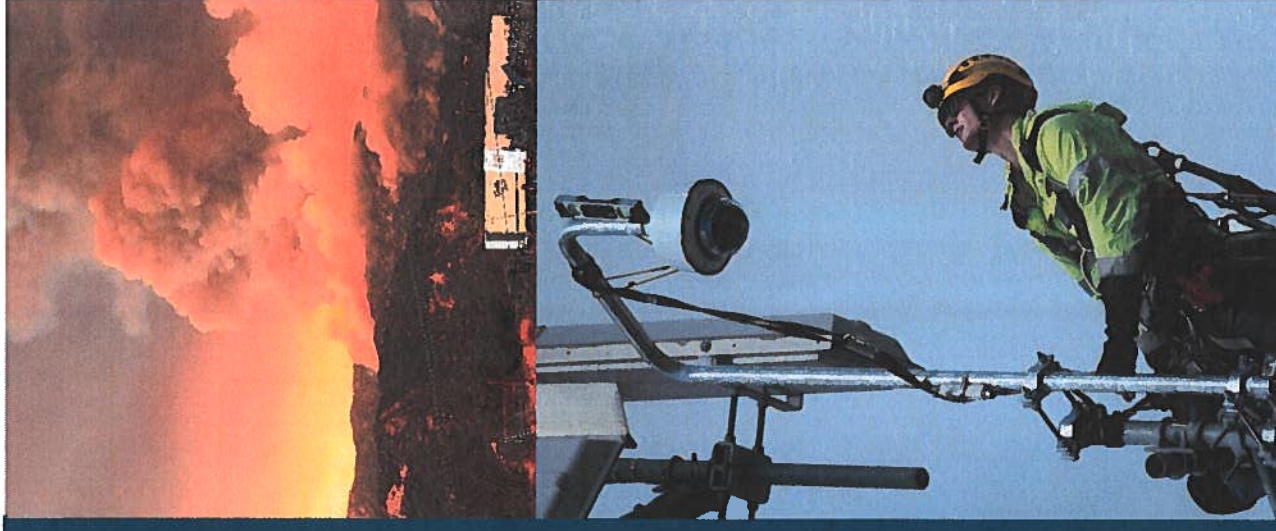


# Wildfire Mitigation Plan City of Agoura Hills August 14, 2019

Energy for What's Ahead®



SOUTHERN CALIFORNIA  
**EDISON**®



# Community Resilience and Preparedness



## We all have a role in resiliency and preparedness

"Preparedness is everyone's job. Not just government agencies but all sectors of society -- service providers, businesses, civic and volunteer groups, industry associations and neighborhood associations, as well as every individual citizen -- should plan ahead for disaster. During the first few hours or days following a disaster, essential services may not be available. People must be ready to act on their own."

-California Offices of Emergency Services

## Make an emergency plan today & practice it!

# California's Wildfire Risk

**Year-Round Fire Season:** Changes to California's climate means that the traditional notion of a fire "season" no longer exists

**Hazardous fuel is building up:** 10M acres of land contain ready-to-burn kindling from nearly 147M trees that have been killed or weakened by drought and bark beetle infestation

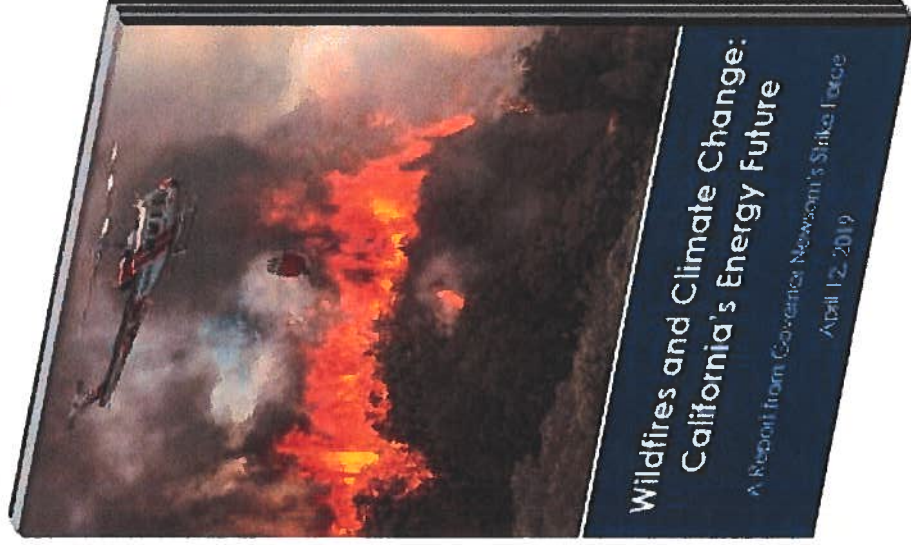


# Objective of SCE's Wildfire Mitigation Plan

1. Protect public safety
2. Implement the plan to reduce the risk of potential wildfire-causing ignitions associated with SCE's electrical infrastructure
3. Implement measures that further harden SCE's electric system against wildfires and improve system resiliency
4. Enhance wildfire suppression efforts by improving fire agencies' ability to detect and respond to emerging fires in coordination with utility emergency management personnel
5. Effectively communicate with customers, community groups, and other stakeholders about how to prevent, prepare for, and mitigate the effects of wildfires



# Governor's Strike Force Report



- Preventing and responding to catastrophic wildfires
- Renewing California's commitment to clean energy
- Allocating responsibilities for wildfire cost
- Strengthening utility market regulation

# Local Community High Fire Risk Area Map

Approximately 1/3 of SCE's 50,000 square mile service area is located in HFRA.

## What makes up SCE's HFRA?

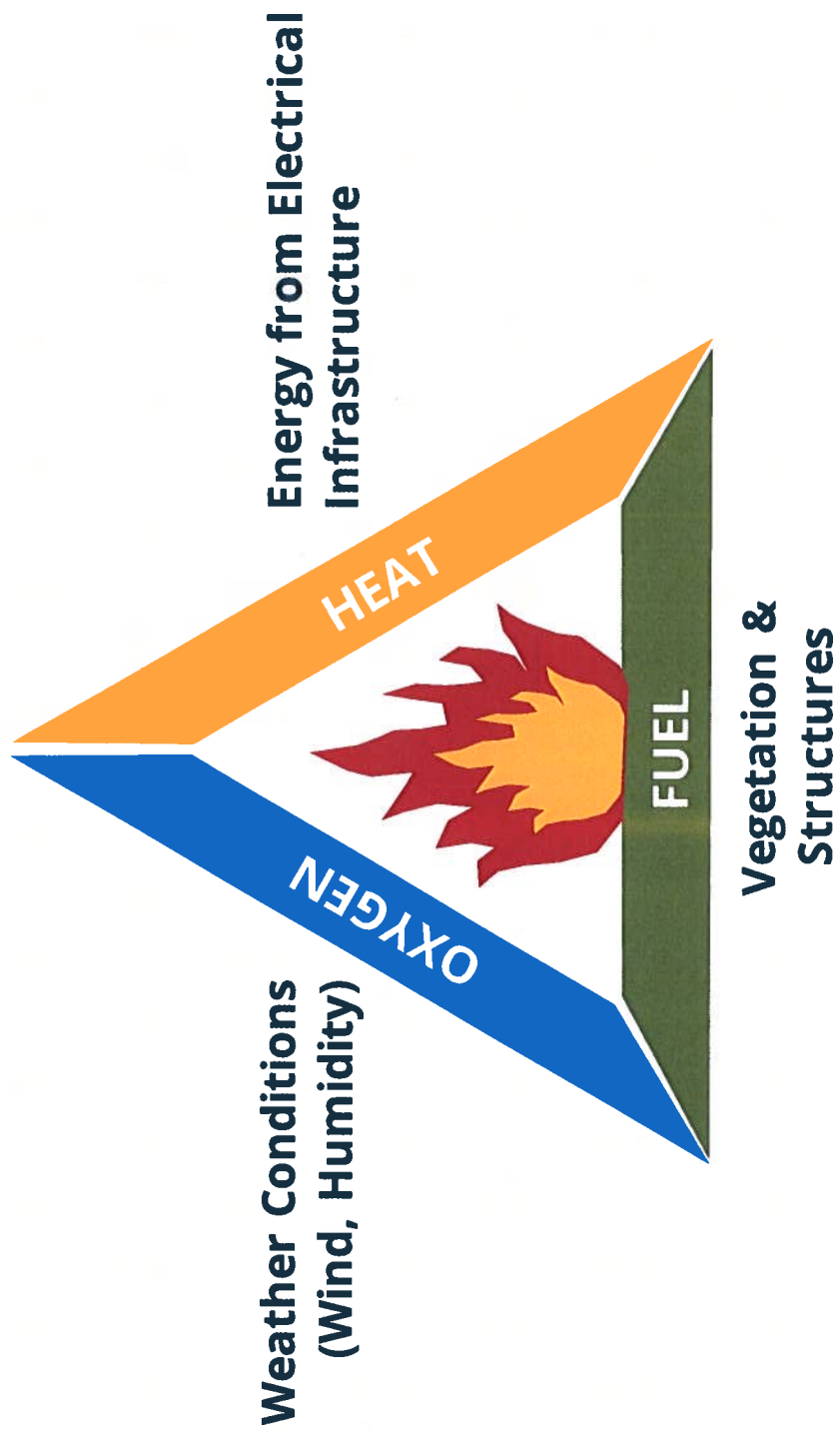
A combination of historical map boundaries (based on past fire management and response experiences), CAL FIRE's Fire Hazard Severity Zone (FHSZ) maps, and most recently the CPUC High Fire Threat District map are used to inform SCE's High Fire Risk Areas.



\* Areas within SCE's service area that continue to be designated as HFRA and are in the process of being evaluated to determine whether they remain as HFRA

# Mitigation Strategy based on Fire Science

**Eliminating any side of the fire triangle can prevent ignitions**



# Scope of SCE's 2019 SB 901 Wildfire Mitigation Plan

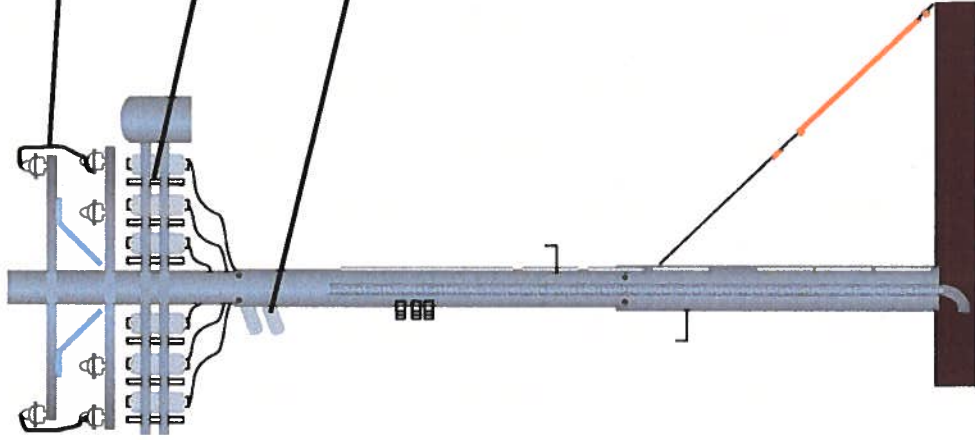
OPERATIONAL	
<b>Inspections</b>	<ul style="list-style-type: none"> <li>Enhanced overhead inspections (EOI) on transmission and distribution structures in HFRA</li> <li>Various existing inspections (poles, switches, circuits, relays, etc.)</li> <li>Infrared, Corona scanning and high definition (HD) imagery</li> </ul>
<b>Public Safety Power Shutoff (PSPS)</b>	<ul style="list-style-type: none"> <li>Effective communications and engagement with emergency services, customers and communities</li> </ul>
<b>Situational Awareness</b>	<ul style="list-style-type: none"> <li>Weather stations and HD cameras</li> </ul>
<b>Vegetation Management</b>	<ul style="list-style-type: none"> <li>Hazard tree removal (trees beyond traditional trim zone)</li> <li>Vegetation removal at poles</li> <li>LIDAR surveying for transmission, supplemental inspections in HFRA</li> <li>SCE plans to implement a 12-ft tree clearances from distribution power lines in high fire areas to ensure annual growth will not encroach on compliance distances.</li> </ul>
<b>Covered Conductor</b>	<ul style="list-style-type: none"> <li>Circuit miles of covered conductor in HFRA</li> </ul>
<b>Undergrounding</b>	<ul style="list-style-type: none"> <li>Evaluation of certain distribution lines in HFRA for potential undergrounding.</li> </ul>
<b>Other Infrastructure Mitigations</b>	<ul style="list-style-type: none"> <li>Various system hardening activities (e.g., composite poles, current limiting fuses (CLFs), remote automatic reclosers (RARs), Fast Curve settings)</li> <li>Studies, evaluations and pilots of alternative technologies</li> </ul>
INFRASTRUCTURE	

<sup>1</sup>Per SCE's Grid Safety & Resiliency Program (GSRP)



# Infrastructure - System Hardening Elements

## Hardened System



### Covered Conductor



### Fast-Acting, Current Limiting Fuses (CLF)



ELF Current Limiting Fuse



X-Limiter CLF

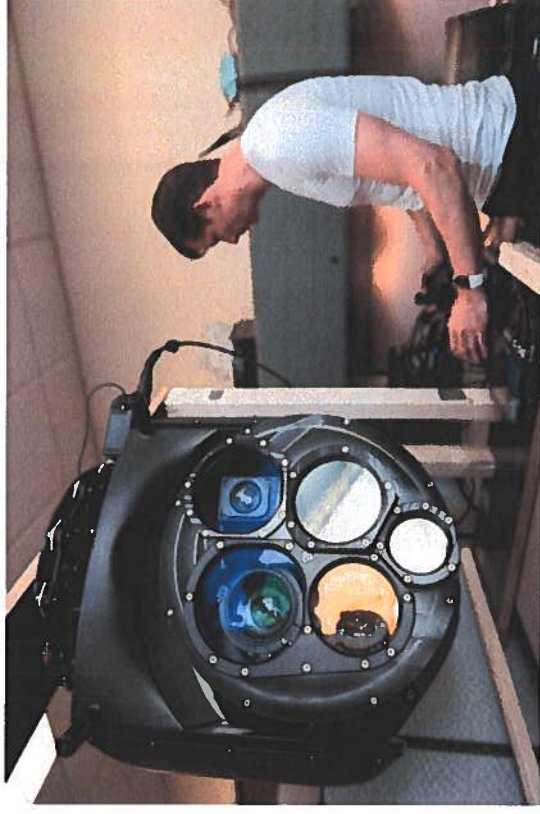
### Reclosers



# Enhanced Overhead Inspections (EOI)

## Enhanced Overhead Inspections Identify Potential Risks

- In less than 5 months, our crews completed detailed ground-based inspections of **400,000+** distribution and transmission structures in HFRA
- Deploying helicopters and drones equipped with Infrared, Ultraviolet, LiDAR and HD image scanning to perform aerial inspections of our facilities in HFRA



*SCE's helicopters are equipped with software and high-tech cameras, like the one shown above, to find potential risk undetectable to the human eye*

# Undergrounding

SCE views undergrounding as part of our portfolio of mitigation measures, but there are important trade-offs that require careful deliberation at the California Public Utilities Commission



## **Benefits**

- Can reduce frequency of outages during storms
- Can reduce risk of wildfires caused by electrical infrastructure
- Can improve neighborhood aesthetics
- Can present fewer hazards for wildlife

## **Drawbacks**

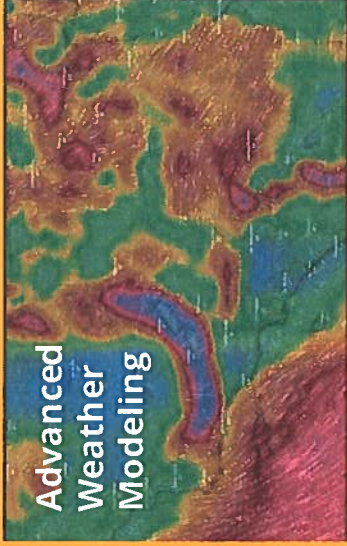
- Cannot be visually inspected
- Require longer service interruptions to perform repairs and maintenance
- Can take much more time to design, install, and obtain easements and permits
- Cost: ~\$3 million per mile (~\$430,000 per mile for covered conductor), which will lead to higher customer rates

# Situational Awareness Capabilities



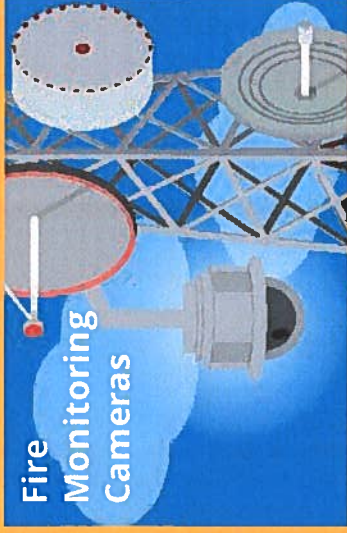
Weather Stations

- Hi-Res Data
- Local Weather



Advanced Weather Modeling

- Better Forecasting
- Advanced Warning



Fire Monitoring Cameras

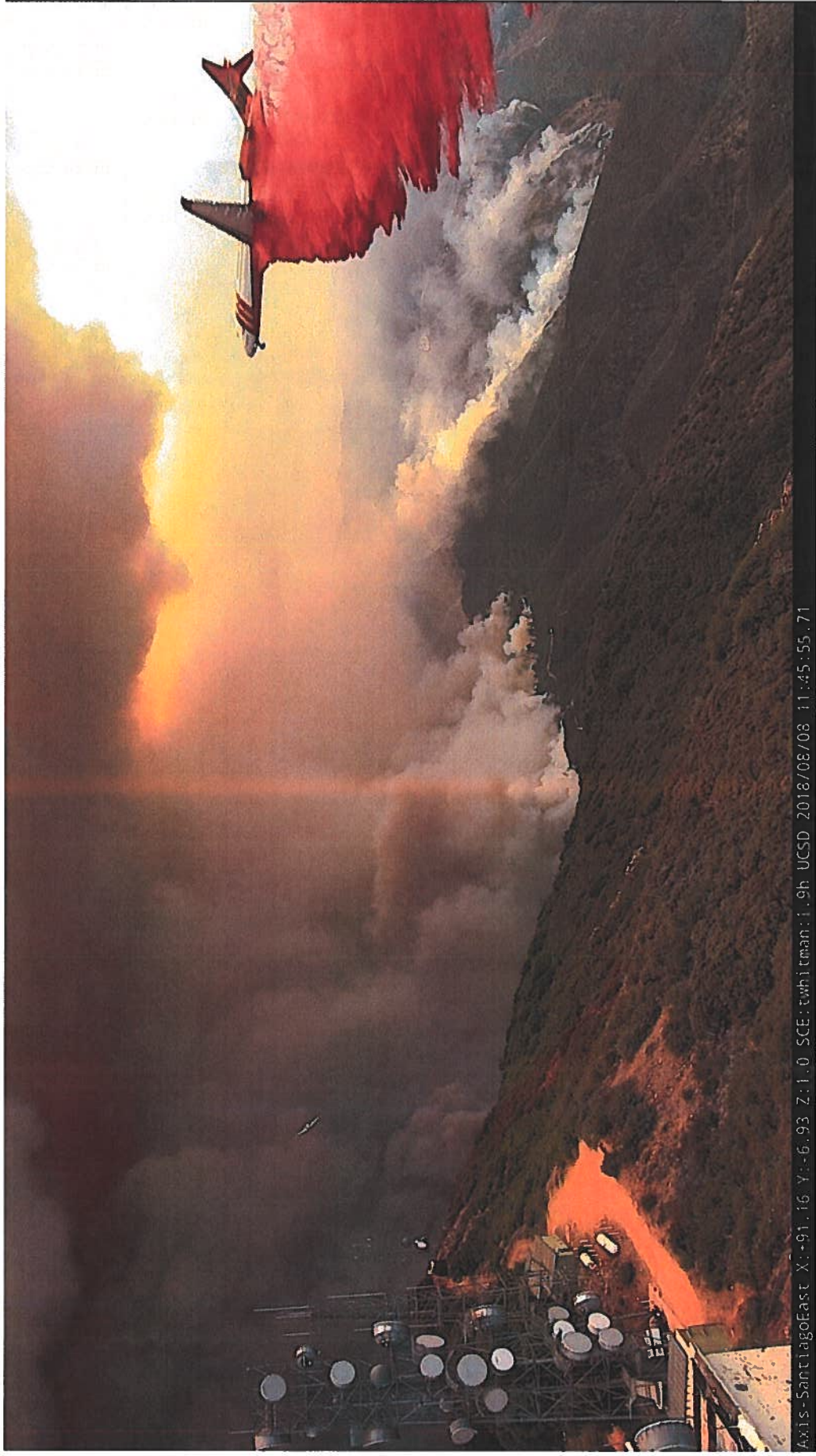
- High-Definition
- Remote-controlled



## Situational Awareness Center

- SCE meteorologists
- 24/7 monitoring

# Wildfire HD Camera



Ax1s-SantiagoEast\_X:+91.16\_Y:-6.93\_Z:1.0\_SCE:twhitman:1.9h\_UCSD\_2018/08/08\_11:45:55.71

# Wildfire HD Camera

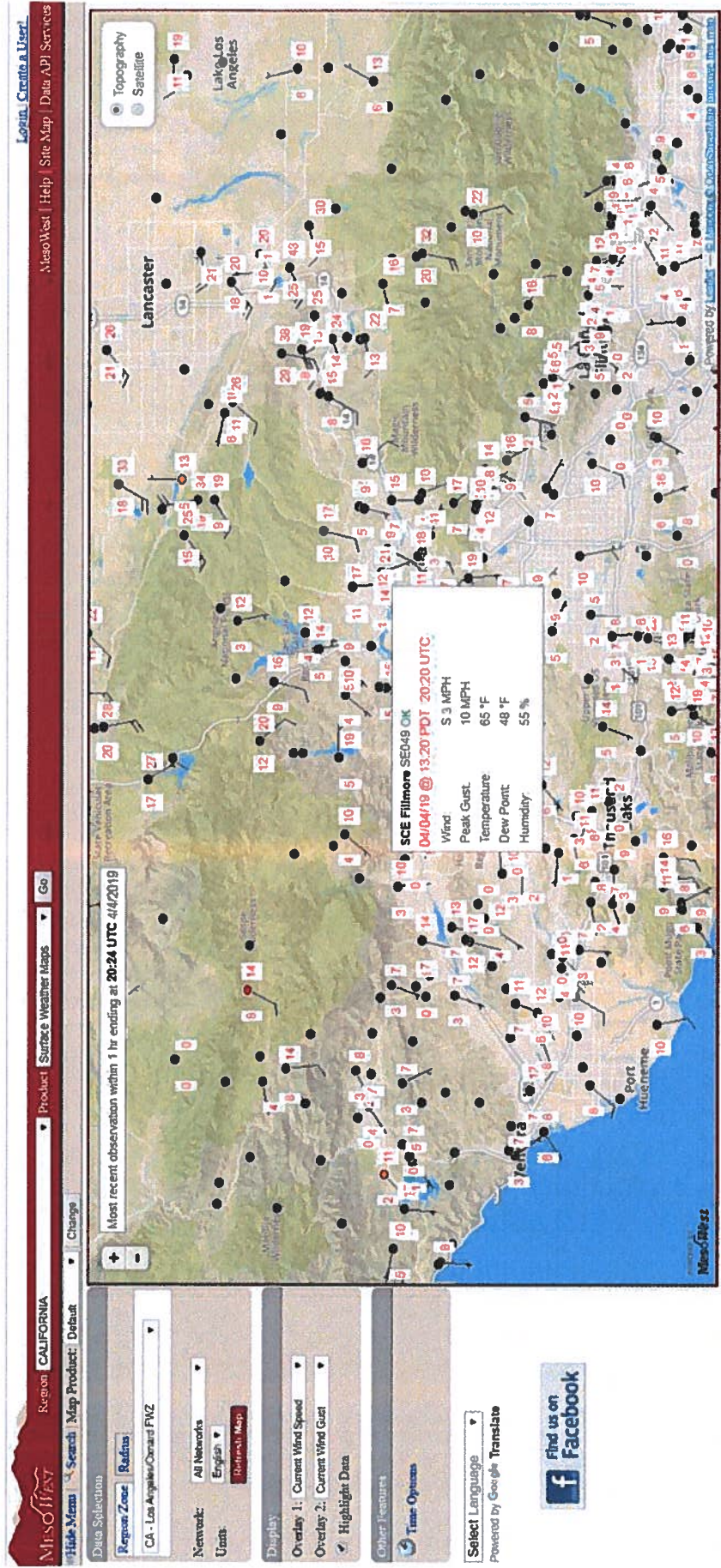
SCE Cameras Current View [Tweet](#)

Access: Labours1 0.5.58 11/17/16 7:42:31.0 SCE-wildfire-21 63d © Towards: Seisrc Lab: 2016/04/04 13:29:02.20

Map data © OpenStreetMap contributors, Imagery © Mapbox

[www.alertwildfire.org](http://www.alertwildfire.org)

# Weather Stations



mesowest.utah.edu

# Vegetation Management



- **20+** in-house certified arborists
- **800+** pruning contractors with **60** more crews added June/July 2018
- **≈ 900,000** trees inspected annually
- **≈ 700,000** pruned per year;  
**400,000** trees in high fire risk areas

## 2019

- Continue to remove dead, dying, diseased trees in HFRA
- Remove additional **7,500** which pose a fall-in or blow-in risk to SCE electrical facilities in HFRA
- SCE has implemented a 12-ft tree clearance from distribution power lines in high fire areas to ensure annual growth will not encroach on compliance distances.



# Public Safety Power Shutoff (PSPS)

- De-energization to **prevent ignitions** from powerlines
- Used during **extreme fire conditions**
- Primarily impacts circuits in high fire risk areas
  - Other circuits in non-high fire risk areas may be impacted if transmission lines are de-energized
- Red Flag Warning **does not** mean a PSPS will be called
- Actual frequency of PSPS events will depend on various weather and environmental factors
  - Decision will be made with most accurate assessment of real-time information and situational awareness data

# PSPS Decision Points

Decision points include but are not limited to:



- SCE Meteorologists forecast **strong wind** conditions in service territory
- SCE Fire Scientist assessment **of fire potential** to include consideration of **weather** and **fuels**



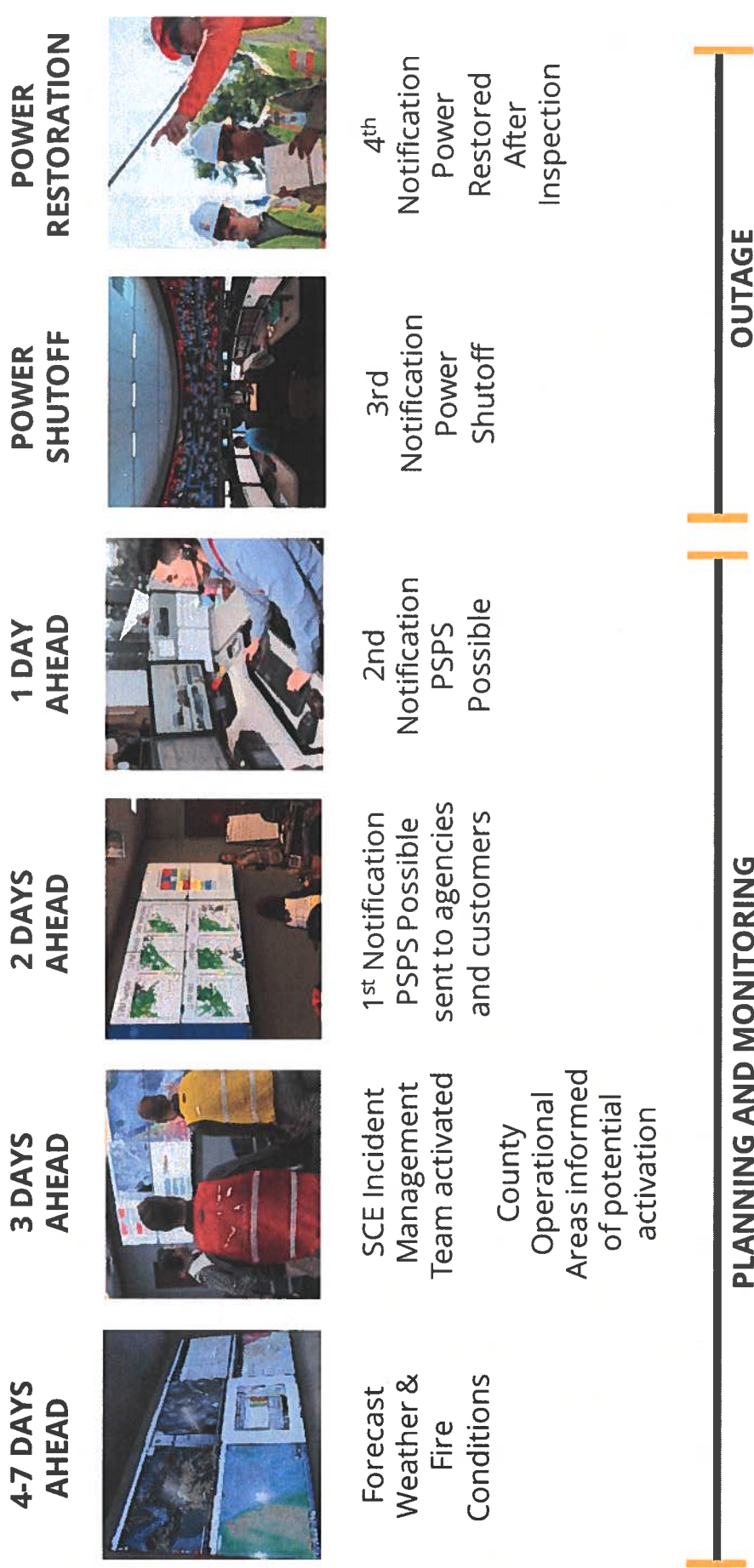
- Real-time observations from qualified personnel monitoring for **hazardous conditions** in the field



- Impact of de-energizing circuits on **first responders** and **essential services**

\* Erratic or sudden onset of conditions may prevent the input from real-time observations or consultation with first responders

# PSPS Ideal Timeline



\*Erratic or sudden onset of conditions may impact our ability to provide advanced notice to customers.

# Community Resilience and Preparedness

## Power Outages Can Occur for Many Reasons

- Maintenance
- Emergency Repairs
- Requests from Fire Agencies
- Natural Disasters

## Have a Plan and Be Prepared

- Be Informed
- **Plan Ahead**
- Take Action



# Useful Information

- Update Customer Contact Information <https://www.sce.com/outagealerts>
- Information on SCE Wildfire Mitigation Plan [www.sce.com/wildfire](http://www.sce.com/wildfire)
- Twitter - [@sce](https://twitter.com/sce)
- Facebook – [www.facebook.com/sce](https://www.facebook.com/sce)
- Fire Cameras- [www.alertwildfire.org](http://www.alertwildfire.org)
- Weather Stations – [mesowest.utah.edu](http://mesowest.utah.edu)
- CPUC Wildfire Maps Information - [www.cpuc.ca.gov/wildfiresinfo/](http://www.cpuc.ca.gov/wildfiresinfo/)
- Fire Preparedness - [calfire.ca.gov/fire\\_protection/fire\\_protection\\_be\\_prepared](http://calfire.ca.gov/fire_protection/fire_protection_be_prepared)
- Red Cross Emergency Preparedness  
[www.redcross.org/get-help/how-to-prepare-for-emergencies.html](http://www.redcross.org/get-help/how-to-prepare-for-emergencies.html)
- FEMA Emergency Preparedness –



**Thank You**

**Rudy Gonzales  
805-402-4403**