

The owner of this home reported transformers exploding as he fled.



After the Fire - Power lines Down in the Canyon



Aftermath - Incident Team 13 Command Post wreckage, the power line in the foreground was laying across the cyclone fence.



## Powerline Ignited Wildfires & Community Loss

By Ralph Bloemers<sup>1</sup>

### Introduction: Our Current Landscape

As the climate warms, extended drought and heat events in the United States are driving an increase in acres burned and homes lost to wildfire. The most devastating wildfires happen when dry winds carry embers long distances, start new spot fires and enter into communities and ignite homes. Burning homes then become the fuel that ignites other nearby homes, causing mass conflagrations. Destructive wildfires are happening more often, burning longer and more intensely, and emerging in places not historically prone to wildfire or mapped as being at risk.

The last five years have broken barriers in fire history. For example, the 2018 Camp Fire burned over 18,000 structures in and around the town of Paradise, California, and took 85 lives. The 2020 Labor Day Fires in Oregon burned over a million acres and destroyed communities identified as low risk. In 2021, the Dixie Fire became California's largest single fire in recorded history, and the Marshall Fire destroyed more structures than any other fire in Colorado history. Over the decade ending in 2020, the western US suffered a 246 percent increase in structures lost to wildfires.<sup>3</sup>

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<sup>1</sup> The author wishes to thank Dr. Jack Cohen, Research Physical Scientist, U.S. Forest Service (Ret.), John Comery, Fire Investigator, United States Bureau of Alcohol Tobacco and Firearms, Drs. Beverly Law and Christopher Dunn, Oregon State University, and many others that have contributed to his better understanding of this subject matter.

<sup>2</sup> Branson-Potts, Hailey. 2021. "Dixie Fire races toward Susanville, forcing some residents to evacuate." The San Diego Union-Tribune, August 18. <https://www.sandiegouniontribune.com/news/california/story/2021-08-18/dixie-fire-races-toward-susanville-forcing-some-residents-to-evacuate>

<sup>3</sup> Headwaters Economics. (2020, July 14). Communities threatened by wildfires, 2000-2019. <https://headwaterseconomics.org/natural-hazards/wildfire-near-communities/> (last accessed on October 10, 2023)

Higuera, P. E., Cook, M. C., Balch, J. K., Stavros, E. N., Mahood, A. L., & St Denis, L. A. (2023). **Shifting social-ecological fire regimes explain increasing structure loss from western wildfires**. Proceedings of the National Academy of Sciences - PNAS Nexus, 2(3). <https://doi.org/10.1093/pnasnexus/pgad005>

## People & Utilities are Primarily Responsible for Wildfire Ignitions.

For almost 80 years, Smokey Bear has been the face of public awareness campaigns asking people to be careful with fire, yet most fires are still caused by people—often through escaped campfires, careless use of fireworks, or energized power lines failing during wind events. Powerline fires have been and continue to be responsible for mass urban fire conflagrations - Tubbs (Santa Rosa, CA), Camp (Paradise, CA), Alameda (Talent & Phoenix, Oregon, Babb (Malden, WA), Marshall (Boulder, CO), Lahaina (Maui), Grey Fire (Spokane, WA). Since 2015, energized power lines have caused nearly half of California's most destructive fires.<sup>14</sup> On average powerline ignited fires are 10 times the size of fires ignited by other sources.<sup>15</sup> Why? Because these fires are ignited during wind events.<sup>16</sup>

**Top 20 Most Destructive California Wildfires**

FIRE NAME (CAUSE)	DATE	COUNTY	ACRES	STRUCTURES	DEATHS
1 CAMP (Powerlines)	November 2018	Butte	153,336	18,804	85
2 EATON (Under Investigation)*	January 2025	Los Angeles	14,021	9,413	18
3 PALISADES (Under Investigation)*	January 2025	Los Angeles	23,707	6,833	12
4 TUBBS (Electrical)	October 2017	Napa & Sonoma	36,807	5,636	22
5 TUNNEL - Oakland Hills (Rekindle)	October 1991	Alameda	1,600	2,900	25
6 CEDAR (Human Related)	October 2003	San Diego	273,246	2,820	15
7 NORTH COMPLEX (Lightning)	August, 2020	Butte, Plumas, & Yuba	318,935	2,352	15
8 VALLEY (Electrical)	September 2015	Lake, Napa & Sonoma	76,067	1,955	4
9 WITCH (Powerlines)	October 2007	San Diego	197,990	1,650	2
10 WOOLSEY (Electrical)	November 2018	Ventura	96,949	1,643	3
11 CARR (Human Related)	July 2018	Shasta County, Trinity	229,651	1,614	8
12 GLASS (Undetermined)	September 2020	Napa & Sonoma	67,484	1,520	0
13 LNU LIGHTNING COMPLEX (Lightning/Arson)	August 2020	Napa, Solano, Sonoma, Yolo, Lake, & Colusa	363,220	1,491	6
14 CZU LIGHTNING COMPLEX (Lightning)	August 2020	Santa Cruz, San Mateo	86,509	1,490	1
15 NUNS (Powerline)	October 2017	Sonoma	54,382	1,355	3
16 DIXIE (Powerline)	July 2021	Butte, Plumas, Lassen, & Tehama	963,309	1,311	1
17 THOMAS (Powerline)	December 2017	Ventura & Santa Barbara	281,893	1,063	2
18 CALDOR (Under Investigation)	September 2021	Alpine, Amador, & El Dorado	221,774	1,003	1
19 OLD (Human Related)	October 2003	San Bernardino	91,281	1,003	6
20 JONES (Undetermined)	October 1999	Shasta	26,200	954	1

\*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, local or tribal responsibility.

\*Numbers not final \*DINS Disclaimer: These numbers are preliminary based on aerial assessments dedicating heat sources which can include chicken coops, outbuildings, sheds, water containers, etc. \*Validated inspections are currently being ground-verified by Damage Assessment Teams.



4/3/2025

<sup>4</sup> Electrical System Safety - California's Oversight of the Efforts by Investor-Owned Utilities to Mitigate the Risk of Wildfires Needs Improvement, available at: <https://auditor.ca.gov/reports/2021-117/index.html> (last accessed on October 10, 2023)

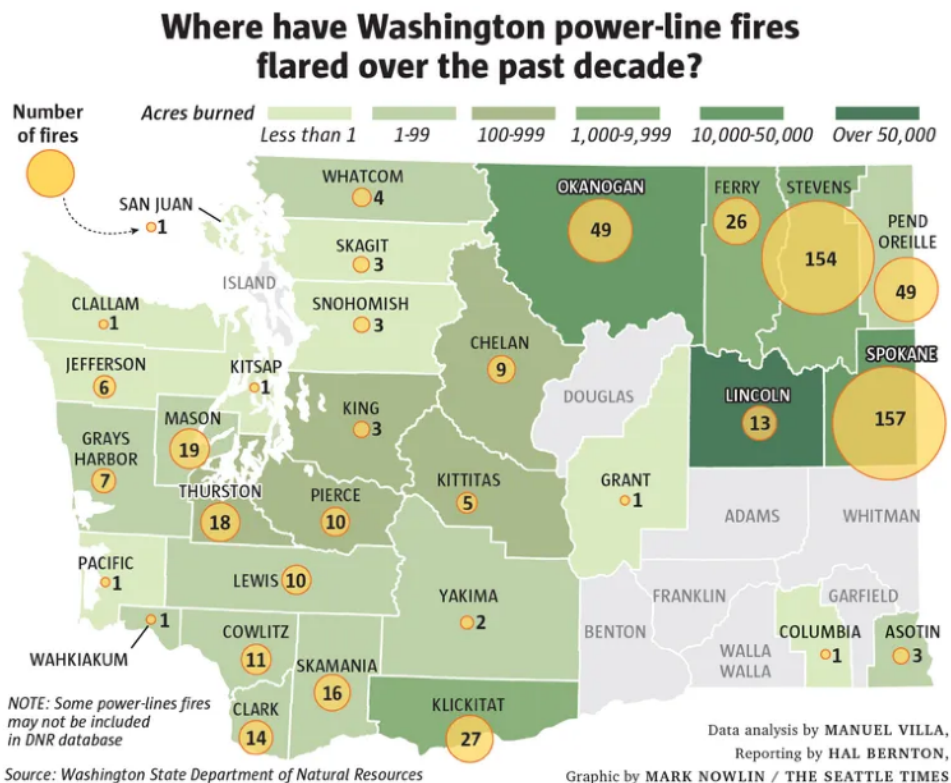
<sup>5</sup> State of Oregon, Utility Preparedness for Wildfires, September 26, 2019 (on file with authors)

<sup>6</sup> State of Oregon, Utility Preparedness for Wildfires, September 26, 2019 (on file with authors)

PG&E, PacifiCorp and other utilities have been found responsible for many of the largest, most destructive fires - and they continue to be responsible for more fires since Paradise in 2018 (PG&E) and the 2020 Labor Day Fires (PacifiCorp). Since 2017 PG&E has been blamed for more than 30 wildfires that wiped out more than 23,000 homes and businesses and killed more than 100 people.

“In these five years, PG&E has gone on a crime spree and will emerge from probation as a continuing menace to California,” U.S. District Judge William Alsup wrote in a report reviewing his oversight of the utility.<sup>7</sup> According to Cal Fire, fires caused by electrical power—such as electrical power distribution or transmission equipment—accounted for about 19 percent of all wildfires in the areas for which it has responsibility each year from 2016 through 2020.

Once the fire starts, the same weather conditions that contribute to electrical powerline-caused fires—the most critical of which is *high wind*—also cause the fire to spread rapidly and make the fire very difficult, if not impossible, to control. California, Oregon and Washington have seen a lot of powerline caused fires.



<sup>7</sup> AP News: PG&E’s criminal probation to end amid ongoing safety worries, available at: <https://apnews.com/article/wildfires-business-fires-crime-california-367cb44acf704920a0c2a72d60890bc5> (last accessed on October 10, 2023).

## **Solutions to Powerline Ignitions**

If powerlines have the capacity to cause such devastating fires, why not put them all underground or insulate all the lines? Unfortunately, both replacing uninsulated lines with insulated lines and undergrounding lines are very expensive undertakings.<sup>8</sup> The latter also may make it harder to locate and address any problems, should they arise.

Another way in which power companies can and have attempted to reduce the risk of powerline ignitions is by maintaining the vegetation surrounding its powerlines. This is a very effective way to help prevent powerline ignitions. Unfortunately, because power companies' service territories are typically so vast, the notion that they can achieve 100 percent safety just through vegetation management alone is unlikely.

An extremely important tool that power companies have at their disposal to prevent utility-caused fires is shutting off the power for a temporary period of time when certain metrics are met. This is called a Public Safety Power Shutoff ("PSPS"). PSPS as a tool is effective, because if there is no power in the electrical lines, the lines cannot start a fire even in extreme weather conditions. Nevertheless, some power companies have resisted instituting a PSPS during weather events.

## **Recent Cases Involving Powerline Ignitions in Washington, Oregon & California**

### **Washington**

***Fowlkes v. Inland Power and Light Company***, Case No. 23-2-04004-32 - **Gray Fire (2023)** – Two lawsuits have been filed against Inland Power and Light Company, alleging that its electrical equipment contacted or caused sparks to contact surrounding vegetation, and

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<sup>8</sup> **Why Doesn't PG&E Bury the Power Lines to Prevent Wildfires?** <https://www.kqed.org/news/11851411/why-doesnt-pge-bury-the-power-lines-to-prevent-wildfires> (last accessed on October 10, 2023)

subsequently starting the Gray Fire in eastern Washington.<sup>35</sup> This fire killed a man and burned approximately 240 homes.

**Babb Road / Babb-Malden Fire (2020)** – The Babb Road Fire nearly destroyed the towns of Malden and Pine City in 2020. According to the DNR, this fire started when a branch from a Ponderosa pine contacted a power line owned and operated by Avista Utilities. One of the allegations in this case is that Avista knew this Ponderosa pine was unhealthy and categorized as a hazard tree yet failed to address it prior to the fire. The Babb Road Fire was one of at least 47 blazes ignited by powerlines on September 7 and 8, 2020.<sup>9</sup>

**Boyd's Fire (2018) - Washington DNR v. Avista Power (2019).** DNR contends that Avista Utilities was negligent in not maintaining trees and brush around its power line near Kettle Falls, causing the 4,000-acre Boyd's Fire in 2018. The DNR concluded it started from a "hazardous dead ponderosa pine tree that collapsed onto electrical lines owned, maintained and operated by Avista." The DNR sued for firefighting costs.<sup>10,11</sup>

## Oregon

**James, et al. v. PacifiCorp, et al. (2020)** – 17 named plaintiffs sued PacifiCorp on behalf of a putative class for damages arising out of four fires – the 242, Echo Mountain Complex, Santiam Canyon, and South Obenchain fires – alleged to have been caused by PacifiCorp's powerlines. After an eight-week trial on the issue of liability, a Multnomah County jury found PacifiCorp liable for starting each of these fires and rendered \$72 million in compensatory damages for the 17 plaintiffs and an additional \$18 million in punitive damages.

**Willamette Valley Vineyards v. Pacificorp, et al. (2023).** Willamette Valley Vineyards has filed a lawsuit against electric utility Pacific Power and parent company PacifiCorp for \$8.1

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<sup>9</sup> *Fowlkes v. Inland Power and Light Company*, Case No. 23-2-04004-32, Complaint available at: <https://drive.google.com/file/d/1tdzjLFgiWcnzRt2sZt7X39LXsg983H5A/view> (last accessed on October 10, 2023)

'This community will never be the same' | Lawsuits filed against Inland Power & Light for allegedly sparking Gray Fire <https://www.krem.com/article/news/local/wildfire/gray-fire-lawsuits-filed-inland-power-and-light/293-a05c43b5-3f83-4416-813e-e821346e20ec> (last accessed on October 10, 2023)

<sup>10</sup> 'When the sparks just flew': How power lines ignited dozens of Washington state fires during fierce Labor Day winds, available at: <https://www.spokesman.com/stories/2020/nov/15/when-the-sparks-just-flew-how-power-lines-ignited/> (last accessed on October 10, 2023)

<sup>11</sup> Washington DNR files lawsuit against Avista for 2018 Boyds Fire in Ferry County, available at: <https://www.krem.com/article/news/local/wildfire/washington-dnr-files-lawsuit-against-avista-for-2018-boyds-fire-in-ferry-county/293-ac91281d-a25e-4973-b695-366338e08bc4> (last accessed on October 10, 2023)



million over what the vineyard claims is the utility's role in the 2020 Labor Day wildfires that affected grape harvests.<sup>12</sup> The vineyards allege that smoke from the fires damaged its harvest.

There are numerous other lawsuits pending against PacifiCorp for the 2020 Labor Day fires by homeowners owners, timber companies, forestland owners and insurance companies.<sup>13</sup>

**Table 1**

**Wildfires Caused by Electrical Power Account for 19 Percent of Cal Fire-Reported Acres Burned 2016 Through 2020**

WILDFIRES			WILDFIRES CAUSED BY ELECTRICAL POWER			
YEAR	TOTAL WILDFIRES	TOTAL ACRES BURNED	NUMBER	PERCENT	ACRES BURNED	PERCENT
2016	2,816	245,000	270	10%	3,000	1%
2017	3,470	467,000	408	12	250,000	54
2018	3,504	1,063,000	297	8	247,000	23
2019	3,086	130,000	304	10	84,000	65
2020	3,501	1,459,000	335	10	59,000	4
<b>Totals</b>	<b>16,377</b>	<b>3,364,000</b>	<b>1,614</b>	<b>10%</b>	<b>643,000</b>	<b>19%</b>

Source: Cal Fire's Wildfire Activity Statistics reports, 2016 through 2020.

## **California**

**Camp Fire (2018)** – A strong gust of wind blew down a power line owned and operated by PG&E, which ignited dry vegetation and started a fire that would become the deadliest, most destructive fire in California's history, destroying over 18,000 structures and killing dozens of

<sup>12</sup> Complaint available at: <https://s3.documentcloud.org/documents/23898091/willamette-valley-vineyards-lawsuit.pdf> (last accessed on October 10, 2023)

<sup>13</sup> Southern Oregon wildfire victims ask judge to consolidate their cases against PacifiCorp and expedite a jury trial, available at: <https://www.oregonlive.com/business/2023/01/douglas-county-wildfire-victims-ask-judge-to-consolidate-their-cases-against-pacifiCorp-and-expedite-a-jury-trial.html> (last accessed on October 10, 2023)

people. Multiple suits were filed against PG&E by individual fire victims, municipalities, and insurance companies demanding accountability. PG&E later filed for bankruptcy protection and later pleaded guilty to 84 counts of involuntary manslaughter. Since it declared bankruptcy, PG&E has since drafted a plan to spend \$50 billion by 2026 on grid protection and repairs.

Yet, even after the Camp Fire (2018), PG&E continued to be responsible for powerline ignitions and destructive fires in California, including the 2021 Dixie Fire in California that burned down the town of Greenville, California.<sup>14</sup> The Dixie Fire, which started on 13 July 2021 and burned for more than two months, was caused by a tree falling on PG&E's electrical distribution lines. Dixie ended as the second-largest wildfire in California's history, burning more than 963,000 acres of land across multiple counties and destroying more than 1,300 homes.<sup>15</sup>

As a result of lawsuits, and high risk from powerline ignited fires, companies are hiring in-house meteorologists, investing in fire modeling, installing sensors across their grid networks to identify high-risk areas, and designing PSPS plans that can actually be executed.

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<sup>14</sup> **Wildfire Today, A list of some of the fires attributed to PG&E powerline equipment**, available at: <https://wildfiretoday.com/2021/04/06/a-list-of-some-of-the-fires-attributed-to-pge-powerline-equipment/> (last accessed on October 10, 2023)

<sup>15</sup> **California regulator proposes \$45m fine for PG&E over 2021 wildfires**, available at: <https://www.power-technology.com/news/california-regulator-proposes-45m-fine-for-pge-over-2021-wildfires/?cf-view> (last accessed on October 10, 2023)