

The background of the slide is a photograph of a wildfire. In the foreground, there is a large, bright orange and yellow fire with thick black smoke rising from it. In the background, a tall metal power line tower stands against a hazy, smoke-filled sky. The overall scene is dramatic and emphasizes the impact of utility infrastructure on wildfires.

# Utility-Caused Fires in California

- ~95% of fires in California result from human activity, including operation of electrical transmission and distribution line and facilities
- Nationwide, acreage burned in wildfires has increased while number of fires has decreased → Fires have become larger, harder to control, and concentrated in WUI areas
- In California, wildfire cost and damage have increased since the 1980's BUT acreage burned has not followed such a clear pattern
- “Climate change is worsening fires in California” is an oversimplification

\*Please click upper left hand corner  for additional speaker notes

# Factors Contributing To Increase Cost And Damage Of Fires in CA

- **Temperature increasing → more, drier fuel load; longer fire season; longer burning fires**
- **Land use changes → increased population living in the Wild Urban Interface (WUI)**
- **Poor forest management → fire suppression, lack of prescribed burns**

# Acres burned per year in CA

Year ↕	Fires ↕	Acres ↕	Hectares ↕	Ref ↕
2000	7,622	295,026	119,392.8	[16]
2001	9,458	329,126	133,192.6	[17]
2002	8,328	969,890	392,500.6	[18][19]
2003	9,116	1,020,460	412,965.5	[20][21][22]
2004	8,415	264,988	107,236.8	[23][24]
2005	7,162	222,538	90,057.9	[25][26]
2006	8,202	736,022	297,857.5	[27][28]
2007	9,093	1,087,110	439,937.8	[29][16]
2008	4,923	1,593,690	644,943.5	[30][16]
2009	9,159	422,147	170,836.8	[31][32]
2010	6,554	109,529	44,324.8	[33]
2011	7,989	168,545	68,207.7	[34][35]
2012	7,950	869,599	351,914.2	[36]
2013	9,907	601,635	243,473.0	[37][38]
2014	7,865	625,540	253,147.1	[39][40]
2015	8,745	893,362	361,530.8	[41]
2016	6,986	669,534	270,950.8	[42][43]
2017	9,133	1,381,405	559,034.8	[44][45]
2018	8,572	1,893,913	766,439.4	
<b>Average</b>	<b>8,165</b>	<b>744,950</b>	<b>301,470.6</b>	

## Top 20 Largest California Wildfires

	FIRE NAME (CAUSE)	DATE	COUNTY	ACRES	STRUCTURES	DEATHS
1	MENDOCINO COMPLEX (Under Investigation)	July 2018	Colusa County, Lake County, Mendocino County & Glenn County	459,123	280	1
2	THOMAS (Powerlines)	December 2017	Ventura & Santa Barbara	281,893	1,063	2
3	CEDAR (Human Related)	October 2003	San Diego	273,246	2,820	15
4	RUSH (Lightning)	August 2012	Lassen	271,911 CA / 43,666 NV	0	0
5	RIM (Human Related)	August 2013	Tuolumne	257,314	112	0
6	ZACA (Human Related)	July 2007	Santa Barbara	240,207	1	0
7	CARR (Human Related)	July 2018	Shasta County, Trinity County	229,651	1,614	8
8	MATILIJA (Undetermined)	September 1932	Ventura	220,000	0	0
9	WITCH (Powerlines)	October 2007	San Diego	197,990	1,650	2
10	KLAMATH THEATER COMPLEX (Lightning)	June 2008	Siskiyou	192,038	0	2
11	MARBLE CONE (Lightning)	July 1977	Monterey	177,866	0	0
12	LAGUNA (POWERLINES)	September 1970	San Diego	175,425	382	5
13	BASIN COMPLEX (Lightning)	June 2008	Monterey	162,818	58	0
14	DAY FIRE (Human Related)	September 2006	Ventura	162,702	11	0
15	STATION (Human Related)	August 2009	Los Angeles	160,557	209	2
16	CAMP FIRE (Powerlines)	November 2018	Butte	153,336	18,804	86
17	ROUGH (Lightning)	July 2015	Fresno	151,623	4	0
18	McNALLY (Human Related)	July 2002	Tulare	150,696	17	0
19	STANISLAUS COMPLEX (Lightning)	August 1987	Tuolumne	145,980	28	1
20	BIG BAR COMPLEX (Lightning)	August 1999	Trinity	140,948	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.



8/08/2019

## Top 20 Most Destructive California Wildfires

FIRE NAME (CAUSE)	DATE	COUNTY	ACRES	STRUCTURES	DEATHS
1 CAMP FIRE (Powerlines)	November 2018	Butte County	153,336	18,804	86
2 TUBBS (Electrical)	October 2017	Napa & Sonoma	36,807	5,636	22
3 TUNNEL - Oakland Hills (Rekindle)	October 1991	Alameda	1,600	2,900	25
4 CEDAR (Human Related)	October 2003	San Diego	273,246	2,820	15
5 VALLEY (Electrical)	September 2015	Lake, Napa & Sonoma	76,067	1,955	4
6 WITCH (Powerlines)	October 2007	San Diego	197,990	1,650	2
7 WOOLSEY (Under Investigation)	November 2018	Ventura	96,949	1,643	3
8 CARR (Human Related)	July 2018	Shasta County, Trinity County	229,651	1,614	8
9 NUNS (Powerline)	October 2017	Sonoma	54,382	1,355	3
10 THOMAS (Powerline)	December 2017	Ventura & Santa Barbara	281,893	1,063	2
11 OLD (Human Related)	October 2003	San Bernardino	91,281	1,003	6
12 JONES (Undetermined)	October 1999	Shasta	26,200	954	1
13 BUTTE (Powerlines)	September 2015	Amador & Calaveras	70,868	921	2
14 ATLAS (Powerline)	October 2017	Napa & Solano	51,624	783	6
15 PAINT (Arson)	June 1990	Santa Barbara	4,900	641	1
16 FOUNTAIN (Arson)	August 1992	Shasta	63,960	636	0
17 SAYRE (Misc.)	November 2008	Los Angeles	11,262	604	0
18 CITY OF BERKELEY (Powerlines)	September 1923	Alameda	130	584	0
19 HARRIS (Undetermined)	October 2007	San Diego	90,440	548	8
20 REDWOOD VALLEY (Powerline)	October 2017	Mendocino	36,523	546	9

\*\*"Structures" include homes, outbuildings (barns, garages, sheds, etc) and commercial properties destroyed.

\*\*\*This list does not include fire jurisdiction. These are the Top 20 regardless of whether they were state, federal, or local responsibility.

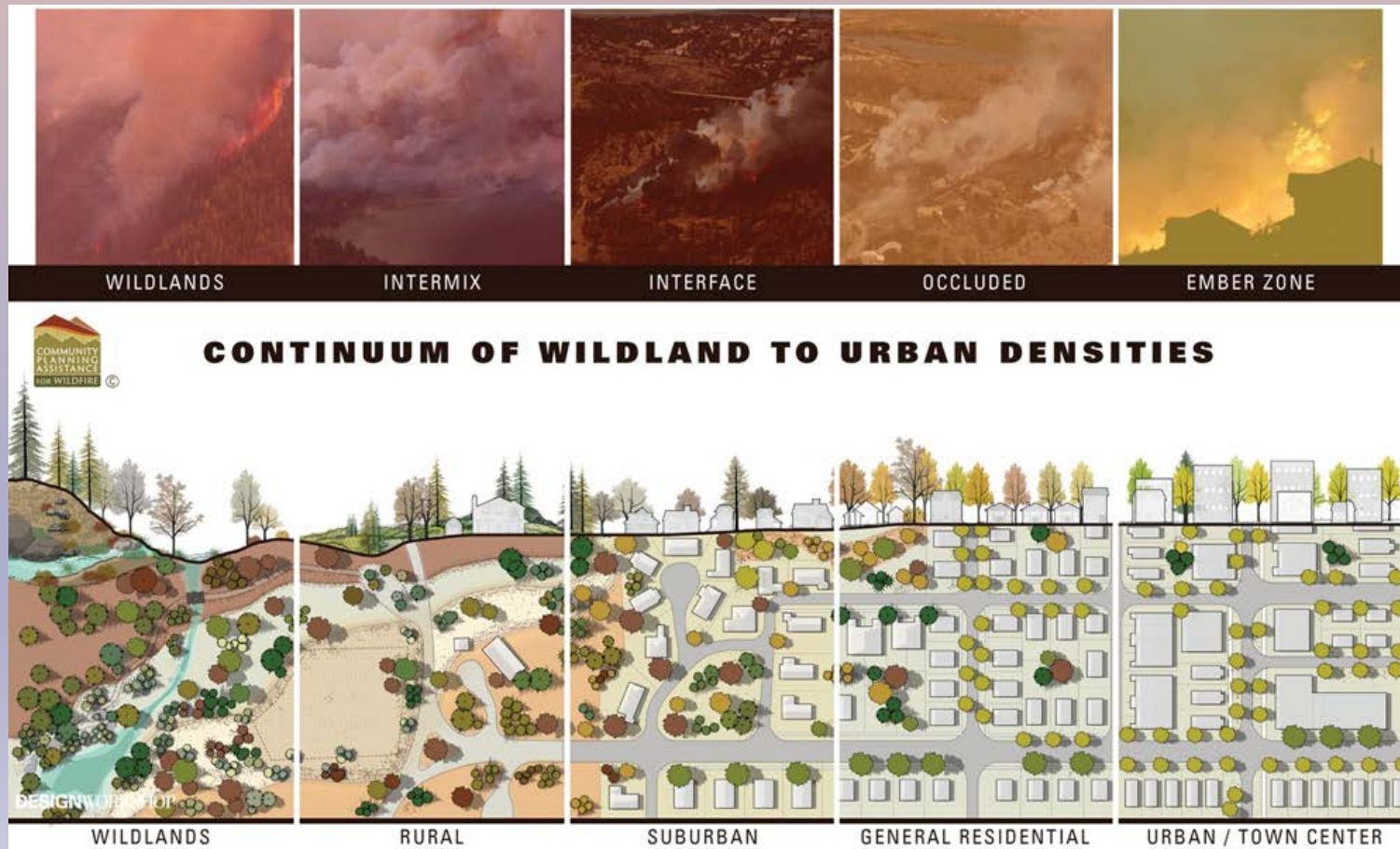


8/08/2019



# Wild Urban Interface

- WUI = where development meets wild lands
- Increases in destructiveness of fires can be largely attributed to increase in WUI
- WUI has and continues to grow at rapid pace → ~1/3 U.S. homes are in the WUI, with 4,000 acres per day converting from wildland to WUI through residential development

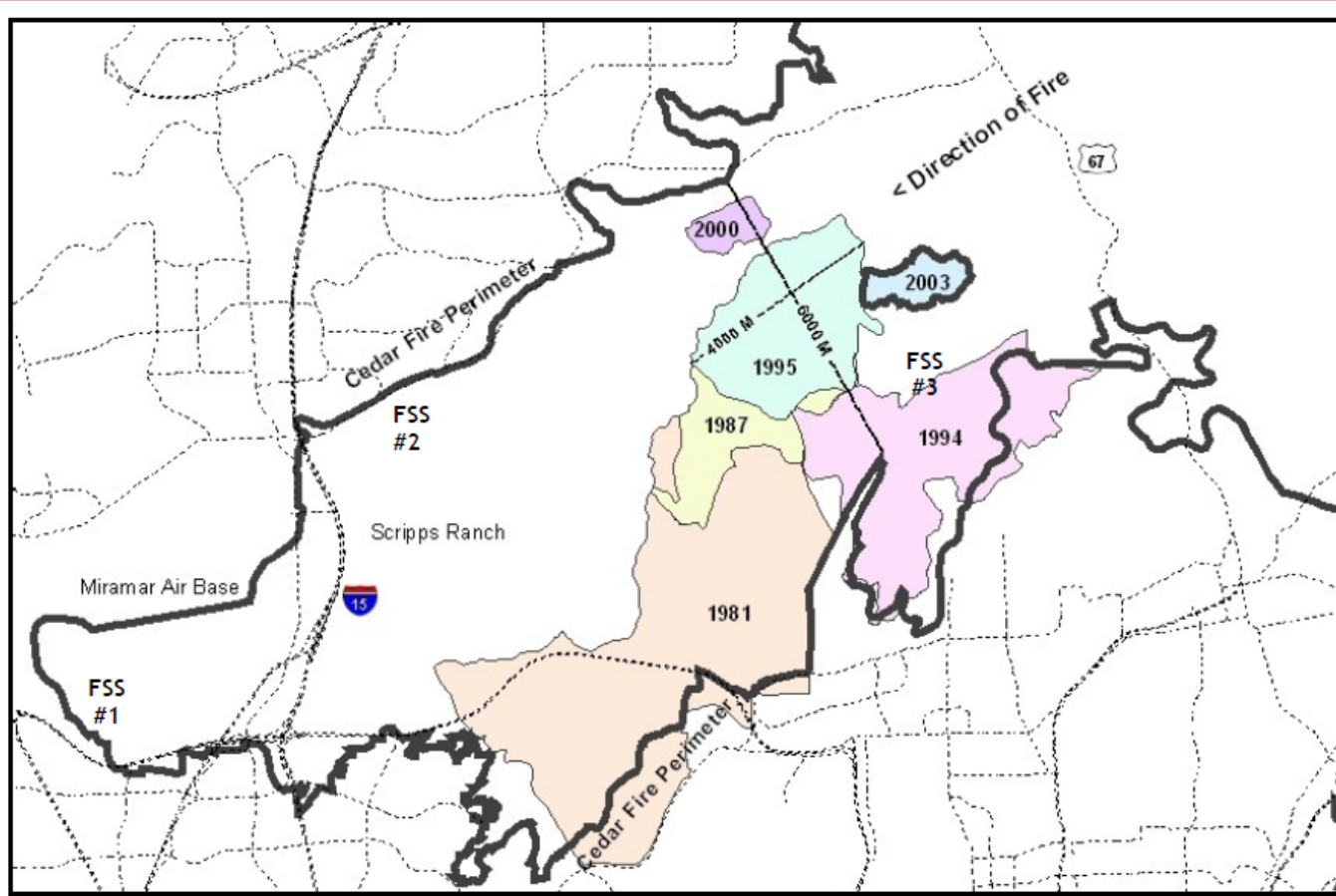




Source: SILVIS Lab, Department of Forest and Wildlife Ecology of the University of Wisconsin-Madison. Data is from 2010.

# WUI + Winds → Cedar Fire

Fire Name	Date	Location	Cause	Results
Cedar Fire	Oct. 25, 2017	San Diego County	Lost hunter started a signal fire	273,246 acres burned, 2820 structures destroyed, was largest fire in California history until 2017



**Figure 4. Previous fire scars at western terminus of the Cedar fire.** Three fire scars color-coded by year burned (1994, 1995, 2000) straddled the area east of the heavily impacted Scripps Ranch community. Fire was carried by strong winds and was not impeded by the younger fuels. Cedar fire perimeter is shown as a bold, black line.



# Winds and Fires

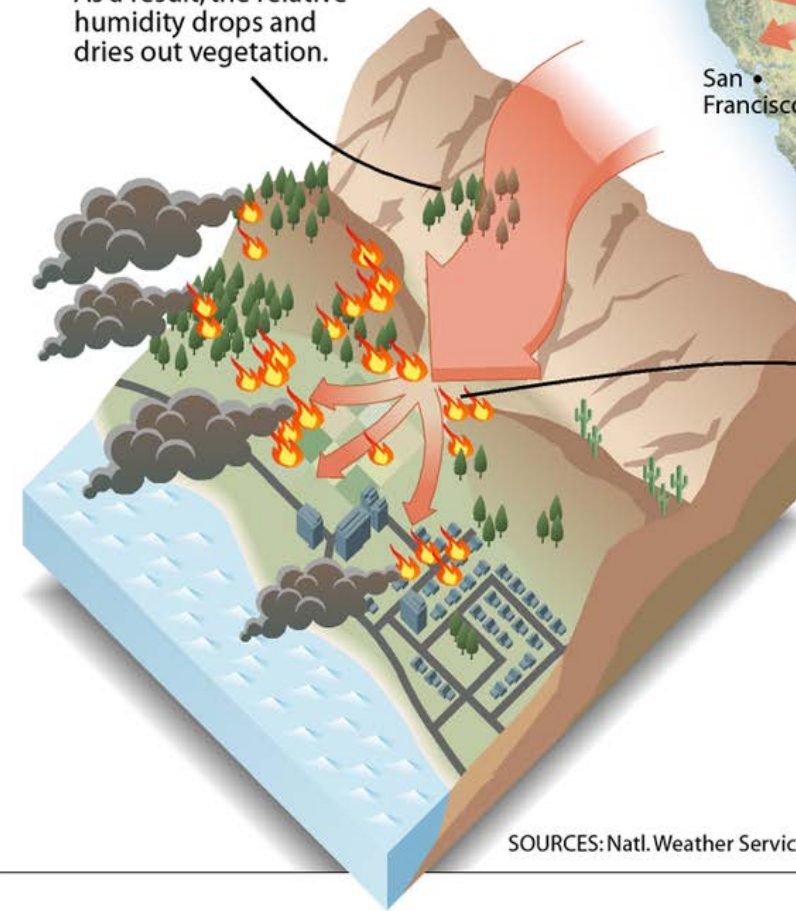
- Foehn winds = dry, warm, down-slope wind
- Year round offshore foehn wind phenomenon → Santa Ana Winds in southern California, Diablo Winds in Central/Northern California, Sundowner Winds in Santa Barbara
- Santa Ana Winds → 2003 Cedar Fire, San Diego County; 2003 Old Fire, San Bernardino County; 2007 Witch Fire complex, San Diego County
- Diablo Winds → 1964 Hanly Fire, Sonoma County; 1991 Tunnel Fire, Alameda County; 2017 Tubbs, Redwood Valley, Atlas Fires, Napa and Sonoma Counties, 2018 Camp Fire, Butte County
- These wind events are a predictable and perennial part of the regional landscape → Diablo Winds were first reported in 1883

## Diablo and Santa Ana Winds at a Glance

This is how the hot, powerful Santa Ana winds in Southern California and Diablo winds in Northern California increase the regions' fire risk.

### HOW SANTA ANA AND DIABLO WINDS OCCUR

- 1 A high-pressure system in the Great Basin generates clockwise desert winds.
- 2 These winds flow over the Sierras and desert ranges, compressing and warming, losing humidity. As a result, the relative humidity drops and dries out vegetation.



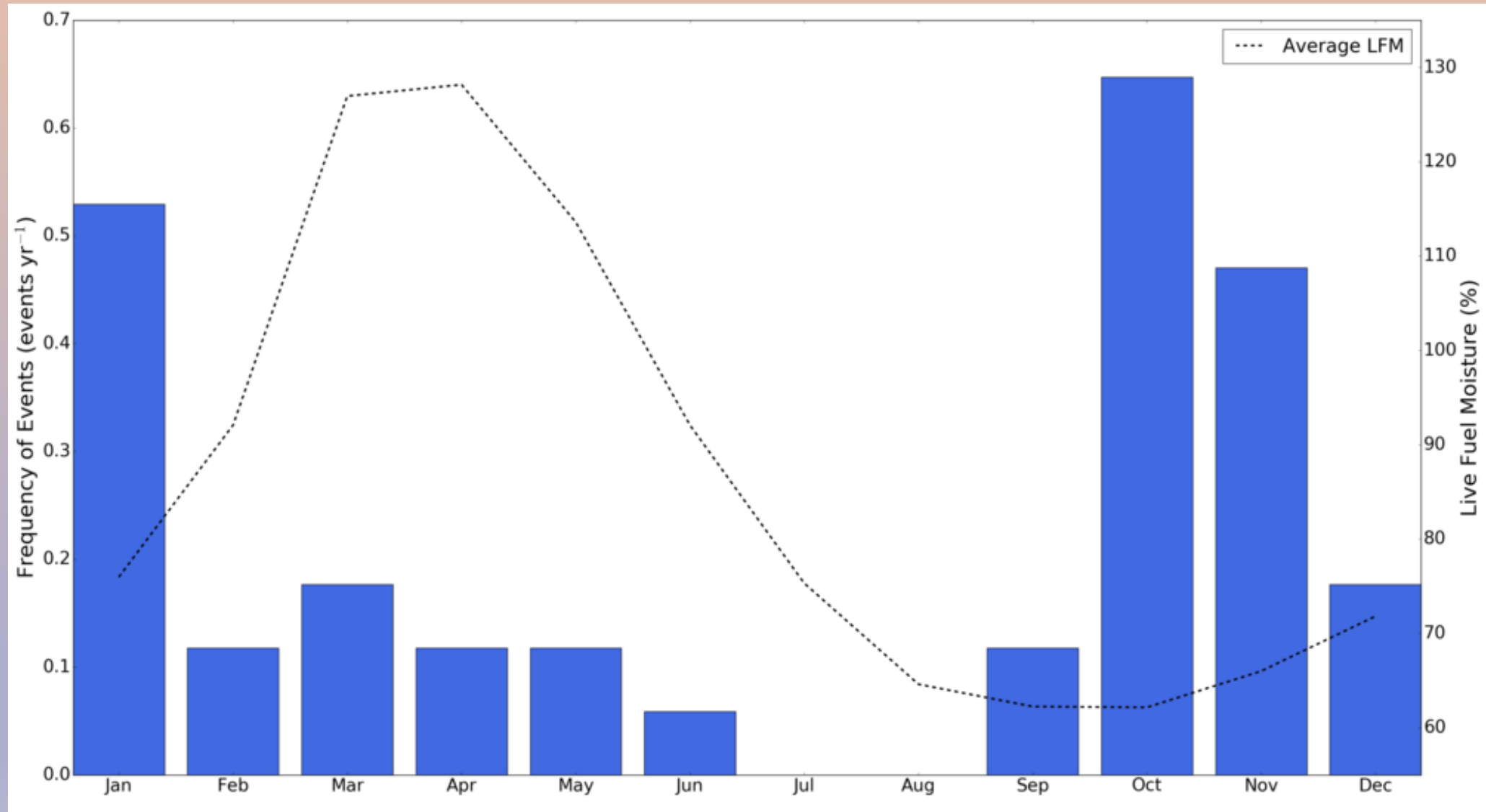
- 3 Winds squeeze through canyons like water through a hose, gusting up to 60 mph.
- 4 These strong, hot winds fan fires and create turbulence and unpredictable conditions for firefighters.

SOURCES: Natl. Weather Service; InsideClimate News research





# Monthly Frequency of Diablo Winds and average Live fuel moisture content (Dashed line)



Source: San Jose State University Fire Weather Research Laboratory, available at: <https://www.fireweather.org/blog/2018/10/5/diablo-winds-californias-critical-fire-weather-pattern>

## Top 20 Most Destructive California Wildfires

FIRE NAME (CAUSE)	DATE	COUNTY	ACRES	STRUCTURES	DEATHS
1 CAMP FIRE (Powerlines)	November 2018	Butte County	153,336	18,804	86
2 TUBBS (Electrical)	October 2017	Napa & Sonoma	36,807	5,636	22
3 TUNNEL - Oakland Hills (Rekindle)	October 1991	Alameda	1,600	2,900	25
4 CEDAR (Human Related)	October 2003	San Diego	273,246	2,820	15
5 VALLEY (Electrical)	September 2015	Lake, Napa & Sonoma	76,067	1,955	4
6 WITCH (Powerlines)	October 2007	San Diego	197,990	1,650	2
7 WOOLSEY (Under Investigation)	November 2018	Ventura	96,949	1,643	3
8 CARR (Human Related)	July 2018	Shasta County, Trinity County	229,651	1,614	8
9 NUNS (Powerline)	October 2017	Sonoma	54,382	1,355	3
10 THOMAS (Powerline)	December 2017	Ventura & Santa Barbara	281,893	1,063	2
11 OLD (Human Related)	October 2003	San Bernardino	91,281	1,003	6
12 JONES (Undetermined)	October 1999	Shasta	26,200	954	1
13 BUTTE (Powerlines)	September 2015	Amador & Calaveras	70,868	921	2
14 ATLAS (Powerline)	October 2017	Napa & Solano	51,624	783	6
15 PAINT (Arson)	June 1990	Santa Barbara	4,900	641	1
16 FOUNTAIN (Arson)	August 1992	Shasta	63,960	636	0
17 SAYRE (Misc.)	November 2008	Los Angeles	11,262	604	0
18 CITY OF BERKELEY (Powerlines)	September 1923	Alameda	130	584	0
19 HARRIS (Undetermined)	October 2007	San Diego	90,440	548	8
20 REDWOOD VALLEY (Powerline)	October 2017	Mendocino	36,523	546	9

\*\*"Structures" include homes, outbuildings (barns, garages, sheds, etc) and commercial properties destroyed.

\*\*\*This list does not include fire jurisdiction. These are the Top 20 regardless of whether they were state, federal, or local responsibility.



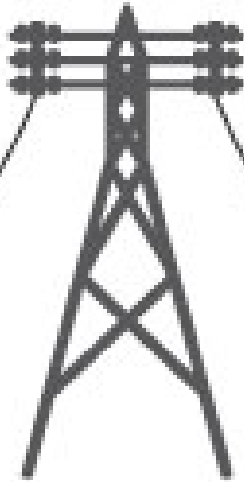
8/08/2019

# Electricity generation, transmission, and distribution

power plant  
generates electricity



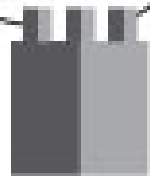
transmission lines carry  
electricity long distances



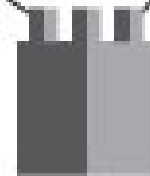
distribution lines carry  
electricity to houses



transformer steps  
up voltage for  
transmission



neighborhood  
transformer steps  
down voltage



transformers on poles  
step down electricity  
before it enters houses

Source: Adapted from National Energy Education Development Project (public domain)



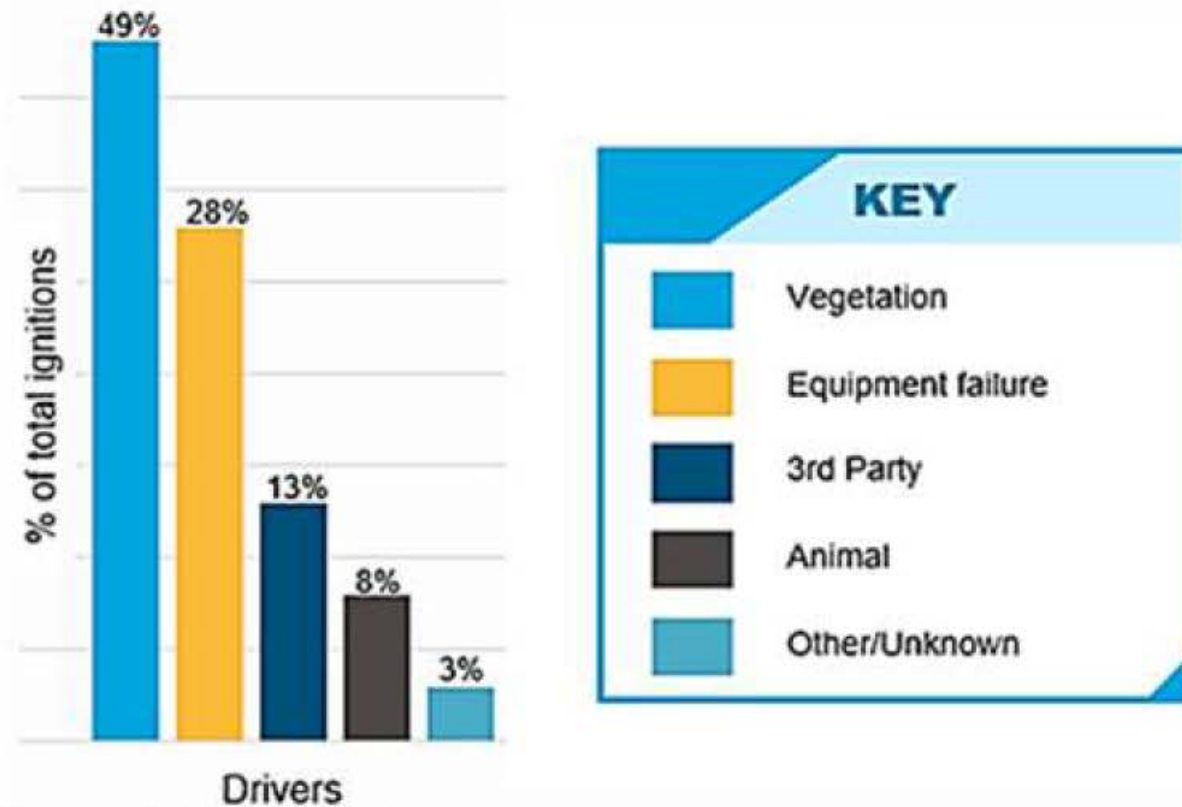
# Investor Owned Utilities and Fires

- Half of the most destructive fires in California's history were caused by powerlines (including Thomas and Tubbs)
- Between 2000-2006, thirty-six major fires were caused by power lines
- Contact with vegetation is the main cause of an electric utility-caused fire BUT, one must consider how the conductor came into contact with vegetation
- Equipment not built to spec and equipment not maintained are critical factors in the most destructive utility-caused fires
- Climate change and winds are factors in fire risk and severity but are also used excuses by the IOUs
  - PG&E tried to blame 2017 fires on “hurricane strength winds in excess of 75 mph in some cases” but peak wind gusts were 30 mph in Santa Rosa when the Tubbs Fire started and after ignition topped out at 41 mph, peak wind gusts were 32 mph in Napa when the Atlas Fire started



## PG&E Specific Risk Drivers

2015-2017 Fire Incident Drivers for PG&E's Tiers 2 and 3, and Tier 1/Zone 1



Source: CPUC Fire Incident Data

\* Equipment failure includes: conductor, conductor/hardware, fuse operation and other

# 2017 PG&E-Caused Fires

Fire Name	Date	Location	Cause	Result
Adobe	Oct. 8, 2017	Sonoma County	Eucalyptus <b>TREE</b> fell onto 12 kV overhead conductors, conductors fell to ground and ignited fire	Combined with Nuns Fire
Atlas	Oct. 8, 2017	Napa, Napa County	2 ignition points: 1.Black Oak <b>TREE</b> fell onto 12 kV overhead conductor, conductor fell to ground and ignited fire, 2. Valley Oak <b>TREE</b> branch fell onto 12 kV overhead conductor which dropped sparks and molten metal to the ground igniting fire	51,624 acres burned 120 structures destroyed 6 deaths
Cascade	Oct. 8, 2017	Browns Valley, Yuba County	Two overhead conductors on 12 kV circuit slapped together and dropped sparks or molten metal on the ground igniting fire	9,989 acres burned 264 structures destroyed 4 deaths Cascade + La Porte = Wind
Cherokee	Oct. 8, 2017	Oroville, Butte County	Multiple Valley Oak <b>TREE</b> branches contacted a 12 kV overhead conductor, conductor fell to ground igniting fire	8,417 acres 6 structures destroyed
Partrick	Oct. 8, 2017	Napa, Napa County	Coast Live Oak <b>TREE</b> fell onto 12 kV overhead conductors, conductors failed and started the fire.	Combine with Nuns Fire



Fire Name	Date	Location	Cause	Results
La Porte	Oct. 8, 2017	Bangor, Butte County	Valley Oak <b>TREE</b> branch fell onto 12kV overhead conductors, conductors fell to the ground igniting fire	6,151 acres 74 structures destroyed Cascade + La Porte = Wind
Norrbom	Oct. 8, 2017	Sonoma, Sonoma County	Black Oak <b>TREE</b> fell onto PG&E 12 kV overhead conductors which in turned failed and started the fire.	Combined with Nuns
Nuns	Oct. 8, 2017	Glen Ellen, Napa County	Alder <b>TREE</b> stem fell on open wire secondary overhead conductors which in turned failed and ignited the fire.	56,556 acres burned 1355 structures destroyed 3 deaths
Pocket	Oct. 8, 2017	Geyserville Sonoma County	Valley Oak <b>TREE</b> fell onto 12 kV overhead conductors which in turn failed and started the fire.	17,357 acres 6 structures destroyed
Potter/ Redwood	Oct.8, 2017	Potter Valley, Mendocino County	Two ignition points: 1. Valley Oak <b>TREE</b> branch fell onto 60 kV overhead transmission conductor, conductor fell to ground igniting fire, 2. Valley Oak <b>TREE</b> branch fell onto 12 kV conductor, conductor fell to the ground, igniting fire	36,523 acres burned 546 structures destroyed 9 deaths
Loco			Investigation report still confidential	
McCourtn ey			Investigation report still confidential	

Fire Name	Date	Location	Cause	Results
Sulphur	Oct. 8, 2017	Lake County	Wood pole fell igniting fire	2,207 acres 162 structures destroyed
Tubbs	Oct. 8, 2017	Calistoga, Napa County	*CalFire says private party fault, victims claim downed conductors caused, cause is going to trial	6,807 acres 11,272 structures destroyed 22 deaths
Youngs	Oct. 8, 2017	Healdsburg, Sonoma County	Valley Oak <b>TREE</b> fell onto 12kV overhead conductors igniting fire	89 acres
37 Fire	Oct. 9, 2017	Sonoma, Sonoma County	Unknown – likely transmission line caused	1,660 acres burned
Point	Oct. 9, 2017	Calaveras County	Valley Oak <b>TREE</b> limb fell onto 12 kV overhead conductor, conductor fell to ground igniting fire	130 acres 19 structures destroyed
Oakmont / Pythian	Oct. 13, 2017	Santa Rosa, Sonoma County	Douglas Fir <b>TREE</b> uprooted and fell onto 12 kV overhead conductors, conductors fell to the ground igniting fire.	Joined with Nuns

# 2018 PG&E-Caused Fire

Fire Name	Date	Location	Cause	Results
Camp Fire	Nov. 8, 2018	Paradise, Butte County	<p>2 ignitions points: 1. transmission line conductor fell from tower, molten metal sprayed vegetation, igniting the brush 2. <b>VEGETATION</b> making contact with PG&amp;E distribution conductors</p> <p>Investigation report still confidential - referred to local law enforcement</p>	<p>153,336 acres burned 18,793 structures destroyed 85 deaths</p>





# CPUC Safety Enforcement Division Investigation 2017 Fires

## Alleged PG&E Violations:

- Disposing of evidence
- Wires (conductors) too close, made contact
- Multiple Vegetation management failures

“PG&E’s vegetation management procedures and practices including training and qualifications of inspectors and also identification and trimming/removal of defective vegetation may have been inadequate and led to the vegetation-related violations identified in the SED investigation reports.”

# Decreasing IOU-caused Fire Risk – SDG&E

▪ In 2007, SDG&E caused a fire-storm during an October Santa Ana Wind event.

Fire Name	Date	Location	Cause	Result
Witch	Oct. 21, 2007	San Diego County	Conductors slapping together on a 69 kV transmission line, sparks fell to ground igniting fire	Combined 197,990 acres burned 1650 structures destroyed 2 deaths
Guejito	Oct. 21, 2007	San Diego County	Cox cable equipment failed and came into contact with 12 kV conductor, sparks fell to ground igniting fire	
Rice	Oct. 22, 2007	San Diego County	Tree fell on conductors after SDG&E	

▪ SDG&E upgraded its equipment i.e. higher strength conductors, increasing space between lines; installed weather stations and cameras throughout its territory; increased inspections and maintenance on existing lines; developed new technologies i.e. sensors to deenergize failed conductors



# Utility-Caused Fire Risk Reductions Techniques

- **Undergrounding**
- **Equipment upgrades – insulated wires/covered conductors, remotely disabled automatic reclosers**
- **Local, distributed power → less lines**
- **Monitoring condition of facilities and equipment and maintaining/replacing aging equipment**
- **Cameras and weather stations**
- **Vegetation management**
- **De-energization**





# Failure to Decrease IOU-caused Fire Risk – SCE and PG&E

- Even though the conditions of the 2007 SDG&E Fires – October foehn wind event - and any impacts of climate change are shared by all IOUs, SCE and PG&E did not take the same measures to decrease fire risk that SDG&E did
- Since, 2007, SDG&E has caused no catastrophic fires while SCE and PG&E have caused multiple catastrophic fires
- PG&E's approved 2019/2020 Wildfire Mitigation Plan (WMP) relies almost entirely on extreme “enhanced” vegetation management (EVM) and de-energization
  - WMP includes only de minimus equipment upgrades such as covered conductors

# Alternatives Mitigation Effectiveness Analysis

	ODRM Cause Code	Covered Conductor Effective?	Bare Conductor Effective?	Undergrounding Effective?
Contact From Object	Animal	Yes	No	Yes
	Balloon	Yes	No	Yes
	Other	Partial (Yes for 'Foreign Material')	No	Yes
	Vegetation Blown; Vegetation Overgrown	Yes	No	Yes
	Vehicle Hit	No	No	Yes
Equipment / Facility Failure	Transformer	No	No	Yes
	Conductor / Wire	Yes	Yes	Yes
	Splice / Connector / Tap	Yes	Yes	Yes
	Fuse / BLF / Cutout	No	No	Yes
	Lightning Arrestor	No	No	Yes
	Crossarm	No	No	Yes
	Pothead	No	No	Yes
	Insulator	No	No	Yes
	Switch / Disconnect AR	No	No	Yes

# Tree Branch contact

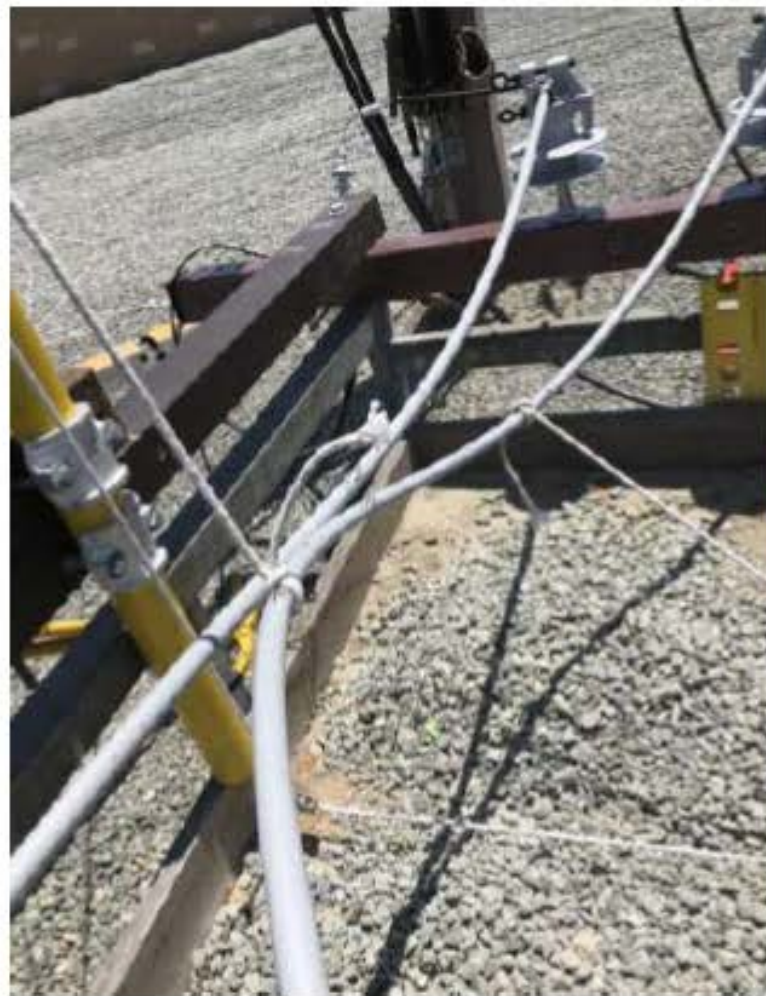
- Energized at 12 kV
- Observations
  - No arcing
  - No damage to the covered conductor
  - No damage to the tree branch





# Testing Other Contacts: No Arcing and Damage to Covered Conductors

Conductor Slapping



Simulating Animal



Mylar Balloon







# CPUC PG&E WMA Approval Decision – Covered Conductors

“According to [Office of Safety Advocates] consultant, Liberty Consultant Group, PG&E’s distribution system still uses #6 copper conductor, now recognized as obsolete and subject to breakage and arcing risks. PG&E still has 1,959 circuit miles of #6 copper conductor in Tier 2 and 754 circuit miles of #6 copper conductor in its Tier 3 areas. OSA recommends that PG&E prioritize the replacement of its existing small #6 copper conductor located in Tier 2 and 3 with the highest-ranking conductor available in the company’s circuit hardening prioritization methodology, and do so on an expedited construction schedule. PG&E responds that conductor size is one of the factors that PG&E considers within the risk model to determine what areas to replace. While PG&E agrees that #6 copper is a priority to be replaced, PG&E points out there are other small conductors that are also at high risk.”

“Given the small percentage of bare wire conductors PG&E proposes to harden in 2019, it appears unlikely that system hardening will substantially mitigate catastrophic wildfire threat in time for the 2019 wildfire season. While we do not assess the reasonableness of PG&E’s proposed costs in this decision, it is worth noting that the labor- and equipment-intensive nature of the reconductoring proposal means it is one of the most expensive items in the WMP. PG&E estimates it will cost at least \$ 236.9 million to reductor 150 miles or 0.15 percent of its overhead system in 2019. Assuming that the 7,100 circuit miles of PG&E’s system located in Tier 3 HFTD areas are eventually hardened, the magnitude of costs that the Commission will need to analyze in future GRCs is enormous. The implicit assumption in OSA’s recommendation to accelerate system hardening is that PG&E can establish in future proceedings the need for and cost-effectiveness of system hardening. At this point, we have insufficient information on which to reach this conclusion.”

# Comparison of Alternatives

- Covered Conductor has the greatest mitigation effectiveness per dollar spent and is 85% less than the cost of Underground Relocation

Alternative	Drivers Mitigated	Cost per Mile (\$ million)	GSRP Mitigation Cost Ratio
Covered Conductor	60%	0.43	1.40
Bare Conductor	15%	0.30	0.50
Underground Relocation	100%	3.0	0.33

- SCE's RAMP analysis shows covered conductor has the greatest risk-spend efficiency (RSE)
  - ~**3.4x** greater than Bare Conductor
  - ~**4x** greater than Underground Relocation
- Speed of Covered Conductor deployment is much faster than Underground Relocation



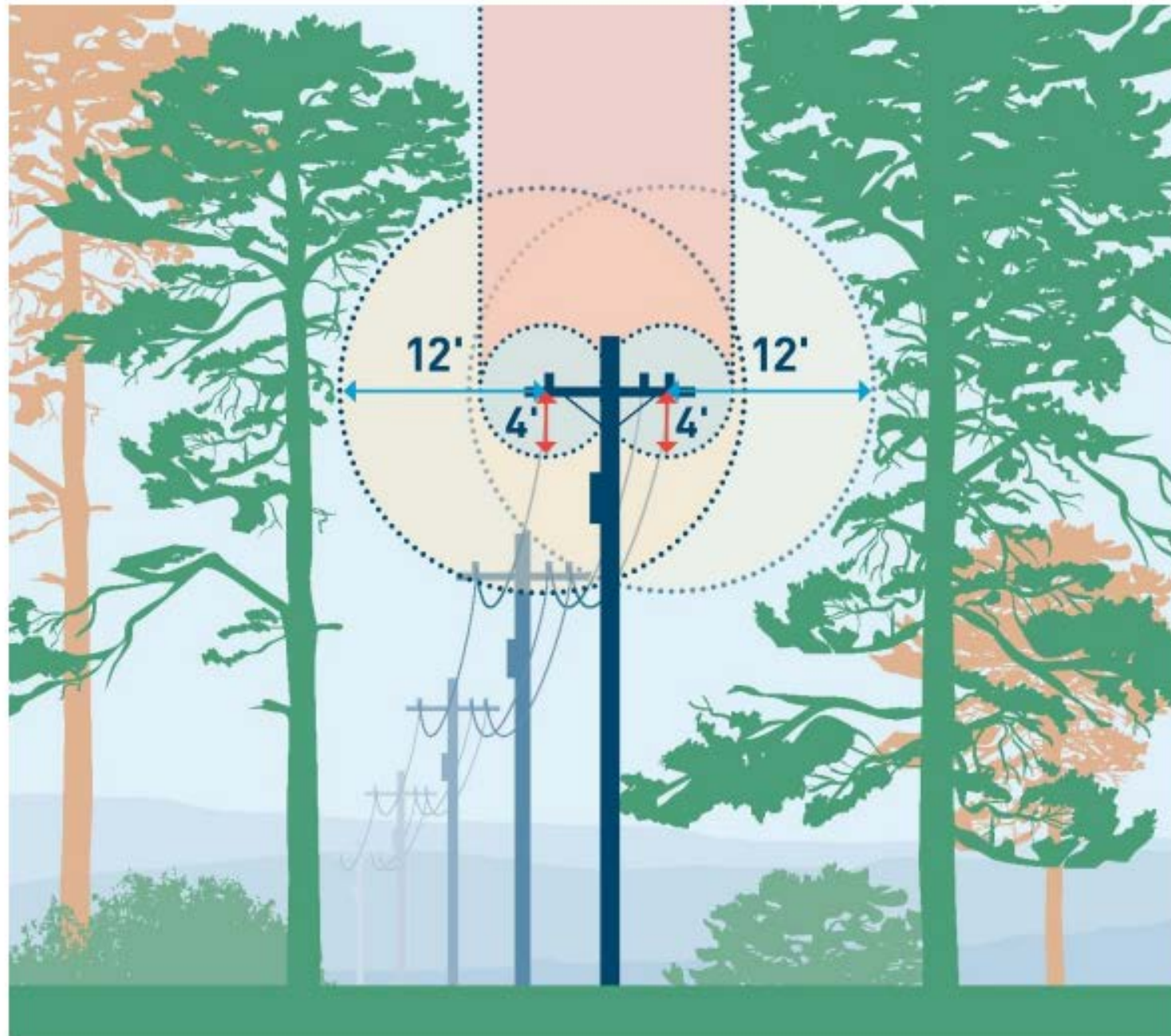
# PG&E Wildfire Mitigation Plans

- The IOUs were required to submit wildfire mitigation plans to the CPUC for approval
- PG&E's approved plan includes drastic "Enhanced Vegetation Management" (EMV) measures with especially intense tree trimming and removal in High Fire-Threat Districts (HFTD)
- PG&E has 25,200 distribution circuit miles in HFTD areas.
- PG&E is only planning to reconductor 150 miles or 0.15 percent of its overhead system in 2019.

# PG&E HFTD EMV

- Trimming all trees to a 12-foot radius from power lines and trimming all branches hanging above power lines
- Removing healthy trees that are identified as having the potential to hit power lines if they fall down (fall-ins)
- Trim all overhangs above overhead wire, creating a four-foot corridor from conductor to sky
- Target the “top 10” species of trees for removal as hazardous
- In 2018, PG&E also began a Fuel Reduction Program to reduce vegetative fuels under, and up to 15 feet on either side of, power lines located within HFTD areas
- “For 2019 and beyond, PG&E will work with property owners to perform this work in HFTD areas where property owners support the work”

FIGURE 7: ENHANCED VEGETATION MANAGEMENT





# “Top 10” Trees

- PG&E claims that 10 species of trees were responsible for nearly 75 percent of vegetation-related fire ignitions in Tier 2 and Tier 3 HFTD areas
- “PG&E will focus on removing or trimming trees from these 10 species that are tall enough to strike distribution lines, have a clear path to strike, and exhibit other potential risk factors such as leaning toward a line or are weighting toward a line.”
- Can include some taller trees located dozens of feet from power lines.
- The target trees are: Black Oak, Gray Pine, Tanoak, Coast Live Oak, Live Oak, Ponderosa Pine, Eucalyptus/Blue Gum, Douglas Fir, Valley Oak and Monterey Pine.
- These 10 species comprise over half of all trees in PG&E’s service territory.

# Number of Trees

**TABLE 15: ANNUAL "ADDITIONAL" TREES WORKED**

<b>Trees Worked</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018 (est.)</b>	<b>2019 Forecast</b>
CEMA	8,042	18,557	225,168	156,344	70,000	70,000
EVM + AWRR	–	–	–	–	90,000	305,000
Total	8,042	18,557	225,168	156,344	160,000	375,000

- In addition, PG&E asserts that it trims or removes approximately one million trees per year through its routine Vegetation Management programs.

# Tree Trimming – PG&E Authority

- Technically, with the approval of its Wildfire Mitigation Plan, PG&E does have authority to remove trees, overhanging branches, or tree limbs on private property that are within 12 feet of either side of power lines.
- Tree trimming crews do have authority to paint trees (mark trees) for removal prior to getting any permission from the property owner. Trees marked with an x are slated to be cut.
- PG&E's Authority is not without limits





# Local Governments and Trees

**Local Ordinances:** PG&E must coordinate with cities, counties, and other local authorities to obtain local encroachment permits or to manage other local requirements, such as heritage tree ordinances.

**CEQA:** Some tree removal will require CEQA review, such as tree removal in coastal zones. This requirement is administered by many local governments through certified local coastal programs and the level of CEQA review is determined separately by each permitting authority.

# Local Governments and Trees

**CAL FIRE:** CAL FIRE forest practice rules require approvals for the removal and disposal of trees.

**State and Federal Law:** Vegetation management activities must also comply with endangered species and fish and game restrictions, which may trigger permitting requirements, as well as restrict when, where, or how the work may be performed (e.g., not during nesting season).

**Federal Lands:** Work on federal lands also require permits for tree removal, VM work, or land rights that predate federal ownership of the land.





# Trees on Private Property

**Contact:** Property owners should be notified in person or by a door hanger, letter or phone call that PG&E plans to trim or remove trees.

**Arborist Opinion Required:** “PG&E should only remove healthy trees if the utility has evidence that those trees pose a risk to utility electric facilities under wildfire ignition conditions, based on the opinion of a certified arborist.” (CPUC Wildfire Mitigation Plan approval)

**Bushes:** “In 2018, PG&E also began a Fuel Reduction Program to reduce vegetative fuels under, and up to 15 feet on either side of, power lines located within HFTD areas. For 2019 and beyond, PG&E will work with property owners to perform this work in HFTD areas where property owners support the work.” (CPUC Wildfire Mitigation Plan approval)



# Trees on Private Property

Complaints: “From what I understand, [the CPUC] do not handle issues related to a resident wanting to challenge a utility for tree-trimming. That would be taken up with the local city or the utility itself. “ (CPCU Staff)

Dispute: Property owners do have the right to discuss whether trees marked for cutting on their property are, in fact, necessary to remove for power line protection purposes or if other options are feasible. If dispute can't be settled with tree crew, demand an arborists opinion and that a PG&E project manager to come to the property to negotiate. Call: 1-800-PGE-5000

Debris Removal: “PG&E acknowledges the merit of several suggestions from parties, including that it increase communication with landowners, and inform landowners that PG&E will remove tree-trimming debris upon request.” (CPUC Wildfire Mitigation Plan approval)

**BUT, PG&E's website claims “Neither our contractors nor we have the authority to remove wood because the trees on your land are your property.”**

# Alternatives to Removal

**Trimming:** In many cases the entire tree does not need to be cut down when only branches intrude into the 12' border but can be trimmed.

**Topping:** If large oaks or other deciduous trees do have upper branches that extend out into the power line buffer zone or that lean towards the power lines, the property owner can request to have the tree “topped” instead of cut at the base.

**Outside 12':** If a marked tree is located far outside of the "12'-from-the-powerline" corridor, unless the tree is dead, or dying, or obviously at risk of falling towards the powerlines, the property owner can dispute having the tree cut down.

**April Rose Maurath Sommer**  
**Executive & Legal Director**  
**Wild Tree Foundation**  
**April@WildTree.org**  
**(925) 310-6070**  
**www.WildTree.org**

**“Trees are poems that earth writes upon the sky, we fell them down and turn them into paper, that we may record our emptiness.” – Kahlil Gibran**