**Economic and Community Resilience in California's Wildfire Landscape:**
**Recommendations in Support of California Earthquake Authority ("CEA") Study**

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Abstract:
California faces urgent challenges from escalating wildfire risk, particularly urban conflagrations. Below are our high-level observations and recommendations to CEA and new ideas to address these challenges,
primarily relating to:

- PUC § 719(c)(1): Property insurance availability and affordability
- PUC § 719(c)(3)&(8): Mitigation measures, technology solutions, and risk-reduction programs
- PUC § 719(c)(9): Ideas to reduce economic damages

Property insurance and economic market disruption is a symptom of excessive risk, driven by climate change, historical fire suppression, and expansion of vulnerable development into the Wildland-Urban Interface ("WUI"). Sustainable solutions must prioritize risk reduction through multilayered mitigations and stakeholder collaboration through coordinated efforts to:

1) Increase Visibility of Mitigations and Strengthen Stakeholder Partnerships
2) Refine Metrics, Models, and Prioritization of Mitigation Actions
3) Establish and Support Aligned Mitigation Requirements to Reduce Community Vulnerability
4) Align Ratemaking Frameworks with Actual Risk Exposure

Each of these solutions are summarized below, along with citations to reports that may be useful in gaining a deeper understanding of the underlying issues and specifics. Additionally, we recently prepared an issue brief that we believe is highly relevant to the CEA's study, as it summarizes how wildfire risk impacts insurance and consumers and offers insights on ways that policymakers can effect meaningful change to reduce risk and restore sustainable insurance in high-risk areas, with benefits to economic and community resilience.[1]

This submission is intended to help inform and support the CEA as it considers actionable pathways to restore insurance and utility market sustainability and equitably allocate the burdens and benefits of wildfire risk management. We are available to answer questions and provide additional support upon request.

[1] Milliman (2025). *State of Insurance for Wildfires*.
https://frm.milliman.com/en/insight/state-of-insurance-for-wildfires-report.

Recommendations:

***1) Increase Visibility of Mitigations and Strengthen Stakeholder Partnerships***

- *Challenges:* Mitigation actions performed by one stakeholder are rarely visible or actionable for other stakeholders. While wildfire risk is uniquely responsive to proactive human intervention, achieving meaningful risk reduction depends on collective action and strong partnerships among fire agencies, communities, insurers, utilities, and other key stakeholders.

- *Potential Solutions:* The use of data sharing platforms and emerging technologies (e.g., high-resolution satellite imagery, remote sensing, and digital inspections aided by computer vision models) are critical to the monitoring of rapidly changing conditions.

  There are ongoing efforts to secure funding for a WUI Data Commons ("WDC") to provide unprecedented transparency into mitigation actions that directly affect both property- and community-level wildfire risk.[2] Two phases of the WDC have been completed, including an initial data specification informed by IBHS's Wildfire Prepared Home™ standard, dozens of stakeholder interviews, and a detailed plan for a working pilot involving data collection and standardization for 30 to 50 neighborhoods in California and other Western states.

  The WDC pilot would dovetail with collaborative initiatives, such as mitigation makeovers led by the Western Fire Chiefs Association to help coordinate funding, vegetation treatment performed by utilities near WUI communities, homeowner engagement, and implementation of proven mitigations such as IBHS Wildfire Prepared Neighborhood. Organized "insurance fairs" can then bring together insurance departments, community groups, and consumer groups to promote awareness and insurance availability through the sharing of pre- and post-mitigation information.[3]

  There are related ongoing efforts to collect standardized data on the ability and capacity of fire protection agencies to respond to wildfire events to further improve risk assessment and stakeholder decision-making.[4]

***2) Refine Metrics, Models, and Prioritization of Mitigation Actions***

- *Challenges:* Traditional metrics for mitigation investment (e.g., acres treated, miles of line cleared, hours spent, or dollars invested) emphasize activity over effectiveness and do not adequately capture changes in wildfire risk. Even if risk were considered, current fire spread models show limited inclusion of structure-level features due to the lack of data and methods necessary to characterize home hardening and defensible space features at scale.[5]

  Making mitigation investments without improved risk models and metrics may be misguided and expend valuable resources without meaningfully reducing risk or changing outcomes.

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[2] Milliman (2025). *WUI Data Commons Phase 2: Criteria for Success and Plan for Phase 3 Pilot*. https://www.milliman.com/en/insight/wui-data-commons-phase-2.

[3] See Page 16 of *WUI Data Commons Phase 2* report for further details.

[4] Data for Orange County Fire Authority was collected during a community-specific study on wildfire risk, i.e., Milliman (2024). *Community mitigation and modeling: Rancho Mission Viejo.* https://www.milliman.com/en/insight/community-mitigation-rancho-mission-viejo.

[5] Young, B.A., Thompson, M.P., Moran, C.J. *et al*. Modeling Neighborhoods as Fuel for Wildfire: A Review. *Fire Technology* (2025). https://doi.org/10.1007/s10694-025-01773-3.

- *Potential Solutions:* Mitigation investments should be prioritized according to cost-benefit and social metrics such as their impact on high-risk areas (e.g., those with the highest residual market concentrations), ability to be implemented and maintained, and vulnerability of the population. Data-sharing efforts such as the WDC can serve as a foundation for improving models of structure-to-structure ignition simulation and evaluating mitigation strategy effectiveness.

  Given the rapidly evolving technological landscape, utility mitigation standards should be data-driven and process-oriented, as highlighted in a recent technical conference held by the Federal Energy Regulatory Commission.[6] Unified data-sharing is needed to improve the evaluation of mitigation effectiveness and improve modeling through near-miss ignition event data.

***3) Establish and Support Aligned Mitigation Requirements to Reduce Community Vulnerability***

- *Challenges:* Reducing community vulnerability to fire is complicated by the interdependent nature of conflagration risk, resource/cost constraints, public acceptance, equity concerns, and regulatory complexity. While California's Board of Forestry and Fire Protection is working to complete its "Zone 0" rulemaking by December 31, 2025,[7] the rulemaking has been the subject of significant consumer debate given its impacts on homeowner rights, property aesthetics, and social equity, among other considerations.

  *Potential Solutions:* Aligning and expanding community and home hardening measures, defensible space, and fuel mitigations is essential to reducing wildfire risk. Effective solutions require robust collaboration, funding, education, and flexibility to adapt to changing conditions.

  Studies have found that communities with mitigation requirements showed higher levels of mitigation action, and mandates were perceived to be more effective than voluntary programs.[8] Clearing combustible materials within five feet of residences is a critical, science-based mitigation standard that can reduce structure losses by 17% on its own, according to a study by UC Berkeley.[9] The same study showed that combining home hardening and defensible space can reduce wildfire damage by as much as 50%. This finding aligns with our previous case studies on wildfire risk and property insurance mitigation credits.[10]

  Building and retrofitting homes to wildfire-resistant standards, including updated codes and defensible space requirements, can reduce future wildfire losses by up to 43% while adding

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[6] Federal Energy Regulatory Commission. *Wildfire Risk Mitigation Technical Conference* (2025). https://www.ferc.gov/news-events/events/wildfire-risk-mitigation-technical-conference-09112025

[7] Office of Governor Gavin Newsom (2025). *Executive Order N-18-25.* https://www.gov.ca.gov/wp-content/uploads/2025/02/EO-_Urban-Conflagration-N-18-25-Final.pdf.

[8] Vogt, C., McCaffrey, S., Winter, G. Defensible space features: impact of voluntary versus mandatory programs on a homeowner's attitudes and actions. *Proceedings of the second conference on the human dimensions of wildland fire* (2011, GTR-NRS-P-84). U.S. Department of Agriculture, Forest Service, Northern Research Station. https://www.nrs.fs.usda.gov/pubs/gtr/gtr-nrs-p-84papers/10vogt-p-84.pdf.

[9] Manke, K. California communities can reduce wildfire damage by half. Here's how. *Berkeley News (*2025). https://news.berkeley.edu/2025/08/28/california-communities-can-reduce-wildfire-damage-by-half-heres-how/.

[10] Milliman *et al*. *Catastrophe Models for Wildfire Mitigation: Quantifying Credits and Benefits to Homeowners and Communities*. Casualty Actuarial Society (2022). https://www.casact.org/sites/default/files/2022-10/RP_Cat_Models_for_Wildfire_Mitigation.pdf

relatively little to construction costs, according to a recent study by Headwaters Economics.[11] Since even a small increase in rebuilding costs after a disaster can be challenging for low- and moderate-income households, nonprofits are collaborating with partners to develop replicable models and playbooks for grant administrators.[12]

### *4) Align Ratemaking Frameworks with Actual Risk Exposure*

- *Challenges:* As wildfire risk increases, using residual markets like the California FAIR Plan to address insurance affordability concerns would be misdirected; residual markets with inadequate rates will likely experience disproportionate growth, increased likelihood and size of deficits or assessments, and ultimately not be financially self-sustaining.

  Transferring wildfire risk to utilities can raise their capital costs and ultimately increase costs for all ratepayers. For the California Wildfire Fund, initial fees were assessed on all ratepayers in the service area. These kinds of across-the-board fees or rate adjustments may present a moral hazard as wildfire risk varies, both geographically and based on mitigation actions. [13]

  *Potential Solutions:* Regulatory and pricing frameworks could be aligned with actual wildfire risk to promote market stability and economic resilience. While the California Department of Insurance's Safer from Wildfires framework and Sustainable Insurance Strategy should further improve property insurance rate adequacy and stability, it will take time for the new regulations to be fully reflected. For utilities, risk-differentiated fee assessments and pricing could be considered along with equity and other potential implementation challenges.

[11] Headwaters Economics (2025). *Building wildfire-resistant homes after disasters will save billions*. https://headwaterseconomics.org/natural-hazards/wildfire/building-wildfire-resistant-homes-after-disasters-will-save-billions/.

[12] Insurance for Good. (2025). *Designing Grants to Fund the Resilience Delta*. https://www.insuranceforgood.org/resilience-delta.

[13] Nordman, A. and Hall, I. Up in Flames: Containing Wildfire Liability for Utilities in the West. *Tulane Environmental Law Journal* (2019, Vol. 33:55). https://journals.tulane.edu/elj/article/view/2943/2763.