



Insurance Supervision and Regulation of Climate-Related Risks

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GLOSSARY

CID		Connecticut Insurance Department
CID Climate Guidance for CT Insurers		CID, Bulletin No. FS-44 (September 15, 2022)
Climate Risk RFI	.....	<i>Federal Insurance Office Request for Information on the Insurance Sector and Climate-Related Financial Risks</i> , 86 Fed. Reg. 48,814 (August 31, 2021)
Disclosure Initiatives	.....	The four disclosure initiatives discussed in this Report: CID Climate Guidance for CT Insurers, NAIC <i>Climate Risk Disclosure Survey</i> , NYSDFS Climate Guidance for NY Insurers, and TCFD Framework
ERM	.....	Enterprise Risk Management
Examiners Handbook	.....	NAIC, <i>Financial Condition Examiners Handbook</i> (2022)
Executive Order 14030	.....	Executive Order 14030 on Climate-Related Financial Risk, 86 Fed. Reg. 27,967 (May 25, 2021)
FAIR Plan	.....	Fair Access to Insurance Requirements Plan
Federal Reserve	.....	Board of Governors of the Federal Reserve System
FEMA	.....	Federal Emergency Management Agency
<i>Financial Analysis Handbook</i>	.....	NAIC, <i>Financial Analysis Handbook Annual 2022/Quarterly 2023</i> (2023)
FIO	.....	Federal Insurance Office
FLEC	.....	Financial Literacy and Education Commission
FSOC	.....	Financial Stability Oversight Council
FSOC Climate Report	.....	FSOC, <i>Report on Climate-Related Financial Risk 2021</i> (October 21, 2021)
GCC	.....	Group Capital Calculation
GHG	.....	Greenhouse Gas
IAIS	.....	International Association of Insurance Supervisors
ICPs	.....	Insurance Core Principles
IPPC	.....	Insurance and Private Pensions Committee of the Organisation for Economic Co-Operation and Development
LIGA	.....	Louisiana Insurance Guaranty Association
MitFLG	.....	Mitigation Framework Leadership Group
NAIC	.....	National Association of Insurance Commissioners
NGFS	.....	Network of Central Banks and Supervisors for Greening the Financial System
NYSDFS	.....	New York State Department of Financial Services

NYSDFS Climate Guidance for NY Insurers	.....	NYSDFS, <i>Guidance for New York Domestic Insurers on Managing the Financial Risks from Climate Change</i> (November 2021)
ORSA	.....	Own Risk and Solvency Assessment
ORSA Guidance Manual	.....	NAIC, <i>NAIC Own Risk and Solvency Assessment (ORSA) Guidance Manual</i>
ORSA Model Act	.....	Risk Management and Own Risk and Solvency Assessment Model Act (NAIC 2012)
ORSA Summary Report	.....	Confidential high-level summary of an insurer or insurance group's ORSA
P&C	.....	Property and Casualty
PACTA	.....	Paris Agreement Capital Transition Assessment
RBC	.....	Risk-Based Capital
Report	.....	FIO, <i>Insurance Supervision and Regulation of Climate-Related Risks</i> (June 2023)
SEC	.....	U.S. Securities and Exchange Commission
SIF	.....	Sustainable Insurance Forum
TCFD	.....	Task Force on Climate-related Financial Disclosures
TCFD Framework		TCFD, <i>Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures</i> (October 2021)
Treasury		U.S. Department of the Treasury

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I. INTRODUCTION AND SUMMARY OF RECOMMENDATIONS

The Federal Insurance Office (FIO) prepared this Report in response to Executive Order 14030 on Climate-Related Financial Risk, which calls on the Secretary of the U.S. Department of the Treasury (Treasury) to direct FIO “to assess climate-related issues or gaps in the supervision and regulation of insurers, including as part of the [Financial Stability Oversight Council’s] analysis of financial stability, and to further assess, in consultation with States, the potential for major disruptions of private insurance coverage in regions of the country particularly vulnerable to climate change impacts.”¹ This Report addresses the first task by analyzing climate-related issues and gaps in U.S. insurance supervision and regulation.

After undertaking this analysis, FIO concludes that there are nascent and important efforts to incorporate climate-related risks into state insurance regulation and supervision. FIO commends these initial efforts from the National Association of Insurance Commissioners (NAIC) and state insurance regulators. However, these efforts are fragmented across states and limited in several critical ways. FIO encourages state insurance regulators to build on their progress. As highlighted in this Report, FIO will continue to prioritize climate-related work, in collaboration with our state and federal partners, including state insurance regulators, the NAIC, and the Financial Stability Oversight Council (FSOC).

FIO’s key findings and recommendations of this Report include:

- Climate-related risks—including physical, transition, and litigation risks—present new and increasingly significant challenges for the insurance industry.² The oversight of climate-related risks is therefore an emerging and increasingly critical topic for state insurance regulators. Climate-related risks also warrant careful monitoring by financial regulators, policymakers, and insurers.
- State insurance regulators and the NAIC are increasingly focused on incorporating climate-related risks into supervision and regulation, but in most cases their efforts remain at a preliminary stage.
- Current regulatory frameworks provide state insurance regulators with tools they can adapt to better consider climate-related risks. The NAIC and some state insurance regulators are beginning to incorporate climate-related considerations into their regulatory tools.
- All state insurance regulators should prioritize efforts to adapt their regulatory and supervisory tools to incorporate climate-related risks. The NAIC and state insurance regulators should also prioritize the creation of new and effective climate-related risk tools and processes for use by state insurance regulators through, for example, the

¹ Exec. Order No. 14030, 86 Fed. Reg. 27,967 (May 20, 2021) (Executive Order 14030). For more on FIO’s statutory authorities, see [Section II.B](#).

² For a description of climate-related physical, transition, and litigation risks, see [Section II.A](#).

development of scenario analysis and increased use of the NAIC's Catastrophe (CAT) Modeling Center of Excellence.

- More work is needed by state and federal regulators and policymakers, as well as by the private sector and the climate science and research communities, to better understand the nature of climate-related risks for the insurance industry, their implications for insurance regulation and supervision, and for the stability of the financial system—including for real estate markets and the banking sector.

FIO makes 20 recommendations in this Report. The report includes important context for each recommendation, highlighting efforts that are already underway while also explaining how implementation of the recommendation could improve management and supervision of climate-related risks. The Report also proposes areas of focus for future work by state insurance regulators and the NAIC.

In [Section II](#), the Report provides background on the significance of climate-related risks for the insurance industry and discusses the roles of the states, the NAIC, and FIO. Section II then provides FIO's assessment of U.S. climate-related supervision and regulation of insurance in three categories: (1) prudential (sometimes referred to as microprudential), (2) macroprudential, and (3) market conduct. Section II concludes by reviewing several climate-related disclosure initiatives. [Section III](#) discusses additional FIO priorities concerning climate-related risks; how insurance-related disaster mitigation efforts may increase the resilience of policyholders to climate-related disasters; and how FIO is engaging with domestic and international stakeholders on climate risk issues. Finally, [Section IV](#) outlines next steps for FIO's work.

By section, FIO's recommendations are as follows:

Section II.C Recommendations – Analysis of U.S. Climate-Related Insurance Supervision and Regulation

1. State insurance regulators and the NAIC should build on the initial steps they have taken and expand their work on climate-related risks in order to promote increased regulatory uniformity among the states in considering such risks. The NAIC also should identify best practices in the state insurance regulatory community and encourage states to adopt these practices.
2. State insurance regulators and federal authorities should continue encouraging insurers to capture more granular, consistent, comparable, and reliable data on climate-related risks. State insurance regulators and federal authorities also should continue identifying relevant data that will improve the ability of insurers to quantify climate-related exposures and otherwise fill data gaps with regard to climate-related risks and the insurance industry.

Section II.C.1 Recommendations – Prudential Supervision and Regulation

Risk Management and Internal Controls

3. All state insurance regulators should develop and adopt climate-related risk monitoring guidance appropriate for their markets, which should include expectations for insurers to incorporate climate-related risks into their annual financial planning, as well as into their long- and short-term risk management processes, as some states have done.

Corporate Governance

4. To encourage increased focus on the impact of climate-related risks on insurers' strategic planning and related processes, the NAIC and state insurance regulators should provide guidance on and encourage insurers to implement climate risk monitoring, and to report to regulators, in a uniform manner, on the impact of climate-related risks on their strategic processes.

Reporting Data and Examinations

5. The NAIC should revise the *Financial Analysis Handbook* to recommend, and states should require, that financial analysts and lead state analysts integrate climate-related considerations into their analysis. Additionally, the NAIC should provide guidance, and the NAIC and state insurance regulators should provide training, for financial analysts and lead state analysts on how to evaluate assumptions and methodologies used in climate-related forward-looking analysis.
6. The NAIC and state insurance regulators, in coordination with the insurance industry, should continue considering changes in Risk-Based Capital (RBC) formulas for floods, convective storms, and other climate-related risks.
7. The NAIC should adopt, and state insurance regulators should implement, the proposed enhancements to the *Own Risk and Solvency Assessment (ORSA) Guidance Manual* (ORSA Guidance Manual) and require insurers to incorporate climate-related risks into both ORSAs and ORSA Summary Reports.³ If an insurer does not consider climate-related risks to be material to its business, its regulator should require the insurer's ORSA Summary Report to explain why and to include support for its rationale based on applicable financial or quantitative measures.

³ NAIC, *NAIC Own Risk and Solvency Assessment (ORSA) Guidance Manual* (December 2022), https://content.naic.org/sites/default/files/inline-files/naic-orsa-guidance-manual-final_0.pdf (ORSA Guidance Manual).

8. The NAIC and state insurance regulators should adopt a single standard for defining “materiality” for climate-related risks to be used in the ORSA Summary Report to provide more comparable information. The NAIC and state insurance regulators should also adopt a single standard for defining “materiality” for climate-related risks to be used in the NAIC *Climate Risk Disclosure Survey* in order to obtain more consistent information across disclosures.⁴
9. The NAIC should finalize and adopt, and state insurance regulators should implement, the proposed climate-related enhancements to the *Financial Condition Examiners Handbook* (Examiners Handbook) to ensure that climate-related risks are considered in every financial condition examination.⁵ The NAIC should provide sample questions and other guidance on when examiners should ask climate-related questions. The NAIC should monitor state financial condition examinations to determine which climate-related questions provided in the Examiners Handbook are asked and the types of responses provided to those questions, and periodically summarize its findings in a public report.

Modeling

10. The NAIC should continue to refine the capabilities and role of the Catastrophe (CAT) Modeling Center of Excellence by incorporating climate-related risk considerations so that it can be used more effectively by state insurance regulators to enhance assessment and supervision of insurers’ climate-related risks. To enable sharing of resources among state insurance regulators, the Center should develop a platform for access to models, methodologies, and related data. The NAIC should regularly produce public reports on key findings identified by state insurance regulators using the Center to monitor climate-related risks.

Scenario Analysis

11. The NAIC and state insurance regulators should prioritize their work on scenario analysis for climate-related risks, initially as a capacity building exercise for large insurers. Future NAIC work should include developing a pilot analysis with defined scenarios and assumptions for insurers to run and submit to regulators, commensurate with an insurer’s size, complexity, business activity, and risk profile.

⁴ NAIC, *Proposed Redesigned NAIC Climate Risk Disclosure Survey*, 2022, 3, https://content.naic.org/sites/default/files/inline-files/2022ProposedClimateRiskSurvey_0.pdf (*Climate Risk Disclosure Survey*).

⁵ NAIC, *Financial Condition Examiners Handbook* (2022), available through https://content.naic.org/cmte_e_fehgtg.htm (*Examiners Handbook*).

Section II.C.2 Recommendations – Macroprudential Supervision and Regulation

12. The NAIC should incorporate climate-related risks in future Macroprudential Risk Assessments and these assessments should include additional detail on climate-related risks specific to insurer underwriting and investments.
13. State insurance regulators and the NAIC should monitor the availability of reinsurance for climate-related risks and consider whether market hardening or other constraints will adversely affect insurer solvency.
14. The NAIC should encourage consideration of climate-related risks by participants in supervisory colleges, and it should develop guidance to assist regulators when conducting such supervisory college engagements.
15. State insurance regulators and the NAIC should increase their work with the National Council of Insurance Legislators, state legislatures, and state guaranty associations to improve their ability to quantify potential climate-related risks for state guaranty funds and to better understand potential exposures from climate-related disasters for insurers, policyholders, and state governments.
16. All state insurance regulators and the NAIC should monitor growth and other trends in residual and surplus lines markets, and publicly report on how climate-related risks are currently affecting, and in the future may affect, these markets.

Section II.C.3 Recommendations – Market Conduct Supervision and Regulation

17. The NAIC, state insurance regulators, the insurance industry, FIO, the Financial Literacy and Education Commission (FLEC), and other partners should work together to increase consumer education and outreach regarding what climate-related risks are (and are not) commonly covered under personal lines of insurance and take steps to increase public awareness of the nature and magnitude of climate-related risks. They also should continue encouraging consumers to take advantage of educational and outreach programs in markets vulnerable to climate change, including programs relating to the value of, and opportunities for, pre-disaster mitigation investments in property resilience. Public-private partnerships with the insurance industry can aid this educational effort.
18. State insurance regulators and the NAIC should continue using existing frameworks for their post-disaster response efforts, including their focus on fair and efficient resolution of claims. In addition, the NAIC and state insurance regulators should conduct more post-disaster surveys to assess the claims resolution process, particularly with regard to whether insurers are fulfilling their obligations in a fair and efficient manner.

Section II.C.4 Recommendations – Disclosure Initiatives

19. The NAIC and state insurance regulators should support efforts to improve climate-related disclosures by the insurance industry, as analytical capabilities and best practices further develop. All state insurance regulators should adopt the NAIC *Climate Risk Disclosure Survey*. The NAIC should continue monitoring responses to its *Climate Risk Disclosure Survey* and publish an annual quantitative report summarizing the Survey results and addressing how well the Survey is fulfilling its six purposes.
20. The NAIC should consider revising its *Climate Risk Disclosure Survey* over the next several years to incorporate more prescriptive elements, including around quantitative financial impacts, scenario analysis, and consistent metrics and targets, with the goals of enhancing: (a) transparency about how insurers manage climate-related risks and opportunities, (b) the identification of good practices and vulnerabilities, and (c) the assessment of how climate-related risks are affecting the insurance industry.

II. U.S. INSURANCE SUPERVISION AND REGULATION OF CLIMATE-RELATED RISKS

This section begins with an overview of climate-related risks and the role of insurance. The section then briefly describes the roles of the states, the NAIC, and FIO. It next analyzes U.S. climate-related insurance supervision and regulation⁶ across three key aspects: (1) prudential (sometimes referred to as microprudential), (2) macroprudential, and (3) market conduct. The section concludes with an analysis of climate-related disclosures.

A. Climate-Related Risks and Insurance

The connection between climate change and extreme weather events is well established.⁷ As noted in Executive Order 14030, climate-related disasters are increasing in frequency and severity within the United States.⁸ For example, Hurricane Ian in 2022 caused at least 157 deaths and an estimated \$95.5 billion in damages.⁹ Hurricane Ian was also one of 18 climate-related disasters in the United States in 2022 that each cost over a billion dollars (adjusted for inflation).¹⁰ Additionally, nine of the ten costliest U.S. hurricanes have occurred since 2005, and eight of the ten costliest U.S. wildfires have occurred since 2017, after adjusting for inflation.¹¹ Significant efforts are underway to limit the increase in the frequency and severity of future climate-related disasters, including by reducing greenhouse gas (GHG) emissions. This Report considers the climate-related risks faced by the insurance industry, as well as how the U.S.

⁶ “Insurance regulation” describes the creation and implementation of the legal requirements with which the insurance industry must comply, while “insurance supervision” describes the processes of monitoring and examining the financial condition and market conduct of insurers, including observing and managing the impact that these may have on financial stability. See, e.g., NAIC, NAIC, *Financial Analysis Handbook Annual 2022/Quarterly 2023* (2023), 783, <https://content.naic.org/sites/default/files/publication-fah-zu-financial-analysis-handbook.pdf> (*Financial Analysis Handbook*). State insurance commissioners may serve as both regulators and supervisors. This Report generally uses the term “regulator” to encompass both regulatory and supervisory functions. “State insurance regulators” collectively includes the regulators for all 50 states, the District of Columbia (DC), and the territories.

⁷ See, e.g., U.S. Global Change Research Program (USGCRP), *Fourth National Climate Assessment, Volume I* (2017), Executive Summary & chapter 3, https://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf.

⁸ See Exec. Order No. 14030 (referencing the “intensifying impacts of climate change”). In this Report, “climate-related disasters” refer to weather-related events that may increase in frequency or intensity due to climate change, such as coastal and riverine flooding, drought, heat waves, hurricanes, and wildfire, as distinguished from non-weather-related natural phenomena such as earthquakes and earthquake-related tsunamis. The term “catastrophic events,” used elsewhere in this Report, may include both weather-related and non-weather-related events; similar terms used by the insurance industry include “natural catastrophes” and “natural disasters.”

⁹ Aon, *Weather, Climate and Catastrophe Insights* (2023), 3-4, 9, 26, <https://www.aon.com/getmedia/f34ec133-3175-406c-9e0b-25cea768c5cf/20230125-weather-climate-catastrophe-insight.pdf>.

¹⁰ “U.S. Billion-Dollar Weather and Climate Disasters,” National Oceanic and Atmospheric Administration (NOAA), www.ncei.noaa.gov/access/monitoring/billions/.

¹¹ “Facts + Statistics: Hurricanes,” Insurance Information Institute (III), <https://www.iii.org/fact-statistic/facts-statistics-hurricanes>; “Facts + Statistics: Wildfires,” III, <https://www.iii.org/fact-statistic/facts-statistics-wildfires>.

insurance regulatory system is addressing these risks, and provides FIO's recommendations for how management of these risks could be improved.

The U.S. insurance industry is an important component of the U.S. financial system, and it faces increasing financial risks due to the worsening effects of climate change. Climate-related disasters may exacerbate property damages and business interruptions, thus impacting losses under property and casualty (P&C) insurance coverage.¹² Climate-related disasters also may lead to more workers' compensation claims; impact life and annuity insurance lines through effects on mortality, morbidity, and longevity of populations; and impair insurers' investments in real estate or in securities of businesses vulnerable to climate-related disasters. In addition to the risks from climate-related disasters themselves, the ongoing efforts to shift to a carbon neutral or net-zero economy by mid-century could potentially introduce risks for insurers, particularly those that hold investments in high-carbon companies or sectors that are not prepared for the transition to net-zero.¹³

In short, climate-related risks present new and increasingly significant challenges for the insurance industry that warrant careful monitoring by financial regulators, policymakers, and insurance companies. The oversight of climate-related risks is also an emerging and increasingly critical topic for state insurance regulators.

Climate-related risks can be grouped into three broad, generally applicable categories:

- **Physical risks** are “the harm to people and property arising from acute, climate-related disaster events such as hurricanes, wildfires, floods, and heatwaves as well as longer-term chronic phenomena such as higher average temperatures, changes in precipitation patterns, sea-level rise, and ocean acidification.”¹⁴ Growth in climate-related physical risks has implications for the solvency of insurance companies that are underwriting, reinsuring, or investing in areas subject to increasingly frequent and severe climate-related disasters. Insurers may choose to raise premiums in, or withdraw from, certain markets facing increasing physical risks.¹⁵
- **Transition risks** refer to “stresses to certain institutions or sectors arising from the shifts in policy, consumer and business sentiment, or technologies associated with the changes necessary to limit climate change,” e.g., action associated with aligning activities with a

¹² Homeowners insurance and property insurance for businesses are types of P&C insurance, both of which typically exclude flood risk. The National Flood Insurance Program, administered by the Federal Emergency Management Agency (FEMA), provides most flood coverage. This Report focuses primarily on state insurance supervision and regulation.

¹³ See, e.g., FSOC, *Report on Climate-Related Financial Risk 2021* (October 21, 2021), 13, 109-117, <https://home.treasury.gov/system/files/261/FSOC-Climate-Report.pdf> (Climate Report).

¹⁴ FSOC, *Climate Report*, 12.

¹⁵ See, e.g., Christopher Flavelle, *et al.*, “Climate Shocks Are Making Parts of America Uninsurable. It Just Got Worse,” *New York Times*, May 31, 2023, <https://www.nytimes.com/2023/05/31/climate/climate-change-insurance-wildfires-california.html?searchResultPosition=1>.

net-zero economy by mid-century.¹⁶ Insurers, as an industry, are large institutional investors and allocate a substantial amount of their investment portfolios to corporate bonds and other long-term assets, as well as to equity securities, that can be exposed to transition risks. Transition risks can manifest on insurers' financial statements through investment losses, reduced asset valuations, and through increased claims and liabilities. Conversely, insurers may be able to capture and promote opportunities associated with a net-zero transition, such as by underwriting or investing in low-carbon or zero carbon technologies.

- **Litigation risks** may “arise when parties are held liable for losses related to environmental damage that may have been caused by their actions or omissions.”¹⁷ Litigation risks are increasing worldwide, with the number of climate-related cases more than doubling since 2015.¹⁸ While sometimes characterized as a subset of transition risk, litigation is recognized here as a distinct category given its relevance to insurers. Insurers may face litigation risks both through cases brought directly against them (whether by their own shareholders for alleged breaches of fiduciary duty for not addressing climate-related risks or by policyholders for coverage disputes involving climate-related claims) and through increased claims and adverse reserve development on various liability lines that may face increased climate-related litigation, such as directors' and officers' insurance.¹⁹

Climate-related risks can manifest in the form of other risks that insurers manage, including credit risk, market risk, liquidity risk, underwriting risk, operational risk, and reputational risk.

- **Credit Risk** is “the risk that an entity may not meet its contractual financial obligations as they come due and any estimated financial loss in the event of default or impairment.”²⁰ Both transition risk and physical risk can create credit risk for insurers. Insurers hold large investments in corporate bonds (over \$2.5 trillion by year-end 2022).²¹ The credit risk for insurers from such bonds may be exacerbated by the physical and transition risks faced by the issuer and the potential for associated asset devaluation,

¹⁶ FSOC, *Climate Report*, 13.

¹⁷ Financial Stability Board (FSB), *The Implications of Climate Change for Financial Stability* (November 2020), 16, <https://www.fsb.org/wp-content/uploads/P231120.pdf>.

¹⁸ Joana Setzer & Catherine Higham, *Global Trends in Climate Change Litigation: 2022 Snapshot* (June 2022), 1, <https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2022/08/Global-trends-in-climate-change-litigation-2022-snapshot.pdf>.

¹⁹ See, e.g., FSB, *The Implications of Climate Change for Financial Stability*; International Association of Insurance Supervisors (IAIS) & Sustainable Insurance Forum (SIF), *Application Paper on the Supervision of Climate-related Risks in the Insurance Sector* (May 2021), <https://www.iaisweb.org/uploads/2022/01/210525-Application-Paper-on-the-Supervision-of-Climate-related-Risks-in-the-Insurance-Sector.pdf> (*Climate Application Paper*).

²⁰ Moody's Investor Service, *Rating Symbols and Definitions* (December 22, 2022), 4, available through https://www.moodys.com/researchdocumentcontentpage.aspx?docid=pbcr_79004.

²¹ S&P Global Market Intelligence (S&P Global) data.

reduced corporate profitability, or even counterparty failure.²² Insurers are also large investors in real estate assets, holding nearly \$1 trillion in such assets as of year-end 2021.²³ Real estate may be vulnerable to credit risk if increases in the frequency and severity of climate-related disasters lead to a decrease in borrowers' ability to repay or service their debt and/or to declines in real estate asset values.²⁴ Thus, transition and physical risk in the larger economy potentially creates credit risk for insurers.

- **Market Risk** is “the exposure to uncertainty due to changes in rate or market price of an invested asset (e.g., interest rates, equity values).”²⁵ Insurers are exposed to market risk primarily through their investments. Climate-related risks (including physical and transition risk) can create or amplify market risks. For example, investment values may be affected by climate-related policy changes or the threat of physical damage to assets. This can result in realized investment losses, either from impairment changes or in the event that assets need to be sold.²⁶
- **Liquidity Risk** is “the exposure to adverse cost or return variation stemming from the lack of marketability of a financial instrument at prices in line with recent sales.”²⁷ Historically, poor liquidity management has been one of the key factors underlying many instances of insurers' distress or failures, and distressed assets could be a source of liquidity problems.²⁸ Physical and transition risk could impact climate-sensitive assets (such as real estate, infrastructure, or timber), create uncertainty among key market participants, and cause procyclical market dynamics in certain markets, including asset fire sales, thus potentially heightening liquidity risk for insurers with exposure to those investments. On the underwriting side, volatile claims experience from climate-related disasters and increased claims payouts could potentially cause insurers to dispose of assets supporting those liabilities on unfavorable terms.²⁹

²² Network of Central Banks and Supervisors for Greening the Financial System (NGFS), *Guide for Supervisors: Integrating Climate-Related and Environmental Risks into Prudential Supervision* (May 2020), 14, https://www.ngfs.net/sites/default/files/medias/documents/ngfs_guide_for_supervisors.pdf.

²³ S&P Global data (including total commercial and residential real estate mortgage loans and mortgage-backed securities).

²⁴ “Mortgage Loan Lenders and Climate Risk,” Climate Check, <https://climatecheck.com/risks/governance/mortgage-loan-lenders-and-climate-risk>.

²⁵ “Market Risk,” Insurance Risk Management Institute (IRMI), <https://www.irmi.com/term/insurance-definitions/market-risk>.

²⁶ See, e.g., New York State Department of Financial Services (NYSDFS), *Guidance for New York Domestic Insurers on Managing the Financing Risks from Climate Change* (November 2021), 16, https://www.dfs.ny.gov/system/files/documents/2021/11/dfs-insurance-climate-guidance-2021_1.pdf (*Climate Guidance for NY Insurers*).

²⁷ “Liquidity Risk,” IRMI, <https://www.irmi.com/term/insurance-definitions/liquidity-risk>.

²⁸ S&P, *What May Cause Insurance Companies to Fail –And How This Influences Our Criteria* (June 2013), 3, 5, <https://www.yumpu.com/en/document/read/43017028/what-may-cause-insurance-companies-to-fail-standard-poors>.

²⁹ Prudential Regulation Authority, *Enhancing Banks' and Insurers' Approaches to Managing the Financial Risk from Climate Change* (April 2019), www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/supervisory-statement/2019/ss319.pdf?la=en&hash=7BA9824BAC5FB313F42C00889D4E3A6104881C44.

- **Underwriting Risk** arises from underestimated liabilities and/or underpriced policies such that insurers face greater than expected losses.³⁰ Climate-related physical risks, transition risks, and litigation risks can affect underwriting risks.³¹ Insurance and reinsurance underwriters need to factor into pricing how more frequent and severe impacts from climate change could result in increasingly large insured property losses. P&C insurers may also face increased claims in some liability lines for climate-related lawsuits. Similarly, life insurers may need to consider the possibility of higher losses because of increases in morbidity or mortality rates from climate-related disasters.
- **Operational Risk** may arise from human, process, or technological failures, as well as from external events like cyber attacks or climate-related disasters.³² Specifically, the physical risk from climate-related disasters may have an adverse impact on insurers' operations and business continuity.³³ For example, insurers located in areas susceptible to climate-related disasters could experience extended power outages or the destruction of facilities.
- **Reputational Risk** may arise if insurers experience negative publicity. Reputational risk may be a form of transition and litigation risk, in that if insurers take actions that are perceived as contributing to climate change, such as insuring or investing in carbon-intensive sectors, they may face adverse reputational consequences.³⁴ Potential financial consequences of reputational risk include reduced policyholder demand due to bad publicity or increased legal fees, or higher settlements to avoid further negative publicity. Such financial consequences, however, may be more indirect and harder to quantify than the other risks discussed above.

The states, the NAIC, and FIO all have important roles to play in helping address climate-related risks in the insurance industry.

³⁰ See, e.g., "Underwriting Risk," IRMI, <https://www.irmi.com/term/insurance-definitions/underwriting-risk>.

³¹ See, e.g., Geneva Association, *Climate Change Risk Assessment for the Insurance Industry* (February 2021), https://www.genevaassociation.org/sites/default/files/research-topics-document-type/pdf_public/climate_risk_web_final_250221.pdf.

³² See, e.g., "Operational Risk," IRMI, <https://www.irmi.com/term/insurance-definitions/operational-risk>. See also IAIS, *Issues Paper on Insurance Sector Operational Resilience – Draft for Public Consultation* (October 2022), <https://www.iaisweb.org/uploads/2022/10/Issues-Paper-on-Insurance-Sector-Operational-Resilience.pdf>.

³³ See, e.g., NYSDFS, *Climate Guidance for NY Insurers*, 17; NGFS, *Guide for Supervisors*, 14.

³⁴ See, e.g., NYSDFS, *Climate Guidance for NY Insurers*, 17; Munich RE, *Sustainability Report 2021* (April 2022), 56, https://www.munichre.com/content/dam/munichre/contentlounge/website-pieces/documents/munich_re_sustainability_report_2021.pdf/jcr_content/renditions/original/munich_re_sustainability_report_2021.pdf.

B. The Roles of the States, the NAIC, and FIO

The business of insurance in the United States is primarily regulated by the states, including the District of Columbia and the territories.³⁵ Insurance laws are passed by state legislators, signed into law by governors, and implemented by state insurance regulators, who also adopt and enforce regulations and guidance for insurers domiciled or doing business within their states.³⁶ State insurance regulatory authority encompasses both prudential (or solvency) regulation, which addresses insurers' financial condition, as well as market conduct regulation, which addresses consumer protection, access to insurance, rate and form reviews, and licensing, among other things. Each of those regulatory areas fulfills important objectives to protect policyholders and promote public confidence in insurance markets by ensuring that those markets are competitive, solvent, and stable and offer products that are fairly priced, transparent, and readily available from multiple companies.³⁷

The NAIC is a 501(c)(3) organization established by the states and governed by their chief insurance regulators that provides guidance, data, tools, and other expertise and analysis for use by state insurance regulators. The NAIC's guidance on supervision includes handbooks on financial analysis, examinations, and ORSA. For calculating the RBC requirement for an insurer (which is the statutory minimum level of capital that an insurer must maintain), states coordinate through the NAIC to ensure consistent methodology for setting capital requirements.³⁸ The NAIC also develops model insurance laws and regulations reflecting the collective views of its members, i.e., state insurance regulators.

The NAIC may designate some model laws and regulations as "accreditation standards" if its members consider that they address matters of importance applicable to all states and that adoption will assist the states in developing and maintaining a relatively uniform baseline of fundamental insurance regulatory standards.³⁹ Such models can only become effective regulatory tools when and to the extent that they are implemented by individual states, through their respective legislative and administrative processes. The NAIC periodically reviews whether an individual state meets the accreditation standards by enacting and enforcing laws and

³⁵ See, e.g., NAIC & Center for Insurance Policy and Research (CIPR), *State Insurance Regulation* (2011), https://content.naic.org/sites/default/files/inline-files/topics_white_paper_hist_ins_reg.pdf.

³⁶ An insurer is "domiciled" in the state that issued its primary license. See "Insurance Companies by State," III, <https://www.iii.org/publications/a-firm-foundation-how-insurance-supports-the-economy/a-50-state-commitment/insurance-companies-by-state#>.

³⁷ See, e.g., NAIC, "NAIC Announces 2023 Regulatory Priorities", news release, February 13, 2023, <https://content.naic.org/article/naic-announces-2023-regulatory-priorities>; "Macroprudential Supervision," NAIC, last updated February 1, 2023, <https://content.naic.org/cipr-topics/macroprudential-supervision>; NAIC, "Market Conduct Regulation," NAIC, last updated June 23, 2022, <https://content.naic.org/cipr-topics/market-conduct-regulation>.

³⁸ For more on RBC requirements, see [Section II.C.1.c.ii](#).

³⁹ NAIC, *Financial Regulation Standards and Accreditation Program* (August 2022), <https://content.naic.org/sites/default/files/inline-files/FRSA%20Pamphlet%208-2022%20.pdf> (*Accreditation Pamphlet*).

regulations that are “substantially similar” to the designated models.⁴⁰ Although the NAIC’s current accreditation process does not directly and explicitly include the consideration of climate-related financial risk, some NAIC model laws and tools, as discussed in this Report, incorporate climate-related financial risk considerations to varying extents. Currently, all 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands are accredited.⁴¹

While the primary regulators of the business of insurance are the states, Congress tasked FIO with an important insurance industry oversight role. In addition to advising the Secretary of the Treasury on major domestic and prudential international insurance policy issues and having its Director serve as a non-voting member of FSOC, FIO is authorized to, among other things, monitor all aspects of, and collect data and information on and from, the insurance industry.⁴² From its first annual report in 2013, FIO has highlighted the devastating impact that natural catastrophes, such as hurricanes, floods, and wildfires, can have on insurers, policyholders, and other stakeholders.⁴³ FIO’s current climate-related priorities are discussed further in [Section III](#).

C. Analysis of U.S. Climate-Related Insurance Supervision and Regulation

The discussion below addresses state climate-related prudential, macroprudential, and market conduct supervision and regulation in turn, as well as certain state regulatory tools for addressing insurance market disruptions and disclosure initiatives, much of which is developed or coordinated through the NAIC. For all climate-related risk and resiliency issues, the NAIC’s Climate and Resiliency Task Force serves as its coordinating body.⁴⁴ Presently, the NAIC is considering modifications and enhancements to incorporate climate-related risk concepts into several regulatory tools, discussed further below. FIO encourages the states and the NAIC to continue these initiatives and to increase their focus on climate-related risks.

⁴⁰ NAIC, *Accreditation Pamphlet*, *passim*.

⁴¹ “Accredited U.S. Jurisdictions,” NAIC, https://content.naic.org/cmte_f_accredited_states.htm. If a state loses accreditation, it may result in some domiciliary insurers moving to an accredited state as well as damage to the reputation of the state’s insurance regulatory program. See, e.g., NAIC, *The NAIC Accreditation Program* (November 2021), <https://content.naic.org/sites/default/files/government-affairs-brief-accreditation-program.pdf>.

⁴² 31 U.S.C. § 313(e). For a more complete description of FIO and its authorities, see, e.g., FIO, *Annual Report on the Insurance Industry* (September 2022), 1-3, <https://home.treasury.gov/system/files/311/2022%20Federal%20Insurance%20Office%20Annual%20Report%20on%20the%20Insurance%20Industry%20%281%29.pdf>.

⁴³ FIO, *Annual Report on the Insurance Industry* (June 2013), 9, 47–49, <https://home.treasury.gov/system/files/311/FIO%20Annual%20Report%202013.pdf>. For other FIO reports, see “Reports and Notices,” Treasury, <https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/federal-insurance-office/reports-notice>. Reports relevant for climate-related risks include: FIO, *The Breadth and Scope of the Global Reinsurance Market and the Critical Role it Plays in Supporting Insurance in the United States* (2014), <https://home.treasury.gov/system/files/311/FIO%20-Reinsurance%20Report.pdf> (discussing the role of reinsurance for catastrophes); FIO, *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States* (2015), <https://home.treasury.gov/system/files/311/Natural%20Catastrophe%20Report.pdf>.

⁴⁴ “Climate and Resiliency (EX) Task Force,” NAIC, https://content.naic.org/cmte_ex_climate_resiliency_tf.htm.

In addition to the collective work of the states through the NAIC, some individual state insurance regulators have taken meaningful steps to address climate-related risks. For example, the New York State Department of Financial Services (NYSDFS) developed, and in 2021 adopted, the first state insurance regulatory guidance on managing climate-related risks (NYSDFS Climate Guidance for NY Insurers).⁴⁵ The NYSDFS Climate Guidance for NY Insurers builds on NAIC guidance, international guidance, and public comments submitted in response to publication of New York’s draft guidance.⁴⁶ The guidance states that NYSDFS “expects insurers to take a strategic approach to climate risks that considers both current and forward-looking risks and identifies actions required to manage those risks in a manner proportionate to the nature, scale, and complexity of insurers’ businesses,” including with respect to governance, risk management, scenario analysis, and disclosure.⁴⁷

Similarly, in September 2022, the Connecticut Insurance Department (CID) finalized a bulletin outlining “Guidance for Connecticut Domestic Insurers on Managing the Financial Risks for Climate Change” (CID Climate Guidance for CT Insurers).⁴⁸ Like the NYSDFS Climate Guidance for NY Insurers, the CID Climate Guidance for CT Insurers outlines a regulatory expectation that insurers “take a strategic approach to managing climate risks that consider both current and future risks and identifies actions necessary to manage those risks in a manner proportionate to the nature, scale, and complexity of insurers’ businesses.”⁴⁹ And, in November 2022, California released a *Sustainable Insurance Roadmap* comprising a four-part strategy to: (1) strengthen financial oversight and transparency, (2) accelerate sustainable investment strategies, (3) catalyze sustainable insurance product innovation, and (4) create resilient communities.⁵⁰

In addition, three states—California, New York, and Vermont—have undertaken actions to collect data on the investment exposures to climate-related risks of insurers operating in those

⁴⁵ NYSDFS, Climate Guidance for NY Insurers. As of 2020, New York P&C insurers accounted for about 7 percent of the U.S. P&C market, while New York life insurers accounted for about 15 percent of the U.S. life insurance market. See NAIC, *State Insurance Regulation: Key Facts and Market Trends – New York/2020* (2021), 6, <https://content.naic.org/sites/default/files/publications-key-facts-market-trends-new-york.pdf>.

⁴⁶ NYSDFS, *Climate Guidance for NY Insurers*, 2.

⁴⁷ NYSDFS, *Climate Guidance for NY Insurers*, 3-4. Governance, risk management, scenario analysis, and disclosure are all discussed in this Report, below.

⁴⁸ Connecticut Insurance Department (CID), Bulletin No. FS-44 (September 15, 2022), https://portal.ct.gov/-/media/CID/1_Bulletins/Bulletin-FS-44.pdf (*Climate Guidance for CT Insurers*). As of 2020, Connecticut P&C insurers accounted for 1.3 percent of the U.S. P&C market, while Connecticut life insurers accounted for about 2.8 percent of the U.S. life insurance market). See NAIC, *State Insurance Regulation: Key Facts and Market Trends – Connecticut/ 2020* (2021), 6, <https://content.naic.org/sites/default/files/publications-key-facts-market-trends-connecticut.pdf>.

⁴⁹ CID, *Climate Guidance for CT Insurers*, 1.

⁵⁰ California Department of Insurance, *California Sustainable Insurance Roadmap* (November 2022), <http://www.insurance.ca.gov/01-consumers/180-climate-change/upload/California-Sustainable-Insurance-Roadmap-2022.pdf>.

states.⁵¹ Additional actions that these and other state insurance regulators are taking on climate risk are highlighted throughout this Report.

Recommendation 1: *State insurance regulators and the NAIC should build on the initial steps they have taken and expand their work on climate-related risks in order to promote increased regulatory uniformity among the states in considering such risks. The NAIC also should identify best practices in the state insurance regulatory community and encourage states to adopt these practices.*

The availability of data is an important issue facing regulators as they develop climate-related insurance supervision and regulation. FIO has consistently noted the benefits of having high-quality, consistent, comparable, and reliable data to support the assessment of climate-related financial risk.⁵² Regulators should prioritize their efforts towards identifying, defining, and collecting climate-related data.

Recommendation 2: *State insurance regulators and federal authorities should continue encouraging insurers to capture more granular, consistent, comparable, and reliable data on climate-related risks. State insurance regulators and federal authorities also should continue identifying relevant data that will improve the ability of insurers to quantify climate-related exposures and otherwise fill data gaps with regard to climate-related risks and the insurance industry.*

1. Prudential Supervision and Regulation

Prudential regulation of insurance focuses on protecting policyholders by seeking to ensure the financial safety and stability of insurers and by supporting a strong and viable insurance marketplace. Protecting policyholders (and insurers' own investment portfolios) from the financial impacts of climate-related risks is a component of insurers' work. However, the degree to which insurers can manage climate-related risks depends in part on the extent to which climate-related risks can be adequately measured and integrated into applicable enterprise risk management (ERM) and capital management processes. This section focuses on regulatory requirements and guidance, including in examinations and reporting requirements, that are relevant to how insurers manage their climate-related prudential risks through risk management and internal controls, corporate governance, and operations. Further, this section describes how regulators evaluate and monitor the financial health of insurers using financial analysis tools, RBC, ORSA, and financial condition examinations. This section concludes with discussions of modeling and scenario analysis in the context of climate-related risk supervision.

⁵¹ See, e.g., FSOC, *Climate Report*, 42–43. See also California Department of Insurance, “Commissioner Lara Holds Insurance Companies Accountable in Push for More Investment Solutions to Fight Climate Change,” news release, April 18, 2022, <https://www.insurance.ca.gov/0400-news/0100-press-releases/2022/release028-2022.cfm>.

⁵² See, e.g., Federal Insurance Office Request for Information on the Insurance Sector and Climate-Related Financial Risks, 86 Fed. Reg. 48,814 (August 31, 2021) (Climate Risk RFI).

a) Risk Management and Internal Controls

State insurance regulators help set expectations for insurers' establishment and implementation of their own risk management policies, procedures, and internal controls. "Risk management" is the set of internal processes carried out by an insurer's board and management to support the achievement of its objectives by identifying and addressing risks and their potential impact. "Internal controls" are an insurer's internal procedures and policies that help safeguard its assets, provide trustworthy financial reporting, facilitate compliance with rules and regulations, and achieve efficient and effective operations. In setting expectations, state insurance regulators seek to ensure that insurers have effective and documented risk management systems that reflect an understanding of how material risks are managed within the insurers' risk appetite limits.⁵³ (For more on materiality, see [Box 1](#).) Regulators also seek to ensure that these risk management systems operate pursuant to effective and documented internal controls that incorporate independent functions for risk management, compliance, actuarial, and internal audit.⁵⁴ In particular, supervisory oversight of the internal audit functions of insurers may strengthen the reliability of the data and other information that insurers provide to their regulators. State insurance regulators evaluate risk management and internal control functions through mandated annual reporting and through periodic examination of insurers, including coordination of risk-focused financial examinations for multi-state insurers.⁵⁵

Climate-related risks fit within the existing prudential insurance regulation framework for evaluating material risks. As discussed above, climate-related risks can impact other risks insurers manage, including credit risk, market risk, liquidity risk, underwriting risk, operational risk, and reputational risks. These risks are also key components of an insurer's ERM processes (and ORSA).⁵⁶ ERM frameworks, however, focus primarily on near-term estimates. Therefore, while they may capture acute risks from extreme-weather events, they may omit climate-related risks that manifest over a longer-time horizon yet are still reasonably foreseeable.⁵⁷ Regulators may need to encourage insurers to expand their focus from near-term risks (corresponding with insurers' current business plans) to encompass a longer time horizon for climate-related risks.⁵⁸

⁵³ See, e.g., NAIC, *Financial Analysis Handbook*, 851. Risk appetite is the aggregate level and types of risk an insurer is willing to assume, within its capacity, to achieve its strategic objectives and business plan. IAIS, *IAIS Glossary* (November 2019), 8, <https://www.iaisweb.org/uploads/2022/01/191115-IAIS-Glossary.pdf>.

⁵⁴ See, e.g., IAIS & SIF, *Climate Application Paper*, 16.

⁵⁵ For more on reporting and examinations generally, see [Section II.C.1.c](#).

⁵⁶ See [Section II.A](#) for more information on these risks. For more information on ORSA, see [Section II.C.1.c.iii](#).

⁵⁷ See, e.g., Task Force on Climate-related Financial Disclosures (TCFD), *Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures* (October 2021), 70, https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Implementing_Guidance.pdf (Framework) ("Climate-related impacts can occur over the short, medium, and long term. Organizations can experience chronic, gradual impacts (such as impacts due to shifting temperature patterns), as well as acute, abrupt disruptive impacts (such as impacts from flooding, drought, or sudden regulatory actions).").

⁵⁸ See, e.g., Memorandum from Commissioner Birrane, Co-Chair of the Climate Resiliency (EX) Task Force leading the Solvency Workstream to Kathy Belfi and Mike Yanacheak, Co-Chairs of the ORSA Implementation (E)

Current state guidance regarding integration of climate considerations into insurers' risk management and internal control functions varies among the states. All states follow NAIC guidance for financial analysis, financial condition examinations, and ORSA; but this guidance does not currently require that insurers' risk management processes explicitly address climate-related risks.⁵⁹ Some individual states, however, have issued or are considering guidance for their domestic insurers specifying measures directed to management of climate risk. For example, the CID Climate Guidance for CT Insurers mentioned above states that "[t]he Department expects an insurer to have a written risk policy adopted by its board describing how the insurer monitors and manages material climate risks in line with its risk appetite statement."⁶⁰ The NYSDFS Climate Guidance for NY Insurers also addresses risk management, stating that it expects an insurer to have "a written risk policy adopted by its board describing how the insurer monitors and manages material climate risks in line with its risk appetite statement."⁶¹ In 2021, Vermont's Department of Financial Regulation announced plans to develop guidance to address climate-related risks, including incorporation into ERM processes.⁶²

Recommendation 3: *All state insurance regulators should develop and adopt climate-related risk monitoring guidance appropriate for their markets, which should include expectations for insurers to incorporate climate-related risks into their annual financial planning, as well as into their long- and short-term risk management processes, as some states have done.*

b) Corporate Governance

State insurance regulators require insurers to establish and implement corporate governance frameworks that provide for prudent management of their business.⁶³ Insurers must establish their individual policies and procedures for corporate governance against this backdrop of established regulatory expectations and oversight.

The NAIC so far has not incorporated governance standards that address climate-related risks into the relevant model act and regulations.⁶⁴

Subgroup, May 23, 2022, <https://content.naic.org/sites/default/files/inline-files/Climate%20Referral%20to%20ORSA%20Subgroup.pdf> (NAIC ORSA Referral Memorandum).

⁵⁹ See, e.g., NAIC, *Financial Analysis Handbook*; NAIC, *Examiners Handbook*; NAIC, *ORSA Guidance Manual*.

⁶⁰ CID, *Climate Guidance for CT Insurers*, 4.

⁶¹ NYSDFS, *Climate Guidance for NY Insurers*, 10–11.

⁶² Vermont Department of Financial Regulation, "DFR Releases Report Examining the Impacts of Climate Change on Vermont's Insurance Industry," news release, June 28, 2021, <https://dfr.vermont.gov/press-release/dfr-releases-report-examining-impacts-climate-change-vermonts-insurance-industry>.

⁶³ See, e.g., NAIC, *Accreditation Pamphlet*, 11.

⁶⁴ Neither the NAIC's 2014 Corporate Governance Annual Disclosure Model Act, <https://content.naic.org/sites/default/files/inline-files/MDL-305.pdf>, nor the NAIC's 2014 Corporate Governance Disclosure Model Regulation, <https://content.naic.org/sites/default/files/inline-files/MDL-306.pdf>, mentions climate-related risk. Compare IAIS & SIF, *Climate Application Paper*, 15 & 16.

Some individual states, however, have already begun to take steps to set expectations about the need for insurers to factor climate-related risks into their corporate governance. For example, the CID Climate Guidance for CT Insurers states that “[a]n insurer’s board of directors is ultimately responsible for overseeing the management of all risks, including climate risks,” and expresses an expectation that the insurer’s board or committees must understand and oversee management of climate-related risks, including the long-term nature of such risks.⁶⁵ Similarly, the NYSDFS Climate Guidance for NY Insurers sets an expectation that an insurer’s board (or other governing entity) must understand the distinctive nature of climate-related risks, including their long-term impact beyond the standard three- to five-year business planning horizon, and also must oversee the management of climate-related risks within the insurer’s overall business strategy and risk appetite.⁶⁶ NYSDFS also expects each insurer to designate a member or committee of its board as responsible for the oversight of the insurer’s management of climate-related risks.⁶⁷ Finally, NYSDFS expects each insurer to designate one or more members of its senior management, or a cross-functional committee of senior management, as responsible for the insurer’s management of climate-related risks.⁶⁸

State insurance regulators also set the expectation that an insurer’s organizational structure, policies, and procedures should generally be based on and take into account the strategic direction and objectives established by the firm’s corporate governance framework.⁶⁹ However, at present, NAIC materials on which state insurance regulators rely in setting such expectations, such as the *Financial Analysis Handbook* and the *Examiners Handbook*, do not explicitly require the integration of climate-related risks into an insurer’s organizational structure, policies, and procedures.⁷⁰

The NYSDFS Climate Guidance for NY Insurers, by contrast, explicitly emphasizes that the management of climate-related risks should be fully integrated into an insurer’s organizational structure, policies, and procedures.⁷¹ The NYSDFS guidance also encourages insurers to consider implementing management compensation policies that align incentives with their strategy for managing climate-related risks and with performance against climate metrics.⁷² In addition, the NYSDFS guidance encourages insurers to incorporate climate-related risks into their planning, including how such risks affect the organization, how they impact the firm’s

⁶⁵ CID, *Climate Guidance for CT Insurers*, 3.

⁶⁶ NYSDFS, *Climate Guidance for NY Insurers*, 9.

⁶⁷ NYSDFS, *Climate Guidance for NY Insurers*, 9.

⁶⁸ NYSDFS, *Climate Guidance for NY Insurers*, 10. For other examples of guidance incorporating climate-related risks into corporate governance, see also IAIS & SIF, *Climate Application Paper*, 15.

⁶⁹ See, e.g., NAIC, *Examiners Handbook*, 189 (stating that senior managers “guide the development and implementation of internal control policies and procedures that address their units’ objectives and ensure that they are consistent with the entity-wide objectives.”).

⁷⁰ See NAIC, *Financial Analysis Handbook*; NAIC, *Examiners Handbook*.

⁷¹ NYSDFS, *Climate Guidance for NY Insurers*, 11.

⁷² NYSDFS, *Climate Guidance for NY Insurers*, 11. For other examples of guidance incorporating climate-related risks into corporate governance, see also IAIS & SIF, *Climate Application Paper*, 16.

business strategy and future solvency levels, and whether affected business areas should be continued or adapted.⁷³

Recommendation 4: *To encourage increased focus on the impact of climate-related risks on insurers' strategic planning and related processes, the NAIC and state insurance regulators should provide guidance on and encourage insurers to implement climate risk monitoring, and to report to regulators, in a uniform manner, on the impact of climate-related risks on their strategic processes.*

c) Reporting Data and Examinations

State insurance regulators have multiple tools (both quantitative and qualitative in nature) with which to monitor and evaluate whether insurers are meeting prudential regulatory expectations, including early identification of potentially troubled insurers. These tools include: (1) annual and quarterly public financial filings by all legal entity insurers, facilitating a risk-focused financial analysis process; (2) annual RBC filings, providing insight into insurers' capital structure and adequacy; (3) annual confidential ORSA summaries by certain medium and large-sized insurers; and (4) periodic financial examinations which, depending on the relevant organizational structure, may be conducted on a legal entity basis, or on the entire insurance holding company group, or on groups of entities within the insurance holding company system.⁷⁴ This section discusses the extent to which these tools currently incorporate climate-related risks. State insurance regulators have also developed tools to help assess risks faced by insurance groups, including the Group Capital Calculation, the Enterprise Risk Report (Form F), the Liquidity Stress Test, and regulatory cooperation through supervisory colleges. These are discussed later in this Report.⁷⁵

i. Financial Filings and *Financial Analysis Handbook*

Licensed insurers must file both public and confidential financial information, generally quarterly and annually, with the regulator of the state in which they are domiciled.⁷⁶ The NAIC has developed guidance and tools to assist regulators in conducting uniform, risk-focused reviews of insurer reporting, including statutory filings. The NAIC *Financial Analysis Handbook* is a reference guide that, among other things, provides a framework for the annual review of an insurer's solvency and overall financial condition, as a means through which state insurance regulators may identify insurers experiencing financial difficulties. Such reviews also facilitate identification of risks that could lead to future financial stress. The NAIC is

⁷³ See, e.g., NYSDFS, *Climate Guidance for NY Insurers*, 11–12. See also TCFD, *Framework*.

⁷⁴ See, e.g., NAIC, *Financial Analysis Handbook*; NAIC, *Examiners Handbook*, 8.

⁷⁵ These are discussed in [Section II.C.2](#), within the context of macroprudential supervision.

⁷⁶ Typically, the NAIC coordinates filings on behalf of the states. An insurance group also may report on a consolidated basis to its lead state regulator, i.e., the regulator that is “generally considered to be the one state that ‘takes the lead’ with respect to conducting group-wide supervision.” “Public Lead State Report,” NAIC, https://content.naic.org/public_lead_state_report.htm#.

considering enhancements to the *Financial Analysis Handbook* that would incorporate climate-related risk considerations.⁷⁷

Recommendation 5: *The NAIC should revise the Financial Analysis Handbook to recommend, and states should require, that financial analysts and lead state analysts integrate climate-related considerations into their analysis. Additionally, the NAIC should provide guidance, and the NAIC and state insurance regulators should provide training, for financial analysts and lead state analysts on how to evaluate assumptions and methodologies used in climate-related forward-looking analysis.*

ii. Risk-Based Capital

RBC is a means for identifying potentially weakly capitalized insurers and facilitating regulatory action by measuring the minimum amount of capital appropriate for an insurer or an insurance group to support its business operations relative to its size and risk profile.⁷⁸ While an insurer will set aside reserves, which are funds to cover its estimated liability in the future from claims under the policies it has issued, it will need capital to satisfy those claims if its reserves prove inadequate.⁷⁹ State insurance regulators impose RBC requirements to help ensure that insurers can fulfill their financial obligations to policyholders.⁸⁰ RBC requirements are reflected in state law, based on NAIC model laws and accreditation standards, and insurers are expected to report their RBC levels annually to regulators. For both P&C and life and health insurers, the RBC formulas focus on asset risk, underwriting risks, and other business risks. Interest rate risk is an additional RBC focus area in the formula for life and health insurers that is not part of the P&C formula.⁸¹

Current considerations of climate-related risks in RBC formulas are limited and apply only to P&C insurers. The RBC formula requires a special charge (the Rcat component) for just one

⁷⁷ Memorandum from Commissioner Birrane, Co-Chair of the Climate Resiliency (EX) Task Force leading the Solvency Workstream to Judy Weaver, Chair of the Financial Analysis Solvency Tools (E) Working Group (May 23, 2022), <https://content.naic.org/sites/default/files/inline-files/Climate%20Referral%20to%20FASTWG.pdf>.

⁷⁸ See, e.g., Risk-Based Capital (RBC) for Insurers Model Act (NAIC 2012), § 2.A, <https://content.naic.org/sites/default/files/inline-files/MDL-312.pdf>; FIO, *Annual Report on the Insurance Industry*, 71-72 (September 2021), <https://home.treasury.gov/system/files/311/FIO-2021-Annual-Report-Insurance-Industry.pdf> (2021 Annual Report).

⁷⁹ See, e.g., “Risk-Based Capital,” NAIC, last updated December 6, 2022, <https://content.naic.org/cipr-topics/risk-based-capital#>; “Financial Reporting,” III, <https://www.iii.org/publications/commercial-insurance/how-it-functions/financial-reporting>.

⁸⁰ See, e.g., NAIC, *Risk-Based Capital Preamble*, P-2, https://content.naic.org/sites/default/files/inline-files/RBC_Preamble%20final_2.pdf; “Risk-Based Capital,” NAIC; Risk-Based Capital (RBC) for Insurers Model Act; NAIC, *Accreditation Pamphlet*, 9.

⁸¹ See, e.g., Risk-Based Capital (RBC) for Insurers Model Act, § 2.B.-C.

climate-related risk: hurricanes.⁸² Further, that charge applies only to those P&C insurers writing business in jurisdictions identified by the NAIC as having hurricane exposure.⁸³

In 2022, the NAIC Capital Adequacy Task Force approved a proposal to add wildfire as one of the perils covered by the Rcat component for P&C insurers.⁸⁴ Unlike the charge for hurricanes, however, the charge for wildfire is for informational purposes only (meaning that insurers are not required to actually hold more capital to cover the potential exposures) and applies only to larger companies (with smaller companies exempted from calculating the capital charge so long as it remains for information-only purposes).⁸⁵ The method for calculating the wildfire charge is similar to the method for calculating the hurricane charge.⁸⁶ Last year, the NAIC Capital Adequacy Task Force approved a list of wildfire events for purposes of 2022 RBC reporting.⁸⁷

The NAIC has considered developing RBC risk charges for additional climate-related perils such as floods and convective storms.⁸⁸ Charges for additional perils may take some time to be completed and implemented, hindered in part by the complexity of, and other difficulties with, models for such perils.⁸⁹ Nevertheless, continued efforts to consider such risk charges will enhance the ability of both regulators and insurers to better understand climate-related risks and will build the insurance industry's capacity to model such risks.

⁸² The charge is calculated by multiplying RBC factors by corresponding modeled losses and reinsurance recoverables (i.e., the portion of an insurance company's losses that could be recovered from reinsurers). See, e.g., See NAIC, *Capital Adequacy (E) Task Force RBC Proposal Form* (March 28, 2022), 1-3, <https://content.naic.org/sites/default/files/inline-files/2021-17-CR%20Webposting.pdf>.

⁸³ The charge is applicable in hurricane-prone areas, defined as "Hawaii, District of Columbia and states and commonwealths bordering on the Atlantic Ocean and/or the Gulf of Mexico including Puerto Rico." See NAIC, *Capital Adequacy (E) Task Force RBC Proposal Form* (March 28, 2022), 3. This charge was not originally developed to address climate-related risks as such, but rather to address hurricanes as a peril that can create a material solvency risk. See NAIC, *NAIC Risk-Based Capital Forecasting and Instructions* (2017), 1, 50–51, <https://www.in.gov/idoi/files/Risk-Based-Capital-Instructions-PandC-17.pdf>.

⁸⁴ NAIC, *Capital Adequacy (E) Task Force RBC Proposal Form*, March 28, 2022.

⁸⁵ NAIC, *Capital Adequacy (E) Task Force RBC Proposal Form* (April 28, 2022), <https://content.naic.org/sites/default/files/inline-files/2021-17-CR%20%28MOD%29%20Webposting.pdf>. The NAIC has not indicated how long the charge for wildfires will remain for informational purposes only. NAIC, *NAIC Risk-Based Capital Forecasting and Instructions* (2017), 1; NAIC, *NAIC Risk-Based Capital Forecasting and Instructions* (2013), 8, <https://naic.soutronglobal.net/Portal/Public/en-US/DownloadImageFile.ashx?objectId=3737&ownerType=0&ownerId=11734>.

⁸⁶ See NAIC, *Capital Adequacy (E) Task Force RBC Proposal Form* (March 28, 2022), 1-3.

⁸⁷ NAIC, *Capital Adequacy (E) Task Force RBC Proposal Form* (August 11, 2022), <https://content.naic.org/sites/default/files/inline-files/2022-04-CR%20webpost.pdf>.

⁸⁸ See NAIC, *Catastrophe Risk (E) Subgroup Virtual Meeting Draft Minutes* (February 22, 2022), https://content.naic.org/sites/default/files/call_materials/CatRiskSG%20Materials%203-22-22_0.pdf.

⁸⁹ See NAIC, *Catastrophe Risk (E) Subgroup Virtual Meeting Draft Minutes* (January 25, 2022), https://content.naic.org/sites/default/files/call_materials/CatRiskSG%20Materials%203-22-22_0.pdf. For more information on modeling, see [Section II.C.1.d](#).

Recommendation 6: *The NAIC and state insurance regulators, in coordination with the insurance industry, should continue considering charges in RBC formulas for floods, convective storms, and other climate-related risks.*

At the state level, a law enacted in July 2021 in Connecticut requires CID to issue a biennial report that will describe its progress in integrating climate-related risks into its RBC requirements, ORSA assessments, and examinations.⁹⁰ CID issued its first *Climate Progress Report* in March 2022. It discussed the development of its guidance to insurers on managing climate-related risks, which was finalized in September 2022.⁹¹

iii. Own Risk and Solvency Assessment

ORSA is a confidential, internal process that is undertaken by an insurance company or group to assess the adequacy of its risk management and current and future capital position. The NAIC Risk Management and Own Risk and Solvency Assessment Model Act (ORSA Model Act) has been implemented by all states and requires each medium-to-large insurance company and group to have a risk management framework, to conduct an annual ORSA, and to file annually a confidential report summarizing its ORSA (ORSA Summary Report) either with the insurance regulator of its domicile state upon request or with its lead state regulator whether or not any request is made.⁹² A central component of the ORSA process is the use of forward-looking stress and scenario tests by insurers to improve their understanding of their own risk profiles and to assess their ability to meet policyholder obligations under the scenario conditions set by the insurers for those tests.⁹³ Regulators typically consider the ORSA Summary Report when evaluating an insurer's ability to withstand financial stress and when assessing how risks faced by insurers within a holding company system may impact the insurance companies in that group.⁹⁴

The NAIC's Solvency Workstream of its Climate and Resiliency Task Force in May 2022 proposed several enhancements to the ORSA Guidance Manual that would, if adopted, encourage state insurance regulators to require integration of climate-related risks into the ORSA

⁹⁰ Public Act 21-2 (2021), § 312, <https://www.cga.ct.gov/2021/ACT/PA/PDF/2021PA-00002-R00SB-01202SS1-PA.PDF>.

⁹¹ CID, *Climate Progress Report*, 6 (March 29, 2022), https://www.cga.ct.gov/INS/related/20220329_Connecticut%20Insurance%20Department%20Reports/2022%20Climate%20Progress%20Report.pdf; CID, *Climate Guidance for CT Insurers*.

⁹² See "Own Risk and Solvency Assessment (ORSA)," NAIC, last updated February 1, 2023, <https://content.naic.org/cipr-topics/own-risk-and-solvency-assessment-orsa>; Risk Management and Own Risk and Solvency Assessment Model Act §§ 1, 3-6 (NAIC 2012), <https://content.naic.org/sites/default/files/inline-files/MDL-505.pdf> (ORSA Model Act).

⁹³ For more on scenario analysis and stress testing, see [Section II.C.1.e](#).

⁹⁴ See NAIC, *Solvency Modernization Initiative: Roadmap* (August 31, 2012), https://content.naic.org/sites/default/files/inline-files/committees_ex_isftf_smi_roadmap_120831.pdf.

of each insurer. The proposed enhancements would provide guidance on the following ORSA elements:

- the insurer should include a description of how climate change risk is addressed through its risk management framework;
- if climate change has the potential to materially impact the insurer’s asset portfolio or its liabilities, then the exposure of assets or liabilities to transition or physical risks should be presented, discussed, and assessed in both a quantitative and qualitative manner; and
- encourage qualitative discussion of the material medium and long-term impacts of climate change risk on the insurer’s near-term risk appetite, asset management, underwriting, and business strategy, as well as efforts to limit the impact on near-term solvency.⁹⁵

These enhancements, which remain under consideration by the NAIC, contemplate that insurers would assess the near-term impact of climate change on their asset portfolio and insurance liabilities, in alignment with the time horizon generally covered by an ORSA, i.e., one that corresponds to an insurer’s current business plan.⁹⁶ As noted previously, however, climate-related risks can be either acute or chronic, such that it would be more beneficial for insurers (and regulators) to consider a longer-term risk horizon in addition to the near-term horizon.⁹⁷

To date, only one state (New York) has developed and implemented a version of the ORSA Model Act that requires insurers to consider climate-related risks as part of their risk management.⁹⁸ In September 2020, NYSDFS advised that it “expects all New York insurers to start integrating the consideration of the financial risks from climate change into their governance frameworks, risk management processes, and business strategies.”⁹⁹ In June 2021, NYSDFS amended its ORSA regulation to require insurers to address climate change as one of the reasonably foreseeable and relevant material risks that must be addressed as part of their ERM function.¹⁰⁰ In addition, NYSDFS expects ORSAs to either explain why climate risks are not considered material or to address such risks (including approaches to measurement, key assumptions, and scenario analysis outcomes).¹⁰¹ The NYSDFS Climate Guidance for NY

⁹⁵ NAIC ORSA Referral Memorandum, 1.

⁹⁶ See NAIC ORSA Referral Memorandum; NAIC, *ORSA Guidance Manual*.

⁹⁷ See also discussion in [Section II.C.1.a](#).

⁹⁸ NYSDFS, Insurance Circular Letter No. 15: Climate Change and Financial Risks (September 22, 2020), https://www.dfs.ny.gov/industry_guidance/circular_letters/cl2020_15.

⁹⁹ NYSDFS, Insurance Circular Letter No. 15.

¹⁰⁰ NYSDFS Second Amendment to 11 NYCRR 82 (Insurance Regulation 203) (June 23, 2021), https://www.dfs.ny.gov/system/files/documents/2022/12/rf203_amend02_txt.pdf (amending 11 NYCRR § 82.2(a)(9)).

¹⁰¹ NYSDFS, *Climate Guidance for NY Insurers*, 18.

Insurers, finalized in November 2021, also discusses how insurers should address climate-related risks in their ORSAs.¹⁰²

Although New York is the only state that presently requires insurers to consider climate-related risks as part of their ORSA, the NAIC has informed FIO that many insurers—particularly P&C insurers—nevertheless do analyze climate-related risks, as reflected in their annual ORSA Summary Reports.¹⁰³ The ORSA Summary Reports are provided confidentially to an insurer’s state regulator, which limits FIO’s ability to assess the manner and scope of such analyses or the consistency of their underlying elements.

Recommendation 7: *The NAIC should adopt, and state insurance regulators should implement, the proposed enhancements to the ORSA Guidance Manual and require insurers to incorporate climate-related risks into both ORSAs and ORSA Summary Reports. If an insurer does not consider climate-related risks to be material to its business, its regulator should require the insurer’s ORSA Summary Report to explain why and to include support for its rationale based on applicable financial or quantitative measures.*

As part of its ORSA, an insurer must analyze material and relevant risks affecting its ability to meet its obligations to its policyholders.¹⁰⁴ The NAIC ORSA Guidance Manual does not currently identify any particular risk (such as climate-related risks) for consideration by insurers, because the intention of the ORSA process is to gain insight into what the insurer views as its “material and relevant risks associated with” its “current business plan, and the sufficiency of capital resources to support those risks.”¹⁰⁵ The concept of “materiality” is considered in [Box 1](#).

Box 1: Materiality in ORSA and NAIC Climate Risk Disclosure Survey

“Materiality” is a key concept in insurance regulation. As a general rule, a fact or figure is considered “material” if it may significantly bear on an insurer’s solvency, yet there is no single agreed definition of the term, as reflected in the following non-exhaustive compendium of definitions. The amount and types of information disclosed under these definitions can vary significantly and can lead to inappropriate comparisons when one analyzes “material” information from different reports.

Examiners Handbook: The Examiners Handbook defines materiality “as the dollar amount above which the examiner’s perspective of the company’s financial position will be influenced” which should be assessed in the initial planning stage at two levels: “(1) an overall level as it relates to the annual statement taken as a whole; and (2) an individual balance (annual statement

¹⁰² NYSDFS, *Climate Guidance for NY Insurers*, 18–19.

¹⁰³ Comment Letter from the NAIC in response to FIO’s Climate Risk RFI, 3, November 11, 2021, <https://content.naic.org/sites/default/files/testimony-letter-response-fio-rfi-climate-financial-risk-211111.pdf>; FSOC, *Climate Report*, 41.

¹⁰⁴ See ORSA Model Act §§ 2(C), 3. See also [Section II.C.1.a](#) for more on risks that might be considered.

¹⁰⁵ ORSA Model Act § 2(C).

line item) level.”¹⁰⁶ The Examiners Handbook also suggests that the examiner set the threshold for materiality at one of the following levels: (1) one to five percent of the insurer’s capital and surplus, (2) five percent of the pretax gain from operations, (3) 0.5 percent of the insurer’s total assets, or (4) in special circumstances, the level that the examiner considered appropriate based on the examiner’s professional judgment and consideration of the relevant factors.¹⁰⁷

Enterprise Risk Report (Form F): For Form F, the NAIC’s Model Insurance Holding Company System Regulatory Act considers the following as “material”: risk report sales, purchases, exchanges, loans or extensions of credit, investments, or guarantees involving more than 0.5 percent of an insurer’s admitted assets as of December 31 of the year being reported.¹⁰⁸

ORSA: Neither the NAIC’s model law nor guidance on ORSA define materiality. Instead, they let an insurer use its own view of what it considers material when completing its ORSA and ORSA Summary Report, so long as the ORSA Summary Report describes “how the insurer identifies and categorizes relevant and material risks and manages those risks as it executes its business strategy.”¹⁰⁹

NAIC Climate Risk Disclosure Survey allows the insurer to choose to use the materiality standard from either the Examiners Handbook or the SEC.¹¹⁰ For the SEC, a fact is “material” if there is “a substantial likelihood that the . . . fact would have been viewed by the reasonable investor as having significantly altered the ‘total mix’ of information made available.”¹¹¹

Recommendation 8: *The NAIC and state insurance regulators should adopt a single standard for defining “materiality” for climate-related risks to be used in the ORSA Summary Report to provide more comparable information. The NAIC and state insurance regulators should also adopt a single standard for defining “materiality” for climate-related risks to be used in the NAIC Climate Risk Disclosure Survey in order to obtain more consistent information across disclosures.*

¹⁰⁶ NAIC, *Examiners Handbook*, 64.

¹⁰⁷ NAIC, *Examiners Handbook*, 64–65. For more on financial condition examinations, see [Section II.C.1.c.iv](#).

¹⁰⁸ Model Insurance Holding Company System Regulatory Act, § 4.D (NAIC 2015), <https://content.naic.org/sites/default/files/inline-files/MDL-440.pdf>. See also, NAIC, *Revisions to Models #440 and #450* (2021), <https://content.naic.org/sites/default/files/inline-files/2020%20and%202021%20Revisions%20to%20Model%20%23440%20and%20%23450.pdf>. “Admitted assets” are assets the value of which are included in an insurer’s annual financial statements filed with its state insurance regulator. “Admitted Assets,” IRMI, <https://www.irmi.com/term/insurance-definitions/admitted-assets>. For more on Form F, see [Section II.C.2.a](#).

¹⁰⁹ See ORSA Model Act; NAIC, *ORSA Guidance Manual*, 1 (“each insurer identifies, assesses, monitors, prioritizes and reports on its material and relevant risks *identified by the insurer*” (emphasis added)), 7.

¹¹⁰ NAIC, *Climate Risk Disclosure Survey*. For more information on the survey, see [Section II.C.4](#).

¹¹¹ SEC Staff Accounting Bulletin: No. 99 – Materiality (August 12, 1999), <https://www.sec.gov/interps/account/sab99.htm>. See also, e.g., Paul Munter, “Assessing Materiality: Focusing on the Reasonable Investor When Evaluating Errors,” *SEC Statement*, March 9, 2022, <https://www.sec.gov/news/statement/munter-statement-assessing-materiality-030922> (citations omitted).

iv. Financial Condition Examinations

While conduct of an ORSA is mandatory only for certain medium-to-large insurers, financial condition examinations apply to all insurers. These examinations are another important component of prudential supervision. A state insurance regulator generally should conduct a financial condition examination of each insurer domiciled within its state at least once every five years in order to evaluate the insurer's solvency and compliance with the state's insurance laws.¹¹² Although conducted less frequently, these examinations complement the financial analysis and reporting tools (including the ORSA Summary Report) discussed above.¹¹³ Financial condition examinations result in a report that may contain recommendations for company improvements in processes, activities, and/or controls, and the state insurance department may follow up to determine if the insurer has taken corrective action based on the recommendations.¹¹⁴ Financial condition exams are confidential and the results are generally not publicly disclosed.

Although climate-related risks may be considered as part of a financial condition examination, there is no clear requirement for the examiner to do so. In 2012, the NAIC adopted changes to its Examiners Handbook (applicable in all states) by specifying questions or tests on the impact of climate-related risks for use if the examiner deems them to be applicable to the insurer under examination.¹¹⁵ If an examiner considers them applicable, the "impact of climate change risk" questions on the Examination Planning Questionnaire for the insurer are: "Does the company have an impact of climate change risk strategy? Have any risks been identified related to the impact of climate change risk and, if so, what are they and how are these risks incorporated into the company's overall business strategy?"¹¹⁶ The Examiners Handbook does not provide guidance on when or under what circumstances an examiner should consider the "impact of climate change risk" questions appropriate for an insurer under examination.

In some cases, examiners may evaluate an insurer's climate-related risks during a financial condition examination as part of testing internal controls that the insurer chooses to use to address the risks to which it is potentially exposed, called "Possible Controls."¹¹⁷ The Examiners

¹¹² See, e.g., Model Law on Examinations (NAIC 1999), <https://content.naic.org/sites/default/files/MO390.pdf>; NAIC, *Examiners Handbook*. A financial condition examination may be done in conjunction with a market conduct examination (discussed in [Section II.C.3](#)) as a "combination examination."

¹¹³ The Examiners Handbook underscores the need for coordination between the analysis and examination functions. See, e.g., NAIC, *Examiners Handbook*, 9.

¹¹⁴ NAIC, *Examiners Handbook*, 158, 231.

¹¹⁵ NAIC, *2012 Proceedings of the National Association of Insurance Commissioners 2012 Fall National Meeting*, Fall v. II (2012), 10-725, 10-727, 10-802, <https://naic.soutronglobal.net/Portal/Public/en-US/DownloadImageFile.ashx?objectId=5193&ownerType=0&ownerId=17523>. See also NAIC, *Examiners Handbook*, 596.

¹¹⁶ NAIC, *Examiners Handbook*, 370.

¹¹⁷ NAIC, *Examiners Handbook*, 237. The examiner is only required to test the effectiveness of controls that an insurer has chosen to use. The "Possible Tests of Controls" listed in the Examiners Handbook are not meant to be all-inclusive and an examiner may need to develop alternative tests to address how an insurer mitigates its risks.

Handbook provides a few examples of risks for which the insurer may have Possible Controls that take climate change into consideration. It also suggests Possible Test of Controls that an examiner may choose to use to determine how well the insurer's Possible Controls operate. Figure 1 illustrates the Examiners Handbook's instruction to examiners on some of the Possible Controls and Possible Tests of Controls that might take climate change impacts into account.

Figure 1: Examiners Handbook Possible Test of Controls Summary

Identified Risk	Possible Controls	Possible Test of Controls	Possible Detail Test
The insurer's investment portfolio and strategy are not appropriately structured to support its ongoing business plan.	The insurer's investment strategy considers the impact of, and market expectations for, climate change on different investments, and the investment policy includes guidelines that require diversification to protect against the impact of climate change.	Review the company's investment strategy for consideration of climate change in different sections and asset classes.	Consider use of an investment specialist to evaluate the company's exposure to climate change-related risk regarding its investment portfolio/strategy.
The insurer has not established and maintained appropriate risk exposure limits (including catastrophe coverage) that are consistent with risk appetite.	Risk exposure limits established by the insurer consider the direct and indirect impacts of climate change risk.	Perform a walkthrough of the underwriting process and observe how the impact of climate change risk is considered when establishing risk exposure limits.	
The insurer has not established sufficient pricing practices, resulting in inadequate or excessive premium rates in relation to its assumed risks and expense structure. Consider utilizing an actuarial specialist to assist with test procedures related to this risk.	Pricing practices include consideration of future changes in loss development including the impact of climate change risk.	Perform a walkthrough of the pricing process and observe how the impact of claim trends including climate change risk and weather variability is considered when establishing rates/prices.	

Source: NAIC, *Examiners Handbook*

In addition, the Examiners Handbook lists climate change as a "Prospective Risk Category," i.e., one that does not apply to all insurers and for which applicability is left to the examiner's determination based upon the information provided by the insurer. Because it is solely within the discretion of the examiner whether to ask the climate-related questions or conduct the climate-related test of controls, it is unclear whether and to what extent the procedures in the Examiners Handbook are being applied to climate-related risks. Financial condition examinations themselves are confidential, and there is no publicly available aggregated information from the NAIC or the states compiling how often examiners ask the climate change-related questions from the Examiners Handbook.

It is an encouraging development, therefore, that the NAIC is considering climate-related

enhancements to the Examiners Handbook; and, specifically, that the Solvency Workstream of the NAIC Climate and Resiliency Task Force has referred high-level principles to a technical group within the NAIC for further refinement.¹¹⁸ The principles under consideration include: “Implement a means to ensure that climate-related risks are considered as part of every financial condition examination, which may be achieved through the addition of ‘Climate Change’ as a new critical risk category.”¹¹⁹

Recommendation 9: *The NAIC should finalize and adopt, and state insurance regulators should implement, the proposed climate-related enhancements to the Examiners Handbook to ensure that climate-related risks are considered in every financial condition examination. The NAIC should provide sample questions and other guidance on when examiners should ask climate-related questions. The NAIC should monitor state financial condition examinations to determine which climate-related questions provided in the Examiners Handbook are asked and the types of responses provided to those questions, and periodically summarize its findings in a public report.*

d) Modeling

Another important tool for management of climate-related risks by insurers is the use of natural catastrophe and climate modeling. It is thus also important for state insurance regulators to understand and supervise insurers’ use of modeling. To that end, in June 2022, the NAIC Executive Committee approved a fiscal request to establish the “Catastrophe (CAT) Modeling Center of Excellence” within the NAIC Center for Insurance Policy and Research.¹²⁰ The Center’s functions include: (1) facilitating regulators’ access to CAT modeling documentation and assistance in distilling this information, (2) promoting regulators’ technical education and training on the mechanics of commercial models and treatment of perils and risk exposures, and (3) conducting applied research to help in the development of regulatory climate risk and resilience priorities.¹²¹ The NAIC Climate and Resiliency Task Force is engaging with the Center on climate-related risk and disaster mitigation research and analysis.¹²²

Presently, most catastrophe models have an inherently short-term focus, reflecting the fact that most P&C insurance policies are repriced annually. Further, most models use assumptions that are primarily based on historical experience, even as the past is becoming less reflective of a future where the frequency, severity, and other characteristics of climate-related events are

¹¹⁸ Memorandum from Commissioner Birrane, Co-Chair of the Climate Resiliency (EX) Task Force leading the Solvency Workstream to Susan Bernard, Chair of the Financial Examiners Handbook (E) Technical Group, May 23, 2022, <https://content.naic.org/sites/default/files/inline-files/Climate%20Referral%20to%20FEHTG.pdf> (NAIC Technical Group Referral Memorandum).

¹¹⁹ NAIC Technical Group Referral Memorandum.

¹²⁰ NAIC, *NAIC Approves Two 2022 Fiscals* (June 24, 2022), <https://content.naic.org/article/naic-approves-two-2022-fiscals>.

¹²¹ See “Catastrophe Modeling Center of Excellence,” NAIC, <https://content.naic.org/research/center-of-excellence>.

¹²² See, e.g., “Climate and Resiliency (EX) Task Force,” NAIC, https://content.naic.org/cmte_ex_climate_resiliency_tf.htm.

changing.¹²³ As these tools evolve, to maximize the utility of natural catastrophe and climate modeling, both insurers and regulators will need to incorporate longer term perspectives and integrate best practices from the federal government and scientific community, including on modeling tail risks.¹²⁴

FIO welcomes the efforts of the NAIC Catastrophe (CAT) Modeling Center of Excellence to make modeling resources available to individual states that might not be able to develop such tools themselves, and FIO encourages the NAIC to continue and expand such work. In so doing, the NAIC should coordinate with states, insurers, modeling firms, the scientific community, and FIO to: (a) develop granular, insurance-specific datasets applicable to the United States, (b) improve methodologies for translating climate-related variables into insurer losses, and (c) incorporate transition, physical, and litigation risk components into the models.

Recommendation 10: *The NAIC should continue to refine the capabilities and role of the Catastrophe (CAT) Modeling Center of Excellence by incorporating climate-related risk considerations so that it can be used more effectively by state insurance regulators to enhance assessment and supervision of insurers' climate-related risks. To enable sharing of resources among state insurance regulators, the Center should develop a platform for access to models, methodologies, and related data. The NAIC should regularly produce public reports on key findings identified by state insurance regulators using the Center to monitor climate-related risks.*

e) Scenario Analysis

“Scenario analysis” usually refers to a risk-based assessment that estimates potential financial implications for a range of plausible future states, often at a counterparty, portfolio, or sector-wide level.¹²⁵ Climate scenario analysis is scenario analysis that has been adapted to identify and assess potential financial implications of climate-related risks. In the context of insurance, this tool may address a variety of regulatory objectives, including regulatory capacity building. Regulators may choose to incorporate climate scenario analysis in evaluations of potential future shocks on the resilience of financial institutions or the resilience of the financial system and may either conduct their own analyses or assess submissions from insurer-led analyses. An insurer

¹²³ Rex Frazier, “California’s Ban on Climate-Informed Models for Wildfire Insurance Premiums,” *Ecology Law Quarterly* (October 19, 2021), <https://www.ecologylawquarterly.org/currents/californias-ban-on-climate-informed-models-for-wildfire-insurance-premiums/>.

¹²⁴ See, e.g., President’s Council of Advisors on Science and Technology, *Extreme Weather Risk in a Changing Climate: Enhancing Prediction and Protecting Communities* (April 2023), https://www.whitehouse.gov/wp-content/uploads/2023/04/PCAST_Extreme-Weather-Report_April2023.pdf.

¹²⁵ Some observers may refer to “scenario analysis” as “stress testing” (or vice versa), reflecting that this is an evolving tool and discipline. However, as a general matter, climate scenario analysis differs from traditional stress testing exercises that are often used as part of capital adequacy assessments. For additional information, see FSOC, *Climate Report*; “Publications,” NGFS, <https://www.ngfs.net/en/liste-chronologique/ngfs-publications>; UN Principles for Sustainable Insurance, *Insuring the Climate Transition: Enhancing the Insurance Industry’s Assessment of Climate Change Futures* (January 2021), <https://www.unepfi.org/psi/wp-content/uploads/2021/01/PSI-TCFD-final-report.pdf>.

may conduct its own scenario analysis for various reasons, including to comply with supervisory guidance or expectations (if applicable), to inform internal risk management, to assess capital adequacy, or to support public disclosures.¹²⁶

Some insurance regulators are using climate scenario analysis to investigate risks within the insurance industry, focused primarily on transition risks faced by insurers, although most examples are outside of the United States. (See Figure 2.) When scenario analyses are based on submission of institution-led analysis (as in the France, UK, and Bermuda examples shown in Figure 2), it is somewhat similar to the process of traditional stress testing, which allows regulators to assess not only climate-related risks but also the capability of insurers to credibly run such tests. In some cases (as in the Figure 2 example from France), the scenario analysis includes a dynamic balance sheet assumption, meaning the institutions are allowed to reallocate their portfolios based on scenarios. Currently, regulators are not using any of these scenario analyses examples to determine capital adequacy.

Figure 2: Examples of Insurance-Focused Climate Scenario Analysis

Jurisdiction (Year)	Scope	Risk(s) Covered	Primary Results for Insurers
U.S.			
California (2018) ¹²⁷	Insurers operating in California with more than \$100M in premiums	Physical, transition	- Exposure to transition-impacted sectors - Alignment between investee company production and that expected based on low-carbon pathways - Percent of power plants in equity portfolio subject to water stress - Percent of power, oil and gas, and coal assets in equity and fixed-income portfolios exposed to wildfire and flood risk
New York (2021) ¹²⁸	Insurers domiciled in New York	Transition	- Exposure to transition-impacted sectors - Alignment between investee company production and that expected based on low-carbon pathways
Non-U.S.			
Netherlands (2018) ¹²⁹	Banks, insurers, and pension funds	Transition	- Exposure to transition-impacted sectors - Change in equity and bond prices - Change in expected default - Losses relative to total stressed assets - Impacts on ratio of assets to obligations

¹²⁶ See, e.g., FSOC, *Climate Report*, Figure 5.1, 93.

¹²⁷ California Department of Insurance, *Scenario Analysis: Assessing Climate Change Transition Risk in Insurer Portfolios* (2018), https://interactive.web.insurance.ca.gov/apex_extprd/f?p=250:70.

¹²⁸ NYSDFS, *An Analysis of New York Domestic Insurers' Exposure to Transition Risks and Opportunities from Climate Change* (June 10, 2021), www.dfs.ny.gov/system/files/documents/2021/06/dfs_2dii_report_ny_insurers_transition_risks_20210610.pdf.

¹²⁹ De Nederlandsche Bank, *An Energy Transition Risk Stress Test for the Financial System of the Netherlands* (2018), https://www.dnb.nl/media/pdnpdalc/201810_nr-7-2018-an_energy_transition_risk_stress_test_for_the_financial_system_of_the_netherlands.pdf.

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Jurisdiction (Year)	Scope	Risk(s) Covered	Primary Results for Insurers
France (2020) ¹³⁰	Nine banking groups and 15 insurance groups	Physical, transition	• Exposure to transition-impacted sectors • Change in portfolio value • Change in insurance premiums • Change in insurance claims by peril • Share of premiums ceded to reinsurance
Europe (2020) ¹³¹	Insurers	Transition	• Exposure to transition-impacted sectors • Value of investments in climate-relevant sectors • Change in value of re-priced assets • Price adjustments and sensitivities to transition shock
UK and Bermuda (2020) ¹³²	General and life insurers; Bermuda reinsurers	Physical, transition	• Changes in coverage ratios • Changes in investment income • Change in expected losses
Europe (2021) ¹³³	Banks, insurers, and investment funds	Physical, transition	• Exposure to transition-impacted sectors • Changes in asset valuation • Changes in probability of and loss given default • Changes in non-performing loan ratio
UK (2022) ¹³⁴	Largest banks and insurers	Physical, transition, liability	• Change in value of invested assets • Expected losses based on impact on insurance claims
Japan (2022) ¹³⁵	Three major banks and three major non-life insurance groups	Physical (insurers), transition (all)	• Changes in insurance claims payments

Source: FIO analysis

FSOC has recommended that its members “use scenario analysis, where appropriate, as a tool for assessing climate-related risks, taking into account their supervisory and regulatory mandates

¹³⁰ ACPR, *A First Assessment of Financial Risks Stemming from Climate Change: The Main Results of the 2020 Climate Pilot Exercise* (April 5, 2021), https://acpr.banque-france.fr/sites/default/files/medias/documents/20210602_as_exercice_pilote_english.pdf.

¹³¹ European Insurance and Occupational Pensions Authority (EIOPA), *Sensitivity Analysis of Climate-Related Transition Risks* (December 15, 2020), https://www.eiopa.europa.eu/document-library/publication/sensitivity-analysis-of-climate-change-related-transition-risks_en.

¹³² UK Prudential Regulation Authority & Bermuda Monetary Authority, *Insurance Stress Test 2019 and Covid-19 Stress Testing: Feedback for General and Life Insurers* (June 17, 2020), <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/letter/2020/insurance-stress-test-2019-feedback.pdf>.

¹³³ European Central Bank & European Systemic Risk Board, *Climate-Related Risk and Financial Stability* (July 2021), <https://www.ecb.europa.eu/pub/pdf/other/ecb.climatefinancialstability202107~87822fae81.en.pdf>.

¹³⁴ BOE, *Results of the 2021 Climate Biennial Exploratory Scenario (CBES)* (May 24, 2022), <https://www.bankofengland.co.uk/stress-testing/2022/results-of-the-2021-climate-biennial-exploratory-scenario>.

¹³⁵ Bank of Japan Financial Services Agency, *Pilot Scenario Analysis Exercise on Climate-Related Risks Based on Common Scenarios (Executive Summary)* (August 26, 2022), <https://www.fsa.go.jp/en/news/2022/20220826/01.pdf>.

and the size, complexity, and activities of regulated entities.”¹³⁶ The Board of Governors of the Federal Reserve System (Federal Reserve) has already initiated such efforts in the banking sector, to enhance the ability of supervisors and banks to measure and manage climate-related financial risks.¹³⁷ In January 2023, the Federal Reserve published the pilot exercise’s instructions for the six participating banks, outlining (a) the physical risk module, which focuses on scenarios that examine how acute physical risk drivers impact large banking organizations’ real estate portfolios, and (b) the transition risk module, which focuses on two scenarios from the Phase III vintage of climate scenarios from the Network of Central Banks and Supervisors for Greening the Financial System (NGFS).¹³⁸ Through engagement and coordination with FSOC, the NGFS and other stakeholders, FIO intends to continue its own work on scenario analysis.¹³⁹

State insurance regulatory attention to scenario analysis is advancing as well. The Solvency Workstream of the NAIC Climate and Resiliency Task Force is evaluating scenario analysis.¹⁴⁰ It also plans to survey Task Force members and other interested state insurance regulators on whether this workstream and the NAIC should develop and incorporate some form of climate scenario analysis into current oversight tools.¹⁴¹ In addition, the workstream intends to begin evaluating climate-related stress testing.

FIO welcomes the NAIC’s efforts to recognize the utility of climate-related scenario analysis and encourages the NAIC to continue and expand such work. In so doing, the NAIC should work with insurers, modeling firms, and FIO to: (a) develop granular, insurance-specific datasets applicable to the United States, (b) incorporate transition, physical, and litigation risks, (c) define scenarios that include risks from secondary perils, and (d) increase transparency on the modeling, data, and assumptions used in climate-related scenario analysis.

Recommendation 11: *The NAIC and state insurance regulators should prioritize their work on scenario analysis for climate-related risks, initially as a capacity building exercise for large insurers. Future NAIC work should include developing a pilot analysis with defined scenarios and assumptions for insurers to run and submit to regulators, commensurate with an insurer’s size, complexity, business activity, and risk profile.*

¹³⁶ FSOC, *Climate Report*, Recommendation 4.3, 124.

¹³⁷ Federal Reserve, “Federal Reserve Board Announces that Six of the Nation’s Largest Banks will Participate in a Pilot Climate Scenario Analysis Exercise Designed to Enhance the Ability of Supervisors and Firms to Measure and Manage Climate-Related Financial Risks,” news release, September 29, 2022, <https://www.federalreserve.gov/newsevents/pressreleases/other20220929a.htm>.

¹³⁸ Federal Reserve, Pilot Climate Scenario Analysis Exercise: Participant Instructions (January 2023), 1, 6-7, 12, 22, <https://www.federalreserve.gov/publications/files/csa-instructions-20230117.pdf>.

¹³⁹ See also [Section III.B](#) (discussing FIO’s transition risk analysis).

¹⁴⁰ NAIC, *Climate and Resiliency (EX) Task Force Draft Minutes* (March 24, 2023), 1, https://content.naic.org/sites/default/files/national_meeting/CRTF_MinutesPacket.pdf.

¹⁴¹ NAIC, *Climate and Resiliency (EX) Task Force Draft Minutes* (March 24, 2023), 2.

2. Macprudential Supervision and Regulation

Macroprudential supervision and regulation typically focus on activities of insurance groups and seeks to identify and ensure control of risks that could pose sector-wide vulnerabilities and common exposures in the insurance industry as well as potential shocks to the financial system and real economy. In the United States, macroprudential supervision and regulation have both state and federal elements, discussed in turn below. FSOC has recommended that both its federal and state members “should prioritize internal investments to expand their respective capacities to define, identify, measure, monitor, assess, and report on climate-related financial risks and their effects on financial stability.”¹⁴²

a) State Macroprudential Supervision and Regulation

At the state level, insurance regulators have several supervisory tools available for analyzing insurance group activities. Supervisory tools include supervisory colleges, Enterprise Risk Report (Form F), the Group Capital Calculation (GCC), and the Liquidity Stress Test for life insurers. These are all based on the NAIC’s Model Insurance Holding Company System Regulatory Act, and are discussed below.¹⁴³ In addition, the NAIC recently implemented a Macroprudential Risk Assessment. This section also discusses how climate-related risks are affecting state guaranty funds as well as residual and non-standard markets.

Macroprudential Risk Assessment: In 2022, the NAIC conducted the first Macroprudential Risk Assessment to identify and assess industry-wide insurance risks.¹⁴⁴ The Macroprudential Risk Assessment serves as the NAIC’s “primary tool to identify, measure and monitor risks to the insurance industry as well as the risks the insurance industry may pose to the overall financial sector (i.e., both inward and outward risks).”¹⁴⁵ The Macroprudential Risk Assessment also reported on the increasing levels of interconnection between the U.S. insurance industry and other financial products and entities, such as private equity, derivatives and the Federal Home Loan Banks.¹⁴⁶ The NAIC’s 2022 assessment includes a brief discussion of climate risk, noting that “[c]limate risk and increasing natural catastrophe exposure may create an increasingly challenging business environment going forward.”¹⁴⁷ It also highlights areas for future climate-

¹⁴² FSOC, *Climate Report*, 5 (Recommendation 1.3).

¹⁴³ The Model Insurance Holding Company System Regulatory Act (NAIC 2021), https://content.naic.org/sites/default/files/MO440_0.pdf (Model Holding Company Act), is an accreditation standard and appears in some form in the insurance law of every state. The 2020 revisions to the Model Holding Company Act, relating to the GCC and Liquidity Stress Test, have not yet become accreditation requirements.

¹⁴⁴ See NAIC, *Financial Stability (E) Task Force and Macroprudential (E) Working Group Meeting* (August 12, 2022), 5-6; https://content.naic.org/sites/default/files/national_meeting/Minutes-FSTF.pdf; NAIC, *NAIC Macroprudential Risk Assessment Overview*, https://content.naic.org/sites/default/files/inline-files/Macroprudential%20Risk%20Assessment_0.pdf.

¹⁴⁵ NAIC, *U.S. Insurance Industry Macroprudential Risk Assessment as of December 31, 2021* (2022), 6, <https://content.naic.org/sites/default/files/inline-files/2022%20MRA%20Report%20V3%20Combined.pdf>.

¹⁴⁶ NAIC, *U.S. Insurance Industry Macroprudential Risk Assessment as of December 31, 2021*, 11.

¹⁴⁷ NAIC, *U.S. Insurance Industry Macroprudential Risk Assessment as of December 31, 2021*, 14.

related work by the NAIC, including with respect to climate data such as: “regulators should consider the identification of industry wide risk indicators... [and] (whether existing reporting requirements enable adequate monitoring of the underlying risk(s) at an industry wide level.”¹⁴⁸

Recommendation 12: *The NAIC should incorporate climate-related risks in future Macroprudential Risk Assessments and these assessments should include additional detail on climate-related risks specific to insurer underwriting and investments.*

Reinsurance: Reinsurance is a means for an insurer to transfer to another insurer (the “reinsurer”) a specified portion of the risks under one or more of the policies it has written.¹⁴⁹ Reinsurance serves a variety of functions, but it is particularly important as a means of protection for property insurers against the risk of accumulation of losses from catastrophic events. Underwriters—particularly property insurers—factor into their premium pricing calculations the cost and availability of reinsurance, which may be used to protect their balance sheets and better prepare them to address catastrophic incidents.¹⁵⁰ With the increase in frequency and severity of climate-related disasters, reinsurers have been noticeably increasing the prices they charge for such protection, limiting coverage, or, in some cases, exiting certain markets.¹⁵¹

Recommendation 13. *State insurance regulators and the NAIC should monitor the availability of reinsurance for climate-related risks and consider whether market hardening or other constraints will adversely affect insurer solvency.*

Supervisory Colleges: Supervisory colleges are a means of enhancing cooperation and communication among state, federal, and international regulators supervising insurers and non-insurance affiliates within an insurance group with international operations, also known as an internationally active insurance group.¹⁵² Supervisory colleges could be a means for supervisors to cooperate in assessing climate-related risks faced by insurers and insurance groups. However, the extent to which this is being done at present is not clear. The International Association of

¹⁴⁸ NAIC, *U.S. Insurance Industry Macroprudential Risk Assessment as of December 31, 2021*, 5.

¹⁴⁹ For a more information, see FIO, *The Breadth and Scope of the Global Reinsurance Market*.

¹⁵⁰ See, e.g., FIO, *The Breadth and Scope of the Global Reinsurance Market*.

¹⁵¹ See, e.g., Moody’s Investor Services, *Reinsurers Defend Against Rising Tide of Natural Catastrophe Losses, For Now* (January 10, 2023), <https://www.moodys.com/web/en/us/about/insights/data-stories/reinsurers-mitigate-lower-profits.html>; Steve Evans, “Climate Change to Prolong Reinsurance Hard Market: Goldman Sachs,” *Artemis*, February 6, 2023, <https://www.artemis.bm/news/climate-change-prolong-reinsurance-hard-market-goldman-sachs/>; Greg Ritchie, “Reinsurers Retreat from U.S. Disaster Hotspots on Climate Risks,” *Insurance Journal*, January 12, 2023, <https://www.insurancejournal.com/news/national/2023/01/12/702887.htm>. See also [Box 2](#).

¹⁵² See, e.g., Model Holding Company Act § 7; IAIS, *Application Paper on Supervisory Colleges* (November 2021), www.iaisweb.org/uploads/2022/01/211111-Application-Paper-on-Supervisory-Colleges.pdf; IAIS & SIF, *Climate Application Paper*, 12.

The IAIS lists 49 internationally active insurance groups, of whom nine have a U.S. state insurance regulator as their group-wide supervisor or lead state regulator. IAIS, *Register of Internationally Active Insurance Groups Based on Information Publicly Disclosed by Group-wide Supervisors* (July 26, 2022), <https://www.iaisweb.org/uploads/2022/07/Register-of-Internationally-Active-Insurance-Groups-IAIGs.pdf>.

Insurance Supervisors (IAIS) and the U.N.’s Sustainable Insurance Forum (SIF) have suggested that supervisory colleges may discuss “the use of natural catastrophe models and assumptions to account for climate change, including in stress scenarios” as part of the supervision of internationally active insurance groups, but have not proposed that regulators mandate this practice or other tools or procedures to address climate-related risks by supervisory colleges.¹⁵³ In the United States, the NAIC’s *Financial Analysis Handbook* provides guidance to assist regulators in conducting supervisory colleges but these materials do not specifically address climate-related risks.¹⁵⁴

Recommendation 14: *The NAIC should encourage consideration of climate-related risks by participants in supervisory colleges, and it should develop guidance to assist regulators when conducting such supervisory college engagements.*

Form F: Insurance holding companies must annually file a Form F with their lead state regulator in order to “identify the material risks within the insurance holding company system that could pose enterprise risk to the insurer.”¹⁵⁵ Form F is currently the only state macroprudential supervision tool that expressly mentions climate-related risks. The instructions for completing Form F state that a description of “climate change exposures” is an example area of potential enterprise risk that insurance holding companies may report and, if material, that they must report.¹⁵⁶ For Form F, “material” means sales, purchases, exchanges, loans or extensions of credit, investments, or guarantees involving more than 0.5 percent of an insurer’s admitted assets as of December 31 of the year being reported.¹⁵⁷

Group Capital Calculation: The GCC is a tool for state insurance regulators to assess group risk and to measure a group’s capital adequacy by asking insurance groups to complete a template that seeks certain quantitative and qualitative data.¹⁵⁸ A group’s GCC will include climate-related adjustments only if the RBC formula for one or more legal entities within the group itself requires such adjustments. Such requirements are limited, as described above. Currently, the RBC formula only requires climate-related adjustments for P&C insurers that write business in certain states with hurricane exposures.¹⁵⁹ For comparison, in 2022 U.S. banking regulators published draft principles that, if adopted, could help identify the impact of

¹⁵³ IAIS & SIF, *Climate Application Paper*, 12.

¹⁵⁴ NAIC, *Financial Analysis Handbook*, 801

¹⁵⁵ Model Holding Company Act § 4.L.1.

¹⁵⁶ NAIC, *NAIC Enterprise Risk Report (Form F) Implementation Guide* (2018), 7, https://content.naic.org/sites/default/files/inline-files/committees_e_isftf_group_solvency_related_form_f_guide.pdf (Form F Guide).

¹⁵⁷ Model Holding Company Act § 4.D. See also [Box 1](#) for more on various definitions of “materiality.”

¹⁵⁸ See Model Holding Company Act § 4.L.2; “NAIC Group Capital Calculation,” NAIC, last updated June 12, 2023, https://content.naic.org/cipr_topics/topic_group_capital_calculation.htm; NAIC, *Group Capital Calculation 2022 Instructions* (2022), https://content.naic.org/sites/default/files/inline-files/GCC%20Instructions-Final_5-5-22.pdf; NAIC, *Group Capital Calculation Template* (2022), https://content.naic.org/sites/default/files/inline-files/2022%20GCC%20Template-Final_2.xlsx.

¹⁵⁹ See [Section II.C.1.c.ii](#) (discussing RBC formula Rcat component for hurricanes and potential expansion).

climate-related risks on the capital of large banks, but which would not mandate any specific adjustments to banks' capital requirements.¹⁶⁰

Liquidity Stress Test: The NAIC developed the Liquidity Stress Test framework to help state insurance regulators understand how aggregate asset sales by life insurers under specified liquidity stresses potentially could impact broader financial markets as well as to supplement a firm-specific liquidity risk management framework.¹⁶¹ The Liquidity Stress Test does not address climate-related risks. Regulators may vary stress test scenarios from year-to-year, however, and therefore could at some future point incorporate climate-related scenarios.

State Guaranty Funds: A state guaranty fund (known in some states as a state guaranty association) is a nonprofit legal entity created by state law to ensure the payment of “covered claims arising from the insolvency of insurers licensed in the state.”¹⁶² If a distressed insurer appears unable to meet its obligations to policyholders, its state insurance regulator may place it into receivership, which may take the form of conservation, rehabilitation, or liquidation; a liquidation may trigger state guaranty association protections for policyholders.¹⁶³ State insurance regulators and guaranty funds do not always identify the reason for an insolvency—and indeed there may be more than one cause—but there have already been some insolvencies that may be linked to climate-related disasters.¹⁶⁴

To the extent that the number and scope of climate-related disasters increases the risk of future insurer insolvencies, state guaranty funds may face new financial strains. Such financial strains

¹⁶⁰ See Federal Reserve, *Federal Reserve Board Invites Public Comment on Proposed Principles Providing a High-level Framework for the Safe and Sound Management of Exposures to Climate-related Financial Risks for Large Banking Organizations* (December 2, 2022), <https://www.federalreserve.gov/newsevents/pressreleases/other20221202b.htm>; Office of the Comptroller of the Currency, *Principles for Climate-Related Financial Risk Management for Large Banks; Request for Feedback*, OCC Bulletin 2021-16 (December 16, 2021), <https://www.occ.treas.gov/news-issuances/bulletins/2021/bulletin-2021-62.html>; Federal Deposit Insurance Corporation, *Statement of Principles for Climate-Related Financial Risk Management for Large Financial Institutions*, 87 Fed. Reg. 19,507 (April 4, 2022).

¹⁶¹ See Model Holding Company Act § 4.L.3. NAIC, *NAIC 2020 Liquidity Stress Test Framework for Life Insurers Meeting the Scope Criteria* (May 2021), 8-9, https://content.naic.org/sites/default/files/inline-files/Final%202020%20LST%20Framework_0.pdf. The scenarios are determined by the NAIC and incorporate both prescribed and internal company assumptions for modeling purposes. *Id.* at 17.

¹⁶² “Guaranty Associations/Funds,” NAIC, last updated April 3, 2023, <https://content.naic.org/cipr-topics/guaranty-associationsfunds>. All 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands (for P&C only) have some form of guaranty mechanism in place, although they vary in structure and benefits. *Id.*

¹⁶³ For more on guaranty funds, see, e.g., FIO, *2016 Consumer Report* (2016), 27–29, https://home.treasury.gov/system/files/311/2016_FIO_Consumer_Report.pdf; “Guaranty Associations/Funds,” NAIC; National Conference of Insurance Guaranty Funds, *Background* (October 26, 2018), <https://www.ncigf.org/media-kit/background>; “What Happens When an Insurance Company Fails?” National Organization of Life & Health Insurance Guaranty Associations, <https://www.nolhga.com/policyholderinfo/main.cfm/location/insolvencyprocess>.

¹⁶⁴ See, e.g., Louisiana Insurance Guaranty Association (LIGA), *2021 Annual Report* (March 30, 2022), 1, <https://www.laiga.org/wp-content/uploads/2022/07/2021-Annual-Report.pdf> (noting “State National Fire Ins. Co. and Access Home Ins. Co. were two homeowner insurers which became insolvent in the wake of Hurricane Ida”).

in the first instance generally would fall upon solvent members of the state guaranty fund; secondarily, they could fall upon policyholders.¹⁶⁵ Although there are state-specific variations, generally speaking, each state guaranty fund association is responsible for estimating how much it will need to pay claims resulting from an insolvency and for raising the amounts necessary from solvent member insurers via mandatory assessments (subject to statutory limits that vary from state to state). Insurers then may recoup the assessments through premium increases, premium tax offsets, or policy surcharges.¹⁶⁶

The Louisiana Insurance Guaranty Association (LIGA) presents a recent illustration of guaranty fund operation. As a result of several property insurer insolvencies in 2021 and 2022, LIGA became responsible for almost 13,000 new claims by the end of 2021 and over 28,000 additional new claims by the end of 2022.¹⁶⁷ By comparison, in the nine years between 2012 and 2020, LIGA had handled an average of 711 new claims a year.¹⁶⁸ The substantial increase in new claims created both a lengthy claims processing backlog for policyholders and a financial bill far larger than what LIGA was able to cover from assessments on solvent insurers in a single year.¹⁶⁹ In 2022, LIGA assessed insurers for the full amount legally allowable for 2021 and 2022, which was one percent of the total premium written in the previous calendar year.¹⁷⁰ To address the shortfall, LIGA obtained permission from the Louisiana State Bond Commission to issue up to \$600 million in bonds backed by future assessments on insurers over a 12-year period to allow it to pay current claimants in a timely manner.¹⁷¹ Solvent insurers in Louisiana that are subject to assessment by the guaranty fund are able to recoup assessments they pay LIGA by reducing the amount of premium taxes they pay the state or by increasing the rates that they charge policyholders.¹⁷²

¹⁶⁵ For example, in April 2023, the Florida Insurance Commissioner approved a one percent emergency assessment for the Florida Insurance Guaranty Association to help handle hundreds of millions of dollars in claims after United Property & Casualty Insurance Co. was put into receivership. Jim Saunders, “Florida Imposes 1% ‘Emergency’ Fee to Property Insurance Premiums,” *South Florida Sun Sentinel* (April 17, 2023), <https://www.sun-sentinel.com/business/fl-ne-nsf-insurer-insolvencies-20230417-75ngtxjkrzdojmb5zyk6i6ttva-story.html>.

¹⁶⁶ See, e.g., “Guaranty Associations/Funds,” NAIC.

¹⁶⁷ LIGA, 2022 *Annual Report* (March 30, 2023), 2, 19, <https://www.laiga.org/wp-content/uploads/2023/04/2022-Annual-Report.pdf>.

¹⁶⁸ LIGA, 2022 *Annual Report*, 19.

¹⁶⁹ See, e.g., Michael Finch II, “Louisiana’s Bailout Program for Failed Insurers Wants \$600 Million to Cover Losses,” *The Times-Picayune*, July 16, 2022, https://www.nola.com/news/business/article_e78f0c36-048a-11ed-87de-db5d0cf88cec.html.

¹⁷⁰ Louisiana Department of Insurance, *Financial Condition of the Residential Property Insurance Market: Performance Audit Services* (October 13, 2022), 7-8, [https://app.lla.state.la.us/publicreports.nsf/0/9d5c25a709f476a3862588da005c6930/\\$file/000283c0.pdf?openelement&.7773098](https://app.lla.state.la.us/publicreports.nsf/0/9d5c25a709f476a3862588da005c6930/$file/000283c0.pdf?openelement&.7773098) (LA Dept. of Insurance, *Financial Condition Report*).

¹⁷¹ See, e.g., Finch, “Louisiana’s Bailout Program”; LA Dept. of Insurance, *Financial Condition Report*, 7.

¹⁷² See, e.g., LA Dept. of Insurance, *Financial Condition Report*, 8. In the past, insurers have usually chosen to reduce the amount of premium taxes that they pay. *Id.*

As disasters become more frequent and more severe, U.S. state guaranty funds may have an even larger role to play. An advantage of the guaranty funds system is that it minimizes the adverse contagion effects on other insurers from insurance company failures. Ultimately, however, insurers may pass on the costs of guaranty fund assessments to policyholders in the form of higher premiums. Plus, this structure could leave state guaranty fund associations, solvent insurers, and state taxpayers (directly or indirectly) vulnerable for policyholder losses that exhaust the resources of a single very large insurer or the simultaneous insolvency of multiple smaller insurers.

Recommendation 15: *State insurance regulators and the NAIC should increase their work with the National Council of Insurance Legislators, state legislatures, and state guaranty associations to improve their ability to quantify potential climate-related risks for state guaranty funds and to better understand potential exposures from climate-related disasters for insurers, policyholders, and state governments.*

Residual and Non-Standard Markets: Sometimes characterized as “insurers of last resort” for individuals or businesses otherwise unable to obtain insurance coverage, residual markets are programs for policyholders and markets viewed as high risk by insurers.¹⁷³ Residual markets typically are established through legislation, which may include statutory provisions uniquely applicable to the market in the relevant state.¹⁷⁴ The increasing use of such programs may not only signal market disruptions but also help to ameliorate them by serving individuals or businesses otherwise unable to obtain needed coverage directly from an insurer in the standard market.

Thirty-two states and the District of Columbia offer some sort of residual market for property owners.¹⁷⁵ The vast majority of residual market plans are state-run Fair Access to Insurance Requirements (FAIR) plans that generally provide basic coverage for eligible properties but with differing state-by-state rules and limitations.¹⁷⁶ Five states have “beach plans,” which function similarly to FAIR plans, except that they cover properties located on or near the coast. Florida and Louisiana have non-FAIR plan state-run organizations that underwrite policies for their

¹⁷³ For more information, see, e.g., FIO, *2021 Annual Report*, Box 3, 66; FIO, *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*.

¹⁷⁴ See, e.g., O.G.C.A. §§ 33-33-1 to 33-33-11 (statutory provisions relating to Georgia FAIR plan).

¹⁷⁵ “A Firm Foundation: How Insurance Supports the Economy – Residual Markets,” III, <https://www.iii.org/publications/a-firm-foundation-how-insurance-supports-the-economy/a-50-state-commitment/residual-markets>.

¹⁷⁶ States that have both residential and commercial FAIR plans include: Arkansas, California, Connecticut, Delaware, D.C., Georgia, Hawaii, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, Virginia, and Washington. Florida’s Citizens Property Insurance Corporation and Louisiana’s Citizens Property Insurance Corporation combine the FAIR and Beach plans. The Mississippi and Texas FAIR plans do not offer a commercial policy. See “A Firm Foundation,” III.

residual markets.¹⁷⁷ Residual markets vary in scope, sometimes limiting coverage to narrowly defined perils.¹⁷⁸ For example, California’s FAIR plan has generally provided “fire only” premises coverage. While California’s Insurance Commissioner has sought to include a more comprehensive option in the state’s FAIR plan, which might expand access and thereby potentially lower premiums, the president of the FAIR plan has stated this change would lead to higher premiums and would encourage more private insurers to exit the market.¹⁷⁹

After decreasing in the 2010s, more recently the number of policies and amount of premiums within residual markets have climbed.¹⁸⁰ For example, the California FAIR plan showed a 96 percent increase in the number of property policies (from 126,854 to 248,361) between April 2018 and December 2021, an increase that likely would have been higher had the California Department of Insurance not placed a moratorium on non-renewals in certain wildfire-affected areas.¹⁸¹ The Florida Citizen Property Insurance Corporation, Florida’s residual insurer, has seen an increase in policy counts from approximately 420,000 reported in June 2019 to over 1,272,815 in April 2023.¹⁸² The number of policyholders in Louisiana’s residual market, the Louisiana Citizens Property Insurance Corporation, has risen from 47,093 policies in 2021 to 154,507 in 2022, causing the corporation to seek and obtain a 63 percent rate increase.¹⁸³ The Texas Windstorm Insurance Association, the Texas residual insurer for the 14 coastal counties and part of Harris County that provides wind and hail coverage for residential and commercial

¹⁷⁷ See, e.g., “Who We Are,” (Florida) Citizens Property Insurance Corporation, <https://www.citizensfla.com/who-we-are>; “Company Overview,” Louisiana Citizens Property Insurance Corporation (Louisiana Citizens), <https://www.lacitizens.com/AboutUs/CompanyOverview>.

¹⁷⁸ Property Insurance Plans Service Office, *PIPSO Reports* (June 2022), 4, available at pipso.com/publications/.

¹⁷⁹ See, e.g., California Department of Insurance, “Court Upholds Insurance Commissioner Lara’s Order to Expand FAIR Plan ‘Last Resort’ Coverage to Better Protect Homeowners,” news release, July 20, 2021, <http://www.insurance.ca.gov/0400-news/0100-press-releases/2021/statement073-2021.cfm>; Timothy Darragh, “California FAIR Plan Says CDI Demands Would Harm Consumers,” *AM Best Information Services*, July 14, 2022, <https://news.ambest.com/newscontent.aspx?altsrc=108&refnum=242889>.

¹⁸⁰ See, e.g., “A Firm Foundation,” III; III, *2021 Insurance Fact Book*, 98–100, https://www.iii.org/sites/default/files/docs/pdf/insurance_factbook_2021.pdf (providing data for 2010–2019); California Department of Insurance, *Data on Insurance Non-Renewals, FAIR Plan, and Surplus Lines* (2020), <https://www.insurance.ca.gov/0400-news/0100-press-releases/2021/upload/nr117DataNon-RenewalsandFAIRPlan12202021.pdf>.

¹⁸¹ California Department of Insurance, *Operational Assessment Report: California FAIR Plan Association* (June 15, 2022), <http://www.insurance.ca.gov/0250-insurers/0300-insurers/0400-reports-examination/upload/CFPA-Operational-Assessment-Report.pdf>.

¹⁸² “Policies in Force,” (Florida) Citizens Property Insurance Corporation, www.citizensfla.com/policies-in-force.

¹⁸³ Louisiana Citizens, *Annual Statement for 2022* (2023), 350, https://www.lacitizens.com/docs/default-source/financial-reports-and-statements/2022-annual-statement.pdf?sfvrsn=7264ee03_2; Louisiana Department of Insurance, “Louisiana Department of Insurance Approves Citizens Rate Increase and Offers Tips for Policyholders,” news release, October 10, 2022, <https://www.lidi.la.gov/news/press-releases/10-10-22-lidi-approves-citizens-rate-increase-and-offers-tips-for-policyholders>. Louisiana Citizens must charge more than private insurers. *Id.* It represented less than one percent of direct written premiums in the homeowners multi-peril line in Louisiana in 2021 based on S&P Global data.

properties, saw its exposure for in-force policies increase by over 27 percent to over \$75 billion in 2022.¹⁸⁴

In the case of FAIR or beach plans, such as those in California and Texas, each of the insurers within the state shares in the FAIR or beach plan's profits, losses, and expenses in proportion to their share of the insurance market within the state.¹⁸⁵ The Louisiana Citizens Property Insurance Corporation, which combines a FAIR and a beach plan, may levy either a regular or emergency assessment on insurers operating within Louisiana to cover its expenses and losses.¹⁸⁶ In Florida, the plan is funded by policyholder premiums, but it may make assessments on most policyholders within Florida (not just its own policyholders) in the aftermath of a particularly devastating storm or series of storms.¹⁸⁷

In the surplus lines market certain non-admitted insurers are permitted to offer coverage that is of limited availability in the admitted market.¹⁸⁸ The ability of the surplus lines market to sell insurance that is otherwise of limited availability may permit (although not require) them to provide insurance to higher risk policyholders at higher premiums than that offered by admitted insurers in the standard market. Regulatory oversight and applicable laws differ for insurers in the surplus lines market that may have "more freedom to modify underwriting standards and rates, adopt new policy provisions, or exit geographic areas with accumulating correlated risks by choosing not to offer new policies in a geographic area or non-renewing existing policies in a geographic area than admitted insurers offering homeowner insurance."¹⁸⁹ The increased frequency and severity of climate-related disasters may lead to more correlated risks that cause insurers to shift their business to the surplus lines market.¹⁹⁰

¹⁸⁴ Thomas Frank, "Growing Insurance Crisis Spreads to Texas," *E&E News Climatewire*, April 17, 2023, <https://www.eenews.net/articles/growing-insurance-crisis-spreads-to-texas/>; Texas Windstorm Insurance Association, *Quarterly Liability Report as of December 31, 2022*, 1, https://www.twia.org/wp-content/uploads/Qtrly_Liab_20221231.pdf.

¹⁸⁵ "Fair Access to Insurance Requirements (FAIR) Plans," NAIC, last updated February 1, 2023, <https://content.naic.org/cipr-topics/fair-access-insurance-requirements-fair-plans#>.

¹⁸⁶ Louisiana Citizens, *Regular Assessment and Emergency Assessment Collection and Remittance: FAQ's or Guidelines and Procedures* (February 12, 2021), https://www.lacitizens.com/docs/default-source/assessment-information/louisiana-property-insurance-corporation-assessment-guidelines.pdf?sfvrsn=e2b0e003_2.

¹⁸⁷ "Who We Are," (Florida) Citizens Property Insurance Corporation.

¹⁸⁸ Non-admitted insurers (who are not themselves licensed in the state in which they are offering coverage) must place their products through an excess and surplus lines broker licensed in that state. See, e.g., "Nonadmitted insurance-US," IRMI, <https://www.irmi.com/term/insurance-definitions/nonadmitted-insurance-us>. "Excess and surplus" insurance is "any type of coverage that cannot be placed with an insurer admitted to do business in a certain jurisdiction." "Excess and Surplus Lines Insurance," IRMI, <https://www.irmi.com/term/insurance-definitions/excess-and-surplus-lines-insurance>.

¹⁸⁹ FIO, *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, 13.

¹⁹⁰ For example, AIG cited the increased frequency and severity of natural catastrophes as a reason it moved some of its homeowners business to excess and surplus lines in multiple states. See, e.g., Chad Hemenway, "AIG to Move

Given their greater freedom of rate and form, surplus lines insurers may provide, at least for some classes of policyholders, an alternative source of coverage in areas for policyholders facing challenges in obtaining coverage due to climate-related risks.

Recommendation 16: *All state insurance regulators and the NAIC should monitor the growth and other trends in residual and surplus lines markets, and publicly report on how climate-related risks are currently affecting, and in the future may affect, these markets.*

Box 2: Examples of Other Market Interventions

States that are prone to climate-related disasters may take various measures to support their insurance markets as demonstrated by these examples from Florida and Louisiana.

Florida’s insurance regulators and legislators have taken targeted steps in response to insufficient commercial capacity for property insurance for climate-related risks. The Florida Hurricane Catastrophe Fund was established in 1993 to support the residential property insurance market for hurricane damages by partially reimbursing insurers’ losses.¹⁹¹ More recently, Florida convened special legislative sessions in May and December 2022 to attempt to address growing challenges to the state’s property insurance market.¹⁹² Among other reforms to the local insurance market, the resulting legislation created a \$3 billion state program, “Reinsurance to Assist Policyholders,” for certain insurers to obtain support from the program in exchange for reducing policyholders’ rates. In particular, the temporary arrangement provides payment guarantees in the event of a rating downgrade so that insurers can maintain a credit rating sufficient to permit policyholders with federally backed mortgages to keep coverage from such insurers in place.¹⁹³

Louisiana has sought to use financial incentives to increase the number of insurers writing residential and commercial policies in its coastal areas with the creation of the Insure Louisiana Incentive Program in 2022.¹⁹⁴ To receive a grant, the insurer must agree to write new residential,

High Net Worth Homeowners to E&S,” *Insurance Journal*, February 17, 2022, <https://www.insurancejournal.com/news/national/2022/02/17/654804.htm>.

¹⁹¹ “About the FHCF,” Florida Hurricane Catastrophe Fund (“The coverage provided by the FHCF is similar to private reinsurance ... but at a lower cost than private market prices.”).

¹⁹² See, e.g., Christopher Flavelle, “Why Ian May Push Florida Real Estate Out of Reach for All but the Super Rich,” *New York Times*, October 13, 2022, <https://www.nytimes.com/2022/10/13/climate/florida-real-estate-hurricane-ian.html>.

¹⁹³ FLOIR, “Florida Establishes Temporary Reinsurance Arrangement for Insurers Facing Potential Financial Stability Rating Downgrades,” news release, July 27, 2022, <https://floir.com/newsroom/archives/item-details/2022/07/27/florida-establishes-temporary-reinsurance-arrangement-for-insurers-facing-potential-financial-stability-rating-downgrades>. Leslie Scism and Arian Campo-Flores, “Florida Lawmakers Approve Property-Insurance Overhaul, Sending Bill to DeSantis,” *Wall Street Journal*, December 14, 2022, <https://www.wsj.com/articles/florida-lawmakers-approve-property-insurance-overhaul-sending-bill-to-desantis-11671048780>.

¹⁹⁴ “Insure Louisiana Incentive Program,” Louisiana Department of Insurance, <https://www.lidi.la.gov/industry/insure-louisiana-incentive-program>.

commercial, mono-line, or package property insurance with a specified ratio of net written premiums for property located within the federal Gulf Opportunity Zone, and the policies must include coverage for wind and hail damages. The Louisiana Department of Insurance approved eight of the nine grant applications from insurers.¹⁹⁵

b) Federal Macroprudential Supervision and Regulation of Insurers

On the federal side, FSOC is charged with identifying risks to U.S. financial stability, promoting market discipline, and responding to emerging threats to the stability of the U.S. financial system.¹⁹⁶ FSOC's ten voting members and five non-voting members include the main U.S. financial regulatory agencies, as well as a state insurance commissioner, an independent member with insurance expertise, and the Director of FIO.¹⁹⁷ The October 2021 FSOC *Report on Climate-Related Financial Risk* (FSOC Climate Report) identifies climate change as an "emerging threat to the financial stability of the United States."¹⁹⁸ The FSOC Climate Report surveys the current state of U.S. regulatory and supervisory engagement with climate-related risks, available data and methodologies for analyzing such risks, public disclosures of climate-related risks, and the implications for financial stability assessments.¹⁹⁹ The report's four sets of recommendations cover: (1) building capacity and expanding efforts to address climate-related risks; (2) filling climate-related data and methodological gaps; (3) enhancing public climate-related disclosures; and (4) assessing and mitigating climate-related risks that could threaten the stability of the U.S. financial system.²⁰⁰

Several FSOC Climate Report recommendations relate to addressing climate-related issues or gaps in the regulation and supervision of insurance. The recommendations most relevant to FIO and state insurance regulators are reproduced below:

- "The Council recommends that the Federal Insurance Office (FIO) should act expeditiously to analyze the potential for climate change to affect insurance and reinsurance coverage, particularly in regions of the country affected by climate change, in consultation with the States, in a manner consistent with Executive Order 14030" (Recommendation 1.7);
- "The Council recommends that its members, consistent with their mandates and authorities, evaluate climate-related impacts and the impacts of proposed policy solutions

¹⁹⁵ Louisiana Department of Insurance, "Donelon Announces Nine Companies Applied for Over \$60M in Insure Louisiana Incentive Program Funding" news release, March 14, 2023, <https://www.lldi.la.gov/news/press-releases/3-14-23-donelon-announces-nine-companies-applied-for-over-60m-in-insure-louisiana-incentive-program-funding>; "Insure Louisiana Incentive Program," Louisiana Department of Insurance.

¹⁹⁶ Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 § 112(a)(1), 12 U.S.C. § 5322(a)(1).

¹⁹⁷ Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 §§ 111(b)(1)-(2), 12 U.S.C. §§ 5321(b)(1)-(2).

¹⁹⁸ FSOC, *Climate Report*, 3.

¹⁹⁹ FSOC, *Climate Report*.

²⁰⁰ FSOC, *Climate Report*, 5-9, 118-125.

on financially vulnerable populations when assessing the impact of climate change on the economy and the financial system” (Recommendation 1.8);

- “The Council recommends that its members promptly identify and take the appropriate next steps towards ensuring that they have consistent and reliable data to assist in assessing climate-related risks through:
 - Identifying the data needed to evaluate the climate-related financial risk exposures of regulated entities and financial markets within the context of each FSOC member’s mandate and authorities;
 - Performing an internal inventory of currently collected and procured data and its relevance for climate risk assessments; and
 - Developing a plan for procuring necessary data through data collection, data sharing arrangements described in Recommendation 2.2, and information purchased from data providers or other sources” (Recommendation 2.1);
- “The Council supports continued efforts by FIO and insurance regulators to work together to enhance the existing climate-related disclosures for the insurance sector” (Recommendation 3.8);
- “The Council recommends that its members use scenario analysis, where appropriate, as a tool for assessing climate-related financial risks, taking into account their supervisory and regulatory mandates and the size, complexity, and activities of regulated entities” (Recommendation 4.3);
- “FSOC members, consistent with their mandate and authorities, should review existing regulations, guidance, and regulatory reporting relevant to climate-related risks, including credit risks, market risks, counterparty risks, and other financial and operational risks, to assess whether updates are necessary to appropriately address climate-related financial risks” (Recommendation 4.7); and
- “FSOC members should evaluate whether additional regulations or guidance specific to climate-related risks is necessary to clarify expectations for regulated or supervised institutions regarding management of climate risks, taking into account an institution’s size, complexity, risk profile, and existing enterprise risk management processes” (Recommendation 4.8).

Pursuant to recommendations in the FSOC Climate Report, FSOC created an external advisory committee as well as an internal staff-level committee with multiple workstreams to address climate-related risks. FIO is working closely with FSOC on its climate-related work and will continue to provide insurance expertise to FSOC and its committees. FIO also will continue to work with FSOC and Treasury’s Office of Financial Research to increase the federal government’s ability to understand and mitigate potential systemic risks and threats to U.S.

financial stability that might result from increased financial distress at insurers due to climate-related disasters.²⁰¹

3. Market Conduct Supervision and Regulation

Market conduct regulation and supervision promotes the functioning of insurance markets and seeks to protect policyholders from unfair practices and among other things includes: oversight of disaster response, including claims-handling; company, broker, and claims-adjuster licensing; underwriting and rates, including policy renewals and cancellations; policy marketing and sales; and the development of new or modified insurance products.²⁰² Effective oversight of market conduct and consumer protection practices can allow regulators to spot market conduct issues before they potentially manifest as financial solvency concerns and thus complements prudential regulation.²⁰³ The NAIC's *Market Regulation Handbook* provides guidance to state regulators on how to identify market conduct issues and conduct market conduct examinations.²⁰⁴ The NAIC has stated that market conduct regulation and supervision is critical for addressing risks to underserved populations.²⁰⁵ Its *Market Regulation Handbook* also states that as part of a regulator's analysis of general market conditions one of the key factors to be considered is "[c]ompetitive pricing and availability of products."²⁰⁶ These are important observations because researchers have found that minority communities may have less adequate insurance coverage, greater economic loss, and lower property valuation recovery after disasters as compared to other population segments.²⁰⁷ Financial resilience is also lower in underserved communities, exacerbating hardships for already vulnerable populations that may not have access to sufficient financial tools and products when trying to recover from disaster disruption

²⁰¹ See, e.g., Treasury, *OFR Fact Sheet: Climate Data and Analytics Hub* (July 2022), https://www.financialresearch.gov/press-releases/files/OFR_Climate_data_and_analytics_hub_fact_sheet.pdf.

²⁰² "Market Conduct Regulation," NAIC.

²⁰³ "Market Conduct Regulation," NAIC.

²⁰⁴ NAIC, *Market Regulation Handbook* Vol. 1-IV (2022), available through <https://content.naic.org/publications>. See also NAIC, *Market Regulation Handbook – Examination Standards Summary*, <https://content.naic.org/sites/default/files/publication-mes-hb-market-handbook-examination.pdf>.

²⁰⁵ NAIC, *Market Regulation Handbook*, 129-130.

²⁰⁶ NAIC, *Market Regulation Handbook*, 129 (noting that competitive pricing and availability of products "are the traditional core concerns of macroanalysis, since it is always essential to identify underserved markets and population sectors and evaluate how the industry and the state can best work together to correct the situation.").

²⁰⁷ See, e.g., Samuel Rufat, et al., "Social Vulnerability to Floods: Review of Case Studies and Implications for Measurement," *International Journal of Disaster Risk Reduction* 14 (4): 470–86 (December 2015), <https://doi.org/10.1016/j.ijdrr.2015.09.013>.

and hardships.²⁰⁸ In addition, observers have noted that individuals with socio-economic vulnerabilities may live in areas where it is difficult to obtain or maintain insurance coverage.²⁰⁹

Climate-related risks implicate several aspects of market conduct regulation and supervision. As described below, state insurance regulators are already addressing climate-related risks in key aspects of market conduct regulation and supervision, although new challenges are emerging.

Market Conduct Tools and Standards Generally: In 2002, the NAIC developed the Market Conduct Annual Statement as a uniform means for state insurance regulators to collect market-related information. Using this, regulators now collect national and state level claims and underwriting data on several lines of business, including homeowners and private passenger auto insurance.²¹⁰ State insurance regulators undertake examinations to assess the market conduct practices of regulated entities within their jurisdictions, with guidance from the NAIC *Market Regulation Handbook*, focusing on compliance with laws addressing operations, complaint handling, marketing, claims, rate and form filing, and policyholder service.²¹¹ The NAIC *Market Regulation Handbook* does not specifically reference climate-related risks.²¹²

Underwriting, Rating, Renewals, and Cancellations: When underwriting, an insurer assesses and decides whether to accept the risks associated with covering a prospective customer. In rate making, an insurer uses the information obtained in underwriting to determine the appropriate amount to charge for the class of business in question in order to cover anticipated losses and expenses and still provide a reasonable profit to the insurer.²¹³ Market conduct regulation

²⁰⁸ See, e.g., Carolyn Kousky & Karina French, *Inclusive Insurance for Climate-Related Disasters: A Roadmap for the United States* (2023), available through <https://www.ceres.org/resources/reports/report-inclusive-insurance-climate-related-disasters>.

²⁰⁹ See, e.g., Karina French, “Economic Resilience to Climate Impacts Requires Making Disaster Insurance More Inclusive in the US,” *Market Forces* (January 24, 2023), <https://blogs.edf.org/markets/2023/01/24/economic-resilience-to-climate-impacts-requires-making-disaster-insurance-more-inclusive-in-the-us/>.

²¹⁰ Randy Helder, “The Market Conduct Annual Statement Comes of Age,” *CIPR*, January 2012, <https://naic.soutrnglobal.net/Portal/Public/en-US/RecordView/Index/24282>; “Market Conduct Annual Statement,” NAIC, last updated February 1, 2023, <https://content.naic.org/cipr-topics/market-conduct-annual-statement-mcas>. While insurers’ Market Conduct Annual Statement filings are confidential, some of the information provided is made publicly available through a “Scorecard.” See “MCAS Scorecard and MCAS Contacts,” NAIC, https://content.naic.org/mcas_data_dashboard.htm.

²¹¹ See, e.g., Market Conduct Surveillance Model Law (NAIC 2004), <https://content.naic.org/sites/default/files/inline-files/MDL-693.pdf>; NAIC, *Market Regulation Handbook: Examinations Standards Summary* (2022), <https://content.naic.org/sites/default/files/publication-mes-hb-market-handbook-examination.pdf> (*Market Regulation Handbook Summary*).

²¹² In contrast, the Examiners Handbook includes optional material on climate-related risks, as discussed in [Section II.C.1.c.iv](#).

²¹³ See, e.g., “Underwriting (Definition),” IRMI, <https://www.irmi.com/term/insurance-definitions/underwriting>; “Rate (Definition),” IRMI, <https://www.irmi.com/term/insurance-definitions/rate>.

includes the approval of insurance rates to ensure that they are not excessive, while maintaining insurer solvency and preventing unfair discrimination.²¹⁴

State insurance regulators may consider climate-related disasters and their impacts when they supervise insurers' underwriting and rating of insurance policies, including policy renewals and cancellations. For example, as part of the Market Conduct Annual Statement data collection system, participating state insurance regulators track key ratios—such as the ratio of non-renewals (or cancellations) to policies in force—to identify insurers that are inconsistent with market practices.²¹⁵

More research is needed, however, to better understand whether and how the process by which states approve insurance rate increases may lead to misalignment of rates and climate-related risks. One study found that insurance rates in states where rate regulation is least restrictive (“low friction states”) increase both in response to local losses as well as to losses that occur in states where rate regulation is most restrictive (“high friction states”) and, as a result, “households in low friction states are in-part bearing the risks of households in high friction states.”²¹⁶

Regulators sometimes can use their market conduct authority to address underwriting, cancellation, and non-renewal in connection with climate-related events. Examples of such steps include the following:

- California’s Department of Insurance administers a law requiring a one-year moratorium on cancellation or non-renewal of residential insurance policies in areas affected by wildfire; since 2018, this moratorium has been used in connection with 25 emergency declarations.²¹⁷
- After the Marshall and East Troublesome wildfires, the Colorado Division of Insurance released a consumer advisory providing information on the requirements to which insurers are subject if they choose not to renew a policy.²¹⁸
- The New Mexico Office of Superintendent of Insurance issued a wildfire emergency order directing insurers who wrote property or homeowners premiums in fire impacted

²¹⁴ See, e.g., “Market Conduct Regulation,” NAIC; NAIC, *Market Regulation Handbook Summary*, 3.

²¹⁵ “Market Conduct Annual Statement Scorecard,” NAIC, https://content.naic.org/mcas_data_dashboard.htm. Nearly all states participate.

²¹⁶ See Sangmin Oh, et al., *Pricing of Climate Risk Insurance: Regulation and Cross-Subsidies* (December 22, 2022), <https://ssrn.com/abstract=3762235>.

²¹⁷ “Mandatory One Year Moratorium on Non-Renewals,” California Department of Insurance, <https://www.insurance.ca.gov/01-consumers/140-catastrophes/MandatoryOneYearMoratoriumNonRenewals.cfm>.

²¹⁸ Colorado Division of Insurance, “Consumer Advisory: When Your Homeowners’ Insurance Doesn’t Renew Your Policy,” news release, August 31, 2022, <https://doi.colorado.gov/news-releases-consumer-advisories/consumer-advisory-when-your-homeowners-insurance-doesnt-renew>.

counties to, among other directives, postpone cancellations and non-renewals for no less than 120 days.²¹⁹

- After Hurricane Ian, the Florida Office of Insurance Regulation issued an emergency order suspending cancellations or non-renewals on P&C insurance for two months, unless requested by the policyholder.²²⁰

Marketing, Sales, and Consumer Education: State laws regulating insurance marketing and NAIC consumer education initiatives could be particularly important in the context of climate-related disasters, as a means of enhancing policyholders’ understanding of the scope of coverage under their insurance policies. Generally, state insurance laws require that all insurance advertisements and other communications are “truthful and not misleading in fact or by implication.”²²¹ Relatedly, the NAIC has a working group charged with, among other things, “[f]acilitat[ing] consumers’ capacity to understand the content of insurance policies and assess differences in insurers’ policy forms.”²²² And state insurance regulators have issued consumer guidance to help combat common misconceptions about the scope of coverage for various perils.²²³

Yet policyholders continue to have such misconceptions. The Minnesota Department of Commerce, for example, advised homeowners to check deductibles and exclusions on their homeowners policies following a nearly 20 percent increase in complaints since 2020, primarily around coverage denials or high costs after wind or hailstorms.²²⁴ Also, many policyholders may be unaware that their standard homeowners insurance policies do not cover flood risk, despite numerous attempts by the Federal Emergency Management Agency (FEMA) and state insurance regulators to educate consumers.²²⁵ Federal agencies also have worked to promote financial literacy more generally, including through the FLEC.²²⁶ Treasury, in coordination with the

²¹⁹ New Mexico Office of Superintendent of Insurance, Emergency Order 2022-0041 (May 11, 2022), <https://edocket.osi.state.nm.us/api/documents/5762-002>.

²²⁰ FLOIR, Emergency Order 300997-22 (September 28, 2022), https://www.floir.com/docs-sf/default-source/floir-documents/hurricane-ian-emergency-order-with-all-exhibits-09282022-filed.pdf?sfvrsn=fb033799_2.

²²¹ See, e.g., NAIC, *Market Regulation Handbook*, 312.

²²² “Transparency and Readability of Consumer Information (C) Working Group,” NAIC, https://content.naic.org/cmte_c_trans_read_wg.htm.

²²³ See, e.g., “Windstorm and Hail,” North Carolina Department of Insurance, <https://www.ncdoi.gov/consumers/homeowners-insurance/windstorm-and-hail#named-storm-percentage-deductibles>.

²²⁴ Minnesota Department of Commerce, “MN Commerce Advises Minnesota Homeowners to Check Insurance Coverage for Wind, Hail limits,” news release, August 15, 2022, <https://mn.gov/commerce/news/?id=17-537615>.

²²⁵ See, e.g., “Myths and Facts About Flood Insurance,” FEMA, November 18, 2020, <https://www.fema.gov/fact-sheet/myths-and-facts-about-flood-insurance>; Louisiana Department of Insurance, *Post-Disaster Insurance Guide*, 7-8, <https://www.lidi.la.gov/docs/default-source/documents/publicaffairs/consumerpublications/post-disaster-guide.pdf?sfvrsn=9>.

²²⁶ See “Financial Literacy and Education Commission,” Treasury, <https://home.treasury.gov/policy-issues/consumer-policy/financial-literacy-and-education-commission>.

FLEC, is developing a report on the impact of climate change on households and communities.²²⁷

Recommendation 17: *The NAIC, state insurance regulators, the insurance industry, FIO, the FLEC, and other partners should work together to increase consumer education and outreach regarding what climate-related risks are (and are not) commonly covered under personal lines of insurance and take steps to increase public awareness of the nature and magnitude of climate-related risks. They also should continue encouraging consumers to take advantage of educational and outreach programs in markets vulnerable to climate change, including programs related to the value of, and opportunities for, pre-disaster mitigation investments in property resilience. Public-private partnerships with the insurance industry can aid this educational effort.*

Disaster Response: States insurance regulators have well-established practices for regulatory oversight of market conduct concerns relating to all types of disasters, including climate-related disasters. Tools available to state insurance regulators to address market conduct matters during disaster responses include, but are not limited to the following:

- Extending the deadline for policyholders to submit notices of claims to insurers;²²⁸
- Extending the timeline for policyholders to complete repairs;²²⁹
- Barring insurers from cancelling or not-renewing policies for failure to timely remit premiums while disaster declarations are in effect;²³⁰
- Implementing emergency licensing provisions so that out-of-state adjusters may supplement the pool of available claims adjusters;²³¹
- Conducting data calls in order to obtain detailed information on claims from catastrophic events;²³² and

²²⁷ Treasury, “Treasury Launches Effort to Study Impact of Climate Change on Households and Communities,” news release, October 13, 2021, <https://home.treasury.gov/news/press-releases/jy0404>.

²²⁸ See, e.g., New Mexico Office of Superintendent of Insurance, Emergency Order 2022-0041 (May 11, 2022), <https://edocket.osi.state.nm.us/api/documents/5762-002>.

²²⁹ See, e.g., Oregon Department of Consumer and Business Services Division of Financial Regulation, *Bulletin No. DFR 2022-3* (August 4, 2022), <https://dfr.oregon.gov/laws-rules/Documents/Bulletins/bulletin2022-03.pdf>.

²³⁰ See discussion above on “Underwriting, Rating, Renewals, and Cancellations.”

²³¹ See, e.g., “Emergency Adjuster Information,” Alabama Department of Insurance, <https://www.aldoi.gov/licensing/emergencyadjusterinfo.aspx>; “Temporary Emergency Independent Adjuster License,” Indiana Department of Insurance, <https://www.in.gov/idoi/adjusters/temporary-emergency-independent-adjuster-license/>.

²³² See, e.g., “Final Compilation of Hurricane Harvey Data,” Texas Department of Insurance, June 30, 2019, <https://www.tdi.texas.gov/reports/documents/harvey-dc-final-06302019.pdf>.

- Coordinating with other states and/or the NAIC to provide technical support and/or assist with responding to policyholder concerns and complaints when a state insurance regulator's own operations are affected by a disaster.²³³

Regulators should remain proactive about monitoring insurers' claims adjustments and denials, particularly from smaller or regional insurers, as there have been reports that some of these insurers may have significant exposure to a specific climate-related disaster. In addition, state insurance regulators and state legislators with input into state budgets should consider that with the increased frequency and severity of climate-related disasters, regulators may in the future need additional resources to fulfill their post-disaster oversight role.

Recommendation 18: *State insurance regulators and the NAIC should continue using existing frameworks for their post-disaster response efforts, including their focus on fair and efficient resolution of claims. In addition, the NAIC and state insurance regulators should conduct more post-disasters surveys to assess the claims resolution process, particularly with regard to whether insurers are fulfilling their obligations in a fair and efficient manner.*

4. Disclosure Initiatives

Disclosures are an important way to increase transparency about insurers' business conduct by informing investors and market participants about key business information, including risk exposures and management, and allowing stakeholders to compare such information across insurers.²³⁴ Over the past several years, various regulators and organizations have sought to identify the climate-related financial risk information that might be useful for companies, including insurers, to include alongside their other required and voluntary public disclosures.²³⁵ Regulators and other organizations have stressed the importance of ensuring decision-usefulness, consistency, and comparability in disclosures, including by aligning formats, types of information disclosed, and location.²³⁶

State insurance regulators have promoted disclosure of certain climate-related information through the NAIC *Climate Risk Disclosure Survey*, which has six purposes:

1. Enhance transparency about how insurers manage climate-related risks and opportunities;

²³³ See, e.g., "State Commissioners Assist Puerto Rico Insurance Department," *Insurance Journal*, March 19, 2018, <https://www.insurancejournal.com/news/national/2018/03/19/483794.htm>.

²³⁴ See, e.g., NYSDFS, *Climate Guidance for NY Insurers*, 21; IAIS & SIF, *Climate Application Paper*, 31.

²³⁵ Disclosures required by regulators include the annual financial filings discussed in [Section II.C.1.c.i](#), while voluntary disclosures cover a different set of information.

²³⁶ See e.g., NYSDFS, *Climate Guidance for NY Insurers*, 21-22; "NAIC Climate Risk Disclosure Survey," California Department of Insurance, <http://www.insurance.ca.gov/0250-insurers/0300-insurers/0100-applications/ClimateSurvey/>; Treasury, "G7 Finance Ministers & Central Bank Governors Communiqué," news release, June 5, 2021, <https://home.treasury.gov/news/press-releases/jy0215>; FSOC, *Climate Report*, 7 ("Recommendation 3.8: Insurers—The Council supports continued efforts by FIO and insurance regulators to work together to enhance the existing climate-related disclosures for the insurance sector").

2. Identify good practices and vulnerabilities;
3. Provide a baseline supervisory tool to assess how climate-related risks may affect the insurance industry;
4. Promote insurer strategic management and encourage shared learning for continual improvement;
5. Enable better-informed collaboration and engagement on climate-related issues among regulators and interested parties; and
6. Align with international climate risk disclosure frameworks to reduce redundancy in reporting requirements.²³⁷

As of May 2023, 15 states and D.C. require insurers operating in those jurisdictions that write more than \$100 million in annual premiums to complete the survey.²³⁸

The purposes of the NAIC *Climate Risk Disclosure Survey* differ from the purpose of U.S. Securities and Exchange Commission (SEC) disclosures generally, which is to provide investors with the material information necessary for them to make informed investment decisions. The SEC proposed rule changes in March 2022 with respect to climate-related risks.²³⁹ If implemented, the proposed rules would apply to, among other registrants, over 110 public U.S. insurance companies, accounting for over half of the U.S. P&C insurance market (by direct premiums written) and 55 percent of the life insurance market (by total net assets); 66 of these public companies also participate in the NAIC *Climate Risk Disclosure Survey*.²⁴⁰

Recommendation 19: *The NAIC and state insurance regulators should support efforts to improve climate-related disclosures by the insurance industry, as analytical capabilities and best practices further develop. All state insurance regulators should adopt the NAIC Climate Risk Disclosure Survey. The NAIC should continue monitoring responses to its Climate Risk Disclosure Survey and publish an annual quantitative report summarizing the Survey results and addressing how well the Survey is fulfilling its six purposes.*

In addition to the NAIC Climate Risk Disclosure Survey, both NYSDFS and CID have provided guidance to their domestic insurers, including on disclosures of climate-related information.

²³⁷ See “NAIC Climate Risk Disclosure Survey,” California Department of Insurance.

²³⁸ The U.S. jurisdictions that required the NAIC Survey for the 2021 reporting year were California, Connecticut, D.C., Delaware, Illinois, Maine, Maryland, Massachusetts, Minnesota, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, Vermont, and Washington. Illinois Department of Insurance (IDOI), “IDOI Calls on Insurers to Disclose Climate-Related Risks,” press release, October 13, 2022, <https://idoi.illinois.gov/news/press-release.25558.html>.

²³⁹ See SEC, The Enhancement and Standardization of Climate-Related Disclosures for Investors; Proposed Rule, 87 Fed. Reg. 21,334 (April 11, 2022) (SEC Proposed Rule).

²⁴⁰ See, e.g., S&P Global data; Thomas Dawson, “Climate Change Regulatory Update for U.S. Insurers,” *National Law Review*, April 1, 2022, www.natlawreview.com/article/climate-change-regulatory-update-us-insurers; SEC Proposed Rule, 87 Fed. Reg. at 21,414. This compilation does not include public insurers listed abroad that also may have securities subject to SEC rules.

Several international organizations have also identified approaches to climate-related disclosures, with the most widely recognized being the one issued by the Task Force on Climate-related Financial Disclosures (TCFD).²⁴¹ The TCFD’s framework was published in *Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures* (TCFD Framework). (See Figure 3.)

Figure 3: Summary of Selected Disclosure Initiatives

Initiative	Description
NAIC	Adopted in 2010, and amended in 2022 to be TCFD-aligned, the NAIC Survey is a voluntary disclosure mechanism for participating states. For the 2021 reporting year, 965 companies submitted completed surveys. ²⁴²
NYSDFS	The NYSDFS issued final guidance in 2021 for New York domestic insurers detailing its expectations related to insurers’ management of climate-related risks, including public disclosures.
CID	CID finalized a bulletin in September 2022 for Connecticut domestic insurers related to insurers’ management of climate-related risks, including public disclosures.
TCFD	In 2015, the Financial Stability Board convened the TCFD to develop voluntary climate-related financial disclosures in order to support informed investing, lending, and insurance underwriting. Nearly 4,000 organizations have expressed support for the TCFD Framework and regulators in several jurisdictions announced TCFD-aligned reporting requirements. ²⁴³

Source: FIO analysis

While these initiatives are largely intended to serve similar purposes, they vary, thus reducing both comparability across companies that disclose under different frameworks and the decision-usefulness of climate-related disclosures for investors and other stakeholders.²⁴⁴ The following discussions do not cover every aspect of each initiative but consider the extent of alignment and variation of these frameworks.

General Characteristics: The four Disclosure Initiatives differ in process, what information is considered material, and the extent to which standard elements are included.

²⁴¹ The International Sustainability Standards Board (ISSB) also launched a consultation in March 2022 on climate-related disclosures. Some international insurers operating in the United States and some U.S. insurers operating abroad could be expected to report under the ISSB standards once they are finalized. International Financial Reporting Standards Foundation (IFRS), *Exposure Draft IFRS S2 Climate-related Disclosures* (March 2022), <https://www.ifrs.org/content/dam/ifrs/project/climate-related-disclosures/issb-exposure-draft-2022-2-climate-related-disclosures.pdf>.

²⁴² “NAIC Climate Risk Disclosure Survey Results – Home,” California Department of Insurance, https://interactive.web.insurance.ca.gov/apex_extprd/f?p=201:1. Responses covered U.S. companies as well as their foreign-domiciled subsidiaries and affiliates.

²⁴³ TCFD, *2022 Status Report* (October 2022), 2, 99-100, <https://assets.bbhub.io/company/sites/60/2022/10/2022-TCFD-Status-Report.pdf>.

²⁴⁴ New York and Connecticut both participate in and rely upon the NAIC *Climate Risk Disclosure Survey*; the text notes where they provide additional guidance.

Disclosure Process: The NAIC, NYSDFS, and CID specify that disclosures should be made through the NAIC *Climate Risk Disclosure Survey* website maintained by the California Department of Insurance. The NYSDFS and CID note that insurers not covered by the NAIC survey may disclose the relevant information on their website or by augmenting public general-purpose financial reports. The TCFD suggests that disclosures be made in annual filings, though many companies choose to make TCFD disclosures in standalone reports. The NAIC *Climate Risk Disclosure Survey* website allows users to search for surveys and filter responses by information, including lines of business, insurer group, and, as of the 2021 reporting year, by TCFD recommendation. However, responses are primarily qualitative—with some standard yes/no questions to aid comparability—and users cannot search specific terms, thus requiring them to download the full dataset and manually compare responses. In addition, insurers may submit a TCFD report in lieu of filling in the survey. Responses may be in the form of a .pdf, text, or a combination, and may be for individual companies or groups. Differences in reporting format make it difficult to compare responses across companies, limiting the potential usefulness of the NAIC survey results.

Materiality: The Disclosure Initiatives specify that all, or most, disclosures should be material, but the definition of materiality varies. The NAIC, NYSDFS, and CID allow respondents to use either the definition of materiality from the SEC or from the Examiners Handbook (see [Box 1](#)). However, the TCFD Framework subjects strategy and most metrics and targets to a materiality standard “consistent with how they determine materiality of other information included in their annual financial filings.”²⁴⁵ In comparison, the TCFD requests companies disclose other topics like governance and risk management independent of a materiality assessment. The different materiality definitions could result in the production of non-standardized information across companies.

Standard Elements: The Disclosure Initiatives differ in whether they include standard elements that foster comparability across companies. The NAIC survey includes standardized elements, with 22 yes or no questions that all reporting companies must answer starting in the 2022 reporting year. Other responses can be of any length or format, reducing the degree of comparability. The TCFD Framework does not include standard elements.

Governance Disclosures: All four Disclosure Initiatives call for a description of board and management oversight of climate-related risks, as well as information on which management roles are assigned that responsibility. The NAIC, NYSDFS, and CID ask companies to identify publicly stated goals and describe whether climate-related disclosure is handled at the group level, entity level, or a combination. The TCFD asks for information on the processes and frequency of board oversight and on the oversight of any climate-related targets.

Strategy Disclosures: As summarized in Figure 4, the Disclosure Initiatives vary on the type of strategy information that must be disclosed.

²⁴⁵ TCFD, *Framework*, 8.

Figure 4: Strategy Disclosure Standards

	NAIC	NYSDFS	CID	TCFD
Provides default time horizons	Yes	Yes	Yes	No
Financial impacts	No	No	No	Yes
Use of scenario analysis				
Disclosure of scenario analysis, if used	Yes	Yes	Yes	Yes
Requires quantification	No	Yes	No	No

Source: FIO analysis

Time Horizons: All Disclosure Initiatives ask companies to define relevant short-, medium-, and long-term time horizons for climate-related risks. The NAIC, NYSDFS, and CID provide default time horizons for consideration: 1 to 5 years for the short term, 5 to 10 years for the medium term, and 10 to 30 years for the long term. Such specification of default time frames could be an important driver of comparability for future disclosures.

Financial Impacts: The NAIC, NYSDFS, and CID require insurers to “[d]isclose the actual and potential impacts of climate-related risks and opportunities on [their] businesses, strategy, and financial planning” but do not specify that these disclosures should include quantified estimates of financial impacts.²⁴⁶ The TCFD encourages disclosure of quantitative financial impacts.²⁴⁷ Incorporation of quantitative elements can aid decision-usefulness and comparability.

Use and Disclosure of Scenario Analysis: All of the Disclosure Initiatives agree that, if a company has conducted climate-related scenario analysis, it should disclose information about it, but they diverge on scenario analysis expectations. More prescriptive expectations can improve the comparability of results across insurers but can increase the burden of compliance, especially for smaller firms. The NAIC, NYSDFS, and CID specify that insurers should discuss the scenarios used to analyze both their underwriting and investment risks, with the NYSDFS providing more details on risks to include and impacts to assess.

Risk Management Disclosures: All four Disclosure Initiatives include some guidance around climate-related risk identification, risk management, and integration into overall risk management. In addition, the NAIC, NYSDFS, and CID require insurers to discuss underwriting exposure to physical, transition, and litigation risks and to discuss steps taken to encourage policyholders to manage their climate-related risks. The TCFD asks insurers to describe the range of climate-related events considered, distinguish risk management processes across geographies, divisions, or business segments, and disclose engagement with companies in which the insurer invests as part of its asset owner activities.

²⁴⁶ NAIC, *Climate Risk Disclosure Survey*, 6.

²⁴⁷ TCFD, *Framework*, 18.

Metrics and Targets Disclosures: Figure 5 summarizes some of the ways in which the four Disclosure Initiatives approach disclosure of metrics and targets.

Figure 5: Metrics and Targets Disclosure Standards

	NAIC	NYSDFS	CID	TCFD
Climate-related metrics	Yes	Yes	Yes	Yes
Climate-related targets, if set	Yes	Yes	Yes	Yes
Target type (absolute or intensity based), baseline period, and interim targets	No	No	No	Yes

Source: FIO analysis

Climate-Related Metrics: All of the Disclosure Initiatives call for disclosure of climate-related metrics generally but differ on which metrics to include. For example, the NAIC, NYSDFS, and CID do not mention either internal carbon prices or executive remuneration, while the TCFD recommends their disclosure when relevant or when climate-related issues are material.²⁴⁸ The initiatives agree that Scope 1 and 2 GHG emissions should be disclosed and that disclosure of Scope 3 GHG emissions can be useful in some cases.²⁴⁹

Climate-Related Targets: All of the Disclosure Initiatives call for disclosure of climate-related targets. The NYSDFS specifies that companies must provide disclosure on any changes to their targets and the rationale for such changes. The TCFD provides additional specificity, requesting information on type of target (absolute or intensity), baseline period, and interim targets.

Based on its analysis outlined above, FIO notes that while in general these disclosure initiatives are aligned at a high level, they differ in the level of prescriptiveness and quantification—which can result in different climate-related information being submitted by companies that report under different disclosure frameworks. Though less prescriptive guidance can help insurers of different sizes and complexities adapt the survey to their needs, such initiatives may be less effective in enhancing the ability of stakeholders to compare responses across insurers and jurisdictions, thereby limiting the potential usefulness of such disclosures for risk assessment by regulators, stakeholders, and market participants. The revisions to the NAIC *Climate Risk Disclosure Survey*, as well as the inclusion of standard yes/no questions to aid comparability, are a welcome step forward. However, the NAIC survey results remain largely qualitative and are currently difficult to analyze quantitatively across respondents.

²⁴⁸ Internal carbon prices refer to the price on each ton of GHG emissions used internally by an organization. See TCFD, *Framework*, 80.

²⁴⁹ Scope 1 GHG emissions are from sources controlled or owned by an organization; Scope 2 are associated with the purchase of electricity, steam, heat, or cooling, while Scope 3 are indirect emissions associated with an organization's value chain and include investments and underwriting. See, e.g., Environmental Protection Agency (EPA), "Scope 1 and Scope 2 Inventory Guidance," www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance; EPA, "Scope 3 Inventory Guidance" <https://www.epa.gov/climateleadership/scope-3-inventory-guidance>.

Recommendation 20: *The NAIC should consider revising its Climate Risk Disclosure Survey over the next several years to incorporate more prescriptive elements, including around quantitative financial impacts, scenario analysis, and consistent metrics and targets, with the goals of enhancing: (a) transparency about how insurers manage climate-related risks and opportunities, (b) the identification of good practices and vulnerabilities, and (c) the assessment of how climate-related risks are affecting the insurance industry.*

III. ADDITIONAL FIO CLIMATE-RELATED PRIORITIES

To implement the insurance-related directives in EO 14030, FIO formulated several climate-related priorities, announced in 2021.²⁵⁰ These priorities include the assessment of climate-related issues or gaps in the supervision and regulation of insurers, which overlaps with FIO's work in furtherance of FSOC's climate recommendations and is discussed in [Section II](#). This section provides updates on additional FIO priorities, including: assessing the potential for major disruptions of private insurance coverage in U.S. markets that are particularly vulnerable to climate change impacts (including FIO's proposed data collection); conducting quantitative analysis on the transition exposure of insurers' investments; helping to review causes of, and potential solutions to, protection gaps for climate-related disasters; facilitating disaster mitigation and resilience; and increasing engagement on climate-related issues to leverage the insurance industry's ability to achieve climate-related goals.

A. Assessing Climate-Related Market Disruptions

As climate-related risks increase, insurers can be expected to adapt their underwriting in various ways, some of which could have potentially adverse implications for the availability and affordability of insurance coverage in certain insurance markets. Exposure to the potential for increased climate-related losses might cause insurers, among other things, to increase premiums, modify policy terms and conditions, or withdraw from certain regions and lines of business. Some insurers, for example, have announced that they will no longer write new homeowners insurance in California, citing increased catastrophe exposure as one reason.²⁵¹ In addition, in Louisiana, a state prone to climate-related disaster, a survey of residents found that 17 percent of homeowners insurance policyholders reported having had their policy canceled last year.²⁵² These types of actions may make it more difficult for individuals and businesses to find or afford the insurance they need, potentially reducing individual and collective resilience to climate-related shocks.²⁵³ They also could increase demand for coverage through residual or non-standard markets, potentially for higher premiums, and generally reduce financial resilience to climate-related shocks. Such insurance market disruptions also could have knock-on effects for housing markets in those areas. By one estimate from Swiss Re, climate-related risks could add

²⁵⁰ FIO described its climate-related priorities in its Climate Risk RFI, 86 Fed. Reg. 48,814 (August 31, 2021).

²⁵¹ See, e.g., Christopher Flavelle, *et al.*, "Climate Shocks Are Making Parts of America Uninsurable"; Iman Palm, "Allstate Stops Accepting New Property Insurance Applications in California," *KTLA*, June 2, 2023, <https://ktla.com/news/california/allstate-quietly-stopped-accepting-new-insurance-applications-from-california-homeowners/>; Chad Hemenway, "AIG to Move High Net Worth Homeowners to E&S."

²⁵² Reilly Center for Media & Public Affairs, *The Louisiana Survey* (2023), 4, https://www.lsu.edu/manship/research/centers-labs/rcmpa/research/la_survey_reports_pdf/2023_la_survey_full_report.pdf.

²⁵³ Policyholders may rely on insurers to help protect them from loss and recover from climate-related disasters. Insurance serves as a key risk transfer mechanism for households and businesses for climate-related risks. See, e.g., FSOC, *Climate Report*, 1-2. Insured disaster survivors recover more fully than non-insured survivors, lessening the financial burden on policyholders as well as enhancing community recovery and disaster mitigation efforts. See, e.g., U.S. Department of Housing and Urban Development, *Insurance to Mitigate the Impacts of Disasters or Fund Disaster Recovery* (2019), <https://www.huduser.gov/portal/pdredge/pdr-edge-frm-asst-sec-111819.html>.

as much as \$183 billion to property insurance premiums by 2040 (over one-fifth of overall projected cost increases), as insurers raise prices in response to climate-related developments.²⁵⁴

Executive Order 14030 instructs FIO to, among other things, “further assess, in consultation with States, the potential for major disruptions of private insurance coverage in regions of the country particularly vulnerable to climate change impacts.”²⁵⁵ FIO has begun this work to advance the development of a comprehensive, quantitative assessment of the potential major disruptions of insurance markets in regions of the country particularly vulnerable to climate change impacts. In June 2022, FIO contacted insurance regulators in the 50 states, the District of Columbia (DC), and the five U.S. territories. FIO described the data it would be seeking in a template and requested a response as to whether each regulator would be able to provide all of the data requested in the template upon request. Based on the responses received, FIO determined that the data described in the template is either not available or cannot be obtained in a timely manner from any of the states, D.C., or the five U.S. territories.

FIO issued a request for comment in October 2022 on a proposed collection of nationwide data from P&C insurers regarding current and historical homeowners insurance underwriting.²⁵⁶ The request for comment states that the “proposed data collection will assist FIO’s assessment of climate-related exposures and their effects on insurance availability for policyholders, including whether climate change may create the potential for any major disruptions of private insurance coverage in regions of the country particularly vulnerable to climate change impacts. FIO will also seek to assess any related effects on insurance affordability for policyholders.”²⁵⁷ It also will advance FIO’s work in response to the related FSOC Climate Report recommendation.²⁵⁸

FIO’s proposed data collection is described in the public notice and in the associated draft data collection and template.²⁵⁹ FIO proposes to collect data relating to insurers’ underwriting metrics and related insurance policy information. The proposed data collection focuses on homeowners policies, excluding liability exposure, and seeks ZIP Code level information from 2017-2021 for a limited set of fields, including policy information, claims, premiums, and

²⁵⁴ Swiss Re, *More Risk: The Changing Nature of P&C Insurance Opportunities to 2040* (September 2021), 1, <https://www.swissre.com/dam/jcr:19f316fe-0381-42a9-8cfd-9794f746e421/swiss-re-institute-sigma-4-2021-en.pdf>.

²⁵⁵ Exec. Order No. 14030, 86 Fed. Reg. 27,967.

²⁵⁶ FIO, Agency Information Collection Activities; Proposed Collection; Comment Request; Federal Insurance Office Climate-Related Financial Risk Data Collection, 87 Fed. Reg. 64,134 (October 21, 2022) (Proposed Data Collection FRN). The FRN links to additional instructions and an example template for insurers to complete. See FIO, *Climate-Related Financial Risk Proposed Data Collection: Instructions* (October 18, 2022), <https://home.treasury.gov/system/files/311/FIO-Proposed-Climate-Data-Call-Instructions.pdf>; FIO, *Climate-Related Financial Risk Proposed Data Collection: Template* (October 18, 2022), <https://home.treasury.gov/system/files/311/FIO-Proposed-Climate-Data-Call-Template.xlsx>.

²⁵⁷ Proposed Data Collection FRN, 87 Fed. Reg. at 64,134.

²⁵⁸ “The Council recommends that the Federal Insurance Office (FIO) should act expeditiously to analyze the potential for climate change to affect insurance and reinsurance coverage, particularly in regions of the country affected by climate change, in consultation with the States, in a manner consistent with Executive Order 14030.” Recommendation 1.7, FSOC, *Climate Report*, 6.

²⁵⁹ Proposed Data Collection FRN, 87 Fed. Reg. 64,134.

losses.²⁶⁰ FIO's analysis will not focus on measuring the impact on earnings or capital to assess profitability or solvency of individual insurance companies. FIO proposes to collect data from insurers that write more than \$100 million in annual homeowners premiums, which aligns with the premium threshold used in the NAIC *Climate Risk Disclosure Survey*. The proposed collection would gather data from additional insurers in the states potentially most vulnerable to climate change according to the National Risk Index, to ensure capturing at least 80 percent market share in each such state.²⁶¹

The comment period on FIO's proposed data collection closed in December 2022. FIO is assessing next steps.

B. Analyzing the Potential Transition Exposure of Insurers

As FSOC noted, U.S. insurers own nearly \$7 trillion in net admitted invested assets, some of which may be exposed to climate-related transition risks that could manifest through defaults or impairments.²⁶² It is therefore important for both insurers and regulators to consider the extent and potential significance of insurers' exposure to climate-related transition risks.

FIO is undertaking an analysis of such exposure, using the Paris Agreement Capital Transition Assessment (PACTA) methodology. Building upon prior work of state insurance regulators such as NYSDFS and the California Department of Insurance, FIO is conducting the first nationwide analysis of insurers' transition exposures, risks, and opportunities. This section summarizes the PACTA approach and FIO's initial observations.²⁶³

PACTA is one of several methodologies available to assist regulators and insurers in analyzing transition risks and informing disaster mitigation actions. It is an open-source tool used by many institutions, including the NYSDFS, the California Department of Insurance, the European

²⁶⁰ Several states collect, or have collected, ZIP Code level information on homeowners policies, including California, Florida, Illinois, Massachusetts, Missouri, Tennessee, and Texas. See Proposed Data Collection FRN. Additionally, Colorado issued a study assessing the stability, availability, and affordability of homeowners insurance at a ZIP Code level. Colorado Department of Regulatory Agencies – Division of Insurance, “Homeowners Insurance Availability Study Now Available (SB22-206),” news release, April 10, 2023, <https://doi.colorado.gov/announcements/homeowners-insurance-availability-study-now-available-sb22-206>.

²⁶¹ The National Risk Index is a publicly available dataset on natural hazards and social vulnerability that combines historical county level risk data across 18 hazard types, though it does not include projections of future risk due to climate change. “Learn More,” FEMA National Risk Index, <https://hazards.fema.gov/nri/learn-more>.

²⁶² FSOC, *Climate Report*, 42, 116 (noting, *inter alia*, California and New York's insurer investment exposure analyses); S&P Global data.

²⁶³ See, e.g., NYSDFS & 2 Degrees Investing Initiative, *An Analysis of New York Domestic Insurers' Exposure to Transition Risks and Opportunities from Climate Change* (June 20, 2021), https://2degrees-investing.org/wp-content/uploads/2021/06/DFS_2DII_report_NY-Insurers-Transition-Risks.pdf; California Department of Insurance & 2 Degrees Investing Initiative, *2° Scenario Analysis: Insurance Companies Operating in California* (2019), https://interactive.web.insurance.ca.gov/apex_extprd/cdi_apps/r/250/files/static/v54/2018_full_report.pdf. See also FSOC, *Climate Report*, 42 (describing state insurance regulators' use of PACTA analysis).

Insurance and Occupational Pensions Authority, and the Bank of England.²⁶⁴ The results developed by the PACTA framework are dependent upon the assumptions, methodological choices, modelling basis, and scenarios used, and the outcomes generated by the PACTA framework should be interpreted in light of such assumptions.

The PACTA analysis is premised on an assessment of seven sectors: (1) power generation, (2) oil and gas extraction, (3) coal mining, (4) automotive manufacturing, (5) steel manufacturing, (6) cement manufacturing, and (7) aviation. These seven “PACTA Scope sectors” represent those sectors mapped by the PACTA methodology, which global emissions data suggests are the largest sources of GHG emissions. For example, the power, automotive, steel, cement and aviation sectors account for approximately 70 percent of CO₂ emissions globally.²⁶⁵ One of the limitations of the PACTA methodology is that it does not include certain sectors that may be considered to have high GHG emissions, such as real estate, shipping, agriculture, or oil and gas refining and distribution. Such sectors are not included because the PACTA methodology has not yet mapped climate scenario alignment to these sectors.

FIO’s analysis started with over \$6 trillion of invested assets reported by all life and P&C insurers domiciled in the United States in their Schedule D filings as of December 31, 2021.²⁶⁶ This figure is approximately 87 percent of the total cash and invested assets reported by such insurers in the general account. The PACTA methodology currently assesses only exposures from public corporate bonds and listed equities, which reduces the above figure to \$2.9 trillion. FIO’s preliminary analysis shows that the current exposure of this segment of insurers’ investment portfolios to PACTA Scope sectors is approximately \$439 billion, or 15 percent of the \$2.9 trillion analyzed. This exposure analysis is just the first step in the PACTA approach. FIO will continue assessing the PACTA approach and, in future work, include a more detailed assessment of insurers’ portfolio alignment and potential for transition risk as part of its overall quantitative assessment of climate-related financial risk.

²⁶⁴ “PACTA / Climate Scenario Analysis Program,” 2 Degrees Investing Initiative, <https://2degrees-investing.org/resource/pacta/>. See also Rocky Mountain Institute, “2° Investing Initiative Transfers Stewardship of PACTA to RMI,” news release, June 8, 2022, <https://rmi.org/press-release/2-degree-investing-initiative-transfers-stewardship/>.

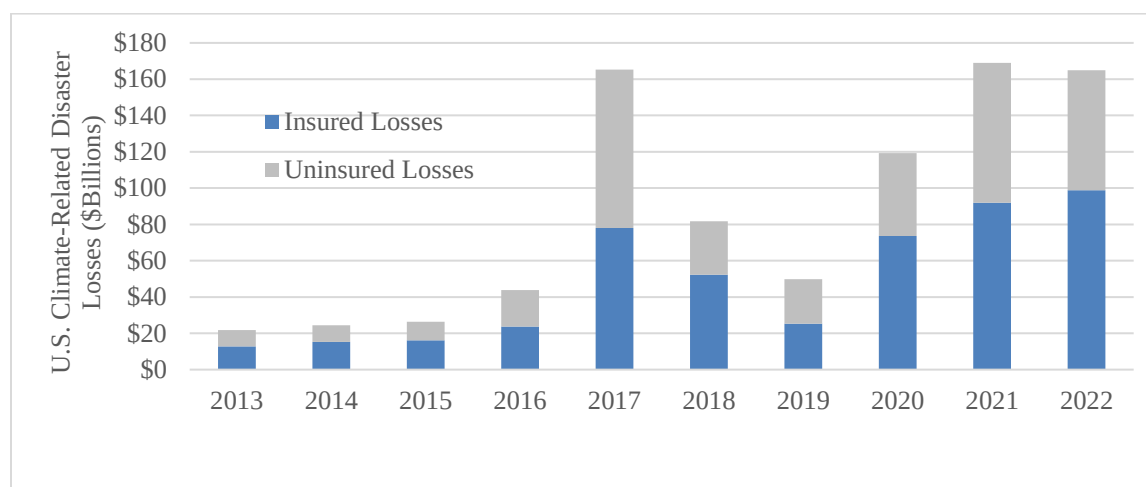
²⁶⁵ Estimate based on 2019 GHG emissions data taken from “Global Energy Review: CO₂ Emissions in 2021,” International Energy Agency (IEA), <https://www.iea.org/reports/global-energy-review-co2-emissions-in-2021-2>.

²⁶⁶ “Data Products: Schedules D, DA, and DB,” NAIC, https://content.naic.org/prod_serv_idp_sched_d.htm. The analysis generally covers all U.S. domiciled life and P&C insurers and is based on publicly traded corporate bond, unaffiliated stock, and stock fund holdings reported in insurance company Schedule D - Part 1 & 2 of the 2021 Annual Statement Filing submissions to the NAIC. This analysis does not include additional invested assets held by insurers that are reported on Schedule D (e.g., Treasury bonds, municipal bonds, structured securities, private placements, and bank loans). This analysis also excludes assets appearing on other investment schedules (Schedule A, B and BA), such as commercial mortgages, private equity, and other alternative investments. Invested assets held in separate accounts, which are maintained independently from a life insurer’s general account and not owned by the insurer, are also not included in this analysis.

C. Reviewing Protection Gaps

Insurance does not cover all economic losses from climate-related disasters. In 2022, the United States suffered over \$165 billion in total economic losses from climate-related disasters, of which insurance covered about 60 percent (i.e., approximately \$99 billion).²⁶⁷ (See Figure 6.)

Figure 6: U.S. Climate-Related Disaster Losses 2013-2022



Source: “Current Table and Archived Tables for Facts + Statistics: U.S. Catastrophes,” Insurance Information Institute, <https://www.iii.org/table-archive/21420> (citing different data sources, depending on year.) FIO excluded earthquake losses.

Insurance regulators and others around the world are looking at the potential causes of, and possible solutions for, protection gaps.²⁶⁸ A protection gap—that is, the difference between economic losses and insured losses—can indicate that policyholders and potential policyholders are facing challenges in finding insurance.²⁶⁹ The protection gap generally is larger than the *insurance* protection gap (i.e., “the difference between the amount of insurance that is economically beneficial and the amount of coverage actually purchased”).²⁷⁰ Nevertheless, as one industry source stated: “Underinsurance for natural catastrophe events has increased over time and the resulting economic and insured losses have grown on average by about 5% annually

²⁶⁷ See Aon, *Weather, Climate and Catastrophe Insights*, 26.

²⁶⁸ See, e.g., IAIS, *Newsletter* (December 2022/January 2023), 13, <https://www.iaisweb.org/uploads/2023/01/230131-IAIS-Newsletter-Dec-2022-Jan2023.pdf>.

²⁶⁹ See, e.g., Kai-Uw Schanz & Shaun Wang, ed., *The Global Insurance Protection Gap: Assessment and Recommendations* (2014), 35, https://www.genevaassociation.org/sites/default/files/research-topics-document-type/pdf_public/ga2014-the_global_insurance_protection_gap_1.pdf.

²⁷⁰ See, e.g., Kai-Uwe Schanz, *Understanding and Addressing Global Insurance Protection Gaps*, 1, https://www.genevaassociation.org/sites/default/files/research-topics-document-type/pdf_public/research_brief_-_global_insurance_protection_gaps.pdf.

since 1999.”²⁷¹ The “root causes of underinsurance” may include: difficulties estimating the replacement value of assets, underestimating the frequency and risk of climate-related catastrophe events, and, often most significantly, lack of affordability.²⁷²

With more climate-related disasters and potentially growing protection gaps in some regions, those with low and moderate incomes will feel the greatest impact in the insurance markets under the most stress, as compared to less vulnerable populations and markets. In stressed markets, insurers are more likely to increase premiums (and/or reduce coverage availability), and people with low and moderate income may have the least ability to pay the increasing cost of higher insurance premiums.

More generally, people with low income or people of color in traditionally underserved communities may be disproportionately harmed by climate-related disasters for a variety of reasons. These reasons include that they may live in higher-risk areas or in housing that is less disaster-resilient and lack necessary information or resources (including funding) to prepare for and recover from climate-related disasters.²⁷³ One way to reduce protection gaps is to increase disaster mitigation in order to reduce future damages, as discussed in the next section.

D. Facilitating Disaster Mitigation and Resilience

For many climate-related risks, as with a wide range of man-made and non-weather-related catastrophes such as earthquakes, the most effective actions may be those taken before disaster strikes. Mitigation, that is, the reduction of risk, helps “the whole community keep hazards from turning into disasters” and improves resilience for more efficient, effective, and rapid recovery from disasters.²⁷⁴ Disaster mitigation measures include, for example, construction built to meet or exceed modern building code standards, building retrofits, removing brush around structures in wildfire-prone areas, voluntary buyout programs for properties that are repeatedly flooded, and a range of flood control efforts.²⁷⁵ Studies suggest that certain types of mitigation may save up to \$11 for every \$1 invested in risk reduction.²⁷⁶

²⁷¹ Federal Advisory Committee on Insurance (FACI) Protection Gap Subcommittee, “Addressing the Protection Gap Through Public/Private Partnerships & Other Mechanisms” (presentation, FACI, Washington, DC, December 5, 2019), https://home.treasury.gov/system/files/311/December2019FACI_ProtectionGapProposedRecs.pdf.

²⁷² See, e.g., Schanz & Wang, ed., *The Global Insurance Protection Gap: Assessment and Recommendations*, 33-37.

²⁷³ See, e.g., Kousky & French, *Inclusive Insurance for Climate-Related Disasters*, 5.

²⁷⁴ Mitigation Framework Leadership Group (MitFLG), *National Mitigation Investment Strategy* (August 2019), 1, https://www.fema.gov/sites/default/files/2020-10/fema_national-mitigation-investment-strategy.pdf.

²⁷⁵ Among other federal government mitigation efforts, the National Initiative to Advance Building Codes is a whole-of-government approach to support community resilience to climate change through the adoption of modern building codes. See, e.g., White House, “Fact Sheet: Biden-Harris Administration Launches Initiative to Modernize Building Codes, Improve Climate Resilience, and Reduce Energy Costs,” news release, June 1, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/01/fact-sheet-biden-harris-administration-launches-initiative-to-modernize-building-codes-improve-climate-resilience-and-reduce-energy-costs/>.

²⁷⁶ See, e.g., National Institute of Building Sciences, *Natural Hazard Mitigation Saves: 2019 Report* (2019), 1, https://www.nibs.org/files/pdfs/NIBS_MMC_MitigationSaves_2019.pdf.

Disaster mitigation and resilience efforts can reduce risks to residents and businesses and improve the ability of insurers to manage their financial exposure to increasingly frequent and severe climate-related events. Due to its significant benefits, disaster mitigation is supported by state, industry, and federal efforts, as described below. FIO will continue to emphasize the importance of both insurance and of disaster mitigation.²⁷⁷

State insurance regulators have collectively acknowledged the value of disaster mitigation. The goal of the NAIC's Climate and Resiliency Task Force, for example, includes to "[i]dentify sustainability, resilience and mitigation issues and solutions," including through its Pre-Disaster Mitigation Workstream.²⁷⁸ Among other efforts, the NAIC has supported mitigation efforts through workshops, research on funding resources, and publication of mitigation measures.²⁷⁹

Significantly, several states have created incentive programs for property owners that have undertaken disaster mitigation measures. For example, in response to the 1992 devastation of Hurricane Andrew on south Florida and its insurance market (including the failure of 11 insurers), Florida's Division of Emergency Management created the Hurricane Loss Mitigation Program.²⁸⁰ This program, with an annual budget of \$7 million, strengthens property resiliency by making retrofit grants to owners of residential, commercial, and mobile home properties to increase the ability of these structures to withstand hurricane-force winds and flooding.²⁸¹ Similarly, in June 2021, Louisiana enacted a law providing for discounts and insurance rate reductions for residential and commercial buildings built or retrofitted to reduce their vulnerability to windstorm events.²⁸²

Another example is that of the Massachusetts Division of Insurance, which has encouraged insurers to reduce wind deductibles for policyholders who install wind-resilient features on their property.²⁸³ Similarly, the California Department of Insurance has adopted regulations that require insurers to factor policyholders' wildfire safety actions into pricing of residential and

²⁷⁷ See, e.g., FIO, *2021 Annual Report*, 69.

²⁷⁸ "Climate and Resiliency (EX) Task Force," NAIC, https://content.naic.org/cmte_ex_climate_resiliency_tf.htm.

²⁷⁹ See, e.g., NAIC, *Adaptable to Emerging Risks: The State-Based Insurance Regulatory System is Focused on Climate-Related Risk and Resiliency* (2021), 8, https://content.naic.org/sites/default/files/climate-resiliency-resource-report-adaptable-emerging-climate-related-risk-resiliency_2021.pdf; "Climate Risk and Resiliency Resource Center," NAIC, <https://content.naic.org/climate-resiliency-resource.htm>.

²⁸⁰ "Hurricane Andrew 25 Years Later: As Memories Fade, Florida Weakens Building Codes," *USA Today*, August 23, 2017, <https://www.news-press.com/story/news/2017/08/23/hurricane-andrew-25-years-later-memories-fade-florida-weakens-building-codes/593029001>.

²⁸¹ "Hurricane Loss Mitigation Program," Florida Division of Emergency Management, <https://www.floridadisaster.org/dem/mitigation/hurricane-loss-mitigation-program>.

²⁸² Louisiana H.B. 451 (enacted June 1, 2021).

²⁸³ Massachusetts Division of Insurance, *Annual Home Insurance Report for Calendar Year 2020* (2022), 10, <https://www.mass.gov/doc/the-2020-massachusetts-market-for-home-insurance/download>.

commercial insurance coverage.²⁸⁴ Other states that encourage or require insurers to offer insurance-related incentives to property owners that have taken steps to mitigate storm loss include: Alabama, Connecticut, Florida, Georgia, Maryland, Mississippi, New Jersey, New York, North Carolina, Oklahoma, Rhode Island, South Carolina, and Texas.²⁸⁵

Insurance stakeholders generally support disaster mitigation and resilience measures.²⁸⁶ One consumer advocacy group suggested that there should be a coordinated “national effort to develop and implement mitigation and resilience standards and strategies to reduce exposure to climate change-driven risk including how insurance companies might contribute to such mitigation as part of the insurance package.”²⁸⁷ Similarly—and in line with FIO’s ongoing work with the Mitigation Framework Leadership Group (MitFLG)—an insurer “encourage[d] FIO to coordinate with federal agencies and to work expeditiously to identify additional government funding sources that could be used for mitigation for communities, consumers, and businesses.”²⁸⁸ Some commenters also expressed support for enhanced building codes and/or campaigns to spread information about property hardening.²⁸⁹

The insurance industry has undertaken various disaster mitigation efforts, including those mentioned in responses to the FIO Request for Information on the Insurance Sector and Climate-Related Financial Risks issued in August 2021 (Climate Risk RFI).²⁹⁰ Some commenters highlighted the work of the insurance industry-sponsored Insurance Institute for Business & Home Safety, which is currently advancing work on Wildfire Prepared Home mitigation standards.²⁹¹

²⁸⁴ California Department of Insurance, “Commissioner Lara Enforces Nation’s first Wildfire Safety Regulation to Help Drive Down Cost of Insurance,” news release, October 17, 2022, <http://www.insurance.ca.gov/0400-news/0100-press-releases/2022/release076-2022.cfm>.

²⁸⁵ See, e.g., “List of Mitigation Insurance Discounts and Tax Savings,” Smart Home America, <https://www.smarthomeamerica.org/fortified/discounts-and-incentives/list-of-fortified-discounts-and-incentives>. See also Kousky & French, *Inclusive Insurance for Climate-Related Disasters*, 45.

²⁸⁶ Climate Risk RFI, 86 Fed. Reg. 48,814. For all responses, see “Federal Insurance Office Request for Information on the Insurance Sector and Climate-Related Financial Risks,” <https://www.regulations.gov/document/TREAS-DO-2021-0014-0001/comment>.

²⁸⁷ Comment from Consumer Federation of America, 3 (November 15, 2021), <https://www.regulations.gov/comment/TREAS-DO-2021-0014-0033>.

²⁸⁸ Comment from Liberty Mutual Insurance Company, 3 (November 15, 2021), <https://www.regulations.gov/comment/TREAS-DO-2021-0014-0029>.

²⁸⁹ See, e.g., Comment from Swiss Re, 5 (November 15, 2021), <https://www.regulations.gov/comment/TREAS-DO-2021-0014-0061> (Swiss Re Comment); Comment from American Property Casualty Insurance Association, 1 (November 15, 2021), <https://www.regulations.gov/comment/TREAS-DO-2021-0014-0034>.

²⁹⁰ See also American Property Casualty Insurance Association, “What is Driving the Affordability and Accessibility Challenges for Homeowners Insurance in High-Risk Western States,” news release, November 2, 2022, <https://www.apci.org/media/news-releases/release/73621/>.

²⁹¹ See, e.g., Swiss Re Comment, 5. See also Insurance Institute for Business & Home Safety, “IBHS Advances Work on Wildfire Prepared Home Mitigation Standard,” news release, December 15, 2021, <https://ibhs.org/ibhs-news-releases/ibhs-advances-work-on-wildfire-prepared-home-mitigation-standard/>.

E. Increasing Engagement

FIO continues to engage domestically and internationally on climate-related issues. For example, the Climate Risk RFI received significant input from numerous stakeholders, with over 50 unique responses from over 5,300 signatories and including over 95 organizations.²⁹² These responses have helped inform this Report. In addition, FIO is engaging with its Federal Advisory Committee on Insurance on issues relating to climate-related risk, including the establishment of a climate-focused subcommittee to advise on FIO's work. As noted above, FIO also contributes to FSOC's work on climate-related risks.

On the international side, FIO is a member of the NGFS and SIF.²⁹³ FIO contributed to the SIF's 2021 Scoping Study on Nature-related Risks in the Global Insurance Sector.²⁹⁴ At the NGFS, FIO is collaborating on issues such as macroprudential analyses, supervision, scenario analysis, and capacity building. FIO also leads the Climate Risk Financial Oversight Workstream for the bilateral EU-US Insurance Dialogue Project.²⁹⁵ In addition, FIO is part of the U.S. delegation to the Insurance and Private Pensions Committee (IPPC) of the Organisation for Economic Co-Operation and Development, together with the U.S. Departments of Commerce and Labor and the NAIC.²⁹⁶ The IPPC published a recommendation on disaster risk financing strategies and remains engaged on issues related to disasters and climate risk.²⁹⁷

By statute, FIO represents the United States at the IAIS and is a permanent member of its Executive Committee. The IAIS is the international standard-setting body responsible for developing and supporting the implementation of principles, standards, and other material for the supervision of the insurance industry. The Federal Reserve, the NAIC, and state insurance regulators are also IAIS members. The overarching framework for the IAIS's voluntary

²⁹² Responses are available at "Federal Insurance Office Request for Information on the Insurance Sector and Climate-Related Financial Risks," [regulations.gov](https://www.fio.dhs.gov/regulations).

²⁹³ NGFS is a group of member authorities that, on a voluntary basis, share best practices, contribute to the development of environment and climate-related risk management practices in the financial sector, and help mobilize mainstream finance to support the transition toward a sustainable economy. "Membership," NGFS, <https://www.ngfs.net/en/about-us/membership>.

Launched in December 2016, SIF is an international network of insurance regulators committed to working together on sustainability challenges facing the insurance industry. "Members," SIF, <https://www.sustainableinsuranceforum.org/members/>.

²⁹⁴ SIF, *Nature-Related Risks in the Global Insurance Sector* (November 2, 2021), <https://www.sustainableinsuranceforum.org/publication/sif-scoping-study-nature-related-risks-in-the-global-insurance-sector/>.

²⁹⁵ See, e.g., "EU-U.S. Insurance Project," Treasury, <https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/federal-insurance-office/eu-us-insurance-project>.

²⁹⁶ The OECD provides a "forum and knowledge hub for data and analysis, exchange of experiences, best-practice sharing, and advice on public policies and international standard-setting." "Who We Are," OECD, <https://www.oecd.org/about/>.

²⁹⁷ See, e.g., OECD, *Recommendation of the Council on Disaster Risk Financing Strategies* (adopted February 2, 2017), <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0436>.

standards for insurance supervision are the Insurance Core Principles (ICPs).²⁹⁸ The IAIS has concluded that the ICPs are “sufficiently broad to cover climate risks” but plans to make a “limited number of changes to ICP guidance to make it even more explicit that insurance supervisors should require insurers to incorporate climate-related risks into their day-to-day operations.”²⁹⁹ In line with its 2020–2024 Strategic Plan, the IAIS increased its focus on climate-related risks in 2021 by publishing, jointly with SIF, guidance on climate-related risks and by creating a Climate Risk Steering Group to coordinate the IAIS’s work on climate-related risk.³⁰⁰ In 2021, the IAIS also released a global, quantitative study on the impact of climate change on insurance industry investments.³⁰¹ In 2023, the IAIS published for public comment draft climate risk supervisory guidance.³⁰²

Several international regulators have released supervisory expectations that may be useful reference points to state insurance regulators as they continue developing climate-related guidance for U.S. insurers (see [Box 3](#)).

Box 3: International Examples of Climate-Related Supervision

As state insurance regulators continue to develop climate-related supervisory guidance and expectations for insurers, they may find it useful to refer to examples from other jurisdictions.

France: In July 2015, France introduced the first mandatory climate-related disclosure requirements for institutional investors, including insurers in their role as asset owners.³⁰³ The French prudential regulator has released multiple reports detailing the extent of compliance and highlighting actions taken in response to the law.³⁰⁴

²⁹⁸ “Insurance Core Principles and ComFrame,” IAIS, <https://www.iaisweb.org/activities-topics/standard-setting/icps-and-comframe/>. See also IAIS, *Insurance Core Principles and Common Framework for the Supervision of International Active Insurance Groups*, updated November 2019, 50, <https://www.iaisweb.org/uploads/2022/01/191115-IAIS-ICPs-and-ComFrame-adopted-in-November-2019.pdf>. Any standards developed in the IAIS are not binding on the United States or any other jurisdiction: they are effective only to the extent that the jurisdiction has separately implemented the standards in accordance with its domestic law.

²⁹⁹ “Climate Risk,” IAIS, <https://www.iaisweb.org/activities-topics/climate-risk/>.

³⁰⁰ IAIS, *The IAIS Strategic Plan 2020-2024* (June 2019), <https://iaisweb.org/uploads/2022/01/190613-2020-2024-Strategic-Plan.pdf>; IAIS & SIF, *Climate Application Paper*; IAIS, *Year in Review 2021* (2022), 28, <https://www.iaisweb.org/uploads/2022/05/IAIS-Year-in-Review-2021-1.pdf>.

³⁰¹ IAIS, *Global Insurance Market Report: The Impact of Climate Change on the Financial Stability of the Insurance Sector* (September 2021), 5, <https://www.iaisweb.org/uploads/2022/01/210930-GIMAR-special-topic-edition-climate-change.pdf>.

³⁰² IAIS, *Public Consultation on Climate Risk Supervisory Guidance – Part One: Consultation Document* (March 16, 2023), <https://www.iaisweb.org/2023/03/public-consultation-on-climate-risk-supervisory-guidance-part-one/>.

³⁰³ See, e.g., UN Principles of Responsible Investment, *French Energy Transition Law: Global Investor Briefing* (2016), 7–8, <https://www.unepfi.org/fileadmin/documents/PRI-FrenchEnergyTransitionLaw.pdf>.

³⁰⁴ See, e.g., Autorité de Contrôle Prudentiel et de Résolution (ACPR), *French Insurances Facing Climate Change Risk* (April 2019), https://acpr.banque-france.fr/sites/default/files/medias/documents/as_102_climate_change_insurers_en.pdf; ACPR, *Climate Change*

UK: In April 2019, the Bank of England issued a statement outlining its expectations that insurers and banks consider climate-related risks in their governance arrangements, incorporate such risks in their risk management practices, use scenario analysis to inform strategy setting and risk assessment processes, and develop disclosure practices. Starting in 2022, it began to actively supervise firms in line with these expectations.³⁰⁵

EU: In April 2021, the EU financial regulatory institution supervising insurance and occupational pensions published supervisory expectations (and in August 2022 finalized guidance) on the integration of long-term, forward-looking scenario analysis into ORSAs to identify exposure to material climate-related risks.³⁰⁶

Canada: In May 2022, Canada's financial institutions regulator released draft guidelines on climate-related risk management covering expectations around governance, risk management, and public disclosures, including climate scenario analysis, stress testing, and capital and liquidity adequacy.³⁰⁷

Singapore: Singapore's financial regulator issued guidelines in December 2020, which set out environmental risk-related expectations for insurers and other supervised financial institutions with respect to governance and strategy, risk management, and disclosures.³⁰⁸ The guidelines for insurers also cover underwriting and investment. In May 2022, the Singapore regulator issued papers detailing emerging and good practices by insurers for environmental risk management as well as areas for further work.³⁰⁹

Risk Governance (February 2, 2022), https://acpr.banque-france.fr/sites/default/files/medias/documents/20220222_climate_change_risk_governance_rapport_en.pdf.

³⁰⁵ See Bank of England (BOE), *Enhancing Banks' and Insurers' Approaches to Managing the Financial Risks from Climate Change* (April 15, 2019), <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/supervisory-statement/2019/ss319.pdf?la=en&hash=7BA9824BAC5FB313F42C00889D4E3A6104881C44>; "Climate Change," BOE, last updated April 13, 2023, <https://www.bankofengland.co.uk/climate-change>.

³⁰⁶ EIOPA, *Opinion on the Supervision of the Use of Climate Change Risk Scenarios in ORSA* (April 19, 2021), <https://www.eiopa.europa.eu/system/files/2021-04/opinion-on-climate-change-risk-scenarios-in-orsa.pdf>; EIOPA, *Application Guidance on Running Climate Change Materiality Assessment and Using Climate Change Scenarios in the ORSA* (August 2, 2022), www.eiopa.europa.eu/system/files/2022-08/application_guidance_on_running_climate_change_materiality_assessment_and_using_climate_change_scenarios_in_the_orsa_0.pdf. See also EIOPA, *Revised Single Programming Document 2022-2024* (January 31, 2023), 9, www.eiopa.europa.eu/system/files/2022-01/eiopa-bos-21-419-single-programming-document-spd-2022-2024.pdf.

³⁰⁷ Office of the Superintendent of Financial Institutions, *Climate Risk Management* (May 2022), <https://www.osfi-bsif.gc.ca/Eng/fi-if/rg-ro/gdn-ort/gl-ld/Pages/b15-dft.aspx>.

³⁰⁸ Monetary Authority of Singapore, *Guidelines on Environmental Risk Management for Insurers* (December 8, 2020), <https://www.mas.gov.sg/regulation/guidelines/guidelines-on-environmental-risk-management-for-insurers>.

³⁰⁹ Monetary Authority of Singapore, *Information Paper on Environmental Risk Management (Insurers)* (May 2022), <https://www.mas.gov.sg/-/media/MAS-Media-Library/publications/monographs-or-information-paper/BD/2022/Information-Paper-on-Environmental-Risk-Management-Insurers.pdf>.

Bermuda: The Bermuda Monetary Authority (BMA) issued guidance on the management of climate-related risks for commercial insurers and insurance groups in March 2023.³¹⁰ BMA expects commercial insurers to incorporate climate-related risks into their risk management framework and strategy.

³¹⁰ Bermuda Monetary Authority, Management of Climate Change Risks for Commercial Insurers (March 2023), <https://www.bma.bm/viewPDF/documents/2023-03-09-17-03-42-Guidance-Note---Insurance---Management-of-Climate-Change-Risks-for-Commercial-Insurers.pdf>.

IV. CONCLUSIONS AND NEXT STEPS

Climate change presents new and increased risks for both P&C and life insurers. Addressing these risks is necessary to enable insurers to continue serving their critical role in the economy as investors, risk managers, and as a key risk transfer resource that helps protect policyholders from loss and assists in enabling recovery from climate-related disasters. This Report shows that the NAIC and some state insurance regulators have begun to adapt their existing tools to respond to climate-related risks. FIO commends these initial efforts and encourages additional work in this area, particularly by states that are less advanced in their efforts to incorporate climate-related risks into their individual insurance regulatory frameworks.

As FIO conducts its climate-related work, it remains focused on its statutory roles of identifying regulatory gaps that could contribute to a systemic crisis in the insurance industry, consulting with state insurance regulators regarding insurance matters of national importance, advising on major international insurance policy issues, and to monitoring the extent to which traditionally underserved communities and consumers, minorities, and low- and moderate income persons have access to affordable insurance products. FIO will continue analyzing and addressing how the insurance industry may be impacted by, and can help to mitigate, climate-related risks.

FIO plans to advance progress on the recommendations in this Report, including by:

- Monitoring the climate-related work of state regulators and how their work addresses the issues and gaps identified in this Report.
- Issuing periodic updates detailing the progress made by state insurance regulators and the NAIC in these areas.
- Engaging with the NAIC, state insurance regulators, and other domestic and international stakeholders on these issues.