

SOUTHERN CALIFORNIA EDISON

Wildfire Mitigation, Safety & Grid Resiliency

Association of California Water Agencies

March 7, 2019

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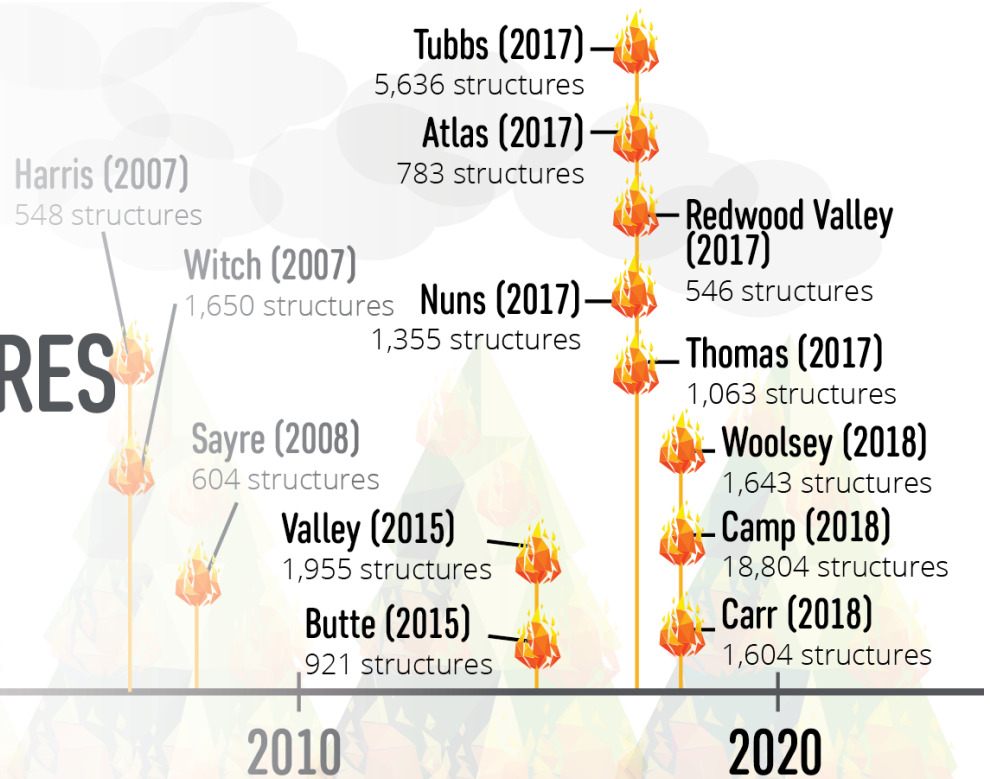


California's Wildfire Risk

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: 9M acres of land contain ready-to-burn kindling from nearly 129M trees that have been killed or weakened by drought and bark beetle infestation

10 OF THE 20
MOST DESTRUCTIVE
CALIFORNIA WILDFIRES
HAVE HAPPENED
SINCE 2015^v



SCE's Wildfire Mitigation Strategy

SCE has long taken substantial steps to reduce the risk of wildfires and continues to proactively enhance its operational practices and infrastructure through its comprehensive wildfire mitigation strategy

**Long-Standing
Operational
Practices**

**Investing in
System
Hardening
of Electric Grid**

**Bolstering
Situational
Awareness
Capabilities**

**Enhancing
Operational
Practices**



SCE's Wildfire Mitigation Strategy

Focuses on ignition avoidance, targeting highest fire risk areas first

- **Strategy**

- Focus on **Prevention** (*avoiding ignitions*)
- Make advancements in **Resiliency** (*withstand events*)

- **Near-Term Mitigations**

- Operational practices that can be **deployed quickly**
- **Apply broadly** across all high fire risk areas

- **Long-Term Mitigations**

- Multi-year effort to **harden infrastructure**
- Prioritize using **risk-based approach** factoring in both likelihood and impact of ignitions

Mitigation Strategy based on Fire Science

Eliminating any side of the fire triangle can prevent ignitions

Weather
Conditions
(Wind, Humidity)

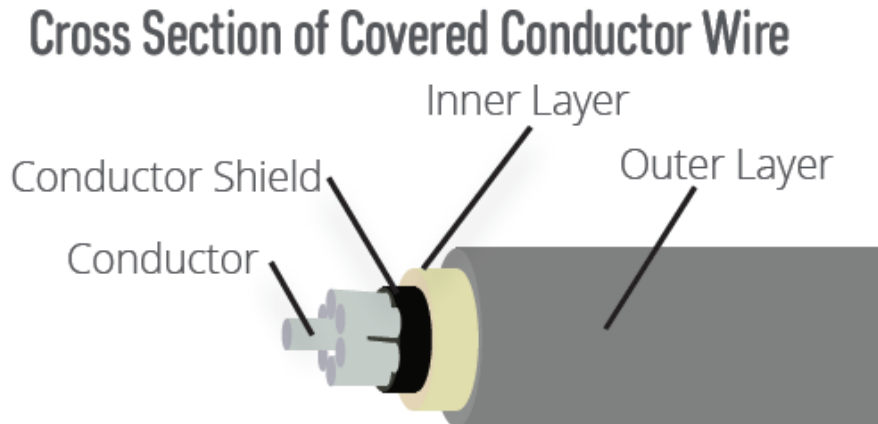


Energy from
Electrical
Infrastructure

Vegetation &
Structures

System Hardening Elements

Covered Conductor



Insulation on wire prevents faults (tree limbs, windborne debris, metallic balloons, etc.) that can lead to ignitions

System Hardening Elements

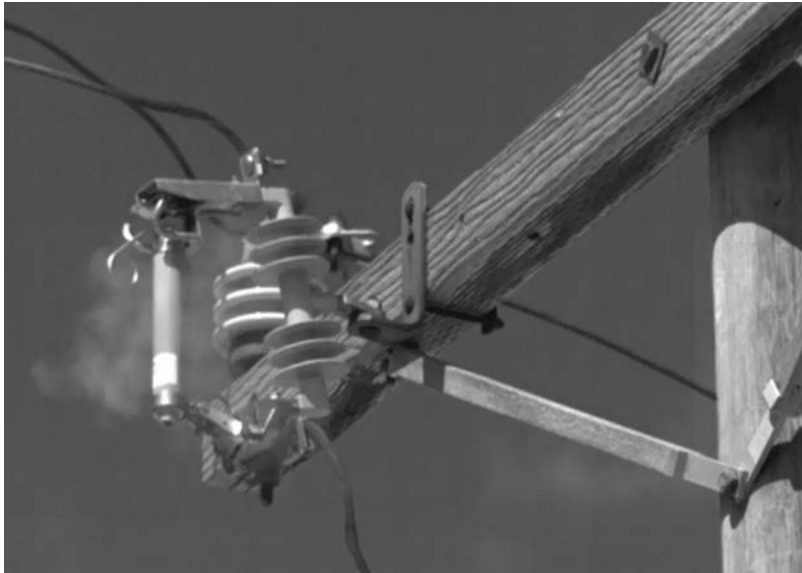
Fire-Resistant Poles



Hardened to survive fires
Speeds restoration following fires

System Hardening Elements

Fast-Acting Fuses



Fault Tamer

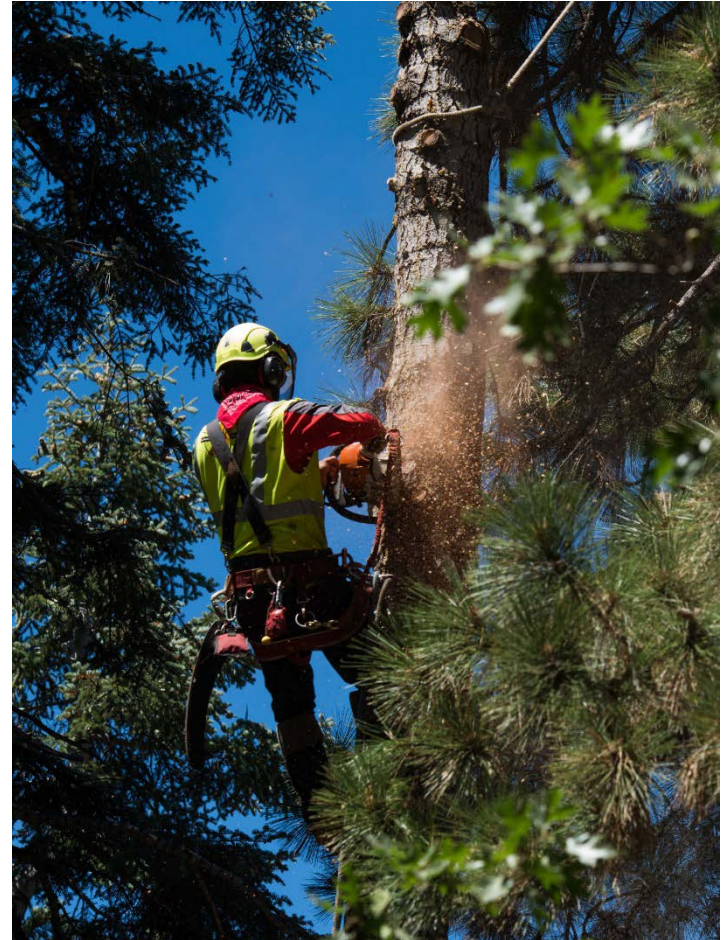


X-Limiter CLF

Reduces fault energy to prevent ignitions
Faster speed of operation

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
- Dead, dying, diseased tree removal; total drought and bark beetle trees removed in 2018 was **24,500**
- Expanding use of Light Detection and Ranging (LiDAR) technology, an advanced laser surveying method, to enhance vegetation management in remote areas of our service territory
- Joint patrols with fire agencies



Dead, dying, diseased trees present a hazard and are removed to protect electrical facilities and eliminate risk of fire.

Fire and Severe Weather Monitoring

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



AlertWildfire HD Camera

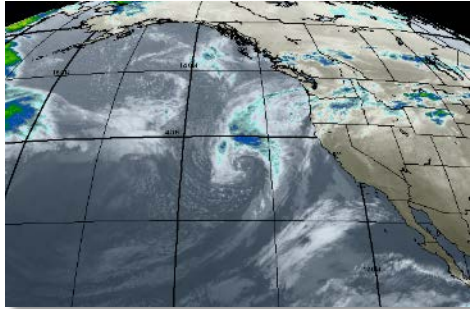


Public Safety Power Shutoff (PSPS)

- De-energization to **prevent wildfire ignitions**
- Used during **extreme weather conditions**
- Limited to **impacted circuits** in high fire risk areas
- 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



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



SCE Fire Scientist assessment **of fire potential** to include consideration of **weather** and **fuels**



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

Ideal Timeline*

4-7 DAYS
AHEAD



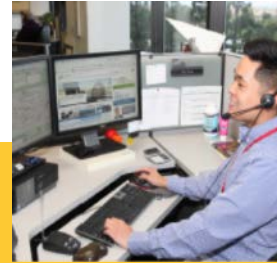
3 DAYS
AHEAD



2 DAYS
AHEAD



1 DAY
AHEAD



POWER
SHUTOFF



POWER
RESTORATION



Forecast
Weather &
Fire
Conditions

Incident
Responders
on Alert

1st
Notification
PSPS
Possible

2nd
Notification
PSPS
Possible

3rd
Notification
Power
Shutoff

4th
Notification
Power
Restored

PLANNING AND MONITORING

OUTAGE

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

Coordination with Critical Business and Government Customers

PLANNING

Collaboration
with Critical
Infrastructure



Emergency
Management
Partnerships



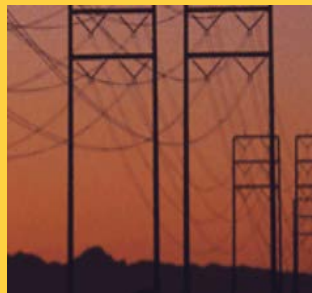
Account
Management
for Critical
Customers



Community
Meetings



Cities and counties



Response

California
Utilities
Emergency
Association



Integration
with CalOES



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

www.Ready.gov

Thank You
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