	CEIP Substation	Condition Red - High Wind Warning from 6:00 AM HST to 6:00 AM HST, Wed, Aug 09	Condition Yellow - Red Flag Warning
C	Kaneohe Substation	Condition Yellow - Red Flag Warning from 6:00 AM HST to 6:00 AM HST, Wed, Aug 09 Condition Yellow - Wind Advisory from 6:00 AM HST to 6:00 AM HST, Wed, Aug 09	None.
D	Wahiawa Substation	Condition Red - High Wind Warning from 6:00 AM HST to 6:00 AM HST, Wed, Aug 09	Condition Yellow - Red Flag Warning

E	Ward Base Yard	Condition Red - High Wind Warning from 6:00 AM HST to 6:00 AM HST, Wed, Aug 09	Condition Yellow - Red Flag Warning
Related StormWatch Bulletin: Red Flag Warning			

Issue time: 03:16 HST Monday, August 07, 2023

Support or questions: support.houston@stormgeo.com

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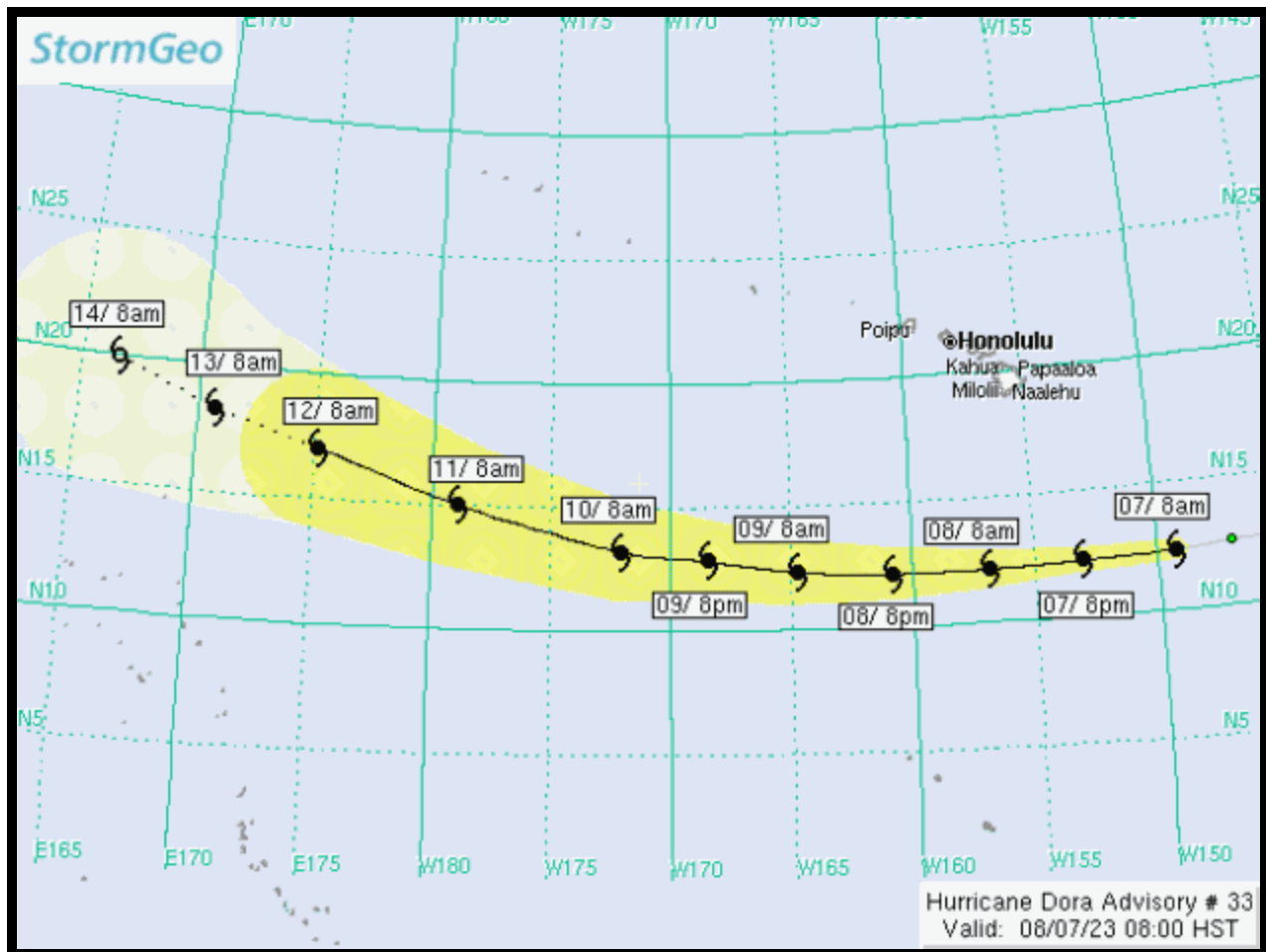
From: StormGeo[tropicswatch@stormgeo.com]
Sent: Mon 8/7/2023 7:07:50 AM (UTC-10:00)
To: zz-StormGeo-HELCO-List[zz-StormGeo-HELCO-List@hawaiianelectric.com]; zz-StormGeo-HECO-List[zz-StormGeo-HECO-List@hawaiianelectric.com]; zz\$Maui_County_IMT_Limited_Dist[zz\$Maui_County_IMT_Limited_Dist@hawaiianelectric.com]
Subject: Hurricane Dora Advisory 33

[This email is coming from an EXTERNAL source. Please use caution when opening attachments or links in suspicious email.]



Hurricane Dora Advisory 33

Valid: 08:00 AM HST Monday August 07, 2023



Because this storm is no longer a potential threat to your company's area of concern, this is the final advisory that you will receive via email. Future advisories can be accessed on your StormGeo website.

Current Location: 12.3N, 149.2W

Geographic Reference: 630 miles southeast of Hilo, Hawaii

Movement: West at 21 mph

Max Winds: 130 mph gusting to 160 mph

Current Hurricane Severity Index: 19 out of a possible 50 points (4 size, 15 intensity)

Max Predicted Hurricane Severity Index: 19 out of a possible 50 points (4 size, 15 intensity)

Current Radius of Tropical Storm-Force Winds: 50 miles

Max Predicted Radius of Tropical Storm-Force Winds: 50 miles

Organizational Trend: Steady

Forecast Confidence: Average

Estimated Central Pressure: 952 mb

Our Forecast

Hurricane Dora will be making its closest approach to Hawaii today, but the storm is so

small and so far south of Hawaii that no impacts will be felt there. Dora will continue moving off to the west to west-northwest over the coming week while slowly weakening.

Our next advisory will be issued by 2 PM HST.

Meteorologist: Chris Hebert

Forecast Confidence: Average							Hurricane Severity Index		
Fcst Hour	Valid	Lat.	Lon.	Max Sustained Winds	Max Gusts	Category	Size	Intensity	Total
0	8AM HST Mon Aug 07	12.30N	149.20W	130 mph	160 mph	Category 4	4	15	19
12	8PM HST Mon Aug 07	12.20N	153.00W	125 mph	155 mph	Category 3	4	13	17
24	8AM HST Tue Aug 08	12.10N	156.80W	120 mph	145 mph	Category 3	4	12	16
36	8PM HST Tue Aug 08	12.10N	160.80W	115 mph	140 mph	Category 3	4	11	15
48	8AM HST Wed Aug 09	12.30N	164.70W	110 mph	130 mph	Category 2	4	10	14
60	8PM HST Wed Aug 09	12.80N	168.40W	100 mph	120 mph	Category 2	4	8	12
72	8AM HST Thu Aug 10	13.20N	172.00W	90 mph	110 mph	Category 1	3	7	10
96	8AM HST Fri Aug 11	15.00N	178.90W	85 mph	105 mph	Category 1	3	6	9
120	8AM HST Sat Aug 12	17.00N	175.20E	80 mph	100 mph	Category 1	3	5	8
144	8AM HST Sun Aug 13	18.30N	170.70E	75 mph	90 mph	Category 1	3	5	8

168	8AM HST Mon Aug 14	19.90N	166.60E	65 mph	75 mph	Tropical Storm	2	3	5
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The yellow cone is based upon the 75th percentile of the track error from the previous five years scaled by the current forecast confidence level. It does not indicate where the potential impacts may be. Strong winds, very high tides, large waves, and heavy rainfall can often extend well outside the yellow cone.

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tropicswatch@stormgeo.com



**Hawaiian
Electric**

RECLOSE BLOCKING PROCEDURE
RED FLAG WARNING & HIGH WIND WARNING
Revised March 14, 2023

1. RED FLAG WARNING

(NWS-CIVIL DEFENSE)

- a. Definition: The National Weather Service defines a Red Flag Warning to mean warm temperatures, very low humidities, and stronger winds which are expected to combine to produce an increased risk of fire danger.
- b. TRIGGER
 - The National Weather Service local forecast office and Civil Defense will issue a RED FLAG WARNING notification which will trigger the Reclose Blocking Procedure to be performed due to a Utility Wildfire Risk.

2. HIGH WIND WARNING

(MAUI SYSOPS)

- a. Definition: A prolonged period of drought and recent high wind warnings which pose a Utility Wildfire Risk.
- b. TRIGGER
 - If the National Weather Service local forecast office and Civil Defense issues a High Wind Warning and StormGEO forecasts corroborate wind conditions indicating gusts of 40 MPH or greater as measured at KWP2 wind speed indicator will trigger the Reclose Blocking Procedure to be performed due to a Utility Wildfire Risk potential.

RECLOSE BLOCKING PROCEDURE FOR UTILITY WILDFIRE RISK CONDITIONS

1. Log the condition(s) triggering these procedures in the System Log.
2. Locate the appropriate Spread sheet from the correct folder.
 - a. **1_RED FLAG WARNING PROCEDURE**
 - \\MSA002B\Distribution\dr\RED FLAG WEATHER PROCEDURES\1_RED FLAG WARNING PROCEDURE\TEMPLATE
 - b. **2_HIGH WIND WARNING PROCEDURE**
 - \\MSA002B\Distribution\dr\RED FLAG WEATHER PROCEDURES\2_RECLOSE BLOCKING - HIGH WIND PROCEDURE\TEMPLATE
3. Fill out the appropriate response spread sheet and save it (SAVE AS) in the appropriate year folder.
4. Dispatch to block all CB's & Reclosers listed through SCADA. (Log on Spread sheet).
5. Add Tags (**YELLOW**) to all blocked CB's and update the Single Line Diagram if device is not on SCADA.
 - a. A Yellow tag will allow a breaker to relay open but not allow a SCADA close.
6. Add to "ABNORMAL CONDITIONS" on System Log.
7. If a CB(s) or Recloser(s) opens while under effect of the "Red Flag Warning" or "High Wind Warning", the respective line will be inspected by vehicle, foot, or aircraft prior to reclosing.
8. If the affected corresponding line and/or equipment is found clear and intact through inspection, the line will be energized and CB's or reclosers will remain blocked on the RECLOSE BLOCKING PROCEDURE, unless otherwise notified.
9. If the corresponding line and/or equipment is jeopardized, then a crew will be called out to make repairs.
10. Upon completion of repairs, the line will be energized and CB's or reclosers will remain blocked on the RECLOSE BLOCKING PROCEDURE, unless otherwise notified.

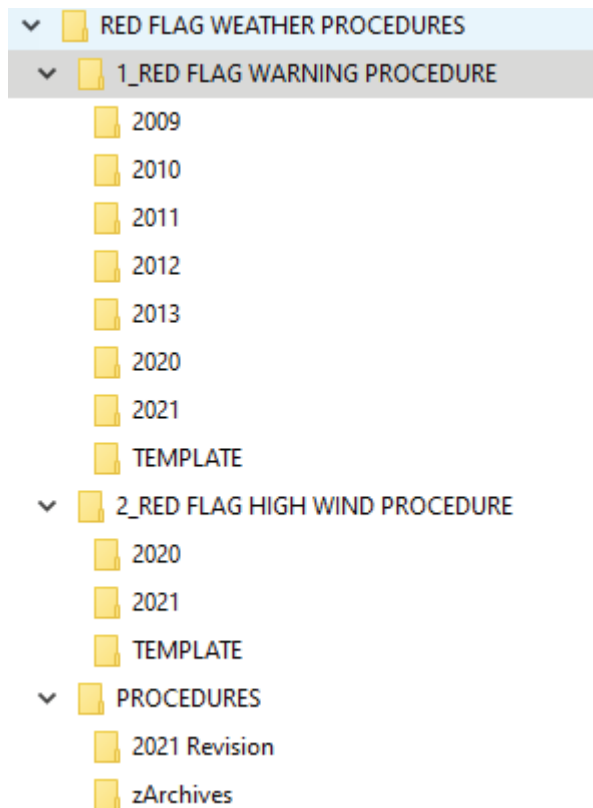
RETURN TO NORMAL PROCEDURES

The system will be returned to normal when Civil Defense issues a Red Flag Warning Cancellation notification and there are no longer high impact wind conditions forecasted (<40 MPH) in the area of designated circuits or lines.

1. Log the return to normal conditions in the System Log.
2. Dispatch to unblock all CB's & Reclosers that are SCADA enabled. (Log on Appropriate Spread sheet)
3. Remove Tags to all devices available through SCADA and update the Single Line Diagram if device is not on SCADA.
4. Remove from "ABNORMAL CONDITIONS" on System Log.

These procedures are intended as guidance for standard and typical response. The System operations team may modify the procedures for initiation or return to normal, in consideration of system state or special circumstances that, in the judgement of System Operation management, change the safety and reliability impacts from the normal condition. If the procedures are not followed, the reason shall be logged.

FOLDER LOCATION: [..\PROCEDURES](#)



Date of Warning: _____

Date of Cancellation: _____

SUB	DEVICE	NON-AUTO	SCADA/TM	TIME	DATE	AUTO	SCADA/TM	TIME	DATE
[REDACTED]	[REDACTED]	☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
[REDACTED]	[REDACTED]	☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐				☐			
		☐				☐			
[REDACTED]	[REDACTED]	☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
[REDACTED]	[REDACTED]	☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
[REDACTED]	[REDACTED]	☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
[REDACTED]	[REDACTED]	☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
[REDACTED]	[REDACTED]	☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☒	LV BLK'D			☒		LV BLK'D	
[REDACTED]	[REDACTED]	☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
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		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐				☐			
		☐				☐			
		☐				☐			
		☐				☐			
[REDACTED]	[REDACTED]	☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
[REDACTED]	[REDACTED]	☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
[REDACTED]	[REDACTED]	☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
[REDACTED]	[REDACTED]	☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		
		☐	SCADA			☐	SCADA		

RED FLAG WARNING RESPONSE

Date of Warning: 8/7/2023

Date of Cancellation: _____

SUB	DEVICE	NON-AUTO	SCADA/TM	TIME	DATE	AUTO	SCADA/TM	TIME	DATE
[REDACTED]	[REDACTED]	☒	SCADA	0604	8/7/2023	☐	SCADA		
		☒	SCADA	0607	8/7/2023	☐	SCADA		
		☒	SCADA	0608	8/7/2023	☐	SCADA		
		☒	SCADA	0610	8/7/2023	☐	SCADA		
		☒	SCADA	0612	8/7/2023	☐	SCADA		
		☒	SCADA	0613	8/7/2023	☐	SCADA		
[REDACTED]	[REDACTED]	☒	SCADA	0614	8/7/2023	☐	SCADA		
		☒	SCADA	0615	8/7/2023	☐	SCADA		
		☒	SCADA	0615	8/7/2023	☐	SCADA		
		☒	TM/JL	0720	8/7/2023	☐	TM		
		☒	TM/JL	0834	8/7/2023	☐	TM		
[REDACTED]	[REDACTED]	☒	SCADA	0617	8/7/2023	☐	SCADA		
		☒	SCADA	0618	8/7/2023	☐	SCADA		
		☒	SCADA	0619	8/7/2023	☐	SCADA		
[REDACTED]	[REDACTED]	☒	SCADA	0620	8/7/2023	☐	SCADA		
		☒	SCADA	0621	8/7/2023	☐	SCADA		
		☒	SCADA	0622	8/7/2023	☐	SCADA		
[REDACTED]	[REDACTED]	☒	SCADA	0623	8/7/2023	☐	SCADA		
		☒	SCADA	0624	8/7/2023	☐	SCADA		
[REDACTED]	[REDACTED]	☒	SCADA	0625	8/7/2023	☐			
		☒	SCADA	0626	8/7/2023	☐	SCADA		
[REDACTED]	[REDACTED]	☒	SCADA	0627	8/7/2023	☐	SCADA		
		☒	SCADA	0628	8/7/2023	☐	SCADA		
		☒	SCADA	0614	8/7/2023	☐	SCADA		
[REDACTED]	[REDACTED]	☒	SCADA	0615	8/7/2023	☐	SCADA		
		☒	LV BLK'D	0616	8/7/2023	☐	LV BLK'D		
[REDACTED]	[REDACTED]	☒	SCADA	0617	8/7/2023	☐	SCADA		
		☒	SCADA	0618	8/7/2023	☐	SCADA		
		☒	SCADA	0618	8/7/2023	☐	SCADA		
		☒	SCADA	0619	8/7/2023	☐	SCADA		
		☒	SCADA	0619	8/7/2023	☐	SCADA		
		☒	SCADA	0621	8/7/2023	☐	SCADA		
		☒	SCADA	0624	8/7/2023	☐	SCADA		
		☒	SCADA	0634	8/7/2023	☐	SCADA		
		☒	SCADA	0626	8/7/2023	☐	SCADA		
		☒	SCADA	0628	8/7/2023	☐	SCADA		
		☒	SCADA	0632	8/7/2023	☐	SCADA		
		☒	SCADA	0641	8/7/2023	☐	SCADA		
[REDACTED]	[REDACTED]	☒	SCADA	0642	8/7/2023	☐	SCADA		
		☒	SCADA	0643	8/7/2023	☐	SCADA		
		☒	SCADA	0643	8/7/2023	☐	SCADA		
[REDACTED]	[REDACTED]	☒	SCADA	0645	8/7/2023	☐	SCADA		
		☒	SCADA	0645	8/7/2023	☐	SCADA		
		☒	SCADA	0645	8/7/2023	☐	SCADA		
[REDACTED]	[REDACTED]	☒	SCADA	0647	8/7/2023	☐	SCADA		
		☒	SCADA	0648	8/7/2023	☐	SCADA		
		☒	SCADA	0648	8/7/2023	☐	SCADA		
[REDACTED]	[REDACTED]	☒	SCADA	0647	8/7/2023	☐	SCADA		
		☒	SCADA	0647	8/7/2023	☐	SCADA		

Graph 1

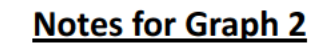
Transmission Line: [REDACTED]



Notes for Graph 1

- Graph 1 shows current (top) and voltage (bottom) readings transmitted by SCADA from 0000 hours on August 8, 2023 until 0000 hours on August 9, 2023, for the transmission line that ran between the [REDACTED] and the [REDACTED]
- Twelve data plots appear because the provided data for each of the three phases derives from two sets of relays at each end.
- The data show that the line was not energized after 0639 hours on August 8, 2023.
- Source: MECO-ATF-0000001619

Transmission Line: _____



- Graph 2 shows current (top) and voltage (bottom) readings transmitted by SCADA from 0000 hours on August 8, 2023 until 0000 hours on August 9, 2023, for the transmission line that ran from the [REDACTED] toward [REDACTED]
- This is a three-phase line, but SCADA reports data from one phase, from one source, which is why only one data plot appears.
- The data show that the line was not energized after 0337 hours on August 8, 2023.
- Source: MECO-ATF-0000001619

Graph 3

Transmission Line: [REDACTED]

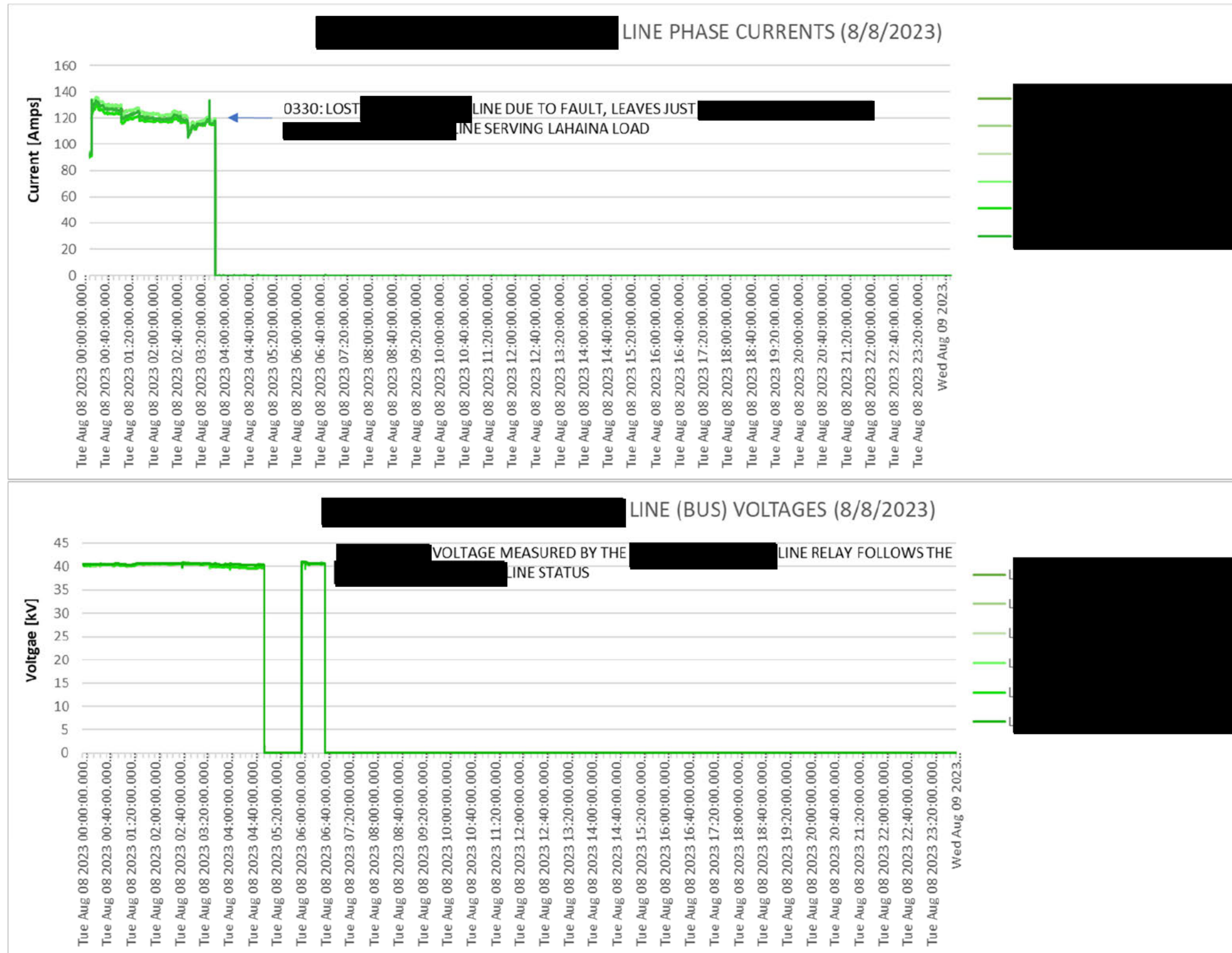


Notes for Graph 3

- Graph 3 shows current (top) and voltage (bottom) readings transmitted by SCADA from 0000 hours on August 8, 2023 until 0000 hours on August 9, 2023, for the transmission line that ran between the [REDACTED] and the [REDACTED]
- Six data plots appear because the provided data for each of the three phases derives from two relays at the [REDACTED]
- The voltage data shows that the line tripped at 0748 hours, although no current flowed after 0639 hours after the downstream transmission line between the [REDACTED] and the [REDACTED] tripped, as no load was being served after that time.
- The line was not re-energized until 1545 hours. When it was re-energized, nothing downstream of the [REDACTED] was energized, so no loads were restored and therefore no current was flowing.
- Source: MECO-ATF-0000001619

Graph 4

Transmission Line: [REDACTED]

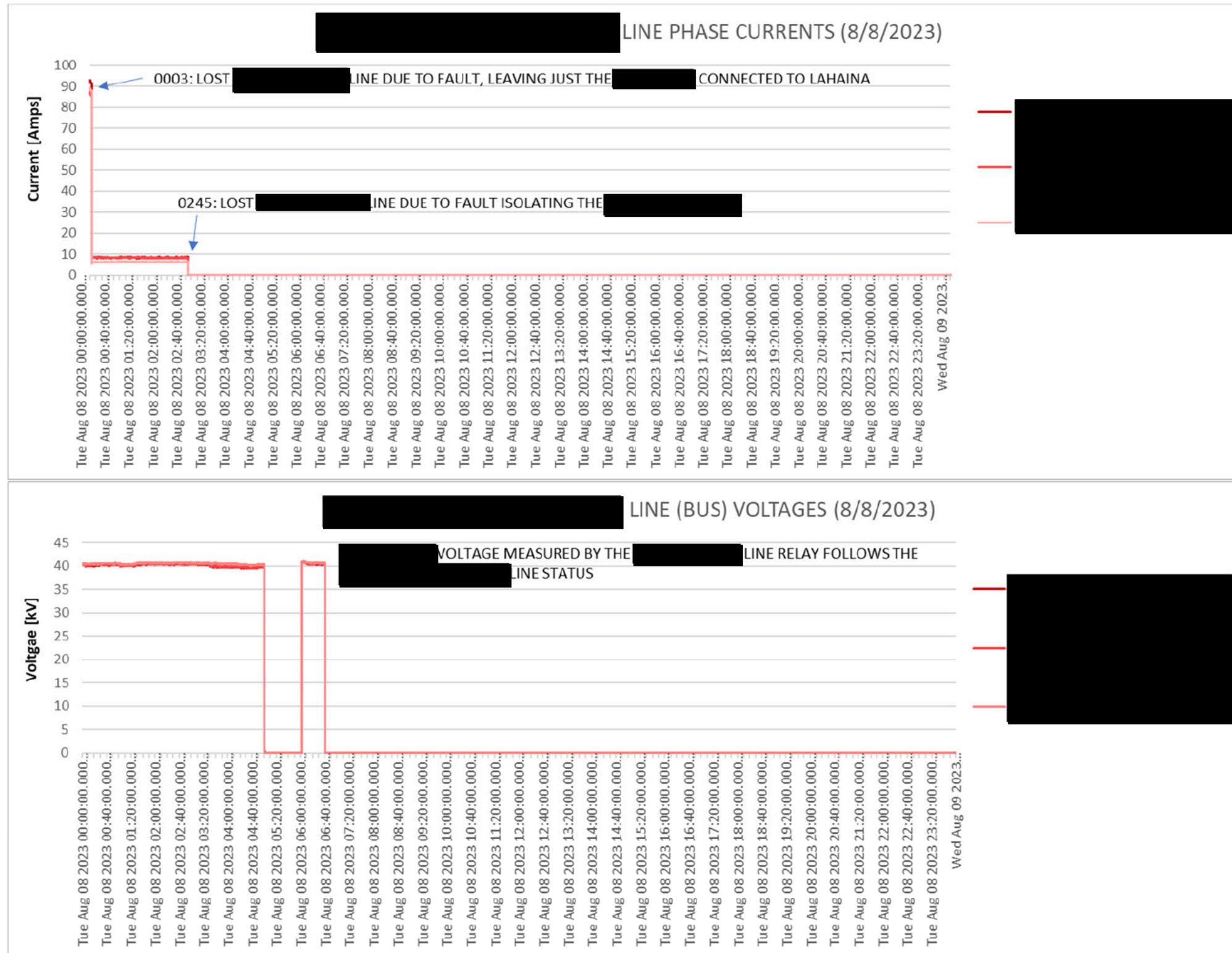


Notes for Graph 4

- Graph 4 shows current (top) and voltage (bottom) readings transmitted by SCADA from 0000 hours on August 8, 2023 until 0000 hours on August 9, 2023, for the transmission line that ran from the [REDACTED] to the [REDACTED]
- Six data plots appear because the provided data for each of the three phases derives from two relays at the [REDACTED]
- The current data indicate that the line tripped at 0330 and current did not flow on the line afterwards.
- The relay voltage value input to SCADA is measured on the substation side of the breaker and took voltage readings when the substation was energized from 0601 hours to 0639 hours, even though this line was not energized at that time.
- Source: MECO-ATF-0000001619

Graph 5

Transmission Line: [REDACTED]

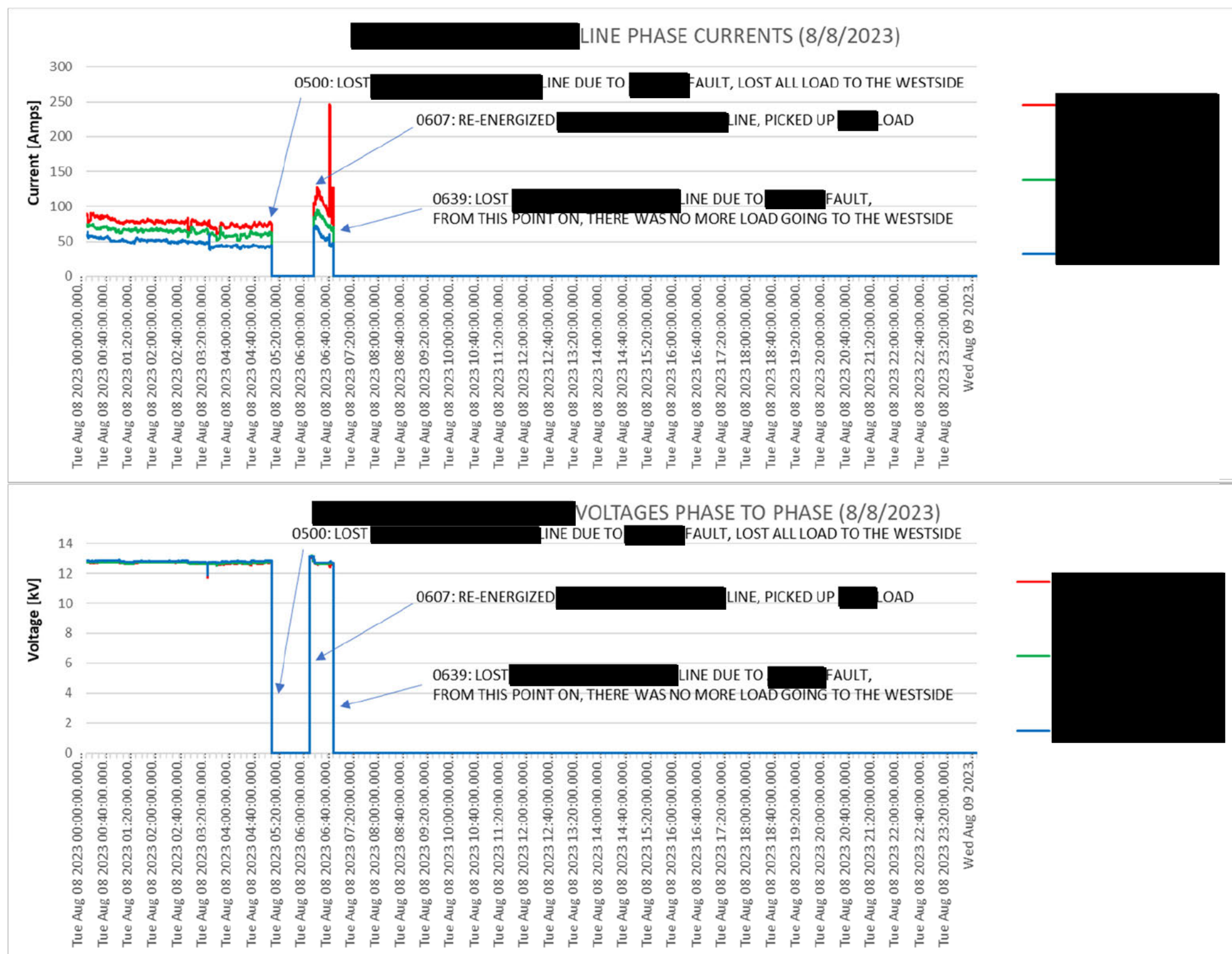


Notes for Graph 5

- Graph 5 shows current (top) and voltage (bottom) readings transmitted by SCADA from 0000 hours on August 8, 2023 until 0000 hours on August 9, 2023, for the transmission line that ran from the [REDACTED] to the [REDACTED].
- The current data indicate that the [REDACTED] to [REDACTED] tripped off at 0003 hours, which explains the drop in amperage from approximately 90 amps to below 10 amps until 0245 hours. After that portion of the line tripped, current to the [REDACTED] on this line was solely from the [REDACTED] until 0245, when the portion of the transmission line between the [REDACTED] and the [REDACTED] tripped offline.
- The relay voltage value input to SCADA is measured on the substation side of the breaker and took voltage readings when the substation was energized from 0601 hours to 0639 hours, even though this line was not energized at that time.
- Source: MECO-ATF-0000001619

Graph 6

Distribution Line: [REDACTED]



Notes for Graph 6

- The top graph shows current readings transmitted by SCADA from 0000 hours on August 8, 2023 until 0000 hours on August 9, 2023, for all three phases of [REDACTED] line [REDACTED] from the feeder circuit relay at the [REDACTED]
- The bottom graph shows voltage readings transmitted by SCADA from 0000 hours on August 8, 2023 until 0000 hours on August 9, 2023, for the [REDACTED] Dynamic Underfrequency Load Shed ("DUFLS") relay at the [REDACTED]. This relay measures bus voltage upstream of the circuit breakers for distribution lines [REDACTED] and [REDACTED]. The feeder circuit relay for [REDACTED] did not report analog voltage data to SCADA. The [REDACTED] circuit breaker was opened via SCADA at 0641 hours on August 8, 2023, and not subsequently closed on that date
- The data show that the line was not energized after 0639 hours on August 8, 2023.
- Sources: MECO-ATF-0000001619; MECO-ATF-0000004598

Exhibit G contains confidential information and is provided subject to
Protective Order No. 40513 issued on January 8, 2024.

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Press Releases

Posted on: August 8, 2023

Lahaina fire declared 100% contained; water conservation urged due to power outages

Lahaina Fire Update No. 2 at 9:55 a.m.: Maui Fire Department declared the Lahaina brush fire 100% contained shortly before 9 a.m. today.

However, power outages are impacting the ability to pump water, and the public is asked to conserve water in West Maui.

Fueled by strong wind from Hurricane Dora that is passing well south of Hawai'i, a brush fire of about three acres was reported at 6:37 a.m. today in the area of Lahainaluna Road.

Evacuations were ordered at 6:40 a.m. in the area surrounding Lahaina Intermediate School. There were two people at the Lahaina Civic Center evacuation shelter as of 8:50 a.m.

Lahainaluna Road remains closed between Kelaweia and Kuialua streets while Hawaiian Electric responds to a downed power line in the area.

The American Red Cross opened Lahaina Civic Center as an evacuation center due to the fire and area power outages tied to high winds. The shelter will remain open until further notice, but the facility has no power. Pet owners utilizing the shelter will need to have pets properly restrained.

Winds in the area remain a concern. A high-wind warning issued by the National Weather Service for portions of Maui County remains in effect through 6 a.m. Wednesday.

The cause of the fire remains under investigation.



[Previous](#)

Fire crews remain on scene of Kula brush fire; area burned estimated at 675 acres

[Next](#)

Brush fire in Kula causes evacuation of residents early this morning

Other News in Press Releases

Wastewater disposal for private pumping trucks available on west side

Posted on: August 16, 2023

8/15 County of Maui Wildfire Disaster Update as of 8:30 pm

Posted on: August 15, 2023

Clarification of first confirmed identifications of Maui Wildfire Disaster victims

Posted on: August 15, 2023

County releases first confirmed identifications of Maui Wildfire Disaster victims

Posted on: August 15, 2023

Division of Motor Vehicles and Licensing opening Lahaina Satellite Office

Posted on: August 15, 2023

Governor Green announces opening of road to Lahaina

Posted on: August 15, 2023

8/15 County of Maui Wildfire Disaster Update as of 10 AM

Posted on: August 15, 2023

Family Assistance Center open for those seeking information about loved ones

Posted on: August 10, 2023

Maui Police Department suspends placard program for travel into West Maui

Posted on: August 14, 2023

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- MPD Press Releases



Maui Electric		<u>TROUBLE TICKET</u>	
Trouble#	Mtr#	Island	
1252	N/A	1.Maui	
Notification:		Event #:	
Service Order:		L6 Notification:	0
Name	Phone#	Address	
MPD [REDACTED]	[REDACTED]	871 Lahainaluna Rd., Lahaina	
Start Date	Deliver Date	Arrive Date	Complete Date
8/8/2023	8/8/2023	8/8/2023	8/8/2023
Start Time	Deliver Time	Arrive Time	Complete Time
6:40	6:41	7:00	8:12
Area Code	Trouble Reported	Cause	TM/SM
5. Maalaea-Makena	05. Line Down	10. Fire Call	[REDACTED]
Remarks (Enter Time and Date per Entry)			
MPD [REDACTED] reports at 871 Lahainaluna Rd. reports line came down and started a fire.			
TM Remarks (Enter Time and Date per Entry)			
0641 - Rerouted TM [REDACTED] to 871 Lahainaluna Rd., Lahaina.			
0650 - TM [REDACTED] reports possible 69kV line down on Lahainaluna Rd., Lahaina and on fire. TM unable to get close due to MFD fighting the fire. TM to send photos. TC1252			
0700 - TM [REDACTED] reports Maalaea Ø distribution down at E-24 L'luna Rd., Lahaina. TM also reports distribution pole E-7A off E-25 L'luna Rd., Lahaina broke in half, and the mountain Ø 69kV FI on Pole E-25 L'luna Rd., Lahaina operated. TC1252			
0812 - Dispatched TM [REDACTED] to E-23 Lahainaluna Rd. to OP-T the 3Ø, solid C/O's			
0821 - TM [REDACTED] at E-23 Lahainaluna Rd. OP-T the 3Ø, solid C/O's clearing HR546, Section of 3Ø, 12.47kV OH conductors off E-23 Lahainaluna Rd.			
Card Initiated By:		Card Completed By:	
[REDACTED]		[REDACTED]	

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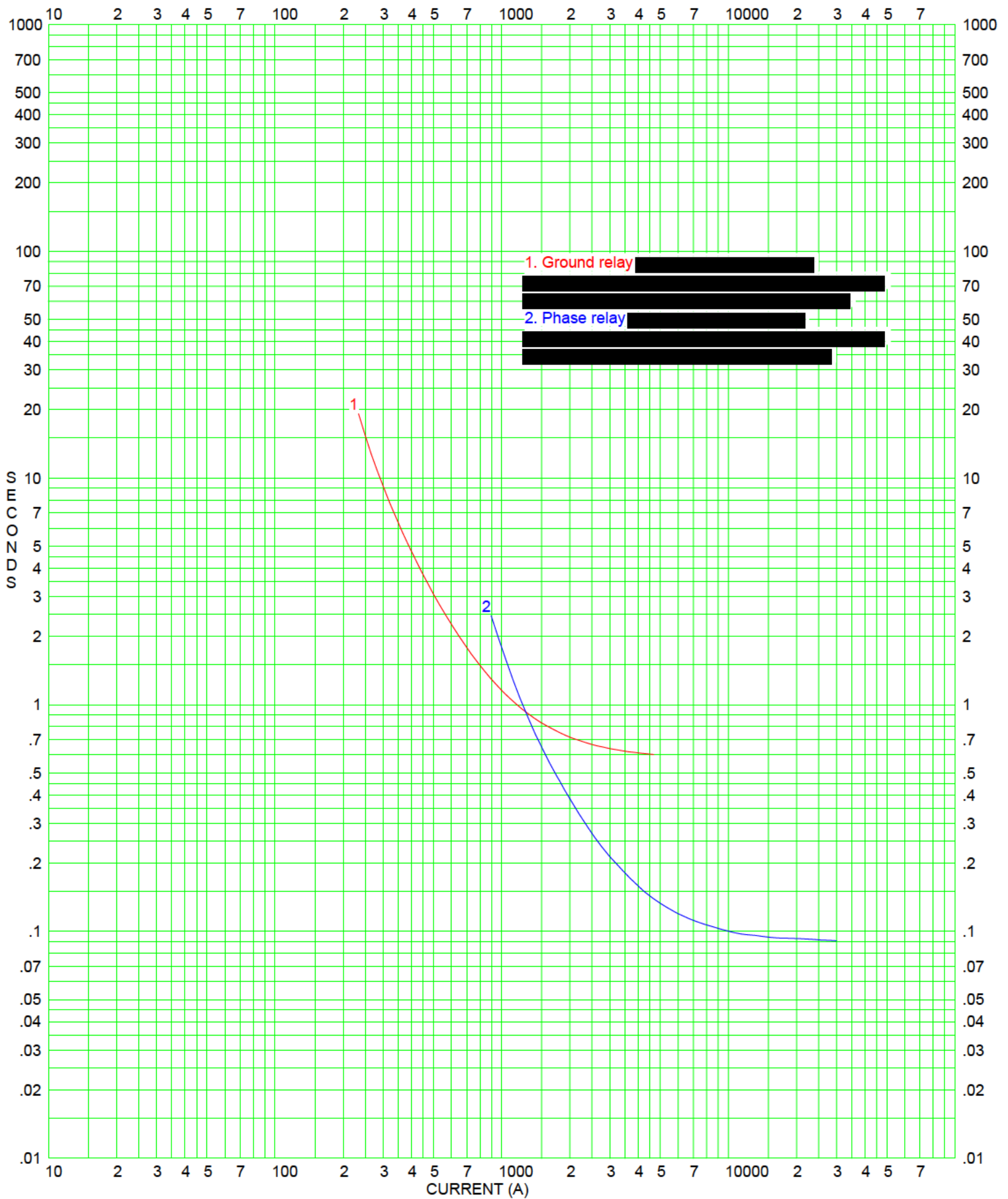
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(Excel File)



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For Comment	No.	
	Date	

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Nojiri, Andrew

From: noreply@salesforce.com on behalf of PUC CDMS <hpuc@notify.hawaii.gov>
Sent: Thursday, December 19, 2024 2:23 PM
To: Nojiri, Andrew
Subject: Hawaii PUC CDMS eSERVICES - E-Filing F-317491 FILED Confirmation

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E-Filing Filed Confirmation

Aloha Andrew Nojiri,

Your electronic filing to the Hawaii Public Utilities Commission has been **FILED**.
You will receive an email when the filing is public.

Please note that filings submitted after 4:30 p.m. Hawaii Standard Time will be deemed "FILED" the next business day. The mere fact of filing shall not waive any failure to comply with Hawaii Administrative Rules Chapter 6-61, Rules of Practice and Procedure Before the Public Utilities Commission, or any other application requirements.

E-Filing Confirmation Number: F-317491
Account: Hawaiian Electric Company, Inc.
Date and Time Submitted: 12/19/2024, 2:22 PM
Case or Docket Reference Number: PC-189164
Case or Docket Number (if applicable): 2024-01872
Filing Category/Type: Reports / Other

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This email address is not monitored. Should you have any questions, you may visit our website at <https://puc.hawaii.gov>, email us at puc@hawaii.gov, or call us at 808-586-2020, Monday-Friday 7:45 a.m. - 4:30 p.m.

Nojiri, Andrew

From: noreply@salesforce.com on behalf of PUC CDMS <hpuc@notify.hawaii.gov>
Sent: Thursday, December 19, 2024 2:29 PM
To: Nojiri, Andrew
Subject: Hawaii PUC CDMS eSERVICES - E-Filing F-317432 FILED Confirmation

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E-Filing Filed Confirmation

Aloha Andrew Nojiri,

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You will receive an email when the filing is public.

Please note that filings submitted after 4:30 p.m. Hawaii Standard Time will be deemed "FILED" the next business day. The mere fact of filing shall not waive any failure to comply with Hawaii Administrative Rules Chapter 6-61, Rules of Practice and Procedure Before the Public Utilities Commission, or any other application requirements.

E-Filing Confirmation Number: F-317432
Account: Hawaiian Electric Company, Inc.
Date and Time Submitted: 12/19/2024, 2:28 PM
Case or Docket Reference Number: PC-189164
Case or Docket Number (if applicable): 2024-01872
Filing Category/Type: Reports / Other

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