California Sustainable Insurance Roadmap

A pioneering sustainability strategy and action plan developed by the California Department of Insurance in collaboration with the U.N.'s Principles for Sustainable Insurance Initiative

November 2022

Foreward

November 17, 2022

This past June marked the 10-year anniversary of the United Nations Environment Programme's Principles for Sustainable Insurance Initiative (PSI), providing a moment to recognize the importance of continuing to make sustainable insurance a priority. The PSI has taken important steps over the past decade. Yet, the climate crisis has accelerated and insurance protection gaps are widening. Communities are facing climate-intensified risks from wildfires, extreme heat, flooding and sea-level rise, and our society continues to grapple with meeting emissions reduction goals. We are still seeking a sea change towards rapid climate change mitigation and adaptation to protect our communities and our planet.

This Roadmap is the first of its kind, creating a pioneering sustainability strategy and action plan for insurance markets to support the achievement of the UN Sustainable Development Goals in this decisive UN Decade of Action. Through the historic partnership between the California Insurance Commissioner and the PSI, this Roadmap has been built to harness risk reduction measures, insurance solutions, and investments by the insurance industry in order to build safer, resilient communities, and accelerate the transition to a net-zero, sustainable economy. The Roadmap's interconnected strategies enhance consumer protection by accelerating alignment with the Paris Agreement on Climate Change, strengthening community risk reduction, and testing new insurance approaches to closing protection gaps in our most vulnerable communities, where climate impacts are having the most severe consequences.

Nature-based solutions are an essential cornerstone to these strategies. The California Sustainable Insurance Roadmap is envisioned to pave the way for innovative risk management, insurance and investment solutions that reduce climate risks and protect natural ecosystems. In this vein, insurance solutions for California's protective, life-supporting natural infrastructure—such as wetlands and forests—could reduce climate and disaster risk and present new opportunities.

With major challenges ahead, including achieving net-zero targets, closing protection gaps, and creating nature-positive, inclusive communities and economies, this Roadmap provides a comprehensive route forward to support that critical agenda and achieve sustainable insurance markets.

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California Insurance Commissioner

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Programme Leader
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I. Roadmap Summary

The California Department of Insurance, in collaboration with the United Nations Principles for Sustainable Insurance Initiative (PSI), present this **California Sustainable Insurance Roadmap**. This Roadmap — the first of its kind in the world — outlines key objectives and foundational strategies the Department is pursuing to protect consumers and create more sustainable insurance markets in an era of accelerating climate risks. California has never had a strategic vision on sustainability for the insurance sector – until now. The action steps in this Roadmap will contribute to short- and long-term climate goals by reducing emissions, supporting the transition to a net zero economy, closing protection gaps, and restoring nature.

The top priority for this Roadmap is protecting consumers in an era of climate change by relentlessly pursuing four interconnected goals:

- Take actions to reduce greenhouse gas emissions in the economy
- Close protection gaps for vulnerable communities
- Keep insurance available and affordable
- Protect communities from climate threats

Climate impacts are becoming more intense and more widespread. The most recent California Climate Assessment identifies that many of the most vulnerable communities in California are projected to face the most destructive consequences.[1] California has the most variable hydroclimate in the United States, with years of heavy rainfall from atmospheric rivers followed by years of drought and raging wildfires.[2] Climate change is projected to make California's climate even more extreme, with longer lasting droughts punctuated by infrequent but intense precipitation and flooding. Atmospheric rivers, which already cost millions of dollars in insured flood losses, are expected to intensify and become more damaging as warmer air traps more moisture.[3] Community vulnerability to coastal flood losses will also likely increase as sea levels rise.[1]

Resilience requires not only reducing risks but also enabling community recovery. As the destruction from climate-related disasters mounts, the lack of strong insurance coverage will make it increasingly difficult to rebuild, exacerbating social and financial inequities. Protection gaps — the difference between those disaster costs that are covered by insurance and those that are not — demonstrate that too few Californians are adequately insured against climate-intensified wildfires and floods.[4] Insurance protection for the costs and damages from extreme heat events are also rare. Insufficient insurance coverage means that risks and costs are held by residents, who must turn to private individual savings or to credit to pay for damage or evacuations, or rely heavily on state-sponsored safety nets that typically provide important assistance for acute problems but not long-term recovery.

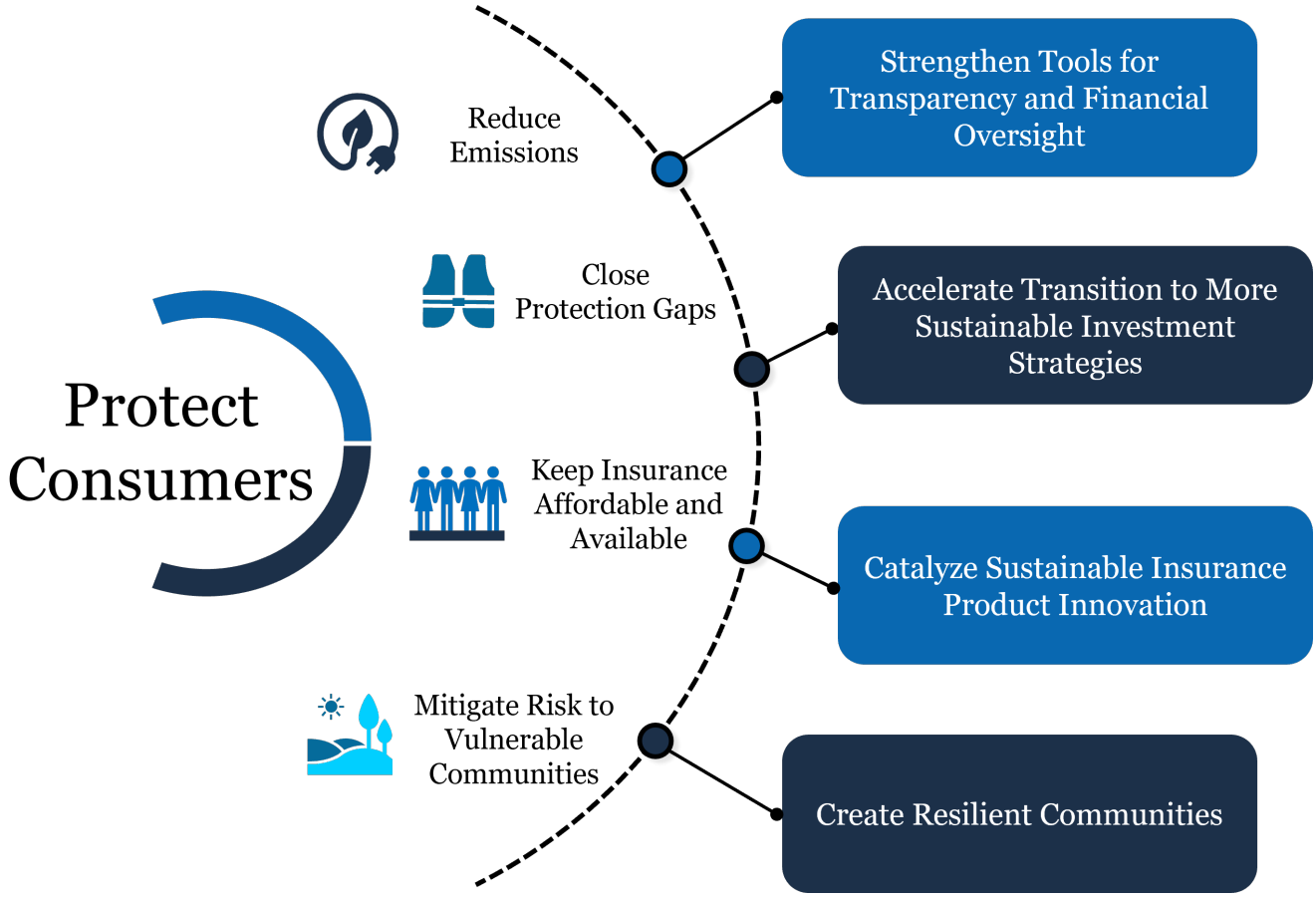
Insurance Commissioners can effectively act as statewide climate resilience officers by supporting pre-disaster mitigation and post-disaster recovery. Amidst climate impacts, Insurance Commissioners can act to protect consumers by prioritizing policies that move the insurance sector towards more sustainable risk reduction, products and investments.

Closing protection gaps requires reducing risks and expanding insurance solutions. One substantial element of this Roadmap is the groundbreaking work of the Climate Insurance Working Group, which published the Climate Insurance Report in 2021. The Climate Insurance Report strongly emphasized the need to focus on a continuum of risk management: assess the risk, communicate the risk, reduce the risk, and then explore risk transfer mechanisms.[5] In particular, integrating nature-based solutions into insurance approaches can ameliorate the impacts of climate change because nature often acts as a buffer to physical risk and can sequester carbon; in contrast, traditional "gray" infrastructure relies on artificial structures that are often carbon intensive and depreciate with time.[5] Furthermore, as noted in the report, expanding insurance options requires engagement and policies that reach both insured and uninsured households. Closing the protection gap is critical for protection vulnerable communities and supporting more equitable climate resilience.

"Insurance markets around the world should follow the lead of the California insurance commissioner in developing the world's first sustainable insurance roadmap," said **Inger Andersen, Executive Director of the United Nations Environment Programme (UNEP)** in opening remarks for the 10th anniversary event of UNEP's Principles for Sustainable Insurance Initiative (PSI) on June 20, 2022. "The roadmap is a comprehensive strategy and action plan that could harness the insurance industry's risk management services, looking at insurance solutions and investments to accelerate the transition to resilient, net-zero and nature-positive inclusive communities and economies. This is not an agenda that we can take or not take on – it is the only way forward."

NOTE: Quote based on the official speech released by UNEP.

The Roadmap goals and strategies interconnect to protect Californians and insurance consumers



How the Roadmap is Structured:

The Roadmap advances four foundational strategies the Department will implement to protect consumers in an era of climate risk:

1. **Strengthen transparency and financial oversight.** The California Department of Insurance is responsible for examining the solvency of insurance companies. As climate risks accelerate and insurers face increasingly challenging and important financial solvency questions, the Roadmap prioritizes the development of tools to increase transparency and strengthen financial oversight, including:

   - Climate-related financial disclosures
   - Data collection and analysis
   - Stress testing and scenario analysis

2. **Accelerate transition to more sustainable investment strategies.** Climate change presents systemic risks to global economic and financial systems. As financial regulators and market participants evaluate and mitigate transition risks, investment strategies that identify and prioritize resilience and green investments that support climate solutions will move economies faster to net zero emissions, reduce climate change impacts, and promote more sustainable insurance markets.

3. **Catalyze insurance product innovation to achieve climate goals.** Expanding the insurance products that incentivize reductions in greenhouse gas emissions and increase community resilience will enable more holistic climate mitigation and adaptation. Insurance not only supports recovery to climate disasters, but can also provide incentives for climate mitigation and adaptation, such as incentives for fortifying homes or reducing risk in communities, as well as insurance products for zero-emission technologies. The Roadmap describes new partnerships and recommends developing concepts for collaborative pilot projects that accelerate insurance policy development to match the acceleration of climate risk impacts.

4. **Empower communities to become more resilient.** Climate-intensified disasters will repeatedly stress the state and can exacerbate existing inequities, leading to displacement of individuals and households unable to recover. Closing the insurance protection gap will be essential to supporting more equitable recoveries whenfuture disasters strike. Risk assessment, communication, and reduction strengthen insurance options and raise risk awareness. Among multiple actions, the Roadmap includes direct engagement with communities and extensive efforts to help strenthen understanding of insurance concepts.

The elements of the Roadmap are interconnected and build upon each other. It is critical for the Department to work in partnership with other states, through the NAIC, and at the international level and forge partnerships that recruit new sectors to contribute to innovative climate solutions within these strategies.

This Roadmap is the work of a historic collaboration between the United Nations and California's Department of Insurance. By working together, the UN Environment Programme's Principles for Sustainable Insurance Initiative (UN PSI) and the California Department of Insurance have been able to tailor the Roadmap's four strategies to align with United Nations initiatives, including the Net-Zero Asset Owners Alliance, which aims to align investment portfolios with Net Zero climate goals, and the Net-Zero Insurance Alliance, which is focused on aligning insurer underwriting portfolios with net-zero goals. The Roadmap includes actions focused on closing protection gaps and empowering resilient communities, which further several of the United Nations supported Sustainable Development Goals (see BOX below).[6] And finally, by making nature-based solutions a central part of this roadmap, these strategies support the priorities and concepts articulated in the UN PSI's Nature Positive Insurance Series. The insurance sector can incentivize adoption and implementation of nature-based solutions through price signals such as premium reductions for communities that invest in these risk reduction approaches. In addition, the insurance industry could invest in nature-based solutions, either directly or through a green bond program. Such investments would buy down risk and contribute to climate change solutions.

How the Roadmap aligns with the UN Sustainable Development Goals. Insurance provides a financial safety net that can directly and indirectly support community resilience and many of the UN Sustainable Development Goals (SDGs).[6] Adopted in 2015 by the United Nations General Assembly, SDGs are a collection of 17 interlinked global goals designed to be a "blueprint to achieve a better and more sustainable future for all." Although SDG 13 is the most specific to addressing climate change and its impacts, the California Sustainable Insurance Roadmap's actions align more broadly with eight of the 17 SDGs. Specific actions will be linked to their correspondent SDGs throughout the document, including:

Roadmap Strategy 1

SDG 8: Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all

SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

SDG 13: Take urgent action to combat climate change and its impacts

SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Roadmap Strategy 2

SDG 8: Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all

SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

SDG 11: Make cities and human settlements inclusive, safe, resilient, and sustainable

SDG 13: Take urgent action to combat climate change and its impacts

SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Roadmap Strategy 3

SDG 8: Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all

SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

SDG 11: Make cities and human settlements inclusive, safe, resilient, and sustainable

SDG 13: Take urgent action to combat climate change and its impacts

SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Roadmap Strategy 4

SDG 3: Ensure healthy lives and promote well-being for all at all ages

SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

SDG 13: Take urgent action to combat climate change and its impacts

SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

Insurance sector actions can improve climate mitigation, adaptation, and resilience.

Reducing greenhouse gas emissions, including short-lived climate super pollutants (including HFCs, methane, and black carbon), is critical to mitigate climate impacts and protect California communities. In California, and around the world, we are already experiencing the dramatic impacts of climate change, including increases in the severity and frequency of floods, fires, droughts, and heat waves.

Investments in ecosystems, including through natured-based solutions, are essential to reducing climate impacts and strengthening economic security in an era of climate change.[7] The Sustainable Insurance Roadmap includes specific actions to protect and restore biodiversity, and actions to expand access to the protection and opportunities provided by nature. This Sustainable Insurance Roadmap aligns with the goals and pathways outlined in the conservation strategy, Pathways to 30x30 California, by promoting nature-based solutions.[8] The 30x30 strategy, which commits to protecting 30% of California's lands and coastal waters by 2030, recognizes the critical need to provide durable protection and management of ecosystems and the diversity of life they support.[8]

The California Department of Insurance plays a crucial role in reducing the protection gap.

Climate impacts are already reinforcing the important role of the California Department of Insurance in protecting consumers. In the aftermath of large wildfires and other disasters, insurance regulations promote clarity and reliability in processing claims, and fraud prevention activities promote more equitable recovery to the impacted communities. Further administrative and regulatory actions and new partnerships can enhance resilience and reduce greenhouse gas emissions.

California is the largest insurance market in the United States, and one of the largest in the world. The California Department of Insurance was one of the first insurance regulatory and supervisory authorities in the world to sign the United Nations Environment Program (UNEP) Principles for Sustainable Insurance and to commit to tackling global sustainability challenges such as climate change, biodiversity loss and ecosystem degradation, pollution, and social and financial exclusion.

Insurance regulators have a unique opportunity to educate consumers about insurance. Expanding insurance options and awareness among communities with low insurance uptake provides important protection against future economic challenges in the face of disasters. This Roadmap includes new efforts to improve awareness through warnings, risk communication and using specific outreach efforts to enhance financial literacy and promote equity by making insurance easier to understand. Climate risks are projected to increase, making insurance decisions for renters, homeowners, business owners, among others, much more important to long-term resilience.

II. Roadmap

Strategy 1: Strengthening Tools for Transparency and Financial Oversight

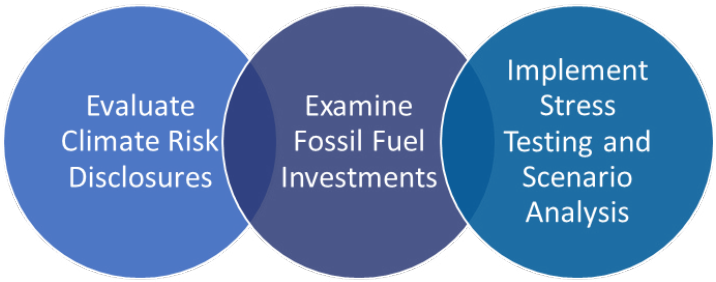
Intensified hazards, as well as chronic and gradual shifts in climate, are a growing threat to people, structures, ecosystem services, and businesses; they can also act as an economic catalyst for transitions in the global economy.[9] As a financial regulator, the California Department of Insurance, is responsible for examining the solvency of insurance companies and protecting consumers' financial security by making sure insurers can pay claims. California

Department of Insurance data that in 2019 Californians paid $160 billion in premiums of which insurance companies invest a major portion in order to be able to pay future claims.

Insurers are exposed to physical, transition, and liability risks on both sides of the balance sheet – underwriting policies and investments. They may face financial losses and economic costs from physical risks that are driven by extreme weather events and compounding risks like sea level rise, drought, and rising temperatures.[10] Climate change can alter the environment in ways that affect public health. Growing scientific evidence has linked climate change to increased negative life and health span impacts, and a portion of that research has been summarized by the California Senate Office of Research in a 2018 Report.[11] Costs to defend increasing amounts of litigation tied to climate change even when such litigation ultimately fails can nonetheless still be costly not just for insurers who underwrite fossil fuel-related projects, but also for insurers that provide liability coverage.

Climate Risk Terminology. The Financial Stability Board (FSB), in a 2020 report, described climate-related risks as falling into three categories:

- Physical risks are "the possibility that the economic costs of the increasing severity and frequency of climate-change related extreme weather events, as well as more gradual changes in climate, might erode the value of financial assets, and/or increase liabilities."
- Transition risks can arise from the technological, market, and policy changes needed to adjust to a low carbon economy and their effects on the value of financial assets and liabilities. Depending on the nature, speed, and focus of these changes, transition risks may pose varying levels of financial and reputational risk to organizations.
- Liability risks may "arise when parties are held liable for losses related to environmental damage that may have been caused by their actions or omissions."[12]



Section A. Evaluate Climate Risk Disclosure

Improving climate risk disclosures provides a foundation for steering the insurance sector towards more sustainable strategies. A comprehensive and standardized disclosure framework motivates insurance markets to mitigate risks and align with best practices.

The emerging global consensus is to align climate risk disclosures to the framework developed by the Task Force on Climate-Related Financial Disclosures (TCFD). California leadership has accelerated progress for the US insurance sector. On June 8, 2021, Commissioner Ricardo Lara of California and Commissioner Mike Kreidler of Washington state sent a Letter to their respective insurers, requesting that insurers submit TCFD reports in lieu of the NAIC climate risk disclosure survey.

On May 20, 2021, President Biden issued an Executive Order on Climate-Related Financial Risk noting the financial and systemic risks of climate change and urging government agencies to assess and implement as appropriate climate-related financial disclosures. By the end of 2021, New Zealand,[13] the United Kingdom,[14] France,[15] and Hong Kong[16] had publicly stated that they will be implementing financial risk disclosures aligned with TCFD recommendations. Within the US Federal Government, climate risk disclosure has also been a focus at the Securities and Exchange Commissions (SEC), leading to draft rules released in March covering securities and May 2022 covering investment companies and advisers.

In the fall of 2021, the TCFD framework was incorporated into a climate-related financial risk report produced by the Financial Stability Oversight Council (FSOC), the United States federal government organization formed to coordinate financial services rulemaking, policy, reporting and enforcement actions between all federal financial regulators and state regulators.[17] The FSOC recommended enhanced disclosures consistent with TCFD framework and consistent with the specific needs of regulators and market participants; the report further included a recommendation to consider enhancing public reporting requirements for climate-related risks in a manner to the extent consistent with the U.S. regulatory framework and the needs of U.S. regulators and market participants.[17]

Subnational Leadership by US Insurance Regulators. State insurance regulators in the United States are working together to develop to evaluate and address emerging climate risks. The National Association of Insurance Commissioners is composed of the regulators from 56 U.S. states and jurisdictions, including the District of Columbia and five territories. In July 2020, the NAIC's Executive Committee established the Climate Risk and Resiliency Task Force, which California Insurance Commissioner Ricardo Lara has co-chaired, first with South Carolina Director Ray Farmer, and now with Florida Commissioner David Altmaier. On November 11, 2021, the NAIC on behalf of its members, provided the Federal Insurance Office with a Letter that detailed the efforts being made by states to address climate risks and promote resiliency, including data collection and analysis efforts. The states continue to work collaboratively, through the Executive Committee's Climate and Resiliency Task Force, to further enhance our collective ability to reduce the impact of climate risk in the insurance sector.

Roadmap Actions – Completed

1.1 Establish a new TCFD-Aligned Climate Risk Disclosure Survey.

In April 2022, the NAIC adopted a new TCFD-aligned Climate Risk Disclosure Survey which will result in 80% of the US market submitting the TCFD-aligned NAIC Climate Risk Disclosure Survey, by requirement, in 2022.

The new TCFD-aligned NAIC climate disclosure survey is a leap forward in transparency around how insurers are implementing strategies that address the risks and impacts of climate change. TCFD-aligned reporting by insurance companies gives consumers and investors the consistent, descriptive, and comparable information they need to make choices about who they purchase insurance from and which companies they invest in. In the past three years, the number of TCFD reports submitted to the Department has increased from 0 to 28 — an increase from 0 to 80% of the market — with hundreds more anticipated to comply with the new standard for 2022. (SDG 8)

Figure 1. A timeline (2009-2022) of state, national, and international steps that have furthered the advancement of a consensus TCFD Climate Risk Disclosure.

Roadmap Actions - Next Steps

1.2 Achieve broad bipartisan participation in the TCFD Disclosure Standard.

The Department will engage with and support recruitment of NAIC member jurisdictions in implementing the TCFD-aligned climate risk disclosures, with the goal of achieving coverage of 100% of the U.S. market. As of 2022, the following US jurisdictions participate in the implementation of the NAIC Climate Risk Disclosure Survey: California, Connecticut, Delaware, the District of Columbia, Maine, Maryland, Massachusetts, Minnesota, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, Vermont, and Washington State.

1.3 Build stronger understanding of TCFD reports among regulators and the public.

The TCFD framework is the first step to help U.S. regulators better understand climate-related risks and opportunities to both insurer investment and underwriting strategies. TCFD reports by insurers will include a combination of new information, such as:

- Novel insurance products or services that aim to reduce/ manage climate risk
- Engagement with policyholders to reduce risks
- Climate scenarios and modeling tools used to analyze risks
- Metrics and targets related to emissions

Anticipating the growth in TCFD report submissions, the Department will develop an iterative approach to analyze and better understand the strategies and data provided by insurers. The California Department of Insurance will prioritize review and research with partners such as Ceres, the Sustainable Insurance Forum, the NAIC Center for Insurance Policy Research, the American Academy of Actuaries, Banco de España, the Bank of England, and other interested stakeholders. The product of this research and review will be designed in such a way to increase accessibility of the information contained in these disclosures.

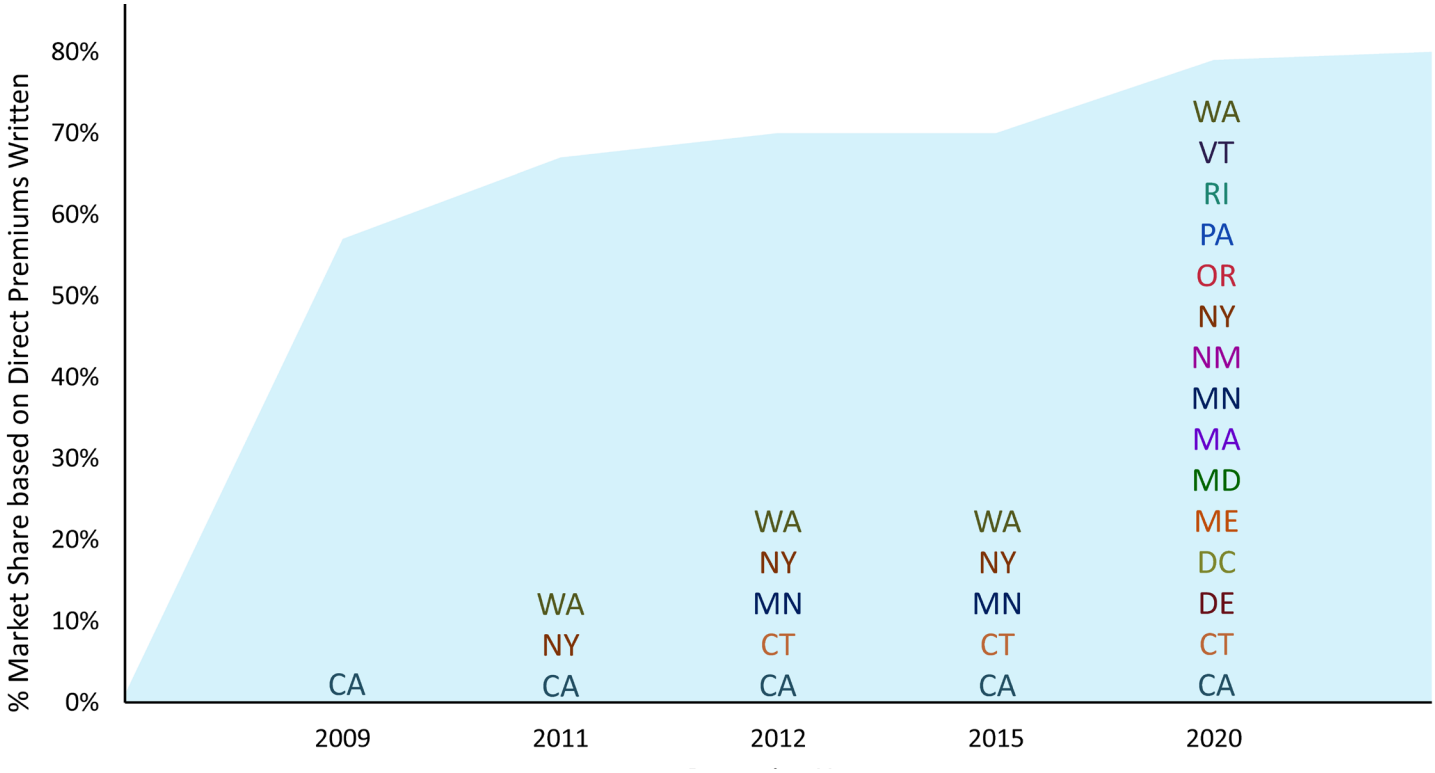
1.4 Organize Specific Educational Resources for Insurers to Increase Understanding of TCFD Guidelines for Reporting.

To achieve robust climate risk disclosures, the insurance sector will need to broaden understanding of the TCFD Guidelines. The NAIC Climate Risk and Resiliency Task Force has provided several educational webinars during their work on the new Climate Risk Disclosure Survey. The California Department of Insurance will continue to engage with insurance regulator colleagues at the NAIC to expand opportunities for insurers and insurance regulators to participate in educational webinars that build capacity for TCFD reporting.

1.5 Establish Guidance, including for Best Practices.

Review of past climate risk disclosures demonstrates that the insurance sector has subcategories of companies, often clustered by specific types of insurance sold, that have different current approaches to climate risks. For example, a 2020 review of past Climate Risk Disclosure Survey responses by the NAIC Center for Insurance Policy Research (CIPR) revealed that property and casualty (P&C) insurers approach climate risk differently compared to life and health insurers.[18] It showed that in 2018, more than half of P&C insurers stated they had a climate change policy with respect to risk management and investment management, a higher percentage than Life and Health insurers. For policyholder engagement, 4 in 5 P&C insurers stated they have taken steps to encourage policyholders to reduce the losses caused by climate change-influenced events, compared to 1 in 5 Health insurers and 2 in 5 Life insurers. Hence, there is an opportunity to engage Health and Life insurers about direct and indirect climate impacts on policyholders.

Review of past Climate Risk Disclosure Surveys and emerging TCFD reports provide preliminary points of reference. Establishing Best Practices for insurers requires: 1) Developing methods for examining and analyzing TCFD reports, and 2) partitioning the information by relevant categories within the insurance sector. The California Department of Insurance has begun establishing a process and will work with state regulators and the NAIC on achieving this recommendation in 2023.

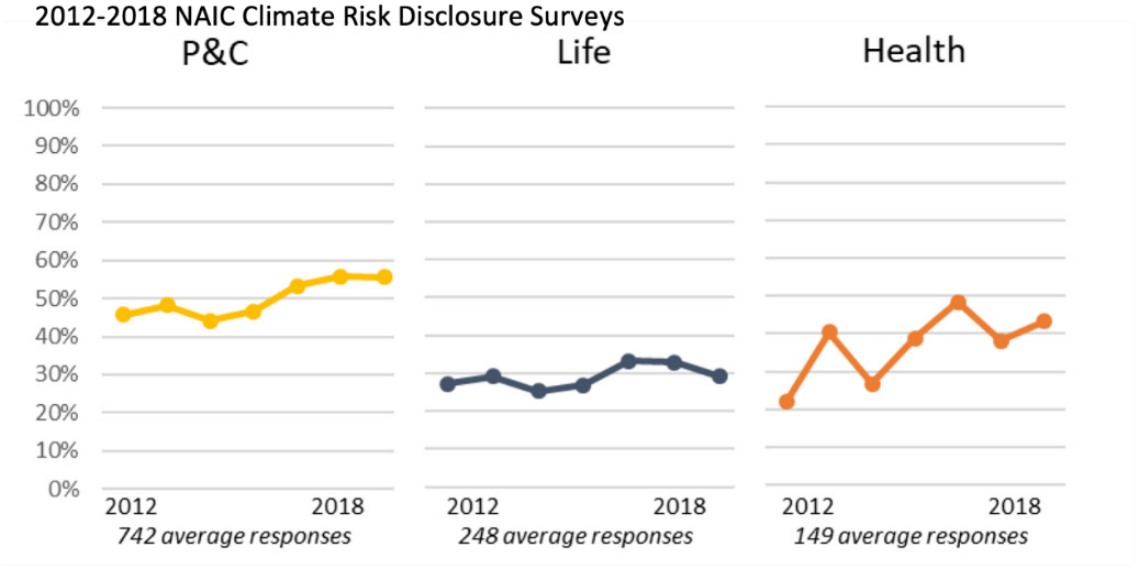


The number of participating states and coverage of the US Insurance markets by the NAIC Climate Risk Disclosure Survey has been increasing. The graph shows the percent market share based on direct premiums written of insurers reporting Climate Risk Disclosure Surveys from reporting year 2009 to 2020, where it reached nearly 80%. The two-letter abbreviations represent the growing number of participating states and jurisdictions in the Survey each year.

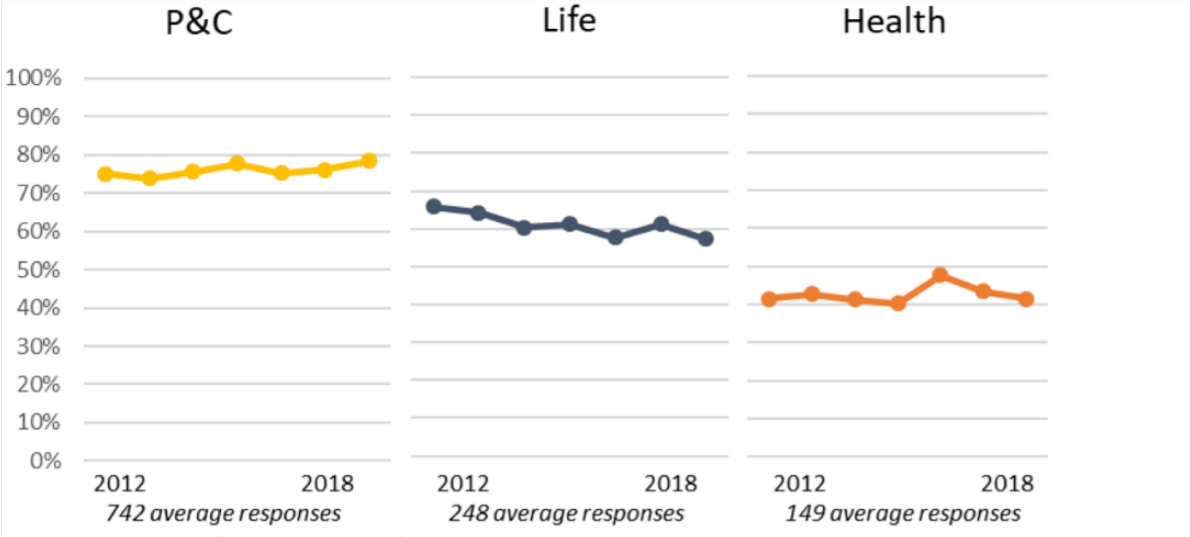
NAIC Review of past surveys.

Past surveys show differences among types of insurance companies when approaching climate change policy. From 2010-2018, the California Department of Insurance, with a few additional jurisdictions, surveyed insurance companies with eight questions on their approaches to climate risk. The following graphs compare responses to two of the eight questions among different types of insurance companies, using data from the NAIC Climate Risk Disclosure Summary Data (2010-2018) 11. Data are aggregated from the companies writing over $100 million in premium and licensed in one of the implementing states during 2010-2018, which generally included six US states. This figure was originally published in a report from the NAIC, Center for Insurance Policy and Research, in 2020.

Does the company have a climate change policy with respect to risk management and investment management? Companies answering yes by line of business, 2012-2018 NAIC Climate Risk Disclosure Surveys



Discuss steps the company has taken to engage key constituents on the topic of climate change. Companies answering yes by line of business, 2012-2018 NAIC Climate Risk Disclosure Surveys



Source: National Association of Insurance Commissioners

The analysis of the new submissions of TCFD-aligned disclosures will also provide a more detailed view of how different insurers are managing their climate risks. We will develop guidance to inform insurers of best disclosure practices and available climate risk identification tools while taking into consideration how different insurance subsectors operate and manage their investment and underwriting portfolios.

1.6 Develop best practices for identifying nature-based solutions in investment portfolios.

Investments in nature are essential to risk reduction for wildfires, flooding, and other climate-intensified events, and insurer investments can support nature-based solutions. The California Department of Insurance will work with the Sustainable Insurance Forum and the UN (PSI) to determine best practices to identify and encourage more robust insurer investments in nature-based solutions.

1.7 Examine emerging insurance company TNFD Disclosures.

Nature loss represents a significant risk to corporate and financial stability. Insurers are well positioned to consider nature-based solutions because such solutions can reduce physical risk and future insured losses. Protecting natural systems, sometimes referred to as "Natural Infrastructure," is central to sustainable development goals. The California Department of Insurance will leverage the ongoing efforts that are being made by the Taskforce on Nature-related Financial Disclosures (TNFD) to better understand the risks and opportunities for financial institutions, such as insurers, related to nature-based solutions. The TNFD provides an emerging framework to address the risk of nature loss and incorporate nature-related risk and opportunity into corporate and financial decision-making. Initial nature-related risk reporting will provide foundational information for considering future research and best practices. The TNFD framework, California's 30x30 Conservation Initiative, and the California Natural and Working Lands Climate Smart Strategy provide important statewide goals and policies on nature-based solutions.

The California Department of Insurance will evaluate the finalized TNFD framework and consider how to harmonize nature-related financial disclosures with the stated conservation goals of the state.

Section B. Examine Fossil Fuel Investments

The rise in the costs and frequency of extreme weather-related losses have underscored the impacts climate change can have on insurance underwriting, investments, and overall risk management. In addition to possibly being exposed to physical risks to their fossil fuel investments, insurers heavily invested in fossil fuels may face several fast-moving transition risk drivers from net zero policies to technological innovations in renewable energy. Recent events have shown oil and gas markets can be volatile. More and more coal investments are becoming stranded assets. These risks not only can be material but also could impact insurers' solvency, thus, putting consumers' financial stability at risk. The Department has been tracking and publishing fossil fuel investments for the past four years for the benefit of consumers. Consumers can use this fossil fuel exposure data to inform their decision making while purchasing an insurance product. This data has also been valuable for consumer groups, nonprofits, and academics.

Roadmap Actions - Completed

1.8 Develop new investment disclosures for fossil fuel investment exposures.

In 2022, the Department released a Climate Risk Analysis that identified fossil fuel exposure within insurer investment portfolios, with a specific focus on coal, oil and gas, power generation, and high-intensity tar sands. This is the first time that an insurance regulator has analyzed tar sands investments.

Roadmap Actions - Next Steps

1.9 Expand Investment Disclosures for Fossil Fuels and Establish a Consistent Frequency for Analyses.

Moving forward, the Department will execute new and updated analyses of insurance company investment portfolios to monitor, study, and disclose fossil fuel exposure over time. By pursuing a strategy of repeated analyses with new or updated elements, the Department will continue to expand understanding of risks and opportunities.

For example, in the next Climate Risk Analysis , the Department will include a categorization of other fossil fuel sectors such as plastics. The UN PSI's study, Unwrapping the risks of plastic pollution to the insurance industry, concluded plastics pose physical, transition, liability, and reputation risks to insurance and investment portfolios.[19]

Section C. Implement Stress Testing and Scenario Analysis

To address the consequences of accelerating climate impacts, new tools are needed to assess risks to investments. As major institutional investors, insurance companies are exposed to risks that climate change poses to their investments. These include risks stemming from societal, economic, and policy shifts towards a low-carbon economy (transition risk), physical risks associated with damages from climate change, and liability risks that may arise when parties are held liable for losses related to environmental damage that may have been caused by their actions or omissions.[11]

Scenario analysis and stress testing are methods that can help insurers adapt and plan an informed long-term climate strategy. They involve developing a hypothetical scenario and thinking-through or modeling how a company or industry would respond to the scenario. Stress tests usually utilize extreme and adverse, but plausible, scenarios and often present results in terms of financial losses.

An example of a stress test scenario could be one or more catastrophic events, such as a series of category 4 hurricanes impacting the southeastern United States. Scenario analyses usually utilize more probable or more intentionally caused (by policy) scenarios. A scenario analysis could be based upon a climate policy measure, like a carbon price, net-zero policy, or a global temperature target achieved through energy system change. A company may also choose to analyze how well their investments are aligned with a climate policy target, like the "well below 2-degree C" target set through the Paris Agreement. While the analysis of hypothetical scenarios as a risk-management tool is not new, its application to climate risk is still novel and evolving. These exercises can help evaluate the exposure of insurers to climate-related risks, promoting more effective risk mitigation and a more sustainable insurance market for consumers.

The use of scenario analysis of investment portfolios is expanding. California was one of the first financial regulators to publish results of scenario analysis of insurer's 2017 year-end investment portfolios. Financial regulators in other jurisdictions have completed or begun climate scenario analysis and stress testing exercises in recent years. In a survey, published in 2021, of 31 central banks and supervisors that are members of the Network for Greening the Financial System, four respondents had completed scenario analysis exercises and 25 had ongoing or planned exercises.[20] Half of these exercises included non-bank financial entities such as insurers. Repeated scenario analyses can reveal the drivers of portfolio climate-risk exposure and examine whether changes over time are the result of a verifiable decarbonization trend, or transfer of emissions to other financial actors, which is often referred to as the technical term "leakage."[21]

Despite the increased interest in climate scenario analysis and stress testing, these tools can appear opaque and inaccessible to both insurers and insurance regulators. Even the language surrounding these methods can be confusing. Financial

institutions and regulators have identified gaps in capacity that will require significant advances in 1) technical capacity of regulators and 2) communication among regulators, businesses, and the public.[24] These methods are one of few established forward-looking tools at the disposal of insurers and regulators for developing and evaluating resilient climate strategies. As such, the California Department of Insurance aims to increase their use in the U.S. and among international regulators by leading the way and building capacity.

Recent examples of scenario analyses include:

1) The Bank of Canada (BoC) and the Canadian Office of the Superintendent of Financial Institutions (OSFI) are collaborating on exercises to assess the financial impacts of climate related risks to Canadian financial institutions. In 2022, they will conduct two climate risk analyses: 1) an analysis of the impact of flood risks on the financial system, and 2) an analysis of exposure to climate transition risk. Their analysis of flood risk will focus on the residential real estate sector and the mortgage portfolios of financial institutions at an individual property level across Canada. These efforts will be informed by a pilot exercise that BoC and OSFI launched in November of 2020.[22]

2) The New York Department of Financial Services (NYDFS) is a colleague of California's in the Sustainable Insurance Forum. In 2021, NYDFS released a transition risk scenario analysis in collaboration with 2 Degrees Investing Initiative (2DII).[25] The New York Department supervises and regulates the activities of nearly 1,800 insurance companies with assets of more than $4.7 trillion and approximately 1,500 banking and other financial institutions with assets totaling more than $2.6 trillion. 2DII's analysis covered 250 insurance companies with portfolios worth more than $550 billion in aggregate.

2DII analyzed the transition risks of New York domestic insurers by assessing the alignment of their equity and corporate bond portfolios using their 2019 Schedule D data against different climate scenarios. The exposure and scenario analysis used in 2DII's analysis is based on the open-source Paris Agreement Capital Transition Assessment (PACTA) model, which has been used by more than 3,000 financial institutions, governments, supervisory authorities, and industry associations.

Expanding scenario analysis tools. The Bank of England has taken a leadership role among the financial regulators engaged in climate scenario analysis and stress testing. In 2021, the Bank of England (BoE) conducted its first Climate Biennial Exploratory Scenario (CBES), a bottom-up climate scenario analysis of its largest financial institutions to measure the impact on their end-2020 balance sheets.[23] The test investigated three scenarios over the period 2021 to 2050. The scenarios used were built upon the Network for Greening the Financial System (NGFS) climate scenarios (Fig. 3 below) with additional risk transfer channels and variables. Through the exercise, the BoE aimed to 1) size the participants' and system exposure to transition risks; 2) understand challenges to participants' business models from these risks and gauge response; and 3) assist participants in managing these risks.

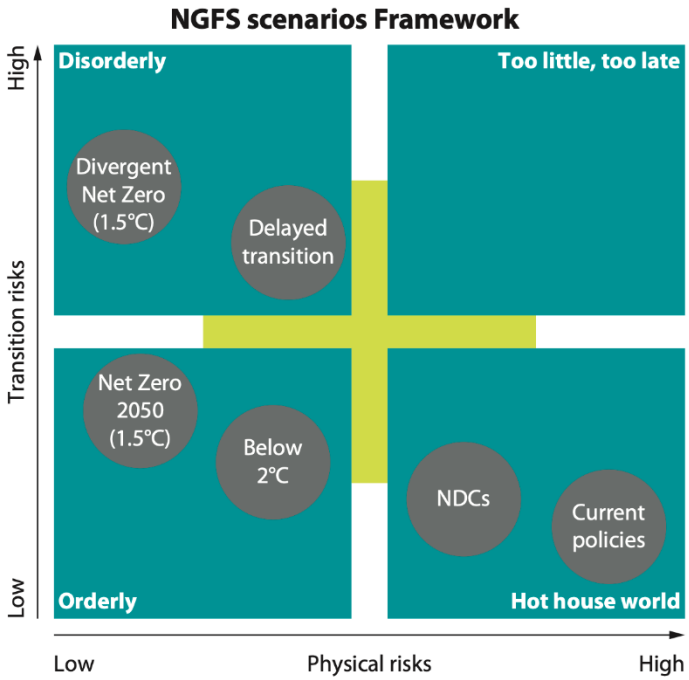


Figure 3. Illustration of different transition scenarios by the Network for Greening the Financial Sector. Such scenarios provide foundational information for assessing transition risks to financial institutions.

Roadmap Actions – Next Steps

1.10 Expand and test new scenario analysis tools.

Consistent with recommendations by Ceres and Principles for Responsible Investment (PRI), the Department will execute an expanded scenario analysis and climate stress test of insurers' investment portfolios. The trailblazing analysis will use new metrics and methods to assess the exposure of insurers to transition, physical, and liability risks associated with climate change.

1.11 Build capacity among regulators and researchers to understand scenario analysis approaches and results.

The Department will develop an implementation guide on climate scenario analysis and stress testing in order to build familiarity with underlying concepts and develop policy recommendations for how to implement these analyses regularly. The guide will be designed as a companion to future stress testing and scenario analysis reports released by the department, building understanding and addressing misconceptions.

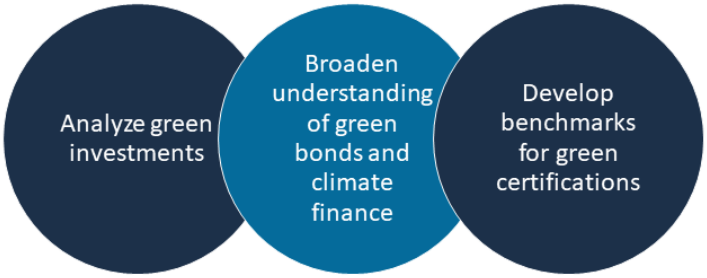
Strategy 2: Accelerate Transition to Sustainable Investment Strategies

Because climate change is a systemic risk, investments focused on reducing short- and long-term climate change impacts will promote a more sustainable insurance market. Insurance companies are institutional investors that wield substantial influence over the economy. For example, the U.S. life insurance sector is one of the largest investors in the U.S capital markets, with over $4.7 trillion in investments held in general accounts at year-end 2020. Insurance companies pursuing responsible sustainable investments are reducing climate risks for their business and reducing the vulnerability of communities.

In 2020, the Fiduciary duty in the 21st Century California Roadmap was published through a collaboration between the PRI and the Climate Risk Initiative at UC Berkley School of Laws, Center for Law, Energy & the Environment (CLEE).[24] Among other things, it included recommendations that insurers should integrate Environmental, Social, and Governance (ESG) considerations into their operations and investment decision-making. PRI recognized that given the size of California's market and willingness of policymakers and financial leaders to lead in ESG-related commitments, California can chart a path forward for responsible investment practices and policies.

In the same year, Ceres released a report, Addressing Climate as a Systemic Risk, outlining recommendations for how financial regulators can and should take action to protect the financial system from climate-related risks. The recommendations included encouraging insurers to develop products for the new technologies and business models that will emerge in the response to climate risks and opportunities.[9] Both Ceres and the PRI have recommended using the TCFD framework as a disclosure system for allowing the transparency needed to assess the adequacy of insurer actions for addressing climate risks.

Carbon intensive industries could become stranded assets and be a continued source of carbon to the atmosphere, affecting insurers that hold those investments. Standards and a common language are becoming necessary for classifying green investments. Regulatory tools like the EU Sustainable Taxonomy, which categorizes "green" activities based upon their contributions to defined environmental objectives, are beginning to fill this gap. Systems for classification of green investments will continue to grow and be refined. However, insurers can harness opportunities for green investments now rather than waiting for these classification schemes to mature.



Section A. Analyze Green Investments

As the U.N.-convened Net-Zero Insurance Alliance recognizes, insurers and reinsurers are risk managers with an important role in the transition to a net-zero global economy. The insurance sector must transition their portfolios to net-zero greenhouse gas emissions by 2050 in order to align with the Paris Agreement.

The Department is responsible for overseeing the solvency of insurance companies admitted to sell insurance in the state. As climate change intensifies physical and transition risks for communities and economies, insurers face potential solvency risks associated with stranded fossil fuel assets and the potential mismatched investment in certain fossil fuels more broadly.[9]At the same time, investments like green bonds or equities in renewable energy generation that historically have been less prevalent may appear more secure and profitable going forward. Disclosure is a tool to assess and reveal the extent to which insurer investments are contributing to categories of assets that meet particular environmental criteria.

Roadmap Actions - Completed

2.1 Conduct a "Green Investments" analysis to disclose insurer investment in renewable power generation, green bonds, and other green assets.

In early 2022, the California Department of Insurance released an analysis of insurer investment portfolios that, for the first time, disclosed investments in green bonds and green assets, including renewable energy production and investments that met the criteria of the European Union Green Taxonomy.

The new Green Investment Disclosure showed that investments in green bonds doubled between 2018 and 2019, but they still accounted for a very small percentage of overall investments by insurers. There is significant opportunity to increase green investments. The Department will continue to collect and analyze data associated with green investments every two years to further augment this database.

Roadmap Actions - Next Steps

2.2 Collaborate with California's Green Bond experts to accelerate future growth of green bond investments.

Based on recent work on the Green Investment Disclosure, the Department has been invited to join the California Green Bond Market Development Committee, established by the California State Treasurer and the University of California, Berkeley Goldman School of Public Policy. The purpose of this committee is to expand financing for climate-friendly infrastructure through green bonds. The Committee seeks to promote and expand the green bond market in California, connect the need for infrastructure improvement to green bond efforts, and exchange information on best practices with industry representatives and green bond organizations in other states and nations.

Section B. Broaden understanding of green bonds and climate finance

2.3 Conduct Analysis of Green Bond Market Development and Performance.

The new Green Investment Disclosure showed a doubling of insurer investments in green bonds from 2018-2019.. Because insurers would see benefits from the dividends associated with green bonds, and potentially from the risk reduction actions implemented with the green bonds themselves, this is an area of emerging interest for financial institutions. In order to aggregate important data and provide public analysis of the development and recent performance of the green bond market, the Department of Insurance will initiate a study of insurer specific questions related to the green bond marketplace.

2.4 Propose Climate Finance Chapter for the 5th California Climate Assessment.

California is currently developing a 5th Climate Assessment (Climate Assessment, Science, and Research - Office of Planning and Research (ca.gov)) for the state to guide policies and investments. The California Department of Insurance, in partnership with the State Treasurer's Office and the California Green Bond Market Development Committee, have proposed that California's 5th Climate Assessment include a statewide report on climate finance. The proposed report will inform these and other government entities and aid them in maintaining a resilient, sustainable, and financially stable California.

2.5 Develop Benchmarks for Sustainability Focused Certification.

As a result of the new analyses and disclosures, this Roadmap seeks to better understand how insurers are contributing to the achievement of climate and sustainability goals. The Department will consider developing scorecards that assess individual insurance company efforts and achievement of benchmarks to build climate sustainability into their investments, operations, and products. This benchmarking will encourage swift adoption of sustainable processes, investments, and products, and will increase transparency around company efforts. Consumers will be able to use this information to make informed decisions about the insurance products they choose to purchase.

Status Update for the Net-Zero Insurance Alliance

The NZIA was launched at the G20 Climate Summit in July 2021 by its eight founding members: AXA (NZIA Chair), Allianz, Aviva, Generali, Munich Re, SCOR, Swiss Re and Zurich Insurance Group. These companies have committed to individually transition their insurance and reinsurance underwriting portfolios to net-zero greenhouse gas (GHG) emissions by 2050, consistent with a maximum temperature rise of 1.5°C above pre-industrial levels by 2100, contributing to the implementation of the Paris Agreement on Climate Change. By establishing the NZIA, these insurers demonstrating the key role of the insurance industry as risk managers, insurers and investors in supporting the transition to a net-zero economy. As of November 2022, the NZIA has nearly quadrupled its original membership to 29 insurance organizations from around the world representing approximately 15% of world premium. The Net-Zero Insurance Alliance also recently launched a public consultation on the Alliance's first Target-Setting Protocol.

Roundtable discussion between Chief Underwriting Officers and Chief Risk Officers from member companies of the Net-Zero Insurance Alliance and business leaders from different economic sectors at the 10th Anniversary Event of the UN PSI held in June 2022.

Strategy 3: Catalyze Sustainable Insurance Product Innovation

Expanded insurance product options can contribute both to reducing greenhouse gas emissions and making communities more resilient to climate impacts. Insurance not only supports recovery from climate disasters, but can also provide incentives for climate adaptation, such as incentives for fortifying homes or reducing risk in communities.

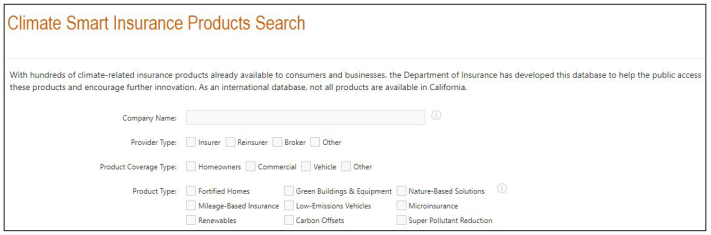
Advancing proof-of-concept projects is a needed first step to speed policy development, especially for risks where insurance is uncommon. The Department of Insurance is well positioned to catalyze collaborative pilot projects that accelerate development of new insurance policies and concepts to match the acceleration of climate risk impacts.

Section A. Examine and Communicate New "Climate-Smart" Insurance Products

Roadmap Actions - Completed

3.1 Creation and Release of Climate Smart Database.

New technologies generally lack historical loss data, limiting initial insurance availability and affordability. The 2020 report from the environmental non-profit group Ceres recommended the development of a database of innovative insurance products that reduce emissions or increase resilience.[9]



Contemporaneously, the Department created and released a Climate Smart Insurance Products Database. The Climate Smart database lists more than 400 products currently available to consumers and businesses that address climate risks, harness new technologies, build resilience and close the protection gap. They include insurance products and solutions that, among other concepts:

- Provide green-rebuild coverage, providing a pathway to building back stronger, more energy efficient, and lower-emission buildings and vehicles;
- Promote fuel-efficiency by offering lower premiums for low-emission vehicles;
- Provide discounts for green energy use and energy efficiency certification;
- Provide discounts for businesses who operate hydrogen and hybrid electric buses;
- Protect low-income communities and natural ecosystems.

Roadmap Actions - Next Steps

3.2 The Department in consultation with the UN PSI and other partners, will review, and update the database each year to reflect new climate-smart insurance products as they become available.

This will ensure that consumers have access to timely information and can aid in their decision-making. It can also encourage the industry sector to advance new products to be included in the database.

3.3 Partnership to accelerate clean mobility solutions.

The Department will initiate new partnerships to link the Climate Smart Insurance Products Database to programs that support clean mobility options, including zero emission vehicles, in order to assist consumers by expanding insurance options. New partnerships with government agencies, as well as non-governmental organizations, will enable the Department to identify opportunities where insurance availability would smooth transitions to clean mobility solutions, especially in traditionally high-polluting categories like heavy duty trucks.

Photo: United Nations Principles for Sustainable Insurance 10th Anniversary Event, June 2022.

Section B. Reward consumers for investing in risk reduction

Roadmap Actions - Completed

3.4 Collaborate with state agencies and engage with risk scientists to establish a list of home and community hardening actions.

In February 2022, the California Department of Insurance announced the Safer From Wildfires Framework, which was developed through a partnership with the Department of Forestry and Fire Prevention (CAL FIRE), the Office of Emergency Services, the Governor's Office of Planning and Research, and the California Public Utilities Commission. The Framework provides a consistent approach to reducing wildfire risk with a list of achievable and effective actions to help make existing homes and businesses safer from wildfire. These actions are clear, consistent, scientifically sound, and achievable and clarify for consumers what risk reduction measures they should prioritize.

How Actuaries are approaching climate risks. The American Academy of Actuaries (AAA) has released several reports on the growing risks of climate change impacts, including risks of wildfire and flooding. In these reports, the AAA recommends that insurers use home hardening wildfire mitigation measures[25] as a basis for credits towards home insurance and emphasizes the importance of promoting insurance coverage of the flood peril to expand protection for homeowners.[26] The AAA also indicates that data availability for flood hazards increases the willingness of private insurers to underwrite flood coverage, which can help close the protection gap. These recommendations align with the actions described in the California Sustainable Insurance Roadmap and promote long-term resilience.

Roadmap Actions - Next Steps

3.5 Support Cultural and Prescribed Fire to reduce wildfire risks.

Cultural burn strategies and prescribed fire are important actions to reduce wildfire risk in California.[27] The Insurance Commissioner has met with California tribes and wildfire risk professionals to discuss barriers they face in implementing prescribed and cultural burns. As a result of these conversations, the Commissioner has formally outreached to insurance companies operating in California, both in the admitted and surplus lines market, to ask that they consider writing coverage for prescribed burn liability to contribute to reducing the risk of high severity wildfires.

3.6 Engage with researchers and other state regulators through the NAIC to develop data and analyses to understand the risk and economic benefits from risk reduction measures.

The Department contributed to an NAIC research project on wildfire mitigation, which demonstrated the economic benefits for consumers from home hardening actions.[28] The Department continues to partner with researchers at the University of California, California State University, and other research institutions to examine risk reduction benefits of nature-based solutions, new insurance products for new technologies, and insurance approaches that could incentivize emissions reductions and increased resilience.

3.7 Consider requirements for insurers to provide further incentives to adapt homes and communities to climate impacts.

To acknowledge the risk reduction efforts by consumers and strengthen California's overall approach to climate adaptation, the Department introduced Draft Regulations to require insurance companies to reflect home and community risk reduction measures in their insurance product offerings to consumers and businesses. More information can be found in the Initial Statement of Reasons.[29] In October 2022, the regulations were finalized, creating the first wildfire safety insurance regulations in the nation. More information on the final regulations can be found in the Final Statement of Reasons.

Section C. Reduce Threats of Extreme Heat

Extreme heat is one of the deadliest outcomes of climate change, and California's Fourth Climate Assessment anticipates more heat waves with higher temperature, longer duration, and increased frequency.[30] One study found that, on a day with temperatures 10 degrees Fahrenheit above local average, individuals experienced 342% higher risk of hospitalization for heatstroke.[18] A study by the Natural Resources Defense Council in 2011 found that a 2006 heat wave in California resulted in nearly $179 million in costs due to hospitalizations, out-patient visits, and emergency room visits.[31] These impacts are disproportionally affecting communities of color, persons with disabilities, seniors, children, outdoor workers, and low-income communities, with broader consequences for livability and equity.

The costs and impacts of extreme heat reveal protection gaps — the difference between costs that are insured and those that are not. Without risk reduction, we can anticipate insufficient hospital capacity, lost revenue for businesses due to disruptions, and spiking costs for local governments. Emergency response and public assistance during a heatwave can be limited, ill-matched to needs,[32] and delayed.[33] Some of these limitations are related to increased costs and funding constraints.[34]

In addition to public health impacts and costs, heat also increases the strain on energy grids, decreases labor productivity, and threatens to disrupt outdoor industries such as agriculture and construction.[35] Heat has also been demonstrated to affect public infrastructure; in extreme temperatures, roads melt, railroad tracks buckle, and bridges fail. Without stronger preparation and planning, such impacts will create costs and disruptions that will lead to further inequity. Therefore, reducing risks to heat impacts will help safeguard health and the long-term sustainability of local economies.

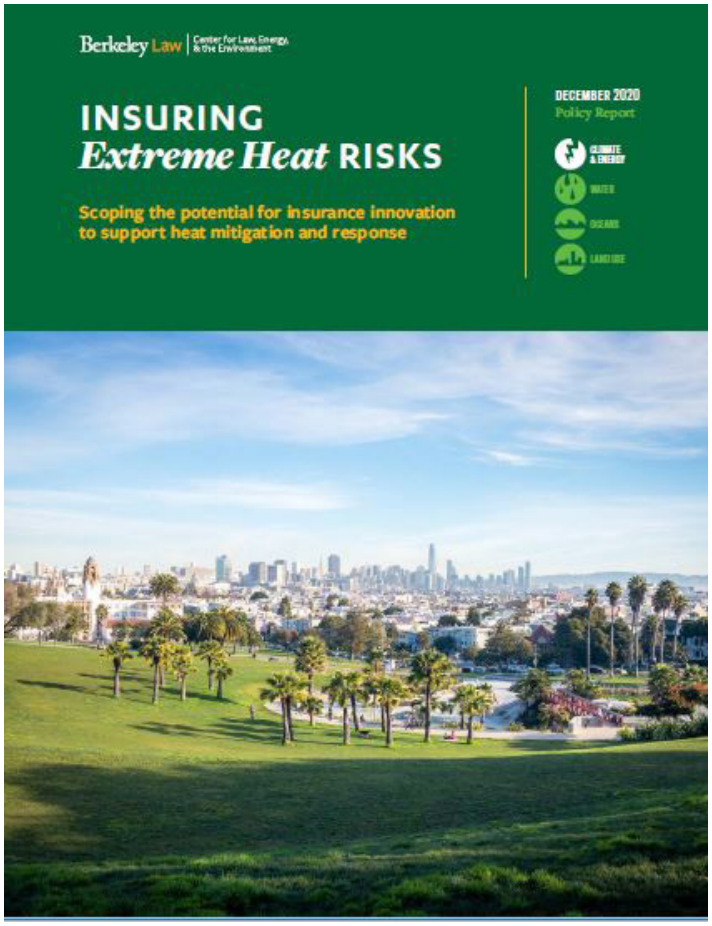
Roadmap Actions - Completed

3.8 Build expertise on extreme heat and risk transfer approaches.

In 2019, the Department commissioned a first-of-its-kind extreme heat and insurance report.[40] This study is the first in the world to assess the legal and policy issues and opportunities for insurance to reduce the impacts from extreme heat events. In 2021, the Department hosted a convening to identify specific pilot projects it could support to address the risks of extreme heat in low-income and disadvantaged or marginalized communities, including cool technologies, urban forests, pre-disaster mitigation and increased community resilience.

3.9 Collaborate with other jurisdictions to reduce extreme heat impacts.

The Department under the leadership of Commissioner Lara became a founding member of the Extreme Heat Resilience Alliance. The Alliance brings together global policy makers with experts in public health, finance, humanitarian assistance, disaster management, climate science and risk, insurance, and public infrastructure to tackle the growing threat of extreme heat.



3.10 Support the development of an extreme heat ranking system.

In November 2021, Commissioner Lara announced that the Department would sponsor trailblazing legislation to establish a statewide extreme heat ranking system. In February 2022, Assembly Bill 2238 was introduced and subsequently, the bill was passed by the State Legislature in August 2022 and then signed into law by the California Governor. Creating a heat ranking system was a recommendation of the Climate Insurance Report. The idea for creating a heat ranking system has also been a major priority driven by the Extreme Heat Resilience Alliance, where California Insurance Commissioner Ricardo Lara is a founding member.

Roadmap Actions - Next Steps

3.11 Study Insured and Uninsured Costs of Heat Waves.

To plan for more equitable resilience in the future, the California Department of Insurance will study the insured and uninsured costs related to past heat waves with different duration, maximum temperature and humidity, and measurable health impacts, which will provide insight into the existing extreme heat protection gaps — the difference between the total costs and the insured costs — and promote more effective risk communication and planning. This study is a recommendation of the Climate Insurance Report.[5]

3.12 Consistent with the recommendations of the Climate Insurance Report, the Department will catalyze actions to reduce and transfer risk associated with extreme heat.

In particular, the Department will produce a series of concept papers. The first proposes an extreme heat neighborhood protection insurance strategy. A neighborhood heat policy would provide cost savings, incentivize pre-disaster mitigation, and empower communities. It would increase resilience by reducing initial harm from a heat event, and by reducing the time to recovery after the event. This insurance concept would provide parametric coverage to communities for unplanned additional expenses associated with protective actions taken before a heat wave strikes.

Additionally, the Department will develop concept papers to explore the potential for urban forest insurance and for insurance to incentivize the use of cool technologies such as cool roofs, cool paints, and cool pavements.

Section D. Community-Based Flood Insurance

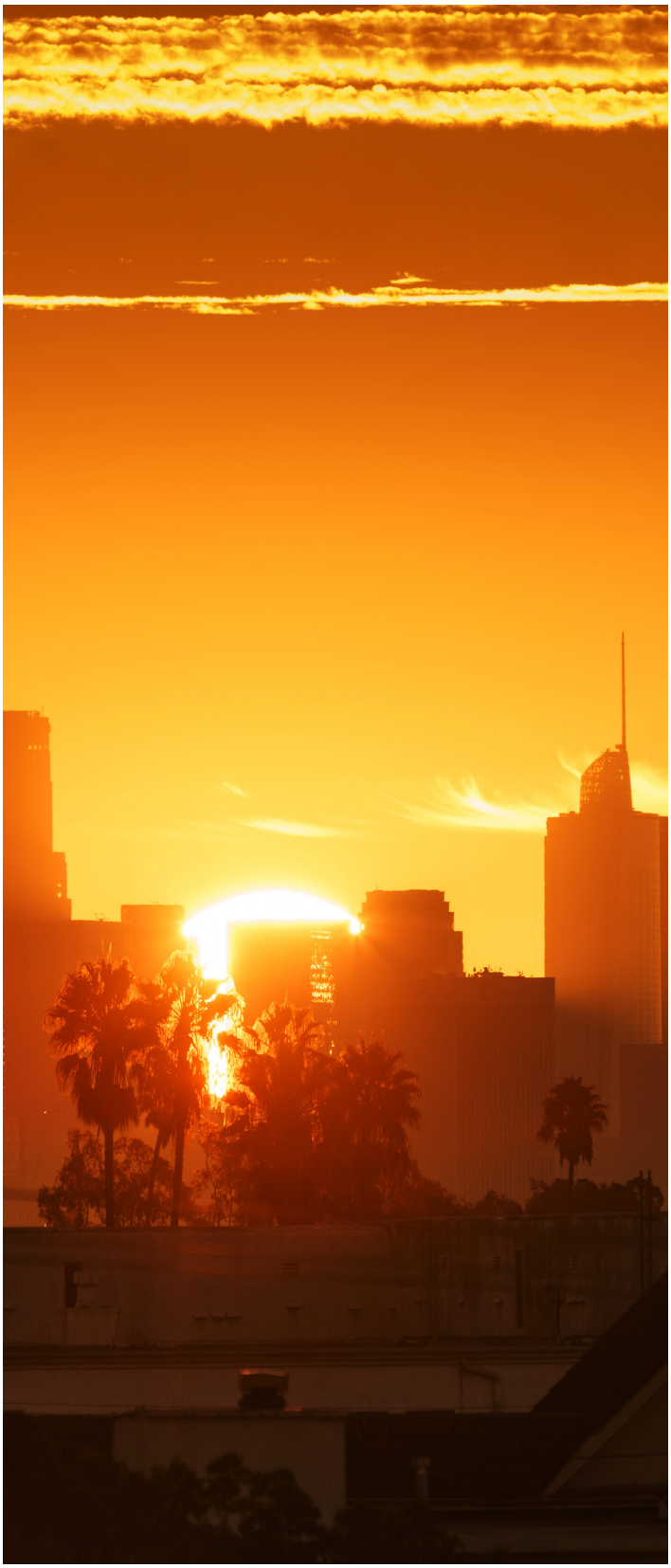
Community-based insurance would insure entire communities for a particular peril, guaranteeing that all residents have some degree of coverage. Community-level insurance not only pools the shared risks of the community but can also be used to provide financial incentives for community-wide investments in risk reduction, especially nature-based solutions.[36] In a community insurance program, a public entity, such as a municipality or a special purpose district, purchases insurance for a group of properties in its jurisdiction. The concept of community insurance is being actively explored by researchers and practitioners as a way of closing the disaster insurance gap, securing affordable coverage, and better linking risk reduction and risk transfer.[41]

Community insurance, moreover, is likely the ideal scale for nature-based solutions, and therefore would provide opportunities and incentives for community-wide mitigation investments.

Roadmap Actions – Next Steps

3.13 Combine risk reduction and insurance through innovative community approaches.

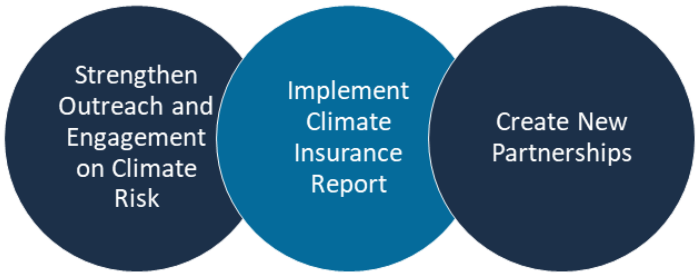
The Department will partner with state agencies, universities, local governments, and other relevant stakeholders to develop pilot projects that use a combination of community-based insurance and nature-based solutions to shrink the protection gap. For example, the Department will collaborate with the University of California, Davis on research and evaluation of options for innovative flood insurance alternatives, and with the University of California at Santa Cruz on the relationship between insurance and increased coastal resilience through living shorelines and other nature-based solutions. In addition, the Department will partner with appropriate state and local entities to reduce risk of flooding and close protection gaps for flood risks.



Strategy 4: Create Resilient Communities

Resilience requires reducing climate risks and also building the capacity for communities to recover. In recent years, wildfire insurance availability and affordability has faced substantial challenges. Uptake of flood insurance—typically through the National Flood Insurance Program—is low, although the risk of flooding remains high Meanwhile, the disruptive impacts of heat waves on health, energy systems, local economies, and other sectors are not commonly measured during or after the events, and largely lack any insurance coverage at all, leaving people vulnerable to such disruptions.[40]

Closing the insurance protection gap will be essential to supporting more equitable recoveries when future disasters strike. Without greater investment in risk reduction and improved tools for financial resilience, disadvantaged and marginalized communities are likely to enter a damaging feedback loop where escalating risks lead to increased losses, then financial backsliding, fewer insurance options, and diminished capacity for future resilience. Such a scenario would further exacerbate inequities.



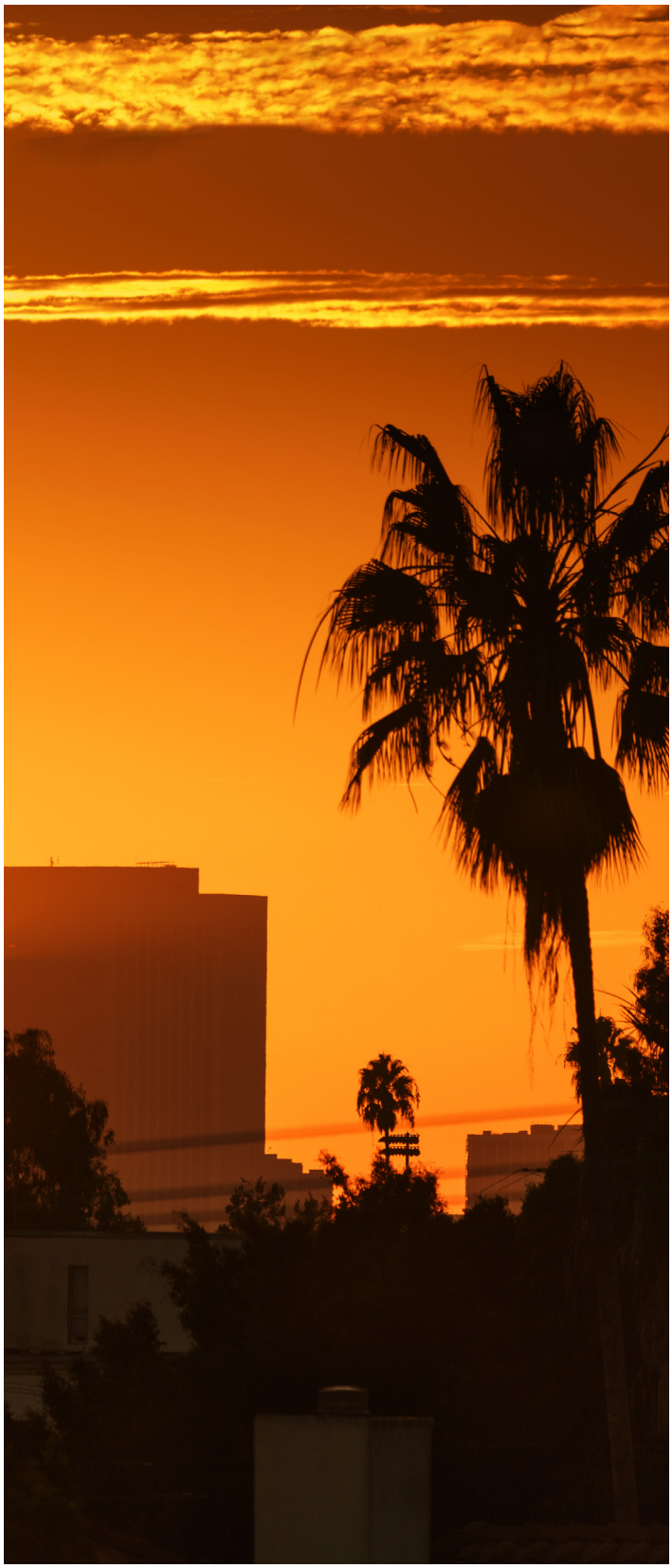
Section A. Close the Protection Gap by Targeting Resilience Outreach and Education towards Vulnerable Communities

The California Department of Insurance has established itself as an agency that provides important pre-disaster and post-disaster support for consumers. Such efforts are essential to increasing the clarity of insurance coverages for communities throughout the state. From 2019 to today, the California Department of Insurance has expanded outreach throughout the state, hosting outreach events in over 40 counties.

Outreach efforts can promote pre-disaster planning, increase understanding of insurance options, and encourage thoughtful insurance uptake by communities to increase resilience. Recent studies highlight examples of how insurance uptake supports financial sustainability and economic and social recovery after a disaster.[37] Even though roughly half of California households rent their home, renters' insurance is far less common than homeowners' insurance, putting renters at risk of losing their possessions and not being able to rebuild their lives after a wildfire or flood or other climate-intensified event. These events are projected to become more frequent and severe, exposing more households to financial risks.

The difference is particularly stark among Black and Latino households. In California, 2019 data show that home ownership is less common for Black and Latino households: over 65% of white and over 60% of Asian Californians owned their homes, while 41% of Black households and 49% of Latino households were homeowners.

Insurance literacy scores have been shown to be lower among respondents who are women, non-white, low-income, and city-dwelling.[38] A recent study indicates that increased awareness and understanding of the benefits of insurance informs personal financial management and is correlated with more insurance uptake.[39]



Roadmap Actions - Next Steps

4.1 Identify areas of high risk and wide protection gaps.

The Department will use available data to identify regions and areas where risks from wildfires, flooding, and heat waves are high and insurance uptake is relatively low. This information will inform strategic outreach on risk reduction and insurance options.

4.3 Launch a "Demystifying Insurance" initiative to increase understanding of insurance options and financial literacy.

The Department will develop "Demystifying Insurance," a series of three insurance literacy seminars targeting communities who are exposed and vulnerable to climate impacts. Through collaborations with community-based organizations and local governments, the Department will create metrics and targets to measure the success of this series in raising awareness, enhancing knowledge, and changing behaviors towards insurance.

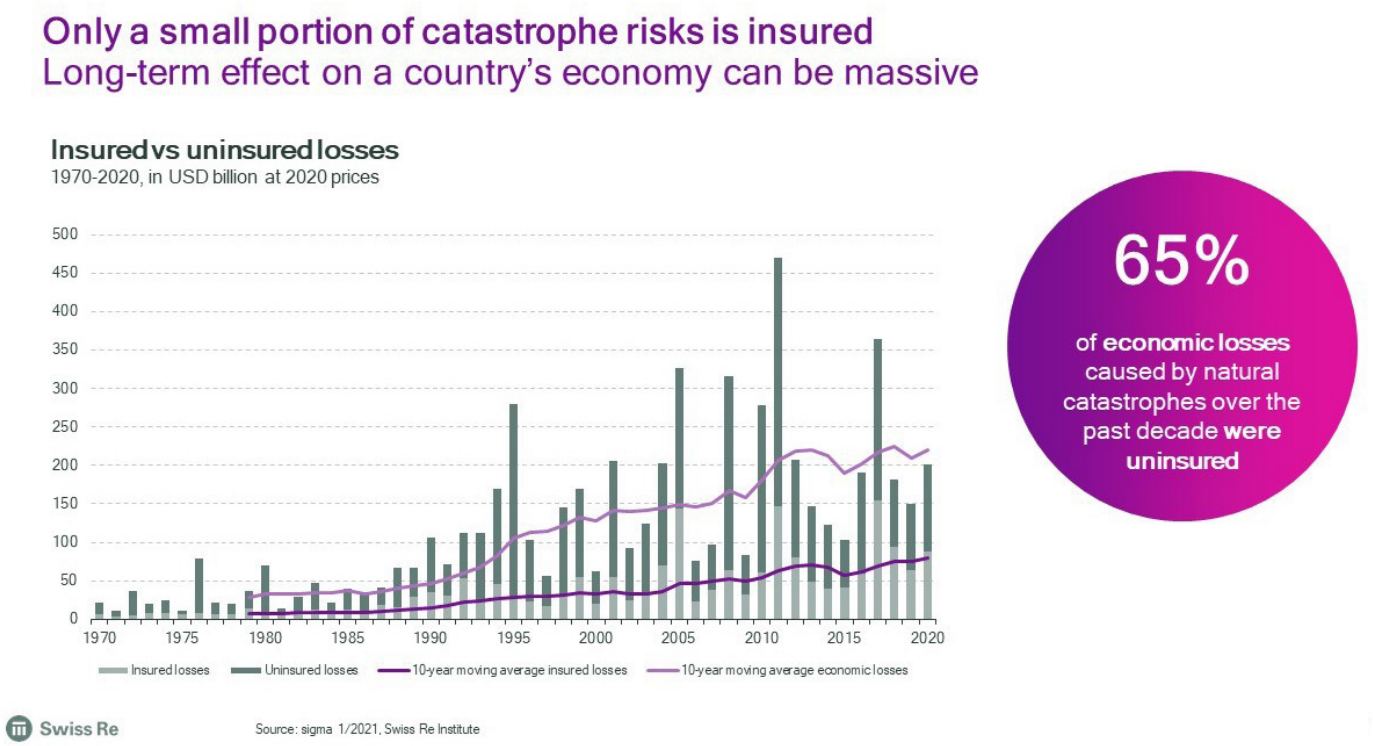


Figure 4. Insured vs. uninsured losses from 1970 to 202 in US Billions of Dollars. Figure published by Swiss Re Institute, Swiss Re on 1/2021.[5]

4.2 Increase outreach in areas of significant climate risk.

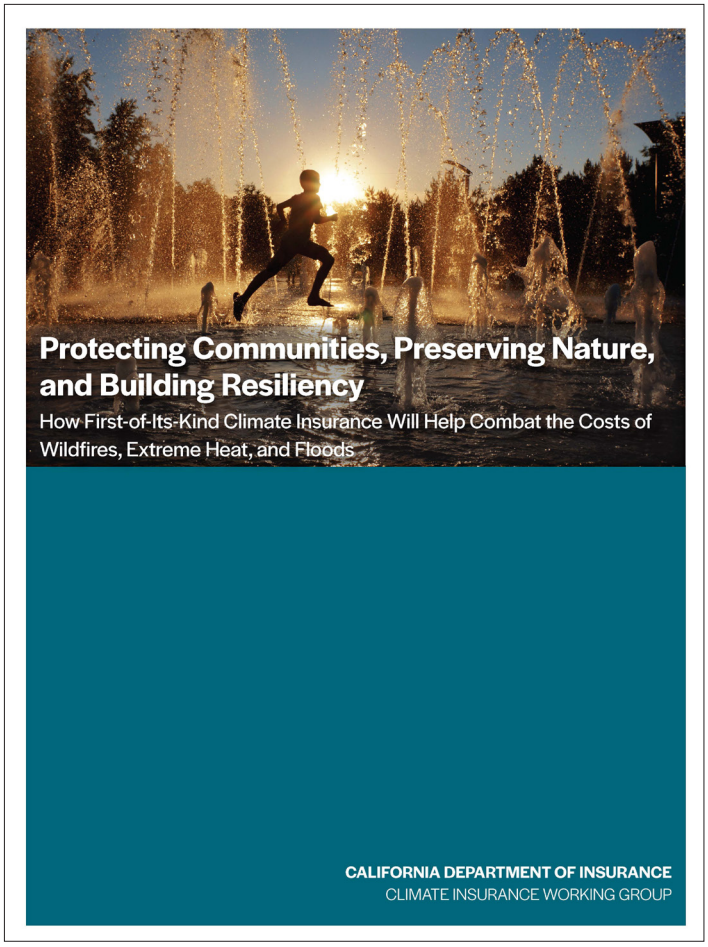
The Department of Insurance will expand outreach events specifically to address uptake of insurance and the concerns of renters and low-income residents in areas that face significant risks from climate intensified wildfires, heat waves, and flooding.

The seminars aim to provide participants with information on risk assessment resources and how to better evaluate their exposure and vulnerability to different extreme events, understand the financial benefits of insurance protection, and find, interpret and compare insurance policies. The seminars will be held in a townhall setting either in-person or virtually. There will be space for participants to ask insurance experts questions privately.

The Department will also utilize these seminars to learn more about the specific needs and knowledge gaps of different communities which will help in the development of smaller workshops that are targeted to specific demographics or groups.

4.4 Fortifying the Climate and Insurance Workforce of the Future.

The California Department of Insurance is committed to building a pipeline of climate insurance expertise. The Department works closely with universities in California and research institutions in the US and internationally to conduct research on a variety of climate insurance questions, but the field of experts is relatively small. The Department will initially approach this recommendation in two parallel steps: 1) the Department will coordinate with the National Association of Insurance Commissioners (NAIC) to explore the possibility of expanding opportunities for undergraduate and graduate students to engage with the NAIC members. Specifically, the Department will investigate creating a new "Workforce of the Future" scholarship and mentorship program, focused on the intersection between climate change and insurance. 2) In addition, the Department will work with universities within California to grow interdisciplinary academic research and training programs that address climate risk and insurance.



Section B. Implement Climate Insurance Report.

The 40 recommendations of the Climate Insurance Report are organized into specific actions that improve risk assessment, risk communication, risk reduction and risk transfer. This report recommends that California follow a multidimensional approach to the threat of climate impacts, an approach that considers actions that can be taken from the top down, through direct government leadership, and from the bottom up, fostering disaster preparation, local risk reduction, and affordable insurance for communities and individuals. It will require overcoming common challenges to achieving strong disaster preparedness. Where possible the threats themselves, wildfire, extreme heat, and flooding, must be approached in a cross-cutting way, so as not to exacerbate one risk with actions on another. In addition to grouping recommendations by risk assessment, risk communication, risk reduction, and risk transfer solutions, the recommendations fall into these themes:

- Hazard mapping and disclosure
- Land use and building codes
- Closing the protection gap
- Nature-based solutions
- Innovation with mitigation

Photo: Coastal flooding in Imperial Beach, CA as a result of storm surge.

Roadmap Actions - Next Steps

4.5 Improve risk awareness and early warning systems.

The Department will explore early warning systems for extreme weather and flooding. Such early warning systems provide valuable time to implement systems and protocols that save lives and reduce damage. These systems can make insurance more resilient and affordable, providing an opportunity to close the protection gap. Community scale early warning systems for coastal flooding, such as the Resilient Futures Flood Alert Program in Imperial Beach, California, provide protection to communities vulnerable to sea level rise and storm surge.

4.6 Champion Nature-based Solutions by Examining Risk Reduction Performance.

To increase adoption of green infrastructure and demonstrate the potential for nature-based solutions to reduce future losses, the Department will establish a working group to examine design criteria and result-based approaches for nature-based solutions.

4.7 Accelerate Nature-Based Insurance Pilot Projects.

The Department will enter into partnerships to integrate insurance into nature-based solutions such as wetlands and floodplains that can reduce flood risk, and the use of ecological forest management to provide protection from catastrophic wildfire.

Priorities for nature-based insurance pilot projects includes exploring insurance for coastal marshes and sand dunes, and evaluating ecosystem-focused insurance pilots for funding recovery of ecological systems after water stress, acute heat impacts, drought, and other disruptions. The role of integrating nature and insurance to both reduce risk and expand coverage options could significantly bolster climate resilience. That is why insurance that protects natural systems and insurance that reflects the risk reduction of nature-based solutions will both be high priorities for specific climate insurance pilot projects.

4.8 Develop a Blueprint for Insuring Urban Forests.

The Department will develop a blueprint for insuring urban forests. The State of California invests in existing urban greening and urban forestry programs in order to create a more protective tree canopy, particularly in disadvantaged and vulnerable communities. These trees and plants will provide shade, reduce urban heat island effects, sequester carbon, reduce runoff, and provide a host of other benefits. They represent a significant valuable asset that could be insured against threats like pest infestations and drought, which are both projected to become more prevalent with climate change.[40] Such an approach would be similar to the coral reef insurance product pioneered by the Nature Conservancy, Swiss Re Public Sector Solutions, and the State of Quintana Roo in Mexico, this product would recognize the economic benefits and ecosystem services provided by the urban forest and would cover losses such as tree deaths or illnesses under certain conditions.

4.9 Create a system of Climate Resilience Districts.

The Climate Insurance Report recommends (Cross-cutting Recommendation #16) the creation of Climate Resilience Districts to pursue pilot projects that combine risk reduction and risk transfer at a community level.[5] Such special districts can address cross-jurisdictional problems more readily and establish more sustainable funding for multi-year restoration and resilience projects. Insurance Commissioner Lara co-sponsored legislation in 2022 to authorize climate resilience districts. This legislation was passed in August 2022 by the State Legislature and signed into law in September 2022 by the California Governor.

4.10 Expand Incentive Programs and Awareness of Home Hardening.

The Climate Insurance Report recommends (Cross-cutting Recommendation #11) that California work with the NAIC to examine the relative success of existing home hardening programs to inform greater investment in pre-disaster mitigation.[5] As noted in the Climate Insurance Report, an important part of this effort is to improve outreach and access to elderly and disabled populations that may be less able to do risk reduction maintenance themselves, and also to renters who are at risk but often not a focus of risk reduction programs.

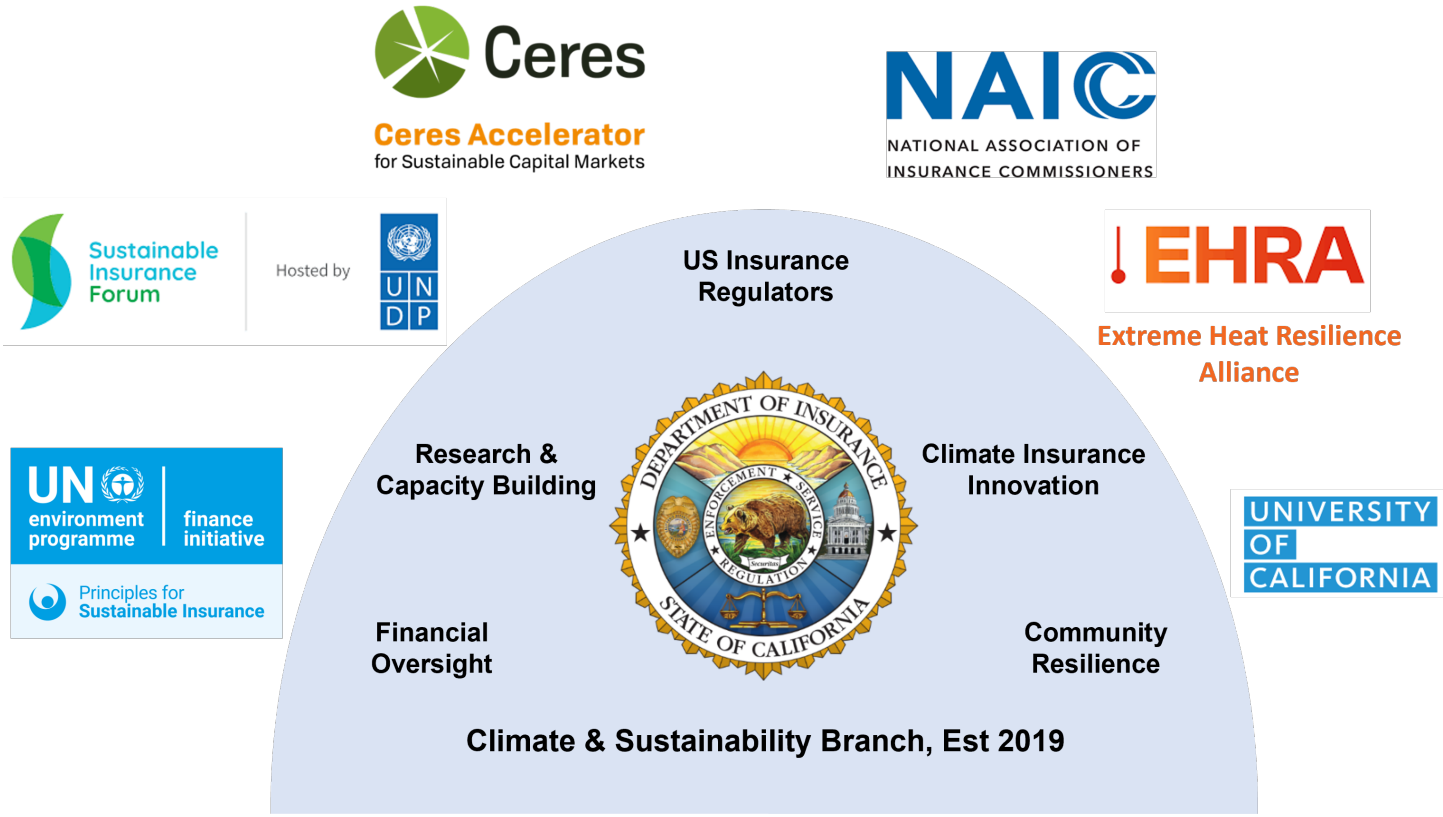
4.11 Build Stronger International Partnerships to Further Integrate Insurance Solutions into Climate Policies.

The California Department of Insurance will engage with the Sustainable Insurance Forum to advance initiatives on nature-based solutions and scenario analysis, building capacity among regulators to incorporate these solutions.

As a founding member of the Extreme Heat Resilience Alliance, The Department will continue to work closely with national and subnational entities to address the risk of extreme heat.

The Department will sustain its collaboration with EIOPA (the European Insurance and Occupational Pensions Authority) to enhance coordination on climate-related financial supervision.

Section C. Establish New, Cross-Cutting Partnerships Across Geographic and Jurisdictional Boundaries



4.12 Expand and Initiate Statewide Inter-Agency Partnerships.

The California Department of Insurance has entered into several new partnerships with a variety of state agencies to explore opportunities for climate risk assessment, communication, reduction, and transfer at a statewide scale. These partnerships will address the threats posed by wildfire, flood, and extreme heat.

4.13 Strengthen alliances with other state insurance regulators.

California led the NAIC in establishing an Executive Committee Task Force on Climate Risk and Resilience. The Task Force developed recommendations that were adopted by the NAIC on Climate Risk Disclosure and building capacity to understand new technologies. The Department will continue to work closely with our fellow state insurance regulators at the NAIC on pre-disaster mitigation, solvency, climate risk disclosure, technology, and innovation.

CONCLUSION

This Sustainable Insurance Roadmap builds on ten years of priorities advanced by the UN Principles of Sustainable Insurance, linking nature, insurance, and climate. The examples of insurance regulations, products, and analyses undertaken in the international insurance markets provide a foundation. California, like much of the world, finds itself in a position where accelerating climate risks and a widening protection gap threaten climate mitigation and adaptation.

The Sustainable Insurance Roadmap is a strategy to make the insurance sector more sustainable to protect consumers in an era of increasing climate risks. Achieving net zero emissions as fast as possible while also expanding insurance coverage options requires a whole insurance sector approach, including insurance products and investments in climate solutions, risk management strategies, and transparency. By working with the UN, California will continue to implement a forward-looking strategy based on these initial actions; this strategy will contribute to achieving emissions reduction goals, restoring nature, and saving lives.

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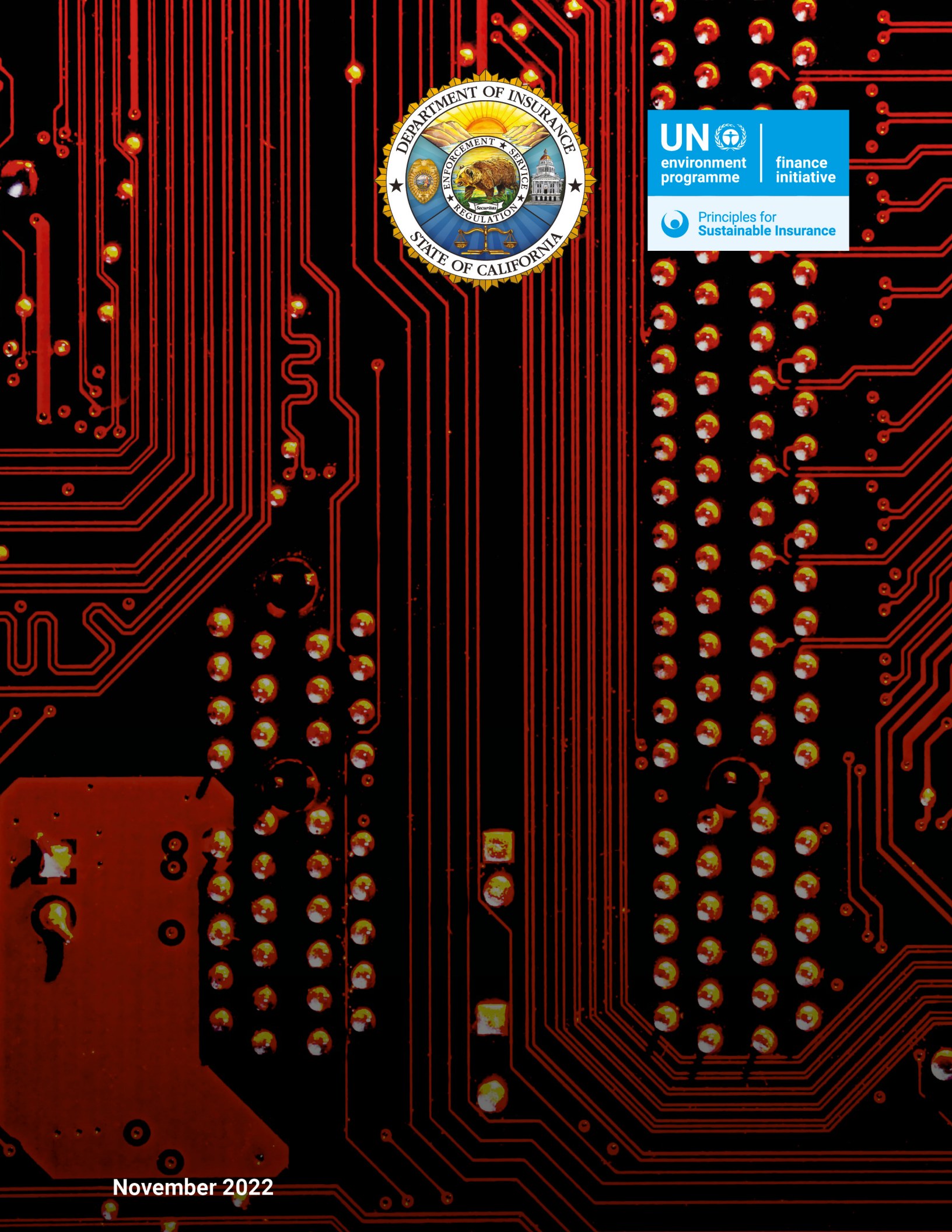

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