I. Introduction

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State governments play a critical role in the United States' system of government. Long known as "laboratories of democracy," states have always been leaders in developing and implementing policies that tackle the immediate issues faced by their residents.

On a host of issues, one state's policy innovations have often been embraced by others, and eventually by the federal government, and those policies can also lead to structural changes in business and industry. For example, innovations like California's establishment of tailpipe emission standards in 1966, the creation of the California Air Resources Board in 1967, and the consolidation of multiple Southern California agencies into the powerful South Coast Air Quality Management District in 1967 collectively led to changes in the automotive, manufacturing, and construction industries that have had national impact.

Well-crafted policies have positioned states to seize new economic opportunities for their residents and to protect their most vulnerable communities from harms to their health and financial well-being.

> Today, we are in the midst of two historic transitions: the transition to a clean energy economy and the transition to an ever more unstable climate with more extreme and dangerous weather.
>
> **States have a twin imperative: to manage both the clean energy and climate transitions in ways that strengthen their economies, raise standards of living, contain the rising costs of living, and protect public health and the environment.**
>
> This report identifies the wide range of fiscal and regulatory tools that state policymakers can use to promote just and equitable approaches to the two transitions.

The twin transitions are closely linked. Financial markets have been slow to adjust to the realities of both climate change and the clean energy revolution. Climate change is already creating profound risks to the financial system. What is happening in state-regulated insurance markets today increasingly resembles housing markets in the run-up to the 2008 financial crisis.

The Federal Reserve and other key actors are failing to properly account for climate change's impact on the economy. Because climate change is a systemic risk, failure to adjust in one sector or geography can quickly cascade into a broader economic crisis. Meanwhile, many of the world's largest investors and lenders are wedded to an outdated energy system and failing to provide adequate financing for the businesses that are poised to accelerate the transition to a decarbonized economy.

The longer the delay in correcting this, the greater the economic fallout will be. U.S. investors, including teachers, firefighters, and other beneficiaries of state and local pension plans, are currently heavily exposed to this systemic and unmitigated risk. The insurance industry, which has known about the risks that climate change poses to its business for over half a century, has resisted efforts to navigate both transitions in a prudent or equitable manner. As climate change

intensifies, insurance companies and banks are maximizing their short-term profits at the expense of their long-term stability, while denying coverage and credit to impacted communities.

An energy transition is underway around the world. The global economy is rapidly transforming into one powered by clean energy. This massive transition is not debatable — it is unfolding currently, including in every U.S. state, and the factors driving it are objective and immutable. But policy choices will determine the pace and distribution of benefits of this transition. Economic policy is key to determining whether Paris Agreement climate targets are achieved and the degree to which the benefits of the transition are distributed equitably. Outcomes will depend on the management of complex and simultaneous processes of decline in businesses and sectors wedded to fossil fuels and growth in new clean energy technologies and businesses.

Rapidly advancing the energy transition in a way that favors the public interest is also critical for increasing adaptation options and reducing costs in the transition to a hotter, more unstable climate. As greenhouse gas (GHG) pollution continues to accumulate in the atmosphere, climate change is inflicting increasing damage on U.S. states, with disproportionate harm to communities that have contributed least to the problem. This harm is both acute, such as from intensified flooding, heat waves and wildfires, and chronic, such as from sea level rise, melting glaciers and persistent drought.

Taken together, these developments reflect the importance of focusing on the **financial transition** – the set of market shifts, adaptations, and reforms that must take place in order for policymakers to steer the financial system through these changing circumstances in a way that leads to a just transition.

Today, the U.S. is rapidly falling behind countries that have already begun pulling the policy levers needed to reap the benefits associated with the clean energy transition and reduce climate-related financial risk. Fortunately, state governments have power to drive investment in the clean energy economy and help shield their constituents from the rising costs of climate change. By utilizing a range of fiscal and regulatory tools, state policymakers can send an important signal to markets that, despite federal rollback, the U.S. is still responsibly managing its climate and clean energy transitions.

This report outlines states' legal authorities to use their economic power to help their communities grow and thrive amidst growing climate-related instability and an increasingly recalcitrant federal government. It provides examples of state leadership to date, and offers recommendations for state policymakers to exercise their authorities.

States can act in two main policy areas to capture the energy transition's economic opportunities, while investing in risk mitigation and climate-prepared infrastructure:

1. **Green banks and other financial instrumentalities.** States can create independently governed financial mechanisms to shape markets and direct investment. Some states have created green banks and other financial tools with the mandate to promote clean energy deployment and economic development. By following the recommendations in this report, more states can design institutions that effectively deploy capital to advance these goals.

2. **Pension investment policies.** The economic opportunities of the clean energy transition can be captured, and systemic climate risks from unchecked GHG pollution can be reduced, through action by state and local pension plans, which manage $6.17 trillion of retirement savings for more than 20 million public sector workers and retirees and their families. As fiduciaries, state treasurers and comptrollers have a duty to these beneficiaries to mitigate systemic risks to their portfolios. One key mitigation action is allocating capital to the clean

energy transition. At a time when the trajectory of the clean energy transition is revealing countless opportunities for business growth, state fiduciaries can show leadership among institutional investors by showing how catalytic investments in the clean energy transition will strengthen their beneficiaries' financial security.

To capture the economic opportunities, states will also need to use their authorities to improve statewide financial resilience to climate change's negative impacts, and to protect the economic well-being of impacted communities. States should focus on three major policy areas:

1. **Property insurance regulation.** The structure of insurance regulation gives states the leading role to play in managing the ongoing property insurance crisis. State governments can implement policies to make communities safer and more resilient in the face of climate hazards, prevent the insurance industry from privatizing gains and socializing losses, and keep insurers from making the crisis worse.

2. **Disaster mitigation and recovery policy.** Along with the loss of private insurance, federal pullbacks under the Trump administration mean states will now bear even more of the brunt of recovering from the costs of ever more frequent climate disasters. States can use long-term planning and coordination, improved disclosures, resilient building codes, climate resilience regulations and investments, and hazard mitigation spending to cushion the impact of these cutbacks.

3. **State banking regulators.** Ultimately, issues with property insurance and disaster recovery will threaten the flow of credit and investment, potentially leading to catastrophic consequences in the housing and municipal borrowing markets that will impoverish communities. States have significant ability to make sure that banks, credit unions, and other lenders and servicers manage those risks prudently and do not unfairly cut vulnerable communities off from necessary sources of private finance. They can also work with state-regulated financial institutions to encourage funding for climate resilience and clean energy projects.

If states miss these transition leadership opportunities, ignore climate-related financial risks, and fail to bolster the resilience of their state infrastructure and financial systems to climate impacts, their economies will experience avoidable losses and defaults, significant and abrupt loss of asset values in state and local pension plans, and dramatic reductions in household financial security.

This type of chaotic market transition is already taking place in the U.S. with the withdrawal of federal support for the clean energy industry, the climate-fueled property and casualty insurance market breakdown and its resulting effect on the mortgage market, and pullback of federal assistance for recovery and rebuilding following climate-related disasters. In order to seize the opportunities of the future while avoiding the worst damage from the mistakes of the past and present, states must take advantage of their authority and take actions such as the ones we lay out in this report.

For too long, states have acquiesced to the federal government in many areas of climate-related investing and risk management. In light of the second Trump administration's assault on clean energy and climate-related financial responsibility, this acquiescence cannot be allowed to continue. State policymakers must lead — and they can.

BOX 01

State leadership in times of national economic crisis

American history offers a clear example of how state policy can blunt the effects of federal inaction during a time of economic crisis, and even shape the delayed federal response. During the Great Depression, President Herbert Hoover did nothing for more than a year before forming the Emergency Committee for Employment, which declared that relief was the states' responsibility. Most states failed to act.

Tennessee Valley Authority workers pictured during the New Deal. Source: Library of Congress

There was one area where governors did take action across the political spectrum: public utilities. Historian James T. Patterson wrote, "Advocates of public utility regulation were a little more successful, mainly because the depression helped to expose the irresponsibility of some holding company executives....Overall, 39 states acted positively in 1931, and though regulation in most states remained ineffective, the trend encouraged reformers."

State action on utility reform during the Great Depression helped lay the groundwork for the New Deal:

- Two months before winning the 1932 presidential election, New York Governor Franklin D. Roosevelt gave a landmark speech about utility regulation and public power.
- In Wisconsin, Governor Robert La Follette responded to public outrage over utility abuses by appointing reformer David Lilienthal as his state utility commissioner. Lilienthal would go on to become the first director of the Tennessee Valley Authority.
- Corrupt practices by a Minnesota-based utility holding company led Minnesota Governor Floyd Olson to push his legislature to establish a state-based securities regulatory regime. Although Olson's proposal did not become law, it directly influenced the Roosevelt administration's decision to establish the SEC.

This history provides a valuable lesson for state policymakers today. The most effective state leaders during the Great Depression did not wait for the federal government to respond to the economic crisis. Instead, they took an activist approach toward the policy gaps and problems that the crisis had exposed, and filled those gaps wherever they could. These state policy choices ultimately informed and strengthened the federal New Deal. In several instances, they helped shape the institutions and policies necessary to overcome the Depression and defeat fascism in World War II.

II.

Tapping the Enormous Opportunities of the Energy Transition

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A transition away from fossil fuels is underway around the world. Global markets are headed decisively in the direction of clean energy. States can bolster their economies, raise the standard of living of their workers, and secure the retirement of their public employees by identifying and investing in these projects.

Although, as discussed below, renewable energy, energy efficiency, and electrification have powerful economic fundamentals that ensure that they will replace fossil fuels in global energy systems over time, in the near term the fossil fuel industry is delaying the transition using the powerful advantages of incumbency.

Much of the infrastructure needed to bring fossil fuels to end users has already been built, thanks to subsidies provided for more than a century. In contrast, renewable energy and other clean technology businesses must incur significant upfront capital costs and win reforms to outdated market rules before reaching end users. For example, as explained by the Systems Change Lab, large-scale renewable energy projects depend on significant capital investments in transmission and distribution, streamlined processes for grid interconnection, new market rules that facilitate deployment of energy storage, and grid-enhancing technologies to smooth out variability in supply.

Similarly, over the decades of its incumbency, the fossil fuel industry has deployed its formidable resources to manipulate the political system and hijack the public debate. The Energy and Policy Institute has shown, for example, how utilities with fossil fuel generation units block transmission lines needed for renewables deployment and how fossil fuel companies deploy front groups to mobilize local opposition to renewable energy projects.

These and other political activities are having a measurable impact. For example, a 2025 report by Heatmap finds that one-fifth of U.S. counties now restrict wind and solar development, double the number of restrictions that were in place in 2022. State policymakers must counter these activities by educating themselves and their constituents about the real motives behind local clean energy opposition, as well as the powerful economic justifications for policies that accelerate the transition.

A. OVERVIEW OF ECONOMIC OPPORTUNITIES FROM THE ENERGY TRANSITION

Our contention that the clean energy transition is irreversible and will only accelerate — which is widely shared — rests on two interrelated developments. First, in the past several decades, a global consensus has emerged, as reflected in the Paris Agreement, that unchecked GHG emissions pose a dire threat to the conditions that make modern civilization possible. This consensus makes it highly likely that policy measures, court rulings, and shifts in consumer and employee preferences will accelerate decarbonization of the economy. Second, even if these changes are insufficient to achieve Paris Agreement emissions reduction targets, renewable electricity, energy efficiency, and electrification of energy usage have achieved cost and technological advantages that make them superior to energy systems based on fossil fuel combustion.

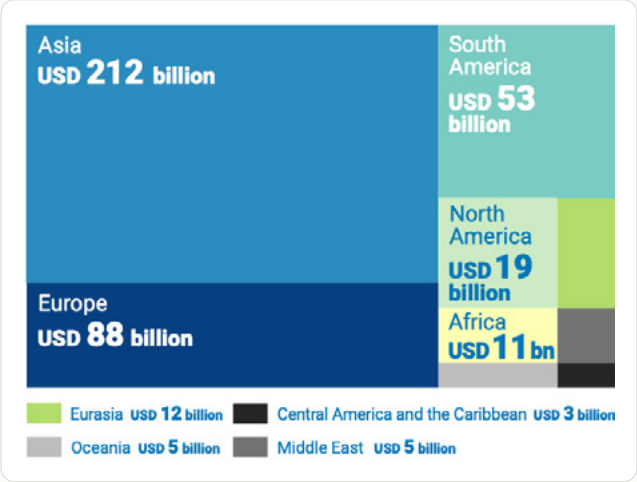
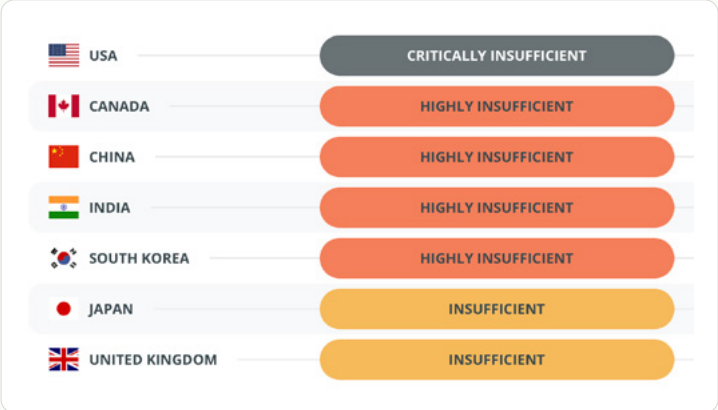


Figure 7 from United Nations, Seizing the Moment of Opportunity (2025) "Cumulative fossil fuel savings in the electricity sector from renewable power additions between 2000 and 2023 from different regions."

These cost and technological advantages will accelerate over time, regardless of the path of climate policy, court rulings, and customer and employee sentiment. This means that replacing the fossil fuel system with one based on renewable energy, energy efficiency improvements, and electrification will drive significant economic development opportunities and save households enormous sums on energy costs. For instance, a 2025 United Nations report documents the rapid decreases in costs to energy users already achieved from expanded deployment of renewable energy, energy efficiency, and electrification and highlights anticipated future economic gains for businesses and households around the world.

The Biden administration made historic strides, using the Inflation Reduction Act (IRA) and other tools of industrial policy to help the U.S. capture the enormous economic opportunities associated with the transition of the global economy away from fossil fuels and toward carbon-free energy supplies and electrification of transport, buildings, and heavy industry.

By the end of 2024, the U.S. had begun to experience material economic benefits from these policies, thanks to steady growth in transition-related investments and jobs and better systems in place to help communities, and the financial systems they depend on, prepare for and recover from extreme weather and other climate impacts. In a March 2025 report, Energy Innovation found that just two years after its enactment, the IRA had already created 400,000 jobs and spurred $600 billion of private investment.



An illustration of the U.S. as an outlier on insufficient climate action amongst the world's seven largest economies. Source: Climate Action Tracker

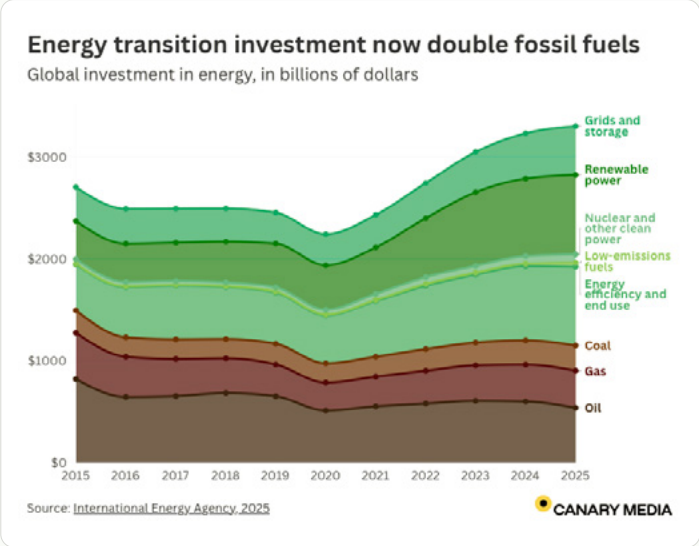
The Trump administration and its congressional allies have reversed much of this progress. They have repealed many IRA provisions, slashed funding, and eliminated most of the federal government's climate-related industrial policy tools. These changes are projected to constrain job growth and raise electricity costs. According to *Bloomberg*, in the first half of 2025 the U.S. experienced a 36% decline in investment in renewable energy compared with the second half of 2024. This exodus took place while global investment in renewable energy reached a six-month record of $386.5 billion.

These rollbacks have greatly weakened the U.S.position vis-a-vis its global competitors to capture transition-related economic opportunities. The good news is that states have enormous power to fill the void resulting from this federal retreat. Moreover, states have previously demonstrated that they can assert leadership in times of national economic crisis.

B. CLEAN ENERGY INVESTMENT IS GROWING EXPONENTIALLY

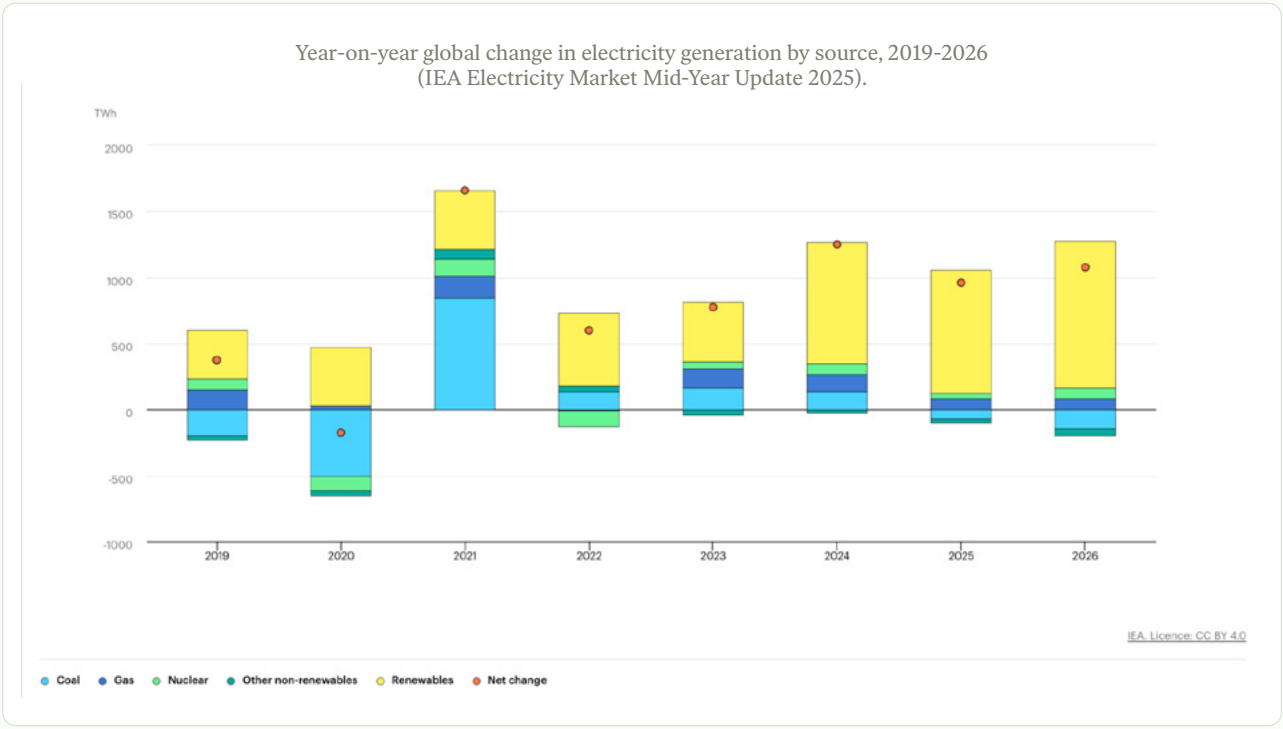
State policymakers' engagement with clean energy finance must begin with an understanding of the clean energy investment boom underway around the world. According to the International Energy Agency, in 2015 fossil fuels attracted more investment worldwide than clean energy. In 2025, just ten years later, $2.2 trillion will be invested in clean energy, efficiency, and electrification, double the amount that will be invested in fossil fuels.

Investment in solar photovoltaics now surpasses investment in all other generation technologies combined. Renewable energy today captures nearly all of the world's power capacity additions, climbing to 92.5 percent in 2024 from 85.8 percent in 2023. The IEA projects that renewable energy will overtake coal as the world's largest source of electricity as early as 2025 or by 2026 at the latest, depending on weather and fuel price trends.



A chart showing growing investment in clean energy. Source: *Canary Media* via IEA

Around the world, enthusiasm for battery storage as a linchpin of the clean energy transition remains unabated. RMI explains, "[b]atteries are on the path to displace 86 exajoules (EJ) of fossil fuels from road transport (emitting 6 GtCO2 per year) and to put at risk another 23 EJ (or 1.6 GtCO2/y) from shipping and aviation. In the electricity sector, as batteries synchronize the natural rhythms of the sun and the wind with the timing of electricity demand, they help enable the reduction of a further 175 EJ of fossil fuel demand (or almost 15 GtCO2/y)."



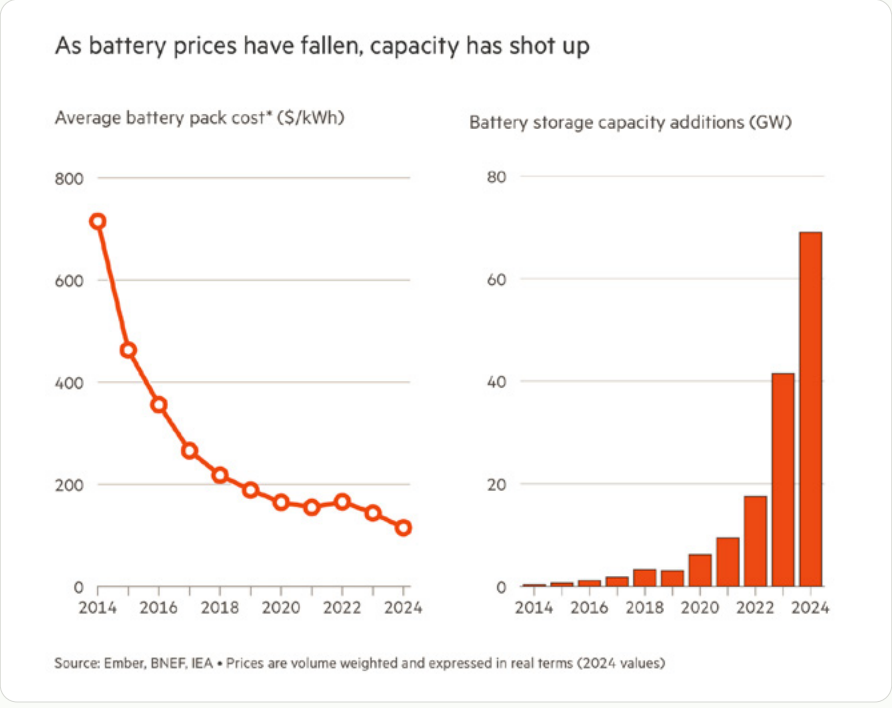
A chart showing energy investment trends. Source: IEA

According to *TechCrunch*: "In 2019, just two battery factories were operating in the United States with another two under construction. Today there are about 34 battery factories either planned, under construction, or operational in the country." Unlike other clean energy tax credits that were effectively repealed in the recent budget reconciliation bill, the battery tax credit that spurred this investment remains in place in the U.S., albeit with complex new restrictions relating to foreign content.

Investors' views of electrification technologies are similarly enthusiastic. "Investment in the low-carbon energy transition worldwide grew 11% to hit a record $2.1 trillion in 2024," according to a *Bloomberg* analysis in early 2025. Growth was driven by electrified transport, energy storage, and power grids in addition to renewable energy.

A substantial part of global clean energy investment is linked to China's ambitious efforts to build a clean technology manufacturing base, which has now expanded well beyond China to include an extensive array of partnerships with host countries. According to the Net Zero Industrial Policy Lab, China's investment in green technology manufacturing (which it defines as manufacturing of batteries, battery materials, charging infrastructure, electric buses, electric motorcycles, green hydrogen, new energy vehicles (NEVs), NEV parts, solar, storage, and wind) "now surpasses the USD 200 billion (in current 2024 dollars) invested by the U.S. over four years of the Marshall Plan, at a time of similar American dominance of manufacturing in key industries."

Given this momentum, attacks by the Trump administration and Congress on federal clean energy policies are not likely to dampen investor enthusiasm across the globe. But as businesses and financial markets around the world shift decisively toward renewable energy, energy efficiency, and electrification, the U.S. economy is now at great risk of falling behind.



Source: *Financial Times*, "How mega batteries are unlocking an energy revolution," October 13, 2025.

C. MARKET FUNDAMENTALS ARE DRIVING CLEAN ENERGY GROWTH

The uptake of clean energy is not an altruistic move reserved for do-gooders. It is a prudent financial decision being made by investors and lenders who are responding rationally to the plummeting costs, flexible deployment economics, and technological superiority of clean energy compared to more carbon-intensive options. In a May 2025 article, analysts from the research firm Ember explain how renewable energy and electrification outperform fossil fuels on certain core economic fundamentals relating to efficiency, costs, and supply chain resiliency. For policymakers working to achieve sustainable economic development, job opportunities, and affordable energy for their constituents, understanding these fundamental drivers of investment will be critical.

1. SHIFTING TO CLEAN ENERGY FREES UP RESOURCES

Relying on clean energy is efficient, freeing up energy and capital for clean manufacturing, affordable housing, and other productive purposes. According to RMI, "wind and solar energy can be generated almost entirely without losses as they require effectively no extraction or processing energy, nor suffer major thermal losses like fossils." In contrast, thermal power plants, internal combustion vehicles, and other fossil fuel combustion technologies require a long series of conversion steps. This conversion results in an enormous waste of energy and capital that otherwise could be used for productive purposes. A recent RMI study estimates that $4.6 trillion, or 40 percent of global energy expenditures, is squandered on waste heat for fossil fuel combustion. Similarly, electric vehicles use roughly one-third as much energy as internal combustion vehicles and heat pumps are about two to four times as efficient as gas boilers.

2. CLEAN ENERGY IS COST-COMPETITIVE

For businesses and households alike, dependency on fossil energy imposes a costly burden. According to the Roosevelt Institute (2022), energy is "the fourth largest category of expenses for the average US household, after housing, food, and transportation (excluding gasoline)."

When clean energy technologies are made available, these households enjoy substantially lower electricity and heating costs, without the hazardous indoor pollution that accompanies burning fossil fuels. State investment in deployment of these cost-competitive technologies produces significant economic benefits that can be realized on a reasonable and predictable timeline.

Wind and solar energy is now cheaper than fossil fuel power, electric vehicles are likewise outcompeting gasoline cars on cost, and battery storage has become cheaper than most fossil fuel peaker plants. Although as discussed above, policy incentives are needed to help renewables overcome high upfront capital costs, these technologies outcompete fossil fuels on lifecycle costs, even assuming no subsidies. According to the investment bank Lazard, "renewables remain the most cost-competitive form of new-build generation on an unsubsidized basis" and "stand out as both the lowest-cost and quickest-to-deploy generation resource."

The economic advantages of renewable energy and batteries will continue to improve because they are enjoying the benefits of the "S curve" that characterizes the explosive growth of truly disruptive technologies. Solar panels, wind turbines, and lithium-ion batteries, with cost declines of over 90 percent in the past two decades and mass market acceptance, have now entered the upward part of the curve. At this stage, the technologies enjoy a virtuous cycle, getting cheaper the more they get deployed and getting more deployed the cheaper they get.

Source: Greg Coebel via Environment America report

The economics of renewables and batteries stand in stark contrast with those of oil and gas and coal. According to Ember, the major difference is:

> *"In short: electrotech economics is manufacturing economics. The more you build, the cheaper it gets. Fossil economics is extraction economics. The more you dig, the more it costs. The economics of the two systems move in opposite directions, and once you reach a cross-over point, there is no way back."*

3. SUPPLY CHAINS FOR CLEAN ENERGY ARE MORE RELIABLE

The U.S. has now entered and exited the Paris Agreement twice, but throughout this, state leaders and members of the U.S. Climate Alliance have shown that they are still committed to the Agreement's pollution reduction goals. State leaders can continue to educate the public about the dangers of fossil fuel dependency, begin working on bringing manufacturing of key components of the clean energy supply chain to their communities, and work with allied countries to unlock fair trade in clean energy supply chain technologies. States that take these sorts of actions are poised to experience economic benefits fostering more affordable energy and more sustainable economic growth.

Fossil fuel-based energy systems rely on finite and geographically specific petroleum reserves, in contrast to renewable energy systems that can produce energy almost anywhere in the world. Fossil fuel supply disruptions and price volatility arise frequently due to a multitude of factors, including growing weather extremes and geopolitical tensions. This creates a major barrier for business planning and investment. It also creates significant risks of failure for utilities and others delivering essential community services, which can have catastrophic consequences when extreme weather events put human lives at risk.

Renewable energy, battery, and electric vehicle technologies also face supply chain bottlenecks, but they are less impactful. Scaling manufacturing solves some bottlenecks, and strengthening environmental, human rights, and labor protections helps to build the community support needed for supply chain resiliency. Access to minerals poses a challenge, although, as researcher Hannah Ritchie explains, "the energy transition significantly reduces mining requirements." The billions of tons of fossil fuels mined annually around the world must be replaced each year, necessitating many additional billions of tons of mining, whereas transition minerals can be used for significant time periods. Reuse of these materials is also increasingly feasible, although recycling technology is still in its infancy and would benefit from public and private investment to develop and scale. States that invest in these technologies and supply chains will unlock jobs for their workers, provide clean and reliable energy for their residents, and contribute to the GHG emissions reductions that are so essential to preserving a habitable planet.

III.
Protecting People and Communities from Climate-Related Economic Harms

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A. THE EMERGING CLIMATE-RELATED ECONOMIC CRISES REQUIRE THE ATTENTION OF STATE POLICYMAKERS

Insufficient investment in renewable energy, energy efficiency, and electrification has consequences far beyond the missed opportunity to capture the economic benefits of the energy transition. Delaying the transition to carbon-free energy means that GHG emissions will continue to degrade the natural and human-made conditions upon which economies depend.

Ordinarily, the federal government would be expected to lead the response to these threats, as it did under past administrations. But as the Trump administration denies climate science and undermines the nation's preparedness for the well-documented physical and economic impacts of climate change, states must account for and avert long-term damage to the economy.

There are two types of climate risk that threaten state economies:

- The first is *physical risk*, which is the degree to which assets, infrastructure, and populations are left exposed to the physical impacts of climate change. These impacts are both acute (e.g., intensified flooding, heat waves, and wildfires) and chronic (e.g., sea level rise, melting glaciers, and persistent drought).
- The second component is *transition risk*, a measure of lack of preparedness for the decarbonization of the economy. This could include failure to prepare for changes in markets, credit availability, policy, law, and technology.

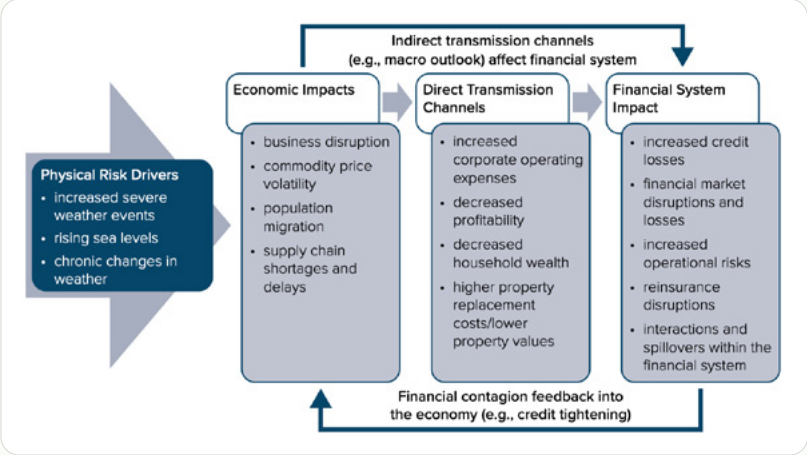

Chart Illustrating Transmission Channels for Physical Risks from Climate Change. Source: Financial Stability Oversight Council

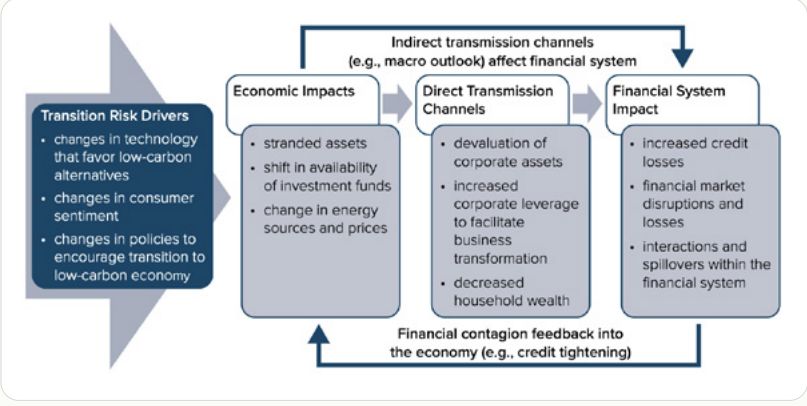

Chart Illustrating Transmission Channels for Transition Risks from Climate Change. Source: Financial Stability Oversight Council

The potential impacts are catastrophic, particularly for physical risks. The Institute and Faculty of Actuaries finds that the "global economy could face a 50% loss in GDP between 2070 and 2090 unless immediate policy action" on climate risks is taken. Bilal and Känzig construct a model of global temperature shocks and find that a 1°C shock leads to a 12% decline in global GDP after 6 years and that a permanent 1°C rise in global temperature causes global GDP to persistently decline by over 20%.

These global economic losses will harm states, both through direct physical exposures and by threatening the ability of their workers to invest and retire comfortably. One of the world's largest investment funds found that climate change impacts would wipe out 19% of U.S. equities' value.

A 2024 Ortec Finance study of climate risks found that U.S. pension plans face the greatest risks among all pension plans studied. If emissions are not reduced, "US pension funds could experience the most significant impact, with investment returns declines approaching 50% by 2040, followed by further declines without recovery until at least 2050."

U.S. pension plans are facing a potential 50% decline in portfolio value due to physical climate impacts, far greater than the significant declines facing pension plans in other developed countries. Source: Ortec Finance 2024.

Climate change is a threat to the entire economy because it is a systemic risk. That is, it threatens not just one sector or geography, but all of them, in ways that can compound and interact to amplify the damage of every shock. U.S. policymakers have acknowledged for several years that "climate change poses serious emerging risks to the U.S. financial system." In 2021, a Report on Climate-Related Financial Risk from the Financial Stability Oversight Council (FSOC) declared that "climate change is an emerging threat to the financial stability of the United States." Failure to reduce GHG emissions only compounds that threat.

One channel of systemic risk, laid out by the FSOC report and previous analyses by U.S. and international regulators, involves how climate change threatens the safety and soundness of banks and the financial system. More frequent climate-related disasters increase the chances of loan delinquencies and defaults and reduce the value of collateral that secures loans.

Banks that lend to transition-impacted sectors or in regions with a heavy reliance on those sectors face similar risks. In the regional banking crisis of 2023, failure at a few regional banks to manage interest rate risk, as well as their exposures to certain risky sectors, raised the awareness of inves-

tors and depositors to the presence of those risks in other banks, triggering a panic that ultimately threatened financial stability. A similar panic could result from raised awareness of the climate risk exposure of regional banks lending in flood or wildfire zones, or concerns about banks' funding of oil and gas development after the arrival of peak oil has been confirmed.

The three U.S. federal banking agencies — the Office of the Comptroller of the Currency (OCC), the Federal Reserve, and the Federal Deposit Insurance Corporation (FDIC) — took initial steps to address these risks under the Biden administration. They jointly issued guidance setting expectations for how banks with over $100 billion in assets should address climate risk. They set no expectations for small banks, though the less diverse lending footprint of smaller banks could leave them just as, if not more, vulnerable to physical and transition risks. The Federal Reserve also conducted an exploratory scenario analysis to better understand the challenges large banks face assessing climate risk over a long time horizon. The National Credit Union Administration (NCUA) requested information and comment on climate risks.

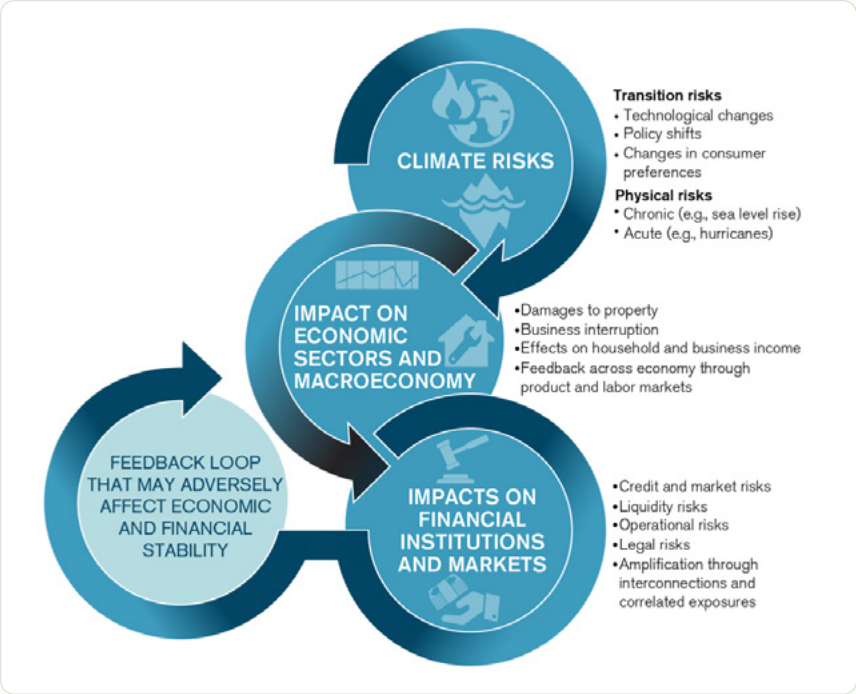

Illustration of Climate Risk Transmission Channels Threatening Financial Stability. Source: Financial Stability Oversight Council

Under the Trump administration, federal regulators are reversing this progress. The OCC, Federal Reserve, and FDIC withdrew their climate risk guidance. Federal Reserve Governor Christopher Waller offered a mere two-word statement: "good riddance." New Federal Reserve Vice Chair for Supervision Michelle Bowman has repeatedly expressed her view that climate change is not a core risk to bank safety and soundness. Treasury Secretary Scott Bessent, who is the Trump administration's lead for financial regulation, referred to the Federal Reserve's prior attention to climate change as "mission drift...impeding responsible lending and risk taking." The FSOC terminated its climate risk committees. NCUA Chair Kyle S. Hauptman's goals include "[m]aking clear that credit unions and their members are best positioned to assess their communities' climate risks."

The Trump administration is ignoring a risk that is far from theoretical. Transmission of physical climate risk through the financial system is already playing out in the U.S. property and casualty insurance markets. The breakdown in insurance availability and affordability is now damaging mortgage banking and real estate markets, too, with potentially grave impacts on states' fiscal resiliency and the stability of the financial system.

B. PEOPLE AND COMMUNITIES ACROSS THE U.S. ARE ALREADY SUFFERING ECONOMIC HARM FROM FAILURE TO MITIGATE CLIMATE-RELATED FINANCIAL RISKS

A climate-related property and casualty insurance market crisis is currently unfolding across the United States. Rising GHG emissions are increasing the frequency and severity of fires, floods, and other climate-related disasters. Property and casualty insurers, policymakers, and regulators have witnessed these trends yet failed to take needed action to help communities prepare and respond. Homeowners, renters, and businesses are now facing the painful consequences.

The insurance crisis is the largest and most widespread financial breakdown arising from the U.S.'s failure to mitigate climate risk. It provides a real-time example and warning about the wider breakdowns that could arise in the absence of focused attention on climate-related financial risk.

Insurance markets are destabilizing because state-licensed and regulated insurers are responding to rising disaster costs by increasing premiums and reducing coverage. The growing gap in protection for households and businesses is leading to declining property values. The financial risks of the decline are substantial. For many people, their home is by far the biggest investment they will ever make and thus a substantial decline in value is devastating to their financial security. Mortgage markets and municipal finance are beginning to suffer, with potential reverberations across the entire economy.

The protection gap is significant. In 2022, only 60 percent of $165 billion in U.S. losses were insured, and by 2024, an estimated $1.6 trillion in American property was left unprotected. In the area of Texas hit by flooding in the summer of 2024, fewer than 5% of homes had flood insurance. The Bank for International Settlements has warned that "the lack of affordable access to critical insurance products such as home or flood insurance may also have other far-reaching economic and social consequences, further exacerbating financial stability risks." Climate change will continue to increase the gap.

The broader economic slowdown is now manifesting in mortgage markets, much as it did in 2008. A 2025 working paper by Federal Reserve Bank of Dallas staff finds that rising insurance premiums "increase the probability of mortgage delinquency."

Also similar to 2008, the risk incurred through these economically precarious mortgages is being spread to other kinds of financial institutions besides banks. Despite a large protection gap and associated risk of rising mortgage delinquency and default, Haupert et al. show that home-buying in high-risk areas is not moderating. They find that rather than sending price signals (higher mortgage interest rates) that might encourage homebuyers to look elsewhere, fintech mortgage lenders, who are primarily licensed and regulated by state governments, are offering attractive rates in high-risk locations. Journalist Susan Crawford summarizes the findings by noting that "[fintech lenders], which are rapidly consolidating, are so good at immediately selling off—securitizing—loans to other investors, shifting the risk away from themselves, that it's worth it for them to keep mortgages flowing in risky areas, generating fees."

Failure to consider these risks means one or more climate-related bubbles may be on the verge of bursting. The result could be a swift decline in real estate markets, including knock-on effects on properties not directly impacted by climate risk, or those that have been prudently underwritten. This could threaten the solvency of even responsible lenders.

There is evidence that the decline is already underway. In July 2025, Moody's chief economist warned that "the housing market is getting so weak that it's poised to become a significant drag

on overall economic growth." A few weeks earlier, *Bloomberg* reported that insurance had led to a situation where "Florida real estate prices are in decline again — and this time, real estate experts say, the costs of living with climate change may deepen the down phase of the usual boom-and-bust cycle."

A report by the First Street Foundation estimates that "[b]y 2055, 70,026 neighborhoods (84% of all census tracts) may experience some form of negative property value impacts from climate risk, totaling $1.47 trillion in net property value losses due to insurance pressures and shifting consumer demand."

If real estate markets decline, one of the likely impacts is strain on state and local budgets, limiting governments' ability to help communities prepare and recover from future disasters. This decline will worsen the existing strain that climate risk in insurance puts on municipal bond markets. The city of Paradise, California defaulted on its municipal bonds after the Camp Fire in 2018, and real estate prices have declined in Paradise ever since.

First Street provides a stark warning about what the future may look like for climate-impacted state and local governments:

> *"Lower property assessments significantly impact state and local government revenues, with property taxes accounting for over 30% of local government funding nationwide. This reduction in revenue can trigger a vicious cycle, where limited funds hinder investments in critical climate adaptation infrastructure just when it is most urgently needed— further exacerbating the decline in property values. States like Texas and Florida, which rely heavily on property taxes due to their no-income-tax structure, are increasingly exposed to fiscal risks as climate change threatens their tax base by impacting property values."*

Thus, in a relatively short amount of time, what may once have appeared to be a problem with a single sector has become an emerging public finance and real economy crisis.

Early action by state governments to head off further deterioration of the property and casualty market will be critical. There is little time to waste. In coastal and non-coastal states alike, insurers are announcing moratoria on any new coverage while severely restricting or pausing coverage and hiking rates for current policyholders. In California, major insurers have threatened to exit the state market altogether.

To help homeowners, renters, and businesses with unaffordable or unavailable coverage, and to help prevent the spread of the insurance crisis through the economy and financial system, state policymakers and regulators must use their existing authority to change the way they regulate climate risk in insurance and financial markets.

Flooded U.S. Route 17 at Charlie Creek due to Hurricane Ian. Source: Ozzy Trevino

BOX 02

The cautionary tale of Florida's insurance markets

Florida serves as a leading example of how a failure to adequately regulate one sector (insurance) amidst growing climate risk can reverberate across the financial system and cause significant harm to people and communities.

Hurricane Ian (2022) caused $113 billion in insured losses in Florida, leading to multiple insurer failures. The insurance insolvencies in Florida caused tremendous harm to policyholders whose property was damaged by Ian and other Florida hurricanes. Despite faithfully paying their premiums, they were left holding the bag because their insurer was unable to pay all or most of their claim.

States have guaranty funds that are meant to step in to compensate policyholders when their insurer becomes insolvent. After Ian, Florida policyholders had some portion of their claims paid by the Florida Guaranty Association, but, in most cases, it was insufficient to repair or rebuild their home, and they had to deplete whatever savings they had. In many

cases, they were unable to rebuild, unable to pay off their mortgage, and were left financially ruined. When insurer insolvencies force guaranty funds to make payments, there are delays, which can in turn lead to avoidable foreclosures. Scholars at the University of Alabama have found that under certain catastrophic climate scenarios, it would take the average state over 100 years to fully pay the original loss amount through guaranty fund assessments, further raising the likelihood that future insurance insolvencies will lead to foreclosures and other economic hazards.

Climate change is also creating pressures for so-called residual markets. Most states have created an insurer of last resort, an insurer-run plan that is meant to offer coverage to policyholders in markets where primary market coverage is not widely available. Because coverage in these residual markets is expensive and barebones, growth in these plans is not desirable. Data released by the Federal Insurance Office in 2025 showed that over the past five years, climate change has contributed to a 50% uptick in reliance on residual lines, including in Florida. By 2022, Citizens Property Insurance Corporation (Citizens), Florida's insurer of last resort, had grown to over 1 million policies, the largest insurer in the state.

These compounding failures prompted Florida to pass legislation in 2022 that weakened insurance regulation. Since it passed, there have been strong reasons to doubt that the overhaul would stabilize Florida's property insurance market. The provisions that "depopulate" Citizens require policyholders to accept offers of premiums that are within 20% of their current Citizens policy. This may have the effect of limiting participation in Citizens to the riskiest households, making expensive surcharges paid by all Floridians more frequent and costly. Indeed, insurance companies have been "taking out" the least risky Citizens policies amidst a continued rise in premiums across Florida, shrinking the risk pool for Citizens down to the riskiest policies. "Depopulation" for Citizens is now well underway.

These regulatory changes continue a troubling trend of ignoring weakness in the Florida insurance market. Analyses of recent insolvencies in Florida have shown a long history of regulatory lapses, including failure to conduct required financial condition exams. In a 2023 article titled "When Insurers Exit," a group of academics uncovered evidence of grade inflation by Demotech, a ratings agency on which insurers are allowed to rely under Florida law. Florida's late 2022 insurance overhaul was motivated in part by Demotech's sudden downgrade of financial stability ratings for 27 Florida insurers, several of which became insolvent just a few months later. All ten of the latest insurance insolvencies were Demotech-rated insurers.

Newer, smaller insurers that have entered Florida's market since 2022 market seem to be undercapitalized. These newer insurers generally enjoy higher ratings from Demotech than from independent credit rating agencies such as Weiss, which does not receive compensation from the insurers that they rate. "When Insurers Exit" draws a clear parallel between the way that faulty ratings hide weakness in Florida's insurance market today and conditions in the subprime mortgage market before the 2008 financial crisis.

Florida remains the most expensive state in the country to buy home insurance. Moreover, Florida policymakers have taken intentional steps to encourage the growth of surplus lines in Florida. Surplus lines are not part of the "admitted" market, meaning they are subject to less stringent regulation, tend to offer expensive and less generous coverage, and are not backed by the state guaranty funds. Growth in surplus lines therefore does little to close the "protection gap."

While Florida has announced that at least 17 "new" insurers have entered their market, these are Florida- or regionally based insurers. Even with rates 3 to 4 times the national average and substantial deregulation of the insurance market in Florida, the national insurance brands are not writing insurance in Florida because even at the highest premium price the risk of loss is too high. Florida is Exhibit A for the proposition that state policymakers cannot use premium increases and deregulation of the insurance industry as a way out of the climate-fueled insurance crisis.

Some homes in the Gardens of Gulf Cove in Port Charlotte, Florida suffered damage from Hurricane Ian. Source: Wikimedia Commons

Just as 2025's hurricane season was getting underway, Florida's Office of Insurance Regulation revealed that several insurers had failed a stress test and were not positioned to withstand a strong hurricane season. The *Palm Beach Post* wrote that: "despite [new entrants in the Florida insurance market], the number of companies that didn't pass a financial fitness test the state administers has more than doubled since last year. And it's happening despite numerous legislative changes aimed at shoring up the state's wobbly insurance market." *The Post* reports that those changes seem to have encouraged new entrants into the market, but that "[a]mong the state's 20 largest insurers, more than half are limited mostly to insuring Florida property, and three of them are less than 5 years old."

When the next major hurricane hits, the Florida insurance market cycle will repeat itself. Poorly reserved insurance companies will go insolvent. Policyholders will be left destitute. Insurers will stop writing insurance in Florida again. Homeowners will flock to Citizens again. And the cycle will only get worse as the failure to curb fossil fuel pollution results in further increases in global temperatures and more intense hurricanes landing in Florida.