



# Kaua'i Island Utility Cooperative

Your Touchstone Energy® Cooperative



## **Wildfire Mitigation Briefing**

Kaua'i County Council

Wednesday, June 19, 2024

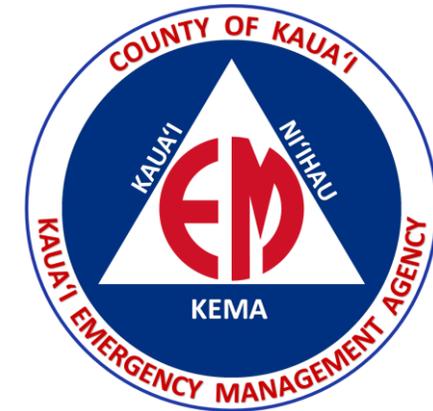
# Emergency Preparedness Overview

# KIUC Emergency Preparedness

- Emergency Preparedness and Recovery Plan (EPRP) submitted to PUC annually (Docket No. 02-0060) – first submitted in 2006
  - An information and procedures manual applicable to all types of emergencies
  - Guides a coordinated response to a disaster
  - Roughly 500 pages
- Hurricane Playbook – adopted in 2019:
  - Internal KIUC document that is updated annually prior to hurricane season, and also includes procedures for high wind events
- Cyber Incident Response and Recovery Plan adopted in 2022
- Wildfire Mitigation Plan adopted in 2024
- Natural Hazard Mitigation Plan (PUC) being drafted

# KIUC Emergency Preparedness

- Interagency cooperation
  - State of Hawaii/Kauai Emergency Management Agency (KEMA)/ Hawaii Wildfire Management Organization (HWMO)/ large landowners
  - HECO and Hawaii State Energy Office (HSEO)



**Hawaiian  
Electric**



**HAWAII  
STATE  
ENERGY  
OFFICE**

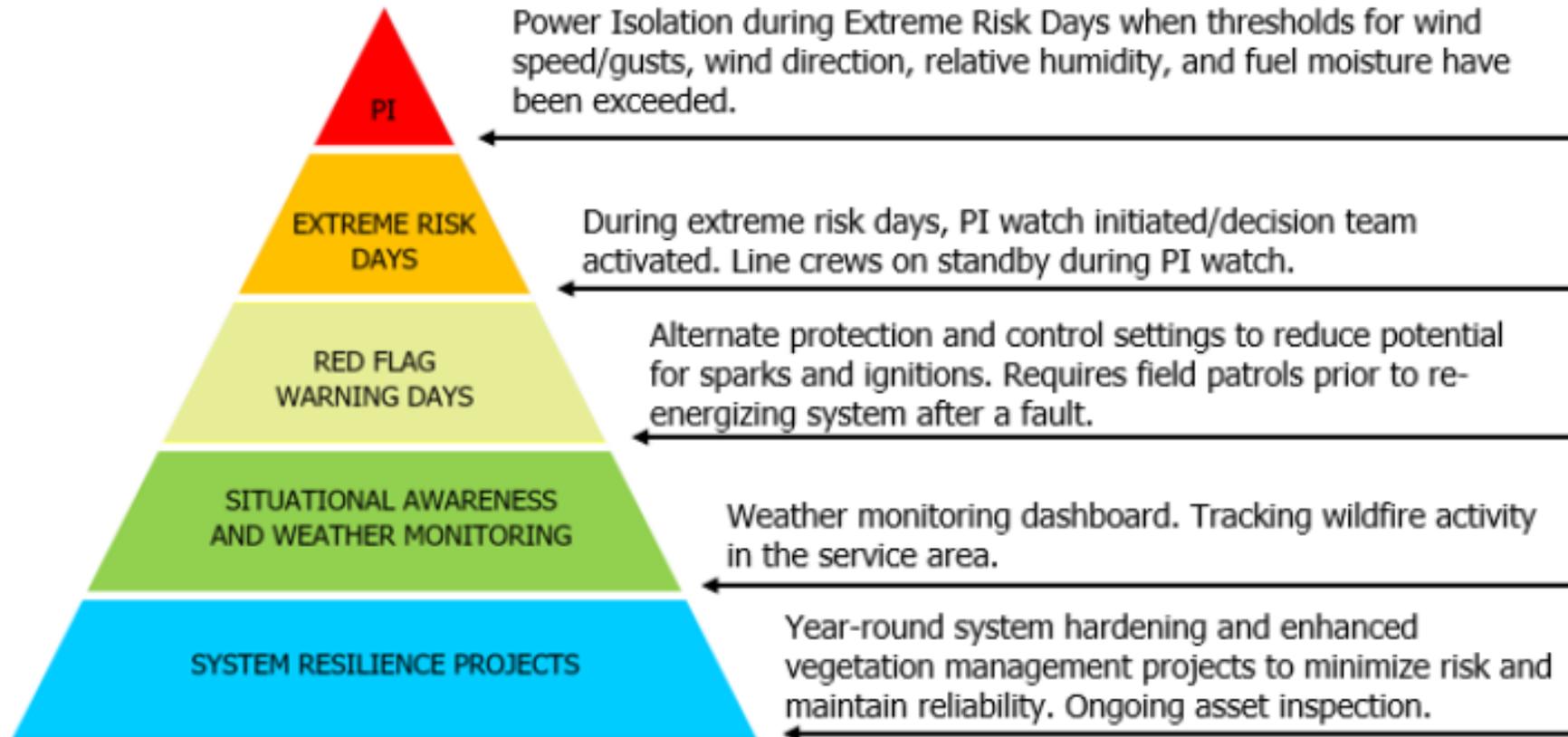
# Additional Resources

- Mutual Assistance Agreements
  - National Rural Electric Cooperative Association (NRECA): 900+ co-ops nationally
  - Hawaiian Electric Companies (HECO / MECO / HELCO)
  - Western Region Mutual Assistance Group
- As a private nonprofit utility, KIUC is eligible for 75% FEMA reimbursement of recovery costs during a declared emergency



# Wildfire Mitigation Efforts

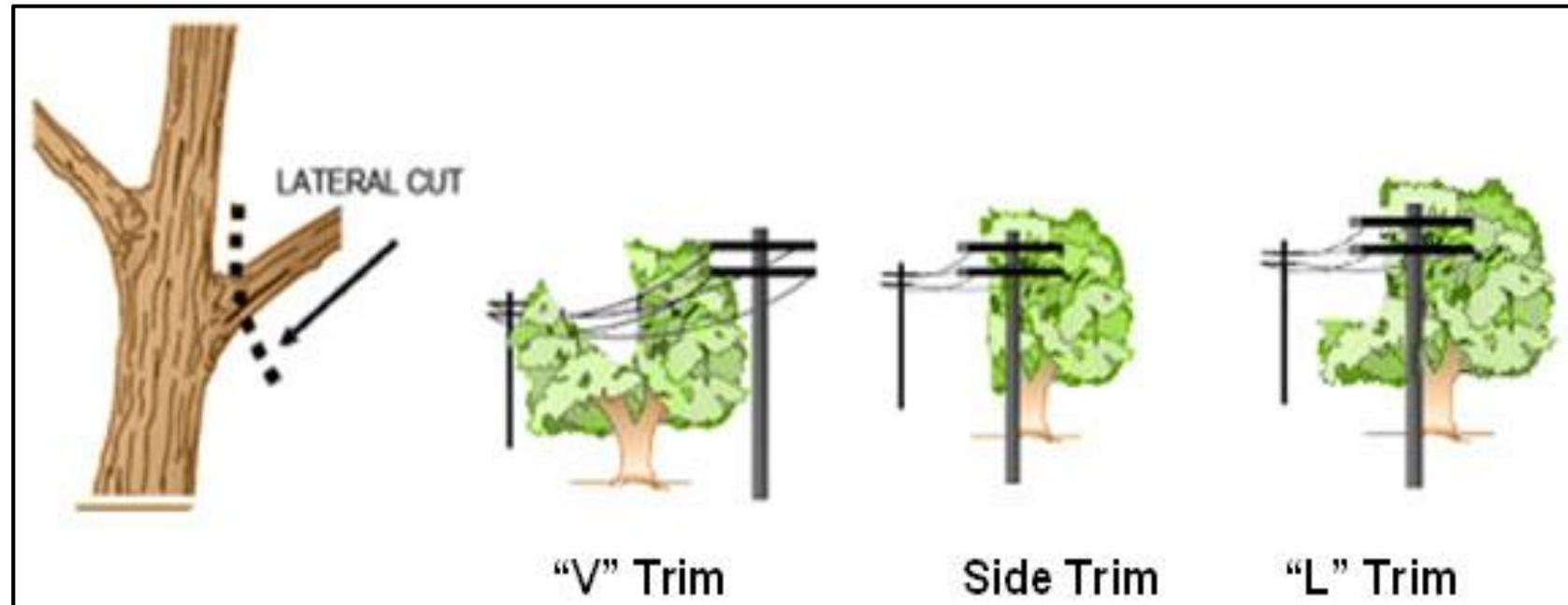
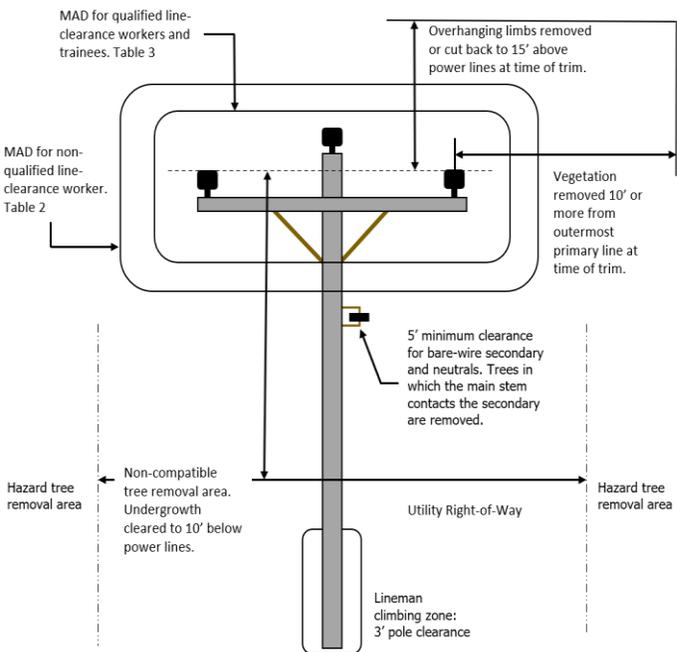
# KIUC Wildfire Readiness Framework



# System Resilience Projects

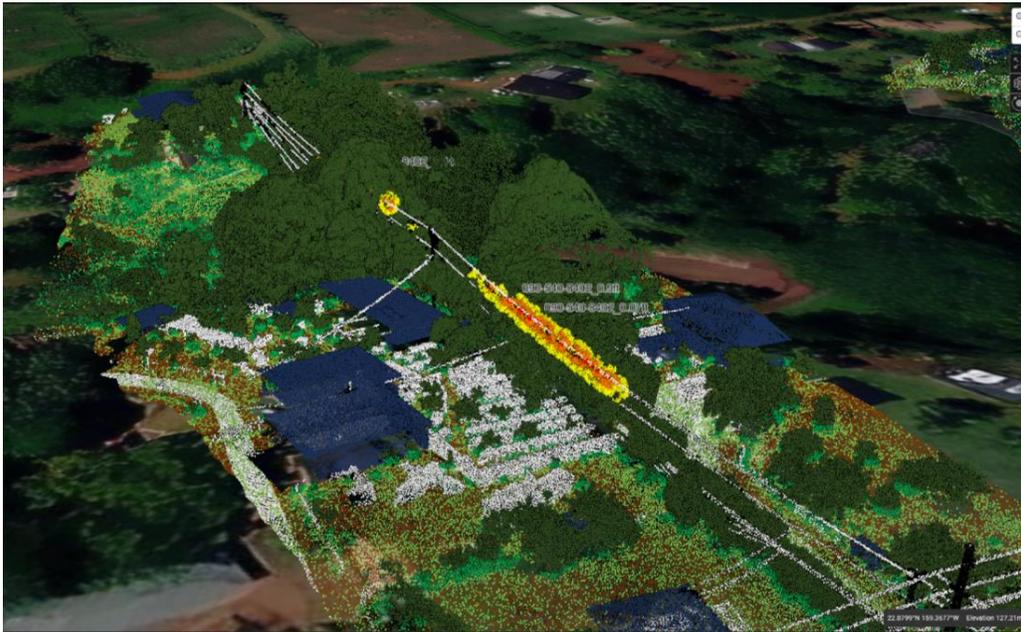
# Vegetation Management

- Budget approx. \$1.5 million per year
- Augmented with additional contractor in 2024
- Vegetation Management Plan adopted in 2024



# Drone Inspections

- Began in 2023
- High-resolution, infrared, and LiDAR
- Significantly increased inspection rate



# THOR Pole Testing

- Began in 2023
- Non-destructive method
- Significantly increased testing rate
- Adding another Utility Inspector
- Goal is to test all 16,000+ poles by end of 2026



**Hammah Time!**

The health of utility poles is an important factor in energy resiliency. KIUC recently adopted a new technology called Thor's Hammer, which was recommended by wildfire mitigation consultants.

Thor's Hammer was first invented by Groundline Engineering founder Ian Flatley in 2006. Ian was inspired by a similar device that used seismic waves to test the integrity of concrete. The device headquarters and manufacturing are based in New Zealand.

Thor's Hammer provides data on utility pole health using a special hammer connected to a geoscope with gyroscopic sensors and a sensor hub. The sensor hub is Bluetooth-enabled and quickly transmits data to the Thor's Poletest app and interactive portal, which provide geospatial visualization and data insights on the pole's condition.

KIUC has approximately 17,000 wood poles across the island. Previously, KIUC tested approximately 2,000 poles a year, completing a full round of pole testing about every eight to nine years. The typical pole should have a 30-year lifespan.

With the use of Thor's Hammer, pole testing is more accurate, which leads to cost savings. The previously used testing methods of sounding or drilling have a lower accuracy rate, which can lead to poles being replaced unnecessarily. Thor's Hammer also saves time on labor, allowing the tester to assess each pole in less than a minute.

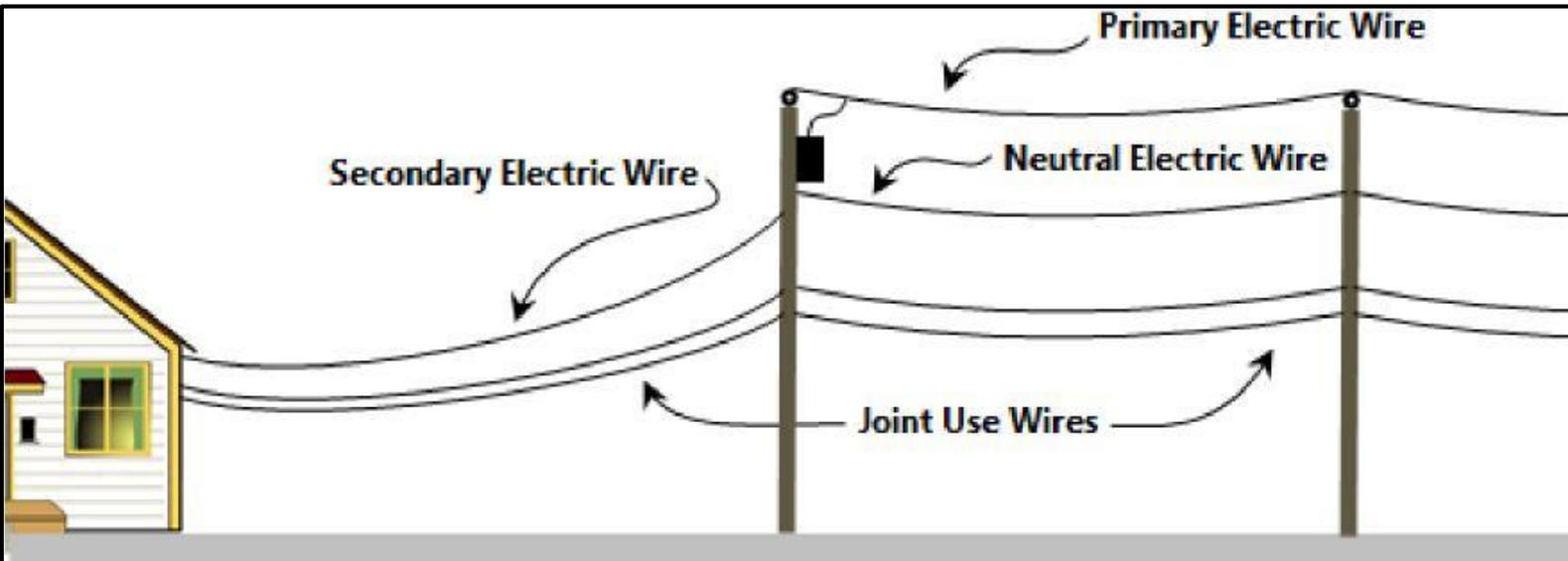
Transmission and Distribution Utility Inspector Robert Ferreira tests out the new Thor's Hammer.

"KIUC has found the previous practice of drilling to assess pole strength and serviceability introduces an additional risk of rot and strength degradation at the evaluated drill holes near the base of the pole," Transmission and Distribution Manager John Cox says. "Thor's Poletest is a one-minute nondestructive test that can be repeated over typical inspection cycles with zero risk of shortening the serviceable life of the pole."

12 | KIUC CURRENTS

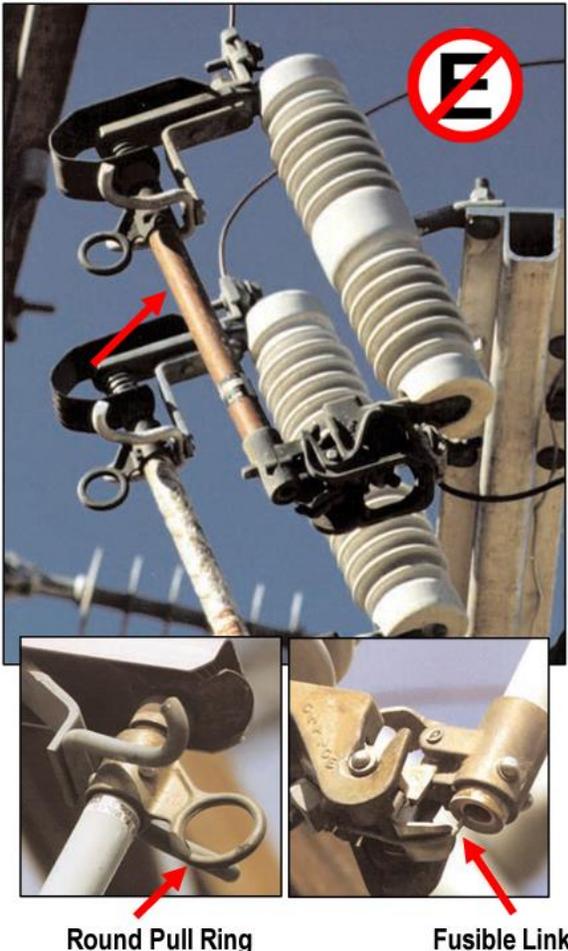
# Conductor Modifications

- Bare secondary replacements
- Spacer cable
- Tree wire



# Recloser & Fusing Upgrades

*Universal Fuse*



*Non-Expulsion Fuse*



*Current-limiting fuse*



# Recloser & Fusing Upgrades

*Trip-saver mounted in standard cutout*



*Pole-top recloser*

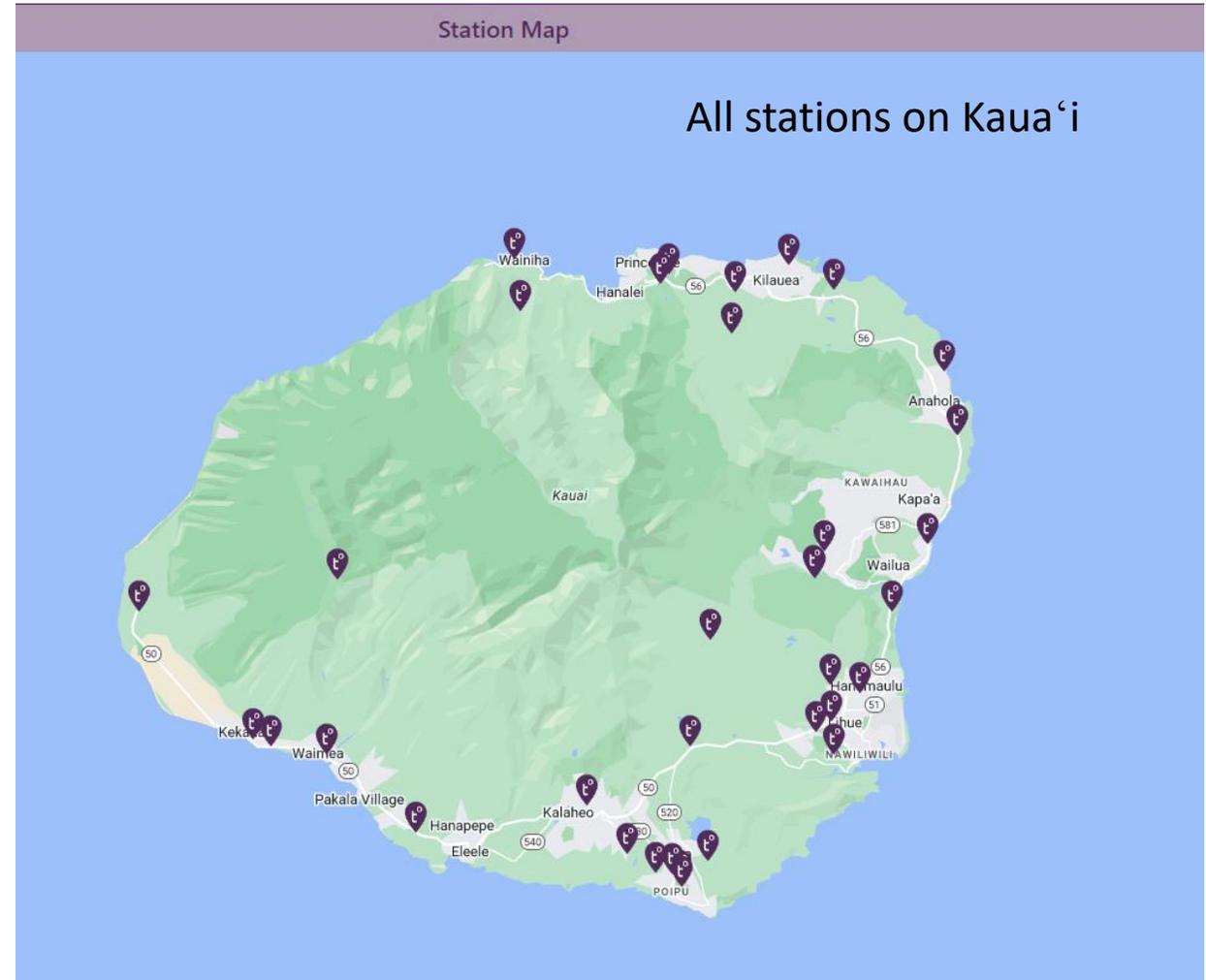


# Situational Awareness & Weather Monitoring

# Tempest Weather Stations



<https://tempestwx.com/map/22.0388/-159.4516/11>



# Fire Danger Rating Adjective (FDRA)

- System that allows local fire managers to estimate today's or tomorrow's fire danger for a given area
- KIUC working with Hawaii Dept of Forestry and Wildlife to obtain greater awareness from on-the-ground experts

## Fire Danger - Color Code, Preparedness Levels & Industrial Plan

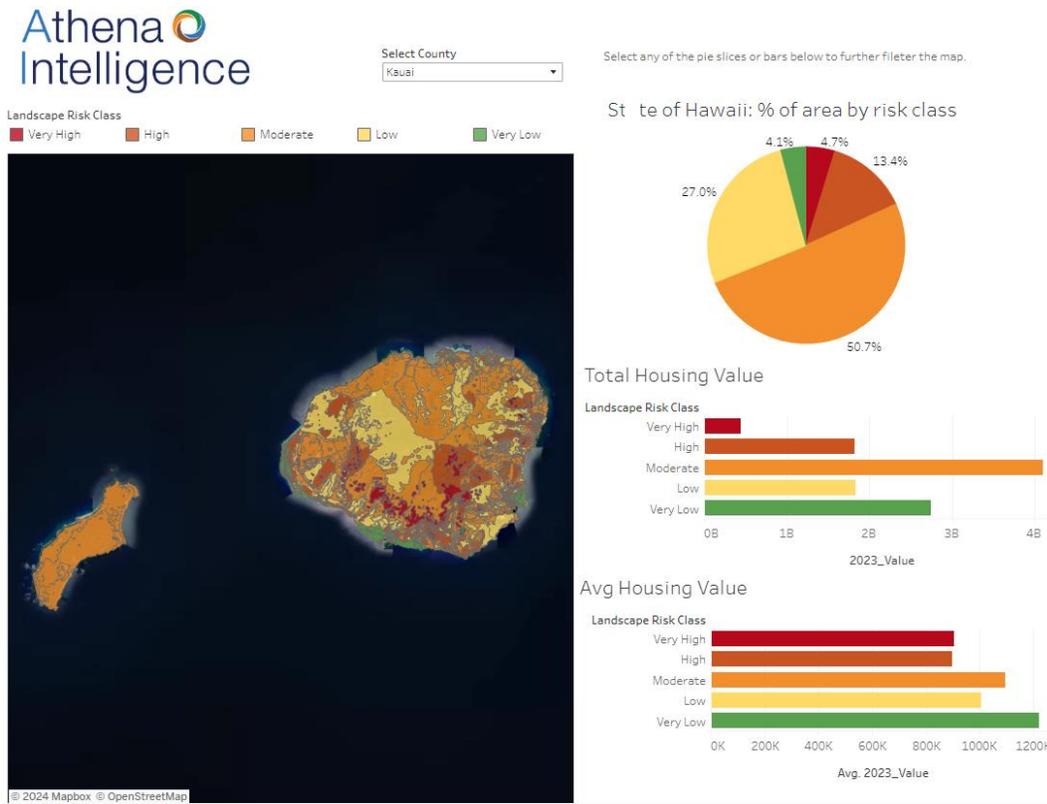


In 1974, the Forest Service, Bureau of Land Management and state forestry organizations established a standard adjective description for five levels of fire danger for use in public information releases and fire prevention signing.

For this purpose only, fire danger is expressed using the adjective levels and color codes described below. In 2000, the NWCG Fire Danger Working Team reviewed and slightly revised these terms and definitions for adjective fire danger.

# Daily Situation Awareness Tool (DSAT)

- In development
- Uses FDRA aligned with Wildfire Risk Maps



# N5 Sensors

- Federal government pilot with State and Counties
- Identify changes in conditions before wildfires start
- Continuously transmit information & alert
- All-weather, compact, mounted on utility pole



# Operational Procedures

# Red Flag Warning Protocols

- Real-time conditions at Kauai weather stations inform KIUC decisions
- Sensitive protection settings planned during Red Flag Warning periods
  - Outages could be more frequent and longer
  - KIUC crews will need to patrol lines before re-energizing
- Localized shutoffs could occur in extreme conditions
  
- Member communication prior to and during extreme fire conditions will be area of emphasis

# KIUC's RFW Notifications

The screenshot shows the KIUC website with a navigation bar including 'SmartHub Login', 'Careers', and 'Contact Us'. A 'Notices' section is highlighted, and a specific notice titled 'National Weather Service Issues Red Flag Warning' is displayed. The notice includes a sub-header 'National Weather Service Issues Red Flag Warning' and three filter buttons: 'red flag warning', 'wildfire', and 'leeward'. The main text of the notice states: 'The National Weather Service (NWS) this afternoon issued notice that a Red Flag Warning (RFW) would be in effect for the leeward areas of Kauai and the island of Niihau as of 10:00 a.m. on Sunday, November 5 through Monday, November 6 at 6:00 p.m. NWS defines leeward to include the south shore areas of Mahaulepu, Koloa and Poipu. KIUC will monitor weather conditions during the RFW period and determine whether actions need to be taken to protect life and property. These actions could include proactively de-energizing lines in areas vulnerable to wildfire such as Kokee and Mahaulepu, and/or setting electrical circuits to not automatically re-close once opened. Members should prepare for potential outages that could be of long-duration depending on the status of the RFW and weather conditions. Updates will be provided on KIUC's Facebook page. If you don't have a Facebook account, the feed can be viewed on the home page of KIUC's website.'

The screenshot shows a Facebook post from the 'Kauai Island Utility Cooperative' dated August 30, 2023. The post title is 'KIUC RESPONSE TO NATIONAL WEATHER SERVICE RED FLAG WARNING:'. The text of the post reads: 'In response to the National Weather Service Honolulu Red Flag Warning currently in effect for Kauai Leeward areas, KIUC will be taking the following actions this evening, Wednesday August 30, after 6 PM: • The electrical line serving Kokee will be de-energized. Approximately 100 members receiving power from KIUC in Kokee and Makaha Ridge will be impacted. Power will likely not be restored to this area until after the Red Flag Warning is rescinded and KIUC crews have inspected the lines to ensure they can be safely re-energized. • The electrical line serving the Mahaulepu area will also be de-energized. This impacts a very small number of members and they have been contacted directly. • Electrical circuits serving Port Allen to Mana will be set to not automatically re-close. This means that if power is lost on one or more of these circuits, the areas served by those circuits may not be restored until after the Red Flag Warning is rescinded and KIUC crews have inspected the lines. • KIUC troubleshooters will be patrolling leeward areas and additional actions may be taken if warranted. KIUC anticipates these actions will remain in effect until the Red Flag Warning period has ended, currently estimated to be 6 PM HST Thursday August 31.' The post has 31 likes and 39 comments.

The infographic features the KIUC logo at the top. Below it, a red banner contains the text: 'KIUC MEMBERS ADVISED TO PREPARE FOR POSSIBLE RED FLAG WARNING IMPACTS'. The main text of the infographic states: 'The National Weather Service (NWS) this afternoon issued notice that a Red Flag Warning (RFW) would be in effect for the leeward areas of Kauai and the island of Niihau as of 10:00 a.m. on Sunday, November 5 through Monday, November 6 at 6:00 p.m. NWS defines leeward to include the south shore areas of Mahaulepu, Koloa and Poipu. KIUC will monitor weather conditions during the RFW period and determine whether actions need to be taken to protect life and property. These actions could include proactively de-energizing lines in areas vulnerable to wildfire such as Kokee and Mahaulepu, and/or setting electrical circuits to not automatically re-close once opened. Members should prepare for potential outages that could be of long-duration depending on the status of the RFW and weather conditions. Updates will be provided on KIUC's Facebook page. If you don't have a Facebook account, the feed can be viewed on the home page of KIUC's website. For weather updates, call the National Weather Service automated weather line at 808-245-6001, or visit the NWS website. To sign up for the county's emergency notification service, Wireless Emergency Notification System (WENS), please go to the county's website, or call the Kauai Emergency Management Agency at 808-241-1800.' At the bottom right, there is a map of Kauai with several locations marked in pink, including Princeville, Lihue, Poipu, Waiakua, Kahuku, Hanalei, Kalaupapa, Hanalei, Kahului, Hanalei, Lanai City, Hahaione, Hahaione, Waikoa Village, Lelo, Kealahou, and Milia.

# Mahalo and Questions

