

Allocating Costs for California Wildfires

Lloyd Dixon¹
The RAND Corporation²

California Commission on Catastrophic Wildfire Cost and Recovery
April 29, 2019

I am a senior economist at the RAND Corporation and director of RAND's Center for Catastrophic Risk Management and Compensation (CCRMC).³ RAND is a nonprofit, nonpartisan research organization that seeks to improve policy and decisionmaking through research and analysis. Along with other researchers in the center, I contributed to California's Fourth Climate Change assessment by examining the effect of wildfire risk on the state's residential insurance market.⁴ The CCRMC has also examined issues regarding compensation in events causing widespread loss.⁵

I would like to offer a few research-based observations on strategies for allocating responsibility for the very large costs of California wildfires.⁶ My main observation is that rather than broadly spreading the cost of wildfires across the state's population, there are important advantages to taking a risk-based approach. Spreading cost without regard to risk can force some people to pay for risks that they did not impose and can reduce incentives to mitigate or avoid wildfire risk. However, risk-based insurance premiums and utility rates can create financial hardships for some households in high-risk areas, and programs should be considered to alleviate these impacts.

Much of the discussion regarding how best to pay for losses caused by wildfire revolves around the liability regime for utility-caused ignitions. Both the strict liability and negligence

¹ The opinions and conclusions expressed in these comments are the author's alone and should not be interpreted as representing those of the RAND Corporation or any of the sponsors of its research.

² The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest.

³ For more information about the CCRMC, see RAND Corporation, "Center for Catastrophic Risk Management and Compensation," webpage, undated. As of April 26, 2019:
<https://www.rand.org/well-being/justice-policy/centers/catastrophic-risk-management.html>

⁴ Lloyd Dixon, Flavia Tsang, and Gary Fitts, *The Impact of Changing Wildfire Risk on California's Residential Insurance Market*, Sacramento: California Natural Resources Agency, August 2018. As of April 26, 2019:
http://www.climateassessment.ca.gov/techreports/docs/20180827-Forests_CCCA4-CNRA-2018-008.pdf

⁵ See Nicholas M. Pace and Lloyd Dixon, *Assigning Responsibility Following a Catastrophe: Alternative to Relying Solely on Traditional Civil Litigation*, Santa Monica, Calif.: RAND Corporation, 2017. As of April 26, 2019:
https://www.rand.org/pubs/research_reports/RR1597.html

⁶ Office of Governor Gavin Newsom, *Wildfires and Climate Change: California's Energy Future: A Report from Governor Newsom's Strike Force*, April 12, 2019. As of April 26, 2019:
<https://www.gov.ca.gov/wp-content/uploads/2019/04/Wildfires-and-Climate-Change-California%E2%80%99s-Energy-Future.pdf>

standards have advantages and drawbacks in this context,⁷ but either standard, when combined with an appropriate cost-recovery scheme, probably can do a reasonable job achieving the desired objectives. Regardless of which standard is chosen, property owners, local governments, and utilities must receive the appropriate price signals to reduce risk.

Utilities, property owners, and city planners all influence the risk of wildfires in California. Utilities can reduce risk by insulating power lines, placing power lines underground, and keeping trees and vegetation away from lines. From the perspective of maximizing overall social wellbeing, one would certainly want utilities to exercise due care in providing electricity, but a cost-benefit perspective weighs against expecting utilities to altogether eliminate utility-caused ignitions: At some point, the costs of reducing utility-caused ignitions will likely exceed the benefits. It is also important to give planners and property owners appropriate incentives to reduce or avoid risk. Property owners can reduce risk by hardening structures and by avoiding building in high-risk areas. Local planners can reduce risk by not allowing development in high-risk areas.

Risk-Based Insurance Premiums

One way to provide appropriate incentives is through insurance premiums that reflect wildfire risk. To some extent, this is already happening in California. In a recent study, we found that homeowners' insurance premiums per \$1,000 of coverage are substantially higher and have been growing more rapidly in high-risk than in low-risk wildfire areas. Even so, insurers believed that the difference in premiums between high- and low-risk areas still did not reflect the full difference in risk.⁸ If the premium difference does not fully reflect the difference in risk, higher-risk properties are subsidized by lower-risk properties, and property owners in high-risk areas are not fully incentivized to reduce risk.

Electricity Rates that Reflect Wildfire Risk

A second mechanism for providing property owners with appropriate incentives to reduce or avoid risk is through electricity rates that reflect the cost of providing service. All Californians benefit to some extent from the main transmission lines that distribute electricity throughout the

⁷ For example, Steven Shavell identifies circumstances under which different liability regimes are optimal. In a case in which both the insurer and the potential victims can influence the probability or magnitude of a loss, Shavell finds under specified assumptions that

strict liability with the defense [of contributory negligence] will be superior to the negligence rule when it is more important that injurers be given an incentive through a liability rule to reduce their activity level than that victims be given a similar incentive (Shavell, "Strict Liability Versus Negligence," *The Journal of Legal Studies*, Vol. 9, No. 1, January 1980).

The reverse holds when it is more important to give potential victims an incentive to reduce their activity level. See William M. Landes and Richard A. Posner, *The Economic Structure of Tort Law*, Cambridge, Mass.: Harvard University Press, 1987; Mark F. Grady, "Untaken Precautions," *Journal of Legal Studies*, Vol. 18, 1989; Giuseppe Dari-Mattiacci, "On the Optimal Scope of Negligence," *Review of Law and Economics*, Vol. 1, No. 3, 2005; and James Anderson, "The Missing Theory of Variable Selection of the Economic Analysis of Tort Law," *Utah Law Review*, Vol. 255, 2007.

⁸ Dixon, Tsang, and Fitts, 2018, pp. 47, 57.

state, but local distribution lines in high-risk wildfire areas create additional risk. Currently, electricity rates do not vary by wildfire risk, and ratepayers in low-risk areas are subsidizing ratepayers in high-risk areas. This cross-subsidy reduces the incentives for property owners and city planners to avoid building in high-risk areas.

Transferring Some Wildfire-Related Costs to Local Jurisdictions

A third mechanism for providing appropriate incentives for reducing wildfire losses is to require cities and counties to internalize more of the costs associated with wildfires. The costs of fighting wildfires are often borne by state and federal agencies, and the Federal Emergency Management Agency's (FEMA) Public Assistance Program rebuilds public buildings and infrastructure. FEMA provides a type of free, low- or no-deductible insurance that pays 75 percent or more of the cost of repair following a presidentially declared disaster. These types of subsidies discourage state and local authorities from considering the full risk of decisions to build in certain areas or use certain building designs.⁹ Policies that require local authorities to bear more of the costs associated with wildfire response and recovery would incentivize cities and counties to more carefully consider the consequences of land use and permitting decisions.

Implications for a Wildfire Compensation Fund

California policymakers are currently considering a wildfire compensation fund for utility-caused wildfires.¹⁰ Compensation funds have been used after other events causing widespread losses, such as the 9/11 attacks, the Deepwater Horizon oil spill, and the General Motors ignition switch incident. A wildfire compensation fund would provide payment to insurers seeking reimbursement for claim payments associated with utility ignitions or to uninsured or underinsured property owners. Such a fund promises more rapid compensation and fewer litigation and other transaction costs. Utilities would remain subject to strict liability for utility-caused ignitions.

Given the advantages of risk-based premiums and rates discussed above, such a fund should be financed in ways that minimize cross-subsidies between high-risk and low-risk areas and properties. Nearly all seem to agree that electric utilities should reimburse the fund when negligent utilities cause a fire. Investors, as opposed to ratepayers, would be responsible for providing these funds. However, the return needed to compensate investors for this risk will ultimately come from ratepayers, and it makes sense that rates reflect the variation of wildfire risk across properties. Substantial funds would also presumably need to be raised from utility customers or businesses and homeowners across the state to cover losses in utility-caused wildfires for which the utility was not negligent. Again, there are advantages to raising those

⁹ For further discussion, see FEMA, "Disaster Assistance; Insurance Requirements for the Public Assistance Program," Federal Register, Vol. 65, No. 36, February 23, 2000, pp. 8927–8931.

¹⁰ See "Concept 3: Wildfire Fund," Office of Governor Gavin Newsom, *Wildfires and Climate Change: California's Energy Future: A Report from Governor Newsom's Strike Force*, April 12, 2019. As of April 26, 2019: <https://www.gov.ca.gov/wp-content/uploads/2019/04/Wildfires-and-Climate-Change-California%E2%80%99s-Energy-Future.pdf>

revenues in ways that reflect the variation in utility-related wildfire risks across properties.¹¹ To the extent that insurance rates reflect differences in risk, tying the contribution to some component of the insurance rates in an area might be an effective strategy.

The concern with an opposite approach—broadly socializing the risk—is that it dilutes incentives to reduce or avoid risk. We have seen this occur with the National Flood Insurance Program, in which subsidized rates have likely hampered efforts to avoid or mitigate flood risk. We must recognize that risk-based insurance premiums and utility rates can create financial hardship for some households, and steps can be taken to ameliorate these effects. For example, insurance premiums and utility surcharges can be phased in over time, or income-based assistance programs can be considered. Further work is needed to understand the size of the consequences of any risk-based funding mechanism on household finances. Analysis conducted in the context of the National Flood Insurance Program provides some examples of how such impacts might be alleviated.¹²

Thank you for considering these comments.

¹¹ Such an approach was also raised by Carolyn Kousky, Katherine Greig, Brett Lingle, and Howard Kunreuther in *Wildfire Costs in California: The Role of Electric Utilities*, Philadelphia: Wharton Risk Management and Decision Process Center, August 2018. As of April 26, 2019:

<https://riskcenter.wharton.upenn.edu/wp-content/uploads/2018/08/Wildfire-Cost-in-CA-Role-of-Utilities-1.pdf>

¹² See Lloyd Dixon, Noreen Clancy, Ben Miller, Sue Hoegberg, Michael Lewis, Bruce Bender, Samara Ebinger, Mel Hodges, Gayle Syck, Caroline Nagy, and Scott Choquette, *The Cost and Affordability of Flood Insurance in New York City: Economic Impacts of Rising Premiums and Policy Options for One- to Four-Family Homes*, Santa Monica, Calif.: RAND Corporation, RR-1776-NYCEDC, 2017. As of April 26, 2019:

https://www.rand.org/pubs/research_reports/RR1776.html

FEMA drew on this report in its report on Congress on flood insurance affordability programs (Department of Homeland Security, *An Affordability Framework for the National Flood Insurance Program*, Washington, D.C., April 17, 2018). As of April 26, 2019:

<https://www.fema.gov/media-library/assets/documents/163171>