

DEEP DIVE

Record wildfire threats mean California must pick when and where to fight, utilities, analysts, CalFire agree

Winds, drought, heat and land uses take utility-critical questions of wildfire fight beyond utilities

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In 2020, California had over 9,900 wildfires, which burned a record 4.25 million acres and killed 33 people, according to the state's Department of Forestry and Fire Protection (CalFire). It is time for California to rethink its approach to wildfires, stakeholders said.

Both wildfires and utility-owned power lines run throughout California's federally-, state- and privately-held forest lands. Regulated utilities have caused less than 10% of California's wildfires, according to the California Public Utilities Commission (CPUC), but a California constitutional provision makes utilities financially liable if their equipment is involved in, without causing, a fire's ignition.

As a result, the state's three dominant investor-owned utilities (IOUs) and their customers have incurred costs for fires involving their equipment on lands where public agencies' efforts to avoid fires has been inadequate, stakeholders said. This has put the IOUs at the center of California wildfire debates.

"The utilities are making progress, but their problem is not the same as California's," said Michael Wara, Senior Research Scholar at the Stanford Woods Institute for the Environment and Director of the Climate and Energy Policy Program and a member of the

state's Blue Ribbon Commission on Wildfires. "We need to think in a new way about wildfires" and "about when and where to fight."

California's utilities and firefighting agencies are working to address the daunting statewide challenge. All of their work "can probably never be enough, but we are doing what is within our capability to prevent fires," CalFire Battalion Chief and spokesperson Captain Jon Heggie said.

Utilities' multi-billion-dollar mitigation efforts are expanding, though customers remain dissatisfied with their use of public safety power shutoffs (PSPSs), Wara, Heggie and other stakeholders agreed. A bigger question about mitigating California wildfires may be the extent of future involvement of federal authorities, which is especially important to utilities. As population expansion requires power lines deeper into fire-threatened wildlands, utilities' liability grows even where others' control of lands leaves them unable to mitigate hazards that may involve their equipment and make them liable.

A complete response may require first recognizing how the climate crisis is accelerating wildfire impacts and then shaping the state's fight to when and where it can win, Heggie, Wara and utility representatives agreed.

The crisis

Since 2017, California has had 13 of its 20 most destructive fires and seven of its 20 deadliest fires, according to CalFire records dating to the 1930s.

California's average temperature is up almost 3°F since the beginning of the 20th century and its eight warmest years have been since 2010, North Carolina Institute for Climate Studies (NCICS) Research Scientist Laura Stevens told Utility Dive.

As of April 1, over 90% of the state faced "moderate" to "exceptional" drought affecting almost 33 million people, according to the state's Drought Monitor. And foliage moistures are at record lows, according to San Jose State University's Wildfire Interdisciplinary Research Center.

The cost of dealing with the increasing risk is high.

Fire suppression costs for the devastating 2020 fire season are estimated at \$1.05 billion, according to CalFire. Associated costs for losses like property damage, business disruptions and deaths are expected to be much higher.

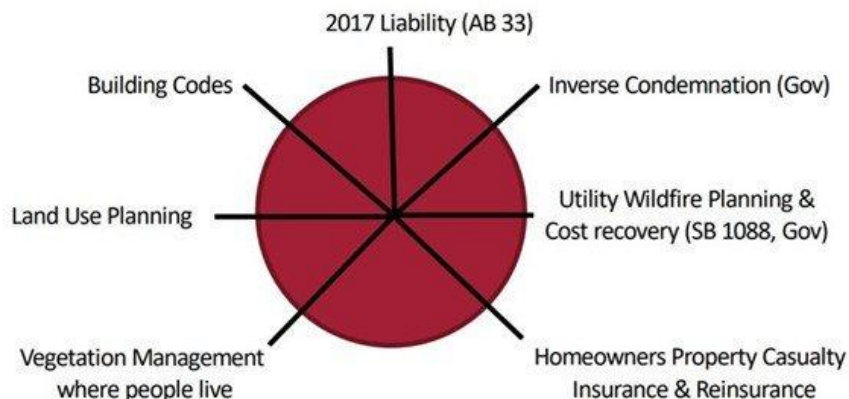
Since 2018, California's IOUs have been required by the CPUC to file annual updates on their wildfire mitigation plans (WMP).

Most recent devastating fires have been in Pacific Gas and Electric (PG&E) and Southern California Edison (SCE) territories. The San Diego Gas and Electric (SDG&E) tactics that have avoided major incidents since the 2007-2008 season make its 2020-2022 WMP update a model for other utilities to follow, California commissioners said at a March 29 CPUC workshop on wildfire efforts.

Many of the tools and enhancements in SDG&E's WMP update began with the utility's response to those 2007-2008 wildfires, said SDG&E Director of Fire Science and Climate Adaptation Brian D'Agostino.

With the climate crisis increasing the threat of more intense and more frequent fires, all three IOUs are working on prevention and hardening efforts, they told Utility Dive.

A solution addresses all dimensions of risk: Wildfire risk is not just a utility issue



Utilities at work

The PG&E and SCE WMPs are similar to SDG&E's but progress is slower in their larger, more diverse territories.

And on April 15, due to its ongoing financial struggles, PG&E was placed in an “enhanced oversight and enforcement” process to ensure continued progress on its mitigation efforts.

Rapid deployment of mitigation measures requires sufficient qualified labor and timely permits and clearances, SCE Wildfire Resiliency Oversight Principal Manager Raj Roy said. But that labor is in limited supply and high demand, and obtaining permits has been a roadblock to expedient progress, he said.

Nevertheless, all the IOUs’ WMPs reported progress with mitigation strategies projected to cost over \$21.7 billion through 2022. PG&E’s large and so-far under-prepared territory represents over \$15 billion of that cost.

The technologies and strategies being used can keep utility infrastructure from igniting wildfires.

All the IOU plans call for the kind of weather station network and in-house meteorological fire forecasting expertise SDG&E pioneered after the 2007-2008 fire season. More detailed data on historical events and weather patterns will allow for more and more targeted system hardening, like insulating wires and adding devices to interrupt electricity flows when faults are detected, the IOUs' plans promised.

The IOUs have also prioritized accelerated inspections and improved vegetation management, including the trimming of tens of thousands of trees, the clearing of brush from tens of thousands of poles, and the focusing of costly line undergrounding and microgrid buildouts in high fire risk areas.

In 2020, PG&E reduced "utility-asset-involved ignitions" in high threat areas by 24% "compared to its preceding three-year

average," PG&E spokesperson Ari Vanrenen reported.

Finally, the IOUs are working to make less use of Public Safety Power Shutoffs (PSPSs), which temporarily stop power from flowing in lines through highly ignitable terrain. They have been controversial because they leave large customer populations without power.

PSPSs are "a tool of last resort" and "will decrease over time," but are necessary, SCE spokesperson Reggie Kumar and SDG&E's D'Agostino agreed.

SDG&E showed a 74% overall reduction in PSPSs from 2019 to 2020. PG&E reduced impacted customers by 55% and sped power restorations by 41%. SCE reported average PSPS durations fell from 2019's 27 hours to 18 hours in 2020.

PG&E recognized its customers' dissatisfaction with PSPSs in the March 29 workshop. "I am glad you realize your plans have not met expectations because you will be judged by your outcomes, not your plans," CPUC President Marybel Batjer warned PG&E Executive Vice President and COO Adam Wright.

Consistent with this warning, the CPUC fined PG&E \$106 million "for violating guidelines during Fall 2019 PSPS events," under a May 26 proposed decision from Administrative Law Judge Marcelo L. Poirier. PG&E has 30 days to appeal the decision and has not yet responded.

The handling of PSPSs has brought much judgment on all the IOUs.

IOU Wildfire Mitigation Plan Projected Expenditures (thousands of dollars)

WMP Category PG&E	2020-22 Planned (w/ 2020 Actual)	WMP Category SCE	2020-22 Planned (w/2020 Actual)	WMP Category SDG&E	2020-22 Planned (w/ 2020 Actual)
Risk and Mapping	\$20,208	Risk and Mapping ⁷	-	Vegetation Management	\$222,543
Situational Awareness	\$148,741	Situational Awareness	109,955	Grid Operations	\$53,559
Grid Design and System Hardening	\$8,407,881	Grid Design and System Hardening	2,454,887	Data Governance	\$46,752
Asset Management and Inspections	\$807,738	Asset Management and Inspections	896,150	Resource Allocation	\$18,347
Vegetation Management	\$4,408,867	Vegetation Management	1,048,624	Emergency Planning	\$47,211
Grid Operations	\$555,510	Grid Operations	166,944	Stakeholder Cooperation and Community Engagement	\$38,835
Data Governance	\$413,974	Data Governance	34,508	Total	\$1,885,572
Resource Allocation	\$20,891	Resource Allocation	61,771		
Emergency Planning	\$76,489	Emergency Planning	4,059		
Stakeholder Cooperation and Community Engagement	\$155,138	Stakeholder Cooperation and Community Engagement	50,798		
Total	\$15,015,436	Total	4,827,697		

PSPS pushback

PSPSs were authorized by the CPUC in 2012. Since then, data shows the 10% of California wildfires caused by utilities have been "roughly half" of California's most destructive ones, the CPUC reported. New guidelines ordered in 2017 and 2020 accelerated microgrid deployments and enhanced community engagement to address "risks and hardships" imposed on the vulnerable by the PSPSs.

But the idea that SCE PSPSs have been a "reasonable" mitigation of wildfires, as the company has asserted, is "ludicrous," City of Santa Clarita Intergovernmental Relations Analyst Masis Hagobian said. Utilities should focus on system hardening and vegetation management "to make PSPS events unnecessary," he added.

PG&E "is starting to do the work, but they are way behind the curve," said California Sen. Brian Dahle (R), whose constituency is served by PG&E. "It is common sense to use meteorology and technology to shut off power in high risk areas when conditions are threatening, but the frequency and duration can be limited," he added.

The problem with PSPSs is that there is no conclusive evidence their protections of public safety outweigh their harms, Center for Accessible Technology Legal Director Melissa Kasnitz told the CPUC.

PSPSs reduce utility liability, but "create substantial harm, most visibly and obviously for medically vulnerable utility customers, like those who rely on breathing assistance or electric wheelchairs," Kasnitz said. When the CPUC approved proactive de-energization, "it committed to an evaluation of the balance of harms, but that has never been done," she added. California "is absolutely failing the most vulnerable."

An April 20 CPUC Proposed Decision, still pending, found all three IOUs had, in different degrees and ways, failed to comply with commission guidelines during 2019 PSPS events. The finding ordered remedies to prevent future failures, including forgoing collection of revenues from customers not served during PSPSs and improving preparations to meet best PSPS practices.

There are others whose wildfire efforts are failing, Sen. Dahle said. "The federal and state governments' forests are overgrown. It takes three things to cause a fire — oxygen, ignition and fuel. If they reduce the fuel loads, fires can be less intensive."

While utilities still need to accelerate efforts, there are other important forces shaping the fuel loads in the California wildfire threat.

Beyond utilities

Utility lines run throughout California's 33 million acres of forest lands, but federal agencies manage about 57% of those acres, according to the University of California, Berkeley.

California fires accounted for 22 of federal agencies' 50 biggest fires and at least \$1.24 billion of their \$2.74 billion costs for suppression, according to the National Interagency Coordination Center (NICC).

California's fire season is now nearly year-round, California Democratic Sens. Dianne Feinstein and Alex Padilla and 21 California House members said in asking the Agriculture and Interior departments on March 29 to transition to a year-round wildfire workforce. The agencies have not responded.

California Gov. Gavin Newsom, D, and state lawmakers have agreed on \$536 million in emergency funding for wildfire prevention and response, the governor announced April 8. The legislature is expected to authorize budget measures for the use of proceeds from the state's carbon cap and trade program and its General Fund, Newsom said.

Newsom included a \$1 billion Wildfire and Forest Resilience Action Plan in his January 2021 proposed budget, and on March 30 approved \$80.74 million for additional fire mitigation workers.

But these are traditional solutions which may not suit a world facing a climate crisis, some stakeholders said.

The real question

Power line fires have been "a significant contributor to catastrophic wildfires," SDG&E's D'Agostino acknowledged. But with today's record-setting winds, almost unremitting heat and drought, and population growth in volatile forest lands, "no amount of hardening will stop the vast majority of fires," he said.

Wildfires "will occur because our ecosystems evolved to burn periodically," said Stanford's Wara. But utilities may bear an inappropriate amount of blame and liability because their mitigation work in the face of the impacts of the climate crisis has been significant. "The choice with a fire-vulnerable ecosystem, the choice California must make, is to burn when it chooses to, or to deal with fires when they begin by accident, which is typically when they are most dangerous."

One choice will require a lot more fuels management, including prescribed burns, and the other will require a massive firefighting response, Wara said. "Either will require a lot more funding because the IOUs have done a lot of the easy stuff, and we are reaching the point where the next avoided ignitions, like undergrounding lines and preparing defenses around homes and communities, are expensive."

Prescribed burning is one of the major categories of fuel management that "have an important part in overall wildfire resiliency and mitigation," SDG&E's D'Agostino agreed.

CalFire is "constantly searching for opportunities to do controlled burns, but needs cooperation of landowners because the state owns very little of the forestlands," CalFire's Heggie said. And "with the impacts of the changing climate, the window for safe controlled burns is now limited to short periods in the early spring

before it gets too hot or the late fall before vegetation becomes too moist to burn."

CalFire needs cooperation from public and private agencies as well as the public to better use more and more effective controlled burns to control vegetation, he added.

SCE has "very little ability to manage vegetation on federal, state and privately-owned land underneath its own lines, but we do prescribed burning for fuel management on lands we own," agreed SCE Forestry Group Senior Manager Stephen Byrd. "Prescribed burns are beneficial for the vast majority of the forests and every bit as vital as rainfall."

Where prescribed burns can be done safely, they are the best prevention of wildfires, but that is difficult because of population growth into rural area, he added. "California needs to develop a mindset of using smaller prescribed burns, because the prescribed burn work we have done has shown smaller bites can have big impacts in limiting wildfires."

CalFire wants to work more aggressively but "it needs trained people who know how to implement prescribed burns safely and it needs communities to support them," Byrd said. "Fire is dangerous, but it can also be a tool to prevent dangerous fires. We are against being a victim of the inevitable and fire in California is inevitable because it's mother nature's recycling."

Whatever the cost, state leaders must think in new, "more expansive ways" about wildfires, Wara said. Strategies will differ by region, and some may not be popular, but a holistic approach "can keep ignitions from turning into deadly catastrophic wildfires that have to be managed in traditional ways."

"Wildfires are becoming the new normal," he added. "The real question is the kind of a new normal we want. We can choose to have some degree of control over risk or to have a new normal where we respond to crisis after crisis."