

Wildfire Safety Working Group

Meeting 2 – Hawaiian Electric’s Wildfire Safety Strategy

Wednesday, July 30, 2025

Attendees

- Marc Asano, Hawaiian Electric
- Delani Watkins
- David Kurohara, Hawaiian Electric
- Bao Duong, Hawaiian Electric
- Eric Moller
- Alfredo Echeverria
- Kazuo Todd
- Warren Ching
- Beth Amaro
- Sharri Thornton, Hawaiian Electric
- Bill Moore
- Derek Wroe
- Shari Ishikawa, Hawaiian Electric
- John Stufflebean
- Rod Aoki
- Gina Yi, Hawaiian Electric
- Nancy Bernal, Hawaiian Electric
- Mark Vaught
- James Abraham, Hawaiian Electric
- Colin Yost
- Craig Clouet
- John Bravender
- Jeff Spohn
- Ryan Nakata
- Casey Nagatoshi
- K. Uyehara
- Lydia Mertyris, Hawaiian Electric
- Hsun-Ying Kao
- Michael Hayashida
- Alexander Gomera, Hawaiian Electric
- Michael Angelo
- Gene Albano
- Kahikina Burgess, Hawaiian Electric
- Maria Tome
- Alan Okimoto
- Amir Angha
- Max Mendoza
- Jim Alberts, Hawaiian Electric
- Steve Vanderburg
- Keith Okamoto
- Taylor Lau
- Keola Siafuafu, Hawaiian Electric
- Amanda Uowolo
- Amy Adrian, Hawaiian Electric
- Douglas Le
- Jessica Simon
- Steven Bergfeld
- Scott Winecoff
- Nadja Turek
- Perry Kealoha
- Kanani Imai, Hawaiian Electric
- Kristen Okinaka, Hawaiian Electric
- Jennifer Zelko-Schlueter, Hawaiian Electric
- Marcey Chang
- Christine Wang
- Randall Shiro, Hawaiian Electric
- Kauilehuamelemele Kauhane
- Nathan Todaro, Hawaiian Electric
- John Moore, Hawaiian Electric
- Kurt Tsue, Hawaiian Electric
- LeeAnn Silva
- Zachary Judd
- Shayna Decker, Hawaiian Electric
- Jaron Takumi
- Darren Pai, Hawaiian Electric
- Tyson Goo
- Ali Arabnya
- Ty Fukumisu
- Colton Ching, Hawaiian Electric
- Kainoa Stafford
- Bethany Morrison
- Erin Kippen, Hawaiian Electric
- Tony Traini
- Uyiosa Osa-Iduma
- Joe Lockett
- Ernest Lau
- Mark Glick
- Kyra Howe
- Peter Davis
- Corey Shaffer
- Taesun Kim
- Alvin Inouye
- Kimberly Vaituulata, Hawaiian Electric
- Rob Lee
- Maurice Messina
- Oliver Vaas

- Dennis Wong, Hawaiian Electric
- Colin Mahoney
- Donald Aweau
- Shannon Alivado, Hawaiian Electric
- Fiana Tulip
- Jacob Tavares
- Ray Robertson
- Eric Moller
- Jonathan Chin
- Emily Torrans
- Ty Fukuroku
- Stephanie Donoho
- Henry Curtis
- Kurt Matsumoto

Welcome

- Welcomed everyone to the meeting and introduced the topic of Public Safety Power Shutoffs (PSPS)
- Discussed ground rules
- Discussed purpose of the Wildfire Safety Working Group (WFS WG) – to provide updates on the Wildfire Safety Strategy (WSS) and gather input on topics and implementation of strategies
- Introduced speakers

Program Overview

- Introduced in PSPS program in July 2024 to proactively shutoff power to prevent catastrophic fires that could occur during extreme weather conditions
- Three primary criteria for PSPS: persistent drought, wind gusts 45 mph or higher, relative humidity below 45%
- National Weather Service Red Flag Warning does not trigger PSPS, but does indicate to Hawaiian Electric a need for increased monitoring
- PSPS Watch is issued if PSPS is possible in next 24-48 hours
- Message broadcast tool is used to communicate with customers during PSPS events
- Weather stations and camera deployments are critical to operational decision making
 - Weather stations
 - O‘ahu – 29 weather stations
 - Maui County – 41 weather stations
 - Maui – 37
 - Moloka‘i – 4
 - Hawai‘i Island – 31 weather stations
 - Additional weather stations being prioritized in high and medium risk areas for PSPS

- Data is provided every 10 minutes on temperature, relative humidity, wind direction, speed, max gust, etc.
 - Weather station data is made publicly available through Synoptic and can be viewed on MesoWest (<https://mesowest.utah.edu/cgi-bin/droman/mesomap.cgi?state=HI>)
- AI video cameras
 - O‘ahu – 45 cameras
 - Maui County – 49 cameras
 - Maui – 33
 - Moloka‘i - 13
 - Lāna‘i - 3
 - Hawai‘i Island – 41 cameras
 - AI-enabled cameras look for smoke signals and alert Hawaiian Electric, fire departments, and emergency management agencies
 - Looking at more deployments on Big Island and looking at mobile trailer units in areas of concern
 - AlertWest system/data is publicly available and people can view cameras (<https://alertwest.live>)
 - Partnered with Watch Duty (app and website) – can view cameras

History and Lessons Learned

- 11 workshops and tabletop exercises in preparation for launching the program
- 4 protocol activations in 2024
 - Hawaiian Electric incident management team activated
 - Did not result in proactive deactivation/de-energization of lines
 - Feedback is critical to improving the process, but due to no actual de-energization, processes were not fully tested
 - Communication process is important between agencies, the utility, and the general public
- 2025 so far
 - 3 workshops and 4 tabletop exercises
 - NWS helped develop a scenario that was used for the exercises
 - County and internal process exercises with partners
 - Strengths:
 - Coordination and collaboration

- Prepared teams
- Effective communication
- Public outreach
- Partner engagement
- Areas for improvement:
 - Improved communication (multilingual, media coordination)
 - Stronger stakeholder engagement with elected officials and telecom partners
 - Enhanced operational coordination to standardize protocols and clearly define roles
 - Increased internal readiness, including focused training, staffing improvements, and additional targeted exercises
- De-energization lessons learned (July 2025 on Maui in upcountry area)
 - In-person post event discussions with partners
 - Addition of meteorology staff support
 - Hawaiian Electric plans to add this to their organization permanently
 - Continued refinement of incident management team activation criteria (in absence of NWS fire weather products)
 - Cameras massively enhance situational awareness

What's Ahead

- Updates in 2025
 - PSPS monitoring process includes a “watch” period and a “warning” period
 - As more meteorology staff is added and inputs on weather are added, they may be refined
 - Analyzing thresholds to see if they still make sense for PSPS and reviewing restoration criteria
- Future of PSPS
 - As grid hardening is implemented, PSPS triggers will continue to be reevaluated
 - Additional technology
 - Full time meteorologist and developing a meteorology program
 - Risk modeling
 - Additional available data to incorporate into forecasting
 - Review risk areas and PSPS thresholds based on models and data

- Measuring dryness of grasses and vegetation in the field to increase advance notice and reducing uncertainty
- Working Group (WG) Question: What is Technosylva?
 - Hawaiian Electric Response: Vendor that provides forecasting and fire risk modeling capability. Hawaiian Electric is working with them to stand up a model to assist with situational awareness and risk modeling in real time.

National Weather Service Presentation

- Hawaii's unique weather
 - Very dry seasons that are persisting
 - Second driest wet season in last 30 years
 - Below normal precipitation predicted for this dry season
 - Expecting above-normal fire activity expected for leeward/interior portions of Maui, Big Island, and O'ahu. These forecasting capabilities should be improving next year.
- Red Flag criteria
 - Fuels (vegetation) component
 - Drought index greater than 600 at HNL international airport (identified as a weakness, especially early in the fire seasons)
 - Lahaina fire incident analysis report identified that there is not an adequate way to identify fuel conditions in Hawai'i
 - NWS started discussing fuels weekly with State Department of Forestry and U.S. Fish and Wildlife Service
 - Weather component
 - Using HNL international airport as a reference point for weather (also identified as a weakness), but they have an expanded observation network today compared to 2007
 - Tropical ocean environment governs the climate (no big swings in humidity or temperature)
 - Small deviations can trigger Red Flag Warning conditions
 - Most events have little to no lead time
 - Wind is the dominant factor and humidity values may not be as important
- Hawaiian Electric weather stations have been beneficial for NWS and show the complexity of weather in Hawai'i. NWS uses them on a day to day basis for observations.
- NWS is working to continuously improve monitoring and forecasting

- WG Question about the use of AI for modeling
 - NWS Response: NWS is not really using this organizationally for analysis. University of Hawaii ignitions probability map did use AI.

Technosylva Presentation

- Wildfire risk modeling company founded in 1997
- Currently working in 29 states, Europe and South America
- Built of SMEs with the mission to mitigate wildfire impacts and extreme weather conditions (fire behavior experts, etc.)
- Operational solutions
 - PSPS and fast trip insights based on weather conditions
 - Real-time or dynamic risk modeling – current weather and fuels and mapping out conditions over near-term
 - Modeling fire behavior
 - Weather, fuels, and topography influence fire behavior
 - Focus on getting those inputs as close as possible so that model outputs are as close as possible
 - Provide high resolution weather forecasting (WARF Models) and wildfire simulations
 - Specialize in downslope windstorms and the impact on wildfire modeling
 - Create 20-year weather history reforecast/analysis of weather to provide context for the model
 - Use AI and satellite data to update fuel models and assess fuel loading
 - Include outage analytics and analyze against weather conditions during outages
 - Weather stations and cameras Hawaiian Electric have installed are integrated into the model
 - Daily wildfire risk and weather forecasts provide data to run fire spread simulations every 100 meters across Hawaiian Electric assets and the probability of failure
 - Fire behavior under conditions at certain locations
 - Hawaiian Electric can filter by PSPS trigger criteria to identify risks
 - Post-event analysis – Hawaiian Electric can identify if PSPS or other operational practices would have prevented damage or impacts through

“match drop” simulations to show damage that may have occurred if not for PSPS

- Planning solutions
 - Historical weather history, run billions of simulations what consequences can you expect, incorporate outage analytics to quantify risk
 - Enable data driven approach for targeted mitigation strategies
- Modeling and considering community impacts and goals of the utility gives a comprehensive look at wildfire safety work
- WG Question on if Technosylva maps endangered species and critical habitats?
 - Technosylva response: Technosylva can integrate data through GIS layers.
- WG Question on if water utilities have used them to predict impact on the water system and make improvements for extinguishing capabilities?
 - Technosylva response: Not to date, no water utilities have approached Technosylva.
- WG Question about Technosylva’s non-utility customers?
 - Technosylva Response: Do a lot of work with fire agencies, for example, CALFire. Technosylva gets immediate feedback on models from CALFire which improves the model accuracy (e.g., timber fuels, grass loading)
- WG Question about model calibration using historical information?
 - Technosylva Response: Machine learning used to correct bias in forecasting and data collection, can start after 1 year of data. 10-year worth of data can be significant for bias corrected forecasts.
 - Use studies to validate modeling
- WG Question on terrain resolution?
 - Technosylva Response: Require high-resolution terrain data, it is more challenging to get vegetation and canopy data but they are working to improve this to get improved results from wildfire modeling.
- Hawaiian Electric Question about incorporating updated fuels management data into the models?
 - NWS Response: For high-resolution data from University of Hawai‘i meteorology department. Some locations perform well and some not so well with high resolution models. Looking to other agencies to produce modeling for NWS.
 - Technosylva Response: Use of AI to create ultra high-resolution forecast. May be able to use AI to take 2km grid to create high resolution grid in places with complex terrain. Regarding fuels start with what’s available and use combination of data source to improve accuracy.