Iowa Climate Statement 2025: Climate Change Fuels Higher Insurance Costs

Despite remarkable gains in solar and wind power over recent years, fossil fuels continue to be burned at record levels, raising the amount of the planet-warming gas, carbon dioxide, in the atmosphere. Each of the ten hottest years in the past 175 years has occurred in the last decade, with global temperatures in 2024 handily surpassing all others¹. In lowa, climate factors such as increased heat energy, wind rotation, and moisture²⁻⁴, which are linked to a warming climate, have led to observations of more frequent occurrences of destructive springtime weather events, including increased heavy rainfall⁵, large hail⁶, and floods⁷.

Over the past 40 years, billion-dollar disasters (adjusted for inflation) in the region encompassing lowa have more than doubled⁸. These Midwest events are part of an emerging global trend of shattered long-term climate records, with growing losses of life and property, resulting in higher insurance costs⁹⁻¹³. For property owners, insurance is a necessary part of managing personal risk; however, the American dream of homeownership may become unattainable for some lowa families as climate change accelerates the rise in insurance premiums.

The insurance industry applies sophisticated climate models to align rates and anticipated losses across their customer pool. Rapidly rising property insurance premiums are familiar to residents in states such as Florida, where climate change has led to more devastating hurricanes. While recent increases in lowa's insurance premiums are driven by increased labor, building material, and reinsurance costs, these costs are all amplified by climate change and expected to grow in the coming years. In some cases, insurers are leaving the state due to these growing costs¹⁴⁻¹⁶.

Farmers are especially vulnerable to natural disasters and their associated costs. Federal crop insurance premiums were \$15.8 billion in 2024, of which the federal government subsidized \$9.8 billion¹⁷. Farmers and taxpayers will be required to pay the increased costs of more extreme weather events in the future. Moreover, federal crop insurance only supports losses to crops in the field. Farmers must purchase additional insurance to protect against losses to grain under storage or other assets due to severe weather.

To manage one's exposure to loss, individuals should carefully monitor what their insurance covers. For example, many property insurance policies do not cover flood damage, but optional federal flood insurance does. Homes and buildings can be built using the International Residential Code (ICCsafe.org), FORTIFIED construction standards (IBHS)¹⁸, or other construction techniques to enhance resilience to extreme events and reduce losses. To help protect homeowners and renters against physical dangers and financial losses from extreme weather events, local governments need the freedom to adopt strong building standards.

While insurance coverage is critical to address escalating natural disasters, it is not a long-term solution to the underlying problem. We must work quickly to reduce our reliance on coal and oil by shifting to clean energy sources like wind and solar. Doing so will reduce carbon dioxide emissions and thereby minimize future climate-related property damage. It is past time to

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- ² Kock et al. 2021. Trends in the extremes of environments associated with severe U.S. thunderstorms. <u>Journal of Climate</u> 34: 1259-1272. <u>DOI: 10.1175/JCLI-D-19-0826.1</u> Retrieved 9/30/25.
- ³ Feng et al. 2016. More frequent intense and long-lived storms dominate the springtime trend in central US rainfall. <u>Nature Communications</u> 7, 13429. <u>https://doi.org/10.1038/ncomms13429</u>. Retrieved 9/30/25.
- ⁴ Takle ES and Gutowski WJ Jr. 2020. Iowa's agriculture is losing its Goldilocks climate. <u>Physics Today</u> 73 (2): 26–33. https://doi.org/10.1063/PT.3.4407 Retrieved 9/30/25.
- ⁵ Ibid.
- ⁶ Tang et al. 2019. Trends in United States large hail environments and observations. <u>npj Climate and Atmospheric Science</u> 2, 45. https://doi.org/10.1038/s41612-019-0103-7. Retrieved 9/30/25.
- ⁷ Villarini et al. 2020. Attribution of the impacts of the 2008 flooding in Cedar Rapids (Iowa) to anthropogenic forcing: Environmental Research Letters, 15(11). https://doi.org/10.1088/1748-9326/abc5e5. Retrieved 9/30/25.
- ⁸ NOAA National Centers for Environmental Information. U.S. Billion-Dollar Weather and Climate Disasters (2025). https://www.ncei.noaa.gov/access/billions/, DOI: 10.25921/stkw-7w73. Retrieved 9/24/25.
- ⁹ Dantewadia P. 1/27/25. Map shows rising home insurance costs by state as climate risks reshape the market. Realtor.com. https://www.realtor.com/news/trends/maps-show-insurance-costs-rising/. Retrieved 9/24/25.
- ¹⁰ Flavelle C and Rojanasakul M. 12/18/24. Insurers are deserting homeowners as climate shocks worsen. The New York Times. https://www.nytimes.com/interactive/2024/12/18/climate/insurance-non-renewal-climate-crisis.html. Retrieved 9/25/25.
- ¹¹ Keys BJ and Mulder P. 2024. Property insurance and disaster risk: New evidence from mortgage escrow data [Working Paper 32579]. National Bureau of Economic Research. http://www.nber.org/papers/w32579. Retrieved 9/24/25.
- ¹² Ma et al. 2024. The impact of climate change on credit risk of rural financial institutions: A threshold effect based on agricultural insurance. <u>The North American Journal of Economics and Finance</u> 71 (2024). https://doi.org/10.1016/j.najef.2024.102086. Retrieved 9/24/25.
- ¹³ Collier et al. 2021. Climate change and insurance. <u>Economy and Society</u> 50 (2): 158-172. https://doi.org/10.1080/03085147.2021.1903771. Retrieved 9/24/25.
- ¹⁴ Hemmati et al. 2025. The growing void in the U.S. homeowners insurance market: who should bear the rising cost of climate change? npj Climate Action (2025) 4:35. https://doi.org/10.1038/s44168-025-00231-8. Retrieved 9/24/25.
- ¹⁵ Sheets C. 10/4/2024. "15 states facing an imminent insurance crisis." Insurify.com. https://insurify.com/homeowners-insurance-crisis/. Retrieved 9/24/25.
- ¹⁶ Getman S. 4/28/25. Iowa homeowners could see 19% spike in home insurance rates, report predicts. Insurify.com. https://insurify.com/homeowners-insurance/insights/states-facing-insurance-crisis/. Retrieved 9/24/25.
- ¹⁷ USDA Risk Management Agency Summary of Business Report. 9/22/25. https://pubfs-rma.fpac.usda.gov/pub/sob/current_week/sobrpt2023-2026.pdf. Retrieved 9/24/25.
- ¹⁸ FORTIFIED A program of the Insurance Institute for Business & Home Safety. https://fortifiedhome.org/ Retrieved 9/24/25.