Verisk™

Solar Trends

An analysis of roofing claims data 2019 to 2023



Table of contents

Executive summary 3

Introduction 4

Prevalence of solar panels 5

Impact of solar panels on replacement costs 7

Components of solar-related repair costs 8

Further impact of solar panels on roofing RCVs 9

Conclusion 13

Executive Summary

This report provides a detailed analysis of residential property claims, with a focus on roofing damage and the growing influence of solar panels, based on data submitted to our XactAnalysis platform from 2019 through 2023. We've seen a notable increase in the volume of roofing assignments that include solar line items, reflecting a broader trend of solar adoption in residences. We expect this trend will continue to grow moving forward as more homeowners have solar panels installed.

We found that the presence of solar panels has several impacts to the cost of property claims:

- the direct effect of removing and replacing damaged solar panels
- a more indirect effect of detaching and resetting undamaged solar panels to repair other parts of the roof
- an additional effect of roofs with solar panels having consistently higher roofing repair costs (aside from solar repair/replacement) than roofs without solar panels, even when controlling for variables such as roof size, shingle quality, location and loss type

These findings highlight the critical need for an in-depth understanding of the impact of solar installations on property claims, emphasizing the financial and operational complexities they introduce.



Introduction

The adoption of residential solar panel installations is surging. According to the **Solar Energy Industry Association (SEIA)**, the total installed residential solar capacity in the US more than doubled between 2019 and 2023.

This report aims to offer comprehensive insights into how the incorporation of solar panels on residential roofs is affecting the overall cost and complexity of property claims and repairs. We derived these insights from an in-depth analysis of property claims estimates for residential properties submitted to our XactAnalysis platform, covering the period from 2019 through 2023.

Roof damage has long accounted for the largest proportion of property damage spend for insurance carriers. Our data indicates that 37.5% of the assignments received included at least one roofing-related line item, identified by the category code RFG. These assignments are subsequently referred to as *roofing assignments* in this report, and the subsequent analysis and insights provided in this report are confined exclusively to these roofing assignments.

Other terms used in this report:

Solar line items are line items in these roofing assignments that are identified by the category code ELS or contain the word "solar" in the description/note.

Non-solar roofing line items are line items that are identified by the category code RFG but aren't solar line items. (To be clear, if an item has category code RFG, but contains the word "solar" in the description/note, it would be considered a solar line item.)

Roofing line items are the sum of solar line items and non-solar roofing line items.



Prevalence of solar panels

Over the last five years, the percentage of roofing assignments containing at least one solar line item has increased by 60% (from 1.38% in 2019 to 2.22% in 2023). This aligns with the broader trend of increasing residential solar panel installations, a pattern expected to continue as sustainable energy solutions keep gaining in popularity.

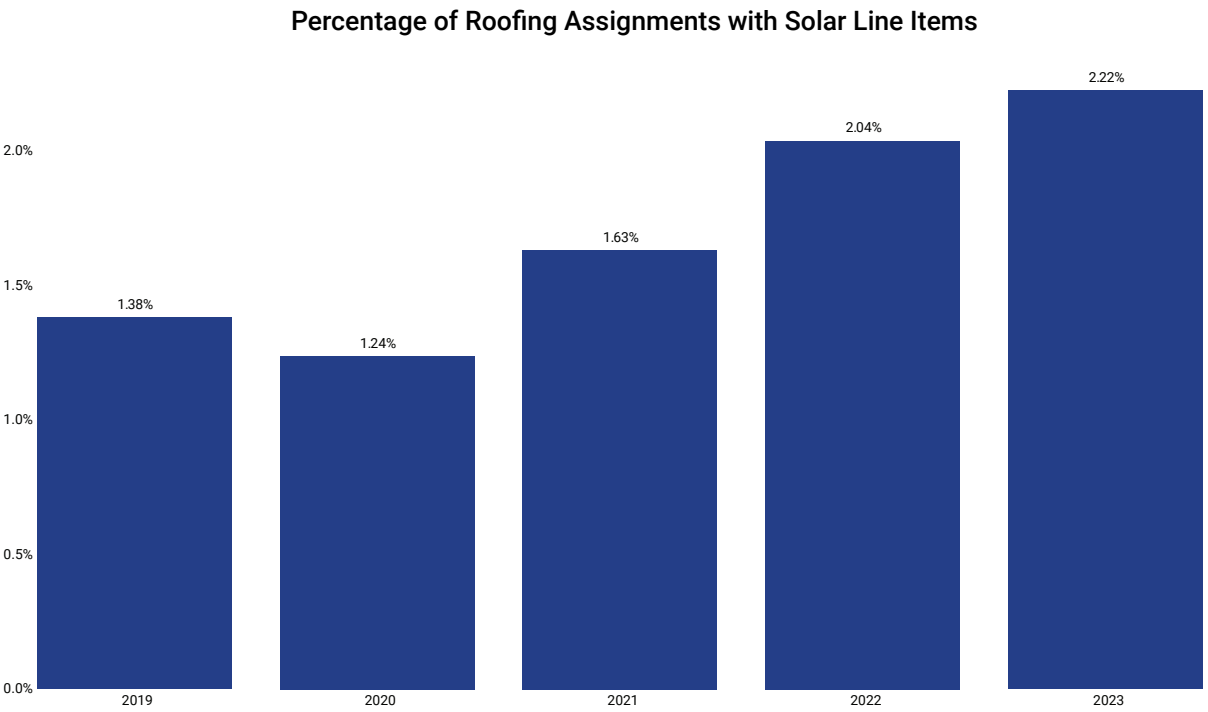


Figure 1: Percentage of roofing assignments with solar item(s) by first estimate date. (Source: Verisk data)

The distribution of roofing assignments with solar line items shows strong regional variations. Hawaii is the clear outlier, with over 31% of roofing assignments in the state containing solar line items—almost 5 times as much as the next-closest state, Colorado, with around 7%.

Hawaii and Colorado are followed by southern states including Florida, Arizona, California, Nevada, and New Mexico. This distribution is consistent with our expectations, as sunnier states tend to have a higher percentage of homes with solar panels.

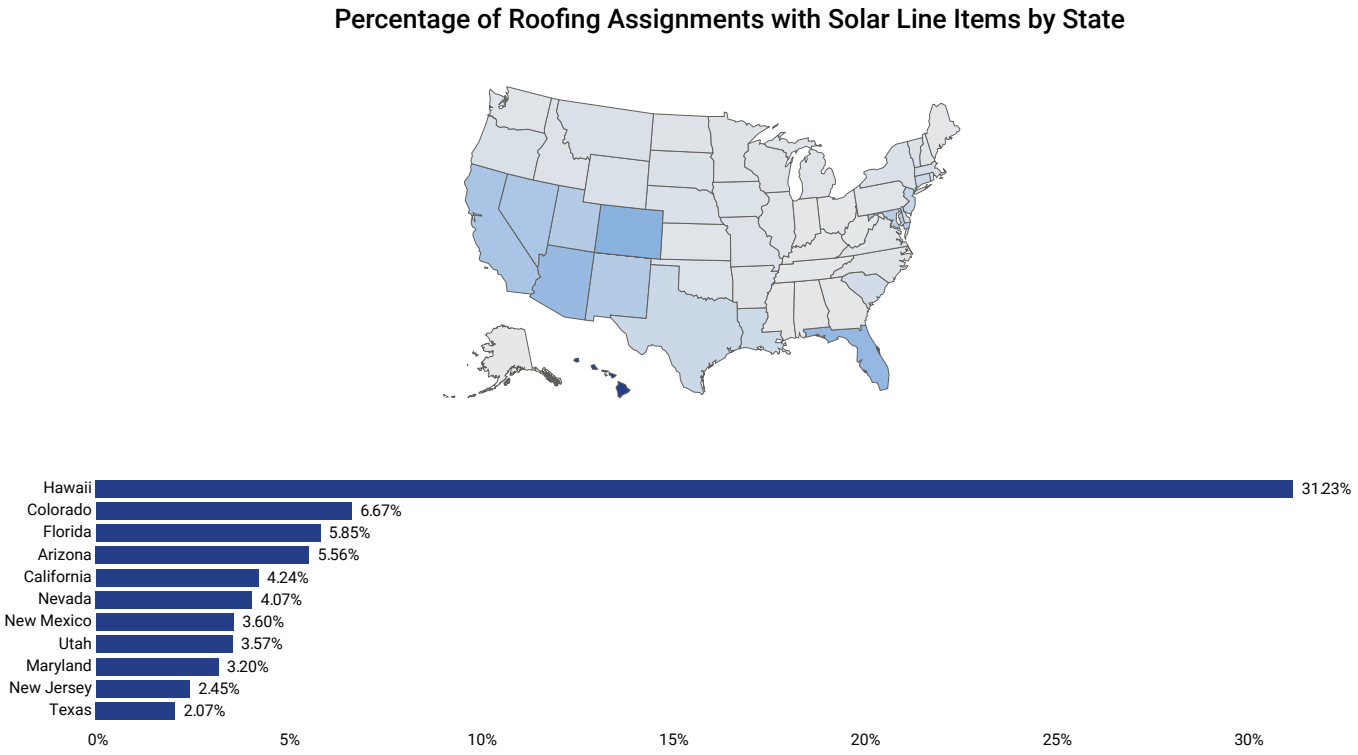


Figure 2: Percentage of roofing assignments with solar item(s) by state. (Source: Verisk data)

Impact of solar panels on replacement costs

The growing influence of solar panels on roof claims can also be seen in the replacement cost value (RCV) data. In fact, the RCV trend is even stronger: from 2019 to 2023, the percentage of all roofing RCV from solar line items more than doubled from 0.48% to 0.98%.

This increase is partially due to the increasing prevalence of solar. That effect is magnified by the increase in the proportion of roofing RCV from solar line items on solar-equipped roofs. That proportion rose by over 25%, from 16% in 2019 to 21% in 2023.

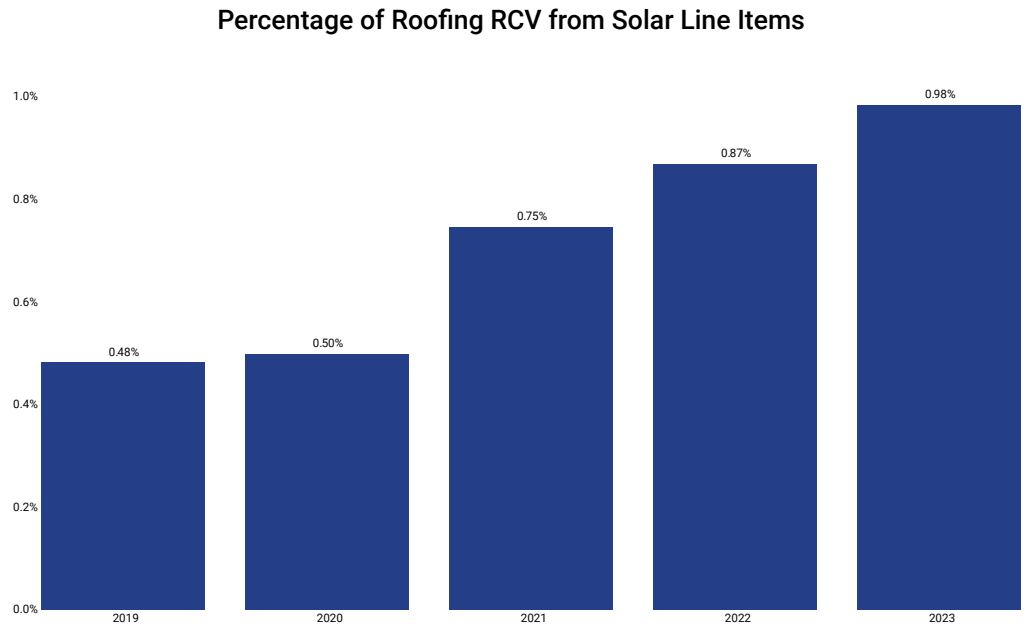


Figure 3: Percentage of Roofing RCV from solar line items. (Source: Verisk data)

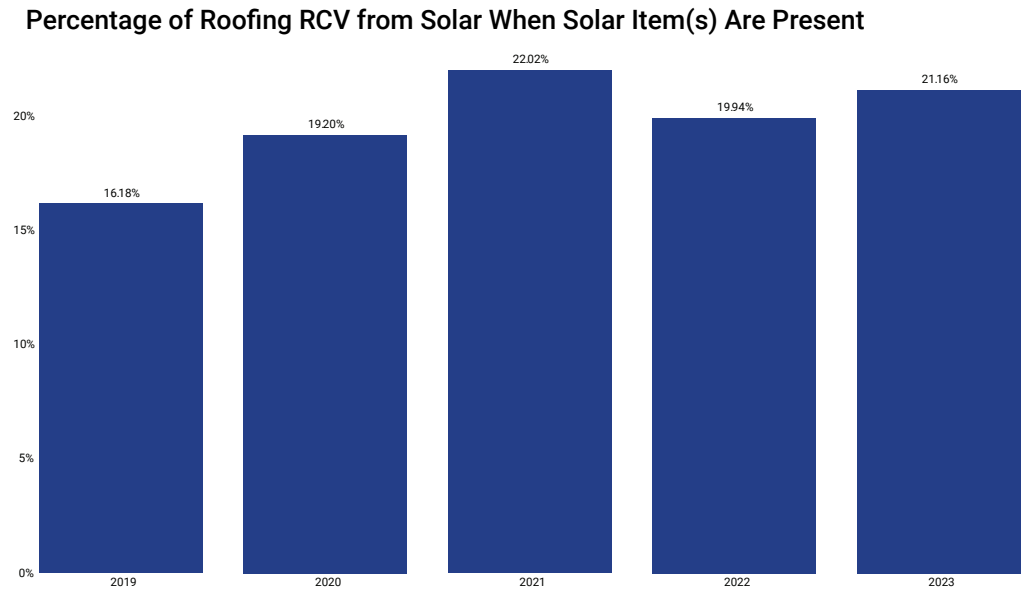


Figure 4: Percentage of roofing RCV from solar line items, when solar items are present. (Source: Verisk data)

Components of solar-related repair costs

While the prevalence of solar line items has increased by 60% over the past five years, total solar-related costs have more than tripled in that time. Those costs have two main components:

- The smaller of these is more direct: the removal and replacement of solar panels that have been damaged (shown in the darker blue in Figure 5). These costs encompass the materials, including mounting racks and wiring, and the labor involved in both removal and installation processes. The associated RCV has increased from $28M in 2019, to just under $100 in 2023.
- The larger of these is the cost of labor for detaching and resetting undamaged solar panels to allow the roof to be repaired (shown in the lighter blue in Figure 5). This detach-and-reset activity makes up about two-thirds of the total solar-related RCV and has increased from $47M in 2019 to $187M in 2023.

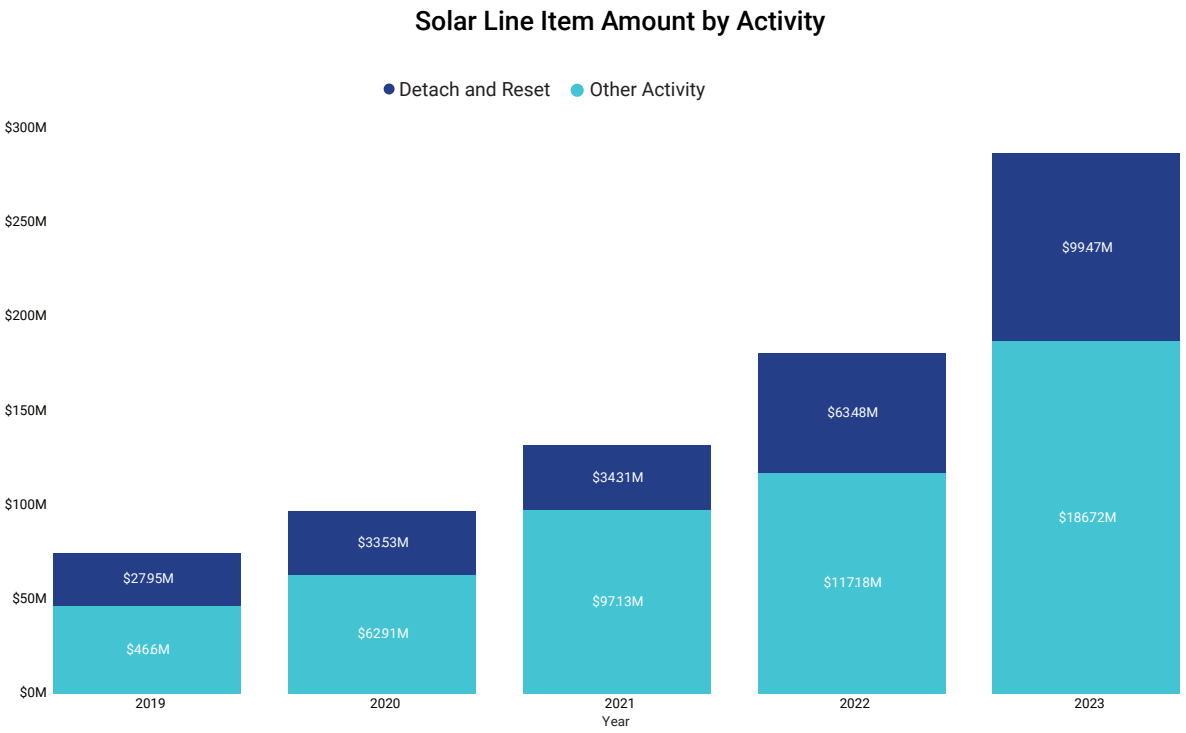


Figure 5: RCV for solar-related repairs. (Source: Verisk data)

Further impact of solar panels on roofing RCVs

Our analysis has revealed a hidden influence of solar panels on roof repair costs. When comparing average repair costs for roofs with and without solar line items, we found that roofs with solar components incur significantly higher repair costs, not just due to the solar elements themselves but also due to higher costs associated with non-solar roofing items.

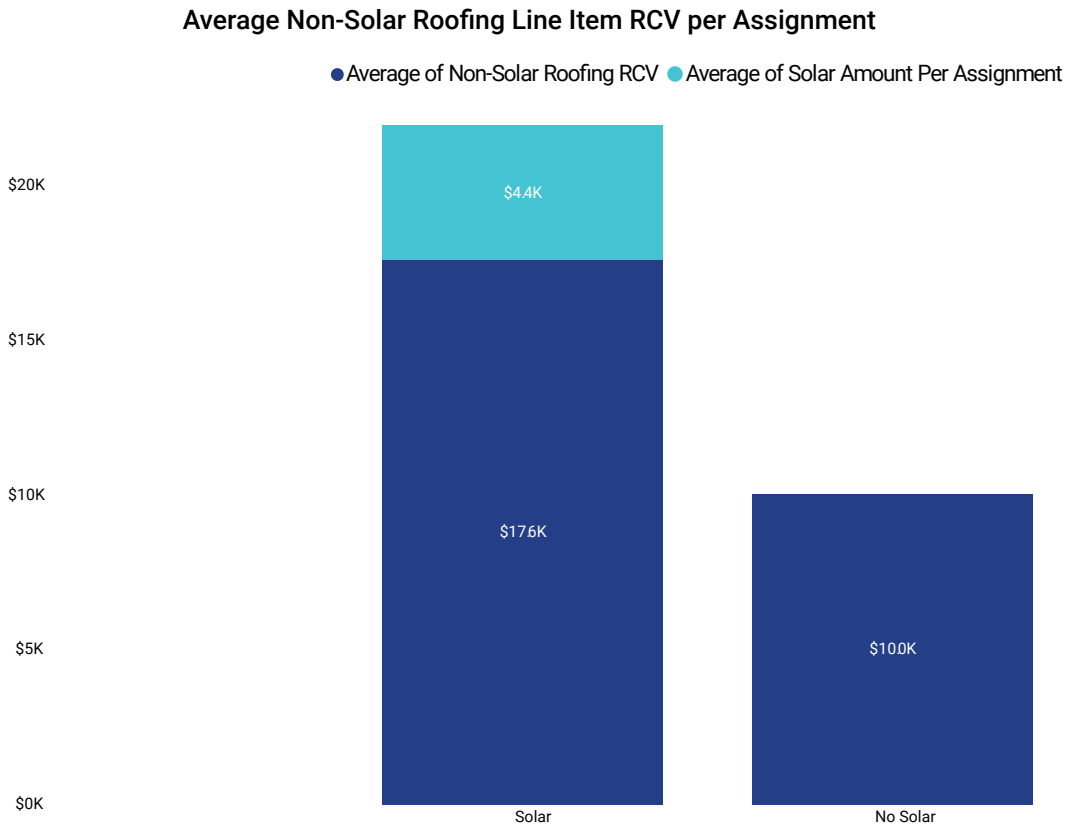


Figure 6: Average non-solar roofing line item RCV. (Source: Verisk data)

Of course, roofs with solar panels may inherently differ from those without, so we attempted to control for these differences. The most obvious place to start is by controlling for the number of squares of roofing replaced, which indicates roof size. Yet even when accounting for roof size, repair costs for roofs with solar items remain notably higher.

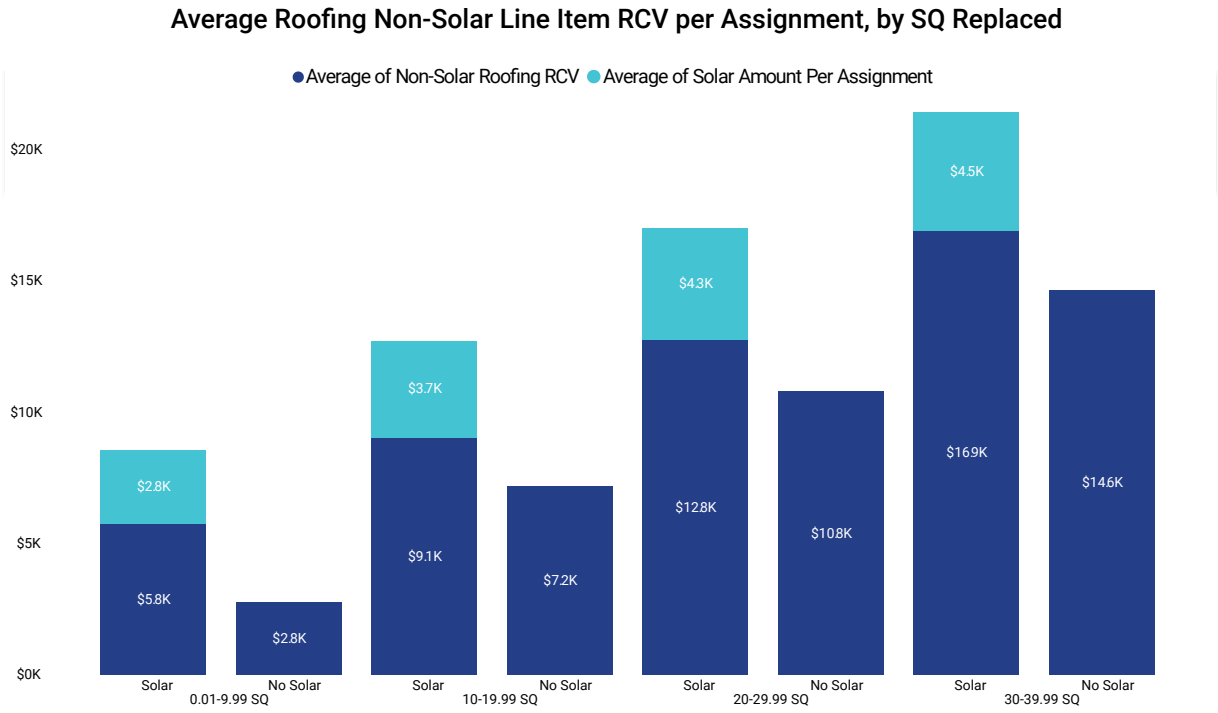


Figure 7: Average roofing non-solar and solar line item RCV per assignment. (Source: Verisk data)

Similarly, when we controlled for shingle quality by limiting the analysis to average grade 30-year laminated shingles, we also found higher repair costs for roofs with solar installations, highlighting that the complexities introduced by the presence of solar panels has an indirect influence on roofing repair costs.

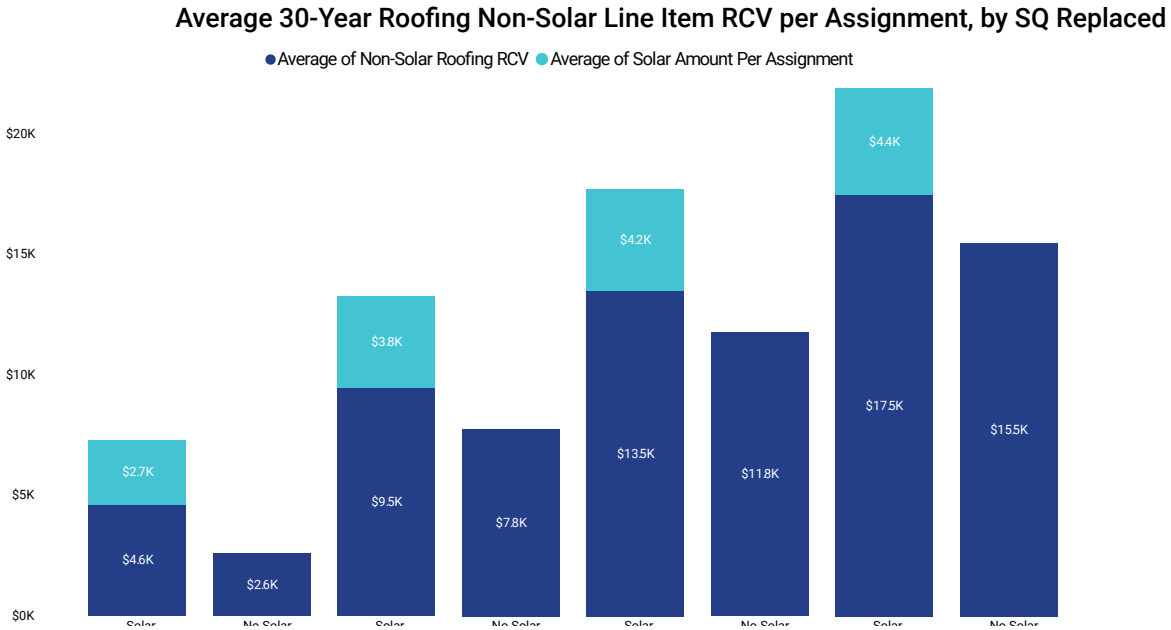


Figure 8: Average 30-year non-solar and solar line item RCV per assignment. (Source: Verisk data)

This trend persists when incorporating a control for geographical location. Across different states, we consistently observe a higher average repair cost for roof with solar line item(s). Figure 9,10, and 11 illustrate the indirect effects of the presence of solar line items on RCV for California, Colorado, and Hawaii, respectively.

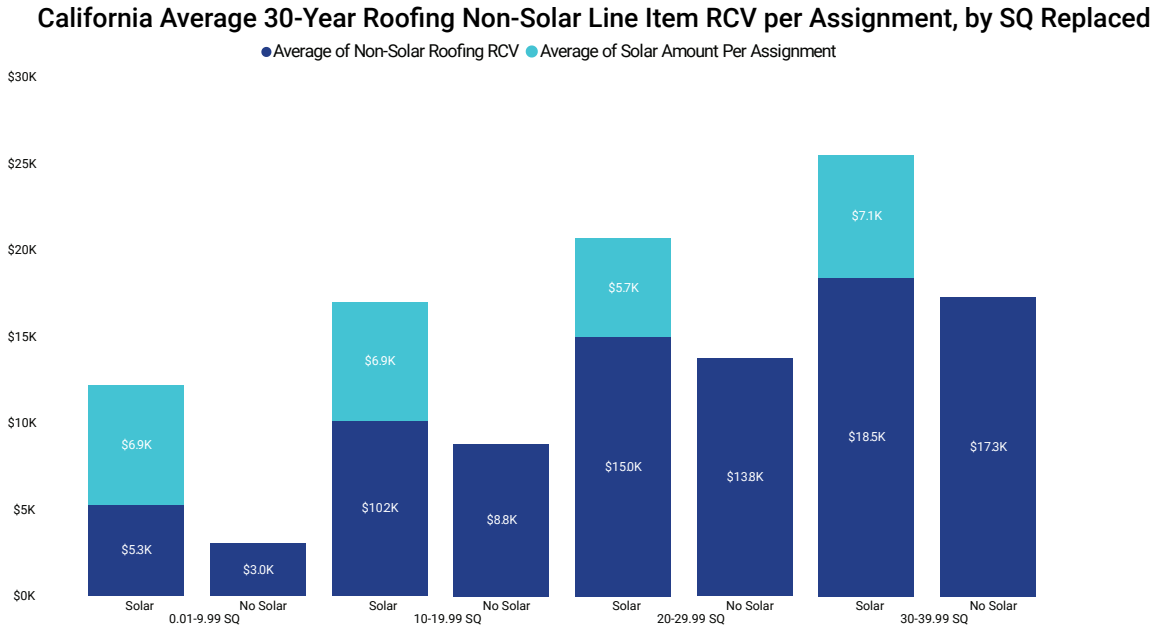


Figure 9: California average 30-year non-solar and solar line item RCV per assignment (souce: Verisk data)

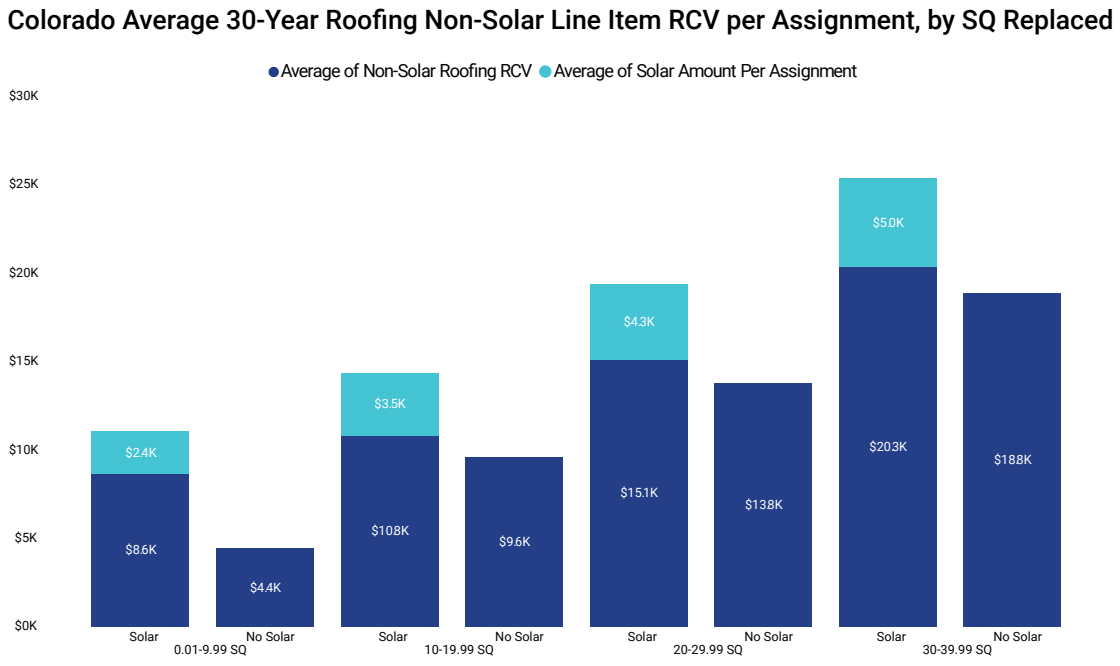


Figure 10: Colorado average 30-year non-solar and solar line item RCV per assignment. (Source: Verisk data)

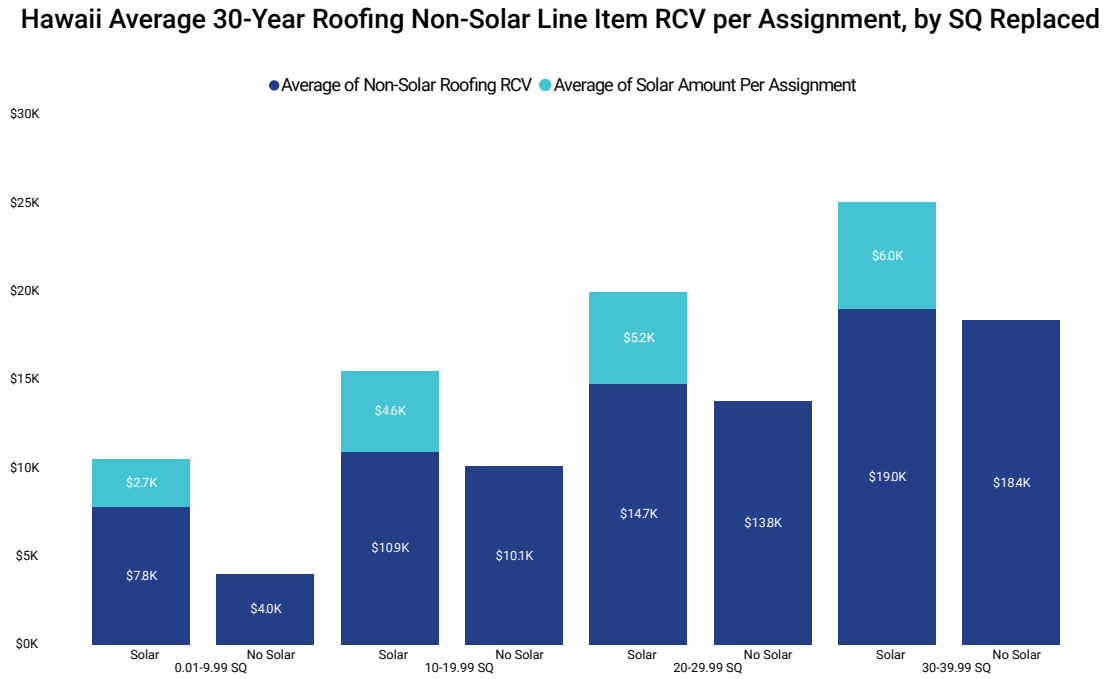


Figure 11: Hawaii average 30-year non-solar and solar line item RCV per assignment. (Source: Verisk data)

Conclusion

The volume and percentage of roofing assignments involving solar installations has risen over the past five years and continues to grow, as has replacement cost value.

Our analysis of claims data from 2019 to 2023 revealed expected increases in solar-related RCVs. However, we also found that the presence of solar panels on a roof correlates with higher roofing repair costs (aside from the solar repair/replacement costs), even when controlling for many variables.

Carriers will need a nuanced understanding of these challenges to navigate the evolving landscape of residential property claims and repairs. We'll continue to track and examine roofing data and deliver more in-depth insights on the intricate dynamics and financial implications of solar-related roofing repairs.



Learn more about Verisk's XactAnalysis Insights

For information relating to XactAnalysis, contact:

John Britt

Product Executive – Business Intelligence,

Property Estimating Solutions

JBritt@verisk.com

+1-201-268-3639

Verisk.com

© 2024 Verisk Analytics, the Verisk Analytics logo, and ClaimSearch are registered trademarks. Verisk and the Verisk logo are trademarks of Insurance Services Office, Inc.
All other product or corporate names are trademarks or registered trademarks of their respective companies. z240012 (02/24)