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From Risk to Reward: Insurance Discounts for Wildfire Mitigation

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Abstract

In 2022, California implemented a major insurance reform requiring insurance companies to provide premium discounts to policyholders who undertake wildfire hazard mitigation, such as installation of fire-resistant roofs, vents, and windows and maintaining defensible space around homes. To evaluate early implementation of this reform, we draw on insurance rules and rate filings to create a database of mitigation discounts offered by insurers. We analyze how discount amounts vary across mitigation measures, insurers, and regions, and assess whether they are large enough to motivate homeowners to undertake these actions. We also compare the California policy to similar policies in states subject to hurricane and windstorm risks. Our results indicate that the current discounts are small: the costs of property retrofits are orders of magnitude greater than the insurance savings. They are also considerably smaller than wind insurance discounts in other states, which we attribute largely to greater uncertainty in the effectiveness of individual wildfire mitigation efforts, coupled with risk externalities from structure-to-structure fire spread and community-level fuel hazards that weaken the link between household-level investments and expected insurer losses.

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1. Introduction

In October 2022, California became the first state to mandate that insurance companies offer discounts on homeowner's insurance premiums for investments in wildfire mitigation. The "Safer from Wildfires" regulations require insurers that base their rates on wildfire hazard to offer discounts for vegetation clearing and removal of combustible structures, as well as home hardening measures such as the installation of fire-resistant roofs, vents, and windows.[1] Mitigation discounts also must be offered for homes located in communities that participate in organized community-level mitigation programs such as Firewise USA, a voluntary program administered by the National Fire Protection Association.[2]

In addition to providing financial incentives for homeowners to invest in hazard mitigation, the policy is a component of California's regulatory efforts to foster a more stable and affordable insurance market. California has had well-documented problems in its insurance market in recent years, with growing numbers of policy nonrenewals and rising enrollment in the state's insurance of last resort, the FAIR Plan. The FAIR Plan, which provides more bare bones coverage, now insures $650 billion worth of property in California, most of it in high-wildfire-risk areas.[3]

Whether the new discounts will be effective depends on their size and their ability to meaningfully influence mitigation behavior and stabilize the availability of insurance in high-risk areas. Many factors make the outcomes uncertain, including the complications arising from insurer regulatory constraints, the burdens of compliance and verification, and how well homeowners understand the mitigation options and costs. In this study, we analyze how insurance companies are complying with the new California regulation and the factors that underpin the discounts they offer. We review rate filings that insurers have submitted to the California Department of Insurance (CDI) to compile detailed information on the precise discounts that individual companies are offering for each type of mitigation action.[4] We merge the discounts dataset with zip code-level data on company market shares and premiums and a measure of wildfire hazard . We also compare the regulations and the size and types of discounts offered with regulations and discounts that apply to wind insurance in other states. With this information we address the following questions:

1. How large are the typical discounts and how much do they vary across insurers and by wildfire hazard?

1 See **https://www.insurance.ca.gov/01-consumers/200-wrr/Safer-from-Wildfires.cfm**.

2 See **https://www.nfpa.org/education-and-research/wildfire/firewise-usa** for more information and Liao et al. (2024) for an analysis of factors that affect participation in the program.

3 FAIR Plan data and statistics available at **https://www.cfpnet.com/key-statistics-data/**.

4 Kousky and You (2025) undertook a similar exercise, though they looked at fewer insurers and did not calculate average discounts in dollar terms, just percentages. Their reported percent discounts are in line with ours.

2. How do the discounts compare with the costs of mitigation investments? In other words, do they appear to be enough to provide meaningful incentives for homeowners?
3. How does the program compare with wind insurance discount programs in other states? Are there lessons for California to learn as its program matures?
4. What can we say, at this early stage, about how the mandated discounts are likely to affect the supply of insurance in California? Are there potential changes to the regulations or complementary policies that could improve outcomes for homeowners and communities, while making the insurance industry in California more sustainable?

We find that the discounts are relatively small, particularly for that majority of insurers that base discounts on the wildfire portion of the premium and not the full premium. Homeowners who live in a Firewise USA community and who undertake all of the possible actions that qualify for discounts would receive an annual discount of only about $100 on average. When compared with the costs of retrofits, the discounts do not appear to be nearly enough, on their own, to motivate homeowners to undertake these investments. The insurance discounts offered for investments in wind mitigation measures in some coastal and midwestern states appear to be more generous.

There may be multiple reasons that insurers are offering less generous wildfire mitigation insurance discounts in California than wind discounts in other states; in our view, two reasons stand out. The first is related to the difference between wildfire risks and windstorm risks. Because of how fires spread from structure to structure, wildfire damage to a given home is, in part, a function of the characteristics of neighboring homes. This externality presents a coordination problem for insurers in high-wildfire-risk areas, a problem that does not exist to the same extent in hurricane-prone areas. The second reason for the smaller discounts for wildfire mitigation may be the relative lack of knowledge about what works to reduce wildfire risk. Wind damage and home-hardening measures to reduce it have been studied for longer and are better understood. As wildfire research advances, we expect rate-setting methodologies to improve, enabling insurance premiums to more accurately reflect the benefits of wildfire hazard mitigation.

California's insurance discounts requirements do not operate in a vacuum. The state has passed several other new laws in recent years, in an effort to stabilize the market. We describe these policies and place the insurance discount requirements in context. Two very recent laws may work to reinforce the discounts policy. The first requires home sellers to disclose to prospective buyers all the wildfire mitigation features of their home, including both defensible space and home hardening measures. The second is a new grant program that the state will begin offering to low-income homeowners in high-wildfire-risk areas for risk mitigation investments. Similar grant programs are in operation in some other states—most offering grants of $10,000 per recipient—and have been effective. The state of Alabama has given homeowners $86 million in grants over the last 13 years for investments in new roofs and other upgrades.

2. Wildfire Hazard Mitigation

Wildfire mitigation strategies at the property level fall into two broad categories: (i) hardening the structure by using fire-resistant materials and (ii) reducing the intensity of a potential fire around the structure (IBHS 2021). Actions in the first category include replacing unrated roof materials or an unmaintained Class C roof with a Class A fire-rated roof; closing vents and eaves; using noncombustible materials for walls, eaves, and decks; replacing windows with dual-pane, tempered glass; and, to the extent possible, making the shape of the building less complex, with fewer angles and corners. The second category comprises fuel management through the creation of defensible space, which is usually divided into three zones surrounding a home: 0–5 feet, 5–30 feet, and 30–100 feet. Between 0 and 5 feet from the home, only noncombustible materials should be used. In the distances farther away, recommendations are to use sparser vegetation and avoid having accessory structures in the area, such as sheds, wooden fences, and vehicles.

Empirical studies of what mitigation strategies make the most difference in whether a structure survives a fire are limited but have generally found that structural characteristics are more important than defensible space (Syphard and Keeley 2019), that reduced vegetation is more important closer to the home than farther away (Platt 2014; Syphard et al. 2014), and that the spatial pattern of housing development relative to vegetation is more important than the amount of local-scale vegetation, with areas with low- to medium-density housing in the wildland-urban interface particularly at risk (Syphard et al. 2021). In a recent study using damage assessment data from five historical fires in California, Zamanialaei et al. (2025) confirm that density of development is one of the most important features determining whether structures are destroyed. Among structure characteristics, exterior siding was found to be the most significant.

California's wildfire-resistant building code, Chapter 7a, which has been in effect for new construction in high and very high fire hazard severity zones since 2008, requires Class A or B roofs, fire-resistant eaves and exterior siding, vents covered by a wire mesh, windows and doors that are rated to resist fire for at least 20 minutes, noncombustible materials for decks, and defensible space requirements. In an empirical study of the effectiveness of the requirements, Baylis and Boomhower (forthcoming) find that homes subject to the code are 13 percentage points less likely to be destroyed than similar homes built before the code was in effect (a 34 percent reduction from the sample mean of 39 percent). The new insurance discounts requirements are part of the effort to address problems with older homes, which are not subject to the Chapter 7a requirements.

The Insurance Institute for Business and Home Safety (IBHS) is an independent nonprofit organization supported by the insurance industry that conducts building science research on natural hazards. The IBHS maintains that using a single strategy for mitigation is not effective; a systematic approach that addresses both structure features and the ignition zone around the home is necessary to fully protect a home (Hedayati, et al. 2023). IBHS operates a Wildfire Prepared Home certification program

that includes several defensible space requirements and home hardening measures. The defensible space requirements include a 0–5-foot noncombustible zone around the house, a 5–30-foot defensible space, tree and shrub spacing requirements, minimum setback distances from the home for propane tanks, and requirements for detached structures such as pergolas and sheds. The home hardening measures are a Class A fire-rated roof, flame- and ember-resistant vents, 6 vertical inches of noncombustible siding applied at ground level, and noncombustible materials for decks and other structures 0–5 feet from the house. Homes are certified only if all elements are met. A "Plus-Level" IBHS designation has additional requirements, such as enclosed eaves, multipaned tempered glass skylights and windows, noncombustible materials for gutters and downspouts, noncombustible materials for siding and doors, and no detached structures within 30 feet of the home.[5] California regulators considered basing the discounts on combined measures, such as the IBHS requirements, but decided it was important to encourage homeowners to take individual actions, rather than having to do several potentially costly things to obtain the discounts, which could be daunting (Peterson 2025). The regulators were also concerned about potential legal challenges from requiring multiple actions.

3. Insurance Regulations and California Reforms

Homeowner's insurance in the United States is regulated at the state level. While rules vary, most states have some form of rate regulation that tries to strike a balance between affordability and industry solvency—that is, to ensure that rates do not impose an undue burden on consumers while at the same time allowing insurance companies to make enough profit to stay in business (NAIC 1945). In California (as in other states), companies are required to submit a rate filing with the state insurance office (the CDI) for any change in their rate-setting model or underwriting practices and for any rate increase. No rate changes are allowed until approved by the regulator.[6] The CDI typically spends between six months and one year reviewing the filings. During this time, the CDI raises any objections or questions and may request clarifying data. Insurers respond and modify any proposals as needed until they are approved.

Several features of California regulations are noteworthy. First, requests for overall annual rate increases of 7 percent or higher are subject to in-depth public scrutiny; studies have found that this has resulted in most increases lying just below the 7 percent threshold (Boomhower et al. 2024; Taylor et al. 2025). Second, until recently the state did not allow the use of catastrophe models to justify overall rate increases, requiring instead that insurers use only historical losses for rate-setting.[7] Third, also until recently, the cost of reinsurance, which insurance companies purchase

5 See **https://wildfireprepared.org/**.

6 In some states, the company does not have to get approval of the increase from the regulator; it just has to submit the rate filing.

7 Insurers are allowed to use catastrophe modeling output as a rating factor to set relative rates (i.e., how rates differ from one property to another).

to manage their underwriting risks and protect against catastrophes, could not be passed through to homeowner's insurance premiums. The catastrophe modeling and reinsurance changes, which took effect in January 2025, are key parts of the state's new Sustainable Insurance Strategy, which aims to address problems with insurance availability, stem the tide of enrollments in the FAIR Plan, and provide some stability to the California market.[8] In exchange for these changes, which effectively allow insurers to begin setting higher rates, the CDI mandated that insurers increase their writing of homeowner's policies in wildfire-distressed communities by 5 percent every two years until policies in these areas are equivalent to at least 85 percent of their statewide share of the market.[9]

The Safer from Wildfires program, adopted into the state's regulatory code in September 2022, is also part of the overall strategy. Safer from Wildfires requires insurers that use wildfire risk in rate-setting to offer discounts for wildfire mitigation measures at the property and community level (CDI, 2023). The mitigation measures for which insurers are required to provide discounts are listed in Table 1. At the

Table 1. Wildfire Mitigation Measures Eligible for Insurance Discounts

Property level	
Defensible space	**Home hardening**
Clearing vegetation under decks	Class A fire-rated roof
Clearing vegetation and combustible objects ≤5 feet of building	Enclosed eaves
Noncombustible materials only for any portion of home improvements ≤5 feet of building	Fire-resistant vents
No combustible structures ≤30 feet of building	Multipaned windows or functional shutters
Compliance with local ordinances related to fuel mitigation	≥6-inch noncombustible vertical clearance at bottom of building
Community level	
Property located in certified Firewise USA community	
Property located in CA Board of Forestry Fire Risk Reduction (FRR) community	

8 See **https://www.insurance.ca.gov/01-consumers/180-climate-change/Sustainable-Insurance-Strategy.cfm**.

9 This means, for example, that a company with a 10 percent share of the California market must write 8.5 percent of its policies in high wildfire risk areas.

property level, they include both defensible space and building-hardening actions; at the community level, they refer to the property's location in either a certified Firewise USA community or a California Fire Risk Reduction Community.

The regulation does not specify the size of the discounts. It requires insurers to file a "Rule filing without rate impact" that specifies the discount amounts. Under the "without rate impact" rule, the CDI treats the rate impact of the discounts as zero and will not approve increases in base rates unless insurers can demonstrate which individual policies will receive which discounts. Scott and Alvarado (2023) note that this "no rate impact" requirement may erode premiums, as most insurers give discounts without increasing their base rates. In our review of rate filings, we found that the CDI has only approved base rate offsets in four cases.[10] In these cases, insurers had already collected data on certain mitigation efforts (e.g. roof type) prior to the regulation and therefore could prove which policyholders qualified for a given discount.

Insurers are also required to disclose the available discounts to policyholders. This disclosure must include all the discount factors the insurer has adopted, a description of where a policyholder stands in the range of possible discounts based on their current policy, and a list of possible actions to make the property safer from wildfires and how much money the policyholder can save for each action. Disclosures must also state the policyholder's fire risk score based on whichever risk metric the insurer uses and allow the policyholder to appeal the risk score.

Finally, it is worth noting that California has new real estate disclosure requirements that could be complementary to the mandated insurance discount policy. Sellers of homes built before 2010 and located in high and very high fire hazard severity zones must provide documentation that they are in compliance with defensible space restrictions that apply in these areas, and starting in July 2025, must disclose whether they have 12 home-hardening features including roofs, vents, and eaves.[11] Some observers feel that because homebuyers are uneasy about the ability to get insurance in high-risk areas, the new disclosure requirements will lead them to push sellers to invest in mitigation measures as a condition of sale (Woody 2005).

4. Discounts in Practice

We collected and reviewed all rate and rule filings from January 2022 through June 2025 for the top 25 Property and Casualty insurance groups in California. (See Appendix B for details on our procedures.) Table 2 lists the companies and their market shares. Property and casualty insurance is a broad category that includes insurance to protect physical property from damage as well as insurance to cover liability for

10 The four cases are: State Farm (File No. 24-426), USAA (File No. 23-1002), Homesite (File No. 23-989), and Hartford (File No. 23-1131). In a filing by Travelers (File No. 23-1039), the insurer attempted to offset base rates but removed the offsets at the CDI's request.

11 The 2010 date is because that is when stricter building codes took effect in high and very high hazard areas. Since 1998, sellers have also had to disclose if their home is located in a high or very high wildfire hazard severity zone (Ma et al. 2024).

Table 2. Top 25 Property and Casualty Insurance Groups by 2022 Market Share

Company/Group	Property/Casualty Market Share	Homeowners Multi-Peril Market Share
State Farm Insurance Group	8.71%	21.22%
Farmers Insurance Group	7.80%	14.90%
Mercury General Group	3.60%	6.08%
Auto Club Enterprises Insurance Group	4.10%	5.10%
California State Automobile Association (CSAA)	3.64%	6.87%
Liberty Mutual Insurance Company	4.46%	6.63%
United Services Automobile Association (USAA) Group	2.70%	5.68%
Allstate Corporation	5.09%	6.07%
Travelers Companies, Inc.	4.19%	4.22%
American Family Insurance Group	1.06%	2.80%
Chubb Limited	3.59%	2.26%
Nationwide Mutual Insurance Company	2.44%	2.51%
Hartford Insurance, Fire and Gas	2.11%	0.90%
Tokio Marine Holdings, Inc.	1.45%	0.78%
Zurich Insurance Group	2.04%	0.50%
Progressive Corporation	2.98%	0.63%
Markel Insurance Company	0.96%	0.07%
Kemper Corporation	2.47%	0.41%
California FAIR Plan Association	NA	3.10%
Total	**63.39%**	**90.73%**

Note: This table displays the top 18 insurance groups in the admitted market in California by market share; these groups represent the 25 insurance companies that we examined in the rule and rate filings (along with the FAIR Plan). FAIR = Fair Access to Insurance Requirements.

injuries or losses to others. A common product within this category is the homeowner's multi-peril policy, also known as the HO-3 policy, which is the standard homeowner's insurance policy in the United States.

Most insurers assign discounts on a percentage basis to individual mitigation efforts and then either add or multiply them when multiple actions are taken. Three insurers include an additional bonus discount for multiple mitigation actions. Nine insurers include discounts for complying with the IBHS Wildfire Prepared Home or Wildfire Prepared Home Plus standard. These standards require that multiple mitigation measures be implemented together as an integrated package, rather than as individual, standalone actions.[12] Six insurers specify a maximum total discount; for the remaining insurers, we compute the maximum by following their stacking formula and incorporating any bonus discounts. A few insurers set their discounts in more idiosyncratic ways. For example, one sets dollar discount amounts ranging from $1 to $10, for a maximum of $30. Another gives a 1 percent discount for the first six mitigation efforts, then 2 percent for the next five, and 3 percent for the last one, undertaken in any order. Six insurers apply discounts to their overall premium; the rest apply discounts only to a "wildfire" portion of the premium. We take all these factors into account in creating our discount database and in calculating average discounts across insurers.

Notably, Safer from Wildfires requires discounts only from insurers that incorporate wildfire risk explicitly when calculating their premiums. Three insurers in the state, presumably in response to the new requirements, moved away from using wildfire risk in their rating process and thus offer no discounts.

Insurers were required to file their discounts by April 12, 2023. As of November 2025, the top 20 insurers by market share had discounts in place (or had removed wildfire risk from their rating procedures).

4.1. The Magnitude and Range of Discounts

Table 3 shows the average discount percentages for each mitigation action and the range across the 25 insurers that belong to the top 18 groups. We group insurers that discount their entire premium and those that discount only the wildfire portion and take the averages for each. Averages are calculated as weighted averages using statewide insurer market shares.

Table 4 reports the corresponding average dollar discounts, which we estimate by applying the discount percentages to the corresponding average premium of each insurer, then calculating a weighted average using statewide market shares of the companies.[13] For insurers that discount based on the full premium, we use each

12 Because the IBHS standards are inclusive of the individual mitigation actions, most insurers that offer the IBHS discount apply that in lieu of the individual discounts when a homeowner meets the IBHS requirements.

13 Appendix Table A1 shows discounts offered by the FAIR Plan (which are not included in the averages in Table 4).

insurer's percentage discount and multiply it by that company's average premium; we then calculate a weighted average discount across all companies using each company's market share as weights. For insurers that discount based on the wildfire portion of the premium, we include an additional step. We multiply the wildfire share of the base rate for each company by that company's statewide average premium to obtain an estimated wildfire-only premium; we then calculate a weighted average across all companies using market shares. An important caveat is that our estimates are based on the share of the base rates that is wildfire related, not the full premium, which we do not have data on. While this may result in an underestimation of discounts in high hazard areas, this back-of-the-envelope exercise provides a reasonable estimate of the dollar discounts.

A few findings from Tables 3 and 4 are notable:

1. Of all the individual items at the property level, roofs matter most. On average, across the 25 companies, a Class A fire-rated roof provides a far larger discount, in percentage and dollar terms, than any other single item.
2. For defensible space actions, larger discounts are given for clearance closest to the home, 0–5 feet, than for farther away.
3. Many insurers apply the same percent discount to different mitigation options, especially among the home-hardening options. Enclosed eaves, fire-resistant vents, multipaned windows, and vertical clearance all average a 0.3 percent discount, with the same low end of 0.1 percent. This is the case because companies tend to give the same discount for each of these items, even though the actions might vary in their actual risk-reduction effectiveness.
4. A homeowner who carries out all of the property-level mitigations, both defensible space and home hardening, will get a maximum discount of 5.65 percent, or approximately $98 for an average policy, if they have an insurer that discounts based on the full premium (first two columns of each table). If their insurer discounts based on the wildfire portion of the policy (column 2 in Table 4), the maximum discount averages only $54.
5. Insurers that use the IBHS Wildfire Prepared Home program to set discounts provide an average discount of approximately $60 for the standard certification and $94 for the "Plus-level" certification. Interestingly, the discount for Plus-level, which includes enclosed eaves, multipaned tempered windows, noncombustible materials for gutters, siding, and doors, and other requirements beyond the standard certification, is roughly equivalent to the maximum discount for doing all individual items when companies base their discount on the whole premium.
6. Being in a Firewise USA community is valuable, providing an average discount of between $32 and $46, which is more than any single property-level action.
7. When community-level discounts (Firewise and Forestry Fire Risk Reduction (FRR) communities) are combined with the individual property discounts, the average statewide maximum discount for insurers that apply the discount to the overall rate is 13.15 percent, which translates to a statewide average of $215.78. Insurers that discount only the wildfire portion of their premium provide an average 16.66 percent discount, which is only $101.52, less than half the maximum discount for insurers that base discounts on the total premium.

Table 3. Insurance Discount Percentages, by Mitigation Action: Average and Range Across Insurers

	Full Premium Discounts		Wildfire Premium Discounts	
Effort	Average	Range	Average	Range
Defensible Space				
30-ft Noncombustible Structure	0.31%	0.10%–2.50%	0.73%	0.20%– 2.50%
5-ft Clearance	0.84%	0.50%–1.00%	0.72%	0.20%–1.50%
5-ft Noncombustible Material	0.54%	0.50%–1.00%	0.72%	0.20%–1.50%
Local Ordinance Compliance	0.56%	0.10%–5.00%	0.97%	0.20%–5.00%
Under Deck Clearance	0.30%	0.10%–1.00%	0.72%	0.20%–1.50%
Building Hardening				
Class A Fire Rated Roof	1.88%	0.50%–5.00%	1.05%	0.20%–5.00%
Enclosed Eaves	0.30%	0.10%–1.00%	0.55%	0.20%–5.00%
Fire-Resistant Vents	0.30%	0.10%–2.00%	0.67%	0.20%–25.00%
Multi-Pane Windows	0.32%	0.10%–5.00%	0.56%	0.20%–5.00%
Vertical Clearance	0.30%	0.10%–1.00%	0.53%	0.20%–1.00%
IBHS				
IBHS Wildfire Plus	6.33%	0.00%–26.00%	9.61%	1.00%–15.00%
IBHS Wildfire Prepared Home	3.84%	0.00%–17.50%	6.19%	1.00%–10.00%
Maximum Property				
Combined Property Level	5.65%	4.20%–24.50%	7.88%	2.00%–37.00%
Community				
FRR Community	0.30%	0.10%–2.00%	0.56%	0.10%–2.00%
Firewise	2.86%	1.00% – 5.00%	6.26%	0.50%–20.00%
Maximum (Property and Community)				
Maximum Discount	13.15%	9.40%–31.50%	16.66%	9.80%–60.00%

Note: The averages in the table are weighted by insurer statewide market shares. IBHS = Insurance Institute for Business and Home Safety; FRR = Forestry Fire Risk Reduction.

Table 4. Average Discounts in US Dollars, by Mitigation Action

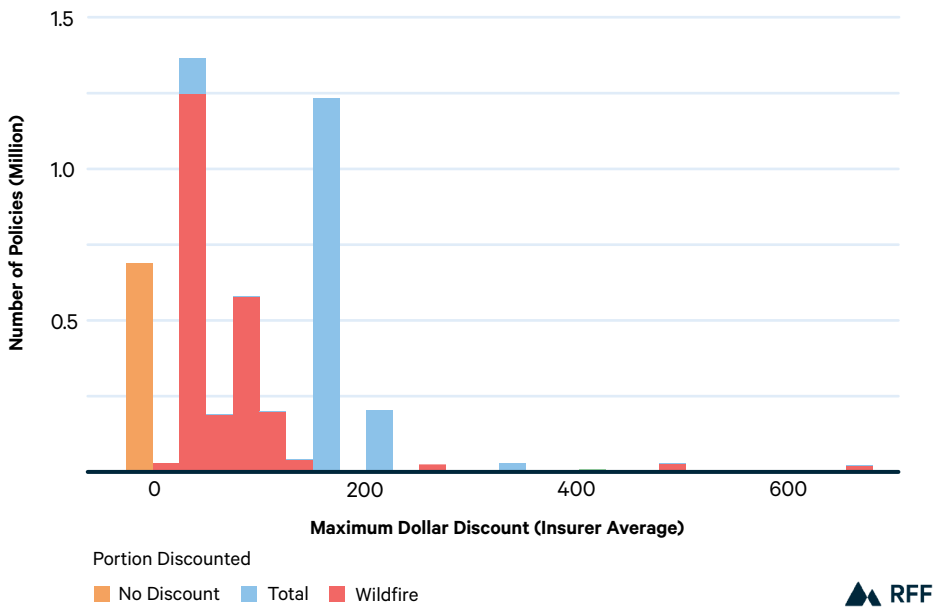
Effort	Full Premium Discounts	Wildfire Premium Discounts
Defensible Space		
30-ft Noncombustible Structure	$5.83	$5.07
5-ft Clearance	$13.98	$4.70
5-ft Noncombustible Material	$9.05	$4.70
Local Ordinance Compliance	$10.15	$6.90
Under Deck Clearance	$5.10	$4.70
Building Hardening		
Class A Fire Rated Roof	$31.38	$7.61
Enclosed Eaves	$5.10	$4.21
Fire-Resistant Vents	$5.59	$5.33
Multi-Pane Windows	$7.04	$4.98
Vertical Clearance	$5.10	$4.02
IBHS		
IBHS Wildfire Plus	$94.80	$93.65
IBHS Wildfire Prepared Home	$56.87	$61.67
Maximum Property		
Combined Property Level	$98.33	$54.07
Community		
FRR Community	$5.59	$4.46
Firewise	$46.49	$31.52
Maximum (Property and Community)		
Maximum Discount	$215.78	$101.52

Note: The averages in the table are weighted by insurer statewide market shares. IBHS = Insurance Institute for Business and Home Safety; FRR = Forestry Fire Risk Reduction.

Percentage discounts under the FAIR Plan (see Appendix A) generally fall within the range of those in the private market. The overall pattern is similar across action items: limited variation across individual property-level measures, with larger incentives for implementing multiple actions and for community-level mitigation.

Figure 1 shows the distribution of policies across the range of maximum dollar discounts insurers are offering, weighted by the number of policies written in 2022. The orange bar shows the number of policies that get no discount (because they are offered by companies that stopped using wildfire risk to set rates). This amounts to over 500,000 policies, a sizeable number. The blue bars are the policies offered by companies that base their discounts on total premiums and the red-colored bars are those that use the wildfire portion of the premium. Consistent with Table 4, the figure shows that the dollar discounts for companies that discount the total premium instead of only the wildfire portion provide more generous discounts. The figure also highlights that most policyholders—holding 90.5 percent of the nearly 4.8 million policies—would be eligible for a maximum discount of less than $200, and many discounts are well under $100 (especially those from insurers that discount only the wildfire portion of the premium).

Figure 1. Distribution of Dollar Discounts

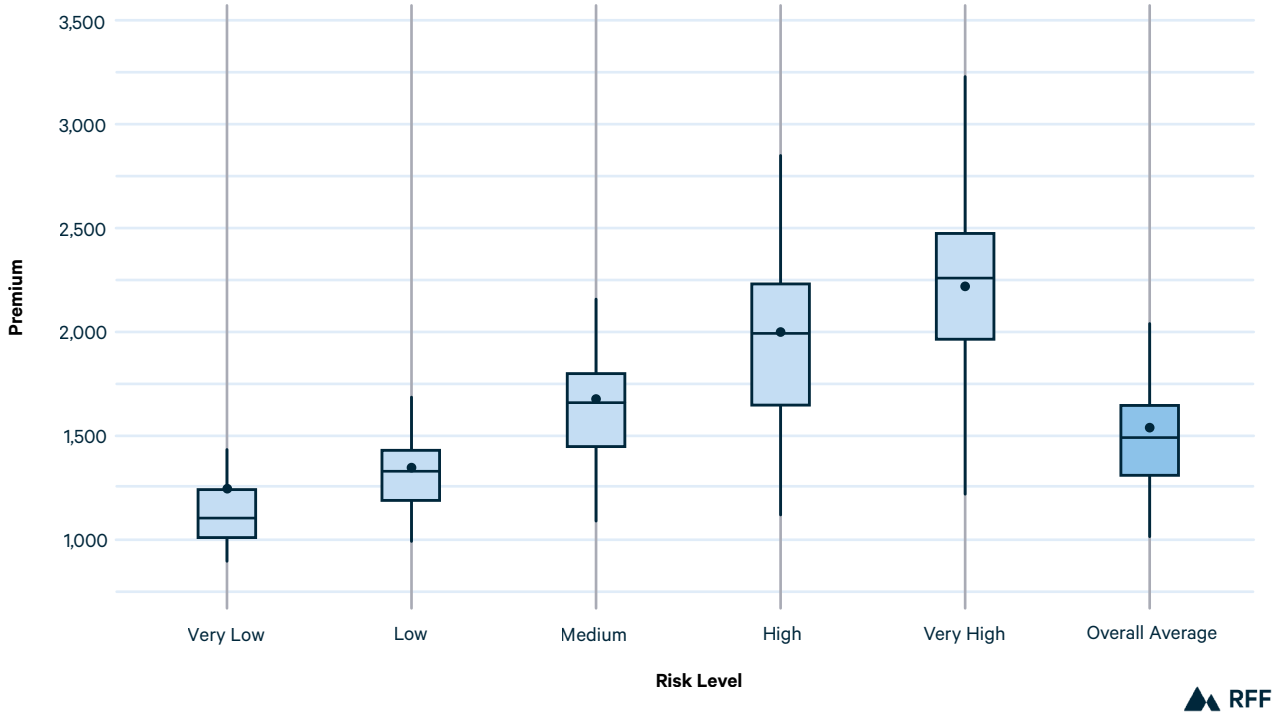


4.2. Variation in Wildfire Risk and Discounts Across California

Insurers offer percentage discounts that are fixed throughout the state.[14] However, because premiums reflect underlying asset exposure and risks and thus vary by location, the dollar value of mitigation discounts can vary significantly across the state.

Figure 2 shows the distribution of average premiums charged by insurers across wildfire risk categories premiums by wildfire risk quintile.[15] For each risk level, the box represents the interquartile range (IQR), spanning the 25th to 75th percentiles of insurer premiums, and the horizontal line inside each box indicates the median. Vertical whiskers extend to the highest and lowest values within 1.5 times the IQR, illustrating the spread of typical premium variation across insurers. Outliers beyond this range are suppressed for clarity. The solid point in each box denotes the mean premium. In general, average premiums increase with risk level. In the highest-risk zip codes, the average premium is $2,145, compared with only $1,120 in the lowest-risk zip codes. The range in premiums is also greater in the higher-risk areas.

Figure 2. ZIP-Code-Level Insurance Premiums, by Wildfire Risk Level



14 The one exception is Allstate, which defined two tiers of discounts depending on insurer-defined territory. For our computations, we use the higher tier of discounts.

15 We measure wildfire risk using the risk score from CDI's Wildfire Risk Reporting, which represents insurance policy-weighted wildfire exposure

Figure 3. ZIP-Code-Level Insurance Premiums (Left) and Wildfire Risk (Right), by Quintile

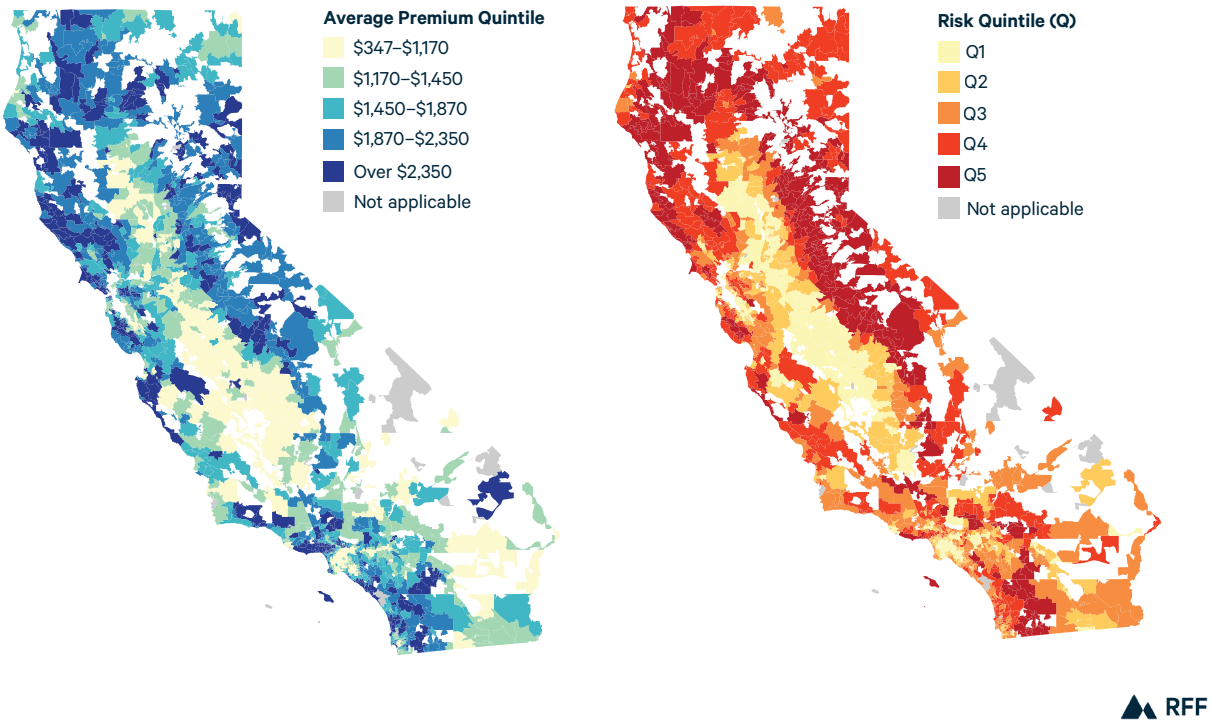
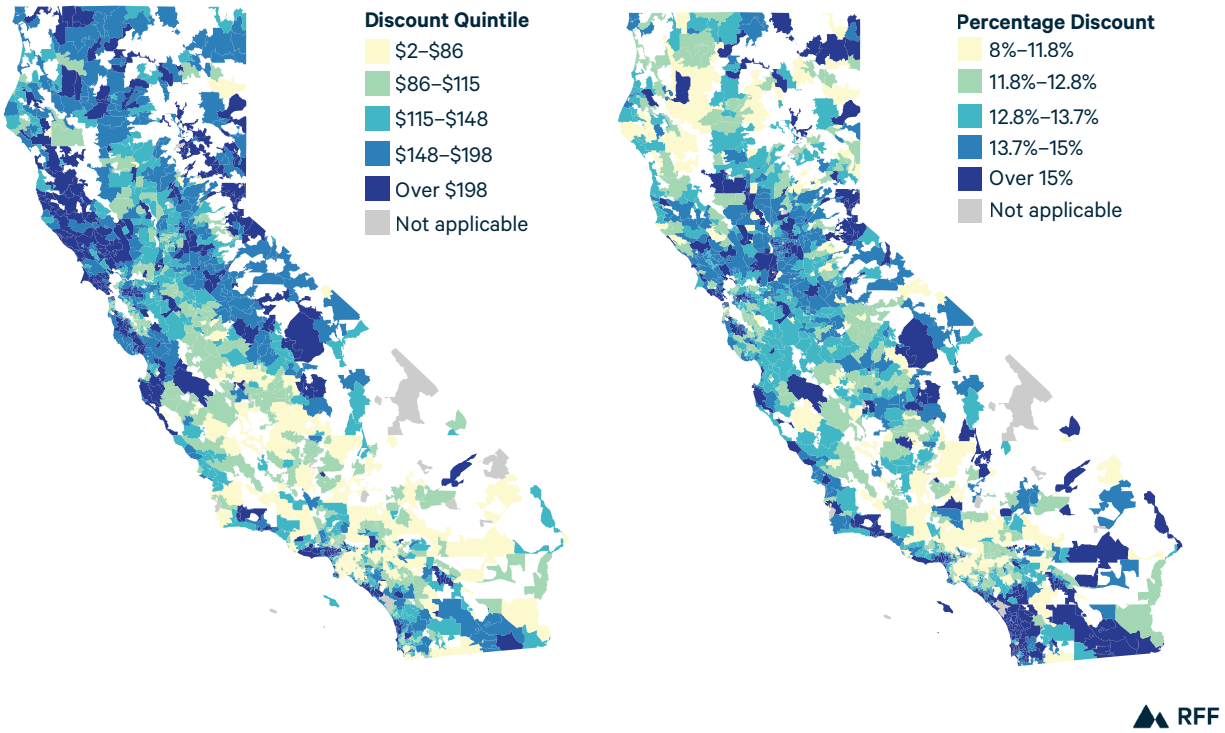


Figure 3 shows a map of zip-code-level premiums and wildfire risk. The left-hand panel shows the weighted average zip-code-level insurance premiums grouped into quintiles, and the right-hand panel shows the wildfire risk quintiles. The side-by-side maps highlight that premiums at the zip code level are highly correlated with wildfire risk. Most of the zip codes with the highest risk (shown in dark red) are in the two highest quintiles for premiums (medium and dark blue). This correlation partly reflects higher premiums in areas with elevated wildfire risk but may also stem from the concentration of higher-value homes in those same high-hazard locations. This pattern is most evident in coastal areas, where home values are systematically higher (see Figure A1 for zip-code-level median home values). In contrast, many inland high-risk areas do not exhibit similarly high property values, even though premiums are still elevated.

Figure 4 shows maps of the maximum mitigation discounts by zip code, with the left-hand panel showing discounts in dollars and the right-hand panel in percentages; the discounts are weighted by insurer market share in the zip code. The dollar discounts largely mirror variation in premiums, thus the left-hand map in Figure 4 looks similar to the left-hand map in Figure 3. However, the percentage discount map on the right-hand panel tells a different story. The zip codes that show the highest percentage discounts (indicated by blue and dark blue) are those where a greater share of the market is held by insurers that offer relatively larger percentage discounts (>15 percent). These are often not the same zip codes as those with higher premiums and higher risks. This indicates that the strength of the mitigation incentive a homeowner receives

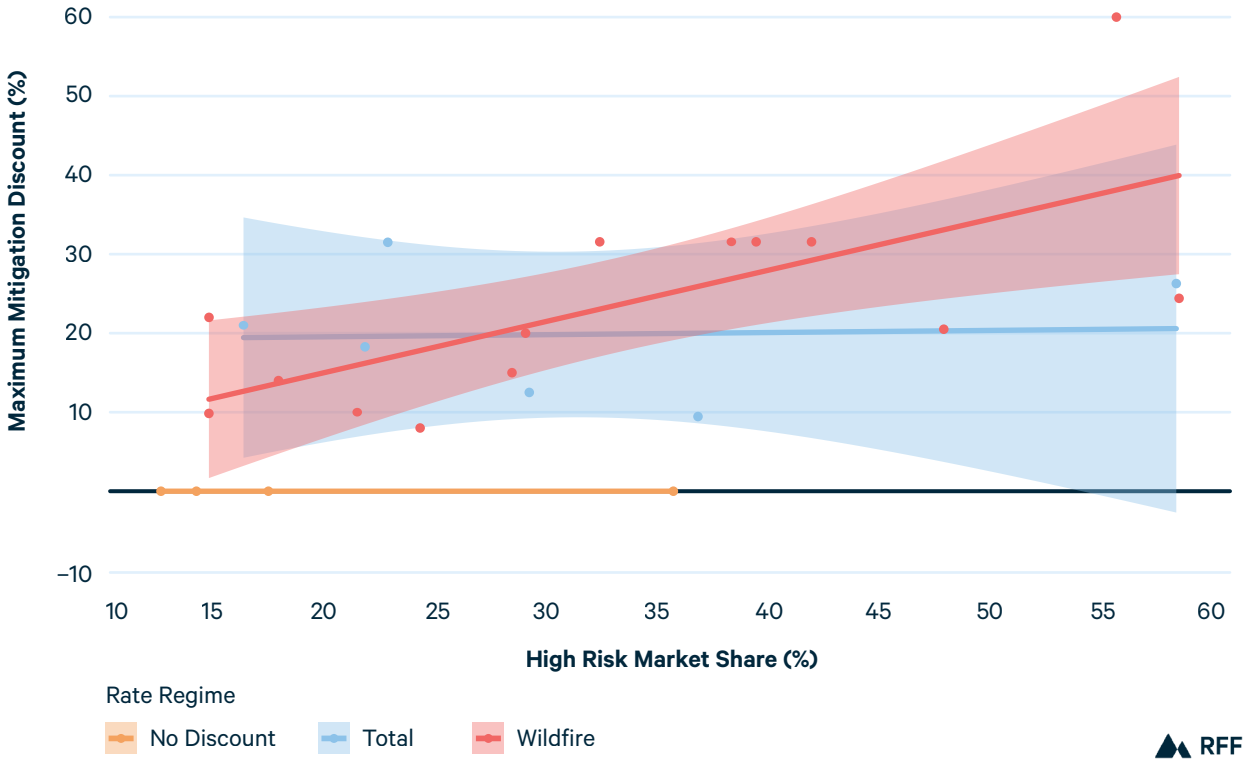
may be driven more by which insurers are writing policies in that zip code rather than local hazard conditions. Specifically, it matters whether the zip code is mainly served by insurers that discount based on the full premium or only on the wildfire portion. Other unobserved factors that determine insurers' general appetites for incentivizing policyholder risk reduction are also at play.

Figure 4. ZIP-Code-Level Maximum Discounts in Dollars (Left) and Percentages (Right), by Quintile



In Figure 5, we further examine whether insurers' mitigation discounts vary systematically with their exposure to high-risk areas and their rate-setting approach. The figure plots each insurer's maximum percentage discount against the share of their policies located in zip codes classified as "high" or "very high" wildfire risk. We distinguish between insurers that apply discounts to the full premium (shown in blue), those that discount only the wildfire portion of the premium (shown in red), and those that neither price for wildfire risk nor face discount requirements (shown in orange). Among insurers that discount the full premium, the relationship between discount size and high-risk market share is essentially flat, indicating no clear pattern in discount generosity across insurers with different levels of wildfire exposure. In contrast, among insurers that discount only the wildfire portion of the premium, discount sizes increase with the insurer's share of high-risk policies. These insurers offer larger incentives where they face greater wildfire exposure, consistent with the idea that firms with more at stake may be more interested in encouraging risk reduction among policyholders or in attracting lower-risk customers within high-risk areas. The last category of insurers, who largely disregard wildfire risk in pricing, tend to write a smaller share of policies in high-risk areas.

Figure 5. Premium Discounts and Market Share in High-Wildfire-Risk Area



4.3. Are the Discounts Enough?

The discounts are intended to incentivize homeowners to invest in wildfire hazard mitigation. An important question is whether they are large enough to do that. Table 5 shows estimates of the costs of mitigation measures according to a study by Headwaters Economics, a nonprofit economics research organization (Barrett and Quarles 2025). The first row shows average costs of retrofitting a home with a Class A fire-rated roof, fire-resistant vents and windows, and defensible space near the home, as well as the combined cost for taking all actions necessary for adequate wildfire resistance.[16] The estimated costs are for a prototypical 2,000-square foot, two-story single-family home located on a 15- to 20-degree slope with wildland vegetation to the rear of the house and adjacent structures within 30 feet (as in a suburban setting).

Table 5. Costs of Mitigation and Average Insurance Discounts

	All combined	Class A Fire-rated roof (1,000 square feet)	Fire-resistant vents for enclosed eaves	Double-paned tempered glass windows	0–5 feet defensible space (6 cubic yards gravel)
Headwaters Economics cost estimate	$23,000–$60,000	$6,300	$106 per vent	$1,200 per window	$2,782
Average insurance discount[a]	$215.78	$31.38	$5.59	$7.04	$13.98

[a] Estimated average maximum discount for insurers that base percentage discounts on full premium; insurers that base discount on wildfire-only portion of premium offer lower discounts in dollar terms (see Table 4).

The costs of the retrofits are one-time up-front costs, so they cannot be directly compared to the insurance discounts, which are offered annually. A typical roof will last about 25 years; using the $6,300 up-front cost for a new Class A fire-rated roof and a 3 percent discount rate yields an annualized cost of $360—more than 10 times the average discount of $31.38 that insurers are offering for such roofs. If doing all combined retrofits costs $40,000, the approximate mid-point of the Headwaters Economics estimates, this annualizes to just under $2,300 (assuming a 25-year life and 3 percent discount rate), also approximately 10 times the average insurance discount of $215.78. The discounts for vents and windows are similarly low relative to costs, especially for replacing all vents and windows in a home.

16 The study includes other options; we selected the four items for illustrative purposes and for comparison with the measures used for insurance discounts.

5. Lessons from Other States

Table 5 suggests that insurers are offering only modest discounts to policyholders in comparison with the cost of retrofits. This led us to investigate what kinds of insurance discounts are being offered in other states for hazard mitigation actions and how those compare in size with the discounts being offered in California.

5.1. Insurance Discounts in Other States

Insurance companies operating in several other states, namely those in hurricane-prone regions and some in the Midwest, offer discounts for storm mitigation investments. Table 6 shows the policies in place in nine states that have mandatory requirements for discounts. Most of the states, like California, allow the insurance companies to set the size of the discount, though several have language in their legislation that the discounts must be actuarially justified. Alabama's regulations state that the discounts should range from 20 percent to 60 percent, applied to the wind or hurricane portion of the insurance premium, and granted for achieving the IBHS FORTIFIED home standards. According to Awondo et al. (2023), the wind portion of the premium for coastal homes in Alabama accounts for approximately 80 percent of the total premium. Four other states use FORTIFIED as the basis for the discounts; the remaining states either list specific mitigation measures (like California) or simply state that retrofits should reduce losses. In the states not using FORTIFIED, a home inspection is often required to certify that the improvements have been made. Six of the nine states have a grant program, with most providing up to $10,000 per recipient.

Table 6. Insurance Discount Requirements in Selected States

State	Insurance Discount Policy	Size of Discounts	Additional mitigation policies
		Wind and hurricane discounts	
Alabama	Discounts for meeting IBHS FORTIFIED standards	20%–60% discount (established in the law) applied to wind or hurricane portion of insurance premium; range based on four levels of FORTIFIED	State grant program: up to $10,000 per recipient for new roof and other upgrades
Florida	Discounts must be offered when "fixtures or construction techniques demonstrated to reduce the amount of loss in a windstorm have been installed or implemented." (Florida Statute 627.0629(1))	Insurers set discount amounts; applied to wind/hurricane portion of premium. Range is 6%–44% for roof covering, roof-to-wall anchors, secondary water resistance for roof, and shutters (Florida Division of Emergency Management n.d.)	State matching grant program: $2 for every $1 homeowner spends, up to $10,000. Financing through property tax system (PACE program); state sales tax exemption on windows and doors

Georgia	Discounts for meeting IBHS FORTIFIED standards	Insurers set discount amounts, which must be actuarially justified	
Louisiana	Discounts for (i) upgrading to comply with Louisiana State Uniform Construction Code; (ii) installing improvements that "are proven to reduce windstorm or hurricane damage"; and (iii) meeting IBHS FORTIFIED standards	Insurers set discount amounts. Range across companies is 1%–15% on wind portion of premium (Louisiana Department of Insurance 2025); the 15% is for meeting Uniform Construction Code	Income tax deduction up to $5,000; state sales and use tax exemptions on storm shutters
Maryland	Discounts for storm loss mitigation improvements when licensed contractor inspects the work	Insurers must offer at least one actuarially justified premium discount; insurers set discount amount	
Minnesota	Discounts for meeting IBHS FORTIFIED standards; required only for policies that include wind coverage	Insurers set discount amounts, which can be based on the wind portion of the premium or total premium and must be actuarially justified	State grant program: up to $10,000 per recipient (law passed in 2023; program to launch with first grants in 2026)
Mississippi	Discounts in coastal counties for meeting IBHS FORTIFIED standards	Insurers set discount amounts; most are 15%–30% (Chaney 2024)	State grant program: up to $10,000 per recipient
North Carolina	State law requires the NC Rate Bureau to file insurance premium credits that insurers must offer in 18 coastal counties for buildings that resist hurricanes and windstorms	Approximately 4%–5% discount on wind/hail portion of premium for individual items, up to 9%–10% total discount (Coastwatch 2018; North Carolina Sea Grant 2018); 4%–6% discount for IBHS FORTIFIED standards	NC Insurance Underwriting Association grant program for residents of beach communities: up to $10,000 per recipient for FORTIFIED roofs
Oklahoma	Discounts must be offered when insurer determines that the premium discount is actuarially justified and there is credible evidence of cost savings; discounts also offered for IBHS FORTIFIED homes	Insurers set discount amounts, based on wind/hail portion of premium. Across 11 companies, discounts for FORTIFIED homes range from 3% to 42% (Oklahoma Insurance Department 2025)	State grant program: up to $10,000 per recipient for FORTIFIED roofs
South Carolina	Discounts for homes in coastal areas for IBHS FORTIFIED homes, SC Safe Home Program, International Building or International Residential Code; discounts also possible for individual fixtures and construction techniques	Insurers set discount amounts but must demonstrate a correlation between the reduction in premium and the reduction in risk associated with the mitigation measures	Matching (capped at $6,000) and non-matching (capped at $7,500) grant program for coastal homeowners. Income tax credits of 25% of mitigation costs up to $1,000; tax credit up to $1500 against sales tax on materials. Tax-exempt Catastrophe Savings Accounts.

	Wildfire discounts		
Colorado	Starting in July 2026, insurers that use wildfire risk for rate-setting must provide discounts for IBHS Wildfire Prepared Home certification and for community mitigation actions	Insurers set discount amounts, which must be actuarially justified; must post discounts on their websites	Income tax credit; Wildfire Resilient Homes Grant Program (very small, only $100,000 available for entire state in first year)

Alabama is often held up as a leader in homeowner investments in storm mitigation. The state's insurance discount requirements have been in place longer than most other states, starting in 2009. Alabama is also the only state where the percentage discount amounts are included in the regulations, and at 20 to 60 percent, they are sizeable in comparison with insurer offerings in other states. Awondo et al. (2023) estimate that an average homeowner in Alabama would see a premium reduction of between $366 and $915 per year. These amounts appear to be large enough, in many cases, to justify the costs of retrofitting to achieve FORTIFIED levels, which have been estimated at 1 to 3 percent of the value of a home (Ghosh et al. 2023; Gould 2020).[17] A recent study found that FORTIFIED homes in Alabama had 55 percent to 74 percent lower claim frequency, 14 percent to 40 percent lower claim severity, and 51 percent to 72 percent lower loss ratios after a 2020 hurricane than similar non-FORTIFIED homes (ALDOI and CRIR 2025).

In addition to the insurance discounts, Alabama has had a grant program in place since passage of the Strengthen Alabama Homes Act in 2011. The program has awarded approximately $86 million in grants to homeowners since its inception and funded roughly 8,700 retrofits (Angueira 2025). According to Ghosh et al. (2023), Alabama accounts for 82 percent of the estimated 37,000 FORTIFIED homes in the United States.[18] Many other states have established similar grant programs, and the California Safe Homes Act, which passed in October 2025, will set up a wildfire mitigation grant program for low-income policyholders living in high and very high fire hazard severity zones. Grant funds are to be used for replacing roofs and creating a 5-foot noncombustible zone around structures, as well as for communitywide mitigation investments that will provide benefits to insurance policyholders.

In other states with discount policies, insurers set the discount percentages. We did not examine rate and rule filings in these states as we did for California. However, we were able to find some information in various reports and studies, often published by state insurance offices, on the typical range of incentives offered. Information for Florida,

17 As an example, a home worth $400,000 would cost approximately $8,000 to retrofit to achieve FORTIFIED levels; when annualized (using a 3% discount rate over 25 years), this cost is $459, which seems to be roughly in line with the evidence on insurance discounts from Awondo et al. (2023).

18 The next-largest number is in North Carolina, which accounts for 14 percent of the US total.

Louisiana, Mississippi, North Carolina, and Oklahoma generally shows a wide range in the discount percentages across companies and across states. The upper end of the ranges, however, tend to be higher than what we have found for wildfire mitigation discounts in California.

5.2. Why Are California's Wildfire Mitigation Discounts Relatively Small?

There are several potential reasons that wildfire mitigation discounts in California are currently smaller than discounts for wind mitigation measures. We offer six possible explanations.

1. **Early Stage**. Wildfire mitigation discounts are still in their infancy. Insurers and regulators are experimenting with how such discounts should be structured, which is reflected in the lack of specificity in California's regulatory requirements and in the relatively conservative initial discount levels. In contrast, wind mitigation incentives have evolved over many years in hurricane-prone states. Correspondingly, several states require that wind mitigation discounts be actuarially justified, and Alabama goes further by specifying allowable ranges.
2. **Data Gaps**. Insurers may lack reliable information on which properties have particular wildfire mitigation features, as such information is not likely to have been systematically collected in the past. Some measures, such as maintaining defensible space, also require regular monitoring, which increases uncertainty. In contrast, FORTIFIED roofs are durable, one-time upgrades that are easy to observe and document through IBHS certification procedures, permitting, and inspection records.
3. **Knowledge Gaps**. While research on home hardening and defensible space is advancing, there remains uncertainty about the total expected losses each specific measure reduces in a wildfire event across different environments. This is evidenced by the different approaches insurers have taken to combining discounts across actions, and the lack of differentiation of discounts for individual measures. By comparison, the performance of FORTIFIED roofing systems under wind loads has been more extensively studied and is better understood.
4. **Spillovers and Collective Action Problems**. Wildfire loss reductions often depend on neighboring properties and broader landscape conditions. Benefits from mitigation may be shared across properties, but insurers only underwrite the individual home. This externality may make it harder to calibrate discounts. This concern is lower for wind-related risks, which are more property-specific.
5. **Uncertainty About How Discounts Influence Behavior**. Mitigation measures for wildfire risk have historically been adopted at relatively low rates. Insurers may therefore be uncertain about the extent to which premium discounts alone can motivate homeowners, given the substantial upfront costs and ongoing maintenance associated with many wildfire mitigation actions. In practice, discounts could end up functioning more as a transfer to those who have already mitigated rather than as a strong incentive for new investment. By contrast,

wind mitigation efforts have often been supported by state grant programs and standardized retrofit protocols, which can help address these barriers and support wider adoption.

6. **Regulatory Constraints**. Regulatory environments differ across states and across perils. In some states, insurers can charge higher rates once they have filed a rate request rather than having to wait for regulator approval. In California, on the other hand, evidence suggests that base rates may already be limited below actuarially indicated levels. When rates are constrained, there is inherently less room to offer larger discounts.

We offer this list as likely explanations but more investigation into insurer decisions about discount amounts is called for. Addressing the challenges that currently limit the size and consistency of wildfire mitigation discounts will likely require coordinated efforts across regulators, insurers, and communities. The following interventions might help address some of the barriers discussed above and encourage discounts that are more economically meaningful:

1. Clearer standards from regulators, such as ones specifying how mitigation actions should be evaluated, how discounts should relate to expected loss reductions, and how insurers should document their actuarial basis, could improve consistency of the discounts across insurers.
2. Better information on mitigation actions is essential for implementing the discounts. State or local governments could centralize information such as inspection results and permitting records into standardized, accessible formats for all insurers. One example that could be used as a model is the CAL FIRE defensible space inspections database, which provides property-level data collected from CAL FIRE inspections.[19]
3. Experimental, empirical, and engineering studies would help generate more precise estimates of the effectiveness of individual mitigation measures under different conditions. These can be promoted through targeted funding and by facilitating the public sharing of findings.
4. Closer coordination between insurers and communities could help overcome the collective action problem. Community-level fuel treatments and code enforcement can make it easier for insurers to justify more substantial discounts. State leadership to facilitate this kind of collaboration would be worthwhile.
5. With a better understanding of how homeowners respond to financial incentives, including evaluations of California's new grant program, policymakers could design incentives that more effectively motivate new mitigation investments rather than rewarding actions already taken.
6. As discussed in Section 3, California's recent reforms expand the use of forward-looking catastrophe models so that risk can be more accurately priced. Regulatory changes along these lines could provide a stronger foundation for offering larger, actuarially sound discounts.

19 See **https://experience.arcgis.com/experience/5150c87770ac4970bbdb2fbe-7a75bd66/page/Dashboard/**.

6. Conclusion

Our review of insurance rate filings indicates that the sizes of the discounts for wildfire mitigation currently offered by insurance companies in California are unlikely to be large enough, on their own, to motivate homeowners to undertake most of these costly investments. Although there is some variation in the discounts across insurers, none of them appear to be offering discounts large enough to cover the cost of roof replacements and other home hardening measures. The largest difference across insurers depends on whether the discount is based on the wildfire portion of the premium or the whole premium. For insurers that base the discount only on the wildfire portion, which is 18 of the 22 insurers offering discounts, the average dollar discount is small, maxing out at roughly $100 for homeowners who take advantage of all possible actions.

We offered six reasons that the discounts are relatively small. The most important of these are related to the nature of wildfire risk and the characteristics of the insurance marketplace. Most fires spread as a result of structure-to-structure ignitions from flying embers. A homeowner may invest in mitigation measures, but unless their neighbor does likewise, they may not fully benefit from those investments. With different insurance companies operating in a neighborhood, each company may be offering discounts that reflect the benefit of a single home undertaking mitigation assuming surrounding homes do not. Ideally, all homes in a neighborhood would, for example, have Class A fire-rated roofs, but the coordination to make this happen is challenging. In addition, community investments in hazard mitigation through creation of fuel breaks, vegetation management, fuels treatment, and more are also critical for lowering risks, and for solving the coordination problem, but state government programs to encourage local governments to act are needed; insurance companies are unlikely to address this problem on their own.

It is too early yet to say whether the policy will incentivize homeowners to invest in mitigation and/or improve the functioning of California's insurance market by reducing the number of nonrenewals and stemming the tide of enrollment in the FAIR Plan. Outcomes in other states and some scholarly research lead us to conclude that the new grant program and disclosure requirements may be highly complementary to the insurance discounts policy, improving overall insurance market outcomes and lowering wildfire risk. Additional research that evaluates the policy as it matures will be important.

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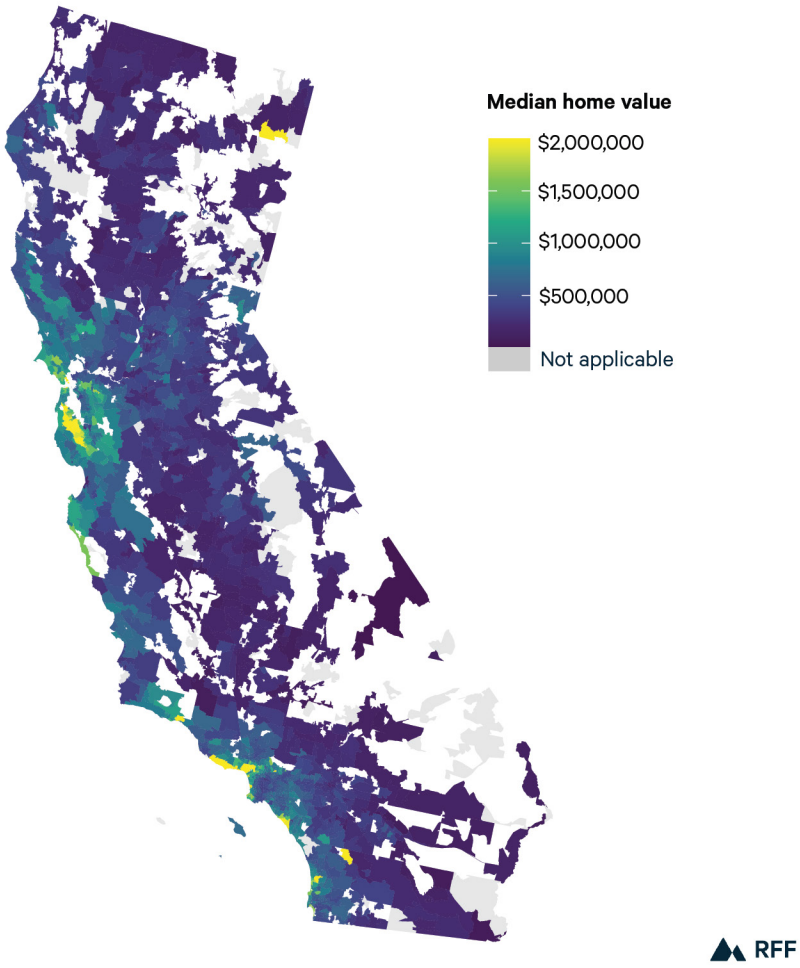
Appendix A: Supplemental Figures and Tables

Table A1. FAIR Plan Percentage Discounts by Mitigation Action

Effort	Discount
Defensible Space	
30-ft Noncombustible Structure	0.60%
5-ft Clearance	0.60%
5-ft Noncombustible Material	1.20%
Local Ordinance Compliance	0.60%
Under Deck Clearance	1.20%
Building Hardening	
Class A Fire Rated Roof	1.20%
Enclosed Eaves	1.20%
Fire-Resistant Vents	1.20%
Multi-Pane Windows	1.20%
Vertical Clearance	1.20%
IBHS	
IBHS Wildfire Plus	0.00%
IBHS Wildfire Prepared Home	0.00%
Maximum Property	
Combined Property Level	10.20%
Community	
FRR Community	4.00%
Firewise	4.00%
Maximum (Property and Community)	
Maximum Discount	15.00%
Maximum Discount Stated	NA

Note: IBHS = Insurance Institute for Business and Home Safety; FRR = Forestry Fire Risk Reduction; FAIR = Fair Access to Insurance Requirements.

Figure A1. ZIP-Code-Level Median Home Value



Note: Median value of owner-occupied housing units from ACS 5-year (2016–2020) estimates.

Appendix B: Methodology for the Analysis of Rate Filings

We collected a total of 96 rate and rule filings, primarily from January 2022 through August 2025, except in cases where the most recent rate/rule filing was before 2022. These documents are publicly accessible through the California Department of Insurance's Web Access to Rate and Form Filings (WARFF) and System for Electronic Rate and Form Filing (SERFF) systems, which contain the same files. From each filing, we extracted base rates, discount percentages, and dates filed, effective, and accepted by the CDI.

All insurers provided itemized discounts in percentage terms. We used these numbers to also calculate the maximum discount percentage when it was not provided. In doing so, we followed the formula or approach as stated in the rate filings to combine individual discounts either multiplicatively or additively and took into account any "bonus" discounts (i.e., for completing multiple mitigation efforts).

When calculating an average premium, as in Table 3 and Figure 1, we used an average premium equal to statewide earned exposure divided by statewide earned premium, based on 2023 data from the CDI. When calculating average premiums by zip code, as in Figures 2, 3, and 4, we used earned premium and earned exposure per zip code. These become similar to a weighted average by market share, as insurers with higher earned premiums and more earned exposure in a zip code impact its average premium more. We generally rely on earned premium and earned exposure instead of number of policies, except in Figure 1, where we use number of policies to demonstrate how many policies may receive what approximate discount. In Figure 2 and Figure 5, zip codes are separated into quintiles by a risk index used by the CDI in 2023.

For Table 4 and Figure 1, we further estimate the magnitude of the discounts in dollar terms, differentiating between insurers who apply the discount to the whole premium versus those that use only the wildfire portion of the premium. In the former case, we simply applied the percentage to the average premium. In the latter case, we calculated an estimated "wildfire component of the premium" using the individual base rate numbers for each peril in the rate filing. We applied the percentage of the base rate composed by the wildfire premium to the average premium. This is a rough estimate, since wildfire premiums are impacted by many rating factors and do not necessarily scale proportionally from the base rate to the premium. But we cannot know wildfire premiums, so it is a necessary estimation. In Figure 1, we kept these discounts assigned at the insurer level, but in Table 4, we calculated dollar discounts across insurers. In that case, we weighted the discount percentages by statewide market share based on 2023 CDI data. This created a "statewide average discount" that we then applied to premiums as discussed above.