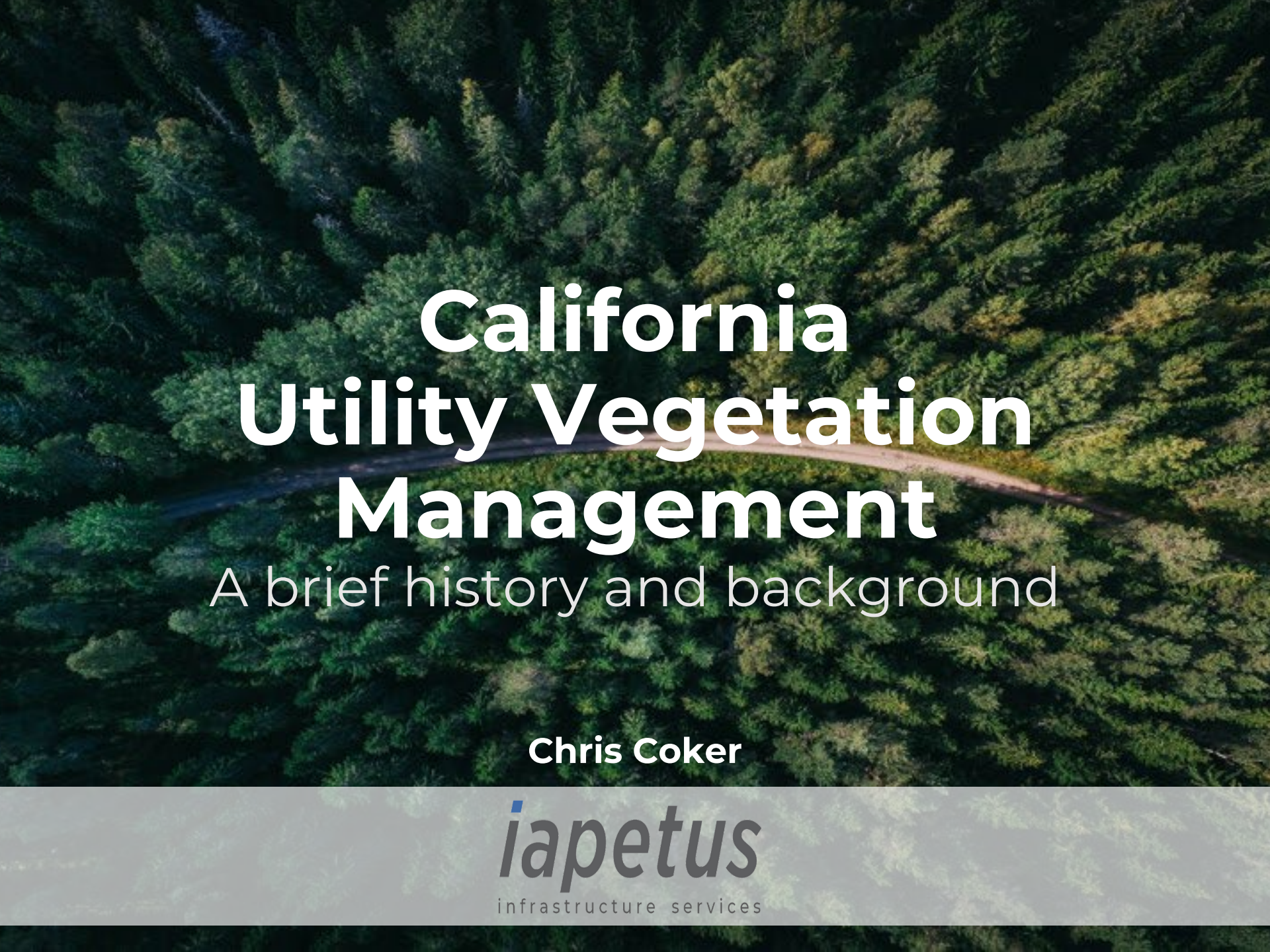


California Utility Vegetation Management

A brief history and background

Chris Coker

iapetus
infrastructure services

iapetus
infrastructure services

What is Utility Vegetation Management (UVM)?

Trees and other vegetation are trimmed and removed to prevent disruption with electrical conductors

Most work occurs while lines are energized

Work must be completed by specially trained and *qualified* line clearance professionals

Insulated equipment (e.g. fiberglass booms/buckets, pole pruners) help protect against direct or indirect electrical contact

A variety of pruning styles are used to control different species

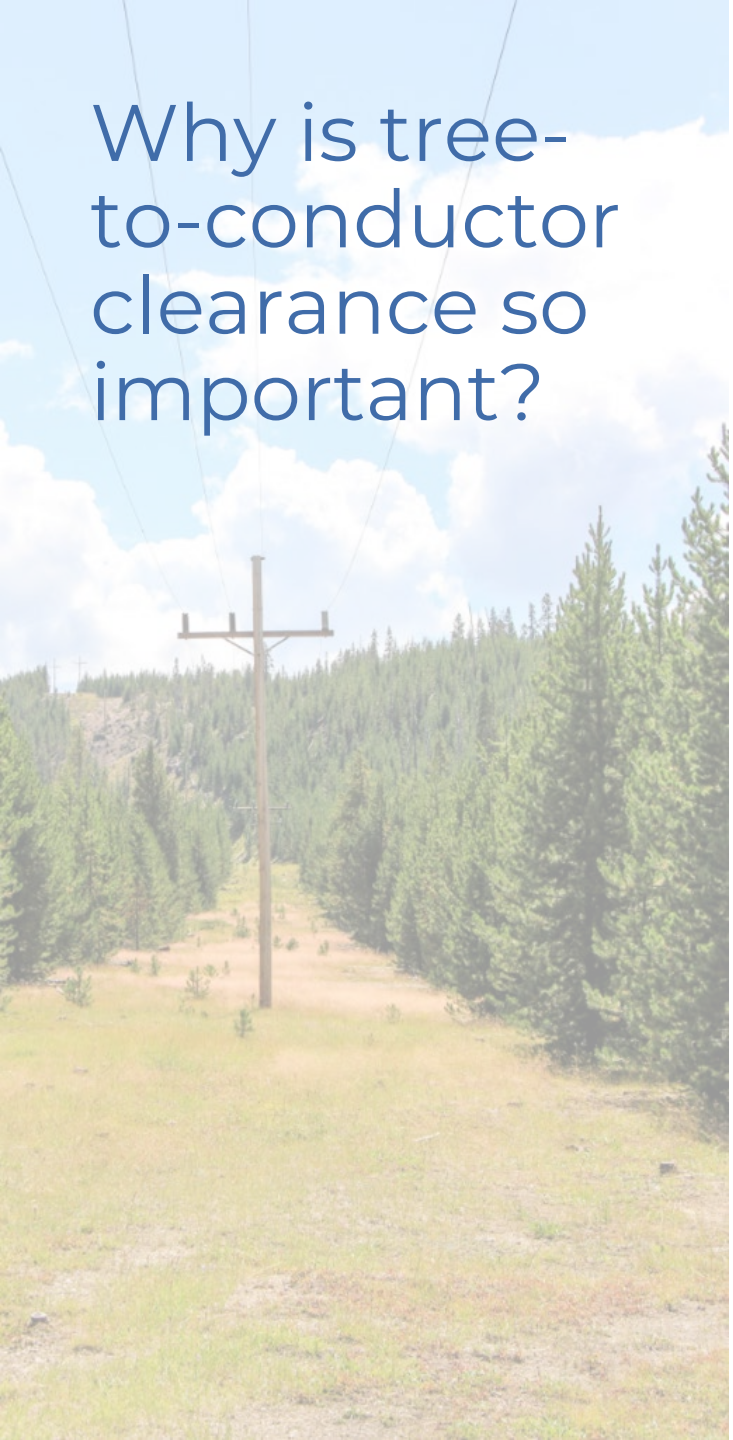
Minimum approach distance (MAD) must be maintained for worker protection

Distribution vs. Transmission Conductors

Bulk power transmission lines serve substations; voltage is reduced and fed to customers via the distribution system


The higher the voltage, the greater the clearance
Primary (high-voltage) vs. secondary (low-voltage

Why is tree-to-conductor clearance so important?



Wildfires

Public safety

Reliable electrical service

Low precipitation and changing climate creates longer wildfire ‘seasons’

The eight most devastating CA wildfires occurred in last five years

High wind events and damage to overhead electrical facilities

Costs of insurance continue to rise

Top 20 Largest California Wildfires

	FIRE NAME (CAUSE)	DATE	COUNTY	ACRES	STRUCTURES	DEATHS
1	**AUGUST COMPLEX** *(Lightning)*	August 2020	Mendocino, Humboldt, Trinity, Tehama, Glenn, Lake, & Colusa	**1,032,648**	935	1
2	**DIXIE** *(Powerlines)*	July 2021	Butte, Plumas, Lassen, Shasta & Tehama	**963,309**	1,329	1
3	**MENDOCINO COMPLEX** *(Human Related)*	July 2018	Colusa, Lake, Mendocino & Glenn	**459,123**	280	1
4	**SCU LIGHTNING COMPLEX** *(Lightning)*	August 2020	Stanislaus, Santa Clara, Alameda, Contra Costa, & San Joaquin	**396,624**	222	0
5	**CREEK** *(Undetermined)*	September 2020	Fresno & Madera	**379,895**	853	0
6	**LNU LIGHTNING COMPLEX** *(Lightning/Arson)*	August 2020	Napa, Solano, Sonoma, Yolo, Lake, & Colusa	**363,220**	1,491	6
7	**NORTH COMPLEX** *(Lightning)*	August 2020	Butte, Plumas & Yuba	**318,935**	2,352	15
8	**THOMAS** *(Powerlines)*	December 2017	Ventura & Santa Barbara	**281,893**	1,063	2
9	**CEDAR** *(Human Related)*	October 2003	San Diego	**273,246**	2,820	15
10	**RUSH** (*Lightning*)	August 2012	Lassen	**271,911 CA / 43,666 NV**	0	0
11	**RIM** *(Human Related)*	August 2013	Tuolumne	**257,314**	112	0
12	**ZACA** *(Human Related)*	July 2007	Santa Barbara	**240,207**	1	0
13	**CARR** *(Human Related)*	July 2018	Shasta County & Trinity	**229,651**	1,614	8
14	**MONUMENT** (*Lightning*)	July 2021	Trinity	**223,124**	50	0
15	**CALDOR** *(Human Releated)*	August 2021	Alpine, Amador, & El Dorado	**221,835**	1,003	1
16	**MATILIJA** *(Undetermined)*	September 1932	Ventura	**220,000**	0	0
17	**RIVER COMPLEX** *(Lightning)*	July 2021	Siskiyou & Trinity	**199,343**	122	0
18	**WITCH** (*Powerlines*)	October 2007	San Diego	**197,990**	1,650	2
19	**KLAMATH THEATER COMPLEX** *(Lightning)*	June 2008	Siskiyou	**192,038**	0	2
20	**MARBLE CONE** *(Lightning)*	July 1977	Monterey	**177,866**	0	0

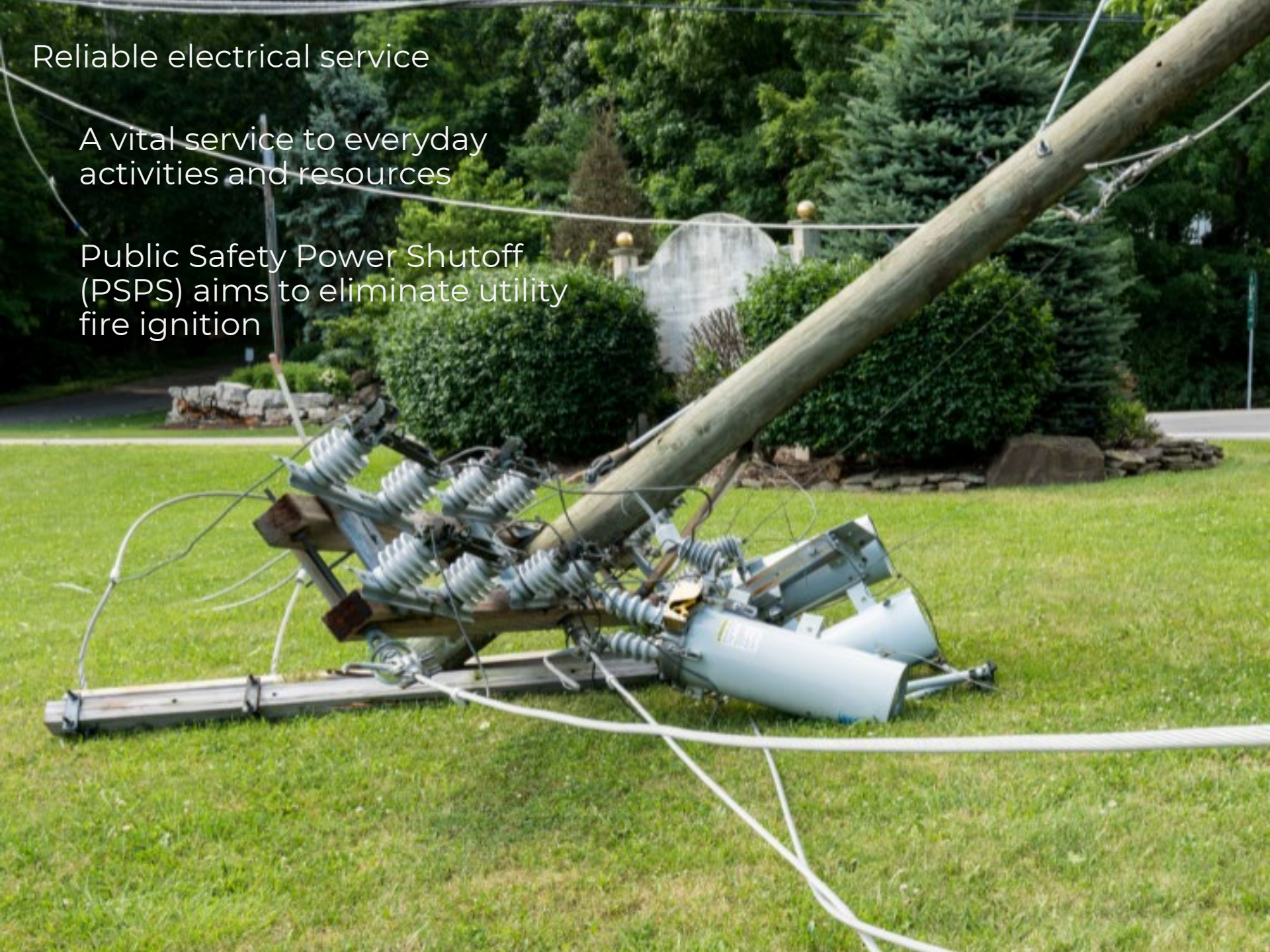
There is no doubt that there were fires with significant acreage burned in years prior to 1932, but those records are less reliable, and this list is meant to give an overview of the large fires in more recent times.
This list does not include fire jurisdiction. These are the Top 20 regardless of whether they were state, federal, or local responsibility.
*Numbers not final.

1/13/2022

Public safety

Exposure to private tree trimmers

Potential for direct and indirect contact with downed wire


Reliable electrical service
A vital service to everyday activities and resources
Public Safety Power Shutoff (PSPS) aims to eliminate utility fire ignition

Laws and Regulations

Jurisdiction and History

CalFire

- Public Resources Code 4293 establishes 4-foot minimum radial clearance around conductors
- Public Resources Code 4292 establishes 10-foot clear cylinder at the base of certain poles

California Public Utilities Commission (CPUC)

- General Order 95 – Rule 35

OSHA

- Occupational Safety and Health Standards
- Standard 1910.269 addresses personnel and equipment standards

ANSI

- A300 Tree Care Standard Practices
- Z133 Safety Standard

Local

- Various local ordinances apply (e.g. protected species)

Approaches to risk reduction

- Pruning and removal
  - Greater trim clearances
  - Removal of unmanageable trees
  - Right Tree Right Place compatible species
- Inspection frequencies
  - Compared to much o f US, CA relies on shorter inspection/trim cycles
  - Invasive, fast-growing species
- Applied technologies
  - Rangefinders for tree-to-conductor measurements
  - LiDAR
  - Manned and unmanned aerial patrols
- Integrated Vegetation Management (IVM)
  - Promotes low-growing, compatible plant communities
  - Resist potential for tall species
  - Helps balance objectives; requires control methods
- Undergrounding
  - Burying overhead lines in high-risk communities

iapetus
infrastructure services

Thank you

Atlas field services | HYPERION safety environmental solutions | GOLDCOAST UTILITY SPECIALISTS | SOARING EAGLE TECHNOLOGIES | UATI UNMANNED AVIATION TRAINING INSTITUTE

www.iiservices.com

Host Notes

Bio:

Chris Coker is the Director of Health, Safety and Operational Risk for Iapetus Infrastructure Services companies

“Iapetus” is pronounced

[EYE] + [AP] + [I] + [TUHS]

Iapetus is a portfolio of energy services companies specializing in a wide range of scopes, including risk management, asset inspection, safety program development, storm response, and unmanned aerial vehicle data collection. Chris’ experiences span across electric utility leadership in vegetation management, law, safety, regulatory affairs, and wildfire program management.

Chris is an ISA Certified Arborist and Utility Specialist. He holds a bachelor’s degree in Finance and Risk Management, and lives in Southern California.