December 12, 2025

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Re: Call for Contributions in Support of Study on New Models and Approaches to Complement or Replace the Wildfire Fund

Dear Chief Executive Officer Welsh and Dr. Johnson:

Catastrophic wildfires threaten California's safety, affordability, and climate goals. As such, California's large investor-owned utilities appreciate the opportunity to contribute to the California Earthquake Authority's study under Senate Bill 254. We recognize and welcome the leadership of the Governor, the Legislature, and the CEA in advancing this important and timely effort to evaluate and design new models that strengthen the State's approach to wildfire prevention, mitigation, response, recovery, and resilience.

As active participants in California's wildfire resilience efforts, we have seen firsthand both the progress achieved and the remaining work to be done to promote safety, affordability, and reliable energy for all Californians. We view this process as a critical opportunity to collaborate across sectors to develop durable, fair solutions that protect impacted individuals, families, businesses, and communities, lower costs for customers, and enable continued investment in a safe, clean, affordable, and climate-resilient future.

Enclosed below are four white papers that convey the critical need to reform the current system for wildfire mitigation and recovery. White Paper 1 outlines the impacts of catastrophic wildfires, why California is unique, and the challenges with today's framework. White Paper 2 focuses on the litigation-recovery system, explaining why that system disserves the State and examining informative precedents that show how creative tools can address problems with the status quo. White Papers 3 and 4 focus on

community resilience and risk mitigation, detailing the investments and structures needed to better support wildfire preparedness and response.

We are grateful for the opportunity to share our perspectives on this collective effort and look forward to continued engagement throughout the study process.

Sincerely,

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White Paper 1: Catastrophic Wildfires in California Require a Whole-of-Society Solution to Improve Mitigation, Recovery and Affordability

Executive summary

California ("the State") faces a generational opportunity to redesign how it mitigates the risk of and recovers from catastrophic wildfires. Wildfires are one of California's most urgent matters and most destructive public safety threats, placing lives, homes, and entire communities at risk. Wildfires, and how California manages their risks and impact, are also contributing to an affordability crisis for households and businesses, driving up energy bills, impacting insurance markets, and threatening the State's long-term economic vitality. Events like the January 2025 Los Angeles (LA) wildfires, which caused significant loss of life and destroyed more than 16,000 structures, underscore the scale and urgency of this challenge.[1] Meeting this moment requires a modernized, whole-of-society approach. This imperative is not just driven by the need for California to have stable utilities to provide continuous service, but also by the critical need to enhance safety, resiliency, and affordability for all Californians while accelerating the recovery of impacted communities.

California has made important progress to mitigate wildfire risk, particularly through utility investments in system hardening, vegetation management, and operational safety measures, as well as through State investments in early detection and suppression capacity. However, much work and investment remain to further mitigate risk of ignitions and wildfire spread. Between 2018 and 2024, more than 80% of California's spend on wildfire mitigation efforts was by utilities targeted towards reduction of ignitions linked to utility equipment, which comprised 8% of all ignitions and 24% of damages on State Responsibility Area (SRA) lands.[2,3] The remaining less than 20% of spend targeted the other 92% of ignitions caused by other sources (e.g., vehicle impacts, campfires, arson). While some ignitions are outside of human control (e.g., the 5% of ignitions on SRA land sparked by lightning), there is significant opportunity to further reduce risk of ignition from other human-related causes. There is also opportunity to continue improving early detection, rapid suppression, and coordination.

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[1] "Top 20 Most Destructive California Wildfires" CAL FIRE, October 9, 2025.
[2] 2018-2024 average for ignitions chosen over 2020-2024 spend period due to '18-19 having a higher share of utility ignitions (only <1% of ignitions 2020-2024 were utility-driven). Comparable '18-'19 spend data unavailable.
[3] "CAL FIRE Statistics." California Department of Forestry and Fire Protection, December 8, 2025.

Once a wildfire has sparked, severity and spread are shaped by a wide set of factors, including climate-driven weather extremes, fuel accumulation, land and vegetation management, development patterns and home construction materials in the Wildland-Urban Interface (WUI), and the speed of detection and suppression. Utilities have limited ability to influence many of these drivers, which shape the likelihood of an ignition escalating into a catastrophic wildfire. While utilities support some suppression efforts, they can most directly affect efforts and investments to maintain and enhance the safe operations of the electrical system to reduce the risk of ignition. Even when a utility operates prudently, given the nature of utility infrastructure and the possibility for ignitions outside of human control (e.g., due to lightning), the risk of ignition will never be fully eliminated. A durable, equitable wildfire framework must address both the sources of ignition as well as the drivers of wildfire spread. Currently, there is significant opportunity to support and scale efforts to reduce wildfire spread, particularly in the areas of community hardening and landscape management. For example, despite over 11 million people living in approximately 2.9 million households in an ever-expanding WUI, less than 5,000 homes (<0.5%) have been hardened as part of state or community home hardening programs.[4,5,6,7,8,9,10,11,12]

Additionally, California's current litigation-driven system for post-wildfire recovery is lengthy, costly, and unequal. This system diverts substantial resources away from impacted parties to administrative and legal costs. It also places a disproportionate financial burden on utility customers who face higher energy rates because of unlimited and unpredictable wildfire liability costs and the increased financing costs that such exposure can create. High wildfire risk and the lack of mechanisms to effectively manage and socialize costs exacerbate challenges in accessibility and affordability of insurance for homeowners and businesses. This, along with increased electricity costs, undermines housing affordability and economic opportunity for all Californians.

The California Wildfire Fund, created by AB 1054, was an important step towards managing wildfire recovery. Recent legislation, such as SB 254, has provided important near-term

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[4] "KB Home Introduces Wildfire-Resilient Neighborhood." KB Homes, March 27, 2025.

[5] 8.3M homes in CA ("Housing unit totals") * 35% of homes in WUI ("USFS WUI map").

[6] "National, state, and county housing unit totals: 2020-2024." US Census Bureau, May 28, 2025.

[7] "Wildland urban interface: 2020 (Map Service)." US Forest Service, October 2, 2023.

[8] "California's deadliest wildfire devastated this town. Now an insurer is eager to return." San Francisco Chronicle, December, 2024.

[9] "California Wildfire Mitigation Program." Cal OES.

[10] Approximately 3,800 homes hardened under community and state-wide programs (2,500 from Paradise rebuild, 1,100 from IBHS certifications, 64 in the Dixon Trail Community. See Munce, Megan "California's deadliest wildfire devastated this town. Now an insurer is eager to return." San Francisco Chronicle, December 23, 2024.

[11] 64 in Dixon Trail Community Build. See: "KB Home Introduces Wildfire-Resilient Neighborhood".

[12] 133 from California Wildfire Mitigation Program ("California Wildfire Mitigation Program"). Other homes may be hardened via individual efforts or as part of non-reported programs.

stabilization. These funds are not permanent solutions. To achieve continued economic vitality and promote attainment of climate resiliency, energy reliability, and safety goals, California requires a durable, predictable, and broadly funded framework that can withstand the escalating scale of wildfire risk. Creating such a framework requires thinking critically and creatively about reforms that go beyond reliance on litigation.

This white paper series outlines how (1) California's existing wildfire framework does not serve the State's affordability and other goals; (2) what a modern, durable system would require; and (3) how an improved system could benefit all Californians. White Paper 1 outlines the impacts of catastrophic wildfires and the core problems with today's framework. White Paper 2 focuses on the litigation-recovery system, explaining why that system disserves the State, articulating essential goals of an improved framework, and examining useful precedents that can inform improvements to the status quo. White Papers 3 and 4 focus on community resilience and risk mitigation, detailing the investments and structures needed to better support wildfire preparedness and response. Together, these papers provide a roadmap for a comprehensive, whole-of-society wildfire strategy that protects Californians and promotes a resilient future, supports affordability, and accelerates recovery of impacted communities.

California's unique wildfire context

California's unique geography, climate, resources, infrastructure, and people have fueled its position as the world's fourth-largest economy and a global leader. Many of the characteristics that contribute to California's vibrant economy also contribute to its wildfire risk. California's natural environment, the distribution of its land use and infrastructure, and its unique legal system all play a role in the impact of wildfires across the State.

Wildfire behavior is influenced by weather, topography, land management, structure locations and density, incipient detection speed, and suppression capabilities. These are factors managed by multiple stakeholders and beyond the control of any single party — if controllable at all. Catastrophic events occur when ignition coincides with extreme conditions such as wind, drought, and fuel accumulation. While climate change is not unique to California, it intensifies these drivers in the State by resulting in hotter, drier conditions, longer fire seasons, and greater fuel loads due to prolonged drought and accelerating tree mortality.[13,14] For example, climate change delays the seasonality of California's Santa Ana winds. These winds are now more common later in the year, a fact

[13] Goss, M., D. L. Swain, J. T. Abatzoglou, A. Sarhadi, C. A. Kolden, et al. "Climate Change Is Increasing the Likelihood of Extreme Autumn Wildfire Conditions across California." Environmental Research Letters 15, no. 9, August 20, 2020.
[14] Reed, C. C., Hood, S. M., Cluck, D. R., Smith, S.L. "Fuels Change Quickly after California Drought and Bark Beetle Outbreaks with Implications for Potential Fire Behavior and Emissions." Fire Ecology,1–19, 2023.

that presents a unique challenge for wildfires as these winds come when California's vegetation is driest.[15] The January 2025 fires in LA illustrate how extreme wind and dryness compounded by climate change can transform ignition events into catastrophes.[16,17]

Demographic and economic trends also contribute to increased wildfire risk. As the population grows in California's WUI and climate change expands fire hazard severity zones (FHSZ), a greater number of lower-income Californians are at risk.[18] As of 2019, all 58 counties in California have WUIs and, as mentioned above, over 11 million residents (more than 25% of the State's population) live in these areas.[19,20] Population growth in California has increasingly concentrated in WUI areas.[21] In a study of select sites with moderate to very high fire hazards, many homes lacked full implementation of the recommended risk reduction measures.[22,23] Coupled with extreme wildfire behavior associated with climate change, this growing housing density in high-hazard WUI communities is amplifying economic losses and increasing financial exposure for homeowners, insurers, and other stakeholders.[24,25,26,27]

California's interpretation of the inverse condemnation doctrine is also unique and extends beyond government entities to include investor-owned utilities ("IOUs"). California utilities face essentially unlimited liability for catastrophic wildfires, the burden of which ultimately falls on customers, directly and indirectly.

Additionally, the litigation system for damages associated with utility-linked fires is uniquely inefficient and costly. This, coupled with the limited durability of the California

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[15] Guzman-Morales, J., Gershunov, A. "Climate Change Suppresses Santa Ana Winds of Southern California and Sharpens Their Seasonality." Geophysical Research Letters, January 31, 2019.

[16] This synthesis is based on NASA Earth Observatory analysis of fuel and soil-moisture conditions preceding the January 2025 Los Angeles fires, Insurance Institute for Business & Home Safety post-event field observations of the Palisades and Eaton fires, and reporting on extreme dryness and climate-change influences on these fires. See: "Fuel for California fires" NASA Earth Observatory, January, 2025 ; "2025 LA County Wildfires: Early Insights." Insurance Institute for Business & Home Safety, 2025.

[17] Madakumbura, G., Thackeray, Hall, A. et al "Study: Climate Change A Factor In Unprecedented LA Fires." UCLA, January 13, 2025.

[18] Greenberg, M., Angelo, H., Losada, E., Wilmers, C. "Relational geographies of urban unsustainability: The entanglement of California's housing crisis with WUI growth and climate change." Proceedings of the National Academy of Sciences, 121(32), July 29, 2024.

[19] "Wildfires and climate change: California's energy future. Office of Governor Gavin Newsom." April 12, 2019.

[20] Li, S., Dao, V., Kumar, M., Nguyen, P. et al. "Mapping the wildland urban interface in California using remote sensing data." Nature, 2022.

[21] One-third (29.1%) of census tracts in California's WUI have seen a significant population increase from 2010 to 2019, affecting 12.7% population in California. See Viner, J. E., Laszewski, S. T., Ho, W., et al. High spatial and temporal resolution census data reveals communities at risk along the wildland-urban interface (WUI) in California, USA. In Proceedings of the International Wildland Fire Association's Fire & Climate Conference. Chapman University, May 2022.

[22] See Kramer, A., Mockrin, M. H., Alexandre, P. M., & Stewart, S. I. "High wildfire damage in interface communities in California. International Journal of Wildland Fire." International Journal of Wildland Fire, September 2019.

[23] Wilkin, K. M., Stasiewicz, A., Benterou, D. "High fire hazard Wildland Urban Interface (WUI) residences in California lack voluntary and mandated wildfire risk mitigation compliance in Home Ignition Zones". International Journal of Disaster Risk Reduction, 124, 2025.

[24] "California's forests and rangelands: 2017 assessment." California Department of Forestry and Fire Protection, 2017.

[25] Mistreanu, S. "New fire maps increase hazard zones in L.A. and Southern California by 3.5 million acres." Los Angeles Times, March 24, 2019.

[26] Haggerty, N. "Can you survive a wildfire sheltering at home? For one community, L.A. County Fire says it may be the only option." Los Angeles Times, November 204, 2025.

[27] Dwyer, L. "Topanga Canyon Fire Risks." LAist, October 15, 2023.

Wildfire Fund, is increasingly unsustainable for customers and those impacted by wildfires.[28] Developing a system that better spreads and reduces the costs of recovery, provides compensation to those impacted by non-utility-linked fires, and accelerates claims handling (relative to traditional litigation) would improve the lives of all Californians.

Key challenges with California's wildfire landscape

Challenge 1: Catastrophic wildfires increasingly threaten California's safety and well-being

Wildfires destroy homes and businesses, displace communities, and trigger cascading social and economic disruption. The 2023 Maui fires destroyed or damaged roughly 2,200 structures. Two years later, only 100 structures have been rebuilt.[29,30] Seven years after 2018 Camp Fire, fewer than 30% of homes have been rebuilt, and the city of Paradise's population has fallen by more than half.[31,32] After the 2020 CZU Lightning Complex Fire that destroyed nearly 1,500 structures, the Santa Cruz and Big Basin communities have been slow to recover, with only one third of homes rebuilt after 4 years.[33] One analysis also found that just 38% of homes lost in the last five most destructive California fires from 2017-2020 have been rebuilt as of April 2025.[34] These examples highlight the significant gap between destruction and recovery timelines. Recovery timelines for comparable major disaster rebuilds can span 5-10 years and sometimes longer depending on the scale of devastation.

Figure 1: Sample set of major disasters with approximate majority rebuild timelines[35,36,37,38,39,40,41,42,43,44,45]

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[28] SB 254 set up a continuation account for the California Wildfire Fund by adding $18 Billion, but this value could easily be outstripped in potential liability following another catastrophic fire similar in scale to the January 2025 LA fires. See Serizawa, L. "California should not let the Wildfire Fund run dry." Public Advocates Office, September 9, 2024.
[29] "Preliminary after-action report: 2023 Maui wildfire." US Fire Administration, February 8, 2024.
[30] "Rebuilding benchmark: 100th completed structure in wildfire-affected areas." County of Maui, December 2, 2025.
[31] "Paradise town demographics | Current California census data." California Demographics by Cubit, May 2025.
[32] Dillon, L., & Poston, B. "22,500 homes lost. Over five years later, only 38% rebuilt: What California fire survivors face." Los Angeles Times, September 30, 2025.
[33] "CZU Lightning Complex Fires: Four years later (June 2024 Report)." Santa Cruz County Civil Grand Jury, June 21, 2024.
[34] "This is how long it took to rebuild after California's major wildfires." Los Angeles Times, September 30, 2025.
[35] "Preliminary After-Action Report: 2023 Maui Wildfire." US Fire Administration / FEMA, 2025.
[36] "Black Summer five years on: A sobering reminder of Australia bushfire risk." Moody's, Feb 23, 2025.
[37] "Biggest, Most-Destructive Fires in California History." ABC7, January 2, 2024.
[38] "Woolsey Fire Incident." Los Angeles County Fire Dept., November 12, 2018.
[39] "IncidentFile1868_3120." CAL FIRE, January 6, 2018.
[40] "Financial impact of Fort McMurray wildfire reaches almost $10 billion." Calgary Herald, January 17, 2017.
[41] "Black Saturday 2009 — Major Fires." Country Fire Authority Victoria, 2009.
[42] "Day of 2011 Japan Earthquake and Tsunami." National Centers for Environmental Information, NOAA, 2011.
[43] "Katrina: Lessons Learned — Chapter 1." The White House; SPP-PR / HUD, 2018.
[44] "HUD Housing Damage Assessment & Recovery Strategies." SPP-PR for US Department of Housing and Urban Development, June 29, 2018.
[45] "Storm Events Database: Event ID 416939." National Centers for Environmental Information. Accessed December 1, 2025.

Disaster	Location	Structures destroyed	Approximate cost	Cleanup timeline	Majority rebuild timeline
2023 Lahaina Fire	Maui, Hawaii	2,200+	$5.5 billion	18 months	**5 years** (anticipated, in progress)
2019-2020 Australia Bushfire Season	New South Wales, Australia	3,500+	$1.5 billion	12-18 months	**5 years** (anticipated, in progress)
2018 Camp Fire	Butte County, California	18,000+	$18 billion	12 months	**7-8 years**
2017 Tubbs Fire	Napa, Sonoma, and Lake Counties, California	6,000+	$2 billion	6-8 months	**5-7 years**
2016 Fort McMurray Wildfire	Alberta, Canada	2,400+	$3.7 billion	12-14 months	**5-7 years**
2009 Black Saturday Bushfires	Victoria, Australia	3,500+	$4.5 billion	6-8 months	**5-7 years**
2011 Tōhoku Earthquake & Tsunami	Japan	120,000+	$360 billion	4-5 years	**10 years**
2005 Hurricane Katrina	New Orleans, LA	300,000+	$170 billion	12 months	**8-10 years**
2017 Hurricane Harvey	Houston, TX	15,500+	$135 billion	12 months	**5-7 years**
2017 Hurricane Maria	Puerto Rico	13,00+	$90 billion	12 months	**6-8 years**
2012 Hurricane Sandy	New York, NY	30,000+	$70 billion	6 months	**3-5 years**

Recovery also occurs unevenly and is highly contingent on the resources of those who are impacted. In affected neighborhoods, rents increase substantially after fires as limited housing supply drives housing costs upward.[46] Additionally, research finds that rental homes are more likely to be damaged or destroyed by disasters and take longer to repair than owner-occupied homes.[47] Businesses shutter, and recovery lags for years, amplifying inequities. When this occurs, many residents choose not to rebuild but rather to move on entirely.[48,49] This deeply changes the composition and character of communities post-fire.

The long community recovery periods that follow wildfires also reduce revenues for schools, community colleges, cities, counties, and state government. The reductions in

[46] "Climate disasters are associated with a significant increase in rents after the disaster, especially for the lowest income renters," Justin Steil, an urban planning expert at the Massachusetts Institute of Technology said. Researchers have also found an increase in evictions not only in the year of the disaster itself, but also the year following. "In places where the median rents are already higher, the increase in evictions is larger," Steil said." Beckett, L. 'Altadena is not for sale': LA residents fear being forced out by wildfire rebuild. The Guardian, February 14, 2025.

[47] Lee, Jee Young, and Shannon Van Zandt. "Housing Tenure and Social Vulnerability to Disasters: A Review of the Evidence." Journal of Planning Literature 34, November 14, 2018.

[48] One study notes that of roughly 1,200 businesses operating in the Ridge prior to the fire, only ~200 businesses remained in operation (i.e., about 15–20% of the pre-fire business base). "Town of Paradise Commercial Market Analysis" Economic & Planning Systems Inc., February 2022.

[49] Beam, Adam Rodriguez R. Olga. "5 Years after California's Deadliest Wildfire, Survivors Forge Different Paths toward Recovery." AP News, November 7, 2023.

revenues adversely impact the ability of governments to rebuild public infrastructure, impact service delivery, erode quality and availability of services, and impact economic recovery.

Challenge 2: Catastrophic wildfires threaten California's affordability and economic vitality

California is home to 6 of the top 10 most expensive cities in the United States (US).[50,51] Increased wildfire risk and damage have contributed to California's affordability crisis by raising insurance, housing, and electricity costs.

Challenge 2a: Wildfire risk and the current wildfire framework are shrinking insurance coverage options and making it unaffordable for many families to buy or keep homes and build generational wealth

The current wildfire framework is eroding access to affordable, comprehensive homeowner's insurance in high fire risk areas. This lack of insurance can reduce homeowner purchasing power, constrain housing development, and negatively impact property values in affected areas.

Erosion of affordable and adequate insurance

California's housing stability and affordability are being impacted by a growing set of challenges to insurance driven by increased wildfire risk and the current state regulatory framework. As catastrophic wildfires become more prevalent, insurers face mounting wildfire-related losses, particularly in FHSZs.[52] Until recently, insurers in California were also limited in their ability to use forward-looking risk models to accurately price wildfire risk into premiums or include the cost of reinsurance. High levels of uncertainty inherent in wildfire risk and the slow speed to implement reforms have led some insurers to slow or stop renewals in high fire risk areas in recent years.[53] As some insurers restrict the writing of new policies or withdraw entirely from the State, Californians with high fire risk face either soaring premiums, limited availability of insurance coverage, or both. From 2023 to 2024, California's homeowner insurance rates have increased by 54%.[54] In some high-risk areas, buyers or homeowners now face total premium costs of more than $10,000 per year.[55]

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[50] Cohn, Scott. "These Are America's Most Expensive States in 2025, Where Inflation Still Hits Hardest." CNBC, July 11, 2025.
[51] Winters, Mike. "The Income You Need to Live Comfortably in the 10 Most Expensive US Cities—It's over $200,000 in No. 1." CNBC, October 16, 2025.
[52] "2023 US wildfire state of the market". Arthur J. Gallagher & Co., 2023.
[53] Saleh, F. "Addressing the insurance gap and the hidden risks for California homeowners in wildfire-prone areas." Moody's, January 27, 2025.
[54] "Crisis in Homeowners Insurance – 2024 Focus Report." Conning, October 24, 2024.
[55] Smith, Nadia Lopez, Paige. "Home insurance at $10,000 a year shows California buyers' pain." Bloomberg, June 21, 2024.

Enrollment in the California FAIR Plan ("FAIR Plan") has also nearly doubled since 2023 and now includes over 645,000 policies statewide.[56] The FAIR Plan, as the State insurer of last resort, generally offers less protection and higher deductibles than private insurance, leaving many homeowners underinsured and financially vulnerable in the event of a loss.[57] Most FAIR Plan policies only cover the actual cash value (ACV) of a home and not the true replacement cost following a disaster. The FAIR Plan is also becoming more expensive. Following the January 2025 LA fires, the FAIR Plan filed a 35.8% average rate increase, one of its largest increases to date.[58] This is especially concerning given FAIR Plan policies already accounted for 32% of the market in 2023 in the top 10 counties with high wildfire risk (as compared to 3.7% statewide).[59]

Figure 2: Insurance coverage comparison between California FAIR Plan and typical private insurance policy[60,61]

Perils insured against	California FAIR Plan	Typical ISO HO-3 Policy
Dwelling value	Actual cash value (ACV)	Replacement cost
Fire or lightning	Included	Included
Smoke	Limited	Included
Internal explosion	Included	Included
Extended coverage	Supplement required	Included
Vandalism	Supplement required	Included
Other Coverages		
Other Structures	10% of dwelling limit	10% of dwelling limit
Additional living expenses	Not included	Included
Fair rental value	Supplement required	Included
Debris removal	Supplement required	Included
Contents		
Fire or lightning	Included	Included
Smoke	Limited	Included
Internal explosion	Included	Included
Extended coverage	Supplement required	Included
Vandalism	Supplement required	Included
Theft	Not included	Included
Falling Objects	Not included	Included
Ice, Snow, Sleet	Not included	Included
Freezing	Not included	Included
Liability		
Personal liability	Not included	Included
Medical payments to others	Not included	Included

[56] "Key statistics & data." California FAIR Plan Association, 2025.
[57] "While basic property insurance is not the same as comprehensive homeowners' insurance, per statute, Difference in Conditions policies fill the gap and are readily available through the voluntary market." California Assembly. "About the FAIR Plan [PDF]." California Assembly, February 23, 2023.
[58] Darmiento, Laurence. "California's home insurer of last resort seeks 36% rate hike following January fires." Los Angeles Times, October 4, 2025.
[59] "Fact sheet: Summary on residential insurance policies and the FAIR Plan." California Department of Insurance, January 13, 2025.
[60] "Insurance Policy Comparison CFP Dwelling Policy to ISO HO-3." California Association of Realtors.
[61] ISO HO-3 policy is the standard homeowner's insurance policy form used across much of the US.

Damage of property of others	Not included	$1,000 limit

Constraints on homeowner purchasing power

While some states have higher insurance rates than California, rates have increased markedly within California over the past few years. As mentioned above, between 2023 and 2024, rates increased by 54%.[62] Should homeowners' insurance rates continue to increase at the same pace, homeowners or homebuyers may no longer be able to afford adequate insurance. When insurance becomes less affordable or accessible, homeowners risk falling out of compliance with mortgage requirements, and many prospective buyers can no longer qualify for loans. This could also decrease the home value that the average California homebuyer can purchase by around 5%.[63] WUI or high fire risk areas could face even further strain, with the average homebuyer's purchasing power declining by as much as 15%.[64]

Without additional efforts to improve insurance accessibility while reducing wildfire-related financial uncertainty, California could continue to face mounting development challenges, higher project development costs, and worsening housing undersupply.

Impact of high input costs on housing development

As premiums have climbed in high fire risk areas, builders face higher insurance costs, which add an estimated 1% to total development costs.[65,66] At the same time, the perceived risk of future catastrophic wildfires reduces lender confidence, limiting builders' access to capital and increasing financing risk.[67] The result is fewer approved and completed housing units across the State: since 2022, California has seen an approximately 10% annual decline in permitted units.[68]

Additionally, a range of economic and policy decisions, including the cost of energy, can shape whether industries choose to locate and invest in California, which impacts long-

[62] "Crisis in Homeowners Insurance – 2024." Conning, October 24, 2024.
[63] Assumes average annual homeowner insurance premiums between $1,300-1,600 in base year and 1-year premium increases of 40-60%, in line with 54% 2023-2024 premium growth in California. Assumes 20% downpayment, 30% fixed rate mortgage at 6%, no HOA, and property tax of 1.2%; based on buyer of average CA $100,000 annual income seeking to purchase a $400,000-500,000 home.
[64] Assumes average annual homeowner insurance premiums in the WUI between $5,000-7,000 in base year and 1-year premium increases of 40-60%, in line with 54% 2023-2024 premium growth in California. Assumes 20% downpayment, 30% fixed rate mortgage at 6%, no HOA, and property tax of 1.2%; based on buyer of average CA $100,000 annual income seeking to purchase a $400,000-500,000 home.
[65] "How Much Does Builders Risk Insurance Really Cost?" Liberty Insurance Associates, September 4, 2025.
[66] "Insurance Marketplace Realities 2025 Spring Update – Construction." Willis Towers Watson, October 4, 2024.
[67] "CBIA applauds CDI regulations to address abuse of insurance intervenor process that contributes to housing crisis." California Building Industry Association, September 19, 2025.
[68] "Housing Element Implementation and APR Dashboard" California Department of Housing and Community Development, June 30, 2025.

term economic and job growth.[69,70] Slow job growth can discourage residential housing investors who generally aim to build in places where economic growth is the strongest and most predictable. [71] As investment pulls back, the State's persistent housing shortage and affordability challenges deepen. These trends particularly affect the multi-family residential development segment, which generally serves populations with the greatest need for affordable housing.

Decline of property values in high-risk areas

Rising insurance and reinsurance costs also directly affect property values. Recent research found that, across the US, insurance shocks have reduced home prices by $20,500 in the top 25% of homes most exposed to catastrophic hurricanes and wildfires, and by $43,900 in the top 10%.[72] Given a median California home price of approximately $838,000, this is equivalent to a 5.2% decrease in average home value.[73] This signals that climate-driven insurance pressures are already eroding household wealth in the areas most at risk.[74] And even as home prices fall in high-risk areas, the contraction of affordable, accessible insurance coupled with associated lending challenges make homeownership less attainable. Without systemic reform to create a healthier insurance market, wildfire-driven risk will continue to undermine access to affordable housing and weaken a key pathway to wealth creation for Californians.

Challenge 2b: Wildfire-related costs are amongst those that drive up energy rates for households and businesses, undermining California's affordability and economic-competitiveness

The costs of the current framework contribute to and compound the high costs of electricity in California. California's electricity rates are amongst the highest in the country, in large part due to factors outside of utilities' direct control. As the California Public Utilities Commission's (CPUC) 2025 SB 695 report notes, statewide IOU electricity rates have risen faster than inflation in recent years as utilities work to meet growing safety, reliability, and climate resilience requirements. [75] Factors contributing to high electricity rates include the State's wildfire framework, which results in high wildfire mitigation and

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[69] Matthew E. Kahn and Erin T. Mansur, "How Do Energy Prices, and Labor and Environmental Regulations Affect Local Manufacturing Employment Dynamics? A Regression Discontinuity Approach," NBER Working Paper 16538, November 2010.
[70] Wolverton, Maryann (Ann), Ronald Shadbegian, and Wayne B. Gray. "The U.S. Manufacturing Sector's Response to Higher Electricity Prices: Evidence from State-Level Renewable Portfolio Standards." SSRN Electronic Journal, November 5, 2025.
[71] Leamer, Edward E. "Housing Really Is the Business Cycle: What Survives the Lessons of 2008–09?" Journal of Money, Credit and Banking 47, no. S1 (2015): 43–50, March 29, 2015.
[72] Brown, C., & Rojanasakul, M. "A climate "shock" is eroding some home values. New data shows how much." The New York Times, November 19, 2025.
[73] "California housing market: House prices & trends." Redfin, October 2025.
[74] "Climate eroding home values."
[75] "SB 695: Electric and Gas Utility Rate Trends Report (Annual Report)." California Public Utilities Commission, September 2025.

liability costs shouldered by utility customers; as well as regulatory uncertainty, reliance on customer rates to subsidize rooftop solar, and investments in the distribution system.[76]

Today, approximately 30-40% of a typical California IOU residential customer's bill reflects State-required programs and policy costs — including the statutory Wildfire Fund surcharge, demand response and energy efficiency, low-income assistance programs, net-energy-metering cost shifts, and other State-directed initiatives.[77] The remaining 60-70% reflects baseline California IOU costs for generation, delivery, operations, and regulatory-authorized earnings.

Utilities have taken actions to lower costs and increase efficiency to mitigate rate increases, including lowering operating and capital costs by working more efficiently and deploying new technologies. For example, in the last three years the Pacific Gas and Electric Company (PG&E) has saved approximately $2.5 billion in operating and capital costs.[78] Southern California Edison (SCE) also notes strong operational performance and forecasts only an inflation-like level rate of growth (2-3% annually) from 2025 to 2028.[79] San Diego Gas & Electric's (SDGE) residential bills have decreased two years in a row (2023-2025), and the company continues to reduce their operating and supply chain costs through strategic initiatives.[80] Other factors, however, including rising financing and infrastructure costs driven by the current wildfire framework, are adversely affecting electricity rates. As California continues to modernize the grid and advance decarbonization, State requirements and higher costs driven by wildfire risk are adversely impacting electricity affordability, increasing costs for customers, and hurting economic opportunity and growth.

The State's current wildfire liability framework compounds these pressures. California IOUs have a duty to serve all customers, including those in high fire risk areas. Under the State's current framework, despite the fact that utilities contribute more than 80% of mitigation funding and have minimal impact over the many factors that contribute to wildfire damages and spread, they solely face the financial consequences if their equipment is linked to an ignition, exposing utilities and their customers to unlimited liability.[81,82] That exposure also increases overall cost of financing grid investments, which ultimately flow through to customers. Urgent action to address these drivers and their

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[76] "SB 695: Annual Report."
[77] "IOU Bill Stack Analysis (Final Report)." Blue Sky Consulting Group, June 30, 2025.
[78] "PG&E's Cost of Capital Application—and What It Means for Customers." PG&E, November 18, 2025.
[79] "Prepared Remarks of Edison International CEO and CFO." Edison International, October 2025.
[80] SDG&E's AL 4129-E for electric rates effective Jan 1, 2023 and AL 4653-E for electric rates effective June 1, 2025.
[81] 2018-2024 average for ignitions chosen over 2020-2024 spend period due to '18-19 having a higher share of utility ignitions (only <1% of ignitions 2020-2024 were utility-driven). Comparable '18-'19 spend data unavailable.
[82] "CAL FIRE Statistics." California Department of Forestry and Fire Protection, December 8, 2025.

impact on the State's electricity cost is critical. The problems with the current wildfire liability framework are further addressed in White Paper 2.

The current litigation system is enormously costly and exposes utilities and their customers to significant risk and uncertainty

California's system of wildfire recovery relies almost entirely on litigation when a utility's equipment causes or is alleged to have caused a fire (and indeed, provides no stable system of recovery when a utility is not the cause of fire). This litigation system is extremely costly and places a disproportionate burden on California's IOUs to pay the entirety of recovery costs, even when factors outside of a utility's control contributed to the damage, as is the case when ignitions become catastrophic wildfires. AB 1054 and SB 254 are important tools that recognized that California IOUs will continue to face the risk of wildfire ignitions linked to utility equipment that may develop into catastrophic events. But they rely on both customer contributions and unsustainable shareholder payments. As the scope of damage in recent catastrophic fires shows, the California Wildfire Fund would not survive a series of losses stemming from fires linked to utility equipment as there is no mechanism to replenish the Fund. The effect of this system is to raise costs for customers directly by exposing them to billions of dollars in wildfire recovery costs and indirectly by increasing the borrowing costs of utilities and exposing those utilities to risks like bankruptcy.

The litigation system dramatically inflates recovery costs and places that enormous burden on utility customers

The current litigation system has driven up recovery costs to an unsustainable level. Because it relies on multi-year and costly litigation, enormous amounts of money are diverted to third parties. Attorneys may collect a third of settlements and, in inverse condemnation cases, have their fees added on top of damages rather than deducted from a claimant's recovery. Additionally, both litigation financing and the acquisition of claims from financially stressed impacted parties can occur. Recent wildfire cases show that litigation financiers have deployed $15-20 billion nationally to fund lawsuits, including major involvement in California wildfire litigation.[83] Public adjusters and mass-tort firms can further increase costs when policyholders assign benefits or rely on representation that deducts substantial fees — in some cases more than 25% — from insurance proceeds or settlements.[84] In all cases, paying these third parties adds billions of dollars to wildfire recovery costs, inflating total costs of the system while reducing the total dollars that go to rebuilding.

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[83] Harris, M., & Bullock, N. "Wall Street funds back wildfire lawsuits against Edison, LADWP." Bloomberg, June 30, 2025.
[84] "Public insurance adjusters." San Mateo County Department of Emergency Management.

Litigation has also produced incentives for attorneys to pursue increasingly expansive categories of damages whenever utility equipment is implicated in a fire — damages far afield of compensation tied to allowing claimants to recover and rebuild. In addition to filing a claim for property damage and economic loss, the litigation industry now routinely pursues an increasing array of ancillary, non-economic, and peripheral claims that add substantial cost while further delaying recovery.

The litigation system disproportionately burdens utility customers

The current system places the entire burden of inflated litigation costs on utilities and their customers if their equipment is linked to an ignition. It does not account for the numerous factors that contribute to that ignition evolving into a wildfire that are outside of a utility's control (like extreme weather, climate change, land management, and suppression); nor for the basic challenge that utilities must serve high-risk areas. The effect is that utilities and their customers face enormous exposure to wildfire claims — much of which goes far beyond providing essential compensation to claimants.

The current system creates uncertainty for cost recovery

The current system also creates uncertainty as to which costs customers and shareholders ultimately bear. Who ultimately bears those costs depends both on allocations of contributions under the current Wildfire Fund regime (AB 1054 and now SB 254), as well as on a prudence review conducted by the CPUC after an event.[85] This structure creates substantial uncertainty through a post-event, backwards-looking standard that remains largely untested. This uncertainty raises perceived financial risk, which increases the cost of utility financing.

White Paper 2 addresses in further detail these significant problems with the current recovery structure.

Unsustainable utility model due to the unpredictability of the current prudence review process that increases utility financial risk

The core strength to the IOU model has been its consistent ability to access large amounts of capital at low cost, enabling customers to benefit from affordable, long-term investment in grid infrastructure, safety, and clean energy. This model works across the country, delivering reliable service and supporting major infrastructure buildouts. In California, however, wildfire liability uncertainty has weakened this advantage, driving up borrowing costs and limiting consistent access to the low-cost financing that is foundational to the model's success.

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[85] "Senate Third Reading: SB 254" California State Legislature, September 10, 2025.

The challenges noted in the above sections can result in enormous, direct burdens on customers to pay for wildfire claims. They also create indirect costs that further undermine affordability. The specter of wildfire risk — before and after a catastrophic wildfire — coupled with regulatory uncertainty as to when and whether customers or shareholders pay, hurts the ability of California utilities to raise money on reasonable terms, making the necessary and ongoing investment in infrastructure and service far more costly to customers.

California's utility borrowing costs are currently higher than peer utilities in the US. Analysis using Bloomberg data shows that on November 18, 2025, California IOU bonds traded up to 40 bps above the median of a defined peer set of non-California electric utilities.[86,87] Moreover, over the course of 2025, California IOU bonds have traded much wider. This reflects investor concerns about California's wildfire liability framework and uncertainty surrounding the durability and the future replenishment of the Wildfire Fund. The resulting increase in financing costs flows directly into higher energy rates, further straining affordability for households and businesses.

Credit analysts across S&P, Moody's, and Fitch note that continued elevated wildfire exposure and risk of fund depletion (leading to the elimination of the cap on shareholder liability and loss of liquidity to pay for claims in the event of a fire) would increase rating pressure on California IOUs. Under these downside scenarios, some California IOUs could face multi-notch downgrades, narrowing or eliminating their investment-grade status. For example, S&P Global notes that "elimination or full depletion of the Wildfire Fund would likely limit PG&E's credit rating to a maximum of 'BB-'," that SCE's "negative outlook reflects the uncertainty regarding the Eaton Fire," "elimination or full depletion of the wildfire fund will likely limit SCE's credit rating to a maximum of BB-," and that SDGE could face a downgrade "if the Fund falls below $5 billion or stand-alone FFO-to-debt weakens below 16%."[88,89,90] Such potential downgrades signal challenging circumstances, underscored by the fact that US electric IOUs almost uniformly hold investment-grade ratings with greater than 90% at BBB or above.[91]

Historical utility-bond data from Bloomberg along with S&P studies show that, depending on the utility, potential two notch downgrades would increase spreads to 55–125 bps

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[86] Bond spreads are market value weighted average of spread vs treasury across all tenors and rating bands (current 'average BVAL G-Spread Bid' calculated in Bloomberg as of 11/18/2025).
[87] Peer set includes Eversource, Entergy, Exelon, National Grid, PSE, Energy, Xcel, Dominion Energy, Duke Energy, AES, Avangrid, Southern Co, AEP; difference in spread is calculated using the median of peer spread.
[88] "Edison International And Subsidiary Downgraded To 'BBB-' On Smaller-Than-Expected Wildfire Fund; Outlook Is Negative." S&P Global Ratings, September 17, 2025.
[89] "Research Update: San Diego Gas & Electric Co. Ratings Affirmed on California Senate Bill 254 Passage; Outlook Stable." S&P Global Ratings, September 19, 2025.
[90] "Research Update: PG&E Corp. Ratings Affirmed On Passing Of California Senate Bill 254." S&P Global Ratings, September 17, 2025.
[91] "2024 Financial Review: Annual Report of the US Investor-Owned Electric Utility Industry." Edison Electric Institute, 2024.

relative to investment-grade peers.[92,93] Applying these spreads to their respective estimated long term debt issuance over the next 5 years (total of $40–45 billion), this would lead to roughly $500 million in additional annual interest costs driven by wildfire liability-related credit conditions alone. [94,95,96] As long-term utility debt is issued at fixed rates, these higher spreads would remain embedded in financing costs for decades, resulting in an additional $7.5–15 billion in interest expense over 15–30 years — even if wildfire-related uncertainty subsides later. Because utility financing costs are recovered through customer rates, households and businesses statewide would bear these higher costs.

In short, a Wildfire Fund at risk of depletion and unpredictable cost recovery increases credit risk; higher credit risk widens spreads; and wider spreads raise costs for California utility customers while undermining the investment needed for the State's clean-energy transition.

Higher cost of financing when shareholders are exposed to contributions even when utilities operate prudently

A modern energy system depends on affordable financing. When the cost of financing becomes more expensive, energy becomes more expensive — regardless of how efficiently utilities operate. California's utilities are being priced by financial markets as if wildfire liability may not be reliably contained. That hurts all Californians because the cost of financing factors into what customers (both for IOU and publicly-owned utilities) spend on energy, how fast the grid can be expanded and modernized, and ultimately whether California can meet its climate and other energy policy goals.

California utility customers are hurt by the dramatic valuation discounts and low credit quality occurring today. These elements increase costs and add risk to the IOUs' ability to deliver safe, reliable energy. Utilities need dependable access to capital during the most difficult conditions — wildfires, heat waves, and broader financial stress — and must be able to raise funds even when markets are strained to support public safety, outage response, and critical infrastructure. This was apparent in the 2008 Global Financial Crisis, when financial markets were closed to corporations for a period of time, but regulated

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[92] "The Cost Of A Notch: The Cost Of Becoming A Fallen Angel Holds Steady Despite Market Volatility." S&P Global Ratings, August 19, 2025.

[93] As of Nov 2025, PG&E, SCE, and SDGE currently trade at 36, 37, and 1 bps above peer median and, as of Sep 2025, rated by S&P global at BB, BBB- and BBB+ respectively. Assuming two notch downgrades, PG&E, SCE, and SDGE would be rated at B+, BB and BBB- respectively. As per S&P ("The Cost of a Notch"), transitions from their current rating to the expected rating after downgrades would increase the spread for PG&E, SCE, and SDGE by 91,88, and 54 bps respectively. Adding current spreads vs peers to expected increase after downgrades, PG&E, SCE, and SDGE would be 127,125, and 55 bps higher than current peer median respectively.

[94] Annual average debt projections estimated based on financing authority applications (PG&E: Application 24-10-023; SCE: Application 25-06-007 9. SDGE Co: 2026 Cost of capital testimony), scaled up linearly for 5 years to estimate debt issuance over 5 years for PG&E (~$25B), SCE (~$12.5 B), and SDGE(~$5.3B) and summed up across PG&E, SCE, and SDGE.

[95] Estimated debt issuance is for both new capex and refinancing of maturing debt.

[96] Each IOU's potential difference in spread relative to peers multiplied by their respective estimated debt issuance sums to annual additional interest expense of ~$500 million.

utilities were able to continue to raise capital to ensure continuous provision of energy service. When liability exposure is highly uncertain or difficult for investors to assess, this access is at risk, capital is invested elsewhere, and customers and the economy pay the price.

After the LA fires in January 2025, many questioned the durability of the Wildfire Fund created by AB 1054. Independent estimates from Los Angeles County's Institute for Applied Economics put direct property damage from the Palisades and Eaton fires at $28–54 billion.[97] Although only the Eaton Fire is within the scope of the Wildfire Fund, concern grew about the durability of the Wildfire Fund and utility exposure to future catastrophic wildfires.

The consequences were immediate. In the four months after the January 2025 fires, the combined equity value of PG&E, SCE, and Sempra fell by roughly $25 billion, from $131 billion to about $105 billion.[98] In particular, PG&E's and Sempra's equity value dropped even though they were not involved in the LA fires. Bond markets signaled a similar story with credit spreads widening along with falling equity value. These movements reflected a higher perceived probability of future wildfire losses without a durable fund.

In response, the Legislature enacted SB 254, which creates a Continuation Account of the Wildfire Fund of up to $18 billion in additional contribution that can be used to reimburse the costs of claims for future covered wildfires. This had a mixed impact on the California IOUs' credit ratings and concerns persist about the sustainability of the Wildfire Fund and the State's wildfire recovery system.

Valuation multiples underscore the point. On fundamentals alone, California's utilities should be entering a sustained period of strong load growth driven by generative artificial intelligence (GenAI) data centers, electrification, and electric vehicle (EV) adoption. Yet their current price-to-earning (P/E) ratios reflect deep concern rather than optimism. Based on earnings per share (EPS) forecasts for the next 12 months, PG&E and SCE trade at roughly 9.5-10.5x earnings, compared to non-California peers' average of 19.5x with some utilities trading as high as 21x.[99] In today's market, single-digit P/E multiples signal distress: for example, the next lowest regulated utility in the S&P 500 Utilities Index, Eversource, trades at 13-14x or over 40% higher than PG&E and SCE. The California IOUs' deep discount, despite favorable growth prospects, is a clear signal that wildfire liability uncertainty is influencing California IOU's access to financial markets and the cost of

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[97] "Preliminary Economic Impact Analysis of the Los Angeles Fires (Palisades Fire & Eaton Fire)." Institute for Applied Economics, Los Angeles County Economic Development Corporation, January 21, 2025.
[98] According to Capital IQ, between Dec 30, 2024, and April 30, 2025, market value of Sempra, PG&E and SCE dropped from $56 billion, $44 billion and $31 billion to $48 billion, $36 billion and $21 billion respectively.
[99] Capital IQ data as of November 2025; Non-CA peers include Eversource, Entergy, Exelon, PSEG, Xcel, Dominion Energy, Duke Energy, NextEra, AES, First Energy, Southern Co, Avangrid and AEP; as of Nov 202; CapIQ data shows NextEra Energy 2025 Forward P/E at 21.88.

financing. What is more, these valuations have severely constrained access to traditional equity markets for California IOUs. Unless the State takes decisive action to address the wildfire problem comprehensively, California's access to affordable long-term funding for critical infrastructure investments surely will be jeopardized.

These market reactions translate into higher energy rates for customers. Long-term infrastructure financing — reducing fire risk, integrating clean energy into the grid, electrifying legacy systems, building transmission lines, and connecting new homes and businesses to the grid — require access to the financial markets. If investors require higher returns because they cannot gauge liability risk or perceive other investments to be more stable, those higher costs find their way into rising monthly bills and delayed infrastructure that compromises reliability and hurts economic development.

Over the past decade, California has required utility shareholders to absorb major financial losses to stabilize the State's wildfire liability system on two separate occasions. AB 1054 required an approximately $10.5 billion in mandated funding for the Wildfire Fund. [100] SB 254 requires another major shareholder contribution — $300 million annually from 2029 to 2045, with an additional $3.9 billion callable if needed to sustain the Wildfire Fund.[101] Despite this, the current framework still leaves open the possibility of additional uncertain exposure after extreme events at a level that not only raises the cost of financing but increasingly drives investors to simply stay away from California utilities altogether. As mentioned above, by today's valuations, access to traditional equity markets is severely constrained for California IOUs, meaning the State risks losing access to the affordable capital required to modernize the grid, reduce wildfire risk, and meet its clean-energy goals.

In effect, Californians are already paying an invisible "wildfire risk tax" in utility rates, not because utilities are performing poorly, but because the liability framework itself is uncertain and flawed. And without reform, that tax will only grow as investors demand even higher returns and capital becomes less available.

Inflated wildfire liability costs threaten utility stability with potential resulting bankruptcy imposing severe and long-lasting costs on Californians

Even before a utility is potentially pushed into bankruptcy, a system that exposes utilities to the risk of bankruptcy if a catastrophic wildfire occurs leads directly to an elevated cost of financing, as investors assess that risk into required returns. Utilities perceived as highly risky — especially those with sub-investment-grade credit ratings — tend to attract non-traditional investors whose objectives may not align with customer or State policy goals.

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[100] "AB 1054."
[101] "SB 254."

This dynamic constrains access to affordable capital, further raising the risk of financial distress and ultimately increasing costs for customers.

If wildfire damages exceed a utility's financial capacity, however, bankruptcy may become unavoidable. In that circumstance, impacted parties may be unable to receive full compensation, and essential investments in safety, reliability, and decarbonization may be delayed or curtailed. Bankruptcy proceedings have significant negative impacts on many stakeholders. But beyond these operational and financial harms, a third IOU bankruptcy in California would send a far more consequential signal to capital markets: that insolvency is an accepted or recurring feature of the State's regulatory construct. If investors come to believe that utilities can again be pushed into bankruptcy by forces outside their control, the broader question becomes who will continue to finance California's energy system at all — and at what cost.

The direct and indirect costs of bankruptcy are substantial — typically on the order of 6-17% of firm value in the three years before announcement — and the consequences are borne by customers and communities.[102] The 2017 bankruptcy of the Puerto Rican Electric Power Authority (PREPA), for example, has coincided with chronic underfunding of maintenance, worsening reliability metrics, and increased outage frequency and duration for residents and businesses.[103,104] Similarly, the bankruptcies of Jefferson County in Alabama in 2011, San Bernardino, CA in 2012, and Detroit, MI in 2013 all led to degradations in public services including in essential municipal tasks like policing and trash collection.

A utility bankruptcy could also ripple through the communities where employees live and work. Customers could face even higher costs as the company restructures, with potentially diminished investment in wildfire prevention and clean energy initiatives.[105] Workers may face layoffs or uncertainty, and local contractors, suppliers, and small businesses could see projects halted — disrupting income for thousands of families. Government agencies may need to devote resources to oversee compensation and ensure service continuity during restructuring, while independent power producers face increased counterparty risk as bankruptcy can disrupt or delay payment obligations. In short,

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[102] Singh Bhabra, Gurmeet, and Yuan Yao. "Is Bankruptcy Costly? Recent Evidence on the Magnitude and Determinants of Indirect Bankruptcy Costs." Journal of Applied Finance & Banking, 1792–6599, 2011.

[103] Kunkel, Cathy. "New Puerto Rico oversight board members to face same fundamental challenges." Institute for Energy Economics and Financial Analysis, September 2025.

[104] "LUMA'S REPORT: Q4 METRICS SHOW LACK of FUNDING LEADING to LONGER and MORE FREQUENT OUTAGES." LUMA, July 22, 2025.

[105] Macwilliams, John; Monaca, Sarah; and Kobus, James. "PG&E: MARKET and POLICY PERSPECTIVES on the FIRST CLIMATE CHANGE BANKRUPTCY." Columbia University, August 2019.

bankruptcy harms not just shareholders, but the workforce, customers, and community institutions that depend on a stable utility system.

Beyond financial impacts, bankruptcy can disrupt core operations at the very moment California needs accelerated investment in grid hardening, wildfire mitigation, and clean-energy infrastructure. Bankruptcy also transfers control away from management, long-term investors, and local regulators, shifting the focus from long-term resilience to short-term financial recovery. This can result in suboptimal long-term decisions and deter private investment in regional energy-transition projects, where developers may perceive greater legal and financial instability. The bankruptcy court must approve all the company's major decisions after hearing from numerous interested parties. After a wildfire, this can delay compensation for those impacted and significantly hamper recovery investments. Abankruptcy can also create spillover effects for other industry peers in the State, raising risk perception and credit spreads across the sector.[106]

In short, catastrophic wildfire losses do not end with corporate insolvency — they cascade into delayed compensation, higher rates, reduced grid investment, slower decarbonization, and reduced economic competitiveness.

Figure 5: Wildfire-related utility bankruptcy risk impacts multiple stakeholders

Stakeholder	Impact on stakeholder
Utility customers and employees	• Customer impact: higher rates may result from bankruptcy-related professional costs (e.g., legal and accounting costs) or higher financing costs if credit ratings remain depressed post-bankruptcy • Employees impact: potential for job cuts (e.g., 500 layoffs during Jefferson County bankruptcy)[107], uncertainty over union labor contracts, or impact to employee earnings
Californians/taxpayers	• Access to capital for grid upgrades, decarbonization, and data center potentially restricted by credit downgrades • Wildfire mitigation upgrades and other critical investments potentially delayed by court-imposed capex constraints, increasing wildfire risk
Sectoral peers and counterparties	• Increased industry risk perceptions due to bankruptcy filings, raising financing costs and distrust in regional energy projects from perceived instability • Potential credit risk downgrades for Independent Power Producers (IPPs), transmission developers and other supply chain partners due to increased counterparty risk
Impacted communities	• Under-compensation risk, if liabilities exceed combined fund and utility financial capacity

[106] Jorion, Philippe, and Gaiyan Zhang. "Good and Bad Credit Contagion: Evidence from Credit Default Swaps." *Journal of Financial Economics* 84, no. 3, June 2007.

[107] "Jefferson County, Ala., files for Chapter 9 bankruptcy", SmartCitiesDive, November 10, 2011.

	• Delayed compensation risk, due to court processes and claims from creditors

Challenge 3: California's wildfire litigation framework leaves those impacted by wildfires with slow and unequal compensation, delaying post-fire rebuild and escalating system costs

As discussed in greater detail in White Paper 2, California's current wildfire recovery framework is problematic not only for utilities and their customers, but also for those directly affected by wildfires.

For wildfires not linked to utilities, impacted parties must rely on a combination of private insurance, potentially unreliable access to federal disaster assistance, and personal resources — support that can be likely insufficient to fully rebuild. These limitations mean that absent a financially viable defendant, those affected by catastrophic wildfires face substantial financial strain and slower, less complete rebuilding, if able to rebuild at all. These are inequities that are likely to intensify as wildfire risk grows. The disparity was evident in the aftermath of the 2025 LA fires, where communities affected by the Eaton fire, which may have involved utility equipment, were able to access a dedicated direct-claims program providing faster and more certain financial support. In contrast, those affected by the Palisades Fire, ignited by an individual's action, lacked any comparable mechanism and faced significant uncertainty in securing recovery.

Challenge 4: California's wildfire liability regime increases long-term electricity costs and undermines the State's clean energy and decarbonization objectives

California aims to achieve a carbon-neutral economy by 2045, driven largely by a rapid transition to clean electricity, electrification of transportation, and electrification of buildings. The State has set targets for 100% zero-carbon electricity by 2045 and plans to dramatically expand solar, wind, battery storage, and transmission infrastructure as well as pushing for widespread adoption of electric vehicles.[108] Alongside these efforts, California and its utilities are investing in grid reliability and wildfire resilience to ensure an equitable and stable energy transition. Efforts to decarbonize California's electricity grid are challenged, however, by the specter of increased wildfire costs and the current system for handling those costs.

These factors impact the transition in two ways. First, the current wildfire system increases the cost of electricity significantly. One analysis found that ongoing increases in consumer electricity costs can have a significant impact on the adoption of electrification

[108] "California releases world's first plan to achieve net zero carbon pollution." California Governor's Office, November 16, 2022.

technologies. This is because electrification of transportation, buildings, and appliances is a cornerstone of the energy transition and is partially incentivized by cost savings associated with the shift away from fossil fuels.[109]

Second, California's current system creates significant long-term tradeoffs between securing the capital needed for the energy transition and maintaining customer affordability. To meet California's energy transition goals, IOUs must invest $60–100 billion in transmission and distribution upgrades ($46–63 billion in transmission and $17–38 billion in distribution).[110,111,112] However, the existing framework raises the cost of financing these investments, both by increasing borrowing costs and by requiring equity holders to seek higher returns in order to commit large, long-duration capital while also taking on unlimited and unpredictable wildfire-related exposure. Over 20 years, higher borrowing costs, resulting from potential downgrades, attributed to the current system alone could add an estimated $7–11 billion of customer costs to the long-term debt portion of required investments.[113,114]

Potential mechanism to improve affordability

California has several potential pathways to reduce system costs and improve affordability. Greater details on potential pathways are described in White Paper 2. One possible feature of any of these pathways is a State backstop for extreme event losses. Such a mechanism could be designed to be more progressive than today's regressive approach, in which wildfire-related charges embedded in utility rates represent a much large share of income for lower-income households — in some cases 2-5 times the share paid by higher-income Californians. Instead of relying on an increase in utility bills to cover extreme catastrophic losses, something that disproportionately impacts lower-income Californians, this system could share costs more equitably across society. It would also align coverage for extreme fire losses with the reality that no single party is responsible for all the conditions that lead to catastrophic wildfires. A State backstop can stabilize the

[109] "Unlocking California's Climate Ambition". Boston Consulting Group, July 30, 2024.
[110] "2024 20-Year Transmission Outlook." California ISO, July 31, 2024.
[111] "Distribution Grid Electrification Model 2025 Findings". The Public Advocates Office, October 30, 2025.
[112] Transmission costs do not include transmission that has already been approved by the ISO and is under development, but not yet in service; These values represent the capital cost of the identified projects, several are currently being developed under a subscriber model with the transmission costs incorporated into the electricity costs – and not rate-base projects receiving cost-of-service cost recovery that would be added to ISO transmission access charges.
[113] As calculated in section 2, with potential downgrades, higher cost of debt relative to peers estimated for PG&E, SCE and SDGE to be at 127 bps, 125 bps and 55 bps respectively. Transmission investment requirements assumed to be split between PG&E, SDGE and SCE in the ratio of 48%, 43% and 9% as per ratio of total revenues in 2024. Distribution investments reported by Distribution Grid Electrification Model 2025 Findings for PG&E ($10-18 billion), SCE ($6-7 billion) and SDGE ($1-3 billion) respectively.
[114] Authorized long term debt % in the capital structure assumed to be constant at levels of June 2024 (PG&E: 47%, SCE: 43%, SDGE: 45%); Estimated annual impact = Difference in cost of debt * Investments needed * % authorized long term debt; Assuming deb tenor of 20 years, estimated total impact = estimated annual impact multiplied by 20.

financial impact of catastrophic wildfire events, draw on broader funding sources, and alleviate pressure on household energy bills and insurance premiums.

A State backstop can prevent catastrophic costs from concentrating on utility customers and insurance policyholders

California's largest wildfires can generate losses far beyond the capacity of utilities, insurers, or any single risk pool to absorb on their own. In the absence of a backstop, these extraordinary losses must eventually be recovered through utility customer bills or insurance premiums, creating spikes in costs or insolvency at the same moment communities are trying to rebuild, and in some cases may leave many uninsured and underinsured individuals and families with no recourse. A State backstop could spread extreme, low-probability losses across a broader base, in a more progressive manner. As it stands today, most state's general fund revenues (approximately 75%) come from highly progressive taxes. This contrasts with traditional revenue structures that burden customers across income levels, where Californians in the 10th income percentile spend upward of 4% of their income on electric utilities while Californians in the 90th percentile spend less than 1%.[115]

By smoothing the impact of these tail events, a State backstop prevents concentrated rate or premium shocks and protects affordability for households and businesses. Several international models demonstrate this structure: under France's Catastrophes Naturelles (CatNat) program, the national government provides an unlimited guarantee above private insurance layers, ensuring that extreme, low-frequency losses do not fall on policyholders or insurers alone but are absorbed by a broad national funding base. Similarly, Florida's Hurricane Catastrophe Fund (FHCF) provides a state-backed guarantee to insurers following an extreme hurricane. The existence of this backstop has helped to stabilize insurance markets at a time when catastrophic hurricane risk is also increasing.

A State backstop can stabilize the cost to borrow, reducing long-term affordability pressures

As detailed above, utilities rely on access to affordable capital to finance wildfire mitigation, undergrounding, grid modernization, and clean-energy infrastructure. By absorbing the unbounded downside associated with the most extreme wildfire events, a backstop can lower financing cost and help restrain long-term energy rate increases for utility customers. A state backstop can also help support more accessible and affordable insurance for homeowners and businesses.

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[115] "Low-Income Households Struggle with the Cost of Electricity Bills." Public Policy Institute of California, August 12, 2025.

Whole-of-society collaboration for recovery and mitigation

California's current wildfire landscape makes clear that incremental fixes are no longer enough: the State needs a fundamentally different approach that both reduces the likelihood and severity of catastrophic fires and ensures that, when they do occur, people and communities can recover without threatening affordability or system stability. This white paper has outlined characteristics of today's framework that contribute to the flaws — concentrating risk on a narrow set of actors, over-relying on litigation, under-investing in mitigation, and leaving recovery outcomes dependent on who or what caused the fire. The path forward requires a whole-of-society architecture that matches the scale and shared nature of the risk: one that aligns incentives across utilities, insurers, governments, communities, and property owners while broadening and progressively financing mitigation and recovery.

In the white papers that follow, we explore what such a system could look like in practice.

White Paper 2

The current system for recovery after wildfire is flawed. White Paper 2 analyses the core problems with that system, including its enormous and unsustainable costs, the way it disserves claimants, and the burdens it places on utility customers. The paper identifies critical features needed in a reformed system, including reduced overall system costs, accelerated compensation relative to the litigation process, broader socialization of catastrophic costs, improved access to insurance, and compensation for claimants regardless of the cause of fire. The paper finally explores the models other states and countries have adopted to address similar perils. These models are presented to illustrate a range of possible design constructs that may be integrated into different combinations, rather than as prescriptive recommendations. Examples of relevant design features include taxpayer-backed reinsurance mechanisms, such as France's CatNat program; socialized payment structures tied to liability limits, as reflected in the Price-Anderson Nuclear Industries Indemnity Act; and administrative claims processes capable of delivering fast, predictable compensation, such as those used by the September 11th Victim Compensation Fund.

White Paper 3

California's utilities have made substantial investments in wildfire mitigation, yet implementation frictions such as regulatory approval timelines, permitting complexity, and funding uncertainty continue to delay or dilute the impact and cost efficiency of these efforts. Two categories of friction limit the effectiveness of current spending. The first is improving the predictability of the regulatory framework for sequencing, execution planning, and funding approval, which would help utilities plan and deliver mitigation work

more efficiently. Streamlining post-approval processes like resource permitting would accelerate execution once projects are authorized. The second is insufficient coordination with other actors. Aligning mitigation planning cycles with land managers and establishing frameworks for joint mitigation efforts and community resilience partnerships would enable coordinated approaches that achieve greater risk reduction per dollar spent. Addressing these frictions would accelerate project timelines, unlock economies of scale, and deliver faster, more durable community resilience outcomes.

White Paper 4

Achieving durable wildfire risk reduction in California requires a whole-of-society approach that mobilizes coordinated action across utilities, governments at all levels, insurers, landowners, and communities. While California stakeholders invest approximately $13 billion annually in mitigation and suppression, significant opportunities remain to remove risks, for example, via community hardening, landscape-scale vegetation management, and suppression. Realizing these opportunities requires two mutually reinforcing goals: first, increasing effort and effective engagement from a broader group of stakeholders through shared accountability mechanisms and clear performance expectations. Second, reducing barriers to implementation by streamlining execution processes, ensuring predictable and stable funding, aligning incentives, and improving access to data and decision-making tools. These approaches aim to continue to support risk buy-down, lower total costs, and improve affordability for Californians — including more accessible insurance and reduced electricity costs.

White Paper 2: The current litigation-based wildfire recovery system disserves those impacted by fires, the State, and utility customers

Executive summary

Today, when a catastrophic wildfire occurs in California, the response has become all too familiar. If an investor-owned utility (IOU) is alleged to be responsible, thousands of suits follow — leading to lengthy and costly litigation that delays compensation and diverts billions of dollars away from those impacted by the fire, and toward third parties and transaction costs. Under that litigation system, utilities often bear the ultimate costs for a wildfire linked to their equipment, despite the fact that the scope of any such wildfire is influenced by numerous causes outside of any one entity's control, including high wind and drought, housing development patterns, land and fuel management, and fire suppression. That burden is exacerbated by inverse condemnation, which exposes utilities

to property loss regardless of fault, and regulatory cost recovery, which is uncertain. And under the regulatory compact, such costs are typically borne by utility customers — who pay both directly for claims and indirectly through the higher costs the utility must pay to finance its operations.

To fund that system of litigation recovery, California has had to set aside billions of dollars from utility customers and shareholders, exacerbating energy affordability challenges in service of a recovery framework that is not sustainable and does not reflect the collective challenge of catastrophic wildfires. By contrast, if a catastrophic wildfire occurs and no utility is alleged to be responsible, then the litigation system includes no parallel mechanism for recovery for those impacted by the wildfire at all. That gap jeopardizes the availability of affordable insurance, adds to California's already high housing costs, and leaves those affected by such a fire with far fewer resources to rebuild their lives.

A cornerstone of reforming California's approach to wildfires is improving its system for wildfire recovery. A new system can and should incorporate reforms that: reduce the enormous costs of resolving claims; compensate those impacted by a fire more rapidly and predictably than the current litigation system; help to address broader issues like the availability of affordable insurance and housing; and socialize risk in a way that reflects the multitude of factors that contribute to wildfires. These reforms will reduce the excessive burden that utilities and their customers currently bear and will pave the way to an improved system that provides recovery regardless of a fire's cause. Such changes can and should complement needed reforms to incentivize and improve wildfire mitigation, which are addressed further in White Papers 3 and 4.

This paper addresses the core challenges in the current litigation-based wildfire recovery system, articulates key goals for improving that system, and identifies several precedents from other states that show how other lawmakers have addressed analogous issues through frameworks that can inspire creative solutions that are right for California.

Challenge 1: California's litigation-based wildfire recovery system is far too costly for the State

California's wildfire recovery system relies heavily on litigation to compensate claimants in the wake of a fire. Litigation provides nothing to claimants if a fire is caused by any cause other than a utility — including lightning, other natural causes, or individuals. But even when litigation provides an available avenue for relief, it is costly, time-consuming, and inefficient. Reducing the costs of compensating impacted parties after a fire is thus critical to improving California's recovery system. Cost reduction is necessary for the State to provide its residents with access to affordable energy and insurance. It is also a critical

step to developing a recovery system that can provide relief to impacted parties regardless of the cause of a wildfire at an affordable cost to the State.

Two aspects of the current system contribute to escalating and unsustainable costs. First, the litigation system diverts enormous and disproportional amounts of money to unaffected third parties, including attorneys and litigation funders, rather than directly to those impacted by the fire. Such costs are a direct result of an expensive and drawn-out litigation regime. Second, the system increasingly recognizes expansive forms of damages far beyond direct compensation for property damage or physical injury or death. These forms of recovery are often unpredictable and inflated, which can drive up the overall cost of resolving the fire. That, in turn, exacerbates affordability problems that hurt all customers in the form of higher electricity and insurance costs (see White Paper 1). Paying for these types of damages also reduces funds available to pay direct compensation to wildfire victims who need it most.

Challenge 1a: The current litigation process for resolution of wildfire claims is highly inefficient and costly

As an initial matter, the current system allocates substantial funds to attorneys. Indeed, in large wildfire settlements, plaintiffs' attorneys often receive a percentage of total recoveries, typically a third of the total settlement value after payment of experts and administrative costs.[116] Given the scale of recent wildfire settlements in California, that can represent billions of dollars that are paid out, but do not go toward those impacted by the fire and the rebuilding of homes and communities.

Attorneys are not the only third parties recovering substantial funds through the status quo. Litigation is costly to pursue, and it can take years for a claim to wind its way through the courts to resolution. Claimants may sell their claims to third parties at a discounted rate in exchange for immediate payment, rather than endure long waits for recovery without certainty. Insurers also sometimes sell their subrogation claims to hedge funds and other profit-motivated intermediaries, typically at least in part to support immediate liquidity.[117,118,119,120,121] The effect of such sales by claimants, including insurers, is that these third parties, which are often out-of-state hedge funds with no connection to California, then pursue claims for profit — seeking additional recovery beyond what they

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[116] David A. Hyman, et al., *The economics of plaintiff-side personal injury practice*. 2015 U. Ill. L. Rev. 1563, 1563–1604 (2015); "Wall Street Backs Los Angeles Wildfire Lawsuits, Chasing Billions." Bloomberg, June 30, 2025 (identifying law firm contingency fees in wildfire cases as around "25% to 40%" of recoveries).
[117] "Wall Street Backs Los Angeles Wildfire Lawsuits, Chasing Billions."
[118] Bloomberg, June 30, 2025; "How Wall Street Hedge Funds Are Gambling Millions on Eaton Fire Insurance Claims." L.A. Times, June 24, 2025.
[119] "Hedge Funds Are Hunting Deals in Risk Scenarios Too Big for Insurers." Bloomberg, Apr. 6, 2025.
[120] Hedge Funds Face California Rebuke Over Role in Wildfire Claims." Bloomberg, June 9, 2025.
[121] "Baupost Collects $3 Billion Wagering on PG&E's Wildfire Claims." Bloomberg, Aug. 21, 2020.

paid impacted parties. That places control of the litigation in the hands of parties that have little interest in protecting claimants, insurers, or the interests of the State. And it inflates the cost of resolution in a way that does not result in a single additional dollar going to a person impacted by a fire.

Policyholders may also turn to litigation funders to pursue claims against insurers in exchange for a share of eventual recoveries. As insurers face growing litigation exposure and higher loss ratios, some reduce coverage or withdraw from high-risk regions, leaving more property owners underinsured or left with the FAIR plan.[122,123,124] Higher litigation costs ripple into higher insurance costs, higher housing costs, and higher utility rates, all of which contribute to our State's affordability challenges.

An improved system of recovery can and should greatly reduce these costs. Compensation should go to wildfire recovery, not to third parties seeking profit.

Challenge 1b: Litigation incentivizes parties to identify and pursue expansive categories of compensation far beyond essential payment for property loss and physical injury

The litigation system gives little attention to societal interests like energy affordability or sustainable compensation. That is a function of a system in which attorneys develop new damages theories to maximize recovery — with no concern for preserving the money in the Wildfire Fund (and now Continuation Account) to pay for future fires or protecting customer and shareholder investments in that fund. The effect is that lawyers often seek forms of recovery that extend far beyond direct compensation for economic property loss or physical injury (that is, money necessary for people to rebuild their homes and lives).

One example is a California statute that provides for recovery of attorney's fees in inverse condemnation cases. Lawyers should be fairly compensated for representing clients, and in normal tort litigation that is usually accomplished through reasonable contingency fee arrangements. But the statute that provides for recovery of attorney's fees in inverse condemnation cases adds another layer of costs. In a wildfire case in which a lawyer represents hundreds or thousands of claimants, adding attorney's fees to the recovery of property damage substantially inflates the cost of resolving claims.

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[122] "Over the past decade, major wildfire events coupled with a regulatory environment that has not supported the incorporation of wildfire loss costs based on catastrophe models into rate-making have led some private insurers to pull back from offering coverage in high-risk areas, including not renewing policies. ...Without insurance, homeowners are left vulnerable to potentially catastrophic losses after a wildfire. Even when homeowners go for the FAIR Plan, they may opt for limited coverage owing to the high premium." See "Addressing the Insurance Gap and the Hidden Risks for California Homeowners in Wildfire-Prone Areas." Moody's, Jan. 27, 2025.

[123] "California's Wildfires May Also Be Catastrophic for Its Insurance Market." NPR, Jan. 13, 2025.

[124] "It's Not Just State Farm. Allstate No Longer Sells New Home Insurance Policies in California." L.A. Times, June 2, 2023.

Non-economic damages arising from the loss of property caused by a wildfire are another example. Unlike economic property loss, claims for non-economic damages (e.g., emotional distress and inconvenience caused by property loss) are not tied to any objective measure but are based on discretionary determinations. This exposes utility customers to unbounded liability for non-economic damages when a wildfire linked to utility equipment results in property damage. In Oregon cases against PacifiCorp, for example, verdicts for non-economic damages in favor of plaintiffs who lost property have exceeded verdicts for economic damages by an order of magnitude.

Other examples of non-traditional damages claims that increase costs include claims arising from alleged physical injuries that are not based on traditional physical trauma (particularly where "physical injury" is claimed to arise from exposure to smoke and ash); claims for the cost to replace mature trees; and claims for property damage based on smoke and ash deposits outside the fire perimeter. Such damages are not a traditional form of compensation for direct property loss or physical injury and are susceptible to subjective and inconsistent judgments.

A number of states have recognized the potential effect of wildfire litigation on affordability and have enacted reforms limiting certain non-economic damages as a customer-protection mechanism. California adopted similar limits in medical malpractice cases.

The wide scope and subjective valuation of this broad range of claims contribute to higher costs and greater complexity across the entire wildfire recovery system. Those costs have multiple effects. They threaten the sustainability of a system that increasingly relies on utilities, and their customers, to fund these recoveries. And they create costly barriers to enacting a better system that compensates those impacted by a wildfire regardless of the wildfire's cause.

Challenge 2: The current system harms claimants through delayed and inconsistent recoveries

The current litigation system is not only cost prohibitive. It is also bad for the claimants themselves. That is so for at least two reasons.

Challenge 2a: The current litigation system is slow and inefficient

First, the litigation system is not designed to provide accelerated compensation to claimants. Litigation, by its nature, is long and time-consuming, and that is especially true in cases involving numerous claimants with fact-specific claims. Catastrophic wildfire cases, in particular, often involve thousands of plaintiffs represented by dozens of law firms. The effect can be that any particular claimant must await years of litigation before

their claim is resolved — and before they recover money from a defendant. Claims arising from wildfires in 2017, 2018, and 2019 are still pending in the courts.

Faster access to recovery is essential so that those affected by catastrophic wildfires receive financial support to stabilize their lives, avoid prolonged displacement, and begin rebuilding without years of uncertainty.

Challenge 2b: The current system's reliance on litigation to compensate claimants provides limited recourse if there is no utility to sue

Under the current system, recovery outcomes also differ enormously depending on a wildfire's ignition source, leaving many impacted parties with less support despite similar losses. That is because, unless a utility causes a fire, there is generally no one to sue who possesses resources even near the level necessary to cover compensation to those impacted. Indeed, that dynamic can also lead to lawsuits against utilities for fires they did not cause — in an attempt to recover funds that, absent that causal connection, are simply not available. That illustrates the inequality in the current system, even as it further drives up utility and customer costs (as addressed in Problem 3).

The sharp divide between wildfires that lead to mass litigation, and those that do not, exacerbates broader inequalities that already exist. Those include whether those impacted by a fire were able to afford sufficient insurance, as well as where they built (and could afford to build) their homes. Indeed, White Paper 1 explains how renters and lower-income households typically experience the slowest recovery times and longest periods of displacement. A system defined by inequality of outcomes is not good for the State.

Challenge 3: The current system places far too much financial exposure on utilities, inevitably leading to higher energy rates for customers

Challenge 3a: California's wildfire recovery system places a disproportionate burden on utilities to pay for a wildfire recovery caused by their equipment, irrespective of fault

Under California's liability framework, when a wildfire is linked to utility equipment, utilities and their customers are the primary payers for wildfire damages, even when multiple factors wholly outside of their control such as high wind and drought, housing development patterns, land and fuel management, and fire suppression play major roles in turning ignitions into large-scale catastrophes. An electric utility also has a duty to serve: unlike other companies, a utility cannot avoid serving high wildfire risk areas. And, as addressed further in White Paper 3, a utility's risk mitigation efforts are themselves governed by regulators — and must account for the costs and benefits of measures that are paid for by customers. These factors ensure that wildfire risk is not just a "utility

problem": it is a function of numerous issues that require collective solutions — and that make wildfire risk inherent in the provision of electricity (an essential service). But the current litigation system does not account for these numerous risks — and the way they can transform a small ignition into a larger conflagration. It instead exposes a utility and its customers to the entirety of the cost of a wildfire caused by utility equipment, despite the fact that the spread of a wildfire is almost entirely outside the utility's control. That not only places too great a burden on utility customers but removes important incentives for broader mitigation across actors who do have more control over spread.

California utilities are subject to inverse condemnation. As applied by the courts to date, inverse condemnation claims expose utilities to liability for property damage caused by a wildfire linked to their equipment regardless of whether they are at fault (i.e., strictly liable).[125,126] The rationale of inverse condemnation is that property damage associated with the provision of public services (for instance, electricity) should and could be socialized across the population. To the extent utilities are able to recover the costs of resolving those claims from their customers through regulated rates and/or customer contributions to a wildfire fund, socialization occurs among utility ratepayers. This cost socialization is central to the purpose of inverse condemnation; it is automatic for publicly-owned utilities, who pass claims costs along to their ratepayers, and is also essential for IOUs providing this essential service to the public. But socialization of property damages through utility rates is a regressive solution, as utility rates are less progressive than tax revenues, which is the normal way that inverse condemnation claims are paid. And, as discussed below, the harms are made worse because they are combined with uncertainty about the utilities' ability to fully recover the costs from their customers — uncertainty that increases the IOUs' cost of capital and, ultimately, customer rates.

Imposing unlimited liability on utilities and their customers for wildfire damages increases electricity rates. That creates ongoing affordability problems (addressed in detail in White Paper 1). It makes the Wildfire Fund and Continuation Account unsustainable long-term solutions to address wildfire recovery. And it increases the risk that there simply will not be enough funding through those mechanisms to cover the claims from a wildfire, creating a risk of enormous rate increases and, potentially, another utility bankruptcy that would leave claimants without adequate recourse and would have a series of other negative consequences for many stakeholders.

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[125] *Pacific Bell v. Soutnaturellehern Cal. Edison*, 208 Cal. App. 4th 1400 (2012).

[126] *Barham v. Southern Cal. Edison*, 74 Cal. App. 4th 744 (1999).

Challenge 3b: Uncertain cost recovery for IOUs exacerbates these affordability problems by increasing the burden on customers

Customers do not only pay for wildfires through direct payments to settle or resolve claims. They also pay indirectly, through increased rates caused by rating agency and investor assessment of wildfire risk in California. That problem is compounded by the current recovery system's process for determining when costs to resolve wildfire claims are passed on to customers. A system that routinely exposes IOUs to open-ended liability without a clear and predictable path to regulatory review creates enormous challenges for California IOUs to raise capital. Those challenges do not simply affect the IOU and its investors: they result in higher costs to raise capital, which flow into increased customer rates. White Paper 1 addresses how those increased costs exacerbate energy affordability problems.

Under the current system, the costs incurred by IOUs to resolve wildfire claims are initially paid by commercial or customer-funded self-insurance and, for costs in excess of $1 billion, from the Wildfire Fund. Even if the Wildfire Fund reimburses the IOU for claims paid above $1 billion, the IOU faces the risk that the CPUC will require the IOU to reimburse the Fund (up to a cap) if the CPUC finds that the IOU did not act prudently. In addition, the IOU remains at risk for costs not covered by the Fund, which the IOU can recover from customers only if the CPUC finds that its conduct was prudent — despite the fact that inverse condemnation presupposes that costs will be socialized. When the CPUC finds that the IOU did not act prudently and either denies rate recovery or requires fund reimbursement, the IOU must fund those amounts by issuing stock, using retained earnings, or borrowing money, all of which dilute the value of prior investments. That, in turn, leads to higher overall capital costs.

The outcome of the CPUC's prudency review is unpredictable, partly because there is no objective upfront standard for prudency, creating uncertainty about how the IOU's conduct will be evaluated. In 2007, the CPUC issued a decision to deny the application of San Diego Gas & Electric Company (SDGE) to recover $379 million in costs arising from 2007 wildfires; many outside observers viewed that decision as raising serious concerns about the reasonableness and predictability of the cost-recovery regime.[127] AB 1054 was designed to reduce the uncertainty about the outcome of CPUC prudence review in wildfire proceedings by establishing a presumption of prudence for a utility with a safety certification and by codifying the standards the CPUC must apply in evaluating utility

[127] See D.17-11-033, Cal. P.U.C. (Dec. 6, 2017). As observed by the Commission on Catastrophic Wildfire Cost and Recovery, created by SB 901, the CPUC's decision "raised questions as to whether a more predictable standard of review for wildfire claims is warranted," and reflected that the existing regime "d[id] not equitably socialize the costs of utility-caused wildfires." See, e.g., "SB 901 Commission Report." pp. 3-4, 6.

prudence in connection with wildfire events. But significant uncertainty still exists. For one, the CPUC has not yet rendered a decision applying these provisions in AB 1054, leaving stakeholders concerned about the risk that utilities will be found imprudent. AB 1054 also continues to tie prudency review to the circumstances of a particular fire. Thus the current system invites hindsight bias, even though reasonableness must be determined based on the facts and circumstances at the time of utility action.

The current system also focuses on requiring the IOU to reimburse the Wildfire Fund for amounts it paid if the IOU is found to have acted unreasonably — rather than periodically assessing prudency outside the context of a fire. That artificially ties the penalty for a finding of unreasonable conduct to the quantum of damages from a particular fire — even though the IOU's conduct (reasonable or unreasonable) is not responsible for the scope of a fire, which often turns on many other factors outside of the IOU's control.

The net effect of these factors is to create uncertainty around utility cost recovery, which flows directly into increased customer rates. Those problems are compounded by the funding structures of the Wildfire Fund and Continuation Account, which require utility shareholder funding that cannot be recovered in rates — a sharp departure from cost-of-service ratemaking that undermines investor confidence in California utilities. Designing a system that depends on ongoing, non-rate recoverable utility contributions for the reasonable costs of providing service, including insurance, is simply not viable.

What a solution needs to do

In sum, the current wildfire recovery system is too costly, disserves those impacted by wildfires, undermines energy affordability, and fails to address significant, wildfire-caused problems. An improved system should have multiple features.

First, a better system must reduce overall system costs. That can be achieved by both reducing the overhead and transaction costs in the current system and ensuring that limited resources go where they are needed most — to the people who need resources to rebuild their lives. Cost reduction is essential to allow the State to provide affordable energy well into the future; and to make it possible to create a recovery system that is capable of compensating all those impacted.

Second, a reformed system should also provide fair and fast compensation to claimants, regardless of the cause of a fire. California can do better than a system that provides costly and slow recovery — and only when a utility can be sued.

Third, an improved recovery system should socialize costs broadly, including, at a minimum, to the entire ecosystem of players in the wildfire risk equation — rather than

place the entire burden of funding wildfire recoveries on individual utilities and their customers. Such reform is not only important to make energy affordable. It is critical to facilitate transition to a system that provides compensation for all wildfires, regardless of whether they are utility-caused. A public backstop, described in White Paper 1, could be a significant tool in such a reformed system. Such risk socialization must, of course, be accompanied by provisions that hold all parties accountable for unreasonable conduct and incentivize them to mitigate wildfire risk.

Finally, a new recovery system could include features designed to improve access to affordable insurance in high fire risk areas and to address other problems created by wildfires that litigation does nothing to address. As noted in White Paper 1, California faces challenges stemming from the cost and availability of property insurance in high fire risk areas; building costs in the wildland-urban interface; the high cost of homeownership; and, of course, increasing energy rates. Designing a better system of wildfire recovery is not just an imperative, but an opportunity for the State to address these problems.

Precedents show how a transformed model could offer benefits and mitigate costs

This discussion is informed by examples of models developed in other states or countries to address recovery after a catastrophic event. These examples are not precise analogues to catastrophic wildfires in California, are not perfect in their own right, and are far from the only potential examples of catastrophic recovery regimes. But they do identify how new tools could be used or combined to address California's problems in a future recovery regime.

France's mandatory natural catastrophe insurance (CatNat)

France's catastrophes naturelles ("CatNat") program is a national system that guarantees compensation for property damage caused by a catastrophic natural phenomenon (such as floods, drought, or severe storms) to all French citizens and companies. It was established by French law in the 1980s to socialize the cost of recovering from catastrophes through a state-sponsored insurance mechanism.

CatNat is funded by an additional premium rate applied to all insurance property contracts. The amount of the premium is uniform (that is, it is a flat rate, rather than a rate set in part based on the individual risk of a given policyholder). The premium rate charged on property damage policies is now 20%, with lower rates for motor vehicle coverage. The coverage is mandatory: every property insurance policy must include natural catastrophe insurance and must account for the surcharge.

The system allows insurers to provide catastrophe coverage in multiple ways, including a taxpayer-funded backstop option. Insurers can choose to retain the additional premium themselves, in which case they are responsible for compensating policyholders for damage caused by natural disasters. Alternatively, they may opt to utilize the private reinsurance market. Finally, and most significantly, insurers may choose to be reinsured by the French public reinsurer (CCR) for their risks. In exchange for this state-backed reinsurance, insurers transfer additional premiums to the CCR (totally or partially). The French government provides a guarantee to the CCR to ensure payment of these claims.

CCR does not provide comprehensive state property insurance; instead, it provides a discrete form of reinsurance that covers only natural disasters declared as such by the state. A state declaration of natural disaster typically requires recognition by an inter-ministerial decree, which is issued by a multi-departmental government commission, and specifies the areas and periods of the disaster. Where CCR does provide compensation, it offers unlimited reinsurance coverage.

CatNat does not displace commercial property insurance; it merely transfers to the state the risk of certain catastrophic events. CatNat is designed to be self-supporting, such that CCR's assets (surcharge revenue plus investment returns) are meant to be sufficient to reimburse insurers. But, French law provides that, if CCR's assets are not sufficient, the national government will provide additional funding as needed: The government has to provide financial assistance to CCR when claims in one accounting year exceed 90% of CCR's reserves, in effect providing a taxpayer backstop for those events. The end result is that commercial property insurance for other perils is more affordable.

CatNat demonstrates one mechanism through which a state can respond to and broadly socialize the costs of defined natural disasters while also stabilizing the property insurance market more generally: a taxpayer-backed property reinsurance product that applies only to particular catastrophic perils. That product does not eliminate commercial insurance; instead, by addressing specific, expensive-to-insure perils, it allows commercial property insurance *generally* to be more affordable. It also reflects a belief that larger natural disasters may merit socializing costs and are distinct from smaller catastrophes properly handled through private insurance alone.

Florida Hurricane Catastrophe Fund (FHCF)

Florida's Hurricane Catastrophe Fund was created following Hurricane Andrew to provide stability and add capacity to the residential property insurance market. It is structured as a tax-exempt trust fund that is administered by the State Board of Administration of Florida.

The fund provides reinsurance coverage in the event of a hurricane, as classified by the National Hurricane Center, that causes insured losses in Florida. Once a covered event occurs and losses exceed an insurer's retention (i.e., their self-insured portion), the FHCF reimburses the insurer per the terms of their contract (at the selected coverage percentage). Participation is mandatory for the vast majority of property insurers writing residential policies in Florida, with some exceptions. Each insurer can select a coverage level (historically 45%, 75%, or 90%) — i.e., what portion of losses above the insurer's retention will be reimbursed.

The FHCF's financial resources come from (a) premiums paid by insurers; (b) investment earnings on fund assets; and (c) issuance of revenue bonds. The premiums are based on a formula that multiplies the insurer's exposure (total insured value of property under covered property) times a specified rate (determined based on risk and policy characteristics, such as geographic location and property mitigation factors, like year built and roof age). The FHCF can issue revenue bonds both pre- and post-event. Pre-event debt, issued before a hurricane, is primarily a source of liquidity to enable the FHCF to pay claims on a timely and sufficient basis. Post-event debt, issued following a hurricane that exhausts the fund's cash balance, is used to reimburse insurers for paid losses. These post-event bonds are backed by the authority to levy emergency assessments on lines of property insurance.

Reimbursement of covered losses is limited by the actual claims paying capacity of the FHCF. The Legislature set a maximum potential obligation of $17 billion for a single season (unless there is sufficient capacity for the current year *and* an excess of $17 billion for future years). That statutory limit is designed to make the FHCF coverage more certain for insurers and stable across years and to limit the fund's potential reliance on bonding to meet its mandatory coverage obligations.

FHCF is, like France's CatNat, another example of a backstopped reinsurance model; but it demonstrates how a number of elements can be varied in such a model. Unlike France's CatNat (which makes natural disaster coverage mandatory but allows insurers to retain the mandatory premiums and provide that coverage through private funding alone), FHCF requires insurers to participate in the state reinsurance product — although it allows them to elect their specific coverage level. Also unlike France's CatNat, the premiums for reinsurance *are* linked to risk, and may be lower depending on mitigation factors. FHCF is also backstopped not by taxpayers, generally, but by a potential assessment on insurance policyholders, specifically. The assessment, however, is capped, and for that reason, there is an aggregate cap on the reinsurance available (whereas the French CatNat framework features no cap).

Critically, both FHCF and France's CatNat are examples of reinsurance models. But an alternative design could involve carving out a particular peril from property insurance policies, with a direct insurance product (rather than a reinsurance product) to cover that peril. The California Earthquake Authority, as well as the Texas Windstorm Insurance Association, offer examples of such a direct insurance design.

Price-Anderson Nuclear Industries Indemnity Act (Price-Anderson)

Price-Anderson was enacted in 1957 to address potential suits against the nascent nuclear energy industry. The act had two central provisions: first, it protected the public by making recovery after a nuclear incident easier — through a strict liability regime where adequate funds would be available to rapidly compensate claimants. Second, it paired that structure with a liability limit on claims against the operator of a nuclear facility (after which, Congress could appropriate further funds), high enough to ensure accountability, but low enough to avoid financial devastation. In this way, Price-Anderson met two interlocking objectives that legislators viewed as essential to the successful development of nuclear energy: providing a system to fairly and swiftly compensate claimants, while also ensuring that the risk of unlimited financial exposure did not prevent any development of nuclear energy.

Price-Anderson broadly addresses nuclear incidents arising from a range of reactors and facilities. It first effectively creates a fund to pay claimants after a nuclear accident, with the costs socialized across the entire nuclear industry. Each operator of a nuclear reactor must obtain the maximum amount of private insurance available for damages to the public (currently $500 million). That private insurance covers the first tranche of claims up to the insurance limit. All operators must also commit to pay retrospective premiums to fund claims after an incident (regardless of which facility caused the incident): capped amounts paid in annual installments (over a defined time period) by all operators (to the degree actually needed to pay claims). As of 2025, the cap was about $158 million per reactor, and there were approximately 95 covered reactors.[128] Thus, combining the $500 million primary layer, the capacity of retrospective premiums, and an additional 5% surcharge that may be imposed on retrospective premiums, total capacity as of 2025 was around $16 billion.

The law also waived nuclear operators' defenses for certain defined nuclear incidents, for which a claimant was thus required to show only: (1) personal injury or property damages, (2) the loss amount, (3) that the release of radioactive material caused the damage. The law includes an objective trigger for what qualifies as such an incident (called an

[128] "Price-Anderson Act: Nuclear Power Industry Liability Limits and Compensation to the Public After Radioactive Releases." Congressional Research Service, Feb. 28, 2025.

Extraordinary Nuclear Occurrence), based on measured radiation doses, surface contamination, and death/property damage.

In exchange for waiving these defenses and agreeing to maintain this fund, the nuclear industry's liability was capped at the total of commercial insurance and retrospective payments. Above that amount, the law contemplates that Congress can approve and appropriate funds (although it does not specify the source of funding). Individuals are also not allowed to claim punitive damages against companies.

Price-Anderson shows how a system can both create an effective process for compensating claimants and protect the financial integrity of a critical sector of the energy industry — with each objective complementing and serving the other. It does this, in part, through several notable features, including a socialized payment structure, an aggregate liability cap below a taxpayer-funded backstop, and modifications to the traditional litigation regime to support quick and predictable recoveries. It also shows how an effective recovery system can support the development of a critical industry, as Price-Anderson is widely credited to have done.

September 11th Victim Compensation Fund (the 9/11 Fund)

The 9/11 Fund responded to an unprecedented terrorist attack. Although that incident is far different from a catastrophic wildfire, many features of the legislation creating the 9/11 Fund illustrate tools that can be used to address recovery from catastrophic perils.

The 9/11 Fund was established by Congress soon after the September 11, 2001, attacks as part of the Air Transportation Safety and System Stabilization Act. That law had two main objectives: (1) to protect airlines (and later, other defendants) from a potential onslaught of litigation that could destabilize a critical industry; while also (2) financially compensating victims who suffered physical injuries and the families of persons killed in the attacks and their immediate aftermath through a speedy and fair non-litigation construct.

As part of the law, Congress created an aggregate liability limit for all suits against airlines to their existing insurance limits. Later amendments would add liability limitations for New York City, generally, and other entities with regard to debris removal claims.

Congress also created the Victims' Compensation Fund. The VCF created three categories of eligible claimants: (1) individuals who were present at the World Trade Center, the Pentagon, or the Pennsylvania crash sites at the time, or in the immediate aftermath, of the 9/11 attacks and suffered physical harm or death "as a result of such air crash"; (2) individuals who were passengers or crew members on the planes that crashed; and (3) personal representatives of decedents described in (1) or (2). To make a claim, a claimant

had to waive any right to sue — a release provision that further protected airlines and other potential defendants. That waiver occurred at the time a claim was made, not the time the fund itself determined the amount of compensation to which a claimant was entitled.

The fund offered speedy recovery, based on parametric considerations, over individualized recovery — which could take longer. Specifically, claimants could receive a determination, within 45 days of submission, as to eligibility and amount of compensation based on tables developed by those adjudicating the claims. The claimant could accept that presumed award or seek instead a hearing to present evidence in favor of an individualized determination of compensation to justify an upward adjustment, if they could show "extraordinary circumstances."

The fund was primarily taxpayer funded, although the law contemplated that the Attorney General could accept contributions from individuals and entities to help fund payments to claimants.

The initial 9/11 Fund ran from 2001 to 2004. It distributed roughly $7 billion to more than 5,000 families. It compensated approximately 98% of families who lost a loved one and nearly 2,700 individuals injured by the attacks.

In 2011, Congress reopened the 9/11 Fund to provide benefits to persons who responded to the terrorist attack sites, were involved in the cleanup of these sites, or lived in lower Manhattan during the attacks. This version of the fund was reauthorized in December 2015. Since the 2011 reopening, the 9/11 Fund has distributed more than $12.6 billion to nearly 56,000 claimants. There is no cap on the total award amount, but there are limits on the amounts of individual awards for economic and noneconomic losses claimants suffered. All 9/11 Fund claims must be filed by October 1, 2090.

The 9/11 Fund involved two significant tools for recovery (1) an administrative claims process that, compared to litigation, was faster, simpler, and involved less overhead; and (2) an aggregate limit on the civil liability of airlines and others, which was designed to protect the financial integrity of a critical industry facing potentially ruinous exposure.

National Vaccine Injury Compensation Program

The National Vaccine Injury Compensation Program (NVICP) was created in 1986 due to concerns that litigation over alleged vaccine side effects could deter the creation and administering of vaccines. Congress concluded that the risk to public health resulting from the absence of vaccines outweighed the interests of plaintiffs who claimed to have suffered side effects from vaccines.

The law generally requires claimants to present their claims to the NVICP before they may file suit, so that the program can offer the claimant a payment as an alternative to a lawsuit. Claimants are permitted to bring a civil action in court only if (1) the administrative adjudicator fails to make a decision on their claim within 240 days; or (2) the claimant chooses to reject the administrative adjudicator's decision (that is, not accept the payment offered by the NVICP).

The law also creates substantive limits on tort causes of action against vaccine manufacturers. In particular, it bars liability for injuries from certain unavoidable side effects and failure to warn claims. It also bars punitive damages if the manufacturer otherwise complied with the statute, absent fraud or criminal misconduct.

Payments from the NVICP are covered by a government trust fund, paid for by an excise tax on certain vaccines recommended by the Centers for Disease Control and Prevention.

The NVICP, like Price-Anderson and the 9/11 Fund, involved the challenge of balancing two objectives: providing recovery to claimants who are harmed and protecting the advancement and affordability of a key public need or industry. It did so by combining three tools: an administrative claims fund paid for by the government; an administrative exhaustion requirement (to ensure that an administrative fund was effective and that claimants gave it a chance before suing); and litigation reforms. Together, these features have resulted in the vast majority of potential claims being resolved through the administrative process. Notably, fewer than 0.5% of vaccine claimants who received an award within the NVICP rejected their award in favor of a civil action.[129]

Summary of precedents

At a high level, these illustrative structures present multiple models for addressing recovery from catastrophic events. A future recovery regime could involve a selection or combination of the design elements above as well as many others. It also could involve new elements that build on the reinsurance, direct insurance, claims process, and alternative funding concepts that are outlined herein.

Conclusion

California's wildfire recovery system is replete with structural flaws. It creates unsustainable costs, disserves those impacted by fires by providing uneven and slow recovery, places too great a burden on utilities and their customers, and fails to address

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[129] *See* Brief for the United States as Amicus Curiae Supporting Respondents at 28, *Bruesewitz v. Wyeth, Inc.*, 562 U.S. 223 (2011) (No. 09-152) ("Department of Justice records indicate that 99.8% of successful Compensation Program claimants have accepted their awards, foregoing any tort remedies against vaccine manufacturers."); *see also* Nora Freeman Engstrom, *A Dose of Reality for Specialized Courts, Lessons from the VICP*, 163 U. Penn. L. Rev. 1631, 1673 (2015).

significant, broader issues — like the cost and availability of property insurance. A sustainable future requires transition to a better recovery system. Drawing on precedents from other jurisdictions to address these critical problems can be informative in meeting that goal.

White paper 3: Building on Existing Ignition Risk Reduction Efforts

Executive summary

California's utilities have made substantial investments in ignition risk reduction through vegetation management, utility grid hardening, and other initiatives. Yet rising climate and fuel risks and frequent severe fires demand faster, more coordinated action to ensure each mitigation dollar achieves maximum safety and resilience benefit. Below we examine two barriers that diminish mitigation impact. The first addresses how approval timelines, complex permitting, and funding uncertainty delay or dilute mitigation outcomes. The second explores how misaligned planning cycles and fragmented priorities among utilities, land managers, and other infrastructure operators prevent collaborative approaches that could achieve greater risk reduction per dollar spent. By reducing these frictions, California can optimize how mitigation investments translate into community resilience.

Implementation frictions and lack of predictability from regulatory processes can drive up costs and delay critical mitigation work

Opportunities to improve predictability of regulatory framework

The current structure for approving and funding utility-driven wildfire mitigation involves coordination between two oversight agencies: the Office of Energy Infrastructure Safety (OEIS) and the CPUC. This structure was intended to strengthen accountability and ensure continual focus on safety, but has also introduced jurisdictional tension between safety standards and cost recovery determinations. The OEIS may approve mitigations through a utility's Wildfire Mitigation Plan (WMP) that the CPUC later limits funding authorization for in the subsequent General Rate Case (GRC). Further, the CPUC views WMP spending through a different rubric, often prioritizing near-term cost efficiency over long term safety. Thus, GRC wildfire mitigation funding authorization, especially for grid hardening programs, is often limited in deployment scope and limited to lower cost solutions as opposed to those that have higher overall risk reduction. The timing lag between technical approval of mitigation strategies through the WMP and GRC funding authorization, coupled with the requirement that utilities implement the WMP in real time to maintain their safety

certification, means that utilities are often required to make mitigation expenditures without cost recovery certainty. The timing of WMP approval typically takes approximately 12 months,[130] while GRC proceedings can extend to 24 months or longer from filing to final decision.[131] Recent reforms have worked to better align WMP cycles with GRC proceedings, including the introduction of a "Petition to Amend" process that allows utilities to update WMP commitments to align with GRC decisions. These improvements reflect recognition that these two processes are intended to be aligned. However, the petition itself introduces additional procedural steps, and utilities can still operate under approved WMPs without confirmed funding certainty during the period between WMP approval and GRC decisions.

Predictability for sequencing and execution planning

This regulatory framework creates structural challenges that prevent utilities and interdependent stakeholders from predictably sequencing, and cost-effectively executing, mitigation work approved under WMPs. The WMP and GRC processes create uncertainty, and even projects that secure both technical OEIS approval and funding from the CPUC can still stall in lengthy permitting processes. This lack of consistency and predictability undermines utilities' ability to plan and execute high-priority work with confidence and at lowest cost. It also inhibits innovation. For instance, when utilities identify new solutions that could improve the scale, speed, or affordability of wildfire mitigation, the length of multi-year GRC cycles means it could be half a decade before those innovations receive full assurance of cost recoverability, hindering adoption.

There are a number of approaches that could help reduce these planning uncertainties; the following illustrates several options, though other approaches merit consideration as well. One option is to carve wildfire mitigation costs out of the broader GRC process to enable resolution on a defined timeline — for example, requiring decisions on WMP-related costs by September 1 of the test year to provide funding certainty before peak fire season. Another approach would establish a "presumed reasonable" standard for approved mitigation work, where costs would be authorized for the test year if regulators miss decision deadlines absent a showing of waste, double counting or fraud as in CPUC proceedings. Alternatively, a complementary model could authorize a total funding envelope rather than line-item approvals. This structure could preserve regulatory oversight while enabling operational flexibility within the envelope to adapt to changing risk conditions. By reducing time-to-value for approved mitigation measures and optimizing how mitigation dollars are deployed, these approaches could help lower overall costs.

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[130] Cal. Pub. Util. Code § 8386.3.

[131] Note this can extend longer including RAMP application proceedings.

Predictability for funding approval

Funding predictability helps utilities achieve economies of scale and execute multi-year mitigation strategies efficiently. Current cycles can create uncertainty that affects utilities' ability to establish long-term vendor contracts, pre-order materials, or maintain consistent workforce levels — leading to higher costs. Mitigation projects — particularly undergrounding and system upgrades — often require three to four years from planning through execution, making funding certainty across that horizon essential for cost optimization. California's SB 884 reflects legislative recognition of this need, establishing a 10-year undergrounding planning framework designed to provide utilities with programmatic cost-recovery approval. Yet implementation has been hampered by misalignment: undergrounding plans have been stalled due to delays across the agencies as they seek alignment across filing and cost-recovery guidelines.

Several approaches could establish more predictable and stable funding pathways for utility work. Multi-year funding commitments tied to approved WMP priorities would allow utilities to achieve volume discounts through consolidated procurement and to maintain specialized workforce capacity. SB 884 authorized 10-year planning for undergrounding, an approach that could be extended to other mitigations. Enabling utilities to more flexibly adapt mitigation strategies between WMP approval cycles based on updated risk modeling, new learnings, and new technologies — within an authorized funding envelope — could improve responsiveness to changing conditions while maintaining regulatory oversight. Predictable funding would also create broader benefits: when utilities can commit to multi-year work programs, it enables suppliers, contractors, and workforce development programs to invest in capacity and specialization, lowering costs across the entire mitigation ecosystem. Furthermore, local governments and other infrastructure operators could better sequence their own projects when utility timelines are more predictable, reducing community disruption and enabling coordinated investments that serve multiple resilience goals.

Streamline post-approval processes to accelerate mitigation

Even after projects receive WMP approval and funding authorization, implementation often requires navigating complex permitting processes and easement acquisition procedures. Utilities may have to secure multiple overlapping federal, State, and local permits, often involving duplicative environmental reviews and differing requirements across agencies. State-level permits alone present substantial delays: California Department of Fish and Wildlife (CDFW) permits average 4-8 months, Regional Water Quality Control Board (RWQCB) permits take 2-8 months, Coastal Commission permits require 12-36 months or more, and Caltrans permits span 4-12 months.

The difficulties posed by these lengthy and unpredictable timelines are compounded by agency-specific challenges and conflicting implementation requirements. Restrictive avoidance measures (e.g., from State permitting agencies and federal laws like the Endangered Species Act) can create work windows of just days or weeks per year when compounded with seasonal restrictions. Inconsistent application of requirements across different Regional Water Board and CDFW regions creates unpredictable approval timeframes. Coastal Commission processes create additional complexity from inconsistencies across over 30 Local Coastal Plans and rights check processes that alone require a minimum of 6 months. Caltrans permits often require extended reviews and require multiple rounds of revisions, with cycle times that vary up to 12 or more months across districts. As a result, SCE alone has 75 pending Caltrans Design Standard Deviation Document approvals dating back to April 2023. Due to delays from this complicated process, utilities may substitute in projects with less complexity which are often lower-priority from a risk perspective. While adding additional staff to permitting agencies could improve these delays, finding ways to streamline permitting processes and enable existing staff members to process permits more quickly could provide a more cost-effective solution to maintain oversight while ensuring WMP-approved mitigation work can proceed efficiently, given existing strain on agency budgets.

Expansion and codification of the Governor's Emergency Proclamation

Following the 2018 Camp Fire, Woolsey Fire, and Carr Fire, Governor Newsom's March 2019 emergency proclamation directed California Department of Forestry and Fire Protection (CAL FIRE) to fast-track 35 priority projects protecting over 200 wildfire-vulnerable communities.[132] By streamlining California Environment Quality Act (CEQA) and other permitting requirements, the proclamation enabled projects that typically take three to five years to complete in under one year.[133]

On March 1, 2025, a renewed proclamation expanded this streamlining to wildfire vegetation management projects by a larger group of stakeholders, including utilities. This established a consolidated California Natural Resources Agency (CNRA) and California Environmental Protection Agency (CalEPA) review for hazard tree removal, dead and dying vegetation treatment, and activities identified in Community Wildfire Protection Plans and CAL FIRE unit fire plans.[134] The proclamation's framework replaced fragmented permitting across multiple state agencies with a one-stop-shop process: utilities submit a single package, receive coordinated, multi-agency review with cycle times limited to 30 days, and

[132] "Governor Newsom proclaims state of emergency on wildfires to protect state's most vulnerable communities." Governor of California, March 22, 2019.
[133] "Governor Newsom announces completion of emergency projects to protect wildfire-vulnerable communities." Governor of California, January 29, 2020.
[134] "PROCLAMATION OF A STATE OF EMERGENCY." Executive Department State of California, March 1, 2025.

obtain authorization to proceed.[135,136] Under this structure, utilities agree to follow pre-published State Environmental Protection Plan (EPP) standards that maintain robust environmental safeguards — including pre-construction surveys and biological and cultural monitors to avoid impacts to sensitive resources.[137] This approach demonstrates how streamlined permitting can accelerate critical work while preserving substantive environmental review.

Since March 2025, utilities have received approval for 86 critical fuels reduction projects.[138] The following illustrate benefits that are being realized in vegetation management work. PG&E secured coastal development permits in approximately 24 days that could have otherwise taken three years under standard procedures. SCE has submitted over 40 projects under the proclamation covering several thousand work locations that previously would have required individual permits from various resource agencies. Beyond accelerating timelines, the consolidated review also eliminated conflicting requirements for execution of utilities' wildfire mitigation work.

The current proclamation is limited in scope and ability to scale. It currently applies only to vegetation management. Different approaches could preserve and amplify the benefits demonstrated by the proclamation. First, extending the proclamation by one year would provide agencies with time to develop a sustainable successor process that can be scaled. Second, other utility wildfire mitigation strategies like undergrounding, pole replacements, and covered conductor installation often face more challenging resources permitting processes than routine vegetation management. Expanding the framework to include any mitigation work approved by the State through OEIS would unlock similar — or even greater — time and cost savings across utility wildfire mitigation strategies. Preliminary analysis of vegetation management and undergrounding suggests that expanding the proclamation's framework to additional mitigations could reduce application-related permitting costs by about 80%.[139] More importantly, it would enable faster risk buy-down by reducing State-level resource permitting review cycles by nine months on average across permit types to around two months.[140] Like vegetation management, these additional interventions are

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[135] 30 days is the instated review window; however, the "regulatory clock" is often paused for application revision and clarification which extends the cycle time in practice to ~2 months.
[136] "California launches streamlined online permitting process to fast-track critical wildfire safety projects." Governor of California, April 17, 2025.
[137] "Statewide Fuels Reduction Environmental Protection Plan." California Natural Resources Agency and California Environmental Protection Agency, May 2025.
[138] Utility working group from the Governor's Wildfire and Forest Resilience Task Force.
[139] Calculated based on average of direct application fees for LSAA, ITP, RWQCB, and Coastal Commission permits needed for vegetation management and undergrounding projects and external application preparation fees (e.g., environmental consultants, biological surveys, resource assessments) from historical California IOU experience. Although the current proclamation suspends direct application fees, the cost savings estimation assumes an 80% reduction – commensurate with the expected time savings from application review. Conservative estimate of reduction in external fees at roughly 75% per permit.
[140] The current proclamation expedites permit reviews to one month but allows for pauses for application revisions; ~2-month estimation is based on historical California IOU experience with vegetation management projects.

also key to deliver wildfire risk reduction benefits, and they face the same conditions cited in the March 2025 proclamation: elevated wildfire risk, need for rapid implementation, and the importance of coordinated State action.[141,142] Expanding the proclamation's framework would maintain environmental protection and stakeholder input while allowing more efficient risk reduction for all Californians.

Standardized easement & land right procedure

On the easement side, coordinated frameworks that bring all relevant stakeholders together at a project's outset to negotiate terms concurrently rather than sequentially could reduce delays and costs. Standardizing easement templates across State agencies and local jurisdictions could eliminate the need to negotiate unique agreements for each parcel. For undergrounding in urban and suburban areas, establishing pre-approved corridors — similar to transmission right-of-way designations — could streamline future projects. By reducing procedural complexity in both permitting and easement acquisition, these approaches would directly reduce time-to-value for mitigation investments while creating positive externalities.

Misalignment between stakeholders hinders potential efficiencies from coordination and collaboration

Align and coordinate mitigation planning with land managers

Currently, utilities must navigate planning cycles and requirements from multiple regulators, land managers, and resource protection agencies — each operating on different timelines and frameworks. Federal land managers plan vegetation treatments and fuels reduction on five- to ten-year horizons, while utility WMP cycles operate on four-year timeframes with annual updates. Other agencies like Caltrans, CDFW, and land managers for State Parks each maintain separate planning processes with distinct review periods and approval requirements. When timelines diverge, opportunities for coordinated action are missed and costs increase. A utility ready to underground a circuit may find that the adjacent State Park has already decided its land management plan, or a fuel break project may await approvals from multiple agencies operating on non-overlapping schedules, delaying critical risk reduction work. In Pollock Pines — a high fire-risk area in El Dorado County identified by multiple stakeholders as requiring urgent attention — PG&E, SMUD, and El Dorado Irrigation District all maintain infrastructure or land management responsibilities.[143] In this case, despite agreement on risk levels and the need for

[141] "WHEREAS certain statutory, regulatory, and administrative requirements, including, but not limited to, studies, publication periods, and season-specific surveys, significantly impede State and local agencies' ability to immediately permit and implement necessary projects to protect the lives and property of Californians."
[142] "PROCLAMATION OF A STATE OF EMERGENCY."
[143] "Utility Vegetation Management." El Dorado County.

coordinated treatment, misaligned planning cycles have prevented establishment of a unified maintenance plan that could streamline permitting and create cost-efficiencies for all responsible parties.

While these public land management plans are technically accessible through formal requests, proactively sharing them or conducting regular joint check-ins between interdependent stakeholders could help establish more aligned and visible planning cycles. This would help utilities and land managers identify and execute collaborative opportunities more effectively. Another approach would convene key agencies — OEIS, CAL FIRE, USFS, State Parks, and others — to develop synchronized planning windows for projects in shared geographies. Alternatively, creating standardized frameworks for multi-year planning agreements between utilities and land managers, would allow both parties to sequence vegetation management, infrastructure work, and fuels treatments over longer time horizons. Land managers already employ adaptive management practices that integrate ecosystem health, desired future conditions, and multi-year learning cycles into their stewardship planning. Incorporating utility infrastructure — which is permanent and known — into these long-term land management plans, would enable both parties to coordinate pole replacements, vegetation treatments, and fuels reduction activities years in advance rather than treating each utility intervention as a new project requiring separate review. In the absence of re-aligning planning timelines, increasing flexibility of utilities to make reasonable sequencing adjustments to their work plans could also increase cooperation and bring down project costs.

Longer planning horizons would also help build trust and bridge risk prioritization between utilities and natural resource agencies. Multi-year planning agreements — like those developed for fuels management for the SDGE Sunrise Powerlink project[144] — would provide land managers with greater visibility into utility mitigation, reducing concerns about ad hoc interventions and establishing clear expectations about vegetation management intensity and methods. When agencies and communities can see planned activities in advance and participate in shaping multi-benefit outcomes, they are more likely to support and can facilitate faster implementation. These longer planning horizons would also help utilities commit to multi-year vendor contracts and enable land managers to integrate utility work into their broader stewardship objectives.

Joint mitigation efforts and community resilience partnerships

While there are ongoing collaborative community resilience efforts, they are not consistently adopted across geographies and stakeholders at the level needed to adequately reduce risk. Several opportunities exist to strengthen and scale collaboration.

[144] "About the Fire Mitigation Grants Program." Sunrise Powerlink.

For example, establishing clear frameworks for co-investment could reduce costs while eliminating ignition risk and improving service reliability. As further explored later in this paper, when utilities plan undergrounding projects, concurrent work with other infrastructure operators could prevent excavating the same corridors multiple times, reducing community disruption and lowering total costs. These coordinated efforts should be continued to explore opportunities to collaborate on joint and/or parallel undergrounding efforts during post-wildfire rebuilding periods. Similarly, when utilities and land managers prioritize the same high-risk geographies for treatment, they can sequence vegetation work, fuels reduction, and infrastructure hardening to maximize effectiveness. These collaborative approaches could engage support from a broader base of participants, distribute implementation responsibility beyond utilities alone, and attract additional funding from stakeholders who see clear benefits from joint action.

Strategic partnerships between utilities and local stakeholders can also unlock mutually beneficial interventions. Utility access roads built to support vegetation management or equipment maintenance can serve as firefighting access roads, fuel breaks or emergency evacuation routes, benefiting both utilities and surrounding communities. Utilities working on vegetation management around distribution lines on private forestlands could partner with local forestry groups to conduct fuels treatments that serve both wildfire mitigation and ecosystem health objectives. Establishing frameworks for cost-sharing or joint funding applications could enable utilities and local partners to pool resources for landscape-scale treatments that neither could afford independently. Tax incentives or property tax reductions for landowners who grant utilities expanded vegetation clearance easements could provide another avenue for partnership. These grassroots approaches would need to be tailored to local conditions, community structure, and stakeholder capacity, but they share a common goal: engaging a broader base of participants in resilience efforts, distributing implementation responsibility, and bringing in additional capacity and funding from stakeholders who benefit directly from collaborative mitigation work.

Programs that facilitate these partnerships — one example is the Fire Smart Community Pilot in Incline Village, NV — demonstrate how coordinated, technology-enabled approaches can achieve measurable risk reduction while engaging diverse stakeholders. The Incline Village pilot brought together the local fire district, homeowners association, utilities, technology providers, and community organizations to identify and implement priority mitigations at both neighborhood and parcel scales.[145] This pilot illustrates broader principles that could be adapted to other settings: using data and modeling to prioritize highest-impact interventions, coordinating vegetation work with infrastructure

[145] "Fire Smart Community Pilot Playbook." Tahoe Fund, November 2025.

improvements, and engaging homeowners through local leadership, accessible tools, and transparent communication.

Case study: undergrounding

Targeted undergrounding is perhaps utilities' most effective lever in reducing wildfire risk long-term — reducing risk of ignition by more than 95%.[146,147] Undergrounding can hedge against worsening wildfire risks, rising vegetation management cost, and frequency of customer interruptions related to Public Safety Power Shutoff (PSPS), Enhanced Powerline Safety Settings (EPSS) and storm events. While undergrounding requires significant upfront investment, when deployed with targeted risk-informed methodology, it is a cost-effective lever to permanently lower wildfire ignition risk. For example, it is especially effective in timber terrain which experiences high risk from tree fall. Currently, every dollar invested in undergrounding can generate an estimated $1–3 in long-term benefit, delivering approximately $30,000-50,000 per mile annually in avoided vegetation management and inspection costs and an additional approximately $150,000-250,000 per mile in reduced wildfire-related risk.[148,149,150,151,152,153] There remains opportunity to further reduce costs of undergrounding and increase the benefit per dollar delivered. Utilities have already begun to demonstrate this potential. For example, SDGE has achieved 43% cost reductions, in part through reduced trenching depth and width, since the start of their undergrounding program in 2020.

Initial estimates suggest that flexible backfill options and working hours, reduced trench depth requirements, coordinated road paving, streamlined permitting, and joint trenching could offer meaningful estimated savings:

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[146] "SDG&E WMP." Pg. 159, SDG&E, July 25, 2025.
[147] "PG&E Wildfire Mitigation Plan R0 2026-2028" Pg. 128. PG&E, April 4, 2024.
[148] "CPUC Undergrounding Programs Description." CPUC.
[149] "Progress of WMP Implementation Dashboard." CPUC, December 10, 2025.
[150] "PG&E Wildfire Mitigation Plan R0." Pg. 195, PG&E, April 4, 2025.
[151] "PG&E 2024 Risk Assessment and Mitigation Phase Workshop #3." Pg. 33, PG&E, June 18, 2024.
[152] "ADDRESSING PG&E'S REQUEST TO ADD TO RATES COSTS BOOKED TO WILDFIRE MITIGATION PLAN " pg. 237, CPUC, August 1, 2024.
[153] Undergrounding cost assumed to range between $2-6 million ("CPUC Undergrounding Programs Description"). Direct maintenance benefits assume $15,000/mile of circuit cost of vegetation management avoided ($1.6 billion annual spend by PG&E and 107K of distribution miles per ("Progress of WMP Implementation Dashboard", "PG&E request to add to rates" pg. 237), $5,000/mile in inspection costs ($0.6 billion spend by PG&E and 107K distribution miles), and an approximately 2x relative cost multiple between the average and highest need lines for maintenance costs (IOU historical experience). Additional wildfire mitigation benefits include direct wildfire risk reduction: $60,000 (PG&E risk reduction '23-'24 from undergrounding applied per mile to future risk, EPSS impact reduction: $30,000 (PG&E risk reduction '23-'24 from undergrounding applied per mile to future risk), and PSPS impact reduction: $120,000 (PG&E risk reduction '23-'24 from undergrounding applied per mile to future risk). Calculated based on '23-'24 PG&E undergrounding of 623 miles. Estimated reduction in wildfire risk of 1.5%, EPSS impact of 1.2%, and PSPS of 2.0% ("PG&E WMP") . PG&E projected 2027 wildfire risk of $2.5 billion post-EPSS/PSPS mitigation, EPSS impact of $1.7 billion, and $3.7 billion of PSPS ("2024 RAMP pre-application Workshop").

- 10-30% reduction in excavation costs from flexible backfill options using Class II or native soil[154]
- 5-10% reduction in labor costs from flexible working hours
- 5-10% reduction in excavation costs from flexible trench depth requirements[155]
- Up to 50% total cost reduction from joint trenching with other infrastructure operators when excavation, paving, and work crew costs are shared[156,157]
- Up to 80% reduction in application-related costs from streamlined State resource permitting[158]

Collaboration of stakeholders to enable the above levers could reduce costs of undergrounding while increasing the speed of execution and risk removal. While the current system does not consistently enable these efficiencies, there are many steps that could be taken to improve the status quo. For example, establishing coordinated planning frameworks and pre-approved joint-use corridors could help unlock execution efficiencies while reducing surface disruption, traffic impacts, and total community costs. Furthermore, long-term planning and funding mechanisms bring down costs. As previously discussed, SB 884 illustrated the need to address implementation and planning challenges related to undergrounding by authorizing 10-year distribution undergrounding plans. Subsequent regulatory guidance regarding implementation of SB 884 has introduced new uncertainties around approval requirements, cost-benefit thresholds, and the timing of cost recovery that fragment the efficiencies SB 884 was designed to unlock. Initiatives like SB 884 should be supported while ensuring that they achieve their desired impact — enabling swifter, cost-effective risk reduction via longer planning horizons, appropriate flexibility, and regulatory certainty.

Conclusion

California's substantial investments in wildfire mitigation can achieve greater impact through streamlined implementation and coordinated execution. Reducing procedural delays would accelerate project timelines and lower both risk and costs for customers by enabling utilities to lock in pricing, achieve economies of scale through multi-year contracts, and complete critical work before fire season. Improved coordination among

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[154] Watkins, R., Keil, B., Mielke, R., & Rahman. "Pipe zone bedding and backfill: A flexible pipe perspective." S. Pipelines 2010, 426–438. 2010.
[155] "PG&E on track to bury 10,000 miles of underground power lines in high-fire risk areas." Lambert, E. KCRA, July 26, 2023.
[156] "Brief Engineering Assessment: Efficiencies available through simultaneous construction and co-location of communications conduit and fiber." National Association of Telecommunications Officers and Advisors and the City and County of San Francisco, August 2009.
[157] Note that this assessment was performed for telecommunications companies, exact cost savings to other utilities may vary.
[158] Calculated based on average of direct application fees for LSAA, ITP, RWQCB, and Coastal Commission permits needed for vegetation management and undergrounding projects and external application preparation fees (e.g., environmental consultants, biological surveys, resource assessments) from historical California IOU experience. Although the current proclamation suspends direct application fees, the cost savings estimation assumes an 80% reduction – commensurate with the expected time savings from application review. Conservative estimate of reduction in external fees at roughly 75% per permit.

utilities, land managers, and other infrastructure operators would help prioritize and accelerate work that achieves the greatest risk reduction, create predictable implementation schedules that allow stakeholders to sequence their work efficiently, eliminate duplicative construction, and reduce community disruption. Together, these improvements lower the cost per unit of risk reduction while creating broad-based implementation responsibility — enabling California to address tail risk cost-effectively and strengthen community resilience across the wildfire ecosystem.

White paper 4: Moving Beyond the Grid in Mitigating Wildfires

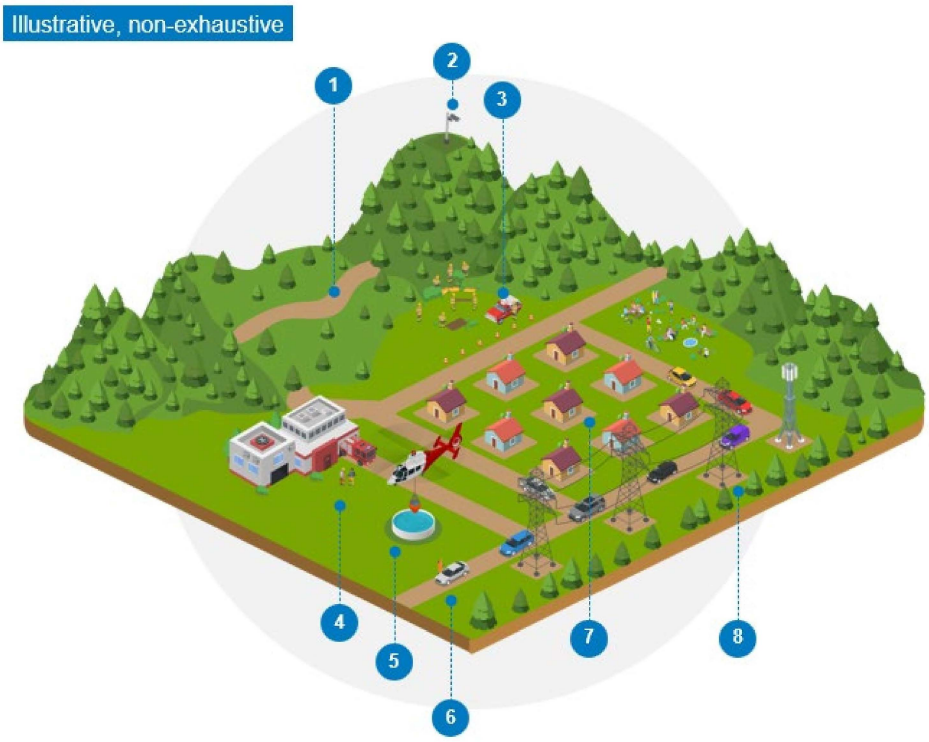
Executive Summary

In recent years, California has made significant strides towards identifying gaps, devising solutions, and driving action towards an improved wildfire mitigation and suppression framework (e.g., through the establishment and actions of the Governor's Wildfire & Forest Resilience Task Force, and the work of Fire Safe Councils, utilities and other parties). Nevertheless, progress to date must be rapidly scaled to meet the rising challenges that wildfires pose to California. A scaled, coordinated, streamlined, and cost-efficient approach to wildfire mitigation requires addressing two key challenges: (1) insufficient engagement in effective community resilience efforts relative to need across the full set of whole-of-society stakeholders, and (2) barriers to execution. By addressing these challenges, California can continue to reduce the risk and total cost of wildfires, thereby lowering electricity costs, improving insurance accessibility, and protecting the lives and livelihoods of Californians.

Key challenge 1: Insufficient engagement in effective community resilience efforts relative to need across full set of whole-of-society stakeholders

Wildfire mitigation and response (e.g., early detection and suppression) are critical to buying down risk and reducing the total cost of wildfires to California. Doing this work requires increased effort and investment by stakeholders across the board. Federal, state, tribal, and local governments, utilities, telecommunications providers, homeowners, businesses, and communities each play a critical role in upholding the chain of resilience.

Figure 1: Illustrative actions & supporting stakeholders to realize whole-of-society community mitigation effort, which must be tailored and scaled throughout California



1. Community and CAL FIRE create **strategic fuel breaks** as prepared lines of defense to protect community
2. State, local governments, and utilities fund **fire observation** (i.e., AI-enabled camera systems) & early warning systems to ensure the community has ample warning
3. CAL FIRE, local fire departments, tribal groups, and private landowners conduct **thinning and prescribed burning** to reduce fuel capacity of the land
4. State and local firefighting resources **closely collaborate in resource positioning** during the highest fire risk conditions
5. Local community and CAL FIRE co-fund increased **water source development** to enhance effectiveness of aerial firefighting
6. Community and individuals create detailed **evacuation plans** with contingencies based on live-feed information from agencies leading fire suppression efforts
7. Local community, local government, and homeowners strategically **harden homes**, protect **Zone Zero**, create **community defensible spaces**, and enhance water infrastructure (i.e., remote shutoff valves)
8. Utilities prioritize **fuel management** and ignition risk reduction at **intersection of utility & community infrastructure** (e.g., increased focus where utility lines intersect with evacuation routes)

Figure shows example roles different stakeholders can play to help mitigate wildfire risk in a community. To date, very few communities in California have achieved this level of collaboration and coordination.

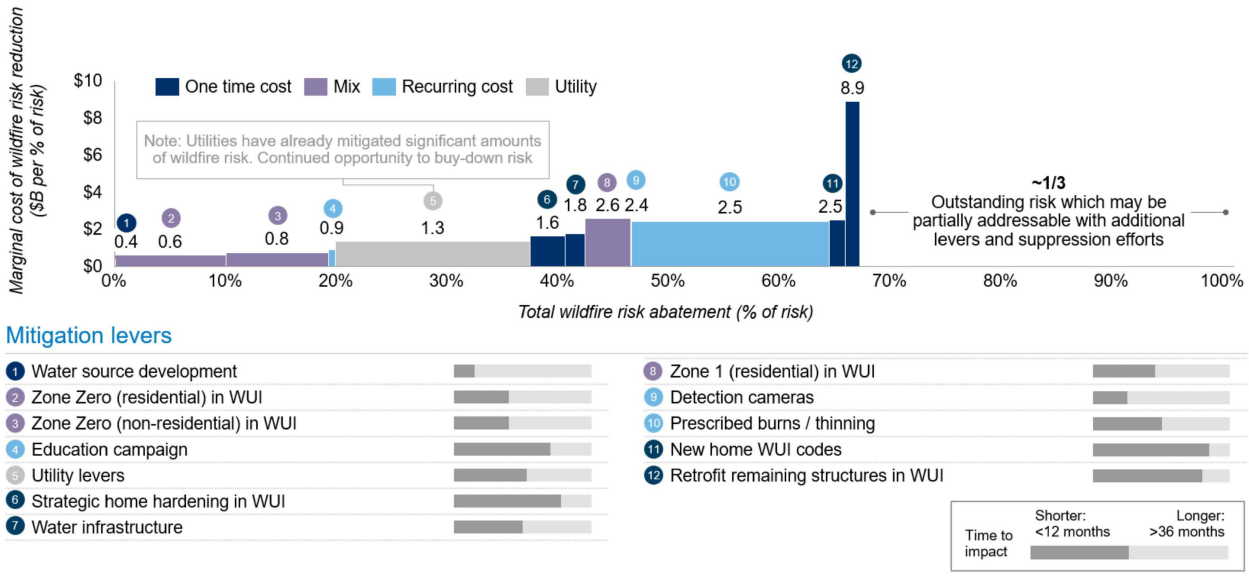
While there is consensus that more needs to be done across stakeholders, California lacks a whole-of-society framework to identify and address gaps in mitigation and suppression efforts across the State. As a result, a key remaining challenge is how to effectively prioritize, incentivize, fund, and achieve progress in a way that focuses on the highest risk areas at the lowest cost. The following sections lay out key challenges hindering effective engagement towards driving significant risk buy-down.

Challenge 1a: California lacks a whole-of-society framework to identify and address gaps in statewide mitigation and suppression

California lacks a comprehensive set of wildfire risk reduction targets and goals that engage the full set of whole-of-society stakeholders across the full range of risk factors. This kind of holistic framework, which should include tailored, regional targets that flow into a comprehensive statewide picture, could promote shared understanding of risk and the costs and benefits of a wide range of actions, aid effective prioritization and tailored implementation to local contexts, and enable progress tracking to drive accountability towards targeted reductions in wildfire risk.

To help assess the opportunity, cost, and wildfire risk reduction potential of a full range of interventions at the state-level, a Wildfire Abatement Risk Model (WARM) was developed for California as a part of the analysis for this white paper.[159,160] This tool provides a graphical representation of the marginal cost of wildfire risk abatement of various mitigation options across the State.

Figure 2: Wildfire Abatement Risk Model (WARM) framework for California[161]



[159] The WARM curve was developed for this paper to visualize the marginal cost of possible wildfire-mitigation actions in California. It illustrates the efficiency (dollars per percent of risk reduction) and maximum mitigation potential (total percent reduction possible) of each lever to help prioritize interventions. It was validated against estimated benefit-cost ratios across sources, IOU-produced risk mitigation estimates, and with internal & external experts. This model was adapted from Marginal Abatement Cost Curves, which are widely utilized in decarbonization initiatives.

[160] "What You Need to Know About Abatement Costs and Decarbonization." World Bank Group, April 20, 2023.

[161] Figures on y-axis represent the net present value of the cost to reduce 1% of recurring wildfire risk while the x-axis represents the magnitude of risk reduction possible by each mitigation lever. Represents highly simplified risk model. Three considerations: (1) tail risk is highly unpredictable year-to-year which varies the mitigation buy-down benefits. (2) Marginal cost of risk reduction increases exponentially the closer each lever gets to 100% risk reduction. (3) Economies of scale will be required to reduce marginal costs and improve cost-effectiveness (e.g., greater scale and predictability of undergrounding drives down per-unit costs).

Figure shows marginal cost of residual wildfire risk buy-down by lever to indicate highest efficiency incremental actions (shortest bars) and the actions with the highest potential for incremental risk buy-down (widest bars)

While additional, non-financial factors such as time-to-impact; disruptions to people, businesses, and landscapes; and environmental impacts should also be considered, this model suggests Zone Zero, utility levers, and prescribed burns/thinning as key opportunities to reduce outstanding wildfire risk in the state of California cost-effectively. The following table summarizes the approximate marginal cost of abatement demonstrated as benefit-cost ratios along with a qualitative assessment of time-to-impact and the cost basis across key levers. The benefit-cost ratios indicate the value in dollars of future risk buy-down from each dollar invested in mitigations today.

Figure 3: Benefit-cost ratios for selected wildfire mitigation levers[162]

BCR = NPV of mitigation benefits / NPV of cost to implement mitigation

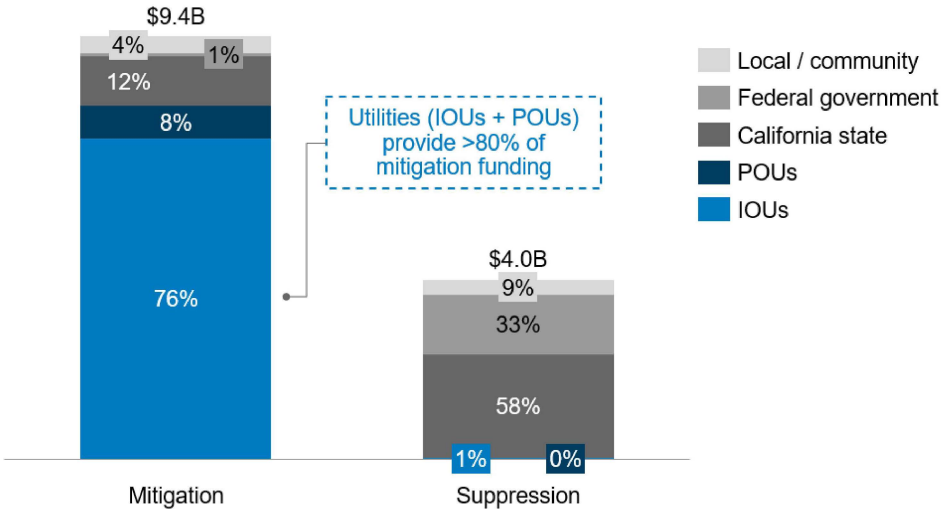
	Lever	Benefit-cost ratio	Time to impact	Cost basis
Ignition prevention	1 EPSS (Enhanced Powerline Safety Settings)	40-60	Short	Mix
	2 PSPS (Public Safety Power Shutoff)	30-50	Short	Recurring
	3 Utility enhanced inspections & mitigations	30-50	Short	Recurring
	4 Utility hardening (e.g., undergrounding, covered conductors)	5-15	Long	One-time
	5 Utility risk assessment & monitoring	5-8	Medium	Recurring
	6 Utility field ops protocols	4-6	Medium	Recurring
	7 Utility vegetation management	4-6	Medium	Recurring
	8 Public education campaign	10-15	Long	Recurring
Consequence reduction	9 Prescribed burns / thinning	3-10	Medium	Recurring
	10 Fuel break expansion	3-10	Medium	Recurring
	11 Zone Zero (residential)	15-25	Medium	Mix
	12 Existing structure hardening (residential)[3]	1-10	Long	One-time
	13 Existing structure hardening + Zone Zero (commercial)[3]	1-10	Long	One-time
	14 WUI code requirements for new construction	4-6	Long	One-time
Suppression support	15 Water source development	10-30	Short	One-time
	16 Observation camera development	4-8	Medium	Recurring
	17 Water infrastructure system improvements	3-8	Long	One-time

Challenge 1b: There is insufficient investment in reducing risk and total system cost, relative to need

Currently, California stakeholders invest approximately $9 billion on mitigation and $4 billion on suppression annually, summing to a total annual investment of approximately $13 billion in the State.

[162] Benefit-cost ratios indicate the number of dollars in future direct economic benefit from each dollar invested today. Calculated from NPV of future wildfire costs avoided divided by NPV of one-time and recurring costs to achieve the given mitigation measure. Utility mitigation measures (#1-7) averaged across RAMP reporting from the 3 California IOUs. Time to impact defined as Low <12 months, Medium = 12-36 months, Long >36 months. Ranges indicate variance in assumptions (e.g., home hardening cost can range from $15,000-100,000 per home and strategic home selection and greatly vary positive impact). Note: covered conductor lines require ongoing overhead inspections (such as patrols or drone-based), vegetation management activities, and overall operational and maintenance costs comparable to traditional overhead lines, whereas undergrounding requires much lower ongoing costs.

Figure 4: Annual spend on wildfire mitigation and suppression in California (Annual average, 2019-2024)[163,164,165,166,167,168,169,170,171,172,173]



Investment should be increased for both mitigation *and* suppression. However, there is particular need for acceleration of effective investment in mitigation efforts, where the largest opportunities exist to reduce tail risk of wildfires and lessen downstream wildfire costs.[174,175,176,177] According to the US Chamber of Commerce, every dollar invested in mitigation can drive $22 in savings from avoided disruption to economic activity.[178]

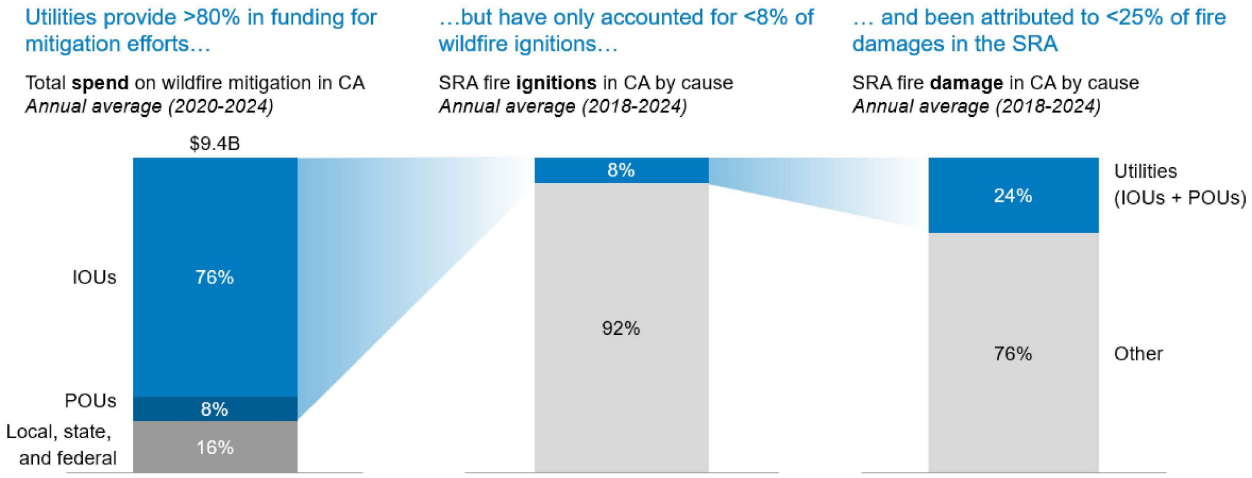
[163] "Spending Annual Summary." Financial Information System for California, 2025.
[164] "PG&E Base Wildfire Mitigation Plan R2: 2026–2028." Vol. 1 of 2, Docket No. 2026-2028-Base-WMPs. Pacific Gas and Electric Company, September 9, 2025.
[165] "PG&E Base Wildfire Mitigation Plan R1: 2026–2028." Vol. 2 of 2; Docket No. 2026-2028-Base-WMPs. Pacific Gas and Electric Company, September 9, 2025.
[166] "SCE 2026-2028 Wildfire Mitigation Plan R2." Docket No. 2026-2028-Base-WMPs. Southern California Edison, October 27, 2025.
[167] "SDG&E 2026-2028 Base Wildfire Mitigation Plan R2." Docket No. 2026-2028-Base-WMPs. San Diego Gas & Electric, September 30, 2025.
[168] "Decision on test year 2023 general rate case for Pacific Gas and Electric Company." Decision 23-11-069. California Public Utilities Commission, November 17, 2023.
[169] "CPUC decision fact sheet: Southern California Edison's 2025 general rate case." Proceeding No. A.23-05-010. California Public Utilities Commission, September 18, 2025.
[170] "Decision addressing the 2024 test year general rate cases of Southern California Gas Company and San Diego Gas & Electric Company." Decision 24-12-074. California Public Utilities Commission, December 23, 2024.
[171] "State and Local Finance Data." US Census Bureau's Census of Governments, 2022.
[172] "WFIGS Current Interagency Fire Perimeters." NIFC Authoritative Content, 2023.
[173] POU mitigation spend estimated from share of POU customers (25% or 4M, "2024 California Renewables Annual Report") * California IOU current wildfire mitigation spend per customer ($0.6 billion/million customers - WMPs) * assumed differences in mitigation spend as informed by wildfire rate pass throughs (29%, Singh, Ong, and Sud, "Wires and Fire").
[174] Ahumada-Paras, Mareldi, et al. "California Wildfire 2025: Emerging Trends & Policy Insights." Stanford University Climate and Energy Policy Program, 2025.
[175] Feo, Teresa J., et al. "The Costs of Wildfire in California." California Council of Science & Technology, October 2020.
[176] "California's Wildfire and Forest Resilience Action Plan." California Wildfire & Forest Resilience Task Force, January 2021.
[177] Caudell-Feagan, Michael, Kil Huh, and Mary Murphy. "Wildfires: Burning through State Budgets." The Pew Charitable Trusts, November 30, 2022.
[178] "The Preparedness Payoff: The Economic Benefits of Investing in Climate Resilience." US Chamber of Commerce, 2025.

Mitigation can reduce risk through two key levers: reduction of ignitions and reduction of ignition consequence (i.e., fire spread and damage from losses). To effectively buy-down wildfire risk, both of these levers must be addressed.

Lack of visibility and action towards addressing full range of ignition causes

As mentioned previously, more than 80% of California's spend on wildfire mitigation efforts is by utilities targeted towards reduction of utility-linked ignitions, which comprised 8% of all ignitions and 24% of damages on State Responsibility Area (SRA) lands between 2018 and 2024.[179,180] The remaining less than 20% of spend targets the other 92% of ignitions caused by other sources (e.g., vehicle impacts, campfires, arson).

Figure 5: Wildfire mitigation spend, ignition cause, and financial damages by stakeholder[181,182,183,184,185,186,187,188]



While some ignitions are outside of human control (e.g., the 5% of ignitions on SRA land sparked by lightning), there is significant opportunity to further reduce risk of ignition from other human-related causes. For example, Caltrans has taken steps to address vehicle-caused ignitions, which account for approximately 20% of sparks on SRA land,[189] by accelerating herbicide, brush removal schedules, and collaborating with CAL FIRE to

[179] 2018-2024 average for ignitions chosen over 2020-2024 spend period due to '18- '19 having a higher share of utility ignitions (only <1% of ignitions 2020-2024 were utility-driven). Comparable '18-'19 spend data unavailable.
[180] "CAL FIRE Statistics." California Department of Forestry and Fire Protection, December 8, 2025.
[181] "CAL FIRE Statistics."
[182] 2018-2024 average for ignitions chosen over 2020-2024 spend period due to '18- '19 having a higher share of utility ignitions (only <1% of ignitions 2020-2024 were utility-driven). Comparable '18-'19 spend data unavailable.
[183] "PG&E Wildfire Mitigation Plan."
[184] "SCE Wildfire Mitigation Plan."
[185] "SDG&E Wildfire Mitigation Plan."
[186] "LADWP Wildfire Mitigation Plan." Version 2.2. Los Angeles Department of Water and Power, June 2025.
[187] "SMUD Wildfire Mitigation Plan 2023-2025." Sacramento Municipal Utility District, June 19, 2023.
[188] Note: Ignition attribution data only available for SRA and does not consider 2025 wildfire season due to unavailability of finalized data. Utility share of damages would with these items included would be unlikely to increase near to the 80% share of mitigation spend
[189] "CAL FIRE Statistics."

implement controlled burns to maintain low-growth strips up to 10 feet wide along State highway rights-of-way in fire-prone areas.[190] This and similar initiatives should be supported and rapidly scaled.

Insufficient consequence reduction efforts

It is not possible to fully eliminate the potential for ignitions in California, nor is attempting to do so optimal. Thus, consequence reduction, i.e., minimizing the potential for wildfire to spread and cause catastrophic damage, is critical. Wildfire consequence is shaped not only by weather patterns and topography, but also by factors within California stakeholder control (e.g., the treatment of accumulated fuels, the levels of community hardening, building codes, the strength of early detection mechanisms, and by the timelines and scale of suppression efforts).

Current efforts towards consequence reduction are insufficient. High impact interventions such as vegetative fuels management and Zone Zero interventions can significantly reduce risk. There is a need for more stable, long-term funding to support rapid scaling of these initiatives, including for maintenance projects.[191,192] California has established a target of 400,000 acres of prescribed burns annually, and current efforts have achieved about two-thirds of that goal.[193,194,195,196] While this is meaningful progress, estimates suggest that approximately 3 million acres would require land treatment annually to re-establish natural fire return intervals.[197,198,199,200] Similarly, Zone Zero practices have not been adopted by a large majority of nearly 3 million homes in the WUI, and fewer than 5,000 of WUI homes have been hardened as part of a home hardening program.[201,202,203,204] Continued investment across these levers would yield significant returns: for example, a rough estimate based on publicly available targets, implementation costs, and expert

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[190] Mile Marker: A Caltrans Performance Report, Issue 1. "Caltrans, State Push Fire-Resilient Roadways Strategy." Caltrans, 2022.
[191] "Costs of Wildfire."
[192] "California's Wildfire Resilience Plan."
[193] "Agreement for Shared Stewardship of California's Forests and Rangelands." MOU between State of CA and USFS, August 2020.
[194] "Interagency Treatment Dashboard." Wildfire & Forest Resilience Task Force, December 2025.
[195] "Prescribed Fire Incident Reporting System (PFIRS)." California Air Resource Board, December 2025.
[196] CAL + USFS combined 400K acre target by 2025 ("USFS & California State MOU"). Current progress of ~260K acres as of 2023 ("Interagency Treatment Dashboard"). Since 2026, approximately 50% of prescribed burns planned for 2024 were conducted ("PFIRS")
[197] "New Study Identifies Costs of Wildfire Fuel Treatment in California." Resources for the Future, February 11, 2025.
[198] "Cost-effectiveness of large-scale fuel reduction for wildfire mitigation in California." Pg. 13. The Breakthrough Institute, June 13, 2025.
[199] "Low-intensity fires reduce wildfire risk by 60%." Stanford University, November 10, 2023.
[200] Treating areas with high wildfire-hazard potential would require treating 17M acres ("Fuel Treatment in California") every six years ("Low intensity fires reduce risk") at treatment costs of approximately $1,500-2,000 per acre ("Cost-effectiveness of fuel reduction")
[201] "California's deadliest wildfire devastated this town. Now an insurer is eager to return." San Francisco Chronicle, December, 2024.
[202] "California Wildfire Mitigation Program." Cal OES.
[203] "KB Home Introduces Wildfire-Resilient Neighborhood."
[204] ~3,800 homes hardened under community and state-wide programs (2,500 from Paradise rebuild, 1,100 from IBHS certifications, ("California's deadliest wildfire devastated"), 64 in Dixon Trail Community Build("KB Home Introduces Wildfire-Resilient Neighborhood."), and 133 from California Wildfire Mitigation Program ("California Wildfire Mitigation Program"). Other homes may be hardened via individual efforts or as part of non-reported programs.

interviews suggests that investing approximately $9 billion annually in additional mitigation could reduce residual wildfire risk by 30-50%, with each annual investment yielding greater than $30 billion in risk-reduction benefits.[205] While this estimate is directional, rather than precise, it highlights the incremental opportunity to buy-down risk and overall system costs via strategic mitigation efforts.

Figure 6: Current annual spend and approximate, estimated gap to achieve approximately 30-50% reduction in total residual wildfire risk for key consequence reduction measures (Annual average spend 2020-2024)[206,207,208,209,210,211,212,213,214,215,216,217,218,219,220,221]

[205] Greater than $30 billion benefits as defined by benefit-cost ratios and outstanding need for funding denoted in Figure 6. Risk buy-down estimate informed by WARM framework in Figure 2 and BCRs in Figure 6.

[206] Current spend on prescribed burning / thinning based on approximately $770 million ("CAL FIRES Spending Annual Summary") on mitigation (10% of Fire Control, 70% of Cooperative Fire Protection, 30% of Conservation Camp, and 100% of Fire Prevention budget lines), $239 million non-CAL FIRES spend on wildfire mitigation ("Wildfire Resilience Funding"), approximately $100 million Caltrans spend – 5% of Caltrans maintenance budget ("Governor's Budget"), and approximately $75 million Fed spend ("Appropriations for FS and DOI"). Current spend on structure hardening and Zone Zero assumes ~3% of homes adopt Zone Zero and ~0.5% adopt retrofits in a given year. Current spend on suppression support assumed to be approximately $50 million given $22 million California IOU spend on direct suppression support. ("SDG&E RAMP Report" and "SCE RAMP"), >$1 million local spend on dip tanks (expert interview), and >$30 million from observation cameras (expert interview).

[207] Prescribed burn / thinning outstanding need assumes treating ~17M acres that are high wildfire-hazard areas ("Fuel Treatment in California")* $1,500-2,000 treatment costs per acre ("Cost-effectiveness of fuel reduction") / 6 year treatment cycle ("Low intensity fires reduce risk"). Structure hardening considers moderate hardening cost per home costs of $15,000/home ("Retrofitting home for wildfire resistance") * 8.3M homes in CA ("Housing unit totals") * 35% of homes in WUI ("USFS WUI map") / 10 years (assumption). Zone Zero assumes 8.3M homes in CA ("Housing unit totals") * 35% of homes in WUI ("USFS WUI map") * $2,900 cost to implement ("Berkeley's proposed new law") * 75% Zone Zero compliance (assumed) / 10 years (assumptions) + 1.1M non-residential buildings ("Housing unit totals") * 35% of homes in WUI ("USFS WUI map") * $2,900 cost to implement ("Berkeley's proposed new law") * 4-7x size of commercial building relative to residential ("Commercial building inventory"). Outstanding need for suppression support assumes 5 dip tanks needed for each of the 29 fire prone counties (expert interview and "FEMA National Risk Index") * $50,000 tank cost (expert interview), 800 cameras needed (expert interview) * $20,000 cost/yr (expert interview), 7.6 million shutoff valves needed in CA accounting for 95% of single-family homes ("Housing unit totals" and 95% assumption) * $500-700 average cost ("Smart water monitor.")

[208] "CAL FIRES Spending Annual Summary." State of California expenditures.

[209] "Overview of State Wildfire Resilience Funding, Actions, and Considerations." Legislative Analyst's Office, April 23, 2025.

[210] "2024-25 GOVERNOR'S BUDGET, TRANSPORTATION." Pg. 1. State of California.

[211] "Funding for wildfire management: FY2025 appropriations for Forest Service and Department of the interior. Library of Congress.

[212] "Valuing prescribed fire." Stanford University, November 10, 2023.

[213] "The cost of retrofitting a home for wildfire resistance". Headwaters Economics, August 21, 2025.

[214] "National, state, and county housing unit totals: 2020-2024." US Census Bureau, May 28, 2025.

[215] "Wildland urban interface: 2020 (Map Service)." US Forest Service, October 2, 2023.

[216] "Berkeley's proposed new law would be among the strictest in California." Sprague (Berkeley Fire Chief), D, April 21, 2025.

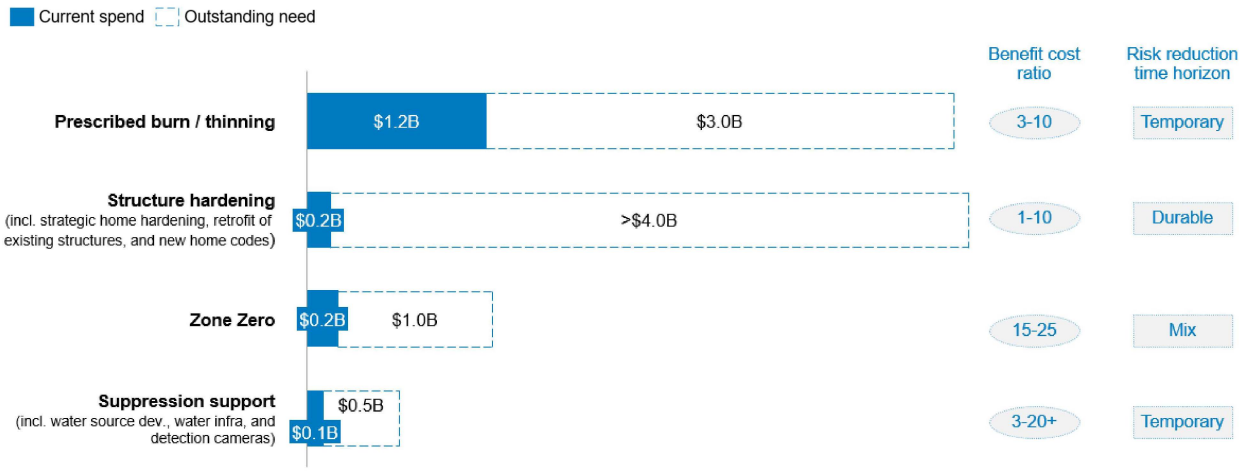
[217] "City and county commercial building inventories." US Department of Energy, 2019.

[218] "Wildfire Hazards. Wildfire | National Risk Index." FEMA.

[219] "Moen Flo Smart water monitor 3/4-in to 1-1/4-in indoor/outdoor smart compatible water leak detector with automatic shut-off valve." Lowes.com.

[220] "SDG&E RAMP Report." Pg. 336. SDG&E, May 15, 2025.

[221] "APPLICATION OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) REGARDING 2022 RISK ASSESSMENT MITIGATION PHASE (RAMP)." Pg. 190. SCE, May 13, 2022.



Challenge 1c: Increased effort needed to rapidly scale and strategically support key levers to cost-effectively reduce risk

Analyzing California's WARM in concert with current gaps to investment targets, time-to-benefit metrics, and non-financial costs has revealed three areas for immediate, increased focus: community hardening, landscape-scale vegetation management and fuels treatment, and targeted suppression support. These areas align with where the State has increased focus to date, but where evidence suggests even more rapid action and scale-up are required.[222]

Key mitigation opportunity: Rapidly scale community hardening

Community hardening initiatives help reduce ignition risk, fire spread, and impact to infrastructure and services. Zone Zero interventions, residential and commercial structure hardening, and building code upgrades in the WUI are all examples of community hardening initiatives. Strategic community hardening can cost-effectively bring down wildfire risk. In particular, Zone Zero interventions can be implemented with an average benefit-cost ratio (BCR) of 15-25, meaning that every one dollar invested in Zone Zero can buy down risk by an average of $15-$25.[223,224,225,226,227] Similarly, implementing upgraded

[222] "How California has increased wildfire response and forest management in the face of a hotter, drier climate." January 13, 2025.
[223] Benefit-cost ratios as outlined in Figure 3. Costs calculated from 8.3M homes in CA ("Housing unit totals") * 35% of homes in WUI ("USFS WUI map") * $2,900 cost to implement ("Berkeley's proposed new law") * 75% Zone Zero compliance (assumed). Benefits calculated from 12,000 single-family homes burned in California '18 ("CAL FIRE Statistics") * $800-900k avg. California home value ("Median homes prices by county") * 15% Zone Zero improvement in home survival ("Risk to structures in WUI") * 75% Zone Zero compliance (assumed) * 5.45 PG&E risk attitude ("PG&E RAMP Workshop #3") / 5% societal discount rate (assumed).
[224] "PG&E 2024 Risk Assessment and Mitigation Phase Workshop #3 June 18th, 2024." Pg. 33. PG&E & CPUC, June 18, 2024.
[225] "DINS Data." CAL FIRE damage inspection (DINS) data - dataset - California open data. CAL FIRE.
[226] "Median home prices and mortgage payments by County." National Association of Realtors, January 8, 2025.
[227] Zamanialaei, Maryam, et al. "Fire risk to structures in California's wildland-urban interface." Nature Communications 16, no. 1 (August 28, 2025).

building codes for new homes in the WUI and hardening existing structures sees a BCR of 1-10,[228] depending on specific configuration, timing, and location within a community.

The State has recognized the high potential of many community hardening interventions. [229] Continued support for implementation and stable funding is essential to capitalize on this opportunity. The largest home hardening program, the California Wildfire Mitigation Program, has so far completed 94 retrofits (<0.01% of need) since 2019 with a budget of $117 million. [230,231] The importance of near home interventions was highlighted by the establishment of Zone Zero in 2020 via AB 3074. However, the Board of Forestry and Fire Protection (BoF) has yet to adopt final regulations, and lack of community buy-in is inhibiting progress.

Individuals can take immediate, relatively low-cost home hardening actions to reduce risk. Lower-cost retrofits can reduce structure ignition risk at a fraction of the cost of comprehensive retrofits, offering a more accessible entry point for broader participation.[232] These interventions (e.g., ember-resistant vents, window and door sealing with fire-resistant caulking, and eave protection[233]) address the primary ignition pathways through which embers infiltrate structures during wildfires. To effectively buy down wildfire risk, California must build upon existing initiatives and mobilize policy tools, investment, and resources to build local support for and rapidly scale community hardening measures targeted in the highest risk areas. Furthermore, given that the upfront cost and initial prioritization of home hardening is a barrier for many private homeowners, unique funding models and support systems should be explored to ensure efforts to scale home hardening can progress equitably.

Local efforts could raise awareness of the benefits of community hardening and support buy-in. Adoption of hardening standards by public institutions, like schools and universities, could demonstrate community resilience in action and build trust for broader adoption. Programs that support local champions (e.g., Firewise communities[234]) or that demonstrate and promote the benefit of Zone Zero and other interventions (e.g., University of California Master Gardener programs[235,236]) could provide

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[228] Benefit-cost ratios as outlined in Figure 3. Costs calculated from 8.3M homes in CA ("Housing unit totals") * 35% of homes in WUI ("USFS WUI map") * $15,000 cost to implement moderate hardening ("Retrofitting home for wildfire resistance"). Benefits calculated from 12K single-family homes burned in CA '18 ("CAL FIRE Statistics") * $800-900k avg. California home value ("*Median homes prices by county*") * 5% hardened home improvement in home survival ("*Risk to structures in WUI*") * 5.45 PG&E risk attitude ("*PG&E RAMP Workshop #3*") / 5% societal discount rate (assumed). Ranged for uncertain compliance rate and variance in efficacy.

[229] "Governor Newsom signs executive order to further prepare for future urban firestorms, stepping up already nation-leading strategies." Governor of California, February 7, 2025.

[230] "California Wildfire Mitigation Program – About page." California Governor's Office of Emergency Services, December 2, 2025.

[231] "KB Home Introduces Wildfire-Resilient Neighborhood." KB Homes, March 27, 2025.

[232] "Construction_Costs_Wildfire_Resistant_Homes." IBHS, Fall, 2025.

[233] "Fire risk to structures in California's wildland-urban interface."

[234] "Building Firewise Communities: Wildfire Preparedness." CAL FIRE, September 27, 2024.

[235] "Understanding Defensible Space Zone 0." Van Den Broeck, Hedwig. UC Agriculture and Natural Resources, June 29, 2024.

[236] "Wildfire Preparedness in the Home Landscape." UC Agriculture and Natural Resources, December 2021.

targeted support in high-risk communities. The State has taken steps to fund county-level coordination through one-time grants for administrative costs offered through the California Fire Safe Council's County Coordinator Program.[237] Such efforts could be expanded to build momentum and reduce wildfire risk.

California stakeholders can collaborate to accelerate and support private property owner participation in community hardening. Government, insurers, or other appropriate entities can establish vendor registries and bulk purchasing agreements — such as the California Fire Safe Council's Fire Safe Vendor List[238] — that provide property owners access to discounted hardening materials and trusted contractors. Insurers could also align on performance-based home hardening standards, such as those established by the IBHS,[239] and differentiate premiums to reward hardened properties. Beyond direct cost impacts, insurance participation would serve as an additional awareness mechanism, signaling to homeowners that hardening measures are recognized by the market and prompting consideration of retrofit options they might not otherwise explore. Broader incentives will be important, however. For example, favorable financing options, such as the Sonoma County Energy Independence Program or tax incentives, [240] could encourage individual investment and reduce upfront costs. With these pathways, homeowners can more readily and affordably retrofit older structures to meet building codes, maintain defensible space, and implement Zone Zero practices.

Mechanisms to scale hardening interventions from parcel-level to community-scale should be prioritized. Organizations like IBHS have recognized the potential for community-level risk reduction, building on individual near-home interventions. Efforts to mobilize funding towards targeted, scaled community-level hardening should continue and be expanded. For example, insurers could participate in tiered incentive structures that reduce premiums for individuals who harden their own homes, with incremental discounts based on the level of hardening completed at the community level (e.g., leveraging recent work from the IBHS Wildfire Prepared Neighborhood Technical Standard).[241]

Key mitigation opportunity: Rapidly scale landscape-scale vegetation management & fuels treatment

Landscape-scale vegetation management and targeted fuels treatment represent another critical opportunity to cost-effectively mitigate wildfire risk. For example, prescribed

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[237] "Notice of Funding Opportunity: 2025 CAL FIRE County Coordinator Grant Program. California Fire Safe Council, April 2025.
[238] "2025 Fire Safe Vendor List." California Fire Safe Council, 2025.
[239] "Wildfire Prepared Home Designation Certificate Levels." Wildfire Prepared Home - A Program of IBHS. IBHS.
[240] "SCEIP Financing. Energy and Sustainability." County of Sonoma, 2022.
[241] "Wildfire Prepared Neighborhood Technical Standard." IBHS, 2025.

burns/thinning and firebreak expansions are associated with a BCR of 3-10.[242] Despite widespread recognition of the potential benefits of these types of fuels reduction and their historical precedence in California (e.g., with Native Californians historically burning an estimated 4.4 million acres per year), [243,244] these interventions have yet to reach the scale required to effectively buy down risk. California should scale up investment and resources, leveraging wildfire behavior modeling that can help target where treatments will have the highest return on investment.

Landscape-scale vegetation management and targeted fuels treatment can require collaboration across jurisdictional boundaries and diverse land ownership patterns. California's high-risk wildlands are managed by a patchwork of federal, State, tribal, local, and private landowners, yet fire does not respect property lines. Effective fuels reduction depends on coordinated treatment across contiguous landscapes to create strategic fuel breaks and reduce fire intensity. Partnerships between utilities, local forestry groups, large public, tribal, and private land managers to implement extended clearance for vegetation management around power lines on private lands create mutual benefits. Local governments and non-profit organizations can convene small private landowners for cross-jurisdictional treatments, addressing the challenge that individual property owners often lack the resources or coordination mechanisms to achieve landscape-scale impact (e.g., building upon the work of Fire Safe Councils). The California Wildfire & Forest Resilience Task Force is also advancing these objectives through various initiatives.[245] State government can continue to accelerate these efforts by streamlining permitting requirements, providing exemptions for resource reviews on approved fuels management activities, and increasing dedicated funding for vegetation management programs.

Key response opportunity: Strategically support enhanced early detection & suppression

While there has been significant attention and investment in fire detection and suppression in recent years, there remain opportunities to leverage these strategies to cost-effectively mitigate risk and reduce damages from wildfires, once ignited. These interventions are particularly critical in the short and medium term. Underserved and rural communities in particular face disproportionate wildfire risk and limited access to both mitigation resources and emergency response infrastructure. These communities would

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[242] Benefit-cost ratios as outlined in Figure 3. Costs calculated from $1,500-2,000 treatment cost per acre ("Cost-effectiveness of fuel reduction") * 17 million total acres at risk ("Fuel Treatment in California") / 6 year burn rotation ("Low intensity fires reduce risk"). Benefits calculated from $35-40 billion average wildfire damage in a year (*assumed scenario*) * 60% prescribed burn reduction of catastrophic fires ("Low intensity fires reduce risk") * net efficiency loss (95% - assumed) / 5% societal discount rate (*assumed*). Ranged for variety of treatment costs and benefit ranges.

[243] "California Wildfire 2025."

[244] "Prehistoric Fire Area and Emissions from California's Forests, Woodlands, Shrublands, and Grasslands." Stephens, Scott L., Robert E. Martin, and Nicholas E. Clinton. *Forest Ecology and Management* 251, no. 3 , 205–16, November 2007.

[245] "California's Wildfire Action Plan."

particularly benefit from expanded detection systems and enhanced suppression capacity, enabling faster response times across California's diverse landscapes.

Early detection and rapid suppression represent high-leverage investments that can prevent small ignitions from escalating into catastrophic events. Camera networks have demonstrated their value, with one major California network detecting approximately 2,600 unique wildland fires in 2024 and outpacing 911 calls 38% of the time.[246] Expanding camera coverage from 1,200 to 2,000 units would provide more comprehensive early warning capabilities.[247] Strategic water infrastructure, particularly helicopter dip tanks positioned in areas with limited natural water access, amplifies aerial firefighting effectiveness by reducing turnaround times from 25–30 minutes to approximately 12 minutes, enabling sustained initial attack during the critical first hour when fires are most containable. The State has also advanced pre-positioning protocols, with CalOES and CAL FIRE proactively deploying resources in advance of National Weather Service Red Flag Warnings to ensure the right assets are in place before conditions escalate.[248,249] Consistent prepositioning by local governments during similar conditions could improve response time and further reduce risk of catastrophic wildfires.

Challenge 1d: Lack of robust mechanisms for shared responsibility and accountability hinder sufficient & sustained engagement

Increasing fair, shared responsibility and accountability for community resilience and risk reduction will help accelerate momentum and align incentives across sectors.

There are many accountability mechanisms that could be explored to drive a whole-of-society approach to reduce catastrophic wildfire risk in California. For example, mechanisms could borrow from similar efforts in other sectors like climate and nuclear power (e.g., AB 32 and INPO, respectively) or build upon existing efforts by Fire Safe Councils and IBHS to create mechanisms for peer review and shared best practices between stakeholders — including utilities, local governments, fire departments, land managers, and community organizations. Potential performance metrics might track insurance availability and affordability as primary indicators of progress, with specific attention to reducing FAIR Plan exposure and increasing access to private market coverage in high-risk areas. Increasing building official accountability for enforcement of current wildfire building codes — particularly for new construction in burn scars and high-risk areas — could establish baseline compliance. By linking insurance premium reductions to

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[246] Data based on interview with AlertWest.
[247] Per-camera costs ranging from $10,000 to $40,000 annually. Data based on interview with AlertWest, with estimated BCRs for early detection cameras in range of 4-8.
[248] "Governor Newsom deploys firefighting resources ahead of more dangerous fire weather." Governor of California, January 19, 2025.
[249] "CalOES prepositions firefighting resources across California due to strong offshore winds provoking fire weather." CalOES News, November 5, 2024.

verified mitigation achievements and creating transparent scorecards that demonstrate progress, this type of framework could facilitate continuous improvement across all participating sectors.

One potential mechanism to increase accountability would be to explore a structure similar to that of AB 32, the Global Warming Solutions Act (2006). AB 32 established a comprehensive, legally binding program to address greenhouse gas emissions in California, designating the California Air Resources Board (CARB) as the lead agency responsible for setting up, implementing, and enforcing standards.[250] AB 32 enabled a collaborative approach across various state agencies and a diverse set of stakeholders to drive measurable outcomes in California — setting and achieving a 2020 emissions target to reduce emissions to 1990 levels and paving the way to achieving carbon neutrality by 2045.

Key challenge 2: Barriers to implement high-impact resilience activities inhibit progress

Achieving this whole-of-society approach requires reducing the structural barriers that currently impede implementation of proven mitigation strategies. California can enable stakeholders to implement mitigations more quickly with less friction, align incentives to encourage engagement and ownership at the individual and local level, create more stable and sufficient funding, and expand access to tools and metrics that empower data-driven decision making.

Challenge 2a: Inconsistent availability of data inputs and tools to enable effective decision-making and execution

In order for stakeholders to efficiently implement highest impact mitigations, California needs enabling mechanisms: high quality input data, accessible tools that help guide prioritization, and clear pathways to simplify execution.

Enhancing the quality of underlying data inputs would strengthen analytical capabilities and improve decision-making. Historical ignition location data often suffers from spatial inaccuracy. Further, no single, unified repository exists across land jurisdictions (i.e., including SRA, LRA, federal, and tribal lands) for historical ignition and damage data, limiting comprehensive analysis of wildfire trends and outcomes. Similar improvement opportunities exist for fuel load mapping and other critical datasets. For example, fuel data granularity directly impacts the outcomes and accuracy for fire modeling.[251] California also

[250] "AB 32 Global Warming Solutions Act of 2006," California Air Resources Board.
[251] One analysis performed by Planet Labs, compares high-resolution satellite-derived fuels data (10-meter resolution) to standard, federal satellite data (30-meter resolution) demonstrating that more accurate fuel inputs can change fire simulation outcomes

lacks robust data on home hardening progress statewide — making it difficult to assess current levels of community protection. More broadly, the State lacks a comprehensive set of mitigation goals with corresponding funding commitments, tracked progress, and accountability mechanisms. This limits the visibility that stakeholders, like insurers, have into risk reduction progress and can inhibit prioritization of resources towards the highest potential interventions to close gaps.

In addition to bolstering the quality of decision-making tools via improved data inputs, these tools must also be broadly accessible and developed for all jurisdictions to guide prioritization. To address this, the Governor's Wildfire and Forest Resilience Task Force has developed a shared treatment map and statewide modeling across multiple objectives (e.g., wildfire risk reduction, biodiversity, water quality, and carbon outcomes). However, engagement could be expanded to ensure that local governments, community groups, utilities, insurers, and other partners contribute and have access to shared analytical infrastructure to support data-driven decision making. CAL FIRE also develops wildfire spread and risk analyses, but due to the lack of a cross-jurisdictional data collection noted previously, these focus primarily on SRA. As a result, there are availability gaps left for adjacent LRA and Federal Responsibility Areas (FRA), where many at-risk structures in the WUI are located.

Beyond knowing where to act, stakeholders need clear pathways for how to execute. Solutions like standardized playbooks, simplified permitting processes, and pre-approved treatment and biomass management protocols can reduce the time and expertise required to implement proven mitigation strategies. For example, standardizing pre-project requirements — such as timber inventory, botanical audits, and verification of historical significance — across agencies could create clearer pathways for stakeholders looking to execute mitigation activities. By providing both the analytical foundation for smart prioritization and the procedural infrastructure for rapid execution, California can dramatically increase the pace and effectiveness of community resilience implementation.

Challenge 2b: Lack of sufficient market signals and incentives alignment

Aligning incentives at the individual and local level works in parallel with public sector leadership to reduce barriers to action, generate buy-in, and accelerate broader mitigation adoption. Economic signals like tax rebates or differentiated premiums to reward hardening investments can motivate individual homeowners to harden their own properties. Insurers can standardize performance-based hardening standards and offer

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significantly, affecting both predicted fire spread patterns and the number of structures at risk (Marvin, David. “Dynamic Community Wildfire Exposure.” Planet Labs, 2020.

premium reductions for hardened properties. For communities requiring a higher portion of retrofits or where buildings are not owner occupied (where hardening efforts are more challenging) increased efforts to support local buy-in alongside local enforcement of defensible space and building code adherence could improve participation. Together, enhanced visible public leadership and aligned economic signals could create a comprehensive framework that builds understanding, motivates action, and engages diverse stakeholders — including insurers, local governments, and property owners — to reduce the consequence of wildfire.

Challenge 2c: Need for more long-term, stable funding mechanisms

Exploring stable, sufficient funding mechanisms could help scale community resilience efforts. Many stakeholders are actively developing mitigation and community resilience plans but remain constrained by limited and/or short-term funding. This is particularly true for non-utility-driven strategies (e.g., proactive land management, property hardening).

Addressing this challenge requires pairing front-end capital mechanisms with back-end maintenance funding. Special improvement districts could enable property owners or local governments to finance initial hardening investments through special assessments or tax increment financing. A collaborative, multi-stakeholder approach could leverage initial public or private investment to unlock insurance premium reductions, with a portion of those savings redirected toward ongoing maintenance. The Salt River Project, an Arizona utility, partnered with USFS and state forestry agencies on watershed protection through forest thinning.[252] By presenting a compelling business case to adjacent stakeholders, the utility was able to attract $3 for every dollar invested, demonstrating one path to tap into complementary private and public funding.[253] Dedicated revenue streams — such as real estate transaction fees or local property assessments — could also provide stable funding needed. These mechanisms could channel resources to the highest-impact mitigation strategies while distributing financial responsibility more equitably across insurers, governments, utilities, businesses, and individuals.

Recent pilots are already demonstrating how the multi-stakeholder collaboration mentioned above can work in practice. The Fire Smart Community Pilot in the Tahoe Basin brought together a nonprofit convener, fire districts, HOAs, technology partners, and funders to assemble nearly $1 million from public grants, philanthropic contributions, HOA matching funds, and donated technology services. These resources funded integrated fuels treatment, defensible space, and home hardening across a 228-home community. Notably, the demonstrated risk reduction has already translated into insurance outcomes

[252] "SRP Healthy Forest Initiative." Salt River Project.
[253] "Community-Based Approach to Wildfire Risk Mitigation." Guidehouse Inc., July 2025.

— one insurer rewrote a policy for the pilot city's largest HOA, reducing premiums by 33%.[254]

Challenge 2d: Lack of streamlined implementation processes

Improving procedural complexity can also remove barriers to implementation for all stakeholders. As discussed in White Paper 3, the current emergency proclamation extended streamlined review for wildfire vegetation management projects beyond CAL FIRE to a larger group of stakeholders, including utilities. Continuing to expand and institutionalize these supportive policies would reduce total costs, accelerate risk buy-down by months to years, and lower societal costs including utility customer burden. Opportunities to streamline processes and reduce barriers to execution for utility-specific contexts are further explored in the previous white paper.

By removing procedural barriers, aligning incentives, stabilizing funding, and expanding access to decision support tools, California can unlock the potential of whole-of-society participation and achieve resilience outcomes that exceed what any single stakeholder could accomplish alone in a cost-effective manner.

Conclusion

California's progress in wildfire mitigation has established a strong foundation, yet achieving durable risk reduction requires significant acceleration of coordinated resilience efforts and an amplification of action across all sectors. Realizing this vision depends on aligning and increasing accountability across communities, utilities, businesses, private and public land managers, and government at every level. By promoting broad-based stakeholder participation, reducing implementation barriers, establishing stable funding mechanisms, and improving data quality and access to analytical tools, California can build a more integrated wildfire resilience framework that accelerates risk reduction and lowers total costs.

[254] "Fire Smart Community Pilot Playbook."